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13. ABSTRACT *(Maximum 200 Words)*

The purpose of this report is to report the results of a study to investigate and address enlisted women's needs for basic gynecological and reproductive health education in order to enhance military readiness and general well-being. In the first phase of the study, a needs assessment was conducted in which the methods included: 1) a mail survey of knowledge, attitudes, and practices (KAP) from a random sample of Army and Navy clinicians and chiefs of military medical departments; 2) focus groups with enlisted Army and Navy women and with their health care providers; and 3) a secondary analysis of a national survey of military personnel health related behaviors. Based on the results of these needs assessment data, we have determined implications for enlisted women's reproductive health. These data were used in the fourth year to design and begin development of a culturally sensitive, multimedia CD-ROM and accompanying materials. This intervention was tested in military medical clinics in a fifth project year to determine its ability to change knowledge, attitude, and behavioral intent regarding female reproductive health.

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I. Introduction

The project "CD-ROM Technology to Increase Appropriate Self-Care and Preventive Behaviors Among Army and Navy Women" was initiated as a way to study and address the reproductive health education needs of enlisted Army and Navy women. Not only is the ability of each female soldier to protect and control her reproductive health essential to military readiness, it is important for these women's quality of life. The purpose of the study was to investigate enlisted women's needs for basic gynecological and reproductive health education, from the perspective of military health care providers and enlisted women themselves. Based on the results of the needs assessment, a culturally sensitive, multimedia CD-ROM and accompanying materials were developed. This intervention was then tested in military medical clinics.

This report describes the project, which began in October 1999. The project had three distinct phases: a needs assessment phase, a design phase, and an efficacy study phase. This report will summarize the entire project, including the first four years of preliminary work and the current project year in which we began testing the intervention with the target population.

II. Body: Research Accomplishment

The experimental methods and procedures reported here represent a description of the three phases of the research project: needs assessment, development, and efficacy test. The technical objectives were as follows:

1) To assess the most pressing reproductive and gynecological self-care education needs of enlisted women on base and in the field;
2) To assess the range of current health education efforts for enlisted women;
3) To enhance enlisted women's self-care and care-seeking knowledge and practices through development and implementation of a culturally sensitive, multimedia educational intervention and accompanying field pocket guide at medical clinics.

The original scope of work included the following 16 tasks:

1. Convene advisory panel
2. Develop needs assessment surveys, provider surveys
3. Conduct needs assessment
4. Conduct focus groups
5. Analyze needs and develop curriculum and multimedia design document
6. Develop multimedia CD-ROM
7. Submit first annual project report
8. Develop accompanying materials and field pocket guide
9. Conduct in-house and expert review of multimedia program
10. Conduct target audience review of multimedia program
11. Set up for intervention
12. Submit second annual project report
13. Begin intervention: rolling recruitment of intervention participants and collection of baseline knowledge, attitudes, and practices (KAP) data

14. Conclude intervention, collect post-intervention KAP data
15. Submit third annual project report
16. Analyze data and assess achievement of technical and behavioral goals
17. Complete final report

In the next section, we describe the experimental methods by task, including a description of problems in accomplishing the tasks. This section is followed by a description of the research findings.

A. Experimental Methods and Procedures

1. Needs Assessment

We conducted an extensive literature review and convened an expert panel to give us a thorough understanding of the issues related to the reproductive health of military females. Needs assessment activities also involved 3 data gathering activities involving data from human subjects:

1) A secondary analysis of the 1995 Department of Defense Survey of Health Related Behaviors Among Military Personnel to determine to the effect of health-related attitudes and behaviors on enlisted women's history of sexually transmitted diseases (STDs), Pap test screening, and pregnancy;
2) Needs assessment mail surveys conducted with nationally representative samples of military health care providers (N=110), and chairpersons of military base OB/GYN services (N=105); and
3) Needs assessment focus groups with enlisted women in the Army and Navy (N=40) and military health care providers (N=40).

The methods used in each of these needs assessment activities are described further below. These correspond to the first 4 tasks in the task list. Details on problems in accomplishing these tasks follow the task summaries.

Task 1: Convene Advisory Panel

An advisory panel meeting was held on December 2 and 3, 1996. The purpose of the advisory panel meeting was to develop goals and objectives and to gather information to help in the development of needs assessment instruments and strategy. The attendees developed a vision for the project and specified health, behavior, and learning objectives. The meeting ended with a discussion of issues related to development of the needs assessment surveys.

Research project staff attended the meeting: Dr. Robert Gold (initial Civilian Principal Investigator); Nancy Atkinson, (Project Director and eventual Civilian PI); and Susan Allison (Research Associate). The advisory panel consisted of health care providers and psychologists with experience serving military populations: Dr. Evelyn Lewis (Military Principal Investigator), Linda Lawrence (expert in operational military medicine and emergency medicine), Dr. Mary Maryland (expert in military nursing and cultural diversity),

Dr. Gloria Richard-Davis (STD education and gynecological care specialist), and Dr. Tracy Sbrocco (expert in psychological issues, decision making, and sexual dysfunction).

Task 2: Develop Needs Assessment Surveys and Provider Surveys

The original scope of work required the development of questionnaires in order to conduct surveys with enlisted women concerning their reproductive knowledge, attitudes and behaviors. We also planned to develop surveys for military clinicians and chiefs of service. We used the same development process for both groups of surveys.

- Draft surveys
- Present surveys to expert panel, gather and incorporate their input
- Gather input from other experts
- Final review by expert panel
- Pilot test instruments with enlisted women, clinicians, and chiefs of service
- Revise surveys
- Submit instruments and survey plans to Internal Review Board at Macro International
- Submit instruments and survey plans to Department of Defense (DoD) Office of Health Affairs for sponsorship.
- Submit instruments and survey plans to DoD Manpower Data Center

The surveys are attached as appendices. The women's survey is Appendix A, the military clinician survey is in Appendix B, and the chief of service survey is in Appendix C.

Task 3: Conduct Needs Assessment

Literature Review. The original proposal was written in 1995. Given that other Defense Women's Health Initiative projects and other program efforts have taken place since then, we revised the literature review written in the proposal in Year 2 and again in Year 5 of the project. Issues about reproductive health and health education were expanded to help guide our efforts while the needs assessment studies have been going through approval procedures.

A review of publicly available military and civilian literature was conducted through the following sources:

- Defense Technical Information Center
- Alan Guttmacher Institute
- Planned Parenthood of the U.S.A.
- Naval Health Research Center, San Diego, CA.
- Medline
- DefenseLink – Government Information Locator Service
- Office of the Under Secretary of Defense for Personnel and Readiness
- U.S. DoD Office of the Assistant Secretary of Defense for Health Affairs

- National Women's Health Information Center
- Defense Women's Health Information Center
- American Medical Association
- Centers for Disease Control and Prevention
- Institute of Medicine
- Specific journals, such as Military Medicine, Women's Health Issues
- Research Triangle Institute
- HealthWeb
- Newsletters, such as Women's Health Weekly
- U.S. Army Medical Research & Materiel Command
- DoD Women's Health Research Program
- U.S. Army Research Institute of Environmental Medicine
- Defense Manpower Data Center
- U.S. Army Center for Health Promotion & Preventive Medicine
- Navy Bureau of Medicine and Surgery

Enlisted Women's Survey/Secondary Analysis. Following the instrument development activities, DoD Health Affairs determined that the enlisted woman's survey could not be fielded because it would be redundant to a national survey conducted on the health-related behaviors of active duty personnel. Therefore, we conducted a secondary analysis of the 1995 survey to determine risk behaviors among enlisted women.

We prepared a plan for conducting a secondary analysis of the 1995 Department of Defense Survey of Health Related Behaviors Among Military Personnel, focusing on questions related to sexual risk behavior, alcohol consumption, stress factors, military health education, and other factors related to reproductive health. In general, these factors were examined as to their effect on enlisted women's history of sexually transmitted diseases (STDs), Pap test screening, and pregnancy.

- The analysis plan began with describing the sample of enlisted women using univariate analyses of individual items (means, standard deviations).
- We also conducted bivariate analyses (crosstabs, correlations, t-tests) to examine relationships among variables and look for significant difference between enlisted women and female officers and between enlisted women in the Army and the Navy.
- To assess the most pressing reproductive and gynecological self-care education needs of enlisted women on base and in the field, the secondary analysis examined which factors were most related to reproductive health problems using a discriminant analysis strategy with each of the dependent variables (STD history, Pap test screening, and prior pregnancy).
- Finally, to assess the range of current health education efforts for enlisted women, we examined items on attitudes toward military health education programs (i.e., alcohol education program, drug education, and STD education) to determine if they were perceived to be effective by enlisted Army and Navy women. Differences by service, pay grade, and region were examined as well.

Military Clinician Survey. A random sample of 260 health care providers was drawn from lists of military health care providers (physicians and nurse practitioners) in obstetrics and gynecology and family practice in the Army and Navy. The Clinician Survey population was stateside, active-duty military clinicians who provide reproductive health care to enlisted Army and Navy women, including physicians (in obstetrics/gynecology and family practice), and nurse practitioners (in obstetrics/gynecology and family practice).

The surveys were sent to individuals drawn in the samples between January and April 1999. The surveys were distributed and collected via U.S. mail. Each respondent who chose to respond enclosed his or her survey in a personal, self-addressed, pre-stamped envelope. Surveys were marked with a unique identification number so that an individual's name and address would be removed from the sample upon receipt of his or her survey. If no response was received, a second survey was mailed. If there was still no response, a third survey was sent. After three rounds of mailings, we received 110 surveys from clinicians (response rate = 42.3%).

The data from returned surveys were entered into two SPSS spreadsheets. A third SPSS spreadsheet was created for analysis with the items that were same on the two surveys. The findings focus on the variables that were similar across surveys with a few additional analyses from the clinician's survey. Frequencies, crosstabs, means, and standard deviations were calculated to determine relevant percentages reporting and central tendency. As appropriate, chi-squares, t-tests, and analysis of variance were conducted to examine significance. Differences in responses between clinicians and chiefs of service were examined as well as differences between respondents in the different services.

Chief of Service Survey. A random sample of 160 chiefs of service was drawn from lists in the following medical services: obstetrics and gynecology departments, family practice departments, branch medical clinics, and troop medical clinics. Chiefs of Service Survey was directed toward those who direct the operation of stateside military medical departments or clinics that provide reproductive health care to enlisted Army and Navy women. The departments included obstetrics and gynecology (OB/GYN), family practice, sick call, troop medical clinic (TMC), or branch medical clinic (BMC).

Data collections methods were the same as those used in the clinician survey. After three rounds of mailings, we received 105 surveys from chiefs of service (response rate = 65.6%). As described above, we compared the findings of this survey with those from the clinician survey.

Task 4: Conduct Focus Groups

Our initial scope of work included 4 focus groups with enlisted women and 4 focus groups with their military health care providers (physicians only). We were advised to conduct the secondary analysis of an existing dataset rather than conduct an original survey of enlisted women, and our advisory panel recommended including input from nurse practitioners and

physician assistants who provide much of the direct health care for enlisted women. Therefore, we modified our scope of work to include more focus groups with women and a broader range of military clinicians to ensure that attitudes and beliefs related to reproductive health behavior were examined (a total of 16 groups, including 8 groups with enlisted women, 4 groups with physicians, and 4 groups with nurse practitioners and physician assistants).

The focus groups were conducted at 2 Army installations (Fort Bragg and Fort Lewis) and 2 Navy installations (Naval Station San Diego, Naval Station Norfolk). The groups were approximately 90-minutes long with approximately 6 to 10 people each. We worked with a co-investigator at each installation to recruit focus group participants.

A trained focus group moderator led the focus groups, which covered a range of issues. We developed the focus group guides based on the goals and objectives of the project, expert panel review, and revision. The guides were written so that no identifying information would be taken from participants, and participants were not asked about their own behavior. The guides were submitted to IRB review for human subject concerns at each of the installations.

The focus group moderator guide for enlisted women is provided in Appendix D. The clinician focus group moderator guide is in Appendix E.

Problems in Accomplishing the Needs Assessment Tasks

Absence of single office clearance for multi-service research projects. In any setting, whenever more than one voice provides guidance, there is the potential for inconsistent, conflicting, and incomplete information. In our first year, we faced all three of these challenges. We met with representatives of the Command and the Human Use Review and Regulatory Affairs Division to develop a strategy should similar problems occur as the research project progressed.

Unrealistic needs assessment plan. Our inexperience with military research allowed us to propose a schedule that was not likely to be satisfied. Even if the surveys had been developed and approved on schedule, data collection and analysis was unlikely to be completed within the first six months of the project as proposed. We worked with the Command to establish more reasonable milestones as the project progressed.

Clearance and approval procedures continued to impact the timeline into Year 3 of the project. The IRB process at Navy installations proved to be more involved than at Army installations. In addition, access to female sailors and Navy clinicians appeared to be more difficult for our Navy contact persons to obtain. As a result, the focus groups could not proceed in a timely manner. In addition, the opening of a new Navy hospital in the Portsmouth/Norfolk area further delayed our efforts.

Lack of current and/or centralized lists. Another barrier to completing the needs assessment phase was the development of mailing lists for the clinic survey and chiefs of

service survey. No central list of troop medical clinics (TMCs) or branch medical clinics (BMCs) could be located through our contacts in the Army Surgeon General's office and the Navy Surgeon General's office. Therefore, we compiled a list through research of each installation and its respective medical command from which the random sample of chiefs was drawn. In the clinician survey, we experienced a low response rate partly due to changes in duty station among the respondents.

Staff turnover. This issue was alluded to in the last item, in that changes in duty station affected response rate in the clinician survey. In addition, the second year of the project was spent in gaining human subjects approval and approval from the Defense Manpower Data Center (DMDC) to field the cross service surveys. Initially, fielding the needs assessment surveys was delayed because of staff turnover at DoD Health Affairs. Our initial contact person was of the opinion that the surveys did not require DMDC review. Our new contact person clarified that a DMDC review was necessary and did all she could to streamline the review process, which took approximately 6 months.

2. Intervention Development

As a result of the needs assessment activities, we had an understanding of the form and function of the multimedia CD-ROM intervention. The second phase of the research project focused on development and refinement of the materials based on in house, expert, and target audience review.

The methods used in each of these intervention development activities are described further below. These correspond to Tasks 6, 8, 9, and 10 in the task list. Details on problems in accomplishing these tasks follow at the end of this section.

Task 5: Analyze Needs and Develop Curriculum and Multimedia Design Document

Data collected during the needs assessment process were analyzed and synthesized into a design document that outlined the specific content and features to be included in the multimedia program. The design document was created by a design team that included: (1) an expert in health communications technology (R. Gold); (2) an expert in instructional design and women's health (N. Atkinson); (3) expert in military women's issues (E. Lewis); (4) a graphic artist; (5) a video producer with experience in military training and women's health projects (D. Hopwood); and (6) a multimedia programmer with expertise in instructional software. A faculty research assistant (J. Silsby) and 5 graduate research assistants (A. Chokshi, L.S. McCall, K. Odam, A. Kalyanasundarum, and H. Kwon) participated in the development process as well.

The process of developing the design document involved a series of meetings of several configurations of the above design team, with Dr. Atkinson taking the lead role. In addition, Dr. Ann Taubenheim provided substantial instructional design support to Dr. Atkinson in the first half of this project year before leaving the project.

The design document served as a guide to the programmer, artist, and video producer and

specified the overall sequence and content of the program, including any video, audio, or animation components, as well as sample screen designs and initial flow charts. (See Appendix F for the Design Document that resulted from these deliberations.) The process involved the following phases:

1. Development of content outline. This was a draft of the universe of information that might be included in a women's health application focused on enlisted women's health needs as indicated by the Defense Women's Health Initiative and the needs assessment activities.
2. Development of key messages. Key messages were drafted to guide the focus and the development of the activities, feedback to users, and video script. Given that people tend to remember very little of educational content, a focus on the key messages ensured that the user would get a consistent message and tone throughout the application.
3. Development of goals and objectives. The goals and objectives also focused the content and instruction in the intervention as well as its evaluation.
4. Development of overall flowchart and storyboards. The overall flowchart illustrated the possible paths the user could take in the interactive intervention. It also outlined where the user accessed the different learning activities and how the user entered and exited the program.
5. Development of activity-level storyboards. Once the overall structure was determined, specific learning activities and their content and use were illustrated thoroughly in detailed storyboards. These guided programming and graphic art development.
6. Development of video and audio scripts. Complementary video and audio add interest to an interactive intervention. Using the findings of the needs assessment, the key messages, and the goals and objectives as a guide, the video producer prepared a video script that would guide video production. The civilian PI prepared second track audio scripts.

Task 6: Develop Multimedia CD-ROM

The design team worked together in a collaborative process to complete the development of the CD-ROM intervention. The following steps were used:

- Creation of design concepts: The graphic artist drafted several title and background screens based on the look and feel indicated by the needs assessment. The design team evaluated these, and the graphic artist further refined the concept based on their input.
- Creation of screen design, button design, and navigational conventions: The graphic artist and the programmer worked together to draft these elements.
- Production of briefing video: The video producer integrated live testimonial video with stock military footage and other images to produce a six-minute video that covered the key messages and important content on the health issues.
- Creation of interactive activities: The civilian PI took the lead on creating the program flow and tailored feedback structure for each interactive activity. A team of research assistants drafted text and tailored feedback. The programmer created working software of each of these elements

- Identification of existing graphic elements: Research assistants and the civilian PI researched free and low-cost images and obtained others from the military PI and pharmaceutical companies. The video producer identified public use images of women in the military.
- Identification and creation other graphic elements needed: The graphic artist created original images from photographs of objects and people. USUHS staff helped organize video and photo sessions.
- Creation of supplemental materials: The research assistants identified health organizations providing toll free advice hotlines and websites on a variety of health topics, military OB-GYN consultation telephone numbers, and regional TRICARE telephone numbers for inclusion in the CD-ROM. They also drafted background materials on a variety of health topics not examined in depth in the interactive activities.
- Recording of second track audio: The civilian PI drafted scripts for introductory and closing audio. The video producer engaged a professional female narrator to read the scripts.
- Integration of briefing video and second track audio into program: The video producer and the programmer worked together to identify the best way to digitize these media. The programmer integrated audio and video controls where video elements were available.

Task 8: Develop Accompanying Materials and Field Pocket Guide

We used the following steps to develop the field pocket guide:

- Review of needs assessment findings
- Review of existing educational materials for enlisted females
- Drafting of content outline and structure
- Creation of draft guide
- Review of draft guide by design team
- Revision of materials based on review.

Task 9: Conduct In-house and Expert Review of Multimedia Program

At each step of the intervention development process, the design team conducted an in-house review, and we sought experts for an external review:

- The design document was submitted to several advisory panel members for approval prior to proceeding with program development.
- The internal design team first reviewed the design elements, followed by reviews from the military PI and advisors.
- The internal design team then the military PI and advisors reviewed the video script and video.
- As each module of the program was developed, it was submitted to review by

internal design team then to review by the military PI and advisors.

- The completed CD-ROM was submitted to the graduate research assistants for internal review for programming and text errors. Requested changes were sent to the programmer, and the civilian PI checked the revisions once they were made.
- We presented the prototype CD-ROM intervention to
  - Members of the advisory panel,
  - Researchers and medical students at the Uniformed Services University of the Health Sciences, and
  - Interested co-investigators who were military clinicians.

Task 10: Conduct Target Audience Review of Multimedia Program

We conducted an informal review of the CD-ROM intervention elements throughout the development with enlisted females working at USUHS who were recruited by the military PI. In addition, we presented the concept and briefing video at a conference on issues relevant to women in uniform in which female personnel from all the services were represented.

Problems in Accomplishing the Intervention Development Tasks

Staffing changes. At the beginning of the year, Dr. Atkinson left the employ of Macro International. Macro sought and obtained permission from the contract officer to retain her involvement in the project, but these negotiations took several months. In the meantime, Dr. Ann Taubenheim became the civilian P.I. for a few months. Upon her departure from Macro in May 2000, Macro sought and obtained permission to revert to Dr. Atkinson as the civilian P.I. In addition, the person originally proposed to program the application had also left Macro, and a new programmer had to be identified. These changes had affected the timeline.

Scheduling difficulties. During production of the CD-ROM materials, we needed to engage several enlisted females to volunteer to be photographed. Although we were ready in early December for this task, potential volunteers were not available because of work schedules, work-related training activities, travel, and the winter holidays. The photography could not be completed until late January, and this put the program development behind two months, further compressing time available for the efficacy test.

Lack of time left in the project. Due to earlier delays in the needs assessment phase of the study and in the development phase, time was limited for expert and target audience review of the materials.

3. Efficacy Study

Early in the project when the needs assessment was taking longer than originally planned, we discussed the need for a modification in the scope of work with the contract officer. At that time, the thought was that a no-cost extension would be the nature of the modification. However, the time

frame of the contract could not be extended beyond August 2001. Therefore, the following change in the efficacy test was proposed and accepted by Kathryn Dunn, Contract Specialist, and Dr. Patricia Modrow, Deputy Director for Grants Management:

- **Original Plan:** The intervention would be tested at the medical facilities of a Navy and an Army installation using a randomized pretest/posttest control group design that would allow us to examine the outcome measures by intervention and by service. The experimental group would use the intervention and the control group would receive usual care. Subjects would complete a knowledge-attitudes-practices (KAP) survey pre-intervention, post-intervention, 6 months post-intervention, and 12 months post-intervention.

	EXPERIMENTAL	CONTROL
ARMY	R Y_0 X Y_1 Y_2 Y_3	R Y_0 ~X Y_1 Y_2 Y_3
NAVY	R Y_0 X Y_1 Y_2 Y_3	R Y_0 ~X Y_1 Y_2 Y_3

X=intervention, ~X=no intervention, Y_0=pre-measure, $Y_{1,2,3}$=post-measure

- **Alternative Plan:** The intervention would be tested at the medical facilities where military women, regardless of service, were likely to go (Walter Reed Army Medical Center, National Naval Medical Center, and Malcolm Grow Medical Center). However, equivalent numbers of women in the Army, Navy, and Air Force would be recruited for participation in the study. Women would be randomized into experimental and control conditions upon arrival at their examinations, which would allow us to examine the outcome measures by intervention. The experimental group would use the intervention and the control group would receive usual care. Subjects would complete a knowledge-attitudes-practices (KAP) survey pre-intervention and post-intervention, and data collection would take place for approximately 6 months.

	EXPERIMENTAL	CONTROL
ARMY	R Y_0 X Y_1	R Y_0 ~X Y_1
NAVY	R Y_0 X Y_1	R Y_0 ~X Y_1
AIR FORCE	R Y_0 X Y_1	R Y_0 ~X Y_1

X=intervention, ~X=no intervention, Y_0=pre-measure, Y_1=post-measure

Rationale: Once the intervention was developed, the extension in the original time period only allowed for an additional 6 months in the project. The revised efficacy test was needed to allow for this shortened time frame. In addition, this strategy avoided problems with subject follow-up due to reassignment, assignment to a temporary duty station, deployment, or separation from the service.

Task 11: Set Up for Intervention

The set up and preparations needed to conduct the efficacy study of the multimedia CD-ROM intervention were similar at each installation's site and may be summarized as follows:

- **Develop Pre- and Post-intervention Surveys.** Survey questions were developed based on results of focus groups interviews conducted among enlisted women and military health care providers during the needs assessment phase of the research project.

Questions were adapted from existing survey instruments assessing reproductive health risks, using standard measures of knowledge, attitudes, and behaviors. The development included expert panel involvement in the drafting and review of the instrument as well as a pilot test of the instrument with 9 enlisted women. This survey formed the basis of the questionnaire used in the efficacy test to measure pretest and posttest knowledge, attitudes, and practices.

The pre-intervention survey was the same for all participants. Two different post-intervention surveys were prepared, one for the control group and one for the experimental group. These post-intervention surveys were equivalent except the one for the experimental group included questions about satisfaction with various elements of the CD-ROM intervention. See Appendix G for the pre-intervention survey, Appendix H for the control group post-intervention survey, and Appendix I for the experimental group post-intervention survey.

- **Recruit co-investigators.** Working closely with the military PI, we recruited co-investigators for each site and met with them several times to provide background information about the development of the CD-ROM intervention, and to introduce the efficacy study itself (e.g. protocol, survey questions, and consent forms). We also worked closely with co-investigators on completing IRB requirements and determining the best way to integrate study procedures into their work setting.

- **Obtain IRB approval.** Each site's co-investigator worked with the principal investigators to submit necessary forms and adaptations to the study protocol and consent letter in order to obtain approval for the study from the site's own Institutional Review Board.

  In accordance with the guidelines set forth by the Human Use and Regulatory Affairs Office of the USAMRAA, we prepared a consent form and research protocol for use in the study. These forms were approved at USUHS. The approved protocol and consent form are in Appendix J and Appendix K. As each military medical center prepared their own IRB forms, these materials were adapted to the requirement of their local IRB, but the general content remained of each consistent with the originally approved protocol and consent form.

- **Finalize recruitment plan.** The research staff and principal investigators worked with each co-investigator to finalize details and steps for recruiting participants, administering the surveys, and introducing the CD-ROM intervention. To avoid disruption of standard clinic procedures, we worked to ensure that each step of the process was integrated appropriately into the overall clinic flow.

- **Develop recruitment and instruction guidelines.** We wrote standard guidelines for initial and follow-up telephone recruitment calls by clinic and research staff. All possible responses by potential study participants (e.g. interested, not interested, or don't know) were prepared to keep interactions as consistent as possible. We prepared additional guidelines for informed consent interviews, administering the survey, and introducing the CD-ROM application.

- **Establish procedures for data entry and storage.** Details and procedures for randomizing participants, keeping field notes, assigning unique identifiers to surveys, and storing completed surveys were finalized and included in protocol documents.

- **Train research staff.** Research assistants (RAs) were introduced to the study protocol, the clinic procedures and staff, and to the CD-ROM intervention. The RAs used the interview guidelines to role play various scenarios for recruiting study participants over the phone, reviewing informed consent letters with participants, administering and collecting surveys, and introducing the CD-ROM intervention.

- **Train clinic staff**. We oriented clinic staff to the purpose of the study, recruitment procedures, and the study's protocol. The guidelines developed for the clinic staff to recruit participants was reviewed and finalized with their input. We also introduced staff to the informed consent process and asked them to serve as witnesses. During the training, we consulted staff to determine the most efficient ways to integrate study procedures into the clinic flow, so as to avoid any disruptions to their work.

- **Finalize study procedures.** Working with clinic staff, we determined all logistical details and protocols for greeting study participants, reviewing consent forms, administering the pre and post-test surveys, and setting up the computer with the CD-ROM application for review by study participants.

Task 13: Begin Intervention: Collect Pre-intervention KAP Data

The original efficacy study collected baseline survey data at one time and follow-up survey months after the intervention. The current design has the pre-intervention survey and the post-intervention survey occurring on the same day. The following describes the process for data collection of the pre-intervention survey:

- Upon arrival at the clinic, women who had been telephoned and expressed an interest in participating in the study underwent an informed consent interview with the co-investigator staffing the clinic or a female member of the research team. The interviewer reviewed the different components of the consent form with the potential study participant who was given her own copy of the consent form to review and keep. The interviewer encouraged the woman to ask questions at any time and to carefully read each page of the form. Once all questions were addressed to the satisfaction of the participant, she was asked if she is willing to participate in the study and ready to sign the consent form. At some research sites, a witness also signed the consent form.

- Once consent was obtained, study participants were randomized into experimental and control conditions. Each subject was given a unique numerical identifier to protect her confidentiality. All subjects completed a pre-intervention knowledge-attitudes-practices (KAP) survey.

- The experimental group then used the multimedia intervention program while the control group received usual care. Participants were asked to use the multimedia program for 30 minutes. It was self-instructional and required no computer knowledge to operate. However, a trained staff person was available to answer questions during the entire time study participants were using the program.

Each KAP survey took approximately 15 minutes to complete. This strategy of collecting pre- and post-intervention data during a single medical visit, avoided problems with subject follow-up that the original study design faced.

Task 14: Conclude Intervention: Collect Post-intervention KAP Data

The following are the procedures for obtaining post-intervention survey data from experimental and control research participants following their visit at the clinic:

- The control group completed the post-intervention survey immediately after their appointment. The questions allowed an examination of changes in knowledge, attitudes, and behavioral intentions.

- The experimental group received a follow-up KAP survey after 1) receiving the intervention and 2) after their medical appointment. The post-intervention survey was the same as the one the control group completed, but it also included questions about satisfaction with various elements of the CD-ROM intervention.

Task 16: Analyze Data and Assess Goal Achievement

Data collection was to take place for approximately 6 months among 486 subjects. Because IRB approvals were not complete for WRAMC, MGMC, and NNMC at the time of this report, we have only analyzed data for the few study participants recruited at USUHS. In our analysis plan, we focused on examining the effectiveness of the intervention for improving knowledge, positive attitudes, and behavioral intentions related to reproductive health among women who were exposed to the intervention compared to those who were not. The analysis plan was designed to examine differences by service branch in these three areas, controlling for age and marital status as covariates.

We excluded women who indicated they were officers, consistent with the original proposal. Women who were in the Marine Corps were recoded so they were included in the Navy sample. In analyzing the questions related to pregnancy and contraception intentions, we removed the following women from the analysis: menopausal women, women who have had a tubal ligation or a partner who has had a vasectomy.

We described the sample using the variables from the pretest survey as described in Table 1. The descriptive statistics examined study participants by service, age, and marital status, which were variables found to be related to military women's health decisions in the needs assessment study.

Table 1: Overview of Pretest Survey		
Category	**Variables**	**Statistics**
General demographics	Age	Means and standard deviations, overall and by service
	Race/ethnicity, marital status, education, service branch, pay grade, deployment history	Frequency table and percentages, overall and by service
Health History	Perceived health status, health problems, family history of breast cancer, breast and cervical cancer screening practices, pre-deployment exam practices, pregnancy status, contraception method, sexual experience	Frequency table and percentages, overall and by service Crosstabs and two-way Chi-square analyses by service and marital status
Baseline Knowledge	Individual items	Frequencies and percentages of correct answers, overall and by service
	Overall knowledge score	Comparison of means by service, using analysis of covariance controlling for age and marital status.
Baseline Attitudes	Birth control attitudes, condom attitudes, attitudes toward communicating with partners, attitudes toward communicating with health care providers, perceived importance of health care	Means and standard deviations, overall and by service One-way ANCOVA by service, controlling for marital status and age
Baseline behaviors	Hygiene practices, cervical cancer screening practices, pre-deployment exam practices, birth control intentions, condom use intentions	Crosstabs and two-way Chi-square analyses by service and marital status
Health education	Health interests, sources of information	Frequency table and percentages, overall and by service Two-way Chi-square analyses by service and marital status

The effectiveness study examined post-intervention changes in knowledge, attitudes, and behavioral intentions related to reproductive health for enlisted women. We planned to control for age and marital status. Table 2 details the statistical analyses. We also planned to conduct discriminant analyses to see which factors (demographics, health history, attitudes) distinguish among subjects based on behavioral intent at posttest (change over time in behavioral intent as well as the specific behavioral intent at posttest). Among those in the experimental condition, we planned to conduct a discriminant analysis to see if exposure to different activities accounted for changes in behavioral intent.

Table 2: Analysis Methods Using Pretest and Posttest Surveys		
Category	**Variable**	**Statistics**
Knowledge	Overall knowledge score	Count correct items, calculate means and standard deviations by research condition Calculate mean change scores (posttest - pretest within individual) and compare change scores by service and research condition using two-way ANCOVA, controlling for age and marital status
Attitudes	Perceived susceptibility, birth control attitudes, condom attitudes, attitudes toward communicating with partners, perceived importance of health care	Means and standard deviations, overall and by service Calculate mean change scores (posttest - pretest within individual) and compare change scores by service and research condition using two-way ANCOVA, controlling for age and marital status
Behavioral Intent	Hygiene practices, cervical cancer screening practices, pre-deployment exam practices, birth control intentions, condom use intentions	Crosstabs and three-way Chi-square analyses by intention, service, and research condition

Women in the experimental condition also rated individual activities and the CD-ROM experience in terms of satisfaction and other perceived attributes. We planned to use these data to describe usage patterns and satisfaction with the intervention. These findings were to reveal the appeal and acceptability of the application and point to potential areas for revision.

Table 3: Analysis of Satisfaction Items

Category	Variables	Statistics
Usage patterns	Age, scale scores on satisfaction with activities	Means and standard deviations for age and satisfaction score, number of women who used the activity
Satisfaction	Scale scores on satisfaction with activities, questions on attitudes toward CD-ROM program	Means and standard deviations, overall and by service Three-way MANOVA, satisfaction by age group, marital status, and service
	Scale scores questions on attitudes toward CD-ROM program	Calculate overall evaluation score Three-way ANOVA, satisfaction by age group, marital status, and service
	Answers to open-ended questions about what they liked best and least about the CD-ROM	Listing and grouping of like comments

Problems in Accomplishing the Efficacy Study Tasks

Contract revisions. At the time the scope of work for the efficacy test was revised, the contract office believed that no further IRB review was needed for the project. As mentioned above, this was clarified with the Human Use and Regulatory Affairs Office. The work on IRB approval was thus delayed a few months while we were operating under the assumption that no IRB approval was necessary. We have attempted to work with the Human Use and Regulatory Affairs Office to expedite IRB approval for each of the field test sites.

Contract constraints. Early on in the needs assessment, the contract office became aware that the original timeline would need to be revised. They advised us to wait until closer to the end of the contract to address this issue. When we were ready to revise the timeline, they became aware that the nature of the funding source precluded extending the contract beyond August 2001. As a result, we had to reduce the efficacy test by removing the extended post-testing from the plan.

Scheduling problems. Recruiting co-investigators at the various sites proved difficult. At the time when we needed commitments from them, they were either changing their duty station or on vacation, and they were not willing to take on the added burden of serving as a co-investigator. One co-investigator suffered several family health crises and had to withdraw from participation.

Lack of enlisted female personnel. The only site at which data collection was approved at the end of the project period was USUHS, the military PI's installation. The patient population consists of mostly officers and medical students, who were exempt from participation. As a result, we have only recruited a few enlisted women in 4 months of data

collection. We attempted to recruit women to come to USUHS from the nearby NNMC, but no volunteers have emerged.

Lack of time left in the project. Due to earlier delays in the needs assessment and intervention development phases of the study, time was limited for IRB approvals and the efficacy test.

4. Reporting

Although not listed in the narrative above for each stage, we also prepared annual reports throughout the project. Four of the tasks in the original task list (Task 7, 12, 15, and 17) are reports. The following table summarizes the contents of each of the four annual reports we have prepared (See Table 4).

Problems in Accomplishing the Intervention Development Tasks

Staffing changes. When the civilian PI position shifted, the correspondence from the command was sometimes misdirected concerning reporting requirements. As a result, the fourth annual report was delayed by a couple of months.

Table 4: Major Activities by Annual Report and Task			
Report	Task	Description	Months In Reporting Period
1	1	Convene advisory panel	1-3
	2	Develop needs assessment surveys	2-4
	2	Pilot test needs assessment surveys	4-9
	2	IRB review of surveys and survey protocol	10
	2	Preliminary review by the Human Use and Regulatory Affairs	11
	2	DoD Health Affairs review of needs assessment surveys	12
	2	Develop partnerships with co-investigators at Army and Navy bases.	1, 9-12
2	2	Macro IRB review of focus group protocols	6
	3	Preliminary secondary analysis	7-12
	3	Developed databases of military clinicians and chiefs of service	7-9
	2	IRB process for focus groups at Army and Navy sites	8-12
	3	Focus groups at Fort Bragg/Womack	9
	3	Focus groups at Fort Lewis/Madigan	12
3	2	IRB process for focus groups at Naval Station Norfolk/Portsmouth.	1-7
	2	Scheduling of focus groups at Naval Station Norfolk/ Portsmouth	7-9
	3	Conducted needs assessment survey: developed sampling lists.	1-3
	3	Fielded needs assessment survey questionnaires and collected data	4-7
	3	Entered and cleaned needs assessment surveys data.	7-9
	3	Analyzed needs assessment surveys data, prepared report.	10-11
	3	Prepared final secondary analysis report	7-12
	4	Conducted focus groups at Naval Station San Diego.	1
	4	Prepared report of Naval Station San Diego focus group.	7-12
	4	Conducted focus groups at Naval Station Norfolk/Portsmouth	9
	4	Prepared report of Norfolk/Portsmouth focus groups	12
	5	Began to analyze needs and multimedia design document	12
4	5	Held preliminary design team meetings.	1-3
	5	Developed content outline, key messages	4
	5	Developed goals and objectives	5
	5	Developed basic program structure, flowchart, and storyboard	6-7
	5	Developed video script	8
	5	Finalized basic design document, submitted to advisors for review	9-10
	5	Developed storyboards for learning activities	9-11
	6	Developed multimedia CD-ROM	11-12
	9	Conducted in-house and expert review of multimedia program	10-12
	11	Revised scope of work for efficacy study.	8
	11	Began recruiting Co-Investigators in Washington DC area.	9-12
	11	Developed knowledge, attitudes, and practices surveys.	10-11
	11	Developed consent form.	11
	11	Worked with funding agency to finalize IRB requirements.	8-12

B. Findings

All the needs assessment methods—literature review, advisory panel, focus groups, secondary analysis, and surveys with military clinical staff—sought to determine the extent to which enlisted women have reproductive health problems and the extent to which their behaviors place them at risk for those health problems. In the focus groups, both enlisted women and their health care providers were asked to identify important health concerns of the target population and to explain why they were concerns. The secondary analysis of the 1995 healthy behaviors survey also allowed an examination of reproductive health issues (pregnancy during active duty, STD infection, and Pap test screening adherence) and their determinants. The clinician and chief of service needs assessment surveys added a quantitative dimension to the understanding of the importance of STD infection, unintentional pregnancy, and vaginal infection to enlisted women's health and to military readiness.

The needs assessment methods were also used to determine the adequacy of health education efforts for enlisted women regarding reproductive health. Focus group participants were asked where and who enlisted women receive military health education and how that health education could be improved. Respondents in the secondary analysis were asked their perceptions of the helpfulness of several health education programs. Lastly, clinicians and chiefs of service were asked to report health education they or their department provided and to rate the quality and quantity (too much, right amount, too little) of military health education by topic.

1. Needs Assessment Findings

The literature review was updated to reflect new findings on reproductive health among enlisted women. The full literature review is in Appendix L, the secondary analysis report is in Appendix M, the clinician and chief of service survey report is in Appendix N, and the focus group reports are in Appendix O. The following are key findings from the needs assessment activities.

A. Overall Findings

- Enlisted women in the Army and Navy have a significant need for reproductive health education in the following areas:
    - Basic information on anatomy and physiology of the female reproductive system,
    - Reproductive health care for women in their 20s and 30s,
    - Contraception,
    - Sexually transmitted diseases,
    - Non-sexually transmitted reproductive system infections,
    - Basic hygiene practices,
    - Prevention and implications of unintended pregnancy,
    - Communicating with the health care provider, and
    - Communicating with sexual partners.

- Consideration should be given to including basic information on breast cancer, cervical cancer, and menopause in the health education intervention being developed for this study as they are important to a woman's lifetime reproductive health.

- Consideration should be given to adapting this intervention to include information male enlisted soldiers and sailors as well as the female enlisted personnel.

- In order for health education to be effective with enlisted personnel, it must be delivered in a variety of interactive formats that allow people to select and respond to information and practice making health decisions. A lecture format will not be successful in engaging the target audiences.

- In order for computer-based health education to be effective, enlisted personnel need easy access to a computer, both on base and in the field.

- Reproductive health education should be part of the basic training for enlisted personnel. Moreover, reproductive health education needs to be ongoing throughout the military careers of soldiers and sailors.

- Any health education intervention for enlisted women in the Army and Navy will be less effective without support from commanding officers and clinicians. Consideration should be given to providing a similar intervention to commanders and clinicians to improve support for the reproductive health needs of the enlisted women.

- Unintended pregnancies among enlisted women in the Army and Navy may be partially due to the unavailability or inaccessibility of contraceptives during deployments in the field and on ship.

- Sexually transmitted diseases (STDs) among enlisted personnel may be partially due to lack of availability of condoms in deployment situations.

B. Advisory Panel Findings

The advisory panel created a shared vision for the project. They also established draft health and behavioral objectives.

Vision: The project will produce an *individualized, context-sensitive* health education program *for enlisted Army and Navy women and their health care providers* that provides *assessment, diagnostic information*, and *education.* This planned intevention will *target environmental situations and conditions* (*high risk sexual behaviors and related behaviors, related attitudes*, and *base knowledge*), and *facilitate access and utilization of necessary resouces for preventive care* (*education, early intervention*, and *treatment*, and *relapse prevention*). This will result in the *elimination of HIV/STD infection, unplanned pregnancy*, vaginal infection, and related conditions, which will *improve the physical and mental health, military readiness, and quality of life* for enlisted women.

Health Objectives:

- As a result of the educational intervention, there will be a reduction in:
  - The incidence of pregnancy in the field environment.
  - The incidence of unplanned pregnancy.
  - The incidence of initial cases of STD infection.
  - The incidence of recurrent cases of STD infection.
  - The incidence of episodic cases of vaginal infection (non-STD).
  - The incidence of chronic cases of vaginal infection (non-STD).

Behavioral Objectives:

- As a result of the educational intervention, enlisted females will:
  - Consistently seek contraceptive counseling.
  - Correctly and consistently use effective contraception.
  - Correctly and consistently use barrier methods of contraception.
  - Adhere to STD treatment plans when diagnosed with STDs.
  - Reduce high-risk behaviors for STDs (multiple partners, unprotected intercourse, and drug use).
  - Consistently practice proper hygiene.
  - Recognize and seek appropriate care for vaginal infection signs and symptoms.

C. Secondary Analysis Conclusions

- Data from the *1995 DoD Survey of Health Related Behaviors Among Military Personnel* supported the rationale to target an intervention toward the needs of enlisted women. The analysis showed that, relative to female officers, enlisted women had a greater need for reproductive health education interventions designed to reduce STD infection and unintended pregnancy. An analysis of data on STD infection and pregnancy among females in the Navy indicated that enlisted female respondents had significantly higher rates of STD infection and pregnancy relative to female officer respondents (see Table 5).

Table 5: Rates of Reproductive Health Concerns Among Female Officers and Enlisted women in the Army and Navy*

Indicator	Female Enlisted (%)	Female Officers (%)	Chi-Square	P
Ever pregnant?	57.6	46.2	10.02	.007
Pregnant on active duty?	29.9	19.9	16.48	.000
Ever had an STD?	26.3	17.4	5.78	.016
Had an STD in past year?	7.0	1.8	6.42	.011

- As the number of lifetime sex partners increases for military women, so does the likelihood of having an STD.

- Women with a greater number of lifetime sex partners are more likely to have a pregnancy while on active duty than women with fewer sex partners.
  * Statistics calculated from data collected in the *1995 DoD Survey of Health Related Behaviors Among Military Personnel*

- Higher satisfaction with OB/GYN care at an installation is related to military women having a recent Pap test.

- The demographic characteristics of respondents to the DoD 1995 health survey are very similar to the enlisted women who participated in the focus groups sessions for this study.

- The fact that enlisted women perceive that they get little help from existing military health education programs supports the need for the intervention proposed in this study.

D. Military Clinician and Chairperson Needs Assessment Survey Conclusions

- Clinicians and chiefs of service had very different perceptions of the common and serious reproductive health problems experienced by enlisted women, both in general and in the field.

- Clinicians and chiefs of service believe that lack of perceived risk and negative partner attitudes are important reasons for STD infection and unintended pregnancy among enlisted women. Lack of knowledge and skills were important reasons for vaginal infections resulting from improper hygiene, in general and in field conditions.

- Chiefs of service cite lack of time, staff, and skills as primary barriers to providing patient education to enlisted women during routine care visits.

- The lack of support from some chiefs of service for health education on contraception, STD prevention, and hygiene as part of standard predeployment care for enlisted women is most likely a contributing factor to the low rate of education that is provided.

E. Focus Group Findings

- For many enlisted women, duties and working through the chain of command interfere with their obtaining reproductive health care and preventive services. Many commanding officers attach a negative stigma to soldier's or sailor's sick call visits, viewing them as signs of weakness or attempts to escape duties. Commanders may question female soldiers about reasons for sick call, which may embarrass them and discourage them from obtaining health care for sensitive, reproductive health concerns.

- The most frequently reported barrier to enlisted women discussing their reproductive health concerns with providers is lack of confidentiality. Sick call offers little privacy, and other soldiers/sailors in the clinic can sometimes hear discussions that take place between patient and provider. Reportedly, medics also have access to and may review medical records of soldiers/sailors, both male and female. Some medics have reportedly shared confidential health information on enlisted females with male soldiers/sailors.

- An important barrier to patient/provider communication is lack of time. During sick call, soldiers are often rushed through visits. Clinicians may be unable to do an adequate sexual history and provide adequate health education.

- Follow up visits for abnormal Pap tests often take up to several months. Many women with abnormal Pap tests may not receive follow-up care, particularly if they have been deployed while they were waiting for their test results.

- Many enlisted women, particularly those with less time in the military or at a post, are unaware of the health care services available to them.

- Continuity of health care is a problem for enlisted military women because they often do not have a regular health care provider.

- Military women believe health is very important because good health is necessary to perform their duties.

- Many enlisted military women are young (under 25) and inexperienced. Many are away from home for the first time. These situations often lead to poor health decisions and risk taking.

- Some enlisted women get pregnant to avoid deployment or get out of the military. The extent to which this occurs among enlisted women is not clear. Most believe this problem occurs among a minority of enlisted women but happens often enough to make pregnancy a stigma among all enlisted women.

- Pregnant enlisted women are very concerned about how different duty activities and exposures to substances may affect their babies.

- Vaginal and urinary tract infections (UTIs) are common in deployment situations because of poor hygiene. Poor hygiene is related to both enlisted women's lack of knowledge about proper hygiene and the limited availability and inadequacy of feminine hygiene supplies. Enlisted women in the Army were more likely to note a lack of supplies during deployment than those in the Navy.

- Unintended pregnancy is a problem for both Army and Navy enlisted women, their commanders, and their units.

- Contraceptive use among military women is particularly problematic in deployment situations because contraceptives can be difficult to obtain.

- Chlamydia, herpes, and human papillomavirus (genital warts) are the most commonly reported STDs by the focus group participants.

- Diagnosis and treatment of vaginal infections and UTIs are sometimes complicated by the enlisted women's confusion between these conditions and STDs.

- The military provides enlisted women with some reproductive health education at the installation during basic training and during health care visits, mostly in the form of large classes or written materials.

- Focus group participants believe that health education must be ongoing in order to impact the day-to-day behaviors of enlisted women.

2. Intervention Development Findings

During the development, we focused on the guidance from the needs assessment to prepare an intervention that promoted reproductive health for enlisted female personnel. This included attention to information, attitudes, and capabilities that would support positive health behavior related to preventing vaginal infections, unintended pregnancy, and sexually transmitted diseases. We took care to prepare an intervention that is multicultural in terms of race/ethnicity and branch of service so that we take into account those cultural factors that influence our target audience.

In this section we describe how the needs assessment findings were used to operationalize the specifics of intervention. The design document in Appendix F gives the specifics of the design.

a. Target Audience

The primary population for the intervention is enlisted females. The secondary analysis confirmed that enlisted women are also at greater risk for reproductive health problems than female officers, and they require a tailored application due to the significant difference in their education level and age compared to female officers.

From the very beginning of this project, we have been asked why the intervention was focused on only enlisted women in the Army and Navy. Since then, the military has made great strides in integrating medical care in TRICARE and in other tri-service efforts. To be consistent with this trend, we have decided to include information for enlisted women in the Air Force.

Important secondary audiences include enlisted males and male and female officers. Several events pointed to the need to provide information to males and others who might use or view the intervention. In the case of males, we became familiar with a pocket health guide that deploying women in the Army could take with them (we originally proposed a similar tool to accompany the CD-ROM). Unfortunately, we also learned that this pocket guide was no longer being printed,

because there were complaints that no similar tool was provided to deploying males. To avoid a similar fate for the CD-ROM, we provide several paths for male-specific input and feedback. This strategy also allows us to give males information about women's health that may increase their understanding of the situation that women face (as was recommended by the enlisted women in our focus groups). We also heard that we should provide information to other active duty personnel, such as male and female officers, because they would also benefit from this health education.

Health care providers and commanders would also benefit from complementary health education on reproductive health so they will realize its importance to readiness and be able to support enlisted women and men. Such materials would be a resource for health professionals who were not given advance training in women's health care and patient education.

b. Conceptual Design

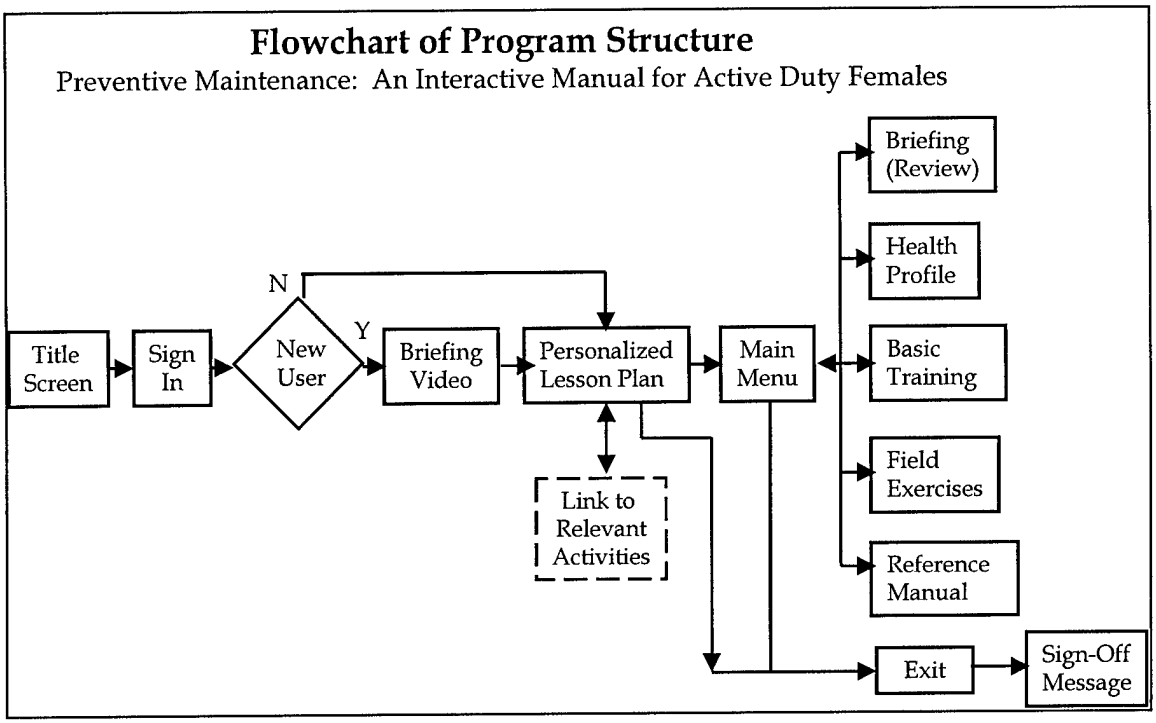
Taking the recommendation of advisors and focus group participants, we focused our design on a positive, proactive approach, similar to recruitment materials. We also learned from our advisors and needs assessment activities that military personnel wanted to see current images and hear military language so the intervention would be more relevant. We chose to use the term "preventive maintenance" as the title and key message because of its wide use in military settings and its consistency with addressing reproductive disease prevention and health promotion. See Table 6 for the key messages.

Table 6: Key Messages

- Taking responsibility for maintaining your health and physical fitness is an important key to being an effective, productive member of your unit and to serving your country.
- Paying attention to your health needs does not prevent you from being an effective member of the military.
- As a woman in the military, you face unique circumstances that can place you at increased risk for reproductive health problems compared to civilian women.
- The high male to female ratio and tense training situations in the military can place you at increased risk of getting involved in sexual situations where risk behavior can occur.
- Take action now to protect and maintain your reproductive health so that you will enjoy a healthy reproductive lifecycle.
- Practice safe sex and use contraception so you have choices about when and how you have children and so you protect your reproductive health.
- You can learn skills that will help you protect your health and communicate your needs to a partner in an intimate relationship.
- You can learn skills that will help you feel confident in communicating your needs and concerns to your health care providers.
- Be honest with your health care provider about your health and health history so you will get the care you need.
- You may not be able to tell if you have some reproductive health problems because they often have no symptoms.
- Use the pre-deployment physical exam to find out how to protect your health in the field.
- You must request some medical services—STD screening at routine health exams and pregnancy testing at pre-deployment exams—because medical providers may not provide them routinely.

Another key component of the design was the use of experienced peers as a message delivery mechanism. Testimonials from experienced peers and simulations of decision-making experiences were positively viewed teaching methods by enlisted women because they would make the information more interesting to learn. Respondents also preferred an adult education format that was not moralizing or patronizing.

We found that much of military health education is text based or lecture based. Some materials were used repeatedly in a person's military career and, thus, held little interest for them. An interactive, multimedia CD-ROM provides a delivery mechanism that can engage the audience in new ways and may compel users to look for more information and return to use it again. The current design incorporated activities that allowed the user to explore different scenarios. It also provided background information that they could access if they chose. Users could choose to use recommended learning activities or to explore any that piqued their interest.



The system begins with an overview of the topical issues on military women's health presented through testimonials by enlisted women and experienced peers. The purpose of the briefing video was to quickly cover important key messages and to introduce the application. Following this "Briefing," the user is presented a menu of activities. They could explore the activities at will, or they could follow a path of activities recommended to them based on their medical care status (reason they are receiving medical care). The briefing video was also available from the main menu of the application, so users have the opportunity to view the briefing again if they chose.

After the briefing video, the program provides a brief tailored message and a personalized plan for viewing the learning activities based on the answers that a user inputs on the sign in screen. Messages and recommended activities were tailored based on the user's medical examination status, whether she is: a) seeing a clinician for a routine annual examination; b) having an acute care visit

(medical complaint); c) having a pre-deployment physical, or d) viewing the application independent of medical care. For example, users having a routine examination were directed to scenarios reinforcing open communication with medical care providers during medical examinations and basic information on anatomy and physiology. Those with symptoms received more specific information about reproductive health problems. Women preparing to deploy were reminded to have a pregnancy test prior to deployment. Users could decide whether to view the suggested material or to explore the main menu at will.

c. Learning Objectives and Content

The goals and objectives for the DOD-CD were based on findings from the literature review of the science base, the expert panel, the focus groups, the secondary analysis, and the surveys with military clinicians and chiefs of service. They addressed a comprehensive spectrum of general women's health issues as well as women's health issues that are relevant to military needs such as readiness. Data collected in the original needs assessment allowed us to make these parallel judgments.

The overall goal of the intervention is ***to promote military readiness by enhancing enlisted women's self-care and care-seeking behavior for their reproductive health***.

The key goals of the intervention are to:

- Increase enlisted women's understanding of reproductive health,
- Increase their ability to be assertive and responsible for their health and well-being,
- Increase their communication skills, and
- Increase appropriate reproductive care seeking.

Specifically, the enlisted female user of the system will:

- Increase knowledge and awareness about STD infection, unintentional pregnancy, and vaginal infection.
  - Increase knowledge (i.e., the female reproductive system, symptoms of reproductive health problems, contraceptive methods, sexually transmitted diseases, proper hygiene practices)
  - Increase perceptions of susceptibility (i.e., unintentional pregnancy, STD infection)
  - Increase awareness of resources: educational, support, and treatment
  - Increase awareness of help-seeking opportunities

- Increase readiness to take appropriate action.
  - Increase intentions to practice preventive behaviors (i.e., safe sex practices, contraception, proper hygiene) in general and in the field
  - Increase intentions to practice appropriate health care behaviors (e.g., seeking medical consultation for routine and acute care, following treatment recommendations)
  - Increase capacity to communicate effectively with past, current, and future sexual partners

- Increase capacity to communicate effectively with health care providers.

These objectives and the needs assessment findings supported the development of content providing:

- Basic information on anatomy and physiology, STDs, pregnancy, vaginitis, and UTI.
- Learning activities centered on contraception, safer sex practices, and proper hygiene under regular circumstances and when deployed.
- Skills in communicating with partners and health care providers.
- Explanations of well woman care in the breast and pelvic exam and routine tests.

Table 7 details the different modules and learning activities in the program.

Table 7: Description of Learning Activities

Module	Activity	Description
Briefing		Covers important key messages related to vaginal infections, STD infections, and unintentional pregnancy.
Health Profile		Provides a self-assessment of the users' health and sexual history. Links user to other relevant activities in the program.
Basic Training	Female Body	Familiarizes users with the female reproductive system and how it operates through interactive graphics.
	Contraception	Allows users to explore the factors that impact satisfaction with a contraceptive method.
	Baby Budget	Allows users to explore the economic impact of parenthood.
	Deployment Packing	Enables users to explore the health considerations when preparing for deployment and learn what supplies are not recommended.
	Signs and Symptoms	Allows users to explore the possible signs and symptoms of common female reproductive health problems.
Field Exercises	Virtual Check-up	Provides a simulated decision-making experience on communication issues when having an annual gynecological examination.
	Virtual Sick Call	Provides a simulated decision-making experience for exploring communication issues when having care for an acute medical problem.
	Virtual Pre-deployment Exam	Allows user to explore decisions one must make when communicating with a health care provider during a pre-deployment examination.
	Going on a Date	Allows the user to plan a date with a new or current partner and decide whether or not to engage in sexual risk behavior.
	Giving Bad News	Places the user in a situation of having to decide how to tell a current or future sexual partner about an STD infection.
	Virtual Self-care	Shares the stories of other enlisted women related to maintaining hygiene in field conditions.
Reference Manual	Frequently Asked Questions	Provides further content on anatomy/physiology, hygiene and wellness, contraception, pregnancy, safer sex practice, STDs, reproductive health problems, and health care.
	Health Information	Provides links to health information hotlines and websites, regional TRICARE telephone numbers, and OB-GYN consultation services at military medical facilities.
	Glossary	Definitions of reproductive health terms.

d. Implementation Issues

The primary type of implementation—as envisioned from the beginning—is as a clinic-based intervention. Given the time constraints that may present in a clinical setting, the intervention was designed to provide a user with key messages and targeted information even if they had a half an hour or less to use it. Therefore, the intervention is designed to provide tailored information that is available quickly based on whether and why a user is receiving health care.

Based on needs assessment findings, the DOD-CD materials could also be made available in other settings where enlisted women could access a computer. Focus group participants suggested that women could access such materials in settings such as: installation resource libraries and computer laboratories, shipboard computer rooms, training situations during basic training, in-processing upon arrival at a new installation, and pre-deployment. Focus group participants also suggested making the application available on the Internet so military personnel stationed throughout the world would have access to it. Further research is needed to determine where and how enlisted women would best use interactive multimedia educational materials.

e. Other Issues

Combined with findings from the literature review and previously completed focus groups, the findings also suggested issues that may need to be addressed in ways other than an educational intervention. Other enabling and facilitating factors revealed in the needs assessment were out of the scope of the intervention and would need to be addressed at the unit, installation, or policy level. For example, ensuring adequate hygiene and contraceptive supplies is important to preventing pregnancy and vaginal infection in the field. Issues such as these are out of scope of this project, but we can forward information from the needs assessment to others who may be able to implement policy changes.

3. Efficacy Test Findings

Despite beginning data collection in April 2001, very few participants have volunteered for the study. As mentioned above, the only site where IRB approval has been gained is USUHS, and they have a very small enlisted female patient population. Only 5 subjects have participated in the study as of July 31, 2001, after 3 ½ months of data collection. We summarize their demographics in Table 8.

No Air Force women have participated in the study yet. They are all 30 yeas old or younger, and they are no higher in pay grade than an E6. They have all had some education after high school. The enlisted women are split in their deployment history and marital status.

Because the efficacy test has only 5 subjects, we do not have enough information to adequately assess the intervention. We can only present limited information on user satisfaction. Table 9 presents the study participant ratings for the specific elements of the CD-ROM intervention, and Table 10 presents overall reactions to the application.

Table 8: Sample Characteristics as of July 31, 2001 (N=5) *			
Demographics	**Army N(%)**	**Navy N(%)**	**Total N(%)**
Age Group			
21-25	2 (40%)	1 (20%)	3 (60%)
26-30	1 (20%)	1 (20%)	2 (40%)
Race/ethnicity			
White, not Hispanic	1 (20%)	1 (20%)	2 (40%)
Black, not Hispanic	1 (20%)	0	1 (20%)
Hispanic or Latino	0	1 (20%)	1 (20%)
Other	1 (20%)	0	1 (20%)
Marital Status			
Single, never married	2 (40%)	0	2 (40%)
Married	1 (20%)	2 (40%)	3 (60%)
Education			
Associate's degree	1 (20%)	1 (20%)	2 (40%)
Some college	1 (20%)	1 (20%)	2 (40%)
Bachelor's degree	1 (20%)	0	1 (20%)
Pay Grade			
E3-E4	2 (40%)	0	2 (40%)
E5-E6	1 (20%)	2 (40%)	3 (60%)
Deployment History			
Yes	2 (40%)	0	2 (40%)
No	1 (20%)	2 (40%)	3 (60%)

* Table only includes categories with responses.

The findings on the specific program elements show that participants did not see some of the materials. This finding is understandable because the CD-ROM intervention is not linear and study participants used it for only a half hour. The USUHS clinic also sees several pregnant women, so they were likely to be interested in and use the baby budget activity.

Table 9: Perceived Satisfaction of CD-ROM Program Activities by Study Participants					
	VERY	**SOMEWHAT**	**NOT VERY**	**NOT AT ALL**	**DID NOT USE**
1a. Video Briefing	4	1	0	0	0
1b. Health Profile (questionnaire)	3	1	0	0	1
1c. Female Body	2	2	0	0	1
1d. Contraception	2	1	0	0	2
1e. Baby Budget	4	0	0	0	1
1f. Signs & Symptoms	1	1	0	0	3
1g. Deployment Packing	1	1	0	0	3
1e. Virtual Examinations	1	1	0	0	3
1f. Virtual Relationship	1	0	0	0	4
1g. Virtual Self-care	1	1	0	0	3
1h. Reference Manual (library)	0	1	0	0	4

These findings suggest that the few people who have participated are generally favorable toward it, and most would consider using it again. Even the individual who found the intervention somewhat uninteresting would recommend it to other enlisted females.

Table 10: Perceptions of Overall CD-ROM Program by Study Participants

	VERY	SOMEWHAT	NOT VERY	NOT AT ALL	NO OPINION
2a. How **useful** was the program for learning about your health?	3	2	0	0	0
2b. How **useful** was the **feedback** in the activities for helping you learn about your health?	4	1	0	0	0
2c. How **easy** was it to use the program?	5			0	0
2d. How **interesting** was the program?	1	3	1	0	0
2e. How **relevant** was the information in the program for your health needs?	4	1	0	0	0
2f. How **likely** would you be to **use this program again**?	4	0	1	0	0
2g. How likely would you be to **recommend** this program to other **women** in the military?	4	1	0	0	0
2h. How likely would you be to **recommend** this program to **men** in the military?	3	1	1	0	0

The post-intervention questionnaire asked study participants in the experimental condition what they liked most and least about the CD-ROM program. They responded as follows:

- "Interactive portions."
- "The analysis of your answers."
- "The exercises."
- "Ease of use, simplicity."
- "That it had actual life experiences."

Two of the respondents had no comment about what they liked least. The other three participants made the following comments in response to the question about what they liked least:

- "Intro was a little long and drawn out."
- "Not enough video and talking, too much reading."
- "Some lengthy areas."

These findings suggest that the participants appreciated the interactive, multimedia, and tailored features, and they wanted even more of them in the system. These features also did not cause the users to have more difficulty with navigating the system. Despite the small number of reviews, these findings are encouraging, and we look forward to receiving more input from the target audience.

III. Key Research Accomplishments

This section details the project tasks over the five years.

Table 11: Major Project Activities by Year of Performance		
Task	**Description**	**Year of Performance**
1	Convene advisory panel	1
2	Develop needs assessment surveys, provider surveys	1
3	Conduct needs assessment	1-3
4	Conduct focus groups	1-3
5	Analyze needs and develop curriculum and multimedia design document	4
6	Develop multimedia CD-ROM	5
7	Submit first annual project report	1
8	Develop accompanying materials and field pocket guide	5
9	Conduct in-house and expert review of multimedia program	5
10	Conduct target audience review of multimedia program	5
11	Set up for intervention	5
12	Submit second annual project report	2
13	Begin intervention: Collect pre-intervention (KAP) data	5
14	Conclude intervention: Collect post-intervention KAP data	5
15	Submit third annual project report	3
16	Analyze data and assess achievement of technical and behavioral goals	5
17	Complete final report	5

We are currently in the middle of finalizing IRB approval procedures at three military medical facilities. Table 12 summarizes our progress at each site as of July 31, 2001.

Table 12: Current Project Activities				
Local IRB Approval Process	**USUHS**	**WRAMC**	**MGMC**	**NNMC**
Recruit co-investigator.	Done	Done	Done	Done
Complete IRB forms.	Done	Done	Done	Done
Submit protocol and consent forms to local IRB.	Done	Done	Done	In Process
Attend IRB meeting.	N/A	Done	N/A	N/A
Make changes to protocol and consent form based on IRB recommendations.	Done	Done	In Process	Not Yet Ready
Submit local IRB materials and approval letter to Human Use and Regulatory Affairs Office at USAMRAA.	Done	Done	Not Yet Ready	Not Yet Ready
Make changes to protocol and consent form based on USAMRAA recommendations.	Done	In Process	Not Yet Ready	Not Yet Ready
Obtain final approval from USAMRAA to begin collecting data.	4/15/01	Not Yet Ready	Not Yet Ready	Not Yet Ready

IV. Reportable Outcomes

In terms of reportable outcomes, this project did not result in any patents or licenses. We have made several paper presentations at professional meetings, and we have produced two end products: a multimedia CD-ROM and field pocket guide. Because the research is not yet complete, we have also not yet sought funding for extending the research in this area.

A. Presentations

1. Presentation at 1998 APHA Annual Meeting, November 1998

A presentation of the preliminary findings from the secondary analysis was given at the annual meeting of the American Public Health Association in Washington, DC, in November 1998. The presentation is in Appendix P, and the citation and abstract are as follows:

- Brown-Huamani, K.D., N. Atkinson, R.S. Gold, and E. Lewis. 1998. Determinants of reproductive health and health behaviors among women in the U.S. Armed Forces. Presented at the American Public Health Association's 126th annual meeting, November, Washington, DC.

  A secondary analysis of demographic and health behavior data for 2,957 women in the U.S. armed forces was conducted to determine the factors that contribute to STD infection, pregnancy and regular Pap screening in this population. Preliminary multivariate analyses of data from the 1995 Department of Defense Survey of Health Related Behaviors Among Military Personnel indicated that multiple factors, both demographic and behavioral, contribute to the prediction of pregnancy, STD infection, and frequency of Pap screening among both single and married enlisted women. Findings from this study will be discussed in terms of the design, development, implementation and evaluation of interventions directed at preventing STD infection and unplanned pregnancy while facilitating appropriate gynecological health screening among women in the U.S. armed forces. Findings of this study may also be of interest to those involved in the development of health care and education programs for civilian women.

2. Presentation at 1999 APHA Annual Meeting, November 1999

A presentation of the preliminary findings from the secondary analysis was given at the annual meeting of the American Public Health Association in Chicago, Illinois, in November 1998. The presentation is in Appendix Q, and the citation and abstract are as follows:

- Atkinson, N.L., L.N. English, K. Brown-Huamani, E. Lewis, and R.S. Gold, R.S. 1999. Health Education Needs of Enlisted Army and Navy Women.

  The purpose of this paper is to describe a needs assessment to determine the knowledge, attitudes and practices related to reproductive health behavior for enlisted women in the Army and Navy. A combination of qualitative and quantitative methods were used, including: 1) expert panel meeting; secondary analysis of the 1995 Department of Defense Survey of Health Related Behaviors Among Military Personnel; 2) focus groups with single

and married enlisted women in the Army and Navy; 3) focus groups with military clinicians in the Army and Navy serving enlisted women; and 4) surveys conducted with clinicians (physicians and nurse practitioners) and with commanding officers of military medical services providing reproductive health care to enlisted women. The findings from this study were used to develop recommendations for health education interventions that will reduce the incidence of unintentional pregnancies, sexually transmitted diseases, and urinary tract and vaginal infections among enlisted women. The methods, findings, and recommendations will be discussed as well as their implications for military health education.

Learning Objectives:

At the conclusion of this presentation participants will be able to:

- Identify medical care practices that are routinely provided to enlisted women prior to deployment.
- Identify the reproductive health problems of enlisted women considered to be most common and serious.
- Discuss factors that inhibit enlisted women and their health care providers from preventing reproductive health problems.
- Describe elements of a reproductive health education intervention tailored to the needs of enlisted women.

3. Presentation at Fifth Biennial Conference on Women in Uniform, December 2000

The following abstract was accepted for presentation at the Fifth Biennial Conference on Women in Uniform held by the Women's Research and Education Institute in Arlington, Virginia, at the Women in Military Service to American Memorial. The citation and abstract are provided below (see Appendix R for full presentation):

- Evelyn L. Lewis and Nancy L. Atkinson. 2000. Educating Rita: Assessing the Knowledge, Attitudes, and Practices Related to the Reproductive Health of the Enlisted Female Population.

  The purpose of this paper is to describe a needs assessment to determine the knowledge, attitudes and practices related to reproductive health behavior for enlisted women in the Army and Navy. A combination of qualitative and quantitative methods were used, including: 1) expert panel meeting; secondary analysis of the 1995 Department of Defense Survey of Health Related Behaviors Among Military Personnel; 2) focus groups with single and married enlisted women in the Army and Navy; 3) focus groups with military clinicians in the Army and Navy serving enlisted women; and 4) surveys conducted with clinicians (physicians and nurse practitioners) and with commanding officers of military medical services providing reproductive health care to enlisted

women. The findings from this study were used to develop recommendations for health education interventions that will reduce the incidence of unintentional pregnancies, sexually transmitted diseases, and urinary tract and vaginal infections among enlisted women. The methods, findings, and recommendations will be discussed as well as their implications for military health education and health policy.

4. Abstract Accepted for Presentation at 2001 APHA Annual Meeting

The following abstract was accepted for presentation at the 2001 annual meeting of the American Public Health Association.

- Nancy L. Atkinson, Evelyn L. Lewis, Robert S. Gold, and Joscelyn Silsby. 2001. Preventive maintenance: Using technology to educate military females about their reproductive health.

  The number of women in the U.S. Armed Forces is increasing, and there is a growing concern about their health needs, particularly in regard to unintended pregnancies, STDs, and other preventable gynecological conditions. Many studies have examined the unique health concerns of military women, but few studies have tested interventions for addressing these concerns. A study funded by the Department of Defense's Women's Health Initiative tested the efficacy of an interactive computer-based educational program for enhancing military readiness and well-being among enlisted women in the Army, Navy, and Air Force. Approximately 450 enlisted women participated in an efficacy study during their medical visits at three military medical facilities. A randomized pretest/posttest control group design was used, with subjects completing a knowledge-attitudes-practices (KAP) survey prior to using the intervention and again after having their medical exam. Results of these analyses were compared with our initial needs assessment data and our initial behavioral objectives to draw conclusions about the extent to which the intervention was effective in changing knowledge, attitudes, and behavioral intentions in terms of sexual activity, personal hygiene, and birth control use. In addition to these research findings, this presentation will discuss the implications of using technology to increase military women's access to personal, relevant, and customized health information, and the impact this may have on military readiness and general well-being.

  Learning Objectives

  At the conclusion of this presentation, participants will be able to:

  - Identify key reproductive health issues faced by women in the military.
  - Describe features of a computer-based educational intervention targeting enlisted women in the military.
  - Evaluate the effectiveness of this educational intervention in changing women's reproductive health knowledge, attitudes, and behavior.

B. "Preventive Maintenance" CD-ROM

The priority reportable outcome is the completion of a multimedia CD-ROM intervention. Although the application could not benefit from the findings of the efficacy test, it is operational and has had a favorable reaction in expert reviews and target audience reviews. We submit a copy of the CD-ROM with this report.

C. Pocket Field Guide

Another deliverable is a pocket field guide that enlisted can take with them to the field and use to prepare for their reproductive health needs in the field. The pocket field guide is in Appendix S. The guide was to be distributed after seeing the intervention, and its effect would be evaluated in the follow up KAP surveys. Since the scope of the efficacy test was changed to a pre-test, immediate post-test design, this evaluation was not done.

V. Conclusions

Finalizing conclusions before the efficacy study is complete is premature. Instead, we will use this section to focus on the conclusions and implications that have emerged as the result of the needs assessment and intervention development phases of the research.

A. Needs Assessment Conclusions

Conclusions related to vaginal infections:

- Vaginal infections caused most sick call visits among active duty women.
- When it came to their reproductive health, women were most concerned about how to prevent getting vaginal infections in the field rather than preventing pregnancy or STD infection.
- Lack of knowledge and skills were related to increased risk of vaginal infections.
- Women often had problems getting hygiene supplies in the field because they or their commands did not adequately plan for women's health needs.
- Both clinicians and women said there was a lack of command support for hygiene care in the field.

Conclusions related to STD infection:

- Lack of perceived risk and concern about partners were related to enlisted women's risk of STDs and condom use.
- Some women may think military men have fewer STDs than civilian men because of the HIV and STD screening services military personnel receive.
- Clinicians and military women both thought STDs were more common than estimates from self-report surveys show.
- Many women believed that STD screening was a routine part of their annual exam. They believed they were infection free if they received a Pap test and their doctor did not call with negative no

- Many women who were deployed were not provided access to condoms, even when their male counterparts were provided condoms. STD infection may result from this lack of access to condoms in the field.

Conclusions related to unintentional pregnancy:

- Unintentional pregnancy was seen as a problem by all levels in the military, from the woman herself, to her clinician, her unit leader, her commander, and her service.
- Unintentional pregnancy was *often* to avoid duty or deployment. However, it was also due to lack of contraception or inappropriate use of contraception.
- Similar to STD infection issues, women did not perceive they were at risk for an unintentional pregnancy. They were further placed at increased risk by their concern about what their partners thought about contraception and pregnancy. This concern keeps them from using contraception consistently and correctly.
- Contraceptives were readily available, in general. The military medical system provides free contraception to military women.
- Deployed women often had problems using contraception. If they used oral contraceptives, they might not be able to get their prescription filled to cover the total number of months they were deployed. Contraceptive supplies in the field were often limited, and medical staff were often untrained in providing care related to contraception (e.g., giving DepoProvera injections, dispensing oral contraceptives).
- Pregnancy testing has not been routinely done for women who are deploying. Pregnant soldiers, sailors, and airmen would be deployed, discover their pregnancy much later, and have to be evacuated from the theater at great cost.

Conclusions related to military medical care:

- Enlisted women were concerned about lack of confidentiality because paraprofessionals in the health care setting were often peers from their own unit. This contributed to quality of care concerns. Quality of care also came into question because of the perception that enlisted personnel were more likely to see less trained medical personnel in the troop medical clinics, or at "sick call." They felt that they had to know as much or more than these paraprofessionals about their conditions. They also felt that they only saw physicians when they were referred with a health problem.
- Many of the enlisted women to whom we spoke were concerned that they saw a different clinician each time they received medical care, and they could not build a relationship and trust with their health care provider.
- Clinicians were also concerned about quality of care and continuity of care, especially when women were deployed and medical test results could not be shared with them.
- Women perceived that their commanders were often skeptical and unsupportive when they sought even preventive health care, thinking the women were shirking. Some of their counterparts in the units perceived that needing health care in general was a sign of weakness. Often the office hours for health care services were during work hours, which added to the impression that women were trying to get out of work when they sought care.
- When enlisted personnel changed duty stations, they might also have difficulty getting adequate care or health education.
- Clinicians ability to provide appropriate care was influenced by their lack of time with each patient. Routine STD screening was not provided to female patients. Although clinicians

were supposed to conduct a risk assessment with patients to identify those in need of screening, some clinicians admitted that assessments were not done consistently.
- During deployment, some commands were not adequately stocked with medical supplies for women's health needs.

Conclusions related to military health education:
- Women liked *small group discussions* with *knowledgeable peers*. Participants often perceived the focus group as a positive intervention in itself.
- Most health education was provided in written materials.
- Neither women nor clinicians thought women received *enough* health education.
- Enlisted women were *not positive* about most of their health education. They did not think it was useful, and they resented when females were singled out for extra briefings that the males did not have to attend.
- Patient education about contraception and STD prevention was *more common* than hygiene education even though hygiene issues were priority issues to enlisted women.
- Chiefs of service thought lack of time, lack of staff, and lack of skills were barriers to patient education in the clinical setting.
- Clinicians thought not all patients needed all the reproductive patient education because they were healthy, had a contraceptive method they used consistently, etc.
- Clinicians knew of many innovative programs in reproductive health that colleagues in other medical centers were doing, but these were not widely available.
- Lack of a policy for providing health education at predeployment may hinder women from getting critical health information at a teachable moment.

Conclusions related to reproductive health education interventions for military women:
- Education needs to be increased and ongoing throughout a person's military career. They need to be able to access the information when they need it.
- The education also needs to engage women through an interactive format rather than one-way communication.
- Because of the sensitive nature of the information, it needs to be delivered in a confidential manner so that women can feel free to share their issues and concerns.
- Reproductive health education should be mandatory for both males and females so that the stigma of seeking the information is avoided and the burden of extra educational requirements is shared.
- Complementary reproductive health education should be provided to enlisted males and female and male officers so they can protect their health. Males should also learn the health care demands that are routinely experienced by women so they are more understanding.
- Education on reproductive health issues would also improve the abilities of clinicians with little women's health experience to meet the needs of their female patients and the abilities of commanders to lead units that include female personnel.

B. Intervention Development Conclusions

The needs assessment findings were synthesized and operationalized into an interactive, multimedia CD-ROM intervention. The synthesis pointed to the need for integrating the following features:

- Individualized, context-sensitive health education information.
- Activities that allowed self-assessment.
- Activities that targeted environmental situations and conditions (behaviors, related attitudes, & knowledge).
- Supplemental background information that allowed interested individuals to find out more.
- Key messages and information that facilitated access to and utilization of necessary resources for preventive care.
- Experienced peers who model positive health attitudes, behavior, and skills.

C. Implications of the Completed Research

This research on women's health has implications for public health education research, practice, and policy. Working with military populations added an extra dimension to the implications that we discuss below.

In terms of health education research, the current study demonstrated that military populations are in need of the attention of health education researchers. More research is needed to understand the demands of service and of integrating female personnel in a male-dominated profession. This background understanding will enable public health professionals to better intervene to improve the health and quality of life for military personnel.

While making the effort to understand this population and intervene appropriately, public health researchers also need to understand the addition demands that working in this setting entails. The preparation time may be longer than expected to get the necessary approvals. Some approval procedures are centralized while other efforts are decentralized. This population is very mobile, too. The entrance of new personnel into the service, travel to deployment activities, changes in duty station, etc., all make getting contact information more difficult. Few centralized lists existed, perhaps because any list is quickly out of date.

The current funding program also may present difficulties because it funded several studies with common themes. Several efforts were underway but were independent. It is likely that some researchers would have benefited from the lessons learned by others. In addition, multiple research projects may have led to redundant data gathering efforts, and some research being halted so as to reduce the burden of military study participation.

Other research may be prevented if it is seen as identifying new problems. For example, women might not want to reveal problems related to dealing with field conditions for fear that they would enhance the perception (among some) that they should not be there at all. At a command level or service level, identifying problems mean that someone will have to address them or that negative publicity may result.

The present study also has implications for health education interventions developed for military populations. Interventions must address multiple audiences and use multiple channels if they are to survive. If materials are only developed for a few audiences, it can imply that we are neglecting other audiences, giving preferential treatment to some, or adding demands to others. In addition, military personnel have several opportunities for training throughout their careers (from basic

training to annual education seminars required of recruits), and various people can provide guidance on health concerns (including the clinicians at the medical center, health care providers at the TMCs and BMCs, and unit leaders). Waiting for them to attend a health care visit may be inappropriate. Further, such interventions would be better used if instructors charged with conducting reproductive health training and education were given an instructor's guide to help them use the intervention.

Besides in-person training, the military could support broader dissemination of computer-based materials to the barracks or a learning center closer to the troops. Internet-based applications would further increase access because the step of obtaining the CD-ROM would be removed. As computers are integrated into shipboard and other settings, access will become even less of an issue.

The lessons learned from this study need to be applied to the development and delivery of reproductive health education to the full range of military personnel in all of the settings where they might reasonably access it. However, such research would need to include a dissemination study in which the materials were examined to see where and how military personal use them.

The study also raised policy issues that were outside the scope of an intervention study but need to be raised in other ways to increase the opportunity for reproductive health among military women. Making reproductive health as important to the unit as vehicular maintenance may require policy level changes at the unit, installation, or service level. Specifically, ongoing health education is needed rather than a one-time, one-hour intervention. The command must value such education and health of individual soldiers and sailors so that they facilitate positive reproductive health behavior. Other enabling and facilitating factors may also need to be addressed at the unit, installation, or policy level. For example, ensuring adequate hygiene and contraceptive supplies is important to preventing pregnancy and vaginal infection in the field. Issues such as these are out of scope of this project, but we can forward information from the needs assessment to others who may be able to implement policy changes.

Although the project's contract period is complete, we plan to complete the efficacy study. Too much work has gone into building a foundation of understanding in this area and into developing a promising intervention. We plan to continue the following activities:

- Finalizing agreements with military co-investigators who will participate in the efficacy test of the application;
- Conducting the efficacy test;
- Analyzing efficacy test data and report the findings; and
- Revising the intervention based on the efficacy test findings.

Appendix A: Health Needs of Enlisted Army and Navy Women

The purpose of this survey is to collect information about health knowledge, attitudes, and behavior of enlisted Army and Navy women. The information you provide will help to identify and design the health programs and services enlisted women in the Army and Navy need.

The survey asks several questions about sensitive issues such as sexual behavior and feminine hygiene/cleanliness practices. We realize it makes some people uncomfortable to answer questions about sexual practices. Some people feel that they should answer a certain way, even if they are doing something else. To get good information, it is important to know what enlisted Army and Navy women know, think, and do.

Completing the survey is voluntary. You will not be penalized for not responding to any particular question. However, your participation is encouraged so that the data will be complete and representative.

Some people feel uncomfortable answering sensitive questions on a survey because it is written. The answers you give will be safeguarded to the fullest extent possible in accordance with the applicable statutes. Once we receive your survey, we will destroy the information linking your answers with any personal information, so your answers will then be anonymous. Also, your answers will be combined with the answers of hundreds of other enlisted women in the Army and Navy who complete this survey. No individual enlisted women will identified when we present the results of the survey, so please answer every question as honestly as you can.

Do <u>not</u> write your name on this survey.

When you are finished, send back the completed survey in the return envelope with your signed consent form. No postage is necessary.

Thank you very much for your help.

I. Demographics

Mark only one answer to each question unless you are asked to check all that apply.

1. What is your sex?
   a. Female
   b. Male

If you are Male, do not answer any other questions. This survey is for enlisted women.

2. How old are you? _____ Years

3. In what branch of the Armed services do you serve?
   a. Army
   b. Navy
   c. Other (Specify):

4. What is your grade? (Check one.)
   a. E1-E2
   b. E3-E4
   c. E5-E6
   d. E7-E9
   e. I am an officer.

5. When did you enter the service?

   Month ____ Year

6. How long do you plan to be in the service? **(Count from your date of entry.)**

   ____ Years

7. What is your primary job in the military?
   a. Health Care
   b. Administrative
   c. Communications/Intelligence
   d. Engineering/Maintenance
   e. Supply and Service
   f. Scientific/Professional
   g. Combat
   h. Other (Specify):

8. What type of deployment experience do you have? **(Check all that apply.)**
   a. None
   b. Field exercises
   c. Combat duty
   d. Humanitarian missions
   e. Other (Specify):

9. How do you describe yourself?
   a. White - not Hispanic
   b. Black - not Hispanic
   c. Hispanic or Latino
   d. Asian or Pacific Islander
   e. American Indian or Alaskan Native
   f. Other (specify):

10. What is your marital status?
    a. Single, never married
    b. Living with someone of the opposite sex with whom you have a relationship
    c. Married, living with your husband
    d. Married, not living with your husband
    e. Legally separated
    f. Divorced
    g. Widowed

11. Where do you currently live?
    a. Barracks
    b. Other base housing
    c. Off-base housing
    d. Other (Specify):

12. With whom do you currently live? **(Check all that apply.)**
    a. Alone
    b. Spouse/domestic partner
    c. Roommate(s)/friend(s)
    d. Parent(s)/guardian(s)
    e. Other relatives
    f. Your children
    g. Other

13. What is the highest education level you have completed and received credit for?
    a. High school diploma
    b. GED
    c. Associate s degree
    d. Vocational degree
    e. Some college
    f. Bachelor s degree
    g. Graduate degree

14. What is your religious preference?
    a. Protestant
    b. Jewish
    c. Catholic
    e. No preference
    d. Other

15. Did you grow up in a military family?
    a. Yes
    b. No

16. Where did you spend most of your childhood years? (Where did you grow up?)
    a. In the country (rural area)
    b. In a large city (urban area)
    c. In an inner city neighborhood
    d. In a town
    e. In a suburb
    f. Several places (non military family)
    g. Overseas

II. Knowledge Read each of the following questions, and select the answers you think are correct. It is important that we find out what women do and do not know, so please do not discuss your answers with anyone or ask anyone for help in answering the questions. You are **not** expected to know all the correct answers. Mark only one answer.

17. When does the ovulation phase of the female reproductive cycle usually occur?
    a. Right before a woman s period
    b. During a woman s period
    c. Right after a woman s period
    d. Mid-cycle
    e. I don t know.

18. What is the best method for cleaning the vagina?
    a. Using a vinegar and water douche
    b. Using vaginal deodorants
    c. Letting normal secretions cleanse the vagina
    d. Using Deodorant soap
    e. I don t know

19. Which is the best way to clean the vagina in the field?
    a. With scented deodorant sprays
    b. With disposable wipes
    c. By drinking plenty of water
    d. There is no way to be clean in the field.
    e. I don t know.

20. How can a woman be sure she has **NO** sexually transmitted diseases (STDs)?
    a. When she has no symptoms of itching or burning
    b. When she has a normal Pap test
    c. When her doctor does not notice any problems
    d. When screening tests show no infection
    e. I don t know.

21. What is the most common reason that birth control methods fail among American women?
    a. Incorrect use
    b. Method does not work well
    c. Lack of directions
    d. Poor choice of method
    e.
    e. I don t know

22. Which of the following is an effective method of birth control?
    a. Condoms
    b. Withdrawal
    c. Calendar method (rhythm)
    d. Douching
    e. I don t know.

23. At what point in the monthly reproductive cycle can a woman most likely become pregnant?
    a. Just after period (menstrual phase)
    b. Just before period (menstrual phase)
    c. Within one day of ovulation
    d. Four days after ovulation
    e. I don t know

For the following questions, check whether the statements that finish the phrase are true or false. If you do not know the answer, circle Don t know.

24. What should enlisted women do to prepare for deployment?	True	False	Don t Know
a. Have an OB/GYN exam	True	False	Don t Know
b. Have a pregnancy test	True	False	Don t Know
c. Stop using birth control	True	False	Don t Know
d. Pack plenty of personal hygiene supplies			
25. Being assertive in sexual matters means:			
a. Taking responsibility for protection against disease and pregnancy	True	False	Don t Know
b. Relying on your partner to be responsible for protection against disease and pregnancy	True	False	Don t Know
c. Saying no to a partner when necessary			
d. Talking with a partner about sex	True	False	Don t Know
	True	False	Don t Know
26. Sexually transmitted diseases (STDs) can lead to all the following health problems:	True	False	Don t Know
a. Premenstrual syndrome (PMS)	True	False	Don t Know
b. Cervical cancer	True	False	Don t Know
c. Infertility/sterility	True	False	Don t Know
d. Pelvic inflammatory disease (PID)	True	False	Don t Know
e. Endometriosis			
27. The risk of an STD infection is increased by:			
a. Having many steady boyfriends with whom one has had sex	True	False	Don t Know
b. Having sex when drunk or high	True	False	Don t Know
c. Having sex when dirty	True	False	Don t Know
d. Having sex without a barrier method, such as condoms	True	False	Don t Know

28. A woman can minimize sexual health problems in the field by:	True	False	Don t Know
a. Using condoms if any sexual contact occurs	True	False	Don t Know
b. Cleaning genitals with scented products			
c. Wearing cotton underwear	True	False	Don t Know
d. Cleaning genitals with water	True	False	Don t Know
29. Enlisted women who become pregnant are more likely to experience:	True	False	Don t Know
a. Mandatory discharge from the military	True	False	Don t Know
b. Fewer career/advancement opportunities	True	False	Don t Know
c. Avoidance of field duty	True	False	Don t Know
d. Avoidance of physical training (PT)	True	False	Don t Know
e. Reassignment to non-deployable status	True	False	Don t Know
f. Harassment from peers/commander	True	False	Don t Know
g. Light duty assignment			
30. Yeast infections are **more common** among women who:	True	False	Don t Know
a. Are pregnant	True	False	Don t Know
b. Have diabetes	True	False	Don t Know
c. Take birth control pills	True	False	Don t Know
d. Do not douche			

III. Attitudes We are interested in how you feel about specific health problems and behaviors that are important for enlisted Army and Navy women. Please answer the following questions as you really feel. There are no right or wrong answers. Mark only one answer unless you are asked to check all that apply.

A. Attitudes Toward Sexually Transmitted Disease (STD) Infection and Condoms

31. What is the chance that you will get an STD within the next 12 months?

0%	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%
Not at all										Definitely

32. What is the chance that the typical enlisted Army/Navy woman will get an STD within the next 12 months?

0%	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%
Not at all										Definitely

33. What is the chance that the typical civilian woman will get an STD within the next 12 months?

0%	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%
Not at all										Definitely

34. In general, what is your attitude toward using condoms?

Very Positive	Positive	Neutral	Negative	Very Negative

Put an X in the box that most closely describes how you feel about condoms.

35. Embarrassing to discuss | | | | | | | | Easy to discuss

36. Make love making better | | | | | | | | Spoil love making

37. Poor contraceptive ☐☐☐☐☐☐☐ Good contraceptive

38. Easy to use correctly ☐☐☐☐☐☐☐ Hard to use correctly

39. Easy to use every time ☐☐☐☐☐☐☐ Hard to use every time

40. Expensive ☐☐☐☐☐☐☐ Cheap/inexpensive

41. Reduce sexual pleasure ☐☐☐☐☐☐☐ Enhance sexual pleasure

42. Good at preventing STDs ☐☐☐☐☐☐☐ Does not prevent STDs

43. Builds trust with partner ☐☐☐☐☐☐☐ Destroys trust with partner

44. Easy to get ☐☐☐☐☐☐☐ Embarrassing to get

45. My health care provider thinks it is important that I use condoms to prevent STDs.

Strongly Agree	Agree	Unsure	Disagree	Strongly Disagree

46. My friends think it is important to use condoms to prevent STDs.

Strongly Agree	Agree	Unsure	Disagree	Strongly Disagree

If you have never had sexual intercourse, go to question number 57.

47. In general, what is your current (or most recent) sexual partner s attitude toward using condoms?

Very Positive	Positive	Neutral	Negative	Very Negative

Put an X in the box that most closely describes how your current (or most recent) sexual partner feels about condoms.

48. Embarrassing to discuss ☐☐☐☐☐☐☐ Easy to discuss

49. Improve love making ☐☐☐☐☐☐☐ Spoil love making

☐☐☐☐☐☐☐

50.	Easy to use							Hard to use
51.	Reduce sexual pleasure							Enhance sexual pleasure
52.	Easy to use every time							Hard to use every time
53.	Builds trust							Destroys trust

54. I am confident that my partner(s) and I can use condoms **correctly** to prevent STDs.

Strongly Agree	Agree	Unsure	Disagree	Strongly Disagree

55. I am confident that my partner(s) and I can use condoms to prevent STDs **every time** we have intercourse.

Strongly Agree	Agree	Unsure	Disagree	Strongly Disagree

56. I am confident that my partner and I can use condoms to prevent STDs **if we have been drinking alcohol or using drugs**.

Strongly Agree	Agree	Unsure	Disagree	Strongly Disagree

B. Attitudes Toward Unintentional Pregnancy and Contraception (Birth Control)

Earlier we asked you a series of questions about how you feel about STDs and condoms. Now we would like to know how you feel about **unintentional pregnancy and contraception** (birth control) in general.

57. What is the chance that you will have an unplanned pregnancy within the next 12 months?

0%	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%
Not at all										Definitely

58. What is the chance that the typical enlisted Army/Navy woman will have an unplanned pregnancy within the next 12 months?

0%	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%
Not at all										Definitely

59. What is the chance that the typical civilian woman will have an unplanned pregnancy within the next 12 months?

0%	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%
Not at all										Definitely

60. When you have sexual intercourse, what birth control method do you **usually** use to prevent pregnancy? **(Check all that apply.)**

a. No method
b. Withdrawal
c. Birth control pills
d. Norplant
e. Depo-Provera
f. Diaphragm
g. Male condom (latex or polyurethane)
h. Male condom (natural)
I. Female condom
j. Spermicide (foam, film, etc.)
k. Tubal ligation
l. Vasectomy
m. Other:
n. I ve never had sexual intercourse

61. In general, what is your attitude toward using birth control (contraception)?

Very Positive	Positive	Neutral	Negative	Very Negative

Put an X in the box that most closely shows how you feel about birth control (contraception) in general.

62.	Embarrassing to discuss							Easy to discuss
63.	Make love making better							Spoil love making
64.	Easy to use correctly							Hard to use correctly
65.	Easy to use every time							Hard to use every time
66.	Expensive							Cheap
67.	Reduce sexual pleasure							Enhance sexual pleasure
68.	Builds trust with partner							Destroys trust with partner
69.	Easy to get							Embarrassing to get

70. My health care provider thinks that I should use birth control to prevent an unintentional pregnancy.

Strongly Agree	Agree	Unsure	Disagree	Strongly Disagree

71. My friends think it is important to use birth control to prevent an unintentional pregnancy.

Strongly Agree	Agree	Unsure	Disagree	Strongly Disagree

If you have never had sexual intercourse, go to question number 82.

72. In general, what is your current (or most recent) sexual partner s attitude toward using birth control?

Very Positive	Positive	Neutral	Negative	Very Negative

Put an X in the box that most closely shows how your current (or most recent) sexual partner feels about **birth control**.

73.	Embarrassing to discuss							Easy to discuss
74.	Improve love making							Spoil love making
75.	Easy to use							Hard to use
76.	Reduces sexual pleasure							Enhances sexual pleasure
77.	Easy to use every time							Hard to use every time
78.	Builds trust							Destroys trust

79. I am confident that I can **correctly** use birth control to prevent pregnancy.

Strongly Agree	Agree	Unsure	Disagree	Strongly Disagree

80. I am confident that I can use birth control to prevent pregnancy **every time** I have intercourse.

Strongly Agree	Agree	Unsure	Disagree	Strongly Disagree

81. I am confident that I can use birth control to prevent pregnancy **if I have been drinking alcohol or using drugs**.

Strongly Agree	Agree	Unsure	Disagree	Strongly Disagree

V. Practices

The following questions ask about your sexual behavior, alcohol, and cigarette use. As we noted earlier, these types of questions often make people uncomfortable. Many people feel the need to give an answer that may be different from what they actually do. Please answer the following questions honestly so that we can find out the important health needs of enlisted Army and Navy women.

The next three questions ask about cigarette smoking.

82. Have you ever smoked cigarettes regularly, that is, at least one cigarette every day for 30 days?
    a. Yes
    b. No

83. During the past 30 days, on how many days did you smoke cigarettes?
    a. 0 days
    b. 1 or 2 days
    c. 3 to 5 days
    d. 6 to 9 days
    e. 10 to 19 days
    f. 20 to 29 days
    g. All 30 days

84. During the past 30 days, on the days you smoked, how many cigarettes did you smoke per day?
    a. I did not smoke cigarettes during the past 30 days
    b. Less than 1 cigarette per day
    c. 1 cigarette per day
    d. 2 to 5 cigarettes per day
    e. 6 to 10 cigarettes per day
    f. 11 to 20 cigarettes per day
    g. More than 20 cigarettes per day

The next three questions ask about drinking alcohol. This includes drinking beer, wine, wine coolers, and liquor such as rum, gin, vodka, or whiskey. For these questions, drinking alcohol does not include drinking a few sips of wine for religious purposes.

85. How old were you when you had your first drink of alcohol other than a few sips?
    a. I have never had a drink of alcohol
    b. 12 years old or younger
    c. 13 or 14 years old
    d. 15 or 16 years old
    e. 17 or 18 years old
    f. 19 or 20 years old
    g. 21 to 24 years old
    h. 25 years old or older

86. During the past 30 days, on how many days did you have at least one drink of alcohol?
    a. 0 days
    b. 1 or 2 days
    c. 3 to 5 days
    d. 6 to 9 days
    e. 10 to 19 days
    f. 20 to 29 days
    g. All 30 days

87. During the past 30 days, on how many days did you have 5 or more drinks of alcohol within a couple of hours?
    a. 0 days
    b. 1 day
    c. 2 days
    d. 3 to 5 days
    e. 6 to 9 days
    f. 10 to 19 days
    g. 20 or more days

The next 12 questions ask about sexual behavior. For this survey, sexual intercourse is defined as vaginal intercourse, anal intercourse, or oral sex.

88. How old were you when you had sexual intercourse for the first time?
    a. I have never had sexual intercourse
    b. 12 years old or younger
    c. 13 or 14 years old
    d. 15 or 16 years old
    e. 17 or 18 years old
    f. 19 or 20 years old
    g. 21 or 24 years old
    h. 25 years old or older

89. With how many different partners have you had <u>vaginal sex (intercourse)</u> in your lifetime?
    a. 0
    b. 1
    c. 2-3
    d. 4-5
    e. 6-10
    f. 11-20
    g. More than 21

90. With how many different partners have you had <u>oral sex (intercourse)</u> in your lifetime?
    a. 0
    b. 1
    c. 2-3

d. 4-5
e. 6-10
f. 11-20
g. More than 21

91. With how many different partners have you had **anal sex (intercourse)** in your lifetime?
    a. 0
    b. 1
    c. 2-3
    d. 4-5
    e. 6-10
    f. 11-20
    g. More than 21

92. How many people have forced you to have sex against your will?
    a. 0
    b. 1
    c. 2
    d. 3
    e. 4
    f. 5 or more

93. What best describes your sexual activity within the past six months?
    a. Abstinent/celibate (no intercourse)
    b. One long-term steady sexual relationship (boyfriend or girlfriend)
    c. More than one steady relationship
    d. One casual, non-steady sexual relationship
    e. More than one casual partner
    f. One or more steady relationship(s) and one or more casual partner(s)

94. How many times did you have sexual intercourse in the past 30 days?
    a. 0 times
    b. 1 time
    c. 2 or 3 times
    d. 4 to 9 times
    e. 10 to 19 times
    f. 20 or more times

95. The last time you had sexual intercourse, what birth control method did you use? **(Check all that apply.)**
    a. No method
    b. Withdrawal
    c. Birth control pills
    d. Norplant
    e. Depo-Provera
    f. Diaphragm
    g. Male condom (latex or polyurethane)
    h. Male condom (natural)
    I. Female condom
    j. Spermicide (foam, film, etc.)
    k. Tubal ligation
    l. Vasectomy
    m. Other:
    n. I have never had sexual intercourse.

96. During the past 30 days, how often did you and your partner(s) use a condom?
    a. I did not have sexual intercourse during the past 30 days
    b. Never used a condom
    c. Rarely used a condom
    d. Sometimes used a condom
    e. Most of the time used a condom
    f. Always used a condom

97. Did you drink alcohol or use drugs before you had sexual intercourse the last time?
    a. Yes
    b. No

98. Do you use a birth control method **every time** you have intercourse? **(Check the one best answer.)**
    a. No, and I do not intend to.
    b. No, but I intend to start soon.
    c. No, but I intend to start within the next 30 days.
    d. Yes, and I have been for less than 6 months.
    e. Yes, and I have been for more than 6 months.
    f. I ve never had intercourse, and I do not intend to use birth control when I do.
    g. I ve never had intercourse, but I intend to use birth control when I do.

99. Do you use an STD prevention method (e.g., condom) **every time** you have intercourse? **(Check the one best answer.)**

a. No, and I do not intend to.
b. No, but I intend to start soon.
c. No, but I intend to start within the next 30 days.
d. Yes, and I have been for less than 6 months.
e. Yes, and I have been for more than 6 months.
f. I ve never had intercourse, and I do not intend to use condoms when I do.
g. I ve never had intercourse, but I intend to use condoms when I do.

The following 8 questions ask about your reproductive health history. Please answer honestly.

100. How many times have you been pregnant?
a. I have never been pregnant
b. 1 time
c. 2 times
d. 3 times
e. More than 3 times

101. How many unintentional pregnancies have you had?
a. I have never been pregnant
b. 0, all were planned
c. 1
d. 2
e. 3
f. More than 3

102. How often do you have pelvic exams (including a Pap test)?
a. Never
b. Rarely (once)
c. Occasionally (less than 1 per year)
d. Regularly (once per year)
e. Often (more than 1 per year)

103. Have you ever had an STD?
a. Yes
b. No
c. I don t know

104. Which of the following diagnoses have you had or do you currently have? **(Check all that apply.)**
a. Abnormal Pap test
b. Cervical disease (dysplasia)
c. Chlamydia
d. Gonorrhea (GC)
e. Herpes
f. HIV/AIDS
g. Human Papillomavirus (genital warts)
h. Pelvic Inflammatory Disease (PID)
I. Syphilis
j. Trichomoniasis
k. Urinary tract infection/Bladder infection
l. Yeast infection
m. None

105. How often do you have an OB/GYN examination before deploying?
a. All or nearly all of the time (81-100%)
b. Most of the time (61-80%)
c. About half of the time (41-60%)
d. Some of the time (21-40%)
e. Rarely (1-20%)
f. Never (0%)
g. I have never been deployed.

106. For what reasons have you been **unable** to have an OB/GYN examination before deploying? **(Check all that apply.)**
a. I have never been deployed.
b. I always have a predeployment exam.
c. No problems/symptoms
d. No time
e. Can t get an appointment
f. Commander did not recommend it
g. Doctor did not recommend it
h. Didn t know I should
I. Other:

107. What medical and hygiene supplies do you pack **during predeployment** planning to prepare for your reproductive health needs? **(Check all that apply.)**
a. None
b. Cotton underwear
c. Oral contraceptive supplies
d. Unscented tampons
e. Scented/deodorant tampons
f. Unscented panty liners
g. Scented/deodorant panty liners
h. Unscented wet-wipes
I. Scented wet-wipes
j. Yeast infection medication
k. Female urinary director
l. Other:
m. I have never been deployed.

V. Health Education & Health Services

We are interested in how you feel about the health care and the health education that have received in the military. Please answer honestly.

108. Have you had sex education in either junior high or senior high school?
a. No
b. Yes, one class period
c. Yes, a few class periods
d. Yes, several class periods
e. Yes, at least one semester

109. Which reproductive health topics do you want to know more about? **(Check all that apply.)**
a. I know all I need to know.

b. Pelvic exams
c. Pregnancy prevention
d. Contraception/birth control
e. STD/HIV prevention
f. Prevention of vaginal infections
g. Personal hygiene
h. Menstrual cycle (period)
I. Other:

110. Who do you go to when you want information about your health? **(Check all that apply.)**
a. Friends
b. Parents
c. Doctor/other health care provider

112. On which of the following health topics have you ever received **written** information (pamphlets, guides) from the military? **(Check all that apply.)**
a. Alcohol prevention
b. Other drug use prevention
c. Birth control/family planning
d. STD prevention
e. AIDS or HIV infection prevention
f. Prevention of vaginal infections
g. Personal hygiene
h. Assertiveness training
I. None
j. I don t remember.

113. On which of the following health topics have you ever viewed **audio or video** health information in the military? **(Check all that apply.)**
a. Alcohol prevention
b. Other drug use prevention
c. Birth control/family planning
d. STD prevention
e. AIDS or HIV infection prevention
f. Prevention of vaginal infections
g. Personal hygiene
h. Assertiveness training
i. None
j. I don t remember.

114. While in the military, which of the following health topics have you ever learned about using **a computer program**? **(Check all that apply.)**
a. Alcohol prevention
b. Other drug use prevention
c. Birth control/family planning
d. STD prevention
e. AIDS or HIV infection prevention
f. Prevention of vaginal infections
g. Personal hygiene
h. Assertiveness training
I. None
j. I don t remember.

119. How would you rate the **amount of contraceptive education** enlisted women receive:
d. Health educator/instructor
e. Your commanding officer
f. Other:

111. Where do you go when you want information about your health? **(Check all that apply.)**
a. Health center/clinic
b. Pharmacy
c. Health telephone hotline
d. Library/resource books
e. Internet
f. Newspapers/magazines
g. Other:

115. On which of the following health topics have you ever taken a class in the military? **(Check all that apply.)**
a. Alcohol prevention
b. Other drug use prevention
c. Birth control/family planning
d. STD prevention
e. AIDS or HIV infection prevention
f. Prevention of vaginal infections
g. Personal hygiene
h. Assertiveness training
I. None
j. I don t remember.

116. Where on your military base did you receive information on health? **(Check all that apply.)**
a. I have never received health information on a military base.
b. Active Duty Medical Clinic/Sick Call
c. Troop Medical Clinic
d. OB/GYN Clinic
e. Preventive Medicine Clinic
f. Family Practice Clinic
g. Family Planning Clinic
h. Hospital
i. Other (Specify):

117. From whom did you receive health information while in the military? **(Check all that apply.)**
a. Corpsman/medic
b. Community health nurse
c. Nurse
d. Physician assistant (PA)
e. Gynecologist
f. Preventive medicine doctor
g. Civilian doctor
h. Unit leader
i. Commander
j. Other (Specify):

118. How **helpful** is the **contraceptive education** enlisted women receive?
a. Very helpful
b. Helpful
c. Moderately helpful
d. Somewhat helpful
e. Not helpful at all

a. Too much
b. A lot

c. Average amount
d. Some
e. Too little

120. How helpful is the **STD prevention education** enlisted women receive?
a. Very helpful
b. Helpful
c. Moderately helpful
d. Somewhat helpful
e. Not helpful at all

121. How would you rate the **amount of STD prevention education** enlisted women receive:
a. Too much
b. A lot
c. Average amount
d. Some
e. Too little

122. How helpful is the **personal hygiene education** enlisted women receive?
a. Very helpful
b. Helpful
c. Moderately helpful
d. Somewhat helpful
e. Not helpful at all

123. How would you rate the **amount of personal hygiene education** enlisted women receive:
a. Too much
b. A lot
c. Average amount
d. Some
e. Too little

124. Do you have a health care provider who you are assigned to see for OB/GYN care visits?
a. Yes
b. No

125. When you have routine OB/GYN care, where do you usually go?
a. Active Duty Medical Clinic/Sick Call
b. OB/GYN Clinic
c. Family Practice Clinic
d. Family Planning Clinic
e. Civilian doctor/clinic
f. Other (Specify):
g. I do not have routine OB/GYN care

126. Have you ever visited a miltary medical facility for routine OB/GYN care?
a. Yes
b. No

If NO, go to question 131.

127. Who provided **most** of your care during routine OB/GYN visits at a military medical facility? **(Select only one.)**
a. Not sure.
b. Medical Corpsman
c. Technician
d. Nurse
e. Nurse Practitioner
f. Physician Assistant
g. Physician
h. Other (Specify):

128. When you get reproductive health care, how likely is it that you are able to see the same health care provider?
a. Definitely (100%)
b. Very likely (81-99% of the time)
c. Likely (61-80% of the time)
d. Somewhat likely (41-60% of the time)
e. Unlikely (21-40% of the time)
f. Very unlikely (1-20% of the time)
g. Not likely at all (0%)

129. For your last (or only) OB/GYN visit, do you believe you were given priority over non-active duty people **when arranging for the visit**?
a. Yes
b. No
c. Don t know

130. For your last (or only) OB/GYN visit, do you believe you were given priority over non-active duty people **at the time of the visit**?
a. Yes
b. No
c. Don t know

Put an X in the box that most closely shows how you feel about military medical care in general.

131. Very Positive | | | | | | | | Very Negative

132.	Low Quality	☐☐☐☐☐☐☐	High Quality
133.	Easy to get appointments	☐☐☐☐☐☐☐	Hard to get appointments
134.	Slow to get test results	☐☐☐☐☐☐☐	Quick to get test results
135.	Confidential	☐☐☐☐☐☐☐	Not confidential
136.	Competent staff	☐☐☐☐☐☐☐	Incompetent staff
137.	Too little time with doctor	☐☐☐☐☐☐☐	Too much time with doctor
138.	Hard to talk to doctor	☐☐☐☐☐☐☐	Easy to talk to doctor
139.	Short wait for appointment	☐☐☐☐☐☐☐	Long wait for appointment

140. If you had a reproductive health problem (suspected pregnancy or STD, etc.), where would you go for care? **(Select only one answer.)**

a. Active Duty Medical Clinic/Sick Call
b. OB/GYN Clinic
c. Family Practice Clinic
d. Family Planning Clinic
e. Civilian doctor/clinic
f. Other (Specify):

Appendix B
Needs Assessment Survey of Military Clinicians

Health Care Provider Survey: Health Needs of Enlisted Army and Navy Women

The purpose of this survey is to collect information about the health knowledge, attitudes, and practices of military health care providers who serve enlisted Army and Navy women. The information you provide will help to identify the kind of health programs and services enlisted women in the Army and Navy need.

The survey asks several questions about reproductive health care provided to enlisted women. We realize that some of the questions may be sensitive for health care providers who may feel that standard medical care should include some services that they are unable to provide because of constraints. To get good information, it is important that everyone be as honest as possible.

Completing the survey is voluntary, and the answers you give will be safeguarded to the fullest extent possible in accordance with the applicable statutes. Once we receive your survey, we will destroy the information linking your answers with any personal information, so your answers will then be anonymous. Your answers will be combined with the answers of other military health care providers serving enlisted Army and Navy women. No individual responses will be reported, so please answer every question as honestly as you can.

Do not write your name on this survey.

When you are finished, send back the completed survey in the return envelope. No postage is necessary.

Privacy Act Statement

Needs Assessment Survey among Military Clinicians

Authority:	10 U.S.C. §136 and §2358
Principal Purpose(s):	To assess the range of reproductive health education efforts and needs of enlisted women in the armed services.
Routine Use(s):	None. (Data concerning individual participants and their survey answers will not be distributed outside the DoD or its contractors.)
Disclosure:	Voluntary. There is no penalty if you choose not to respond. However, maximum participation is encouraged so that the data will be complete and representative.

Thank you very much for your help.

Health Care Provider Survey: Health Needs of Enlisted Army and Navy Women

I. Demographics—Mark only one answer to each question unless you are asked to check all that apply.

1. How old are you? _____ Years

2. What is your sex?

   ❑ Female
   ❑ Male

3. How do you describe yourself?

   ❑ White—not Hispanic
   ❑ Black—not Hispanic
   ❑ Hispanic or Latino
   ❑ Asian or Pacific Islander
   ❑ American Indian or Alaskan Native
   ❑ Other (specify):_____

4. In what branch of the service are you?

   ❑ Army
   ❑ Navy
   ❑ Other (Specify):_____

5. Date of entry in the service:

   Month ____ Day ____ Year ____

6. Date of separation/Estimated time of separation

   Month ____ Day ____ Year ____

7. Type of health care provider:

   ❑ Nurse
   ❑ Nurse Practitioner
   ❑ Physician's Assistant
   ❑ Physician
   ❑ Other (Specify):_____

8. Type of clinic/service where you practice:

   ❑ Family Practice
   ❑ Internal Medicine
   ❑ Obstetrics/Gynecology
   ❑ Preventive Medicine
   ❑ Active Duty Medical Clinic
   ❑ Other (Specify): _____

9. In what year did you complete your basic medical training (i.e., medical or nursing school)?

   19 __ __

10. In what type of health care facility did you receive your postgraduate medical/nursing training?

    ❑ Military
    ❑ Civilian

11. Have you had training in health care as it pertains to readiness?

    ❑ Yes
    ❑ No

12. What type of deployment experience do you have? **(Check all that apply.)**

    ❑ None
    ❑ Field training exercises
    ❑ Combat duty
    ❑ Humanitarian missions
    ❑ Other (Specify): _____

13. Prior to this study have you ever had any training in **women's health**? Please do not count participation in this study. **(Check all that apply.)**

    ❑ None, and I am not interested in any
    ❑ None, but I would like to have training in this area.
    ❑ Medical/nursing school
    ❑ Residency
    ❑ Subspecialty certification
    ❑ Continuing medical education
    ❑ Other (Specify): _____

14. Prior to this study have you ever had any training in **STD prevention counseling** skills? **(Check all that apply.)**

    ❑ None, and I am not interested in any
    ❑ None, but I would like to have training

in this area.
- ☐ Medical/nursing school
- ☐ Residency
- ☐ Subspecialty certification
- ☐ Continuing medical education
- ☐ Other (Specify): _____

15. Prior to this study have you ever had any training in **sexual risk assessment** (sexual history taking) skills ? **(Check all that apply.)**

- ☐ None, and I am not interested in any
- ☐ None, but I would like to.
- ☐ Medical/nursing school
- ☐ Residency
- ☐ Subspecialty certification
- ☐ Continuing medical education
- ☐ Other (Specify): _____

16. Prior to this study have you ever had any training in **contraception counseling** skills? **(Check all that apply.)**

- ☐ None, and I am not interested in any
- ☐ None, but I would like to.
- ☐ Medical/nursing school
- ☐ Residency
- ☐ Subspecialty certification
- ☐ Continuing medical education
- ☐ Other (Specify): _____

If you are not a physician, GO TO QUESTION #20.

For Physicians:

17. In which of the following specialties are you board certified or board eligible? **(Check all that apply.)**

- ☐ Family Practice
- ☐ Internal Medicine
- ☐ Obstetrics/Gynecology
- ☐ None, I am a General Medical Officer.
- ☐ I am not a physician (skip to question 20)
- ☐ Other (Specify): _____

18. In which type of health care facility did you do your internship?

- ☐ Military
- ☐ Civilian

19. In which type of health care facility did you do your residency?

- ☐ Military
- ☐ Civilian
- ☐ None, I am a General Medical Officer

II. Attitudes—The following questions ask your opinion, based on your experience as a practitioner, about specific health problems and behaviors that are important for enlisted Army and Navy women.

20. **Ideally**, which of the following *should be included* in **routine care visits** for enlisted women for their reproductive health? **(Check all that apply.)**

- ☐ Pregnancy testing
- ☐ Contraceptive education/counseling
- ☐ STD screening
- ☐ Sexual history taking
- ☐ STD prevention education
- ☐ Education on hygiene practices
- ☐ None.
- ☐ Other (Specify): _____

21. **Realistically**, which of the following *are being included* in **routine care visits** for enlisted women for their reproductive health? **(Check all that apply.)**

- ☐ Pregnancy testing
- ☐ Contraceptive education/counseling
- ☐ STD screening
- ☐ Sexual history taking
- ☐ STD prevention education
- ☐ Education on hygiene practices
- ☐ None.
- ☐ Other (Specify): _____
- ☐ I don't know.

22. **Ideally**, which of the following should be included in **predeployment care** for enlisted women for their reproductive health? **(Check all that apply.)**

- ☐ Pregnancy testing
- ☐ Contraceptive education/counseling
- ☐ STD prevention education
- ☐ Prescription medication review
- ☐ Education on hygiene practices
- ☐ None
- ☐ Other (Specify): _____

23. **Realistically**, which of the following are included in **predeployment care** for enlisted women for their reproductive health? **(Check all that apply.)**

- ☐ Pregnancy testing
- ☐ Contraceptive education/counseling
- ☐ STD prevention education
- ☐ Prescription medication review
- ☐ Education on hygiene practices
- ☐ None
- ☐ Other (Specify): _____
- ☐ I don't know.

24. **Ideally**, what medical and hygiene supplies would you **recommend be available** during deployment to care for the reproductive health needs of enlisted women? **(Check all that apply.)**

- ☐ None.
- ☐ Oral contraceptives
- ☐ Depo Provera injections
- ☐ Condoms
- ☐ Unscented tampons
- ☐ Unscented panty liners
- ☐ Unscented wet-wipes
- ☐ Yeast infection medication
- ☐ Female urinary director
- ☐ Other: _____

25. What is the **most common** reproductive health problem among enlisted women? **(Check one.)**

- ☐ STD infection
- ☐ Unintended pregnancy
- ☐ Ectopic pregnancy
- ☐ Spontaneous abortion
- ☐ Vaginal infection (non-STD)
- ☐ Urinary tract infection
- ☐ Other: _____

26. What is the **most serious** reproductive health problem among enlisted women?

- ❑ STD infection
- ❑ Unintended pregnancy
- ❑ Spontaneous abortion
- ❑ Ectopic pregnancy
- ❑ Vaginal infection (non-STD)
- ❑ Urinary tract infection
- ❑ Other: _____

27. What is the **most common** reproductive health problem among enlisted women **in the field**?

- ❑ STD infection
- ❑ Unintended pregnancy
- ❑ Spontaneous abortion
- ❑ Ectopic pregnancy
- ❑ Vaginal infection (non-STD)
- ❑ Urinary tract infection
- ❑ Other: _____
- ❑ No field experience with women

28. What is the **most serious** reproductive health problem among enlisted women **in the field**?

- ❑ STD infection
- ❑ Unintended pregnancy
- ❑ Spontaneous abortion
- ❑ Ectopic pregnancy
- ❑ Vaginal infection (non-STD)
- ❑ Urinary tract infection
- ❑ Other: _____
- ❑ No field experience with women

29. What do you perceive to be the **most common reason for premature separation** from the military among enlisted women?

- ❑ Exceeding height/weight/body fat standards
- ❑ Drug/alcohol abuse
- ❑ Criminal activity
- ❑ Physical disability/injury
- ❑ Pregnancy
- ❑ Other: _____

30. What is the likelihood that the average enlisted woman will experience an STD within the next year?

- ❑ Very unlikely
- ❑ Unlikely
- ❑ Likely
- ❑ Very Likely
- ❑ Almost Definitely
- ❑ I don't know.

31. What is the likelihood that the average enlisted woman will experience an **unintentional pregnancy** within the next year?

- ❑ Very unlikely
- ❑ Unlikely
- ❑ Likely
- ❑ Very Likely
- ❑ Almost Definitely
- ❑ I don't know.

32. What is the likelihood that the average enlisted woman will experience a vaginal infection (non-STD) within the next year?

- ❑ Very unlikely
- ❑ Unlikely
- ❑ Likely
- ❑ Very Likely
- ❑ Almost Definitely
- ❑ I don't know.

33. In general, what is the attitude of enlisted women toward **using male condoms**?

- ❑ Very positive
- ❑ Positive
- ❑ Neutral
- ❑ Negative
- ❑ Very negative
- ❑ I don't know.

34. In general, what is the attitude of enlisted women's partners toward **using male condoms**?

- ❑ Very unlikely
- ❑ Unlikely
- ❑ Likely
- ❑ Very Likely
- ❑ Almost Definitely
- ❑ I don't know.

35. In general, what is the attitude of enlisted women toward **using a method of birth**

control?

- ❑ Very positive
- ❑ Positive
- ❑ Neutral
- ❑ Negative
- ❑ Very negative
- ❑ I don't know.

36. What is the most common reason that enlisted women have **unintentional pregnancies? (Check one answer.)**

- ❑ Lack of knowledge about reproduction
- ❑ Lack of skill using birth control
- ❑ Inability to persuade partner to use birth control method
- ❑ Not feeling that she is at risk
- ❑ Lack of awareness of effect on life
- ❑ Negative attitudes toward birth control
- ❑ Religious reasons
- ❑ Partner's negative attitudes toward birth control
- ❑ Strategy to avoid field duty
- ❑ Other: _____
- ❑ I don't know.

37. What is the most common reason that enlisted women **do not use safer sex practices? (Check one answer.)**

- ❑ Lack of knowledge about STDs
- ❑ Lack of skill using condoms
- ❑ Inability to persuade partner to use STD prevention method
- ❑ Not feeling that she is at risk
- ❑ Low self-esteem
- ❑ Negative attitudes toward condoms
- ❑ Religious reasons
- ❑ Partner's negative attitudes toward
- ❑ Other: _____
- ❑ I don't know.

38. What is the most common reason that enlisted women get **non-STD vaginal infections** (yeast, etc.)? **(Check one answer.)**

- ❑ Lack of knowledge about hygiene
- ❑ Improper use of hygiene products
- ❑ Unhealthy lifestyle (stress, poor diet)
- ❑ Lack of skill in proper hygiene
- ❑ Inability to practice proper hygiene in the field environment
- ❑ Not feeling that she is at risk
- ❑ Other: _____
- ❑ I don't know.

III. Health Services—The next questions are about services you have provided to enlisted women during routine health visits (annual Pap test), during predeployment, and during deployment **in the last 6 months**. We realize that health care providers often have "ideal" standards but that they may not be able to deliver their "ideal" health care due to different constraints. We are interested in what you are able to do.

The following 11 questions are about routine care visits.

39. What proportion of your patients are enlisted women?

- ❑ All or nearly all
- ❑ Most
- ❑ About half
- ❑ Some
- ❑ Few
- ❑ None

40. What proportion of your enlisted female patients do you provide with **contraceptive education and counseling**?

- ❑ All or nearly all
- ❑ Most
- ❑ About half
- ❑ Some
- ❑ Few
- ❑ None

41. What proportion of your enlisted female patients do you provide with **STD prevention counseling and education**?

- ☐ All or nearly all
- ☐ Most
- ☐ About half
- ☐ Some
- ☐ Few
- ☐ None

42. On what proportion of your enlisted female patients do you take a **sexual history (sexual risk assessment)**?

- ☐ All or nearly all
- ☐ Most
- ☐ About half
- ☐ Some
- ☐ Few
- ☐ None

43. What proportion of your enlisted female patients do you personally ask about their **use of STD prevention methods**?

- ☐ All or nearly all
- ☐ Most
- ☐ About half
- ☐ Some
- ☐ Few
- ☐ None

44. What proportion of your enlisted female patients do you provide with education on **hygiene practices**?

- ☐ All or nearly all
- ☐ Most
- ☐ About half
- ☐ Some
- ☐ Few
- ☐ None

45. What prevents you from providing ***routine* contraceptive education and counseling** to your enlisted female patients? **(Check all that apply.)**

- ☐ I provide this service to all patients.
- ☐ I only provide this service to patients who request it.
- ☐ Not needed by all patients
- ☐ No time
- ☐ Lack of staff
- ☐ Lack of skills
- ☐ Lack of comfort
- ☐ No policy making this standard care
- ☐ Not effective
- ☐ Other: _____

46. What prevents you from taking a **sexual history** (sexual risk assessment) from your enlisted female patients? **(Check all that apply.)**

- ☐ I provide this service to all patients.
- ☐ I only provide this service to patients who request it.
- ☐ Not needed by all patients
- ☐ No time
- ☐ Lack of staff
- ☐ Lack of skills
- ☐ Lack of comfort
- ☐ No policy making this standard care
- ☐ Not effective
- ☐ Other: _____

47. What prevents you from providing **STD prevention counseling and education** to your enlisted female patients? **(Check all that apply.)**

- ☐ I provide this service to all patients.
- ☐ I only provide this service to patients who request it.
- ☐ Not needed by all patients
- ☐ No time
- ☐ Lack of staff
- ☐ Lack of skills
- ☐ Lack of comfort
- ☐ No policy making this standard care
- ☐ Not effective
- ☐ Other: _____

48. What prevents you from asking enlisted female patients about their use of **STD prevention methods?** **(Check all that apply.)**

- ❑ I provide this service to all patients.
- ❑ I only provide this service to patients who request it.
- ❑ Not needed by all patients
- ❑ No time
- ❑ Lack of staff
- ❑ Lack of skills
- ❑ Lack of comfort
- ❑ No policy making this standard care
- ❑ Not effective
- ❑ Other: _____

49. What prevents you from providing **personal hygiene education** to enlisted female patients? **(Check all that apply.)**

- ❑ I provide this service to all patients.
- ❑ I only provide this service to patients who request it.
- ❑ Not needed by all patients
- ❑ No time
- ❑ Lack of staff
- ❑ Lack of skills
- ❑ Lack of comfort
- ❑ No policy making this standard care
- ❑ Not effective
- ❑ Other: _____

The following 5 questions refer to predeployment care given to enlisted women who are deployed.

50. What proportion of your enlisted female patients who are deployed do you see for a **predeployment** medical appointment?

- ❑ All or nearly all
- ❑ Most
- ❑ About half
- ❑ Some
- ❑ Few
- ❑ None
- ❑ I am not responsible for predeployment care.

51. What do you do to prepare enlisted female patients for their reproductive health needs **during predeployment planning?** **(Check all that apply.)**

- ❑ Pregnancy testing
- ❑ Contraceptive education/counseling
- ❑ STD prevention education
- ❑ Prescription medication review
- ❑ Education on hygiene practices
- ❑ None
- ❑ Other: _____
- ❑ I am not responsible for predeployment care.

52. What prevents you from providing **predeployment contraceptive education and counseling** to enlisted female patients? **(Check all that apply.)**

- ❑ I provide this service to all patients.
- ❑ Not needed by all patients
- ❑ No time
- ❑ Lack of staff
- ❑ Lack of skills
- ❑ Lack of comfort
- ❑ No policy making this standard care.
- ❑ Not effective
- ❑ Other: _____
- ❑ I am not responsible for predeployment care.

53. What prevents you from providing **personal hygiene information** to enlisted female patients during predeployment planning? **(Check all that apply.)**

- ❑ I provide this service to all patients.
- ❑ Not needed by all enlisted women
- ❑ No time
- ❑ Lack of staff
- ❑ Lack of skills
- ❑ Lack of comfort
- ❑ No policy making this standard care.
- ❑ Not effective
- ❑ Other: _____
- ❑ I am not responsible for predeployment care.

54. What prevents you from providing **STD prevention counseling** and education to enlisted female patients during **predeployment** planning? **(Check all that apply.)**

- ❑ I provide this service to all patients.
- ❑ Not needed by all enlisted women
- ❑ No time
- ❑ Lack of staff
- ❑ Lack of skills
- ❑ Lack of comfort
- ❑ No policy making this standard care.
- ❑ Not effective
- ❑ Other: _____
- ❑ I am not responsible for predeployment care.

The next 4 questions ask about care you have given to enlisted women during deployment.

55. What do you do to educate **individual** enlisted female patients about their reproductive health needs **during deployment**? **(Check all that apply.)**

- ❑ Contraceptive education/counseling
- ❑ STD prevention education
- ❑ Education on hygiene practices
- ❑ None
- ❑ Other: _____
- ❑ I have not participated in a deployment with women.

56. What do you do to educate enlisted female patients **as a group** about their reproductive health needs **during deployment**? **(Check all that apply.)**

- ❑ Contraceptive education/counseling
- ❑ STD prevention education
- ❑ Education on hygiene practices
- ❑ None
- ❑ Other: _____
- ❑ I have not participated in a deployment with women.

57. What do you do when treating enlisted female patients with their reproductive health needs **during deployment**? **(Check all that apply.)**

- ❑ Sexual history taking
- ❑ Pregnancy testing
- ❑ Contraceptive education/counseling
- ❑ STD prevention education
- ❑ Education on hygiene practices
- ❑ Treatment of acute infection
- ❑ Dispense oral contraceptive
- ❑ None
- ❑ Other: _____
- ❑ I have not participated in a deployment with women.

58. What medical and hygiene supplies are **routinely available** to you during deployment to care for the reproductive health needs of enlisted women? **(Check all that apply.)**

- ❑ I am not responsible for OB/GYN deployment care.
- ❑ Oral contraceptives
- ❑ Depo Provera injections
- ❑ Condoms
- ❑ Unscented tampons
- ❑ Unscented panty liners
- ❑ Unscented wet-wipes
- ❑ Yeast infection medication
- ❑ Female urinary director
- ❑ Other: _____

69. Which **video/audio** health education materials have you used to teach enlisted female patients about their health? **(Check all that apply.)**

- ❑ Alcohol and other drug use prevention
- ❑ Birth control/family planning
- ❑ STD prevention
- ❑ AIDS or HIV infection prevention
- ❑ Prevention of vaginal infections
- ❑ Personal hygiene
- ❑ Empowerment/assertiveness training
- ❑ I have never given video or audio information on these topics to enlisted women.

70. Which **computer-based** health education materials have you used to teach enlisted female patients about their health? **(Check all that apply.)**

- ❑ Alcohol and other drug use prevention
- ❑ Birth control/family planning
- ❑ STD prevention
- ❑ AIDS or HIV infection prevention
- ❑ Prevention of vaginal infections
- ❑ Personal hygiene
- ❑ Empowerment/assertiveness training
- ❑ I have never given computer-based information on these topics to enlisted women.

71. Choose the statement that bests describes the **quality of contraceptive education** enlisted women receive:

- ❑ Very good
- ❑ Good
- ❑ Neither good nor bad
- ❑ Bad
- ❑ Very bad

72. Choose the statement that bests describes the **amount of contraceptive education** enlisted women receive:

- ❑ Too much
- ❑ Right amount
- ❑ Too little

73. Choose the statement that bests describes the **quality of STD prevention education** enlisted women receive:

- ❑ Very good
- ❑ Good
- ❑ Neither good nor bad
- ❑ Bad
- ❑ Very bad

74. Choose the statement that bests describes the **amount of STD prevention** education enlisted women receive:

- ❑ Too much
- ❑ Right amount
- ❑ Too little

75. Choose the statement that bests describes the **quality of personal hygiene education** enlisted women receive:

- ❑ Very good
- ❑ Good
- ❑ Neither good nor bad
- ❑ Bad
- ❑ Very bad

76. Choose the statement that bests describes the **amount of personal hygiene education** enlisted women receive:

- ❑ Too much
- ❑ Right amount
- ❑ Too little

77. Choose the statement that bests describes the **quality of empowerment/assertiveness skill training** enlisted women receive:

- ❑ Very good
- ❑ Good
- ❑ Neither good nor bad
- ❑ Bad
- ❑ Very bad

78. Choose the statement that bests describes the **amount of empowerment/ assertiveness skill training** enlisted women receive:

- ❑ Too much
- ❑ Right amount
- ❑ Too little

Appendix C
Needs Assessment Survey of Military Chiefs of Service

Needs Assessment Survey: Health Education of Enlisted Army and Navy Women

This survey is about health education and health services as they pertain to the reproductive health needs of enlisted women in the U.S. Army and Navy. The information you provide will help identify the kind of health programs and services enlisted women in the Army and Navy need.

Do not write your name or any other identifying information on this survey.

Privacy Act Statement

Needs Assessment Survey among Military Clinicians

Authority: 10 U.S.C. §136 and §2358

Principal Purpose(s): To assess the range of reproductive health education efforts and needs of enlisted women in the armed services.

Routine Use(s): None. (Data concerning individual participants and their survey answers will not be distributed outside the DoD or its contractors.)

Disclosure: Voluntary. There is no penalty if you choose not to respond. However, maximum participation is encouraged so that the data will be complete and representative.

I. Demographics

1. Age: _____ Years

2. Sex:
   - ☐ Female
   - ☐ Male

3. Race/Ethnicity:
   - ☐ White - not Hispanic
   - ☐ Black - not Hispanic
   - ☐ Hispanic or Latino
   - ☐ Asian or Pacific Islander
   - ☐ American Indian/Alaskan Native
   - ☐ Other (specify): _____

4. Service Branch:
   - ☐ Army
   - ☐ Navy
   - ☐ Other (Specify): _____

5. Your title:
   - ☐ Chairperson
   - ☐ Troop Clinic Commander
   - ☐ Senior Medical Officer
   - ☐ Other (Specify): _____

6. Department:
   - ☐ Family Practice
   - ☐ Internal Medicine
   - ☐ Obstetrics/Gynecology
   - ☐ Preventive Medicine
   - ☐ Active Duty Medical Clinic/Sick Call
   - ☐ Other (Specify): _____

7. Where is your service/department located?
   - ☐ In a teaching medical center
   - ☐ In a community hospital
   - ☐ In a freestanding clinic
   - ☐ Other (Specify): _____

8. Year medical training completed:

   Medical School: 19 __ __

   Residency: 19 __ __

9. Have you had training in health care as it pertains to readiness?
   - ☐ Yes
   - ☐ No

10. What type of deployment experience do you have? **(Check all that apply.)**
    - ☐ None
    - ☐ Field training exercises
    - ☐ Combat duty
    - ☐ Humanitarian missions
    - ☐ Other (Specify): _____

11. On average, how many outpatient visits does your department have **per month**?

    _____

12. What proportion of your patients are enlisted women?
    - ☐ All or nearly all (81-100%)
    - ☐ Most (61-80%)
    - ☐ About half (41-60%)
    - ☐ Some (21-40%)
    - ☐ Few (1-20%)
    - ☐ None (0%)

13. What is the primary mission of your base/post? **(Check all that apply.)**
    - ☐ Deployment
    - ☐ Basic training
    - ☐ Education
    - ☐ Other (Specify): _____

14. What other departments provide routine gynecologic care to enlisted Army/Navy women?
    - ☐ Family Practice
    - ☐ Internal Medicine
    - ☐ Obstetrics/Gynecology
    - ☐ Preventive Medicine
    - ☐ Active Duty Medical Clinic
    - ☐ Other (Specify): _____

II. Reproductive Health of Enlisted Women—Please answer the following questions on the basis of your clinical experience with enlisted female patients in the Army or Navy.

15. **Check one only in each row:** In your experience, what **reproductive health problem** among enlisted women is. . .	STD infection	Unintended pregnancy	Spontaneous Abortion	Ectopic pregnancy	Vaginal Infection (non-STD)	Urinary tract infection	Other (Specify)
most common overall?							
most serious overall?							
most common in the field environment?							
most serious in the field environment?							

16. **Check one only in each row:** In your experience, what is the **most common reason** that enlisted women. . .	Lack of knowledge	Lack of skills	Negative attitudes about preventive behaviors	Negative Partner's attitudes	Lack of perceived risk	Low self-confidence	Other (Specify)
do not practice safer sex?							
have unintentional pregnancies?							
get non-STD vaginal infections (yeast, etc.)?							

III. Health Services—The following questions ask about the types of health services your department offers to all enlisted female patients during **routine** health care appointments (annual Pap tests) and during **predeployment planning in the last 6 months.**

17. What does your department do routinely for enlisted female patients <u>during annual exams</u>? **(Check all that apply.)**

- ❑ Contraceptive education and counseling
- ❑ Sexual history taking
- ❑ STD prevention education
- ❑ Education on hygiene practices
- ❑ HIV testing
- ❑ None of the above
- ❑ Unknown

18. **Check all that apply in each row:** Which of the following are obstacles to providing routine. . .

	Lack of time	Lack of staff	Lack of skilled staff	Not all patients need	Lack of comfort	Not effective	No policy making this standard care	Other (Specify)
contraceptive education/counseling?								
sexual history taking?								
STD prevention education?								
personal hygiene information?								

19. What proportion of your enlisted female patients come to your department for a **predeployment medical appointment**?

- ❑ All or nearly all
- ❑ Most
- ❑ About half
- ❑ Some
- ❑ Few
- ❑ None
- ❑ Unknown
- ❑ Not responsible for predeployment care (skip to question 23).

20. **During predeployment planning**, what does your department do routinely to help prepare enlisted female patients for their deployment reproductive health needs? **(Check all that apply.)**

- ❑ Pregnancy testing
- ❑ Contraceptive education and counseling
- ❑ STD prevention education
- ❑ Prescription medication review
- ❑ Recommend supplies for period
- ❑ Education on hygiene practices
- ❑ No special preparation for deployment
- ❑ Unknown

21. **Check all that apply in each row:** At predeployment, which of the following are obstacles to providing. . .

	Lack of time	Lack of staff	Lack of skilled staff	Not needed by all patients	Lack of comfort	Not effective	No policy making this standard care	Other (Specify)
contraceptive education/counseling?								
sexual history taking?								
STD prevention education?								
personal hygiene education?								

22. **During predeployment planning**, what medical and hygiene supplies does your department **recommend** be supplied to units for the reproductive health needs of enlisted women? **(Check all that apply, and add others not listed.)**

- ❑ Not responsible for medical supplies.
- ❑ Oral contraceptives
- ❑ Unscented tampons
- ❑ Unscented panty liners
- ❑ Unscented wet-wipes
- ❑ Yeast infection medication
- ❑ Female urinary director
- ❑ Other: _____

_____

- ❑ Unknown

IV. Health Education—We are interested in how you feel about the health care and the health education that enlisted women receive in the military.

23. **In each row, check all media that apply:** On which of the following health topics has your department provided education to enlisted women in the past year?	Course or presentation	Written materials	Video or audiotaped instruction	Computer-based instruction	None	Unknown
Alcohol and other drug use prevention						
Birth control/family planning						
STD prevention education						
AIDS or HIV infection prevention						
Prevention of vaginal infections						
Personal hygiene						
Empowerment/assertiveness skills						

24. **In each row, check one box in each area:** Rate the health education that enlisted women receive in the military.	Qualtiy					Amount		
	Very Bad	Bad	Neither Good nor Bad	Goo d	Very Good	Too Little	Right Amount	Too Much
Contraceptive education								
STD prevention education								
Personal hygiene education								
Empowerment/assertiveness skill training								
Other:								

25. Other comments about enlisted women's reproductive health? (Please describe briefly below.)

Appendix D
Focus Group Questions: Enlisted Army/Navy Women

Introduction:

Hello, my name is _____. Thank you for participating in this focus group today. A focus group is a group discussion where several participants explore a topic. I will be moderating this focus group, and _____(name of recorder) will be taking notes.

We are here from Macro International, which has been contracted by the U.S. Army to conduct a 4-year research project to investigate enlisted women's needs for health education on basic gynecological and reproductive health issues. We are conducting surveys and focus groups like this one to determine the needs of enlisted women. Based on that information, we plan to develop and test educational materials with enlisted Army and Navy women. This study is important because the number of women in the U.S. Armed Forces is increasing, and statistics show that the rate of unintended pregnancies, sexually transmitted diseases (STDs), and common preventable gynecological conditions, such as vaginitis, among enlisted women deserve attention.

The purpose of this focus group is to gather information which will help in designing the educational materials. This information is being gathered from enlisted Army and Navy women at four bases in the United States. During the group, we will be discussing reproductive health issues, military health care, and health education in the military. I will ask you about your perceptions of the attitudes, behaviors, and preferences of enlisted Army/Navy women in general. At no time will you be asked about your own behavior. The focus group should take about an hour and a half.

This study is anonymous, so your name or any other identifying information will not be included in the report. All information will be kept confidential. Your participation is voluntary, and you may decide to stop at any time. If you decide to stop you will not be penalized in any way. If you have any questions or don't understand what I am asking at any time, please let me know and I will explain further.

The most important thing is to be straightforward and honest. We are interested in your opinions, and different opinions are welcomed. There are no right or wrong answers. We understand that talking about reproductive and gynecological issues can be uncomfortable, but please say whatever you are thinking.

I would just like to ask that you speak one at a time and that everyone participate. If you have any questions about this process, I will answer them now.

(tell them about tape recorder and/or notetaker. Give them consent form to read and sign, and explain honorarium. Have them put name [first name or nick name] on a sign to place in front of them.)

I'd like to start the discussion with a round of introductions. Let's go around the table. I'd like each of you to give your name, say where you are from, and how long you've been in the Army/Navy.

GENERAL HEALTH

How important is health to women? How do you think being an enlisted Army soldier/Navy sailor affects feelings about health?

What do Army/Navy women worry about most when it comes to their health?
- What should they worry about?
- What about their reproductive health? *(Paraphrase to explain "reproductive" if needed.) Go to section below that was mentioned first or most often by participants.*

HEALTH CARE

How do enlisted women feel about health care in the Army/Navy?

Where do most enlisted Army/Navy women get gynecological care?
- Why? (*If respondent says private physician, probe* Why not military?)

What types of questions do Army/Navy women ask their health care providers?
- What should they ask?
- Why don't they ask these questions?
- Are the questions that Army/Navy women ask military health care providers different from those they ask civilian health care providers?

What are the reasons women do not to get an annual Pap test?
- What would make it easier?

What types of health services and/or counseling do Army/Navy women typically get before deployment?
- What services should they get?

How common is it for women to get a physical before deployment? How about a Pap and pelvic exam?
- When is it important for a woman to get a predeployment gynecological exam?
- What are reasons women do not get this exam before deployment?

VAGINAL INFECTIONS/HYGIENE

What do most Army/Navy women do when they think they have a vaginal infection?

What do most Army/Navy women do to prevent vaginal infections?
- Are there any reasons that Army/Navy women may have trouble preventing vaginal infections

What would help Army/Navy women to prevent vaginal infections? What would help them get appropriate treatment for vaginal infections?

What do Army/Navy women do to prevent infections when they are in the field?
- What do they do when they think they have a vaginal infection in the field?
- What medical and hygiene supplies do Army/Navy women pack when they are deployed?

PREGNANCY

How common do you think unintentional pregnancy is among enlisted Army/Navy women?

How much do you think Army/Navy women worry about getting pregnant?
- Do you think they should be more concerned? Why or why not?
- What happens to enlisted women who get pregnant in the Army/Navy?
- Why do you think some enlisted women get pregnant in the Army/Navy?

What should an enlisted woman do if she thinks she might be pregnant?

CONTRACEPTION

What do enlisted women need to know to better prevent unintentional pregnancy?

What are the ways that Army/Navy women prevent pregnancy? How about in the field?
- What are the types of contraceptives most often used by Army/Navy women? Why?
- What types of contraception are used in the field? *(If different from general types, probe to find out why.)*

How hard is it to get contraception when you need it in the Army/Navy?
- What makes it hard to get?
- What could make it easier?

How hard is it to get contraception in the field?
- What makes it hard to get?
- What could make it easier?

What do enlisted women need to know to use contraception consistently and effectively?

SEXUALLY TRANSMITTED DISEASES

What STDs do you think are most common among women?

Repeat with each STD indicated:

- How much do you think Army/Navy women worry about getting _____?
- Do you think they should be more concerned? Why or why not?
- What are some of the things that can happen to a woman who gets this STD?

What percent of Army/Navy women do you think have STDs?

- A 1995 survey says that ___ % of Army/Navy women reported having an STD last year.
- How do you feel about this information? Does it seem high or low to you? Why?

What are some ways that women protect themselves from STDs?

- Why don't some women do these things?

What do enlisted women need to know to better protect themselves from STDs?

CONDOM USAGE

What do you think most sexually active women in the Army/Navy think about using condoms?

- How about their partners?
- What do their health care providers tell them?
- What other messages do they get about condom use?

When should a woman use a condom?

- Does it depend on other contraception she is using? Does it depend on her partner? Something else?

What makes it hard to use condoms every time?

- What would make it easier?

SEXUAL COMMUNICATION

We know that people who are able to talk with their sexual partners about sex and condoms are more likely to practice safe sex.

- Why do you think this is so?

What makes talking about these issues with partners difficult for women? Why?

- What would make it easier?

What do you think are the costs, or risks, of talking about sex with a partner (e.g., condoms, sexual history)? What would be the benefits?

HEALTH EDUCATION

What kinds of health education are available in the Army/Navy? How about reproductive health or women's health?

- How helpful was it? Why?

What reproductive health topics do you think enlisted Army/Navy women **need** to know more about?

- Why?
- Is this different from what they **want** to know more about?

How can enlisted Army/Navy women find out about these topics now?

- Where do they go? Who do they usually talk to?

We want to teach enlisted women about prevention and self-care.

Imagine that you were put in charge of getting information on reproductive health to all women at your base. What do you think would be the best way to get this information to enlisted women?

- What would be the most effective way to present it?
- What would help them learn more about self-care and prevention?

What could the Army/Navy do to get health information to all enlisted women in the Army/Navy?

If we made a computer program about prevention and self care, what are some things that would make enlisted women interested in using it?

Have you ever used a computer to learn about health (e.g. via the Internet, in classrooms, etc.?) Would you recommend it to other women? Why or why not?

- What would you change?

What skills would women like yourselves like to see demonstrated on a computer program?

Give a couple of examples: How to use condoms correctly? How to talk to a partner about sexual matters? How to practice proper hygiene in the field?

What kinds of scenarios, or stories, would enlisted Army/Navy women like to see in this program?

- What would be realistic?

Where would enlisted Army/Navy women want to use a program like this?

- *Probe if unresponsive: Health center/clinic? Computer laboratory? Kiosk? Other place?*

What other materials or education would help enlisted women improve their self-care and preventive behaviors?

If we make a pocket field guide that summarizes prevention and self-care information, what would be helpful to include in it? What should it look like?

How could the Army/Navy ensure that every active duty women received a pocket field guide?

Appendix E
Focus Group Questions: Military Clinicians Serving Army/Navy Women

Introduction:

Hello, my name is _____. Thank you for participating in this focus group today. A focus group is a group discussion where several participants explore a topic. I will be moderating this focus group, and _____(name of recorder) will be taking notes.

We are here from Macro International, which has been contracted by the U.S. Army to conduct a 4-year research project to investigate enlisted women's needs for health education on basic gynecological and reproductive health issues. We are conducting surveys and focus groups like this one to determine the needs of enlisted women. Based on that information, we plan to develop and test educational materials with enlisted Army and Navy women. This study is important because the number of women in the U.S. Armed Forces is increasing, and statistics show that the rate of unintended pregnancies, sexually transmitted diseases (STDs), and common preventable gynecological conditions, such as vaginitis, among enlisted women deserve attention.

The purpose of this focus group is to gather information which will help in designing the educational materials. This information is being gathered from military clinicians at four bases in the United States. During the group, we will be discussing health and issues of concern to enlisted Army/Navy women including reproductive health issues, military health care, and health education in the military. I will asking you about your perceptions of the attitudes, behaviors, and preferences of enlisted Army/Navy women and their clinicians in general. At no time will you be asked about your own behavior. The focus group should take about an hour and a half.

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The most important thing is to be straightforward and honest. We are interested in your opinions, and different opinions are welcomed. There are no right or wrong answers. We understand that talking about reproductive and gynecological issues can be uncomfortable, but please say whatever you are thinking.

I would just like to ask that you speak one at a time and that everyone participate. If you have any questions about this process, I will answer them now.

(tell them about tape recorder and/or notetaker. Give them consent form to read and sign, and explain honorarium. Have them put name on a sign to place in front of them.)

I'd like to start the discussion with a round of introductions. Let's go around the table. I'd like each of you to give your name, say where you are from, and how long you've been in the Army/Navy.

GENERAL HEALTH

How important do you think health is to enlisted women in the Army/Navy? Why do you think this? How do you think being an enlisted Army soldier/Navy sailor affects enlisted women's feelings about health?

What do Army/Navy women worry about most when it comes to their health?
- What should they worry more about?
- What about their reproductive health?

HEALTH CARE

In general, how do you think enlisted women feel about health care in the Army/Navy?

What do Army/Navy women have a right to expect from their health care providers?

How comfortable do you think most women feel talking to their health care provider? *(Give examples: talking about STDs, condom use, sexual dysfunction.)*
- What makes them more or less comfortable?

How comfortable are health care providers in talking about these matters with patients?

What types of questions do Army/Navy women ask their health care providers?
- What should they ask?

What types of questions do health care providers ask enlisted women about their reproductive health (i.e., sexual practices history)?
- What should they ask?

What types of reproductive health screening and/or counseling are typically provided to enlisted Army/Navy women?
- What should be provided (that isn't currently)?

What types of health services and/or counseling do Army/Navy women typically get before deployment?
- What about pregnancy testing?

How common is it for women to get a physical before deployment? How about a Pap and pelvic exam?
- When is it important for a woman to get a predeployment gynecological exam?
- What are reasons women do not get this exam before deployment?

What types of health services and/or counseling do Army/Navy women typically receive in the field?

- What health services or counseling should they receive in the field?

VAGINAL INFECTIONS/HYGIENE

How common do you think vaginal infections are among enlisted women in the Army/Navy? How do you think being an enlisted Army soldier/Navy sailor affects enlisted women's risk for vaginal infection?

What do most Army/Navy women do to prevent vaginal infections?
- How about in the field?

What medical and hygiene supplies do Army/Navy women pack when they are deployed?
- What should they pack?

How should health care providers prepare for the hygiene needs of enlisted women in the field?
- What supplies should health care providers make sure are available to enlisted women?

What would help them get appropriate treatment for vaginal infections?
- Again, what do they do differently in the field?

PREGNANCY

How common is unintentional pregnancy among enlisted Army/Navy women? How do you think this compares to civilian women?

How much do you think Army/Navy women worry about getting pregnant?
- Do you think they should be more concerned? Why or why not? *(Prompt: What happens to enlisted women who get pregnant in the Army/Navy?)*
- Why do you think some enlisted women get pregnant in the Army/Navy?

What would help Army/Navy women avoid unintended pregnancies?
- What can their health care providers do to help?

CONTRACEPTION

What are the types of contraceptives most often used by Army/Navy women? Why?

What type of counseling/education about contraception do health care providers give enlisted women? When?
- How could they do this more effectively?

How hard is it for enlisted to get contraception when they you need it?
- What makes it hard to get? What could make it easier?

What do enlisted women need to know to use contraception consistently and effectively?
- What else do enlisted women need to know to better prevent unintentional pregnancy?

How do most Army/Navy women prevent pregnancy when they are in the field?

How hard is it for enlisted women to get contraception in the field?
- What makes it hard to get? What could make it easier?

What should health care providers do to address the contraceptive needs of enlisted women in the field?

SEXUALLY TRANSMITTED DISEASES/CONDOM USE

Let's talk a little about STDs. What STDs do you think are most common among Army/Navy women?

How much do you think Army/Navy women worry about STDs?
- Do you think they should be more concerned? Why or why not?

What percent of Army/Navy women do you think have STDs?
- A 1995 survey says that ___ % of Army/Navy women reported having an STD last year.
- How do you feel about this information? Does it seem high or low to you? Why?

What do enlisted women need to know to better protect themselves from STDs?
- What about condoms? What do they need to know?
- What do they think about using condoms? What about their partners?

Should health care providers be responsible for giving STD prevention information to enlisted women?
- How should health care providers promote condom use among enlisted women?

HEALTH EDUCATION

Let's talk more about health education in the Army/Navy. What kinds of health education are available? How about reproductive health or women's health?

- How adequate is the health education that enlisted women receive? Why do you think this?

What reproductive health topics do you think enlisted Army/Navy women **need** to know more about?

- Why? Is this different from what they **want** to know more about?

How can Army/Navy women find out about these topics now? How do they?

- Where do they go? Who do they usually talk to?

We are developing a reproductive health intervention to teach enlisted women about prevention and self-care.

Imagine that you were put in charge of getting information on reproductive health to all women at your base. What do you think would be the best way to do this?

- What would be the most effective way to present it?
- What would help them learn more about self-care and prevention? What content?

What could the Army/Navy do to get health information to all enlisted women in the Army/Navy?

If we made a computer program about prevention and self care, what are some things that would make enlisted women interested in using it?

- What would it look like?

What skills would enlisted women benefit from seeing demonstrated on a computer program?

Give a couple of examples: How to use condoms correctly? How to talk to a partner about sexual matters? How to practice proper hygiene in the field?

What kinds of dramatic stories do you think would be useful for enlisted Army/Navy women to see in this program? What are some realistic scenarios?

Where would enlisted Army/Navy women use a program like this?

Have you ever used a computer to teach about health (e.g. via the Internet, in classrooms, etc.)? Would you recommend it to other clinicians?

- Why or why not?

What are some things that would make clinicians interested in using computer-based education with patients? Does being a military clinician affect the willingness or interest in using computer materials with patients?

What other materials or education would help enlisted women improve their self-care and preventive behaviors?

If we make a pocket field guide that summarizes prevention and self-care information, what would be helpful to include in it? What should it look like?

How could the Army/Navy ensure that every active duty women received a pocket field guide?

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What do Army/Navy women worry about most when it comes to their health?
- What should they worry more about?
- What about their reproductive health?

HEALTH CARE

In general, how do you think enlisted women feel about health care in the Army/Navy?

What do Army/Navy women have a right to expect from their health care providers?

How comfortable do you think most women feel talking to their health care provider? *(Give examples: talking about STDs, condom use, sexual dysfunction.)*
- What makes them more or less comfortable?

How comfortable are health care providers in talking about these matters with patients?

What types of questions do Army/Navy women ask their health care providers?
- What should they ask?

What types of questions do health care providers ask enlisted women about their reproductive health (i.e., sexual practices history)?
- What should they ask?

What types of reproductive health screening and/or counseling are typically provided to enlisted Army/Navy women?
- What should be provided (that isn't currently)?

What types of health services and/or counseling do Army/Navy women typically get before deployment?
- What about pregnancy testing?

How common is it for women to get a physical before deployment? How about a Pap and pelvic exam?
- When is it important for a woman to get a predeployment gynecological exam?
- What are reasons women do not get this exam before deployment?

What types of health services and/or counseling do Army/Navy women typically receive in the field?

- What health services or counseling should they receive in the field?

VAGINAL INFECTIONS/HYGIENE

How common do you think vaginal infections are among enlisted women in the Army/Navy? How do you think being an enlisted Army soldier/Navy sailor affects enlisted women's risk for vaginal infection?

What do most Army/Navy women do to prevent vaginal infections?
- How about in the field?

What medical and hygiene supplies do Army/Navy women pack when they are deployed?
- What should they pack?

How should health care providers prepare for the hygiene needs of enlisted women in the field?
- What supplies should health care providers make sure are available to enlisted women?

What would help them get appropriate treatment for vaginal infections?
- Again, what do they do differently in the field?

PREGNANCY

How common is unintentional pregnancy among enlisted Army/Navy women? How do you think this compares to civilian women?

How much do you think Army/Navy women worry about getting pregnant?
- Do you think they should be more concerned? Why or why not? *(Prompt: What happens to enlisted women who get pregnant in the Army/Navy?)*
- Why do you think some enlisted women get pregnant in the Army/Navy?

What would help Army/Navy women avoid unintended pregnancies?
- What can their health care providers do to help?

CONTRACEPTION

What are the types of contraceptives most often used by Army/Navy women? Why?

What type of counseling/education about contraception do health care providers give enlisted women? When?
- How could they do this more effectively?

How hard is it for enlisted to get contraception when they you need it?
- What makes it hard to get? What could make it easier?

What do enlisted women need to know to use contraception consistently and effectively?
- What else do enlisted women need to know to better prevent unintentional pregnancy?

How do most Army/Navy women prevent pregnancy when they are in the field?

How hard is it for enlisted women to get contraception in the field?
- What makes it hard to get? What could make it easier?

What should health care providers do to address the contraceptive needs of enlisted women in the field?

SEXUALLY TRANSMITTED DISEASES/CONDOM USE

Let's talk a little about STDs. What STDs do you think are most common among Army/Navy women?

How much do you think Army/Navy women worry about STDs?
- Do you think they should be more concerned? Why or why not?

What percent of Army/Navy women do you think have STDs?
- A 1995 survey says that ___ % of Army/Navy women reported having an STD last year.
- How do you feel about this information? Does it seem high or low to you? Why?

What do enlisted women need to know to better protect themselves from STDs?
- What about condoms? What do they need to know?
- What do they think about using condoms? What about their partners?

Should health care providers be responsible for giving STD prevention information to enlisted women?
- How should health care providers promote condom use among enlisted women?

HEALTH EDUCATION

Let's talk more about health education in the Army/Navy. What kinds of health education are available? How about reproductive health or women's health?

- How adequate is the health education that enlisted women receive? Why do you think this?

What reproductive health topics do you think enlisted Army/Navy women **need** to know more about?

- Why? Is this different from what they **want** to know more about?

How can Army/Navy women find out about these topics now? How do they?

- Where do they go? Who do they usually talk to?

We are developing a reproductive health intervention to teach enlisted women about prevention and self-care.

Imagine that you were put in charge of getting information on reproductive health to all women at your base. What do you think would be the best way to do this?

- What would be the most effective way to present it?
- What would help them learn more about self-care and prevention? What content?

What could the Army/Navy do to get health information to all enlisted women in the Army/Navy?

If we made a computer program about prevention and self care, what are some things that would make enlisted women interested in using it?

- What would it look like?

What skills would enlisted women benefit from seeing demonstrated on a computer program?

Give a couple of examples: How to use condoms correctly? How to talk to a partner about sexual matters? How to practice proper hygiene in the field?

What kinds of dramatic stories do you think would be useful for enlisted Army/Navy women to see in this program? What are some realistic scenarios?

Where would enlisted Army/Navy women use a program like this?

Have you ever used a computer to teach about health (e.g. via the Internet, in classrooms, etc.)? Would you recommend it to other clinicians?

- Why or why not?

What are some things that would make clinicians interested in using computer-based education with patients? Does being a military clinician affect the willingness or interest in using computer materials with patients?

What other materials or education would help enlisted women improve their self-care and preventive behaviors?

If we make a pocket field guide that summarizes prevention and self-care information, what would be helpful to include in it? What should it look like?

How could the Army/Navy ensure that every active duty women received a pocket field guide?

APPENDIX F

CD-ROM Technology to Promote Self Care and Preventive Behaviors Among Enlisted Women

Design Document

August 2000

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Appendix A: System Conceptual Flowchart

Appendix B: Screen Design and Functionality

Appendix C: Script for Briefing Video

Appendix D: Basic Training Exercise Storyboards

Appendix E: Field Exercise Flowchart and Storyboards

I. Background

As the result of a formative evaluation of the needs of enlisted women regarding reproductive health education, a multimedia intervention was proposed for use in clinical and other settings with enlisted women in the U.S. Armed Forces. This application is intended to be an interactive program delivered on CD-ROM that integrates video, audio, computer graphics, photographic stills, and text. Users will be able to access information about reproductive anatomy, contraception, sexually transmitted disease prevention, proper hygiene, common reproductive health problems, and health care recommendations. Users will be given access to educational, counseling, and treatment resources. In addition, users will be given the opportunity to learn strategies for communicating with partners (past, current, and future) and health care providers. This information will be tailored based upon the user's branch of service, gender, and—if part of a medical office visit—the reason for receiving clinical care.

II. Suggested Title for the System

The working title for this application is "Preventive Maintenance: An Interactive Manual for Active Duty Females." For descriptive purposes in this document, we will call the application DOD-CD.

III. Target Audience and Setting for Use

This system is designed for use by enlisted women in the Army, Navy, and Air Force. The initial proposal targeted only enlisted women in the Army and Navy, but integration of the three branches of service in TRICARE and other efforts led us to conclude that all 3 services needed representation. Because active duty women who are officers may have similar concerns, they are considered a secondary audience. Enlisted males in the Armed Services may also have access to the information in the application, and benefit from it; however, they are also a secondary audience rather than a primary one.

The target audience is multicultural, so we will use a multicultural approach in preparing the program. A vary of ethnicities will be represented in videos and photographs. We will prepare text at the 8th grade reading level, and we will analyze it for readability using a computerized reading level analysis tool. Although the reading level will be in this range, the instructional design will appropriate to the actual age range of the intended audience.

The DOD-CD will be designed for initial use in military medical clinics that provide annual examinations to enlisted women. We envision that the DOD-CD should also be made available in other settings where enlisted women could access a computer. During the needs assessment, focus group participants suggested that women access such materials in settings such as: installation resource libraries and computer laboratories, shipboard computer rooms, training situations during basic training, in-processing upon arrival at a new installation, and pre-deployment.
Focus group participants also suggested making the application available on the Internet so military personnel stationed throughout the world would have access to it. As part of the efficacy study,

participants will also be asked their opinion of having the application on the Internet.

IV. Instructional Goals and Objectives

The goals and objectives for the DOD-CD are based on findings from the literature review of the science base, the expert panel, the focus groups, the secondary analysis, and the surveys with military clinicians and chiefs of service. They address a comprehensive spectrum of general women's health issues as well as women's health issues that are relevant to military needs such as readiness. Data collected in the original needs assessment allow us to make these parallel judgments.

The overall goal of the intervention is ***to promote military readiness by enhancing enlisted women's self-care and care-seeking behavior for their reproductive health.***

The key goals of the intervention are to:

- Increase enlisted women's understanding of reproductive health,
- Increase their ability to be assertive and responsible for their health and well-being,
- Increase their communication skills, and
- Increase appropriate reproductive care seeking.

Specifically, the enlisted female user of the system will:

- Increase knowledge and awareness about STD infection, unintentional pregnancy, and vaginal infection.
  - Increase knowledge (i.e., the female reproductive system, symptoms of reproductive health problems, contraceptive methods, sexually transmitted diseases, proper hygiene practices)
  - Increase perceptions of susceptibility (i.e., unintentional pregnancy, STD infection)
  - Increase awareness of resources: educational, support, and treatment
  - Increase awareness of help-seeking opportunities

- Increase readiness to take appropriate action.
  - Increase intentions to practice preventive behaviors (i.e., safe sex practices, contraception, proper hygiene) in general and in the field
  - Increase intentions to practice appropriate health care behaviors (e.g., seeking medical consultation for routine and acute care, following treatment recommendations)
  - Increase capacity to communicate effectively with past, current, and future sexual partners
  - Increase capacity to communicate effectively with health care providers.

V. Key Messages

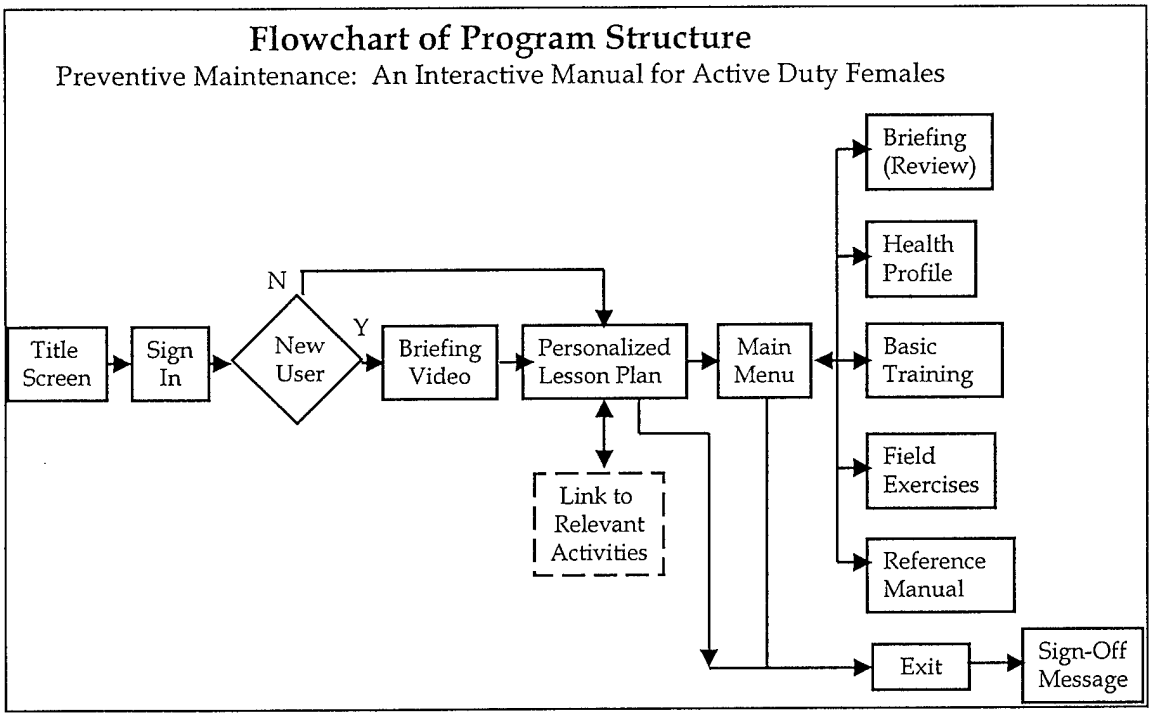
Key Messages

- Taking responsibility for maintaining your health and physical fitness is an important key to being an effective, productive member of your unit and to serving your country.
- Paying attention to your health needs does not prevent you from being an effective member of the military.
- As a woman in the military, you face unique circumstances that can place you at increased risk for reproductive health problems compared to civilian women.
- The high male to female ratio and tense training situations in the military can place you at increased risk of getting involved in sexual situations where risk behavior can occur.
- Take action now to protect and maintain your reproductive health so that you will enjoy a healthy reproductive lifecycle.
- Practice safe sex and use contraception so you have choices about when and how you have children and so you protect your reproductive health.
- You can learn skills that will help you protect your health and communicate your needs to a partner in an intimate relationship.
- You can learn skills that will help you feel confident in communicating your needs and concerns to your health care providers.
- Be honest with your health care provider about your health and health history so you will get the care you need.
- You may not be able to tell if you have some reproductive health problems because they often have no symptoms.
- Use the pre-deployment physical exam to find out how to protect your health in the field.
- You must request some medical services—STD screening at routine health exams and pregnancy testing at pre-deployment exams—because medical providers may not provide them routinely.

VI. Program Structure

The system begins with an overview of the topical issues on military women's health presented through testimonials by enlisted women and experienced peers. Following this "Briefing," the user will be presented a menu of activities. They can explore the activities at will, or they can follow a path of activities recommended to them based on their medical care status (reason they are receiving medical care).

The conceptual flowchart is below. A more detailed flowchart showing the learning activities accessed through the choices off the main menu is in Appendix A. Appendix B illustrates the screen design.



A. Title Screen

The introduction will be a short welcome to the program, inviting the user to the system. The program will next introduce its purpose: "This program is designed to help you learn more about your body and your health as a woman as an a member of United States military."

B. Sign In

After the introduction, a short section of select demographic and medical history questions will be asked. This will enable the program to tailor the information on gender and reason for having the medical consultation. Before answering these

questions, users will be informed that the information will be kept confidential and will only be used within the program itself to refer them to information that will be relevant to them.

1. Gender

   The program will seek gender identification, because the information will be tailored according to gender. For men, a message will come up alerting them that the information will help them understand women's reproductive health and that it may help them in their personal and professional relationships with women.

2. Race

   The program will ask the user's racial background in the initial testing of the multimedia product. Although the application will be designed with images of people of many cultures, assessing its use by people of different groups will help direct the future development of similar multicultural computer interventions.

3. Branch of service

   Although the military is moving toward integrated health services, women in different services are likely to experience different field conditions and different regulations. This question will help tailor the type of images and scenarios that the user will later see.

4. Medical examination status

   This question will ascertain whether the user is: a) seeing a clinician for a routine annual examination; b) having an acute care visit (medical complaint); c) having a pre-deployment physical, or d) viewing the application independent of medical care. Messages and recommended activities will be tailored based on the response to this question. For example, users having a routine examination will be directed to scenarios reinforcing open communication with medical care providers during medical examinations and basic information on anatomy and physiology. Those with symptoms or positive test results will receive more specific information about reproductive health problems. Women preparing to deploy will be reminded to have a pregnancy test prior to deployment. This question will also help tailor the type of communication scenarios that the user will later see.

5. New or returning user

This question will ascertain whether the user has used the application before. All new users will view the briefing video so that they are exposed to the key messages. Returning users can bypass the video if they choose.

C. Briefing Video

The purpose of the briefing video is to quickly cover important key messages and to introduce the application. A first time user must see the briefing video. Because the user may only see the briefing video, covering key messages in a short introduction will ensure that all new users will leave with them in mind. The briefing will be available from the main menu of the application, so users will have the opportunity to view the briefing again if they want to see it. The script for the briefing is in Appendix C.

Returning users will not be shown the briefing video automatically but will instead be taken to the main menu. They may, however, choose to view it again when they reach the main menu.

D. Tailored Feedback/Personalized Lesson Plan

Based on the input on the sign in screen, this section of the program will provide a brief tailored message and a personalized plan for viewing the learning activities. These messages and plans will be tailored based on the user's gender and medical examination status (see Tables 1 and 2). Users can decide whether to view the suggested material or to explore the main menu at will. Users can also decide to exit the program at this point.

For users who view the application outside of a clinical visit, the personalized lesson plan will emphasize general reproductive health promotion concerns. However, those attending a clinical visit will also receive a recommendation to review the general health promotion materials in addition to the materials and activities relevant to their medical examination status.

The activities are described in detail within section E, "Main Menu." Description of the "Exit" is in section F.

Table 1: Tailored Feedback for Female Users by Medical Care Context *		
Segment	**General Message**	**Learning Activities**
Annual Exam	You are about to receive your annual pelvic examination. Congratulations on taking this important step in taking care of your health. If you have noticed any physical changes since your last exam, let your health care provider know about them. If you haven't noticed any changes, this is a good time to learn more about your body, your contraception, what happens in the exam, and how to stay healthy.	**Virtual check-up** Review the steps in the exam and learn how you can get the most of talking to your doctor or nurse. **Virtual Sick Call** If you have noticed changes you want your doctor to examine. **Signs & Symptoms** Learn about common reproductive health problems and which can have no symptoms. **Contraception Exploration** If you are here to begin using a new method of birth control or renew a prescription.
Medical Complaint	You have noticed some symptoms or are concerned that you have a reproductive health problem. It is good that you have taken the time to have an examination. Share all you know about your condition with your health care provider so you make sure you get the care you need.	**Virtual Sick Call** Review the steps in the exam and learn how you can get the most of talking to your doctor or nurse. **Signs & Symptoms** Learn about common reproductive health problems and which can have no symptoms: **Virtual Relationship** Find out how to talk to your partner about a vaginal infection.
Pre-Deployment Exam	You are about to receive a pre-deployment examination. It is good that you have taken the time to have an examination to prepare for deployment. This is a good time to learn more about staying healthy in the field, about your contraception, and how to pack to prepare for your women's health needs. If you think you may be pregnant or you aren't sure, ask your health care provider for a pregnancy test during the examination.	**Virtual Pre-deployment Exam** Review the steps in the exam and learn how you can get the most of talking to your doctor or nurse. **Virtual Self-Care** Learn about how to stay clean in the field or on shipboard: **Deployment Supplies Exploration** Practice making choices on what to take with you for your women's health needs. **Contraception Exploration** If you need to do a prescription review, consider the method of birth control you will take.
Not Receiving Medical Care	This program will help you learn about your body and how to stay healthy. Check out the activities that let you explore how to prevent sexually transmitted diseases and other infections. Other activities let you explore the costs of having a baby and ways to delay having a baby. You can also explore what can happen in a first date or when you have to give a date some bad news.	**Health Profile** Get a review of your health history. **Female Body Exploration** Learn more about your body and how it works. **Baby Budget Exploration** Calculate how much it costs to have a baby in the military. **Contraception Exploration** Explore which type of birth control is best for you. **Virtual Relationship** Explore ways to talk about sex with a new or current partner. **Virtual Self-Care** Learn ways to stay clean in the field, on shipboard, or anywhere. **Reference Manual** Browse the library of health materials to learn more.

* All female users will be given links to general activities in the "Not Receiving Medical Care" condition.

Table 2: Tailored Feedback for Male Users by Medical Care Context *		
Segment	**General Message**	**Learning Activities**
Medical Complaint	You have noticed some symptoms or are concerned that you have a reproductive health problem. It is good that you have taken the time to have an examination. Share all you know about your condition with your health care provider so you make sure you get the care you need.	**Virtual Sick Call** Review the steps in the exam and to learn how you can get the most of talking to your doctor or nurse. **Signs & Symptoms** Learn about common reproductive health problems, their signs and symptoms, and which can have no symptoms. **Virtual relationship/bad news** Find out how to talk to your partner about a vaginal infection.
Pre-Deployment Exam	You are about to receive a pre-deployment examination. It is good that you have taken the time to have an examination to prepare for deployment. This is a good time to learn more about staying healthy in the field, and how to pack to prepare for all of your needs.	**Virtual Pre-deployment Exam** Review the steps in the exam and to learn how you can get the most of talking to your doctor or nurse. **Virtual self-care** Learn about how to stay clean in the field or on shipboard. **Deployment Packing** Practice making choices on what to take with you. **Contraception Exploration** Consider the method of birth control you will take.
Not Receiving Medical Care	This program will help you learn about your body and how to stay healthy. Check out the activities that let you explore how to prevent sexually transmitted diseases and other infections. Other activities let you explore the costs of having a baby and ways to delay having a baby. You can also explore what can happen in a first date or when you have to give bad news to someone you've been involved with.	**Health Profile** Get a review of your health history **Female Body Exploration** Learn more about the female body and how it works. **Baby Budget Exploration** Calculate how much it costs to have a baby in the military **Contraception Exploration** Explore which type of birth control is best for you: **Virtual Relationship** Explore ways to talk about sex with a new or current partner. **Virtual Self-Care** Learn ways to stay clean in the field, on shipboard, or anywhere.

* All male users will be given links to general activities in the "Not Receiving Medical Care" condition.

E. Main Menu

If they choose to explore the activities without use of the personalized feedback, users will be able to access them by topic area from a "main menu." The main menu will have seven choices:

- Briefing
- Health Profile
- Basic Training
- Field Exercises
- Reference Manual
- Exit

1. Briefing

Users will be able to review the briefing video in case they want to see the messages highlighted again. Returning users who are not made to review the briefing may choose to do so from the main menu.

2. Health Profile

The health profile is a self-assessment of the users' health and sexual history. Users will receive tailored feedback in terms of recommended

- Learning activities
- Briefing documents in the library
- Screening tests for her age group
- Questions to ask her health care provider.

3. Basic Training

The Basic Training section provides interactive tools that allow users to explore various aspects of reproductive health issues in terms of background information, the factors that affect them, and what choices they have. The storyboards for these activities are in Appendix D. Each "Exploration" will be comprised of 3 parts:

1) An introduction to give an overview of the activity and its purpose.
2) A briefing to provide factual information and links to relevant library materials.
3) An exploration activity where the user can modify various factors to see how they affect the reproductive health issue. Tailored feedback gives users an analysis of their choices.

a. Female Body Exploration

Introduction: The purpose of this activity is to familiarize users with the female reproductive system and how it operates normally during menstruation, ovulation, fertilization, and cleansing. Users will also explore the factors that impact reproductive health: amenorrhea, vaginal infection, urinary tract infection, sexually transmitted disease infection, and ectopic pregnancy.

Briefing: The briefing covers the parts of the female reproductive system, normal functions, and signs of disease. Factors that influence the health of the female reproductive system will be explained. Both normal and abnormal functioning will be further explained through animations.

Exploration: Users can change different factors related to hygiene, sexual behavior, and demographic risk factors as well as protective factors. Graphic feedback will demonstrate the possible impact of those choices on the female body. Written feedback will explain the affect of the choices. They can toggle their answers and see how different answers influence health. The user can link to the library materials to learn more about the female body and hygiene and wellness practices.

b. Contraception Exploration

Introduction: The purpose of this activity is to allow users to explore the factors that impact satisfaction with a contraceptive method.

Briefing: The briefing covers the factors that influence the type of birth control that one uses: age, gender, health history, sexual practices history, and attitudes and preferences.

Exploration: Users input answers to various health history and attitude questions and receive targeted feedback concerning which method(s) of birth control fit best with the situation, health history, and attitudes indicated in the exploration. They can toggle their answers to see how the recommended birth control method might change. Users who are having a predeployment physical and who use prescription contraceptives will be reminded to get a prescription filled. The user can link to the library materials to learn more about the contraceptive methods that are recommended.

c. Baby Budget Exploration

Introduction: The purpose of this activity is to allow users to explore the economic impact of parenthood.

Briefing: The briefing covers information about the responsibilities of being a parent and how being in the military affects parenthood.

Exploration: Users explore the cost of the first year of raising a child, from birth to 12 months, in terms of their pay grade. Users can choose where they may save on different costs (e.g., borrowed rather than new nursery furniture). The user can link to the library materials to learn more about pregnancy and parenthood related issues, including current medical profiles for active duty females who are pregnant.

d. Deployment Packing Exploration

Introduction: The purpose of this activity is to allow users to explore the

health considerations to keep in mind while preparing for deployment while also learning what supplies are not recommended.

Briefing: The briefing covers how reproductive health is affected when a woman is deployed.

Exploration: Users input how long a deployment might be and to what type of climate. Branch of service will default depending upon the user's profile, but the user can change the default if she wants to see if there are different issues for women in other services. Tailored feedback will give user positive feedback if she packed appropriate supplies and negative feedback for packing supplies that are not recommended. The user can link to the library materials to learn more about ...

e. Signs and Symptoms Exploration

Introduction: The purpose of this activity is to allow users to explore the possible signs and symptoms of common female reproductive health problems.

Briefing: The briefing reviews basic steps in monitoring one's own health and when it is important to seek medical attention. The briefing reinforces the asymptomatic nature of some reproductive health problems as well as the importance of having annual gynecologic examinations and requesting screening to identify asymptomatic disease.

Exploration: Users select a vaginal health problem and try to match the signs and symptoms, risk rate, and consequences of untreated disease. Tailored feedback will show which of the elements were correctly matched and which were incorrectly matched. Feedback will always emphasize that diseases may be asymptomatic. Women will be encouraged to seek medical screening if they think they have a reproductive health problem, and they should adhere to treatment recommendations if they find they find they have developed a condition. Users can resubmit their answers to try to improve their score. They can also link to materials in the reference manual (library) to learn more about the reproductive health problems common among women.

4. Field Exercises

The communication scenarios in the "Field Exercises" will provide skills training in discussing reproductive health, sexual risk behavior, STD infection, and safe sex with sexual partners and health care providers as well as demonstrating proper hygiene practices.

The scenarios will allow the user to make behavioral choices for a character

on the screen that will approximate the types of choices in a particular communication task. If the choices are less than optimal, they will experience a negative outcome, such as rejection by a sexual partner. Positive choices will result in a more calm and positive experience between partners or between clinician and patient. Users will be able to restart the scenario, giving them an opportunity to improve their reactions to the situation.

Because individual sexual partners or clinicians vary in how they may react in a given scenario, feedback at the end of the scenario will explain that individuals vary in their reactions but that the skills illustrated will give users some support in handling situations they may experience. Their partner (or health care provider) may not behave like the one portrayed in the scenario, but the information presented will still help them in their personal interaction. Appendix E contains flowcharts and screen design for the interactive scenarios.

a. Virtual Examinations

In these field exercises, female users will be able to step through different physical examination visits they may encounter, learning communication skills, patient rights and responsibilities, and what they might expect in the clinical encounter. The choices will represent a range of consumer health choices, from passive to active, so users will see how they might improve the education and care they receive in these exams. Users can consult an experienced peer/first sergeant about their options.

1) Virtual Check-Up

Users who are having an annual exam will receive a recommendation to view this scenario in the tailored feedback following the briefing. The user will make decisions on the following areas:

- Making an appointment
- Preparing for the examination
- Answering medical and sexual history questions
- Asking questions about health and treatment options
- Seeking education and advice
- Speaking up about concerns (e.g., confidentiality) or problems (e.g., rudeness)

2) Virtual Sick Call

Many of the same concerns from the annual examination will be

explored in the scenario for a medical complaint. Additional emphasis will be placed on displaying proactive health consumer behavior regarding:

- Answering medical and sexual history questions honestly
- Requesting screening tests for infections, including STDs
- Seeking information about benefits and risks associated with recommended medical treatment and medication.
- Seeking information about proper hygiene practices and safe sex practices

3) Virtual Pre-Deployment Exam

Similar concerns from the annual examination will be explored in this scenario. Additional emphasis will be placed on displaying proactive health consumer behavior regarding:

- Answering questions about contraception and other prescriptions honestly
- Requesting a pregnancy test prior to deployment
- Seeking information about proper hygiene practices in the field or shipboard settings.

b. Virtual Relationship

Although clinicians and health educators recommend talking to sexual partners about sex and infections, little guidance is offered about communication on these sensitive subjects. These situations can be awkward and can become explosive if the person is unable to communicate adequately. Whether in a new or existing relationship, people have difficulty finding the words to talk about sensitive issues such as contraception, pregnancy, safe sex, and STDs.

The user will be asked if they would like to review scenarios for people who are single and dating or who are in an ongoing relationship. The single/dating relationship scenarios will concentrate on first date, talking about sex, and condom negotiation. The ongoing relationship scenarios will concentrate on bringing up using condoms in an ongoing relationship and on giving bad news in the form of a pregnancy scare or a possible STD infection.

1) Going on a Date

This scenario will allow the user to plan a date with a new or current

partner and decide whether or not to engage in behavior that is related to avoiding STDs and unintentional pregnancy. Planning the date will include where the couple decides to go and what birth control methods are used, if any. Behaviors that increase the risk of STDs and problem pregnancy include: alcohol consumption, lack of communication on sexual matters, and unprotected intercourse and/or ineffective birth control. The user will be able to practice communication skills in the following areas:

- Using effective communication strategies
- Asking sensitive questions about partner's sexual history
- Being assertive about delaying sexual activity if she doesn't want to have sex
- Being assertive about using condoms if she agrees to have sex.

2) Giving Bad News

The user is placed in a situation of having to tell a current or future sexual partner about an STD infection or an unintentional pregnancy. The partner will respond positively or negatively based on the user's decisions about:

- When and where they talk to the partner
- How they bring up the topic
- Who they involve in their support network
- What they say when bringing up the topic
- Where they choose to get help
- How to discuss disease severity, transmission, and prevention
- How to recommend to a current partner they he or she receive medical care.

c. Virtual Self-Care

These scenarios are different from the others in the field exercises because they serve to model appropriate behaviors related to hygiene in different settings. The user will be able to practice reviewing the steps to the hygiene-related skills, such as creating a bird bath or shower to bathe in field settings.

1) General Hygiene

This field exercise provides basic information about normal vaginal discharge and how to prevent vaginal infections and urinary tract

infections through hygiene and wellness practices:

- Keep the vaginal opening dry
- Wear cotton underwear
- Wash underwear in mild soap
- Avoid using scented products--tampons, sanitary napkins, wipes, soaps, sprays, and toilet paper--which can irritate the vagina
- Do not wear tight fitting pants or pantyhose
- Wipe from front to back to avoid bringing bacteria into the vagina (will include animation showing proper wiping technique)
- Urinate after intercourse
- Drink at least 8 glasses of water a day
- Avoid douching, which can destroy the good bacteria in the vagina. If you douche, do so only twice a week and use a vinegar and water solution
- If you use tampons, change them every 6 to 8 hours and avoid wearing them when your menstrual flow is light.
- Cut down on refined sugars.

3) Hygiene on Shipboard

Emphasis is on conditions that make practicing proper hygiene difficult and how to cope with them:

- Lack of time: Suggest ways to streamline hygiene practices (e.g., if you only have a short time to bathe, focus on cleaning the genitals, arm pits, teeth, and face). Show video of male and female sailors rushing around inside a ship.
- Lack of supplies and/or clean clothes: Suggest ways to prepare for hygiene needs on shipboard (e.g., how to calculate how many tampons and sanitary napkins to bring, bringing panty liners to extend use of underwear). Model how to request supplies when needed through video of female sailor requesting hygiene supplies from supply room.
- Problems drinking enough water: Dispel myths about avoiding water. Suggest ways to drink more water.
- Problems keeping dry: Suggest ways to stay dry, such as bringing additional underwear or panty liners.

4) Hygiene in the Field/Tent Camp

Similar advice as given in Hygiene on Shipboard will be provided.

However, additional information will be presented:

- Video will show soldiers and sailors in camp settings.
- Animations and/or video will model how to bathe using a bird bath or creating a shower out of common camp materials.
- An additional caution will be given about using baby wipes in the field. These may increase moisture if the vagina is not allowed to dry. Also, any baby wipes that are used should be unscented.

5. Reference Manual (Library)

The user can access concise documents on a variety of health issues in the Reference Manual, which will be a library of brochure type materials and links to relevant Internet sites for computers that are able to connect to the World Wide Web.

a. Anatomy/Physiology
b. Hygiene and Wellness
c. Contraception/Pregnancy
d. Safe Sex Practice/Sexually Transmitted Diseases
e. Reproductive Health Problems
f. Health Care/Health Information Sources
g. Glossary

F. Exit

Users who choose to exit the program may do so from the personalized lesson plan or from the main menu. The program will thank them for using the program: "Thank you for using Preventive Maintenance: A Manual for Active Duty Females. We hope it has helped you take action now to protect and maintain your health as a woman and as a member of the United States military."

A brief tailored message will then appear to reinforce key messages relevant to their situation and based on the characteristics they indicated when they began the program:

Annual Exam: "Take the opportunity to learn about your body and your health during your visit today. Remember to request screening if there is any chance you may have been exposed to a disease."

Medical Complaint: "Make sure you get all of your questions answered during your visit today. Remember to be up front about all of your concerns with your medical provider so you get the proper

care."

Predeployment Exam: "Make sure to get all your questions answered about how to stay healthy in the field. Remember to request pregnancy testing if you think you may be pregnant."

VII. Screen Design

A. Menu Bar: Windows application Menu Bar

The menu bar will be available at all times during the application. It will allow the user to perform functions such as saving their file and changing coaches. It will also enable them to access information, such as answers to HPV questions, more quickly.

File	File drop down menu
Sound	Allows user to use a toggle to turn the sound on or off
Open	Open an existing file
Print	Allows the user to print the whole screen, feedback from an activity, or library material. (This function is only available for computers that have print capability.)
Training Plan	Takes user to personalized lesson plan
Change Profile	Update user profile (e.g., user can change the type of exam)
Exit	User exits program
Contents	Navigation drop down menu
Briefing	Takes user to the view the briefing
Health Profile	Takes user to the introduction of the health assessment
Basic Training	Takes user to the menu for the interactive activities
• Female Body	Takes user to the introductory screen
• Contraception	Takes user to the introductory screen
• Baby Budget	Takes user to the introductory screen
• Deployment Packing	Takes user to the introductory screen
• Signs and Symptoms	Takes user to the introductory screen
Field Exercises	Takes user to the main menu for the Field Exercises
• Virtual Examinations	Takes user to menu for Virtual Check-up, Virtual Sick Call, and Virtual Pre-Deployment Exam
• Virtual Relationship	Takes user to menu for Going on a Date and Giving Bad News
• Virtual Self Care	Takes user to menu for General Hygiene, Hygiene on Shipboard, and Hygiene in the Field

Reference Manual	Takes user to the menu for the reference manual (library).
Anatomy/Physiology	Listing of documents related to pelvic and breast anatomy and female reproductive functions.
Hygiene and Wellness	Listing of documents related to hygiene practices, general health behaviors (nutrition, fitness, stress management), and screening recommendations.
Contraception/Pregnancy	Listing of documents related to contraceptive options, normal pregnancy conditions, problem pregnancy conditions, and military service-related regulations.
Safe Sex/STDs	Listing of documents describing different sexually transmitted diseases, safe sex practices, and communication strategies.
Reproductive Health Problems	Listing of documents related to common reproductive health problems among women with special attention to common problems that occur during deployment.
Health Care/Information	Listing of military and other support groups, hot-lines, and medical services as well as issues related to communicating with health care providers.
Glossary	Listing of terms and definitions.

Help	Help drop down menu
Search for Help...	Search function
How do I...	Help on functions of the program
What's This	Help on page-specific functions of the program
Current Activity	Help on how to use the activity currently being used.
About Preventive Maintenance	Link to brief description of development effort and credits

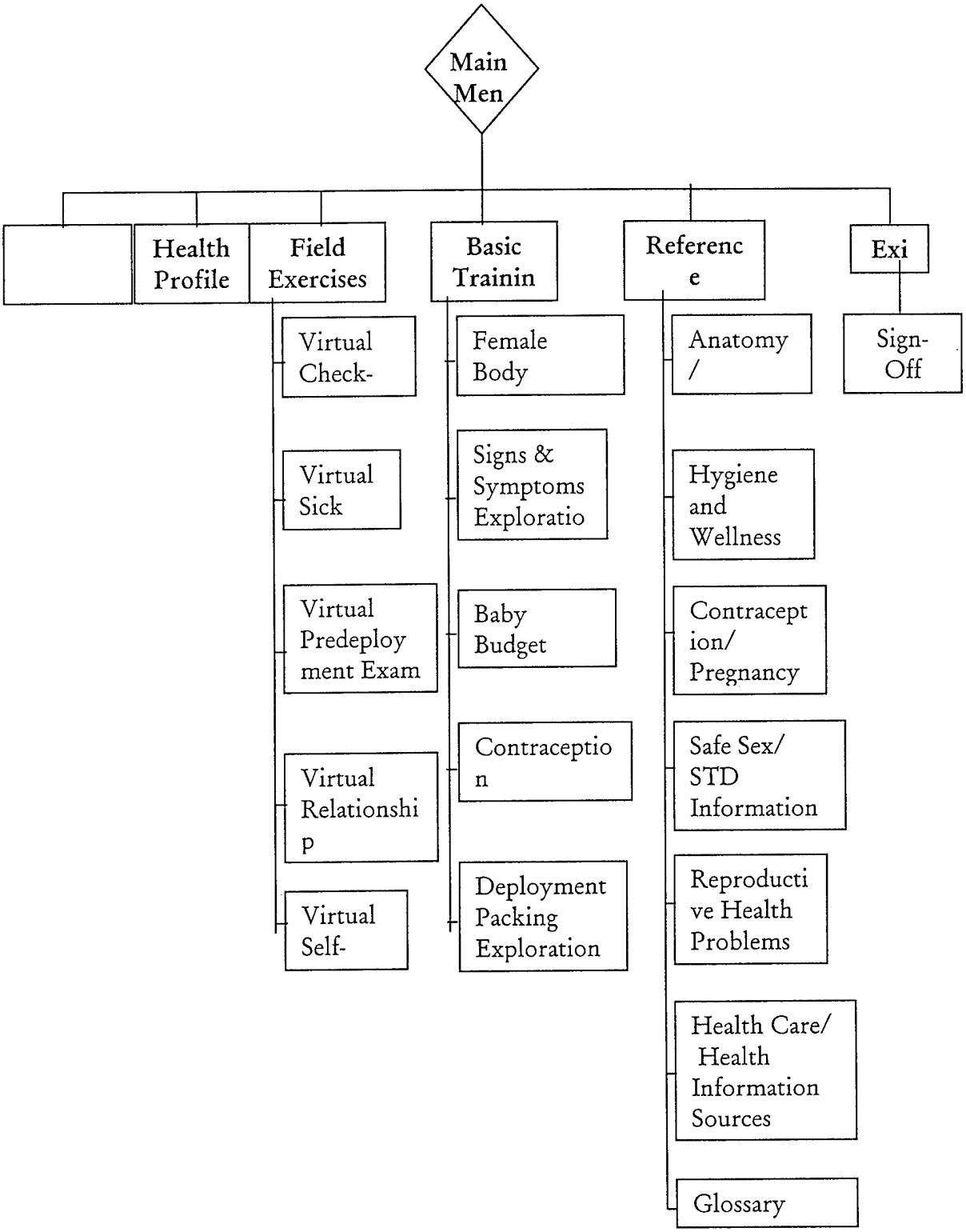
B. Program Control Strip: Toolbar

A control strip will be available at all times. It will allow the user to control program functions. When the user has the mouse over these buttons, the description of the choice will appear in a comment window on the title bar of the page. The graphic and the functionality of each button will be similar to those found in an Internet browser and CD-ROM and video players:

1. Back: This button will allow the user to go back to the last choice made.
2. Forward: The user will be able to use this button to move on to the next section of the program.

3.	Pause/Play:	This button will allow the user to stop and start a video or animation clip or audio segment.
4.	Repeat:	To hear or see the last video, animation, or audio again, the user can press this button.
5.	Menu:	Takes user to the main menu. If the user is in an activity and presses this button, the user will be asked to confirm that she wants to exit the activity.
6.	Plan:	Takes user to personalized lesson plan. If the user is in an activity and presses this button, the user will be asked to confirm that she wants to exit the activity.
7.	Print:	Depending upon the user's location in the program, the print button allows the user to print the whole screen, feedback from an activity, or library material. This function is only available for computers that have print capability.
8.	Search	Depending upon the user's location in the program, the user can search within the current activity, glossary, or entire program by keyword.

Appendix A: System Conceptual Flowchart of Learning



Appendix G: Pre-Intervention Survey

Health Needs of Enlisted Women in the Military

The purpose of this survey is to collect information about health knowledge, attitudes, and behavior of enlisted women in the Army, Navy, and Air Force. We are interested in understanding what enlisted women in the military know, think, and do regarding their reproductive health.

Your participation in answering these questions is voluntary, and may help other enlisted women receive improved health care and educational services. This is the first of two surveys you will be asked to complete. The second one will be given to you after your medical exam. The purpose of this study is to evaluate a computer program designed to help women in the military learn about reproductive health, and better care for themselves at home and in the field.

These surveys contain several questions about sensitive issues such as sexual behavior and feminine hygiene practices. We realize it may make some people uncomfortable to answer these types of questions. Some people may feel that they should answer a certain way, even if it is not what they actually think or do. Please be honest, because your thoughts, feelings, and actions are very important for the results of the study. There is no penalty for leaving a question blank, but we encourage your full participation so that the data will be complete and representative.

Some people feel uncomfortable answering sensitive questions on a survey because it is written. Your answers will not be linked to any personal information about you. This survey will have a unique numerical identifier that will be linked to the second survey you complete, so we can make comparisons. Your answers will be combined with the answers of hundreds of other enlisted women in the military who complete this survey. No individual enlisted women will be identified when we present the results of the survey, so please answer every question honestly.

Please, do not write your name on the survey.

Many thanks for your cooperation and help with this study.

I. Demographics Circle only one answer to each question.

1. How old are you? _____

2. In what branch of the armed services do you serve?
   a. Army
   b. Navy
   c. Air Force
   d. Marine Corps
   e. Other

3. What is your grade?
   a. E1-E2
   b. E3-E4
   c. E5-E6
   d. E7-E9
   e. I am an officer

4. How do you describe yourself?
   a. White, not Hispanic
   b. Black, not Hispanic
   c. Hispanic or Latino
   d. Asian or Pacific Islander
   e. American Indian or Alaskan Native
   f. Other (specify) _____

5. What is your marital status?
   a. Single, never married
   b. Living with significant other
   c. Married
   d. Legally separated
   e. Divorced
   f. Widowed

6. What is the **highest** education level you have **completed** and received credit for?
   a. High school diploma
   b. GED
   c. Associate's degree
   d. Vocational degree
   e. Some college
   f. Bachelor's degree
   g. Graduate degree

II. Knowledge. Read each of the following questions and select the answers you think are correct. You are NOT expected to know all the correct answers. Circle only one answer.

7. At what point in the monthly reproductive cycle is a woman most likely to become pregnant?
   a. Right before her period
   b. During her period
   c. Right after her period
   d. Mid-cycle
   e. I don't know

8. Who is more likely to get an STD infection because of how their bodies are structured?
   a. Men
   b. Women
   c. They are equally likely
   d. I don't know

9. What is the BEST way to clean the vagina?
   a. Using a vinegar and water douche
   b. Using vaginal deodorants
   c. Letting normal secretions cleanse the vagina
   d. Using deodorant soap
   e. I don't know

10. What is the BEST way to clean the vagina in the FIELD?
    a. With scented deodorant sprays
    b. With disposable wipes
    c. With water
    d. There is no way to clean in the field.
    e. I don't know

11. When you are in the field and need to urinate (pee), what should you do?
    a. Go immediately, or as soon as possible
    b. Hold it until you really have to go
    c. Hold it until you come to a clean bathroom
    d. Stop drinking water so you do not have to go as much
    e. I don't know

12. Which of the following is the BEST way to prevent pregnancy?
    a. Use condoms
    b. Withdrawal (pull out)
    c. Birth control pills
    d. Douching
    e. I don't know

13. What is the most common reason that birth control fails?
    a. It is used incorrectly
    b. A method does not work
    c. The directions are bad
    d. Women pick a type that they don't like
    e. I don't know

14. How can a woman be sure she has NO sexually transmitted diseases (STDs)?
    a. When she has no symptoms of itching or burning
    b. When she has a normal Pap test
    c. When her doctor does not notice any problems
    d. When screening tests show no infection
    e. I don't know

15. What type of condom is best at reducing the risk of getting an STD?
    a. Lambskin
    b. Polyurethane
    c. Latex
    d. Condoms do not reduce the risk.
    e. I don't know

16. The risk of an STD infection is increased by
    a. Having one steady relationship
    b. Having sex when intoxicated
    c. Having sex when dirty
    d. Using birth control
    e. I don't know

17. What medical service DO women get when they have an annual pelvic exam at a military facility?
    a. Pregnancy test
    b. Screening for STDs
    c. Urine test
    d. Pap test
    e. I don't know

18. What medical service SHOULD military women get when they have a pre-deployment exam?
    a. Pregnancy test
    b. Screening for STDs
    c. Urine test
    d. Pap test
    e. I don't know

III. Attitudes We are interested in how you feel about specific health concerns and behaviors that are important for enlisted women in the military. Please answer these questions as you really feel. There are no right or wrong answers.

Please mark on a scale of 1 to 9 how much you agree or disagree with the following statements. 9 = "strongly agree", 5="neutral", and 1="strongly disagree".

	strongly disagree				neutral				strongly agree
19. Active duty females are MORE likely to have an unplanned pregnancy than civilian females.	1	2	3	4	5	6	7	8	9
20. When active duty females get pregnant, it's MORE likely to get out of duty rather than an "unplanned" pregnancy.	1	2	3	4	5	6	7	8	9
21. Using **birth control** makes love making better.	1	2	3	4	5	6	7	8	9
22. **Birth control** is easy to get in the field.	1	2	3	4	5	6	7	8	9
23. **Birth control** is easy to use EVEN IF one is drinking or using drugs.	1	2	3	4	5	6	7	8	9
24. **Birth control** is easy to use EVERY TIME one has sex.	1	2	3	4	5	6	7	8	9
25. Men think using **birth control** is important.	1	2	3	4	5	6	7	8	9
26. Women think using **birth control** is important.	1	2	3	4	5	6	7	8	9
27. My health care provider thinks using **birth control** is important.	1	2	3	4	5	6	7	8	9
28. My friends think using **birth control** is important.	1	2	3	4	5	6	7	8	9
29. My commander thinks using **birth control** is important.	1	2	3	4	5	6	7	8	9
30. Active duty FEMALES are MORE likely to get an STD than civilian females.	1	2	3	4	5	6	7	8	9
31. Active duty MALES are MORE likely to get an STD than civilian males.	1	2	3	4	5	6	7	8	9
32. **Condoms** make love making better.	1	2	3	4	5	6	7	8	9
33. **Condoms** are easy to get.	1	2	3	4	5	6	7	8	9
34. **Condoms** are easy to get in the field.	1	2	3	4	5	6	7	8	9
36. **Condoms** are easy to use EVERY TIME one has sex.	1	2	3	4	5	6	7	8	9

	strongly disagree				neutral				strongly agree
37. Women think using **condoms** to prevent STDs is important.	1	2	3	4	5	6	7	8	9
38. Men think using **condoms** to prevent STDs is important.	1	2	3	4	5	6	7	8	9
39. My health care provider thinks using **condoms** to prevent STDs is important.	1	2	3	4	5	6	7	8	9
40. My friends think using **condoms** to prevent STDs is important.	1	2	3	4	5	6	7	8	9
41. My commander thinks using **condoms** to prevent STDs is important.	1	2	3	4	5	6	7	8	9
42. Talking to **health care providers** about birth control and condoms is easy	1	2	3	4	5	6	7	8	9
43. Talking to **sexual partners** about birth control and condoms is easy.	1	2	3	4	5	6	7	8	9
44. Talking to sexual partners about **STDs** is easy.	1	2	3	4	5	6	7	8	9
45. Talking to sexual partners about **pregnancy concerns** is easy.	1	2	3	4	5	6	7	8	9

V. Health Status and Practices

The first set of questions ask about your health and visits to the women's health clinic. The next set of questions asks about your sexual behavior and birth control preferences. These types of questions sometimes make people feel uncomfortable. Some people feel the need to answer differently from what they actually do. Please answer the questions as honestly as you can. This may help other enlisted women with their health care needs and concerns.

46. How would you rate your overall health?
    a. Excellent
    b. Good
    c. Fair
    d. Poor

47. Do you have any of the following problems? ***(Circle all that apply.)***
    a. Poor diet
    b. Trouble sleeping
    c. Job stress
    d. Family stress
    e. General stress

48. Have you EVER had any of the following conditions? ***(Circle all that apply.)***
    a. Irregular periods
    b. Painful periods
    c. Heavy periods
    d. Unexplained vaginal bleeding
    e. Menopause
    f. Diabetes
    g. Breast cancer
    h. Cervical cancer
    i. Abnormal Pap test
    j. Urinary tract infection
    k. Yeast infection
    l. Unplanned pregnancy
    m. Sexually transmitted disease
    n. None
    o. I don't know

49. Has your mother or a sister ever had breast cancer?
    a. Yes
    b. No
    c. I don't know

50. Are you currently pregnant?
    a. Yes, and it is a planned pregnancy.
    b. Yes, and it is not a planned pregnancy.
    c. No, I'm not pregnant.
    d. I don't know

51. When did you have your last pelvic exam that included a Pap test?
    a. Never
    b. In the last year
    c. In the last 2 years
    d. In the last 3 years
    e. More than 3 years ago
    f. I don't know

52. When did you last have your breasts examined by a doctor or nurse?
    a. Never
    b. In the last year
    c. In the last 2 years
    d. In the last 3 years
    e. More than 3 years ago
    f. I don't know

53. When did you have your last mammogram?
    a. Never
    b. In the last year
    c. In the last 2 years
    d. In the last 5 years
    e. More than 5 years ago
    f. I don't know

54. How often do you examine your breasts?
    a. Never
    b. Monthly
    c. A few times a year
    d. Yearly
    e. Less often than once a year
    f. No set time
    g. I don't know

55. How often do you have a pelvic exam before you go on a deployment?
    a. I have never been deployed.
    b. Always or nearly always
    c. Most of the time
    d. Half the time
    e. Some of the time
    f. Rarely
    g. Never

56. Which of the following supplies do you pack to take on deployments to prepare for your health needs?
    a. Cotton underwear
    b. Birth control pills
    c. Condoms
    d. Unscented tampons
    e. Scented tampons
    f. Unscented pads/panty liners
    g. Scented pads/panty liners
    h. Unscented wet-wipes
    i. Scented wet-wipes
    j. Yeast infection medication
    k. Female urinary director
    l. None of these
    m. I have never been deployed

57. Do you wipe from FRONT to BACK after using the bathroom?
    a. Yes, always
    b. Yes, sometimes
    c. No, never
    d. No response

58. Do you ever stop drinking water in the field so you won't have to go to the bathroom?
    a. Yes
    b. No

59. How often do you douche?
    a. Never
    b. Rarely (a few times)
    c. Occasionally (every few months)
    d. Regularly (once a month)
    e. Often (more than once a month)

60. Which of the following products do you use?
    a. Scented tampons
    b. Scented sanitary pads
    c. Scented wipes
    d. None of these

61. Have you ever had sex (penis-vagina intercourse)?
    a. Yes
    b. No

62. Have you ever had oral sex?
    a. Yes
    b. No

63. Have you ever had anal sex?
    a. Yes
    b. No

If you have had any type of sex, skip ahead to number 67

64. If you begin to have sex, what type of birth control will you use? ***(Circle all that apply.)***
    a. No method
    b. Withdrawal
    c. Birth control pills
    d. Norplant
    e. Depo-Provera (the shot)
    f. Diaphragm with spermicide
    g. Male condom
    h. Female Condom
    i. Intrauterine Device (IUD)
    j. Tubal ligation (tubes tied)
    k. Vasectomy
    l. I don't know.

65. Will you use birth control EVERY TIME you have sex?
    a. No.
    b. Yes, I always will.
    c. I don't know

66. Will you use a condom EVERY TIME you have sex?
    a. No.
    b. Yes, I always will.
    c. I don't know

Please skip ahead to Section V, number 71.

67. What type of birth control do you usually use? (Check all that apply.)
    a. No method
    b. Withdrawal
    c. Birth control pills
    d. Norplant
    e. Depo-Provera (the shot)
    f. Diaphragm with spermicide
    g. Male condom
    h. Female Condom
    i. Intrauterine Device (IUD)
    j. Tubal ligation (tubes tied)
    k. Vasectomy
    l. I don't know.

68. Do you use birth control EVERY TIME you have sex?
    a. No, and I don't plan to in the future.
    b. No, but I want to.
    c. No, but I plan to start soon.
    d. Yes, I do now.
    e. Yes, I always have.
    f. No response

69. What best describes your sexual activity in the past year?
    a. Abstinent
    b. One steady relationship
    c. More than one steady relationship
    d. One casual relationship
    e. More than one casual relationship
    f. A mix of steady and casual relationships
    g. No response

70. Do you use a condom EVERY TIME you have sex?
    a. No, and I don't plan to in the future.
    b. No, but I want to.
    c. No; but I plan to start soon.
    d. Yes, I do now.
    e. Yes, I always have.
    f. No response

V. Health Education & Resources

We are interested in how you feel about the health information and resources that are available to you in the military. Please answer honestly.

71. Which health topics do you want to know more about? ***(Circle all that apply.)***
    a. I know all I need to know
    b. Pelvic exams
    c. Pregnancy prevention
    d. Birth control
    e. STD/HIV prevention
    f. Prevention of vaginal infections
    g. Personal hygiene
    h. Menstrual cycle
    i. Other_____
    j. None

72. Where do you go when you want information about your sexual health? ***(Circle all that apply.)***
    a. Health clinic
    b. Pharmacy
    c. Telephone hotline
    d. Library
    e. Internet
    f. Newspapers/magazines
    g. Television
    h. Other_____
    i. None

73. How easy is it to talk to your health care provider(s) when you want information about your sexual health? ***(Circle one response.)***

very easy	somewhat easy	neutral	somewhat difficult	very difficult

74. Who would you go to for help if you had a sexual health concern (suspected pregnancy, STD, etc.)? ***(Circle all that apply.)***
    a. Friend
    b. Parent
    c. Sibling
    d. Spouse/significant other
    e. Your commanding officer
    f. Health care provider (nurse, doctor)
    g. Health educator/instructor
    h. Other_____

75. How easy is it to talk to your health care provider(s) about your sexual health concerns? ***(Circle one response.)***

very easy	somewhat easy	neutral	somewhat difficult	very difficult

How important is it to take time out of your daily work duties to do the following:
(Circle only one response per row)

	Not important	Somewhat important	Neutral	Important	Very important
76. Get an annual women's health exam.	1	2	3	4	5
77. Get medical care when you notice a symptom that may be a health problem.	1	2	3	4	5
78. Go to follow-up appointments to get treatment for a health problem.	1	2	3	4	5
79. Get medicine and take it as prescribed by a health care provider.	1	2	3	4	5

Many thanks for your time completing this survey. You have been very helpful!

Appendix H: Post-Intervention Survey, Control Group

Health Needs of Enlisted Women in the Military

The purpose of this survey is to collect information about the health knowledge, attitudes, and behavior of enlisted women in the Army, Navy, and Air Force. We are interested in understanding what enlisted women in the military know, think, and do regarding their reproductive health.

Your participation in answering these questions is voluntary, and it may help other enlisted women receive improved health care and educational services. This is the second of the two surveys you have been asked to complete. The purpose of this study is to evaluate a computer program designed to help women in the military learn about reproductive health, and better care for themselves at home and in the field.

These surveys contain several questions about sensitive issues such as sexual behavior and feminine hygiene practices. We realize it may make some people uncomfortable to answer these types of questions. Some people may feel that they should answer a certain way, even if it is not what they actually think or do. Please be honest, because your thoughts, feelings, and actions are very important for the results of the study. There is no penalty for leaving a question blank, but we encourage your full participation so that the data will be complete and representative.

Some people feel uncomfortable answering sensitive questions on a survey because it is written. Your answers will not be linked to any personal information about you. This survey will have a unique numerical identifier that will be linked to the first survey you completed, so we can make comparisons. Your answers will be combined with the answers of hundreds of other enlisted women in the military who complete this survey. No individual enlisted women will be identified when we present the results of the survey, so please answer every question honestly.

Please, do not write your name on the survey.

Many thanks for your cooperation and help with this study.

I. Knowledge. Read each of the following questions and select the answers you think are correct. You are NOT expected to know all the correct answers. Mark only one answer.

1. At what point in the monthly reproductive cycle is a woman most likely to become pregnant?
   a. Right before her period
   b. During her period
   c. Right after her period
   d. Mid-cycle
   e. I don't know

2. Who is more likely to get an STD infection because of how their bodies are structured?
   a. Men
   b. Women
   c. They are equally likely
   d. I don't know

3. What is the BEST way to clean the vagina?
   a. Using a vinegar and water douche
   b. Using vaginal deodorants
   c. Letting normal secretions cleanse the vagina
   d. Using deodorant soap
   e. I don't know

4. What is the BEST way to clean the vagina in the FIELD?
   a. With scented deodorant sprays
   b. With disposable wipes
   c. With water
   d. There is no way to clean in the field.
   e. I don't know

5. When you are in the field and need to urinate (pee), what should you do?
   a. Go immediately, or as soon as possible
   b. Hold it until you really have to go
   c. Hold it until you come to a clean bathroom
   d. Stop drinking water so you do not have to go as much
   e. I don't know

6. Which of the following is the BEST way to prevent pregnancy?
   a. Use condoms
   b. Withdrawal (pull out)
   c. Birth control pills
   d. Douching
   e. I don't know

7. What is the most common reason that birth control fails?
   a. It is used incorrectly
   b. A method does not work
   c. The directions are bad
   d. Women pick a type that they don't like
   e. I don't know

8. How can a woman be sure she has NO sexually transmitted diseases (STDs)?
   a. When she has no symptoms of itching or burning
   b. When she has a normal Pap test
   c. When her doctor does not notice any problems
   d. When screening tests show no infection
   e. I don't know

9. What type of condom is best at reducing the risk of getting an STD?
   a. Lambskin
   b. Polyurethane
   c. Latex
   d. Condoms do not reduce the risk.
   e. I don't know

10. The risk of an STD infection is increased by
    a. Having one steady relationship
    b. Having sex when intoxicated
    c. Having sex when dirty
    d. Using birth control
    e. I don't know

11. What medical service DO women get when they have an annual pelvic exam at a military facility?
    a. Pregnancy test
    b. Screening for STDs
    c. Urine test
    d. Pap test
    e. I don't know

12. What medical service SHOULD military women get when they have a pre-deployment exam?
    a. Pregnancy test
    b. Screening for STDs
    c. Urine test
    d. Pap test
    e. I don't know

II. Attitudes We are interested in how you feel about specific health concerns and behaviors that are important for enlisted women in the military. Please answer these questions as you really feel. There are no right or wrong answers.

Please mark on a scale of 1 to 9 how much you agree or disagree with the following statements. 9 = "strongly agree", 5= "neutral", and 1= "strongly disagree."

	strongly disagree				neutral				strongly agree
13. Active duty females are MORE likely to have an unplanned pregnancy than civilian females.	1	2	3	4	5	6	7	8	9
14. When active duty females get pregnant, it's MORE likely to get out of duty rather than an "unplanned" pregnancy.	1	2	3	4	5	6	7	8	9
15. Using **birth control** makes love making better.	1	2	3	4	5	6	7	8	9
16. **Birth control** is easy to get in the field.	1	2	3	4	5	6	7	8	9
17. **Birth control** is easy to use EVEN IF one is drinking or using drugs.	1	2	3	4	5	6	7	8	9
18. **Birth control** is easy to use EVERY TIMES one has sex.	1	2	3	4	5	6	7	8	9
19. Active duty FEMALES are MORE likely to get an STD than civilian females.	1	2	3	4	5	6	7	8	9
20. Active duty MALES are MORE likely to get an STD than civilian males.	1	2	3	4	5	6	7	8	9
21. **Condoms** make love making better.	1	2	3	4	5	6	7	8	9
22. **Condoms** are easy to get.	1	2	3	4	5	6	7	8	9
23. **Condoms** are easy to get in the field.	1	2	3	4	5	6	7	8	9
24. **Condoms** are easy to use EVERY TIME one has sex.	1	2	3	4	5	6	7	8	9
25. Talking to **health care providers** about birth control and condoms is easy	1	2	3	4	5	6	7	8	9
26. Talking to **sexual partners** about birth control and condoms is easy.	1	2	3	4	5	6	7	8	9
27. Talking to sexual partners about **STDs** is easy.	1	2	3	4	5	6	7	8	9
28. Talking to sexual partners about **pregnancy concerns** is easy.	1	1	3	4	5	6	7	8	9

III. Health and Hygiene Practices

This set of questions asks about what you plan to do in terms of getting medical examinations, preparing for deployment, and using birth control. Please answer the questions as honestly as you can.

29. When are you planning to have your next pelvic exam, including a Pap test?
    a. Never
    b. In the next year
    c. In the next 3 years
    d. I don't know

30. How often will you have a pelvic exam before you go on a deployment?
    a. I don't expect to ever be deployed.
    b. Always or nearly always
    c. Most of the time
    d. Half the time
    e. Some of the time
    f. Rarely
    g. Never

31. Which of the following supplies will you pack to take on deployments to prepare for your health needs? ***(Circle all that apply)***
    a. Cotton underwear
    b. Birth control pills
    c. Condoms
    d. Unscented tampons
    e. Scented tampons
    f. Unscented pads/panty liners
    g. Scented pads/panty liners
    h. Unscented wet-wipes
    i. Scented wet-wipes
    j. Yeast infection medication
    k. Female urinary director
    l. None of these
    m. I have never been deployed

32. Are you planning to wipe from FRONT to BACK after using the bathroom?
    a. Yes, always
    b. Yes, sometimes
    c. No, never
    d. No response

33. Will you stop drinking water in the field so you won't have to go to the bathroom?
    a. Yes, always
    b. Yes, sometimes
    c. No, never
    d. No response

34. How often will you douche?
    a. Never
    b. Rarely (a few times)
    c. Occasionally (every few months)
    d. Regularly (once a month)
    e. Often (more than once a month)

35. Which of the following products will you continue to use?
    a. Scented tampons
    b. Scented sanitary pads
    c. Scented wipes
    d. None of these

36. When you have sex in the future, what type of birth control will you use? ***(Circle all that apply.)***
    a. No method
    b. Withdrawal
    c. Birth control pills
    d. Norplant
    e. Depo-Provera (the shot)
    f. Diaphragm with spermicide
    g. Male condom
    h. Female Condom
    i. Intrauterine Device (IUD)
    j. Tubal ligation (tubes tied)
    k. Vasectomy
    l. I don't know.

37. Will you use birth control EVERY TIME you have sex?
    a. No.
    b. Yes, I always will.
    c. I don't know

38. Will you use a condom EVERY TIME you have sex?
    a. No.
    b. Yes, I always will.
    c. I don't know

IV. Health Education & Resources We are interested in how you feel about the health information and resources that are available to you in the military. Please answer honestly.

39. How easy was it to talk to your health care provider(s) today about your sexual health?

very easy	somewhat easy	neutral	somewhat difficult	very difficult

40. Who would you go to for help if you had a sexual health concern (suspected pregnancy, STD, etc.)? ***(Circle all that apply.)***

a. Friend
b. Parent
c. Sibling
d. Spouse/significant other
e. Your commanding officer
f. Health care provider (nurse, doctor)
g. Health educator/instructor
h. Other_____

How important is it to take time out of your daily work duties to do the following:
(Circle only one response per row.)

	Not important	Somewhat important	Neutral	Important	Very important
41. Get an annual women's health exam.	1	2	3	4	5
42. Get medical care when you notice a symptom that may be a health problem.	1	2	3	4	5
43. Go to follow-up appointments to get treatment for a health problem.	1	2	3	4	5
44. Get medicine and take it as prescribed by a health care provider.	1	2	3	4	5

Many thanks for your time completing this survey. You have been very helpful!

Appendix I: Post-Intervention Survey, Experimental Group

Health Needs of Enlisted Women in the Military

The purpose of this survey is to collect information about the health knowledge, attitudes, and behavior of enlisted women in the Army, Navy, and Air Force. We are interested in understanding what enlisted women in the military know, think, and do regarding their reproductive health.

Your participation in answering these questions is voluntary, and it may help other enlisted women receive improved health care and educational services. This is the second of the two surveys you have been asked to complete. The purpose of this study is to evaluate a computer program designed to help women in the military learn about reproductive health, and better care for themselves at home and in the field.

These surveys contain several questions about sensitive issues such as sexual behavior and feminine hygiene practices. We realize it may make some people uncomfortable to answer these types of questions. Some people may feel that they should answer a certain way, even if it is not what they actually think or do. Please be honest, because your thoughts, feelings, and actions are very important for the results of the study. There is no penalty for leaving a question blank, but we encourage your full participation so that the data will be complete and representative.

Some people feel uncomfortable answering sensitive questions on a survey because it is written. Your answers will not be linked to any personal information about you. This survey will have a unique numerical identifier that will be linked to the first survey you completed, so we can make comparisons. Your answers will be combined with the answers of hundreds of other enlisted women in the military who complete this survey. No individual enlisted women will be identified when we present the results of the survey, so please answer every question honestly.

Please, do not write your name on the survey.

Many thanks for your cooperation and help with this study.

I. Computer Program Evaluation

We are interested in learning about your experience and reactions today to the CD-Rom, "Preventive Maintenance". We'd like to know your opinion about how it was to use, what you liked and what you did not like. Please answer the questions as completely and honestly as you can.

Circle the appropriate number in each row of the following table that best describes how **satisfied** you were with different parts of the CD-ROM program:

	VERY	SOMEWHAT	NOT VERY	NOT AT ALL	DID NOT USE
1a. Video Briefing	1	2	3	4	5
1b. Health Profile (questionnaire)	1	2	3	4	5
1c. Female Body	1	2	3	4	5
1d. Contraception	1	2	3	4	5
1e. Baby Budget	1	2	3	4	5
1f. Signs & Symptoms	1	2	3	4	5
1g. Deployment Packing	1	2	3	4	5
1e. Virtual Examinations	1	2	3	4	5
1f. Virtual Relationship	1	2	3	4	5
1g. Virtual Self-care	1	2	3	4	5
1h. Reference Manual (library)	1	2	3	4	5

We are interested in receiving your input on the following questions. Circle the appropriate number in each row of the following table to describe how satisfied you feel about the program:

	VERY	SOMEWHAT	NOT VERY	NOT AT ALL	NO OPINION
2a. How **useful** was the program for learning about your health?	1	2	3	4	5
2b. How **useful** was the **feedback** in the activities for helping you learn about your health?	1	2	3	4	5
2c. How **easy** was it to use the program?	1	2	3	4	5
2d. How **interesting** was the program?	1	2	3	4	5
2e. How **relevant** was the information in the program for your health needs?	1	2	3	4	5
2f. How **likely** would you be to **use this program again**?	1	2	3	4	5
2g. How likely would you be to **recommend** this program to other **women** in the military?	1	2	3	4	5
2h. How likely would you be to **recommend** this program to **men** in the military?	1	2	3	4	5

3. What did you like most about the CD-ROM program?

4. What did you like least about the CD-ROM program?

II. Knowledge. Read each of the following questions and select the answers you think are correct. You are NOT expected to know all the correct answers. Mark only one answer.

1. At what point in the monthly reproductive cycle is a woman most likely to become pregnant?
   a. Right before her period
   b. During her period
   c. Right after her period
   d. Mid-cycle
   e. I don't know

2. Who is more likely to get an STD infection because of how their bodies are structured?
   a. Men
   b. Women
   c. They are equally likely
   d. I don't know

3. What is the BEST way to clean the vagina?
   a. Using a vinegar and water douche
   b. Using vaginal deodorants
   c. Letting normal secretions cleanse the vagina
   d. Using deodorant soap
   e. I don't know

4. What is the BEST way to clean the vagina in the FIELD?
   a. With scented deodorant sprays
   b. With disposable wipes
   c. With water
   d. There is no way to clean in the field.
   e. I don't know

5. When you are in the field and need to urinate (pee), what should you do?
   a. Go immediately, or as soon as possible
   b. Hold it until you really have to go
   c. Hold it until you come to a clean bathroom
   d. Stop drinking water so you do not have to go as much
   e. I don't know

6. Which of the following is the BEST way to prevent pregnancy?
   a. Use condoms
   b. Withdrawal (pull out)
   c. Birth control pills
   d. Douching
   e. I don't know

7. What is the most common reason that birth control fails?
   a. It is used incorrectly
   b. A method does not work
   c. The directions are bad
   d. Women pick a type that they don't like
   e. I don't know

8. How can a woman be sure she has NO sexually transmitted diseases (STDs)?
   a. When she has no symptoms of itching or burning
   b. When she has a normal Pap test
   c. When her doctor does not notice any problems
   d. When screening tests show no infection
   e. I don't know

9. What type of condom is best at reducing the risk of getting an STD?
   a. Lambskin
   b. Polyurethane
   c. Latex
   d. Condoms do not reduce the risk.
   e. I don't know

10. The risk of an STD infection is increased by
    a. Having one steady relationship
    b. Having sex when intoxicated
    c. Having sex when dirty
    d. Using birth control
    e. I don't know

11. What medical service DO women get when they have an annual pelvic exam at a military facility?
    a. Pregnancy test
    b. Screening for STDs
    c. Urine test
    d. Pap test
    e. I don't know

12. What medical service SHOULD military women get when they have a pre-deployment exam?
    a. Pregnancy test
    b. Screening for STDs
    c. Urine test
    d. Pap test
    e. I don't know

III. Attitudes We are interested in how you feel about specific health concerns and behaviors that are important for enlisted women in the military. Please answer these questions as you really feel. There are no right or wrong answers.

Please mark on a scale of 1 to 9 how much you agree or disagree with the following statements. 9 = "strongly agree", 5= "neutral", and 1= "strongly disagree."

	strongly disagree				neutral				strongly agree
13. Active duty females are MORE likely to have an unplanned pregnancy than civilian females.	1	2	3	4	5	6	7	8	9
14. When active duty females get pregnant, it's MORE likely to get out of duty rather than an "unplanned" pregnancy.	1	2	3	4	5	6	7	8	9
15. Using **birth control** makes love making better.	1	2	3	4	5	6	7	8	9
16. **Birth control** is easy to get in the field.	1	2	3	4	5	6	7	8	9
17. **Birth control** is easy to use EVEN IF one is drinking or using drugs.	1	2	3	4	5	6	7	8	9
18. **Birth control** is easy to use EVERY TIMES one has sex.	1	2	3	4	5	6	7	8	9
19. Active duty FEMALES are MORE likely to get an STD than civilian females.	1	2	3	4	5	6	7	8	9
20. Active duty MALES are MORE likely to get an STD than civilian males.	1	2	3	4	5	6	7	8	9
21. **Condoms** make love making better.	1	2	3	4	5	6	7	8	9
22. **Condoms** are easy to get.	1	2	3	4	5	6	7	8	9
23. **Condoms** are easy to get in the field.	1	2	3	4	5	6	7	8	9
24. **Condoms** are easy to use EVERY TIME one has sex.	1	2	3	4	5	6	7	8	9
25. Talking to **health care providers** about birth control and condoms is easy	1	2	3	4	5	6	7	8	9
26. Talking to **sexual partners** about birth control and condoms is easy.	1	2	3	4	5	6	7	8	9
27. Talking to sexual partners about **STDs** is easy.	1	2	3	4	5	6	7	8	9
28. Talking to sexual partners about **pregnancy concerns** is easy.	1	1	3	4	5	6	7	8	9

IV. Health and Hygiene Practices

This set of questions asks about what you plan to do in terms of getting medical examinations, preparing for deployment, and using birth control. Please answer the questions as honestly as you can.

28. When are you planning to have your next pelvic exam, including a Pap test?
    a. Never
    b. In the next year
    c. In the next 3 years
    d. I don't know

30. How often will you have a pelvic exam before you go on a deployment?
    a. I don't expect to ever be deployed.
    b. Always or nearly always
    c. Most of the time
    d. Half the time
    e. Some of the time
    f. Rarely
    g. Never

31. Which of the following supplies will you pack to take on deployments to prepare for your health needs? ***(Circle all that apply)***
    a. Cotton underwear
    b. Birth control pills
    c. Condoms
    d. Unscented tampons
    e. Scented tampons
    f. Unscented pads/panty liners
    g. Scented pads/panty liners
    h. Unscented wet-wipes
    i. Scented wet-wipes
    j. Yeast infection medication
    k. Female urinary director
    l. None of these
    m. I have never been deployed

32. Are you planning to wipe from FRONT to BACK after using the bathroom?
    a. Yes, always
    b. Yes, sometimes
    c. No, never
    d. No response

33. Will you stop drinking water in the field so you won't have to go to the bathroom?
    a. Yes, always
    b. Yes, sometimes
    c. No, never
    d. No response

34. How often will you douche?
    a. Never
    b. Rarely (a few times)
    c. Occasionally (every few months)
    d. Regularly (once a month)
    e. Often (more than once a month)

35. Which of the following products will you continue to use?
    a. Scented tampons
    b. Scented sanitary pads
    c. Scented wipes
    d. None of these

36. When you have sex in the future, what type of birth control will you use? ***(Circle all that apply.)***
    a. No method
    b. Withdrawal
    c. Birth control pills
    d. Norplant
    e. Depo-Provera (the shot)
    f. Diaphragm with spermicide
    g. Male condom
    h. Female Condom
    i. Intrauterine Device (IUD)
    j. Tubal ligation (tubes tied)
    k. Vasectomy
    l. I don't know.

37. Will you use birth control EVERY TIME you have sex?
    a. No.
    b. Yes, I always will.
    c. I don't know

38. Will you use a condom EVERY TIME you have sex?
    a. No.
    b. Yes, I always will.
    c. I don't know

V. Health Education & Resources We are interested in how you feel about the health information and resources that are available to you in the military. Please answer honestly.

39. How easy was it to talk to your health care provider(s) today about your sexual health?

very easy	somewhat easy	neutral	somewhat difficult	very difficult

40. Who would you go to for help if you had a sexual health concern (suspected pregnancy, STD, etc.)? ***(Circle all that apply.)***
    a. Friend
    b. Parent
    c. Sibling
    d. Spouse/significant other
    e. Your commanding officer
    f. Health care provider (nurse, doctor)
    g. Health educator/instructor
    h. Other_____

How important is it to take time out of your daily work duties to do the following:
(Circle only one response per row.)

	Not important	Somewhat important	Neutral	Important	Very important
41. Get an annual women's health exam.	1	2	3	4	5
42. Get medical care when you notice a symptom that may be a health problem.	1	2	3	4	5
43. Go to follow-up appointments to get treatment for a health problem.	1	2	3	4	5
44. Get medicine and take it as prescribed by a health care provider.	1	2	3	4	5

Many thanks for your time completing this survey. You have been very helpful!

Appendix J: Approved Research Protocol

1. **Project Title:** **CD-ROM Technology to Increase Appropriate Self-Care and Preventive Behaviors Among Enlisted Women**

2. **Project Number:** **DAMD 17-96-D-6091**

3. **Principal Investigators:**

Nancy L. Atkinson, Ph.D. (civilian investigator)
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Uniformed Services University of the Health Sciences
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Bethesda, MD 20814-4799
301.295.9465 elewis@usuhs.mil

4. **Location of the Study**

The efficacy study for testing the intervention will be conducted in four medical facilities overseen by co-investigators as detailed below:

1) Uniformed Services University of the Health Sciences
Evelyn L. Lewis, Co-Investigator (Military Principal Investigator)
4301 Jones Bridge Road
Bethesda, MD 20814-4799

2) Walter Reed Army Medical Center
Women's Health Clinic
TBN Co-Investigator
6900 Georgia Avenue, NW
Washington, D.C. 20307-5001

3) National Naval Medical Center
Department of Obstetrics and Gynecology
TBN, Co-Investigator
8901 Wisconsin Avenue
Bethesda, MD 20889-5600
202.295.5552

4) Malcolm Grow Medical Center
Janice Langer, M.D. Co-Investigator
1075 W. Perimeter Road, Suite A01
Andrews Air Force Base, MD 20762
240.852.3956

5. Timeline

The start date for this research project was October, 1996. The needs assessment portion of the study, and the intervention design has been completed. This protocol is for the intervention implementation and testing phase of the study, which is scheduled to commence on January 1, 2001 and end on June 30, 2001. The entire project will be completed by July 31, 2001.

6. Purpose and Objectives of the Study

The purpose of this four-year study is to investigate and address enlisted military women's needs for basic gynecological and reproductive health education in order to enhance military readiness and general well-being. In the first phase of the study, a needs assessment was conducted which included a secondary analysis of a health behavior survey focusing on enlisted Army, Navy, and Air Force women; and focus groups with enlisted Army and Navy women. Based on the results of the needs assessment, a culturally sensitive, multimedia CD-ROM and accompanying materials are currently under development with the help of an advisory panel of military health care providers and with periodic reviews by the target audience.

This research protocol describes the next step of the project, which is an efficacy study to test the proposed intervention in Army, Navy, and Air Force medical clinics among enlisted female personnel. **Therefore, the rest of this IRB form concerns only the efficacy study testing the intervention among enlisted women in the Army, Navy, and Air Force.**

Efficacy Study

The intervention will be tested in conjunction with annual Pap test screening at four medical facilities where military women, regardless of service, are likely to go (USUHS, Walter Reed, Naval Hospital, and Malcolm Grow). We will use a randomized pretest/posttest control group design so that we can examine the outcome measures by intervention and by service. The experimental group will use the intervention and the control group will receive usual care. Subjects will complete a knowledge-attitudes-practices (KAP) survey pre-intervention and post-intervention.

	EXPERIMENTAL	**CONTROL**
ARMY	**R Y_0 X Y_1**	**R Y_0 ~X Y_1**
NAVY	**R Y_0 X Y_1**	**R Y_0 ~X Y_1**
AIR FORCE	**R Y_0 X Y_1**	**R Y_0 ~X Y_1**

X=intervention, ~X=no intervention, Y_0=pre-measure, Y_1 =post-measure

Sample size calculation

A sample size calculation was conducted to determine the number of subjects necessary to provide adequate power for detecting mean differences at the 0.05 alpha level. A standard way of expressing differences in hypothesis testing is to use the effect size measure (Cohen, 1977). The effect size is the difference in mean scores between two distributions divided by the pooled standard deviation of the distributions. The effect size is a dimensionless measure that does not vary by sample size, unlike the t-statistic. Cohen suggests that in the social sciences, an effect size of 0.1 generally represents a small difference, 0.25 represent a medium difference, and 0.4 represents a large difference. These are not

absolute cut-off points, rather these values can be thought of as the midpoint of a range. For example, an effect size of 0.39 would be considered a large effect. We believe the study will uncover the potential of interactive multimedia to deliver health education to military women, and as such, the design will detect small to medium differences between the experimental and control groups.

In order to estimate sample size, the analysis procedure must be taken into consideration. The analysis strategy of the current study will utilize an analysis of covariance using baseline KAP scores as the covariate. In order to detect a medium effect size difference (>.2) at an alpha level of 0.05, with a power of .80, 81 subjects are required for the treatment group and 81 for the control group, for a total of 162 subjects (Cohen, 1977) in each of the Army, Navy, and Air Force samples, or 486 subjects in the study.

Analysis Plan

The time period between pre- and post-measure is the length of a medical office visit. All research participant questionnaires will be entered into an SPSS spreadsheet for analysis. Once data collection is final, analysis of the data will begin. Ten percent of the questionnaires will be entered by different data entry operators to check for error checking and inter-rater reliability. Quantitative data such as self-reported self care practices, prevalence and incidence of STDs and pregnancies, as well as medical service utilization rates, will be analyzed using descriptive statistics (frequencies, means, standard deviations). Differences by service branch will be analyzed via one-way ANOVAs for interval data and Chi-square tests for categorical data. To determine pre- and post-intervention differences, we will use a significance level of $p<0.05$ as we compare data from the baseline KAP and clinic data with that of the post-measures (knowledge scores, attitude changes, change from previous behaviors to behavioral intentions). Qualitative data such as barriers to self-care and medical care will be summarized and analyzed for recurring themes and priority issues. Results of the analyses will be compared with our the needs assessment data and our initial technical and behavioral objectives to draw conclusions about the effectiveness of the intervention in increasing knowledge, self-care, and preventive behaviors as well as appropriate use of medical services.

Validation/Previous Use of Intervention Surveys

These surveys have not been used in previous studies. However, most of the items were part of a needs assessment survey intended to identify the baseline knowledge, attitudes, and practices of enlisted women and serve as a basis for developing the intervention. The needs assessment survey was developed with the guidance of an expert panel of military medical providers experienced in military women's health issues. The needs assessment survey was also pilot-tested with nine enlisted women and found to have acceptable reliability. Despite the extensive development process, the survey was never fielded as a needs assessment survey because Department of Defense Health Affairs deemed that the survey would represent a duplication of effort and added burden on respondents in detailing health risk information that they gather in surveys fielded with all active duty personnel. Therefore, we instead conducted a secondary analysis of the existing data source rather than fielding the needs assessment survey.

7. Study Population

a) Subjects will be recruited to volunteer through the Family Practice clinic and OB/GYN clinic at each of the four sites (USUHS, Walter Reed, Naval Hospital, and Malcolm Grow). Potential study participants will be identified through the clinics on a rolling basis. Each week, we will obtain the

names of enlisted women who have scheduled an Annual Exam, Medical Exam, or Pre-Deployment Exam at the selected clinics. A military representative will contact the women by telephone and invite them to participate in the study.

Although subjects will be at least 18 years of age, subjects will not be selected for specific demographic characteristics, but every attempt will be made to recruit equivalent numbers of enlisted women serving in the Army, Navy, and Air Force.

b) Pregnant women will not be excluded from the study.

8. Protocol Design

a & b) Subject identification and assignment

Upon arrival at the clinic, women who had been telephoned and expressed an interest in participating in the study, will undergo an informed consent interview with the Co-Investigator staffing the clinic or a female member of the research team (Atkinson, Chokshi, Silsby, or Odum). The interviewer will review the different components of the consent form with the potential study participant who will have her own copy of the consent form to review. The interviewer will encourage her to ask questions at any time and to carefully read each page of the form. Once all questions have been addressed to the satisfaction of the participant, she will be asked if she is willing to participate in the study and ready to sign the consent form. Participants responding affirmatively will be asked to initial each page, which the interviewer, also serving as the witness, will also do. Finally the last page will be signed and dated by both the study participant and the witness. If one of the Principal Investigators, Dr. Atkinson or Dr. Lewis, is conducting the interview, another member of the research team will serve as the witness or "subject advocate".

All study participants will be asked to sign the consent form prior to participation in the efficacy study. The consent form will describe: risks and benefits, how the results of the study will be used, an assurance of confidentiality, and a reminder that their participation is voluntary. This form will also state that results will be reported in aggregate form without any personal, identifying information. Once consent has been obtained, study participants will be randomized into experimental and control conditions. Each subject will be given a unique numerical identifier to protect her confidentiality. All subjects will complete a baseline and follow-up knowledge-attitudes-practices (KAP) survey. The experimental group will use the multimedia intervention program and the control group will receive usual care. The multimedia program will take approximately 30 minutes to complete. It will be self-instructional and will require no computer knowledge to operate, and a trained staff person will be available to answer questions during the entire time study participants are using the program.

The experimental group will complete a baseline KAP survey prior to receiving the intervention, and a follow-up KAP survey after receiving the intervention and immediately after their medical appointment. The control group will complete the survey prior to their medical appointment and immediately after their appointment. Each KAP survey will take approximately 15 minutes to complete. Data collection will take place for approximately 6 months among 486 subjects. This strategy of collecting pre- and post-intervention data during a single medical visit, avoids problems with subject follow-up due to reassignment, assignment to a temporary duty station, deployment, or separation from the service.

Relevant data will be provided by the clinics based on their summary statistics. These data will be based on the determination of the highest priority topic areas, such as: utilization and adherence to

follow-up rates, incidence of pregnancy, STDs and common gynecological conditions, and stage of presentation.

c) Evaluations prior to entry

The only evaluation made prior to entry is whether the woman has scheduled an Annual Exam, Medical Exam, or Pre-Deployment Exam at one of the four selected clinics. Other enlisted women, such as medical corpsmen, who are at the medical facility may also volunteer to participate.

d) Evaluations to be made during the conduct of the study

No formal evaluation of the intervention will be made over the course of the study, although preliminary results may be gathered and analyzed.

e) Clinical assessments

No clinical evaluations or follow-up procedures will be included the study.

9. Risks /Benefits Assessment

The only foreseeable risk of participating in the study is that during the intervention, study participants may be exposed to health information and material that increases anxiety or creates concern about their health. The steps that will be taken to minimize this risk are as follows:

- The health care providers at each clinic will be briefed about the study and receive copies of the survey instruments.
- During the informed consent interview, study participants will be encouraged to ask questions and/or discuss concerns she has with her health care provider at her exam that day.
- During the informed consent interview, study participants will be encouraged to contact either of the two Principal Investigators should they have any questions or concerns. Participants will receive a copy of the informed consent letter, which will contain contact information for the Principal Investigators.
- After study participants view the CD-ROM application, a study team member and/or the Co-Principal Investigator on site will be available to answer their questions, and make appropriate referrals as necessary.

Potential benefits are that participants will receive individualized feedback about their health as well as information on gynecological health, preventive behaviors, self-care practices, and health services. This information may help study particpants to protect their current and future health. Subsequent publication and dissemination of results might increase self-care and preventive behaviors among enlisted women.

10. Reporting of serious and unexpected adverse events

It is not expected that any adverse events will happen as a result of participating in the efficacy study. However, if such an event (illness, injury, or exacerbation of a pre-existing condition) were to occur while participating in the study, all steps will be taken to ensure that the person receives prompt and appropriate medical attention.

In the event of a serious and unexpected adverse event, the USAMRMC Deputy Chief of Staff for Regulatory compliance and quality will be notified by telephone and facsimile. A written report will

follow the initial telephone call within 3 working days. The report will include the name of the person submitting the report, the name of the study, the HSRRB log number assigned to the study, the number of subjects enrolled to date, and the number and type of serious and unexpected adverse events previously reported in the study. A follow-up report describing the resolution of the adverse event will also be provided.

11. Description of Protocol Drug(s) or Device(s)

The protocol does not use any investigational drugs or devices so this section is not applicable.

12. Disposition of Data

The baseline and follow-up survey instruments will be encoded with a unique identification number to link surveys to personal information. Only Principal Investigators will have access to the information that links surveys with personal information, which will be kept under lock and key until the completion of the study, and then destroyed. All data and medical information obtained will be considered privileged and held in confidence; enlisted women who volunteer to participate will not be identified in any presentation of the results. The data will be reported in aggregate form, and only the study investigators will have access to the raw, disaggregated data. The data and other materials related to the study will be stored at the University of Maryland in a locked file cabinet. Data will be coded and separated from any consent information, and subjects' names and any other identifying information will not appear with the data.

13. Modification of the Protocol

No changes to the protocol are anticipated. However, should it be necessary to change the protocol due to unforeseen circumstances, a revised protocol will be submitted to the local IRB (University of Maryland) and the Human Subjects Research Review Board (HSRRB) for review and approval.

14. Departure from the Protocol

No changes to the protocol are anticipated. However, should it be necessary to change the protocol due to unforeseen circumstances, a revised protocol will be submitted to the local IRB (University of Maryland) and the Human Subjects Research Review Board (HSRRB) for review and approval.

15. Roles and Responsibilities of Study Personnel

It is not necessary to assign a medical monitor to this study because this protocol poses little if any risk to human subjects. The following is a list of study personnel responsible for implementing the efficacy study with roles and responsibilities described for each:

Nancy Atkinson, PhD (civilian PI) Supervising research assistants, collecting data, administering consent forms, developing analysis plan, and analyzing data.

Evelyn Lewis, MD (military PI) Coordinating co-investigators, developing analysis plan, and analyzing data.

Robert Gold, PhD, DrPH (Co-PI) Developing analysis plan and analyzing data.

Joscelyn Silsby, MPH (Field Test Coordinator) Site coordination, ensuring quality control of research protocol, collecting data, and administering consent forms.

Anjali Chokshi (Research Assistant) Collecting data, administering consent forms, data cleaning, data entry.

Harry Kwon, MPH (Research Assistant) Data cleaning, data entry, data management.

Kimberly Odum, MA (Research Assistant) Collecting data, administering consent forms, data cleaning, data entry

Janet Langer, M.D. (Co-investigator) Medical Care Provider, Malcolm Grow Medical Center)

TBN (Co-investigator, Medical Care Provider, Walter Reed)

TBN (Co-investigator, Medical Care Provider, Naval Hospital)

The Co-investigators at each of the installations will be responsible for the following activities pertaining to efficacy testing: 1) facilitating IRB clearance at their respective medical facility; 2) securing a private area in which to set up computer equipment in their medical clinic; 3) identifying enlisted women to participate and contacting them by telephone to recruit them into the study; and 4) facilitating access to the medical facility for research assistants to administer the efficacy testing.

16. Requirements of the Volunteer Registry Database

This is not applicable because the proposed research poses negligible risk to human subjects.

Appendix K: Approved INFORMED CONSENT LETTER

Project Title: CD-ROM Technology to Increase Appropriate Self-Care and Preventive Behaviors Among Enlisted Women

You are asked to participate in a research study conducted at the (insert Uniform Services University of the Health Sciences, Walter Reed Medical Center, Malcolm Grow Medical Center, or National Naval Medical Center) by Dr. Nancy Atkinson, Ph.D. (Civilian Principal Investigator) at the Department of Health Education, University of Maryland and by Dr. Evelyn Lewis, M.D. (Military Principal Investigator) at the Uniformed Services University of the Health Sciences (USUHS).

Purpose:

The purpose of this research is to test the effectiveness of an interactive computer-based educational program for enlisted Army, Navy, and Air Force women. The results of the study will be used to assess the usefulness of these materials in educating enlisted women about their health. This study is funded by the Department of Defense, U.S. Army Medical Research and Materiel Command (USAMRMC). The University of Maryland, College Park, is conducting the research study in conjunction with the Uniformed Services University of the Health Sciences.

This study is important because the number of women in the U.S. Armed Forces is increasing and the Department of Defense is concerned about their health needs. Many studies are being done about the unique health concerns of women in the military. Statistics show that unintended pregnancies, sexually transmitted diseases (STDs), and common preventable gynecological conditions (such as vaginitis) warrant immediate attention by both enlisted women and health care providers.

Procedure:

Enlisted women using the gynecological clinics at Walter Reed Army Medical Center, National Naval Medical Center, Malcolm Grow Medical Center, and USUHS are invited to volunteer for this study. We expect to enroll 528 enlisted women who equally represent the Air Force, Army, and Navy. The whole study has taken 5 years, but your participation will be limited to reviewing the educational materials and/or completing a series of questionnaires during just one medical visit.

During your medical visit, we will assign you to one of two study groups. If you get assigned to one of the groups, you will fill out a questionnaire, take part in educational activities using a computer, and fill out another questionnaire after your exam. If you get assigned to the other group, you will fill out a questionnaire right before your exam and one right afterwards. Your assignment to either of these two groups will be decided completely by chance.

All of these activities will take place in the same clinic where you get your exam. Each questionnaire should take about 15 minutes to fill out. Completing the educational activities on the computer will take 30 to 45 minutes. Altogether, the most time you would spend volunteering is 1 1/2 to 2 hours. Besides your time, there are no costs to you for participating in the study.

The two questionnaires will ask about your knowledge of basic female body functions, what you think women need to know about their health, what you would like to learn about health, and your experiences with military health care. Finally, the questionnaire asks for your opinion about using a computer program to educate military women and whether you think it is a good idea.

This research is not designed to help you personally. The researchers hope to learn more about women's health, particularly the unique issues faced by women in the military. By volunteering for this study, you will receive information about your health, and you may learn ways to help protect your health.

Potential Risks and Confidentiality

There are no foreseeable risks to you for participating in this study. Your name will not be associated with any other personal information on the questionnaire. A unique identification number will be used for each woman enrolled in the study, so information you provide on the questionnaire is confidential. Only the principal investigators will be able to see the information that links your responses to personal information. At the completion of this survey, the record linking your name with your identification number will be destroyed.

All data and medical information obtained about you, as an individual, will be considered privileged and held in confidence; you will not be identified in any presentation of the results. Complete confidentiality cannot be promised to subjects, particularly to subjects who are military personnel, because information bearing on your health may be required to be reported to appropriate medical or command authorities. It should be noted that representatives of the U.S. Army Medical Research and Materiel Command are eligible to review research records as a part of their responsibility to protect human subjects.

Medical Care for Research Related Injury

You are authorized all necessary medical care for injury or disease which is the proximate result of your participation in this research. Other than medical care that may be provided there is no other compensation available for participation in this research study; however, this is not a waiver or release of your legal rights.

The University of Maryland does not provide any medical or hospitalization insurance coverage for participants in the research study, nor will the University of Maryland provide any compensation for any injury sustained as a result of participation in this research study except as required by law.

The United States Department of Defense is funding this research project. Should you be injured as a direct result of participating in this research project, you will be provided medical care, at no cost to you, for that injury. You will not receive any injury compensation, only medical care. You should also understand that this is not a waiver or release of your legal rights. You should discuss this issue thoroughly with the principal investigator before you enroll in this study.

In the event of a research related injury, please immediately contact one of the investigators listed below. If you have any questions about the research, please feel free to contact the investigators as well.

Rights of Research Subjects

Your participation in this research is entirely voluntary. If you choose not to participate, that will not affect your relationship with <enter appropriate study site>, your right to health care or other services to which you are otherwise entitled. You are free to ask questions and/or to withdraw from the study at any time without penalty, and without any questions asked of you. You are not waiving any legal claims, rights, or remedies because of your participation in this research study. If you have questions regarding your rights as a research subject, you may contact one of the investigators listed below.

Contact Information for Principal Investigators

Nancy L. Atkinson, Ph.D. (civilian investigator)
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Evelyn L. Lewis, M.D., M.A., CAPT, MC, USN (military investigator)
Department of Family Practice
Uniformed Services University of the Health Sciences
4301 Jones Bridge Road
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301.295.9465 elewis@usuhs.mil

If you have any questions about research-related injuries and/or your rights as a research subject participating in this study, please contact the person below who is affiliated with <insert study site>.

Local Contact Information: <insert one of the following depending on the study site>

1) Uniformed Services University of the Health Sciences
LTC Richard Levine, Ph.D., MS, USA
Director of Research Programs
Room A-1032
4301 Jones Bridge Road
Bethesda, MD 20814-4799
Phone: 301-295-9813
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rlevine@usuhs.mil

2) Walter Reed Army Medical Center
TBN IRB Representative
6900 Georgia Avenue, NW
Washington, D.C. 20307-5001

3) National Naval Medical Center
Department of Obstetrics and Gynecology
TBN, IRB Representative
8901 Wisconsin Avenue
Bethesda, MD 20889-5600
202.295.5552

4) Malcolm Grow Medical Center
TBN, IRB Representative
Building1050, W. PerimeterRoad
Andrews Air Force Base, MD 20762
240.857.5024
janice.langer@mgmc.as.mil

Signature of Research Subject

I have read all the information provided above. I have been given an opportunity to ask questions, and all of my questions have been answered to my satisfaction. I state that I am at least 18 years of age and I wish to participate in the program of research described above. I have been given a copy of this form.

Printed Name of Study Participant:_____

Signature of Study Participant:_____

Date: _____

Permanent Address: _____

_____

Signature of Witness

My signature as witness certifies that the subject signed this form in my presence as her voluntary act and deed.

Name of Witness:_____

Signature of Witness:_____

Date:_____
(same as subject's)

Appendix L: Literature Review
Reproductive Health Education Needs of Enlisted Army and Navy Women

Women currently comprise approximately 14 percent of the active duty Armed Forces (Cohen, 1999; Davis & Woods, 1999), and projections indicate that women may represent nearly 20 percent of the military in the near future (Institute of Medicine [IOM], 1995; Davis & Woods, 1999). Historically, health concerns for military women have been related to the impact of active duty on their health and the possible adverse influence of women's health problems on readiness (Hoiberg &White, 1992). Although some of the early concerns about the ability of women to meet the physical demands of military service have been discounted (Harman et al., 1996), a salient lack of vital information still exists regarding the unique health education needs of military women (IOM, 1995). Furthermore, many assumptions made regarding women are based almost solely on research involving men as subjects (IOM, 1995). As a result, women's special health needs that may impact their readiness and work performance must be examined and addressed to improve the effectiveness of women in military service.

Statement of the Problem

While studies of the environmental, social, and occupational influences on health and well-being are common among the general population, fewer resources discuss these factors as they apply to women who have chosen to enlist in the U.S. Armed Forces. Women in the military face circumstances and challenges that are unlike those seen by women in the civilian population. All women have unique health concerns as compared to their male counterparts. Compared to civilian women, military women have further distinctive self-care and care-seeking behaviors that are related to the unusual situations they face.

In 1995, the Committee of Defense Women's Health Research issued recommendations for four specific areas of research on military women: 1) major factors affecting the health and work performance of military women, 2) psychological and health issues resulting from integration of women into male environments and quarters, 3) health promotion and disease prevention, and 4) access to and delivery of health care (IOM, 1995).

In prioritizing health issues that are prevalent among this population, reproductive health concerns emerge time and again. Sexually transmitted diseases, unplanned pregnancies, and vaginal infections are particularly prevalent among military women, especially younger women (aged 25 and younger), who make up nearly half of the female active duty population. These reproductive and gynecological diseases and conditions, particularly the occurrence of an unplanned pregnancy, have the potential to interfere with a female soldier's ability to perform mission responsibilities.

This literature review addresses two of the four recommendations of the Committee of Defense Women's Health Research, major factors affecting the health and work performance of military women, and health promotion and disease prevention. By seeking to understand the major

reproductive health factors affecting military women, this study identifies appropriate health promotion intervention strategies that will be tailored to the special needs of this population. Based on these recommendations, the Department of Defense issued a Broad Agency Announcement (BAA) calling for proposals to address these issues.

The Institute of Medicine and the Broad Agency Announcement (BAA) have recommended that proposed research deal with health issues that are: 1) unique to military women, 2) especially prevalent among military women, and 3) related to the ability of military women to perform their mission responsibilities. Consistent with these criteria, our research examines the most pressing reproductive and gynecological self-care and care-seeking education needs of military women on base and in the field. Although all women, including civilian women, have unique health concerns as compared to their male counterparts, military women's self-care and care-seeking behaviors are specifically related to the unusual situations they face. In prioritizing health issues that are prevalent among this population, reproductive health concerns emerge time and again. Sexually transmitted diseases, unplanned pregnancies, and vaginal infections are particularly prevalent among military women, especially younger women. Regarding the third area, women's ability to perform mission responsibilities, all of the above reproductive and gynecological concerns potentially affect a female soldier's ability to perform, particularly the occurrence of unplanned pregnancy.

These findings indicate the pressing need for health education to increase the knowledge and skills of military women in self-care and help-seeking reproductive health behavior. The health of military women and the lifestyle choices they make will be significantly influenced by a health education and skills enhancement effort that is interesting, interactive, and designed with sensitivity to culture and military service. This study will result in the increased ability of military women to care for their own bodies and in their ability to access the military health care system appropriately, which will culminate in enhanced readiness of the U.S. Armed Forces.

Demographics of Enlisted Women

In 1973, women soldiers constituted only 1.6 percent of the active duty military population. This proportion grew to 8.5 percent by 1980, 10.8 percent by 1989 (Becraft, 1990), 13.7 percent by 1997 (DoD Defense Manpower Data Center, 1997), and.14.1 percent by 1999 (Cohen, 1999). According to recruiting projections, the percentage of active duty military women is expected to grow as high as 20 percent in the near future (IOM, 1995). Today, women make up a substantial part of units deployed for peacekeeping and humanitarian aid missions (U.S. Army Center for Health Promotion and Preventive Medicine and U.S. Army Research Institute of Environmental Medicine, 1996).

As of September 1999, 200,287 women were on active duty in the U.S. Armed Forces (DoD Directorate for Information Operations and Reports, 1999) compared to 197,529 women in March of 1997. Table 1 gives a breakdown of the number and proportion of female officers and enlisted personnel by branch of the service for 1997 and 1999. In each branch of service, there were similar proportions of women among both officers and enlisted personnel. The U.S. Air

Force had the highest number and proportion of female officers, but the Army had the highest proportion of female enlisted personnel. The Marine Corps had the lowest proportions of officers and enlisted personnel who were female. Over

Table 1: Rank Distribution of Active Duty Women in the Four Services, March 1997 and September 1999

	1997		1999	
Military Force	Officers No. Female	Enlisted Personnel No. Female	Officers No. Female	Enlisted Personnel No. Female
Combined Forces	30,709	165,087	30,950	167,350
Army	10,341	59,223	10,522	60,862
Navy	7,652	44,949	7,699	43,425
Marine Corps	765	8,168	889	9,275
Air Force	11,951	52,747	11,840	53,968

U.S. Department of Defense, Defense Manpower Data Center, 1997
U.S. Department of Defense, Directorate for Information Operations and Reports, 1999

Among active duty women, health care was the dominant type of occupations for officers (see Table 2). Within the health care arena 69% of the women are in nursing, 16% in medicine, 12% in medical services, and 3% in dental services (Davis & Woods, 1999). The predominant occupation for enlisted women is in the administrative/functional area. However, all military personnel must be ready to perform other duties assigned in situations of deployment and combat as well as their primary tasks. With the repeal of the combat exclusion law in 1994, 91 percent of Army billets are now open to women; 96 percent of Navy billets were open to women; 93 percent of Marine Corps billets were open to women; and 99 percent of Air Force billets were open to women. Women were now allowed to fly combat aircraft and serve on combat ships. As of 1996, there were 186 female pilots and navigators flying combat aircraft with approximately 141 in training. The Navy has 137 women pilots and navigators flying combat aircraft with 87 pilots in training and 40 flight officers in training. The Army had 38 female pilots and navigators. The Air Force had 10 female pilots and navigators and three in training. The Marine Corps had one female pilot and 11 in training (DoD, 1996). Women were still barred from serving in combat branches such as armor, infantry, and special forces (Women's Research and Educational Institute, 1996).

Table 2: Primary Occupations of Active Duty Women, 1995

Primary Occupations	Female Officers	Female Enlisted Personnel
Health Care	43%	15%

Table 2: Primary Occupations of Active Duty Women, 1995		
Administrative/Functional	18%	34%
Intelligence/Communications	3%	11%
Engineering/Maintenance/ Equipment Repair	7%	9%
Supply and Service	7%	10%
Scientific/Professional	2%	N/A
Other	20%	21%

Institute of Medicine, 1995

The female military population is young. Table 3 summarizes the number and percentage of active duty women by age group and branch of service. Across all four branches, nearly half or more of the women are under the age of 26. Only around six percent of active duty women are older than 40 years of age.

Table 3: Number and Percentage of Active Duty Women in the Four Armed Services by Age Group, February 1995				
Age	Army N (%)	Navy N (%)	Marine Corps N (%)	Air Force N (%)
20	9,354 (13.4)	10,489 (20.0)	2,094 (13.0)	8,402 (27.0)
21-25	23,320 (33.5)	15,807 (30.1)	2,760 (30.2)	19,528 (35.6)
26-30	14,653 (21.1)	9,880 (18.8)	1,235 (21.2)	13,711 (15.9)
31-35	11,174 (16.1)	8,323 (15.9)	896 (16.7)	10,832 (11.6)
36-40	7,145 (10.3)	5,236 (10.0)	563 (12.5)	8,050 (7.3)
41-45	2,839 (4.1)	2,169 (4.1)	161 (5.2)	3,343 (2.1)
>45	1,090 (1.6)	571 (1.1)	44 (1.1)	729 (0.6)
All	69,548 (100.0)	52,475 (100.0)	7,753 (100.0)	64,595 (100.0)

(Defense Manpower Data Center, 1995)

Although the proportion of minorities in the general population of the United States is 20 percent, nearly 40 percent of active duty women were classified as belonging to a minority group (IOM, 1995). About 31 percent of active duty women were African American, five percent were Hispanic, 2.5 percent were Asian American/Pacific Islander, and approximately 1.5 percent were

Native American or another minority group. Minority representation was greater among female than male active duty personnel, but this difference was mainly due to the relatively large proportion of African American women in the military. For example, 53 percent of Army women were from minority groups and African American women accounted for 44 percent of the female Army population. Approximately 39 percent of Navy women were from minority groups with 27.1 percent of them African American. The tables below show the percentages of enlisted women and women officers by race for September 1995 and as of May 1999. For both years the greatest proportion and nearly half of all enlisted Army women were African American. In the other branches of the military the greatest proportion of enlisted women were White, but African American women made up one fourth or more of enlisted women in every branch of the military. African American women also made up one fifth of all female Army officers. The proportion of African American female officers in other branches of the military was at or approaching ten percent. For both years, the Marine Corps has the highest percentage of Hispanic women.

Table 4A: Percentages of Active Duty Women in the Four Armed Services by Race, September 1995

Branch	Army		Navy		Marines		Air Force	
Race	Enlisted (%)	Officer (%)	Enlisted (%)	Officer (%)	Enlisted (%)	Officer (%)	Enlisted (%)	Officer (%)
White	41.1	70.8	58	82.7	58.4	84.1	67.5	82.5
Black	47.9	20	29.1	9.1	25.3	8.8	24.3	10
Hispanic	4.6	3.2	8.6	3.5	11	4.8	4.1	2
Other	6.3	6	4.4	4.6	5.2	2.3	4.1	5.5

(Defense Manpower Data Center, 1995) N=???

Table 4B: Percentages of Active Duty Women in the Four Armed Services by Race, May 1999

Branch	Army		Navy		Marines		Air Force	
Race	Enlisted (%)	Officer (%)	Enlisted (%)	Officer (%)	Enlisted (%)	Officer (%)	Enlisted (%)	Officer (%)
White	38.7	67.3	52.0	78.9	55.8	77.1	62.3	79.3
Black	47.0	21.8	30.9	10.3	23.5	12.5	26.6	11.6
Hispanic	7.2	4.1	10.2	4.7	14.4	5.0	5.7	2.0
Other	7.1	6.8	6.9	6.1	6.2	5.4	5.3	7.1

(The Women's Research and Education Institute, 1999)

Health Issues for Military Women

Although military women have many of the same health concerns as civilian women, caution must be exercised in generalizing research on civilian women's health to military populations.

Due to the high health and fitness standards for entrance and retention in the military, active duty women are generally healthier than those in the general population (Adams et al., 1993; Rothberg et al., 1990). Health issues for military women are more likely to be related to the unusual situations these women face in performing their duties. Health issues for military women may also be related to the unique characteristics of this population.

Women in the military face a host of health issues related to combat and the performance of other duties. The Defense Women's Health Research Program's 1995 Executive Summary identified several unique health issues for military women. These included dietary problems, increased vulnerability to injury and environmental stresses, difficulty maintaining gynecological health while deployed in the field, reproductive issues, and psychological stresses unique to women (IOM, 1995).

Unique health issues for military women also overlap with unique health issues for minority and younger women since large proportions of active duty women are minorities, and most are under the age of 30. Minority women, particularly African American and Hispanic women, have higher rates of certain illnesses such as cervical cancer (Rothberg et al., 1990; National Cancer Institute, 1988), coronary heart disease (Centers for Disease Control, 1997), diabetes mellitus (Expert Committee on the Classification of Diabetes Mellitus, 1997) and many sexually transmitted diseases (Alan Guttmacher Institute, 1993). Younger women are also at increased risk for sexually transmitted diseases (STDs) with 86 percent of new infections occurring among 15 to 29 year olds each year (Planned Parenthood, 1996; U.S. Public Health Service, 1990).

Gynecologic Health Issues for Military Women

Gynecologic complaints explain most of the extra sick calls and medical leave taken by active duty females relative to their male counterparts. For example, a 1988 study by the U.S. Army Research Institute of Environmental Medicine of 124 male and 186 female trainees found that 48 percent of females and 35 percent of males reported on sick call. However, when risk of illness was adjusted to exclude gynecological complaints, the percentage of females reporting on sick call was roughly equivalent to that of the males (37%). In examining the files maintained at the Naval Health Research Center, Hoiberg and White (1992) also determined that, since 1973, pregnancy-related conditions were the most common reason that active duty women were hospitalized (33.7% of all hospital admissions) followed by genitourinary disorders (10.3%), mental disorders (9.4%), and accidental injuries (6.4%). A delivery was the most frequent reason for hospitalization in Hoiberg and White's study, followed by complications of pregnancy.

Gynecologic problems also account for a large proportion of sick calls among deployed active duty women. A study by Hines (1992) of the support battalion medical units servicing the First Cavalry Division deployed to Saudi Arabia and Iraq during Operation Desert Storm found that 25.6 percent (n=458) of diagnoses recorded for women were gynecologic disorders. Dysfunctional uterine bleeding/amenorrhea was the most common gynecologic diagnosis (25.6% of all gynecologic diagnoses, n=121) and the next most common gynecologic (GYN) diagnosis was vaginitis (24.2%, n=111). Visits to obtain oral contraceptives accounted for 21.6% (n=99)

of GYN sick calls in this study. Pelvic pain accounted for another 16.4 percent (n=75) of GYN sick calls in this sample of deployed women. Over one tenth (11.8%) of the women with gynecologic diagnoses and approximately three percent of all women who sought treatment needed referrals for matters such as significant menorrhagia, threatened spontaneous abortion, possible ectopic pregnancy, and severe cervical dysplasia requiring colposcopic evaluation. A study by Markenson, Raez, and Colavita (1992) of the Eighth Evacuation Hospital's medical records during Operation Desert Storm produced similar findings. Markenson and colleagues found that 19 percent of reported female outpatient visits were due to obstetrical and gynecological issues, most often for ruling out pregnancy (29%), pelvic pain (26%), obtaining birth control pills (14%), and abnormal periods (12%). Nine percent of the prescriptions written by the outpatient clinic in this study were for gynecological conditions, with birth control pills being the most common prescription (31%). Of the women admitted as inpatients, 12 percent had obstetrical- or gynecological-related diagnoses. Sixty percent of women with these types of diagnoses had pregnancy-related problems.

Despite the good initial health status of women entering the military and the subsequent provision of free health service, military women are suffering a high rate of reproductive and gynecological problems. These problems, particularly the occurrence of unplanned pregnancy, affect a military woman's ability to perform her duties. Identifying the gynecological needs of female soldiers is the first step toward meeting the reproductive health needs of enlisted women more effectively and efficiently (Cobb, 1987).

Pregnancy

According to the 1995 Department of Defense Survey of Health Related Behaviors Among Military Personnel, 18 percent of military women said they were pregnant in the past year (Bray et al., 1995). Reported rates of pregnancy for Army and Navy women in this survey were 17 percent and 16 percent, respectively. The U.S. Army Center for Health Promotion and Preventive Medicine estimated that 12 percent of female soldiers were pregnant in 1996. Pregnancy is the most common reason for hospital admissions among women in service and military wives (Sylvia, McMullen, Levine, Cruz, Gagnon, Malavakis, Williams, Schmelz, Runzel, Stevens, & Wootten, 2001). Data from the Navy consistently have shown about eight to nine percent of enlisted women to be pregnant (IOM, 1995). Women under age 25 account for almost two-thirds (65%) of pregnancies among active duty women. More than half of these women reported that their pregnancies were unplanned (IOM, 1995; U.S. Army Center for Health Promotion and Preventive Medicine, 1996; Clark, Holt, & Miser, 1998). This is further supported by a study conducted by Evans and Rosen (1997) in which nearly half of the 345 pregnant military women included in the study reported that their pregnancy was unplanned. Rank serves as a demographic factor used in predicating military women who are at the highest risk of becoming pregnant (Evans & Rosen, 1997; Clark, Holt, & Miser, 1998). Marital status was also identified as a risk factor for pregnancy. That is, single women and junior enlisted personnel (lower ranking personnel) experienced significantly higher risks of an unplanned pregnancy than married or higher ranking personnel (Evans & Rosen, 1997; Clark, Holt, & Miser, 1998). Explanations for this can be seen in that married military women may experience

more support from their spouses in pregnancy prevention and higher ranking women are more likely to be married, have more education, have higher salaries, and greater work responsibility (Evans & Rosen, 1997) which may all influence pregnancy planning behaviors.

Effects on readiness

The most frequent cause of premature separation from the military among women is pregnancy and parenthood (Hoiberg & White, 1992). In the Navy, 15 percent of discharges since 1973 were for reasons related to pregnancy and parenthood (Hoiberg &White, 1992). In a study conducted by Borsay-Trindle and Pass (1991), active duty Army women were asked what they would do if they found out they were pregnant next month. Fifteen percent of these women reported that they would terminate the pregnancy. Seventy-seven percent reported that they would complete the pregnancy and become parents. Only seven percent reported that they would request a discharge from the Army.

Pregnancy is also the number one reason for active duty females being nondeployable. Across services, females have a much higher rate of nondeployability compared to males, primarily because of pregnancy. The 1996 Annual Report of the President to the Congress by the Secretary of Defense reports that 10.6 percent of all servicewomen assigned to units were nondeployable compared to 4.6 percent of all servicemen assigned to units. Five percent of servicewomen assigned to units were nondeployable because of pregnancy. Therefore, the proportion of active duty females who are nondeployable due to pregnancy alone is greater than the proportion of active duty males who are nondeployable for any reason. Also, when pregnancy is factored out, the percent of nondeployable females drops to 5.6 percent, only slightly higher than that of males.

During Operation Desert Storm, pregnancy was the single largest reason for evacuation of female soldiers from the theater (Gehlbach, 1996). The majority of these conceptions occurred in country (Hanna, 1992). The impact of these evacuations should not be underestimated. Evacuation of a pregnant soldier is costly and disrupts the cohesiveness of her unit. Operations must consequently be modified, and morale is affected (U.S. Army Center for Health Promotion and Preventive Medicine, 1996). These effects are greater when the unit has many women or when it is understaffed (Rand, 1997).

Pregnant women in the military may also have a difficult time performing their duties. Weight gain during pregnancy can make lifting and other activities difficult, primarily because the farther one is from the object being lifted, the more work is required to lift the object. Furthermore, fatigue during pregnancy can make it difficult for a woman to complete her mission, regardless of the duties she performs. If a pregnant woman is serving in a dangerous situation, the lightheadedness that often accompanies pregnancy can be problematic. Pregnant women also have an increased susceptibility to carpal tunnel syndrome, tendonitis, and other repetitive motion injuries. Nausea and vomiting experienced by a pregnant woman on a destroyer could compromise the readiness of the unit. Additionally, the frequent need to urinate, which increases as the pregnancy progresses, limits a woman's ability to be in the same place for a long time, such as on a flight deck or in the field. For this reason, the Navy's policy is that

pregnant women can serve as flight controllers or air traffic controllers only until the 28th week of pregnancy because bathrooms tend to be several miles away and entering them requires maneuvering on a narrow ladder (Moore, 1996).

Effects on resources

The most frequent cause of hospitalization of military women is also pregnancy (Hoiberg & White, 1992; Sylvia, et al., 2001). When an active duty female is hospitalized for pregnancy, the military pays in the form of lost salary and time in addition to medical costs. Salary and time are also lost to prenatal appointments and post-partum recovery periods for pregnant, active duty women (Borsay-Trindle & Pass, 1991). Maternity leave varies between the different branches of the service but time lost can be expected to be a minimum of four weeks. The Army offers the shortest amount of maternity leave: 4 weeks. The Navy and Marines offer 42 days maternity leave. The Air Force gives 45 days of leave (Wahl & Randall, 1996).

Other resources are expended to help active duty women who are new mothers cope with stress related to parenting and performing their duties. If the pregnancy is unplanned, these costs are likely to be higher since the pregnant servicewoman is likely to have fewer resources and less support (e.g. she is likely to be single) while being more likely to have duties that cannot be carried out during her pregnancy or postpartum. According to Borsay-Trindle and Pass (1991) the Army can expect readiness to be affected and additional resources to be used or lost in at least 84 percent of unplanned pregnancy cases, especially among unmarried servicewomen.

Health effects

In addition to costs incurred to the unit and the service as a whole as a result of pregnancies among active duty females, these pregnant woman and their fetuses may also suffer as a result of military service. Studies have shown that active duty pregnant women are at increased risk for poor pregnancy outcome. They are more likely to have pregnancy-induced hypertensive syndromes, intrauterine growth retardation, preterm complications (preterm labor and premature rupture of membranes), and cesarean deliveries (Magann & Nolan, 1991; Calhoun, Jennings, Peniston, Patience, Pulos, Hume, & Perez, 2000; Sylvia, MsMullen, Schmelz, Runzel, Stevens, & Jackson, 2000). A woman who is pregnant during deployment may also receive vaccinations or other medications to protect her from disease and biological or chemical threats. These treatments that are designed to protect the woman may injure a developing fetus (U.S. Army Center for Health Promotion and Preventive Medicine, 1996) and result in pregnancy complications. After delivery, newborns of active duty women may also be separated from their mothers prematurely when these mothers are called into the field. For example, although breast feeding is encouraged in military hospitals, there is no policy of nondeployment for breast feeding mothers (Wahl & Randall, 1996).

The prevalence of poor pregnancy outcomes among many military women may be related to the fact that many of these women are not aware of their condition for some period of time. As a result, these women do not take adequate care of themselves or their unborn children during some portion of the pregnancy. These women will continue to be subjected to a military

operation's stressors that might harm the fetus, and they will not have access to obstetrical care during deployment (U.S. Army Center for Health Promotion and Preventive Medicine, 1996). Having less prenatal care is associated with higher risks of low birth weight and neonatal mortality (Kugler et al., 1990; Messersmith-Heroman & Heroman, 1994).

Active duty women may also be at risk for having an ectopic pregnancy, an abnormal condition that occurs when a fertilized egg implants in a location other than inside a women's uterus--often in a fallopian tube. A survey of 25,763 U.S. Navy enlisted women hospitalized for 33,130 pregnancy-related outcomes from 1982 to 1992 found that 2.7 percent of all outcomes were ectopic pregnancies (Nice, Calderon & Hilton, 1997). This compares to a civilian ectopic pregnancy rate of two percent in 1992 (NCHS, 1992), 1.6 percent in 1989 (Goldner et al., 1993), 1.4 percent in 1986 (Lawson et al., 1989), and 1.5 percent in 1984/85 (Lawson et al., 1988). Another study of active duty and military dependent women who obtained medical care at a U.S. Armed Forces Regional Medical Center in Wiesbaden, Germany from 1981 to 1985, found an ectopic pregnancy rate of 1 per 28 live births among active duty enlisted women (for every 28 live births reported, one ectopic pregnancy was reported) (Birdsong, 1987). In this study, no ectopic pregnancies were reported for female officers and the ectopic pregnancy rate for military dependents (1 per 112 live births) was close to that reported for the of the U.S. general population. However, Birdsong found an ectopic pregnancy rate for Army enlisted women of 1 per 27 live births and for Air Force enlisted women of 1 per 32 live births. A comparable ectopic pregnancy/live birth rate was found for Navy women (1 per 32 live births) in the study by Nice, Calderon and Hilton (1997).

Prevention as well as prompt diagnosis and treatment of ectopic pregnancy are critical since ectopic pregnancies are the leading cause of pregnancy-related death during the first trimester (Planned Parenthood, 1997) and the leading cause of all pregnancy-related deaths among African American women (CDC, 1997). Ectopic pregnancies account for nine percent of all pregnancy-related maternal deaths in the U.S. (Planned Parenthood, 1997). Marital status and rank serve as two predictors for pregnancy complications (Calhoun, et al.2000; Rosen & Evans, 2000). Often, women who are lower ranking and unmarried have fewer support mechanisms, less financial resources, increased job related physical activity, and perhaps more deployments (Calhoun, et al., 2000). When delivering prenatal care, health care providers should consider these variable to reduce negative pregnancy outcomes.

Diagnostic needs

Prompt diagnosis of pregnancy can reduce morbidity and mortality among pregnant women and their fetuses due to improper or delayed care and treatment. Diagnosis of pregnancy among active duty women prior to deployment also reduces the number of women who are pregnant during deployment and must therefore be evacuated. According to Birdsong (1987), if pregnancy is a possibility, women should be tested prior to assignment to isolated sites. Hines (1992) recommends that all women be given a pregnancy test before being deployed to isolated areas. Markenson, Raez and Colavita (1992) also recommend that, prior to deployment, soldiers be tested for pregnancy since means for diagnosing pregnancy quickly and accurately in the field are often inadequate. At present, however, an active duty woman must request a pregnancy test

prior to deployment if she believes there is a possibility of pregnancy. This request may be denied, as indicated from studies of women who were evacuated during Operation Desert Storm because of pregnancy. Some of these women requested a pregnancy test prior to deployment for Operation Desert Storm and were told that they needed to wait until their period was delayed for several weeks. Many of these women needed to be evacuated from the theater once their pregnancy was confirmed (Markenson, Raez, & Colavita, 1992).

Since ectopic pregnancies are the main cause of maternal death in the first trimester and account for nine to 12 percent of all maternal deaths (Planned Parenthood, 1997; Birdsong, 1987), early detection of this type of pregnancy complication is critical. For ectopic pregnancy, a high index of suspicion and early referral or evacuation may be life-saving (Birdsong, 1987). Unfortunately, many women with an ectopic pregnancy may not be promptly or correctly diagnosed. For example, a pilot study of women seen at a military treatment facility (MTF) who presented with an ectopic pregnancy indicated ectopic pregnancy was not considered by health care providers for women who reported pain but no vaginal bleeding. This diagnostic failure was associated with a significantly increased likelihood that the patient would present with a ruptured ectopic pregnancy (Crawford & Stahl, 1995). Diagnosis of ectopic pregnancy in the field may be more problematic since equipment necessary for diagnosing ectopic pregnancies is often unavailable. Hines' 1992 study of the First Cavalry Division in Operation Dessert Storm revealed that equipment necessary to diagnose ectopic pregnancy, the pelvic ultrasound and laparoscopy, were not available in the field.

Contraception

Borsay-Trindle and Pass (1991) reported that the population least likely to be using contraceptives is unmarried females in casual relationships. Since less than half of all active duty women in the U.S. Armed Forces are married (compared with two-thirds of their male counterparts) contraception is an issue of particular importance to military women.

Approximately one third of all pregnancies among female military personnel are unplanned (IOM, 1995; U.S. Army Center for Health Promotion and Preventive Medicine, 1996). Although this unintended pregnancy rate approximates that of the civilian population (Abma et al., 1997) it is incongruent with high availability of effective contraception in the military. Studies of contraceptive use among women in the military suggest that at least two factors directly contribute to the rates of unintended pregnancy in this population: 1) a large proportion of sexually active military women who do not use a method of contraception that is at least 85 percent effective; 2) a group of sexually active military women who use effective methods of contraception incorrectly or inconsistently. For example, a survey of Navy women found that 56 percent of women reporting an unplanned pregnancy said that they used some method of birth control (IOM, 1995) indicating that these women had either used an ineffective contraceptive method or used an effective method incorrectly. A study of 432 sexually active U.S. Marine Corps female recruits graduating from training found that more than a third of the subjects did not use highly effective methods of contraception (Gerrard, 1991). In this study, 83 percent of female recruits reported usually using a method of contraception, but only 64 percent reported

using a contraceptive method that is at least 85 percent effective.

The high rate of unintended pregnancies among military women may also be due to a lack of skill or knowledge in proper contraceptive use. A study by Borsay-Trindle and Pass (1991), which focused on reasons for the occurrence of unplanned pregnancy among military women, supports this hypothesis. This study found that female soldiers demonstrate an educational deficit regarding conception and contraceptives. Most subjects (75%) reported that they knew everything they needed to know about the prevention of pregnancy. However, less than half could correctly identify the mid-menstrual cycle as the most likely time to conceive and over half reported that they would benefit from a class on birth control and family planning.

Active duty women clearly have a need for training regarding appropriate contraceptive use and basic female physiology. This need for reproductive health knowledge may be stronger during deployment, when external supports and resources may be less available as health risks increase. Markenson, Raez and Colavita (1992) recommended that women be educated about birth control prior to deployment. Markenson and colleagues also recommended that women be informed that gynecological care is limited and obstetrical care is essentially non-existent in the field. Women need to know that they are at increased risk if complications of pregnancy, such as a spontaneous abortion or ectopic pregnancy, occur during deployment. They also need to realize the potential risks to a fetus if exposed to the agents present in a war zone (Markenson, Raez & Colavita, 1992).

Sexually Transmitted Diseases (STDs) Among Women in the Military

An important threat to military women's health and readiness is STD infection. Data from the 1995 Department of Defense Survey of Health Related Behaviors Among Military Personnel suggest that active duty women have higher rates of STD infection than active duty men (Bray et al., 1995). The 1995 DoD survey found that approximately 20 percent of Army, Marine Corps, and Air Force personnel have had an STD, while 25 percent of Navy personnel have had at least one STD. The DoD survey found that these proportions were higher for female enlisted personnel. Twenty-five percent of women in the Navy, Marine Corps, and Air Force have had an STD, and 30 percent of Army women have had an STD (Bray et al., 1995). Preliminary results from a large-scale survey of active duty Army personnel also indicated that 18 percent of women respondents reported at least one STD over a 2-year period (Jenkins & Nannis, 1995). Some recent estimates of the prevalence of STDs in the general U.S. population show comparable rates of infection: about 1 in 4 annually, with about half the infections occurring in women (Donovan, 1993). However, an HIV review panel meeting held in 1995 concluded that STDs are five times more prevalent in the military than in the civilian populations in peacetime, and 30 times more prevalent during conflict (Eitzen, 1996). Whether or not rates of STD infection are higher among military personnel cannot be confirmed since, to date, reporting of STDs in the military has been very imprecise and haphazard (Eitzen, 1996). However, the available data indicate that large proportions of women in the military are likely to be infected with an STD.

STDs have a disproportionate impact on women compared to men. Due to anatomical

differences, women are more susceptible to STD infection, less likely to experience early symptoms, and more difficult to diagnose with STDs. For example, the majority of women who have chlamydia or gonorrhea have no early symptoms, but these STDs, left untreated, often lead to pelvic inflammatory disease, infertility, perinatal infections, potentially fatal ectopic pregnancies and cervical cancer (Donovan, 1993; Fogel, 1995; Planned Parenthood, 1997).

Large proportions of Army and Navy active duty females also belong to groups that have been determined to be at high risk for STD infection: adolescents and individuals under 25; and African Americans and Hispanics. Two-thirds of persons who contract STDs are under 25 and one fourth are teenagers (CDC, 1993). African American and Hispanic women also have the highest rates of infection for several STDs, including genital herpes (Morris, Warren, & Aral, 1993) and HIV, and rates of STD infection are increasing rapidly in these populations (CDC, 1997).

The most common STDs in women are chlamydia, human papilloma virus (HPV), gonorrhea, genital herpes, syphilis and HIV infection (Fogel, 1995). The following sections describe these STDs in detail, including their impact on military women.

Chlamydia

Genital infection due to chlamydia is the most commonly diagnosed STD in the U.S. (CDC, 1995). About four million Americans become infected with chlamydia every year. Most are adolescents or young adults. Chlamydia is four times as common as gonorrhea and more than 30 times as common as syphilis (CDC, 1993). New cases of chlamydia also outnumber new cases of symptomatic genital herpes at least eight to one (National Center for HIV, STD & TB Prevention, 1996). An estimated 1 in 10 adolescent girls and 1 in 20 women of reproductive age are infected with chlamydia (CDC, 1997).

In a study of 476 active duty Army females who presented for Pap tests, 8.2 percent tested positive for chlamydia (Catterson & Zadoo, 1993). All of the women in this study by Catterson and Zadoo were asymptomatic and had normal pelvic examinations. A study by Gaydos, Howell, Pare, Clark, Ellis, Hendrix, Gaydos, McKee, and Quinn (1998) that used DNA amplified testing techniques found that there was an overall prevalence of chlamydia of 9.2 percent in female Army recruits, with a peak of 12.2 percent for 17-year-old recruits. Similar rates of chlamydia infection were found among a sample of female Navy recruits (Orndorff, 1991). In Orndorff's study, slightly less than 10 percent of Navy women tested positive for chlamydia cervical infection. The sample in this study was slightly different since it included women who were symptomatic at the time of examination. These rates of chlamydia infection found in samples of Army and Navy women are high when compared to the estimated infection rate among women of reproductive age living in the United States. Even among women aged 15 to 24 tested for chlamydia in family planning clinics, the state-specific median rate of infection is only 4.6 percent (CDC, 1997).

However, the high rates of chlamydia infection found in studies of military women may be partially related to the young age of the subjects. As noted earlier, the CDC has estimated that

chlamydia infection rates among adolescent girls may be as high as 10 percent. In the Catterson and Zadoo study, the mean age was 25 for the whole sample and 23.9 for those presenting with chlamydia. In the Orndorff study, the mean age was 20.4 and the median age was 19.

The high rates of asymptomatic military women infected with chlamydia found in the studies by Catterson and Zadoo (1993), Gaydos, et al., and Orndorff (1991) are not surprising in view of the fact that 70 to 80 percent of women infected with chlamydia are asymptomatic (Planned Parenthood, 1997; CDC, 1995; Zimmerman et al., 1990). Asymptomatic women are not likely to seek treatment or take measures to reduce the risk of infecting their sexual partners or unborn children.

In women, untreated chlamydia infections can progress to the upper reproductive tract and may result in serious complications. Without treatment, 20 to 40 percent of women with chlamydia may develop pelvic inflammatory disease (PID) (Abma et al., 1997). Further, women with untreated chlamydia infections are at much greater risk for infertility, chronic pelvic pain, upper reproductive tract infections, tubal impairment, and ectopic pregnancy (Catterson & Zadoo, 1993; Orndorff, 1991). Prompt diagnosis of this STD is therefore critical to the health of the infected woman, her sex partners and her biological children.

Catterson and Zadoo (1993) noted that the high prevalence of chlamydia in a sample of asymptomatic women in the military makes it probable that screening military women for chlamydia would be more cost-effective than treating the complications of the disease. Both Catterson and Zadoo (1993) and Orndorff (1991) recommend routine screening for chlamydia, particularly since the Fluorescent Antibody test is so inexpensive - less than $10 per patient in 1991 (Orndorff, 1991). Gaydos, et al. (1998), suggest using age as a screening indicator for chlamydia. That is, younger female recruits should be screened for infection within the first few days of starting basic training.

Human Papilloma virus (HPV) and condyloma

Human papilloma virus (HPV) is one of the most common causes of STDs in the United States. Experts estimate that as many as 24 million Americans are infected with HPV, and the incidence of the diseases it causes appears to be increasing (NIAID, 1997). Young age is a risk factor for HPV infection and some studies show that about one third of all sexually active adolescents have genital HPV infections (Aral & Holmes, 1991). Millions of infected people do not know that they carry HPV because they either have no symptoms or do not recognize symptoms (Planned Parenthood, 1997).

Approximately 60 types of HPV can infect the genital area. These types are divided into "high risk" and "low risk" groups based on whether they are associated with cancer. Infection with a "high risk" type of HPV is one risk factor for cervical cancer (CDC, 1992). Various strains of HPV are associated with 90 percent of cervical cancer cases, and almost 5,000 women in the U.S. die from cervical cancer each year (Fogel, 1995). No cure for HPV infection exists (Donovan, 1993).

Regular Pap tests may increase diagnosis and result in treatment of HPV infections since abnormal Pap tests are often indicators of HPV infection. Women with abnormal Pap tests should be examined further to detect and treat cervical problems (NIAID, 1997). Several new laboratory tests are available to identify specific types of HPV. These tests help a doctor determine whether the HPV infection is likely to progress to precancerous lesions or be transmitted from a pregnant woman to her newborn (NIAID, 1997).

At least six strains of HPV are known to cause genital or venereal warts (Enterline & Leonardo, 1989). Genital warts, or condyloma, is one of the most common and infectious STDs diagnosed in outpatient clinics in the U.S. (Aral & Holmes, 1991). Between 500,000 and one million new cases of genital warts occur every year (Planned Parenthood, 1997).

Genital warts may be papillary or flat. Flat warts are less visible and may not be noticed. Both types of warts are often painless and may therefore be ignored (Fogel, 1995). However, it is important for individuals infected with genital warts to recognize the symptoms and be diagnosed as soon as possible so that they can avoid infecting their partners. Eighty-five to 90 percent of exposed sexual partners will develop lesions (Lynch, 1985). A women who thinks she may have genital warts should also see a doctor so that similar-looking infections or conditions can be ruled out or treated. Women with genital warts will also need to be examined for possible HPV infection of the cervix (NIAID, 1997).

Gonorrhea

Gonorrhea is the most commonly reported communicable disease today (Fogel, 1995). Reports indicate that rates of gonorrhea infection in the U.S. population have been declining since 1975. In 1996, 325,883 new cases of gonorrhea were reported, a 17 percent drop from the 1995 reported infection rate in the U.S. (CDC, 1997). The majority of individuals contracting gonorrhea are 15 to 24 years old (Fogel, 1995) with the highest rates of infection occurring among females aged 15-19 (CDC, 1997). Prevalence rates for all sexually active females in the U.S. have been estimated to range from three percent to 18 percent (May & Mahlmeister, 1990; Shafer & Sweet, 1989). Rates of infection are higher among inner-city populations (Fogel, 1995); and some studies indicate that rates may be increasing among African Americans (Aral and Holmes, 1990).

Catterson and Zadoo (1993), in their study of Army women presenting for routine Pap screening, reported a low prevalence rate of gonorrhea among military women. Because of the low prevalence rate they found and the likelihood that gonorrhea will produce pelvic symptoms, Catterson and Zadoo did not recommend screening all military women for gonorrhea . However, other studies indicate that symptoms of gonorrhea in women are often nonspecific and mild or absent (Fogel, 1995). According to national estimates, 50 percent of women with gonorrhea have no symptoms (CDC, 1997). Therefore, many women are not aware that they have gonorrhea, and many physicians may not diagnose this STD if they do not screen for it (Eitzen, 1996). Without early detection and treatment, 10 to 20 percent of women with gonorrhea will develop PID (Hook & Handsfield, 1990). However, when caught early, gonorrhea can easily be treated with antibiotics.

Genital herpes

Genital herpes is a contagious infection caused by the herpes simplex virus (HSV). Genital herpes affects an estimated 23 percent of adult Americans. Scientists have estimated that about 30 million persons in the United State may have a genital HSV infection (CDC, 1997). As many as 500,000 new cases are believed to occur each year (NIAID, 1997). The most severe form of genital herpes is usually caused by the herpes simplex virus 2 (HSV-2). Prevalence rates for HSV-2 infection are higher in women, particularly minority women. A nationally representative serologic survey by Fleming and colleagues (1997) found an HSV-2 seroprevalence of 18.4 percent in white women (nearly 1 in 5) and 51.4 percent in African American women, a difference of more than 30 percent.

Genital herpes is usually acquired through sexual contact with someone who has an outbreak of herpes sores in the genital area. However, many cases of genital herpes are acquired from people who do not know they are infected or who have no symptoms at the time of the sexual contact (NIAID, 1997). People with oral herpes can also transmit the infection to the genital area of a partner during oral-genital sex. An uninfected individual has about a 75 percent chance of contracting herpes during intimate contact with someone actively shedding the virus.

Most infected persons never recognize the symptoms of genital herpes; some will have symptoms shortly after infection and never again. A minority of those infected will have recurrent episodes of genital sores. Some medications have been developed to minimize the frequency and intensity of these outbreaks, but genital herpes has no cure. Symptoms of HSV infection are frequently more severe in people with weakened immune systems (CDC, 1997).

Syphilis

In many U.S. cities syphilis rates are on the rise. In 1990, about 134,000 cases were reported to the U.S. Public Health Service (NIAID, 1997). On average, 101,000 new cases of syphilis are reported each year (CDC, 1997). Syphilis cases increased dramatically from 1985 to 1990 among women of all ages. An analysis of 1993 data has shown that rates of syphilis were higher among female than among male adolescents: rates among females were more than twice as high as rates among males in the 15 to 19 age group. African American women have syphilis rates that are 7 times greater than the female population as a whole (CDC, 1997).

Medical experts divide the course of this disease into four stages--primary, secondary, latent, and tertiary (late). Symptoms in the early stages of syphilis can be very mild, and many people do not seek treatment when they first become infected. An infected person who does not get treatment may infect others during the first two stages and during the early latent stage, which usually lasts 1 to 2 years. Women in the first three stages of syphilis infection are very likely to infect any children they bear. An estimated 3,400 new cases of congenital syphilis (babies born who need treatment for syphilis) are reported each year in the U.S. Fetal or neonatal death occurs in up to 40 percent of children born to women with untreated syphilis. As many as 40 percent of live-born infants of women with early-stage, untreated syphilis suffer irreversible health

consequences. Infections among infants are largely preventable if women receive appropriate diagnosis and treatment during prenatal care (CDC, 1997).

In the last stage, untreated syphilis, although not contagious, can cause serious heart abnormalities, mental disorders, blindness, other neurological problems, and death in the infected person (NIAID, 1997). Early diagnosis and treatment of syphilis is therefore critical to averting these long term effects. Treatment of syphilis in the first through third stages is also more likely to be effective.

HIV infection

The DoD currently considers the prevalence of HIV infection among military personnel far too small to exert a significant impact on readiness (Secretary of Defense, 1996). The total number of military personnel with permanent limitations, including HIV positivity, is very small--around three-tenths of one percent of the active force. In 1997, only 1.5 percent of all nondeployable males and 0.2 percent of all nondeployable females were nondeployable because of HIV positivity (DoD Secretary of Defense, 1997).

HIV infection is considered to be a permanent medical limitation among military personnel and a reason for nondeployability. Therefore, prevention of HIV infection is desirable to maintain the health and readiness of military personnel. HIV infection among active duty females is primarily a sexually transmitted disease, since intravenous drug use in this population is low (IOM, 1995). Therefore, overall prevention of STD infection among active duty females can be expected to prevent HIV infection.

Prevention of more common STDs can also be expected to reduce the prevalence of HIV among military women since STD infection, in general, increases a woman's risk of acquiring or transmitting HIV. In particular, the presence of genital ulcers, such as those produced by syphilis and herpes; or the presence of an inflammatory STD, such as chlamydia or gonorrhea, may facilitate HIV transmission (CDC, 1997).

Pelvic Inflammatory Disease (PID)

Pelvic inflammatory disease (PID) is one of the most serious complications of STDs (Fogel, 1995) as well as one of the most common STD complications among women. Girls aged 15 to 19 have the highest rate of hospitalization for both acute and chronic PID (CDC, 1993).

PID is an upper reproductive tract infection in women, which often develops when STDs go untreated or are inadequately treated. Each year, PID and it's complications affect more than 750,000 women. PID can cause chronic pelvic pain or harm the reproductive organs. Permanent damage to the fallopian tubes can result from a single episode of PID and is more common after a second or third episode. Scarring resulting in infertility will occur in about 20 percent of women with PID. Chronic pelvic pain will occur in 18 percent of women with PID. Potentially fatal ectopic pregnancy will occur in 9 percent of women with PID (NCHSTP, 1996).

Risk Factors for Contracting STDs Among Military Women

Although many aspects of military life may put active duty women at increased risk for STD infection, these risk factors can be mediated by any intervention that reduces the behaviors that put these women at increased risk for STD infection. These "high-risk" behaviors include:

- Sex with infected partners
- Frequent sexual encounters
- Numerous sexual partners (Bray et al., 1995)
- Unprotected sex
- Anal intercourse

(U.S. Army Center for Health Promotion and Preventive Medicine, 1996).

In military populations, age is considered a significant risk factor for acquiring an STD (Abel, 1998; Gaydos, et al., 1998; Landers, 1996). Younger military women report having more sexual partners and lower rates of condom use. In addition, younger military women are often deployed more often or on ship board more frequently than older woman (Abel, 1998). The main high risk behavior for acquiring an STD is unprotected sexual contact, particularly if this occurs frequently (McGrane et al., 1990). Only forty percent of unmarried military personnel who are sexually active reported using a condom the last time they had intercourse (Bray et al., 1995). This rate was lower than the Healthy People 2000 objective of 50 percent condom use at the last episode of sexual intercourse. Of military personnel who had at least one sexual partner in the past 12 months, 44.8 percent reported using a condom every time or most of the time within the past 12 months, 28.3 percent used condoms one half of the time or less often, and 26.9 percent never used a condom at all (Bray et al., 1995).

<u>The relationship of substance use and abuse to high-risk sexual behavior</u>

Another risky behavior, the use of alcohol and drugs, has also been linked to increased high risk sexual behavior (DHHS, Secretary of Health and Human Services, 1993). Several studies have produced findings suggesting that alcohol and drugs impair judgment and reduce inhibition of risky behavior (Critchlow, 1986; Leigh, 1990c; Reinarman & Leigh, 1987). According to a study by Hingson and colleagues (1990) of 1,773 Massachusetts teenagers, drug and alcohol use was associated with unsafe sex. Heavy drinkers (those consuming five or more drinks in a day) were about three times less likely than non-drinkers to report regular condom use. Respondents who had not used marijuana during the past month were twice as likely as those who had to use condoms. Hingson's study also revealed that 16 percent of the study participants were less likely to use condoms during a sexual encounter that immediately followed drinking, and 25 percent were less likely to use condoms following marijuana use. A study by Strunin and Hingson produced similar findings (1992). Eitzen's (1996) study of female U.S. Army recruits also found that recruits who drank alcohol were less likely to use condoms than recruits who did not drink alcohol. In this study, recruits who drank were found to be at greater risk for STDs

because they reported having more sexual partners than non-drinkers.

After controlling for education, age, sex, and race, Bray, Marsden, and Peterson (1991) found that military personnel were less likely to use drugs than civilians but were more likely to consume alcohol and were nearly twice as likely to drink heavily. Among military personnel, 20.8 percent were heavy drinkers compared to 11 percent of civilians; and 6.3 percent of military women were heavy drinkers but only 3.3 percent of civilian women were. A heavy drinker is defined as someone who consumes five or more drinks per typical drinking occasion at least once a week. Military personnel who are 18 to 25 years old are most likely to drink (29.6% are heavy drinkers; 32.1% of males and 7.6% of females in this age group are heavy drinkers).

Recent DoD efforts to reduce the use of alcohol and cigarettes among military personnel in order to meet the Healthy People 2000 goals may be having some effect. The 1995 DoD Survey of Health Related Behaviors Among Military Personnel (Bray et al., 1995) showed that use of alcohol, drugs, and cigarettes by military personnel was declining. Heavy drinking declined from 20.8 percent in 1980 to 17.1 percent in 1995, and infrequent/light drinkers increased from 25.6 percent to 39.7 percent. Use of an illicit drug decreased from 27.6 percent to three percent over the same time period. Drug use may be lower due to the random drug testing that occurs in the military and the fact that one is subject to discharge if found using drugs. However, the percentage of military personnel defined as heavy drinkers is still well above that of their civilian counterparts (17.1 versus less than 11 percent in 1995). Bray, Marsden, and Peterson (1991) hypothesize that there are "certain aspects of military life (that) may foster use and/or that military policies and programs directed toward alcohol and cigarette use have not been effective" (p. 869).

Other Factors Contributing to STD Infection Among Military Women

All factors that weaken a woman's immune system, such as stress, substance abuse, poor nutrition, and other infections, can increase her susceptibility to STDs. Cigarette smoking, in particular, has been shown to weaken the immune system, increasing a woman's susceptibility to a variety of diseases, including STDs. Smoking has been related to human papilloma virus (HPV), and to the development of cervical and other anogenital cancers (Daling et al., 1992; Rabkin, Biggar, Melbye, & Curtis, 1992; Daling et al., 1986). Women in the military are more likely than civilians to smoke (45.0% and 32.1%, respectively), while military and civilian men are about equally likely to smoke (43.9% and 40.1%, respectively) (Ballweg, 1989). Military women are also twice as likely as civilian women to smoke heavily (30.0% vs. 16.0%). A heavy smoker is defined as someone who smoked one or more packs of cigarettes per day over the past 30 days. Unlike the general population, women and men in the military are equally likely to smoke (Ballweg & Bray, 1989).

Active duty women may also be at increased risk for exposure to external stressors that reduce the strength of their immune systems and increase their vulnerability to all kinds of diseases. For example, changes in housing, sanitation, and meals; adverse weather conditions; limited transportation; and limited medical care may adversely affect the health of deployed personnel and increase their susceptibility to STDs and other infectious diseases (Eitzen, 1996). Exposure

to unfamiliar diseases in foreign countries and chemical and biological threats compound the vulnerability to disease.

Deployment may put military women at further risk for contracting an STD for several reasons. First, deployed military personnel may be more likely to engage in behaviors that put them at risk for contracting STDs because they are separated from the support and guidance of family and community while dealing with numerous additional stressors. This situation may lead military personnel to turn to other individuals in their new environment for support and affection, and many will do this through sexual encounters. Military personnel deployed to countries with high STD rates will also be at increased risk for acquiring an STD (Eitzen, 1996).

Other Genitourinary Problems Among Military Women

According to the U.S. Army Center for Health Promotion and Preventive Medicine (1996) genitourinary infections are a major health concern among active duty females, since they affect readiness. In 1987 vaginitis (including STDs) was the leading GYN pathology diagnosed for women in the military (Cobb, 1987). Cobb found that vaginitis was diagnosed in 30 percent of the Troop Medical Clinic (TMC) visits and 36 percent of field visits. Another frequent diagnosis was urinary tract infection (UTI).

Hanna (1992), in his study of 577 gynecological patients during Operation Desert Storm, also found vaginitis and urinary tract infections to be common among deployed females. Hanna found that, after pregnancy and birth control pill refills, the most common diagnoses among active duty females in the theater were vaginitis, cervicitis, amenorrhea secondary to oral contraceptive use or stress, and ovarian pain. Vaginal discharge was the most frequent presenting complaint, and was most often due to simple Monilia infections (yeast).

Risk Factors for Vaginal Infections and UTIs

Many vaginal infections and some infections of the urethra are caused by or related to sexually transmitted disease. The most common cause of vaginitis symptoms among women of childbearing age, bacterial vaginosis, is frequently transmitted through sexual activity (NIAID, 1992). However, the role of sexual activity in the development of bacterial vaginosis is not yet well understood, and the infection has been found among women who are not sexually active (NIAID, 1992). Research indicates that both sexual activity and use of spermicidal agents may increase the risk of vaginal colonization with bacteriuria and E. coli (Hooton et al., 1994; Hooton et al., 1991; Strom et al., 1997; Fihn et al., 1986). Vaginitis can also be caused by the parasite trichomonas vaginalis, which is sexually transmitted. The resulting infection, trichomoniasis, is a common STD that affects two to three million Americans yearly. In women, trichomoniasis most often causes vaginal symptoms but may also infect the urethra (NIAID, 1992). Other STDs such as gonorrhea, may also cause vaginal symptoms. Therefore, a woman who is at risk for STD infection may also be at risk for and experience higher rates of genitourinary tract infections.

Poor hygiene can lead to or aggravate bacterial vaginosis as well as vulvovaginal candidiasis (the cause of most yeast infections). Limited availability of showers may make it difficult for active duty females in the field or aboard ship to maintain good hygiene. Hygiene problems are exacerbated when women are menstruating. Numerous women who were deployed in Operation Desert Storm complained that it was difficult to maintain good hygiene while menstruating due to a limited availability of showers (Markenson, Raez, & Colavita, 1992). In a study conducted by Czerwinski, Wardell, Yoder, Connelly, Ternus, Pitts, and Kouzekanani (2001), that surveyed 2000 women in all branches of the military who had been deployed, it was found that hygiene practices changed during deployment. Panty liner and douching use was significantly lower during deployment. Of the women surveyed 8.5 percent reported limiting shower/bath use during menstruation when deployed as compared to 2.1 percent during non-deployed situations (Czerwinski, et al., 2001). Fungal vaginitis (usually caused by candidiasis) is also more common when tight pants are worn, and the battle-dress uniform worn by all Army soldiers has a short crotch (Hawley-Bowland, 1996).

Poor hygiene can also lead to UTIs. Certain strains of bacteria that are allowed to accumulate in the genitourinary area infect either the vagina and/or the urethra. When these bacteria enter the urinary tract, they may be removed through regular urination. However, military personnel in the field may not have easy access to toilets, and many deployed women have mentioned their discomfort with urinating without a toilet (Hawley-Bowland, 1996). Lack of private elimination facilities may lead many women in the field to retain their urine for long periods, increasing their chances of bacterial growth within the urinary tract.

Other risk factors for UTIs are frequent intercourse (Hooton et al., 1996; Hooton et al., 1991; Foxman and Chi, 1990; Remis et al., 1987), use of antimicrobials (Lidefelt et al., 1991) and use of spermicides, particularly nonoxynol-9 which can irritate the vaginal wall (Fihn et al., 1996; Hooton et al., 1994; Hooton et al., 1991; Hooton et al., 1989; Fihn et al., 1986).

Education needs

A study by Cobb (1987) indicated that many cases of vaginal and urinary tract infection among active duty women may result from a lack of knowledge regarding self-care and health maintenance among female military personnel. Education regarding risk factors for genitourinary infections is critical to the prevention of these disorders. Prevention of genitourinary infections among active duty females in the field is especially important because general medical officers often have neither the necessary background nor the basic supplies to diagnose and treat many of these infections in the field (Hanna, 1992).

Military women also need to know how to recognize symptoms of vaginitis and UTI so that they may obtain prompt treatment and testing for more severe infections that may have either precipitated the infection (such as some STDs) or resulted from the infection (such as kidney infections from untreated UTIs). Women need to know that any vaginal discomfort, sores, swelling of lymph nodes in the groin, unusual vaginal discharge, painful or burning urination, or lower abdominal pain requires prompt medical attention (U.S. Army Center for Health Promotion and Preventive Medicine, 1996).

Menstrual Disorders and Dysfunctional Uterine Bleeding (DUB)

Another problem common among active duty women is Dysfunctional Uterine Bleeding (DUB), which is defined as abnormal endometrial shedding that is not attributed to organic disease, pelvic pathology, or pregnancy. Petit (1996) identified DUB as a significant problem in active duty women. This finding is supported in a study by Hines (1992) of support battalion medical records for units servicing the First Cavalry Division deployed during Operation Desert Storm. In this study dysfunctional uterine bleeding/amenorrhea was found to be the most common gynecologic diagnosis (25.6% of all gynecologic diagnoses, n=121). Hanna (1992) also reviewed records of outpatient visits from the 312th Evacuation Hospital during Operation Desert Storm. He found abnormal bleeding to be the second most common gynecologic complaint.

Jet lag, decreased food intake, enhanced energy expenditure, or psychological stress may also result in changes to or disruption of a woman's menstrual cycle (U.S. Army Center for Health Promotion and Preventive Medicine, 1996). Similarly, Hines (1992) reports that women may experience dysfunctional bleeding or become amenorrheic when encountering stressors (e.g., divorce, a death in the family, or a separation), a change in environment, or when engaging in strenuous exercise. Additionally, since many deployed women reported stopping oral contraception, some atypical bleeding among these women was likely due to hormonal changes caused by discontinuing oral contraception.

Alterations in the menstrual cycle or temporary cessation of menstruation generally do not have long-term implications for fertility or overall health. However, frequent or excessive bleeding or cramping may impair a woman's ability to effectively perform her duties. Individual women might also misinterpret changes in their menstrual cycles as an indication of decreased fertility and therefore put themselves at increased risk for unintended pregnancy (U.S. Army Center for Health Promotion and Preventive Medicine, 1996).

Active duty women need to be able to accurately interpret changes in their menstrual cycles in order to seek appropriate treatment and to recognize that impaired menstruation is not necessarily related to impaired fertility. The study by Markenson and colleagues (1992) also reveals that women need to be made aware of the importance of continuing birth control during deployment, even if they are temporarily sexually inactive, in order to avoid sudden hormonal changes and disruptions in their menstrual cycle.

Military Health Care for Women

All military women receive numerous health services specific to women's health needs. All active duty women are required to have pelvic exams, Pap smears and clinical breast examinations during accession physicals. This requirement has led to high rates of Pap screening (93% had a Pap within the past three years: Crawford & Stahl, 1996). However, follow up for

abnormal Pap smears among active duty women is less than ideal. A DoD study showed that, although the DoD standard for notification of abnormal Paps is less than 2 weeks, active duty women are being notified an average of 33 days after the test. Follow up care occurred an average of 59 days after the initial Pap (Crawford & Stahl, 1996)

During annual exams, active duty women are routinely offered counseling on family planning and contraception alternatives (IOM, 1995; DoD, 1996). *Staying Healthy in Deployment: A Female Soldier's Guide*, a 1996 publication, also states that, prior to deployment, an OB/GYN exam is required, and that this exam shall include a pregnancy test, counseling on contraceptives, information on preventing STDs, and reporting of prescriptions currently taken (including oral contraceptives). In order to maintain the health of its service members, the Armed Forces provide health services free of charge to the patient.

Staying Healthy in Deployment: A Female Soldier's Guide (DoD, 1996) also states that annual HIV screenings and hepatitis B immunizations are provided as needed. However, a Quality Management Review (QMR) by the DoD found that only 20 percent of active duty personnel with two or more documented STDs received a hepatitis B immunization (Crawford & Stahl, 1996). The QMR also found low screening rates for STDs among active duty personnel. Only 29 percent of active duty personnel surveyed in the QMR received STD screening or were routinely advised and provided with follow up or referral.

A survey by Bray and colleagues (1995) found that the majority of military women reported easy access to OB/GYN care, such as pelvic exams or Pap smears. Deployed women may be an exception to this finding as indicated by a study of women who served in Operation Desert Storm. Eleven percent of these women reported that they did not know that gynecological care was available in the theater (Markenson, Raez, & Colavita, 1992). A DACOWITS study of 2,400 active duty men and women stationed in Alaska, Korea, Japan, Okinawa, Hawaii and Guam also noted that military women in all services throughout the Western Pacific cited gynecological care at their bases as unavailable or poor (Borlik, 1997).

Satisfaction with Military Health Services

In the 1989 Department of Defense Women's Health Survey, sixty-two percent of military women reported that they were satisfied with their current health care. Women in the Army were most dissatisfied, with 25 percent being either dissatisfied or very dissatisfied with their health care. The majority of active duty women (68%) reported being satisfied or very satisfied with the OB/GYN care treatment they receive. Officers were much more likely to be satisfied or very satisfied compared to enlisted personnel. Only about half of enlisted women (58%) were satisfied or very satisfied with follow-up care for OB/GYN issues. In spite of the free medical services provided by the military, 45 percent of military women reported preferring a civilian health care provider (Mahoney & Wright, 1989; Pierce, Antonakos, & Deroba, 1999).

Results of the 1995 Department of Defense Survey of Health Related Behaviors Among Military Personnel (Bray et al., 1995) indicated that the level of satisfaction has not changed. In this

study, 62 percent of military women were very satisfied or satisfied with the quality of OB/GYN care they received in 1995. Unlike the 1989 Department of Defense Women's Health Survey, officers responding to this 1995 survey were less likely than enlisted personnel to be satisfied with care received.

Women's Health Education in the Military

A small amount of health education material specifically developed for military women deals briefly with reproductive health issues. For example, *Sustaining Female Soldiers' Health and Performance During Deployment: Guidance for Small Unit Leaders* and *Staying Health in Deployment: A Female Soldier's Guide*, both produced by the U.S. Army Center for Health Promotion and Preventive Medicine (1996), provide basic information on pregnancy risks during deployment, hormonal contraception and condoms, STD prevention, prevention of some vaginal infections, common menstrual cycle disruptions, and breast self-examination. The guide for soldiers also recommends obtaining a an annual gynecological exam.

In general, the type and level of health education received by military women varies by location and is not well documented. Anecdotal information from conversations with military women and discussions with personnel at the U.S. Army Center for Health Promotion & Disease Prevention have revealed that efforts to provide health education for military women across the country range from none to fairly extensive. Although most recruits are exposed to some health information during basic training, this information deals primarily with hygiene issues and First Aid. Many military women do not receive instruction or information that deals with their unique health concerns. The lack of literature published about the reproductive health of military women suggests that there has been little or no evaluation of the health education that military women receive.

A recent study indicated that military women wanted more health education. Eitzen (1996) found that 66 percent of a sample of female active duty U.S. Army recruits stated that they would be interested in attending a class or workshop on preventing STDs. Almost 48 percent of this sample also said that they would like to attend a class on contraception.

Many military women are in their late teens or early twenties, which puts them at high risk for unplanned pregnancy and STD infection. This period in their lives is frequently the first time that they are away from their families and known sources of support. Although most young women in the U.S. have received some type of reproductive health education before the age of 18 (CDC, 1997) the type and amount of education received varies greatly. For these reasons, military women would likely benefit from in-depth education regarding reproductive and gynecological health issues.

Conclusions and Recommendations

More women are serving in the U.S. Armed Forces than ever before. These women are

increasingly likely to serve in high ranking, high skill, specialized and combat support positions that are critical to the readiness of their units. These women are not easily replaceable, and, for this reason, their health must become a priority. However, the military remains a male dominated institution. For this reason, health issues unique to women have not been adequately addressed in the military. In beginning to address women's health issues, the military must be aware of the unique characteristics of active duty women. Women in the military are relatively young and ethnically diverse, with large numbers of minority, particularly African American women, currently on active duty. Women's health issues most relevant to young and minority populations must be given priority in the military. In the relatively young, healthy population of military women, reproductive health issues dominate, including pregnancy, sexually transmitted diseases, vaginal infections and menstrual disorders. Unintended pregnancy may be the most critical health issue for women in today's military, primarily because of it's significant impact on readiness/deployability; but also because of the often negative impact of military demands on the health of a pregnant woman and her unborn child. Sexually transmitted disease is also a major health concern for women in the armed forces. Historically, STDs have been a health issue for military personnel, in general. STDs present a more critical health issue for military women, however, in view of the fact that women are at increased risk of STD infection both because of physiological differences and because they are less likely than men to use condoms at each sexual encounter. Finally, vaginitis and menstrual disorders, which are experienced by most women at some point in their lives, present special problems for military women for two reasons. First, the active duty lifestyle may place women at increased risk for vaginitis and menstrual disorders, especially during deployment. Second, common gynecological complaints such as vaginitis and menstrual problems can interfere with a soldier's or sailor's ability to effectively carry out her duties, which often involve physical demands far beyond those of the average, working, civilian woman. To date, the military has developed no system or tool for effectively educating and training enlisted women across sites to deal with common health concerns such as pregnancy, contraception, STDs, vaginitis and menstrual complaints.

Researchers on military women's health have offered a number of specific recommendations for improving health education and care of active duty women. For example:

- Troops should be educated on what to do if a condom breaks, a diaphragm slips, or if unprotected intercourse occurs (Gehlbach, 1996).

- Women need better training on the importance of pelvic exams (Eitzen, 1996). Eitzen found that only 39.7 percent of women in her sample reported having an annual pelvic exam, and 66 percent of the respondents said that they were not going to alter their behavior on getting annual pelvic exams.

- Markenson, Raez, and Colavita (1992) recommend that a predeployment gynecologic screening process be developed which includes a discussion of contraception. Any gynecological problems that would affect performance in the field could then be evaluated and treated before deployment. "This would help eliminate many of the clinic visits, improve women's health, and help preserve the fighting force during wartime" (Markenson, Raez & Colavita, 1992, p. 613).

- Researchers on the health of women in the military consistently recommend that active duty women be tested for pregnancy prior to deployment (Hines, 1992; Markenson et al., 1992; Birdsong, 1987).

- Evans and Rosen (1997) recommend that training and education programs about family planning and pregnancy be implemented with an emphasis on military pregnancy policy and ensuring military readiness.

- Czerwinski, Wardell, Yoder, Connelly, Ternus, Pitts, and Kouzekanani (2001) recommend providing feminine hygiene educational training programs for field commanders and supervisors. Furthermore, they suggest increasing sensitivity and awareness around feminine hygiene issues.

- Effective health promotion should be comprehensive, covering cigarette smoking, alcohol consumption, sleep habits, nutrition, and other topics (Pokorski, 1992). Classes on specific topics also should be offered (Pokorski, 1992).

- Health promotion programs offered at a location that is convenient are likely to increase the number of people using these programs. Pokorski (1992) recommends offering the program at the worksite.

Health promotion is important to the military in order to reduce costs of providing health care, which is particularly crucial during these times of decreasing defense budgets. An intervention designed to improve the health behaviors of enlisted women can also be expected to help the military reach the *Healthy People 2000* goals for rates of behaviors such as condom use among sexually active, single people (currently 40.4% among military personnel. *Healthy People 2000* goal is 50%).

References

Abel, E. (1998). Sexual risk behaviors among ship- and Shore-based Navy Women. Military Medicine, 163(4), 250-257.

Abma, J., Chandra, A., Mosher, W., Peterson, L., and Piccinino, L. (1997). Fertility, family planning, and women's health: New data from the 1995 National Survey of Family Growth. National Center for Health Statistics. Vital and Health Statistics 23(19).

Adams, M. M., J. A. Read, J. S. Rawlings, F. B. Harlass, A. P. Sarno, and Rhodes, P.H. (1993). Preterm delivery among black and white enlisted women in the United States Army. Obstetrics & Gynecology 81(1), 65-71.

Alexander, L. L. and LaRosa, J. H. (1994). New Dimensions in Women's Health. Boston: Jones & Bartlett, p. 304.

Aral, S. and Holmes, K. (1991). Sexually transmitted diseases in the AIDS era. Scientific American 264(2), 62-69.

Aral, S. and Holmes, K. (1990). Epidemiology of sexual behavior and sexually transmitted diseases. In K. Holmes, P. Mardh, P. Sparling, P. Wiesner, W. Cates, S. Lemon, W. Stamm (eds.), Sexually Transmitted Diseases (2nd edition), New York: McGraw-Hill, pp. 19-36.

Ballweg, J. A. (1989). Comparison of health habits of military personnel with civilian populations. Public Health Report 104, 498-509.

Ballweg, J. A. and Bray, R. M. (1989). Smoking and tobacco use by U.S. military personnel. Military Medicine, 165-168.

Becraft, C. (1990). "Facts About Women in the Military, 1980-1990." Washington, D.C.: Women's Research and Education Institute.

Birdsong, W. M. (1987). Ectopic pregnancy in a military population. Military Medicine 152(10), 525-526.

Borlik, A. K. (1997). Military personnel cite similar issues, concerns. American Forces Press Service. Washington, D.C.: Defense Technical Information Center.

Borsay-Trindle, L. A., and Pass, C.M. (1991) Unplanned pregnancy among active-duty Army females as a readiness issue. Military Medicine 156, 82-86.

Bray, R. M., Kroutil, L. A., Wheeless, S. C., Marsden, M. E., Bailey, S. L., Fairbank, J. A. and Harford, T. C. (1995). 1995 Department of Defense Survey of Health Related Behaviors Among Military Personnel. Research Triangle Park, NC: Research Triangle Institute.

Bray, R. M., Marsden, M. E., and M. R. Peterson (1991). Standardized comparisons of the use of alcohol, drugs, and cigarettes among military personnel and civilians. American Journal of Public Health 81(7), pp. 865-869.

Brunader, R. E. A., Brunader, J. A. and Kugler, J. P. (1991). Prevalence of cocaine and marijuana use among pregnant women in a military health care setting. Journal of the American Board of Family Practice 4, 395-398.

Calhoun, B.C., Jennings, B.M., Peniston, J., Patience, T., Pulos, E., Hume, R., and Perez, R. (2000). Focused obstetrical clinic for active duty junior enlisted service women: Model for improved outcomes. Military Medicine 165(1), 45-48.

Catterson, M. L. and Zadoo, V. (1993). Prevalence of asymptomatic chlamydial cervical infection in active duty army females. Military Medicine 158, 618-619.

Centers for Disease Control and Prevention, Division of STD Prevention (1997). Sexually Transmitted Disease Surveillance, 1996. Atlanta: U.S. Department of Health and Human Services, Public Health Service.

Centers for Disease Control and Prevention, Division of STD Prevention (1995). Sexually Transmitted Disease Surveillance, 1994. Atlanta: U.S. Department of Health and Human Services, Public Health Service.

Center for Disease Control and Prevention, Division of STD Prevention (1993). Division of STD/HIV prevention annual report. Atlanta: U.S. Department of Health and Human Services, Public Health Service.

Center for Disease Control and Prevention, Division of STD/HIV Prevention (1992). 1991 Annual Report. Atlanta: U.S. Department of Health and Human Services, Public Health Service.

Clark, J.B., Holt, V.L., and Miser, F. (1998). Unintended Pregnancy among Female Soliders Presenting for Prenatal Care at Madigan Army Medical Center. Military Medicine 163(7), 444-448.

Cobb, C. E. (1987). Chief complaints, contraceptive use and diagnoses of female soldiers in ambulatory GYN clinic. Military Medicine 152, 70-71.

Crawford, R. S. and Stahl, S. M. (1997). An Evaluation of Delivery and Follow-up of Clinical Preventive Services in Military Treatment Facilities, January 1990-April, 1995. Rockville, MD: FMAS Corporation.

Crawford, R. S. and Stahl, S. M. (1995). Clinical Pilot Review: Ectopic Pregnancy. Rockville, MD: FMAS Corporation.

Critchlow, B. (1986). The powers of John Barleycorn: Beliefs about the effects of alcohol on social behavior. American Psychologist 41, 751-764.

Czerwinski, B.S., Wardell, D.W., Yoder, L.H., Connelly, L.M., Ternus, M., Pitts, K., and Kouzekanani, K. (2001). Variations in feminine hygiene practices of military women in deployed and noncombat environments. Military Medicine 166(2), 152-158.

Daling, J. R., Sherman, K. J., Hislop, T. G., Maden, C., Mandelson, M. T., Beckmann, A. M., and Weiss, N. S. (1992). Cigarette smoking and the risk of anogenital cancer. American Journal of Epidemiology 135(2), 180-189.

Daling, J. R., Sherman, K. J., and Weiss, N. S. (1986). Risk factors for condyloma acuminatum in women. Sexually Transmitted Diseases 13, 16-18.

Davis, L.J. and Woods, A.B. (1999, January). Military Women's Research. Military Medicine 164(1), 6-10.

Department of Defense, Defense Manpower Data Center (1997). "Department of Defense Active Duty Military Personnel by Rank/Grade." Arlington, VA: Defense Manpower Data Center.

Department of Defense, Directorate for Information Operations and Reports (1999). Selected Manpower Statistics, Fiscal Year 1999. http://web1.whs.osd.mil/mmid/m01/fy99/m01fy99.pdf

Department of Defense, Secretary of Defense (1999). Annual Report to the President and Congress. Washington, D.C.: Defense Technical Information Center.

Department of Defense, Secretary of Defense (1997). Annual Report to the President and Congress. Washington, D.C.: Defense Technical Information Center.

Department of Defense, Secretary of Defense (1996). Annual Report to the President and Congress. Washington, D.C.: Defense Technical Information Center.

Department of Defense (1996). "Women in Defense -- DoD Leading the Way." Washington, D.C.: DoD.

Department of Health and Human Services, Public Health Service (1990). Healthy People 2000: National Health Promotion and Disease Prevention Objectives. Washington, D.C.: U.S. Department of Health and Human Services.

Department of Health and Human Services, Secretary of Health and Human Services (1993). Eighth Special Report to the U.S. Congress on Alcohol and Health, Washington, D.C.: U.S. Department of Health and Human Services.

Donovan, P. (1993). Testing Positive: Sexually Transmitted Diseases and the Public Health Response. New York: The Alan Guttmacher Institute.

Edgar, T., Freimuth, V. S., and Hammond, S. L. (1988). Communicating the AIDS risk to college students: The problem of motivating change. AIDS and Public Policy Journal 4 3-9.

Eitzen, J. P. (1996). Sexually transmitted diseases: Risk behaviors of female active duty U.S. Army recruits. Unpublished doctoral dissertation, University of Maryland, Department of Health Education, College Park, MD.

Enterline, J. and Leonardo, J. (1989). Condylomata cuminata (venereal warts). Nurse Practitioner 14(40), pp. 8-16.

Evans, M.A. and Rosen, L. (2000). Demographic and psychosocial risk factors for preterm delivery in an active duty pregnant population. Military Medicine 165(1), 49-53.

Evans, M.A. and Rosen, L. (1997). Pregnancy Planning and the Impact on Work Climate, Psychological Well-Being, and Work Effort in the Military. Journal of Occupational Health Psychology 2(4), 353-361.

Expert Committee on the Diagnosis and Classification of Diabetes Mellitus (1997). Report of the Expert Committee on the diagnosis and classification of diabetes mellitus. Diabetes Care 20, 1183-97.

Fihn, S. D., Boyko, E. J., Normand, E. H., et al. (1996). A prospective study of risk factors for symptomatic urinary tract infection in young women. New England Journal of Medicine 335, 468-474.

Fihn, S. D., Johnson, C., Pinkstaff, C., et al. (1986). Diaphragm use and urinary tract infection: Analysis of urodynamic and microbiological factors. Journal of Urology 136, 853-856.

Fleming, D. T., McQuillan, G. M., Johnson, R. E., Nahmias, A. J., Aral, S. O., Lee, F. K., and Louis, M. E. (1997). Herpes simplex virus type 2 in the United States, 1976 to 1994. The New England Journal of Medicine 337(16), 1105-11.

Fogel, C. (1995). Sexually transmitted diseases. In C. Fogel and N. Woods (eds.), Women's Health Care, a Comprehensive Handbook. Thousand Oaks, CA: Sage, pp. 571-609.

Foxman, B. and Chi, J. W. (1990). Health behavior and urinary tract infection in college-aged women. Journal of Clinical Epidemiology 43, 329-337.

Gaydos, C.A., Howell, M.R., Pare, B., Clark, K.L., Ellis, D.A., Hendrix, R.M., Gaydos, J.C., McKee, K.T., and Quinn, T.C. (1998). *Chlamydia trachomatis* infections in female military

recruits. The New England Journal of Medicine, 339(11), 739-744.

Gehlbach, D. (1996). Contraceptive needs, complications, and new directions for research. Women's Health Issues 6(6), 355-358.

Gerrard, M., Gibbons, F. X., and Warner, T. D. (1991). Effects of reviewing risk-relevant behavior on perceived vulnerability among women marines. Health Psychology 10(3), 173-179.

Gold, R. S., Karmiloff-Smith, A., Skinner, M. J., and Morton, J. (1992). Situational factors and thought processes associated with unprotected intercourse in heterosexual students. AIDS Care 4, 305-323.

Goldner, T. E., Lawson, H. W., Xia, Z., and Atrash, H. K. (1993). Surveillance for ectopic pregnancy -- U.S. 1970-1989. Morbidity and Mortality Weekly Report: CDC Surveillance Summary 42(55-6), 73-85.

Grimley, D. M., Riley, G. E., Bellis, J. M., and Prochaska, J. O. (1993). Assessing the stages of change and decision-making for contraceptive use for the prevention of pregnancy, sexually transmitted diseases, and Acquired Immunodeficiency Syndrome. Health Education Quarterly 20(4), 455-470.

Grundy-Wheeler, N. J. (1991). Out of hours attendance in an army practice. British Journal of General Practice 41, 210-212.

Hanna, J. H. (1992). An analysis of gynecological problems presenting to an evacuation hospital during Operation Desert Storm. Military Medicine 157, 222-224.

Harman, E., Frykman, P., Lammi, E., and Palmer, C. (1996). "Effects of a specially designed physical conditioning program on the load carriage and lifting performance of female soldiers." Natick, MA: U.S. Army Research Institute of Environmental Medicine.

Hawley-Bowland, C. (1996). Epidemiologic overview of common gynecologic disorders and first-trimester complications among active-duty women. Women's Health Issues 6(6), 353-355.

Hines, G. F. (1992). Ambulatory health care needs of women deployed with a heavy armor division during the Persian Gulf War. Military Medicine 157, 219-221.

Hingson, R. W., Strunin, L., Berlin, B. M., and Heeren, T. (1990). Beliefs about AIDS, use of alcohol and drugs, and unprotected sex among Massachusetts adolescents. American Journal of Public Health 80(3), 295-299.

Hoiberg, A. and White, J. F. (1992). Health status of women in the Armed Forces. Armed Forces & Society 18(4).

Hook, E. W. and Handsfield, H. H. (1990). Gonococcal infections in the adult. In K. K. Holmes, P. A. Mardh, P. F. Sparling, P. J. Wiesner (eds.) Sexually Transmitted Diseases (2nd edition). New York: McGraw-Hill, pp. 149-165.

Hooton, T. M., Fihn, S. D., Johnson, C., et al. (1989). Association between bacterial vaginosis and acute cystitis in women using diaphragms. Archives of Internal Medicine 149, 1932-6.

Hooton, T. M., Hillier, S., Johnson, C., et al. (1991). *Escherichia coli* bacteriuria and contraceptive method. Journal of the American Medical Association (JAMA) 265, 64-69.

Hooton, T. M., Roberts, P. L., and Stamm, W. E. (1994). Effects of recent sexual activity and use of a diaphragm on the vaginal microflora. Clinical Infectious Diseases 19, 274-8.

Hooton, T. M., Scholes, D., Hughes, J. P., et al. (1996). A prospective study of risk factors for symptomatic urinary tract infection in young women. New England Journal of Medicine 335, 468-74.

House of Representatives Committee on Armed Services (1993). National Defense Authorization Act for Fiscal Year 1994, Report of the Committee on Armed Services, House of Representatives on H.R. 2401. Washington, D.C.: U.S. Government Printing Office, Report 103-200.

Institute of Medicine, Committee on Defense Women's Health Research (1995). Recommendations for Research on the Health of Military Women. Washington, D.C.: National Academy Press.

Irwin, D. E., Savitz, D. A., Hertz-Picciotto, I. and St. Andre, K. A. (1994). The risk of pregnancy-induced hypertension: Black and white differences in a military population. American Journal of Public Health 84(9), 1508-1510.

Jenkins, P. R. and Nannis, E. D. (1995). "Proposed HIV/STD Prevention Study for Active Duty Women." Rockville, MD: Henry M. Jackson Foundation.

Jones, B. H., Manikowski, R., Harris, J., Dziados, J., Norton, S., Ewart, T., and Vogel, J. A. (1988). Incidence of and risk factors for injury and illness among male and female Army Basic Trainees. Natick, MA: U.S. Army Research Institute of Environmental Medicine.

Kugler, J. P., Connell, F. A., and Henley, C. E. (1990). An evaluation of prenatal care utilization in a military health care setting. Military Medicine 155(1), 33-38.

Landers, D.V. (1996). Vaginitis/Cervicitis: Diagnosis and treatment options in a limited resource environment. Women's Health Issues 6(6), 342-348.

Lawson, H. W., Atrash, H. K., Saftlas, A. S., and Finch, E. L. (1989). Ectopic pregnancy in the U.S., 1970-1986. Morbidity and Mortality Weekly Report: CDC Surveillance Summary 38(2), 1-10.

Lawson, H. W., Atrash, H. K., Saftlas, A. S., Franks, A. L., Finch, E. L., and Hughes, J. M. (1988). Ectopic pregnancy surveillance, U.S., 1970-1985. Morbidity and Mortality Weekly Report: CDC Surveillance Summary 37(5), 9-18.

Leigh, B. C. (1990c). Venus gets in my thinking: Drinking and female sexuality in the age of AIDS. Journal of Substance Abuse 2(2), 129-145.

Lynch, P. (1985). Condylomata acuminata (anogenital warts). Clinical Obstetrics and Gynecology 28, 142-151.

Magann, E. F. and Nolan, T. E. (1991). Pregnancy outcome in an active-duty population. Obstetrics & Gynecology 78(3), Part 1, 391-393.

Mahoney, B. S., and Wright, L. C. (1989). 1989 Department of Defense Women's Health Survey. Arlington, VA: Defense Manpower Data Center.

Markenson, G., E. Raez, and Colavita, M (1992). Female health care during Operation Desert Storm: The Eighth Evacuation Hospital experience. Military Medicine 157, 610-613.

May, K. and Mahlmeister, L. (1990). Comprehensive Maternity Nursing (2nd edition). New York: J. B. Lippincott.

McGrane, W. L., Toth, F. J., and Allelye, E. B. (1990). The use of interactive media for HIV/AIDS prevention in the military community. Military Medicine 155, 235-240.

Messersmith-Heroman, K., and Heroman, W. M. (1994). Pregnancy outcome in military and civilian women. Military Medicine 159, 577-579.

Moore, G. R. (1996). Reproductive hazards: Military policy implications. Women's Health Issues 6(6), 363-366.

Morris, L., Warren, C., and Aral, S. (1993). Measuring adolescent sexual behaviors and related health outcomes. Public Health Reports 108 (supplement 1), 31-36.

Mutlae, T., Creed, F., Maresh, M. and Hunt, L. (1991). Life events and low birth weight-analysis by infants preterm and small for gestational age. British Journal of Obstetrics and Gynecology 98, 166-172.

National Cancer Institute (1990). NCI Cancer Statistics Review 1973-1987. Bethesda, MD: National Institutes of Health.

National Center for HIV, STD and TB Prevention (1996). "The Challenge of STD prevention in the United States" (http://cdcnac.aspensys.com/stdprev.html).

National Center for Health Statistics (1994). Advanced report of final mortality statistics, 1992. Monthly Vital Statistics Report 43(6), supplement.

National Center for Health Statistics (1991). Annual summary of births, marriages, divorces, and deaths: United States, 1990. Monthly Vital Statistics Report 39(13),14-16.

National Institute of Allergy and Infectious Diseases (1992). Human papilloma virus and genital warts. Vaginal Infections and Vaginitis. Bethesda, MD: NIAID Office of Communications, National Institutes of Health.

Nice, D. S., Calderon, R. L., and Hilton, S. M. (1997). "Reproductive outcome in the U.S. Navy: Experience of 33,130 hospitalized pregnancies during 1982-1992." San Diego, CA: Naval Health Research Center.

Orndorff, G. R. (1991). Screening for Chlamydia trachomatis by the direct fluorescent antibody tests in female Navy recruits. Military Medicine 156, 675-677.

Petit, N. F. (1996). Dysfunctional uterine bleeding in active-duty women: Scope of the problem and management options. Women's Health Issues 6(6), 358-361.

Pierce, P.F., Antonakos, C., and Deroba, B.A. (1999). Health care utilization and satisfaction concerning gender-specific health problems among military women. Military Medicine 164(2), 98-102.

Planned Parenthood Federation of America, Inc. (1997). www.plannedparenthood.org.

Pokorski, T. L. (1992). Worksite health promotion: Rationale for military implementation. Military Medicine 157, 426-430.

Polzin, W. J., Kopelman, J. N., Brady, K., and Read, J. A. (1991). Screening for illicit drug use in a military obstetric population. Obstetrics and Gynecology 78, 600-601.

Poth, M. (1996). Forum on the health of women in the military: Executive summary. Women's Health Issues 6(6), 311-314.

Rabkin, C. S., Biggar, R. J., Melbye, M., and Curtis, R. E. (1992). Second primary cancers following anal and cervical carcinoma: Evidence of shared etiologic factor. American Journal of Epidemiology 136(1), 54-58.

Reinarman, C., and Leigh, B. C. (1987). Culture, cognition, and disinhibition: Notes on sexuality and alcohol in the age of AIDS. Contemporary Drug Problems 14(3), 435-460.

Remis, R.S., Gurwith, M. J., Gurwith, D., et al. (1987). Risk factors for urinary tract infection. American Journal of Epidemiology 126, 685-693.

Rothberg, J. M., Bartone, P. T., Holloway, H. C., and Marlowe, D. H. (1990). Life and death in the U.S. Army. Journal of the American Medical Association 264(7), 2242-2243.

Shafer, M. and Sweet, R. (1989). Pelvic inflammatory disease in adolescent females. Pediatric Clinics of North America 36(3), 513-532.

Stars and Stripes, European Edition (1985). Support hospital handles women soldiers' needs.

Strom, B. L., Collins, M., West, S. L., et al. (1987). Sexual activity, contraceptive use, and other risk factors for symptomatic and asymptomatic bacteriuria: A case-control study. Annals of Internal Medicine 107, 816-823.

Strunin, L., and Hingson, R. (1992). Alcohol, drugs and adolescent sexual behavior. International Journal of Addiction 27, 129-146.

Sylvia, B.M., McMullen, P., Levine, E., Cruz, F.B., Gagnon, D.A., Malavakis, T.L., Williams, L.A., Schmelz, J., Runzel, A., Stevens, V., and Wootten, A. (2001). Prenatal care needs, availability, accessibility, use, and satisfaction: A comparison of military women within and outside the continental United States. Military Medicine 166(4), 443-448.

Sylvia, B.M., McMullen, P., Schmelz, J., Runzel, A., Stevens, V., and Jackson, H.L. (2000). Exploration of facilitators and barriers to prenatal care among military women. Nurse Practitioner Forum, 11(3), 171-177.

U.S. Army Center for Health Promotion and Preventive Medicine & U.S. Army Research Institute of Environmental Medicine (1996). Staying Healthy in Deployment: A Female Soldier's Guide. Aberdeen Proving Ground, MD: USACHPPM.

U.S. Army Center for Health Promotion & Preventive Medicine (1996). Sustaining Female Soldiers' Health and Performance During Deployment: Guidance for Small Unit Leaders. Aberdeen Proving Ground, MD: USACHPPM.

Wahl, C. K., and Randall, V. F. (1996). Military women as wives and mothers. Women's Health Issues 6(6), 315-319.

Women's Research and Education Institute (1997). Women in the Military Statistical Update, 1996. Washington, D.C.: Women's Research and Education Institute.

Women's Research and Education Institute (1999). Active Duty Servicewomen by Branch of Service, Rank, Race, and Hispanic Origin. Washington, D.C.: Women's Research and Education Institute. http://www.wrei.org/military

Zimmerman, H. L., Potterat, J., Dukes, R., Muth, J., Zimmerman, H. P., Fogel, J., and Pratts, C. (1990). Epidemiologic differences between chlamydia and gonorrhea. American Journal of Public Health 80(11), 1338-1342.

APPENDIX M

CD-ROM Technology to Increase Appropriate Self-Care and Preventive Behaviors Among Army and Navy Women

Secondary Analysis of the 1995 Department of Defense Survey of Health Related Behaviors Among Military Personnel

March 1999

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Introduction

A secondary analysis of demographic and health behavior data was conducted for 2,957 women who responded to the *1995 Department of Defense Survey of Health Related Behaviors Among Military Personnel.* The analysis was conducted in order to determine the factors that contribute to sexually transmitted disease (STD) infection, pregnancy, and regular Pap test screening among women in the U.S. Armed Forces. Results indicated that multiple factors, both demographic and behavioral, were related to pregnancy on active duty, STD infection, and frequency of Pap test screening among both single and married enlisted women.

The secondary analysis discussed in this report was part of a larger needs assessment conducted for the project, "CD-ROM Technology to Increase Appropriate Self-Care and Preventive Behaviors Among Army and Navy Women." Technical objectives of the secondary analysis that relate to the overall needs assessment were:

1) To assess the most pressing reproductive and gynecological self-care education needs of enlisted women on base and in the field.

   In order to address this first technical objective, bivariate and univariate analyses of various factors expected to affect history of STD infection, Pap test screening history, and pregnancy on active duty were conducted (i.e. chi-squares, t-tests, one-way ANOVAs). The secondary analysis then examined factors most related to reproductive health problems using a discriminant analysis strategy with each of the dependent variables (STD history, Pap test screening, and pregnancy on active duty).

2) To assess the current health education efforts for enlisted women.

   Items examining attitudes toward military health education programs (i.e., alcohol education program, drug education, and STD education) were analyzed to determine the factors related to these programs that were perceived as effective by enlisted Army and Navy women. Additionally, comparisons were made between services (Army and Navy), enlisted women versus officers, and males versus females with regard to ratings of the three military health education programs.

Additionally, because the study was funded to address reproductive health issues of enlisted women, we examined the data to see if enlisted women differed from female officers on specific behavioral risk variables.

Methodology

Primary Data Collection

The *1995 DoD Survey of Health Related Behaviors Among Military Personnel* was the sixth in a series of surveys of active-duty military personnel. The survey included questions to assess the prevalence of substance use, health behaviors, and related issues. The survey also investigated several health issues that may affect the readiness of military women, including stress, access to and satisfaction with obstetrics and gynecological (OB/GYN) care, and history of pregnancy and STD infection.

The final sample consisted of 16,193 military personnel who completed self-administered questionnaires anonymously. Data were collected primarily during group sessions at military installations or by mail for those not attending the sessions.

Secondary Data Collection and Analyses

In order to inform the development of a health education intervention for enlisted women, a secondary analysis of data from the *1995 DoD Survey of Health Related Behaviors Among Military Personnel* was conducted. Although the 1995 survey included data on both males and females from all four services (Army, Navy, Air Force, and Marines) and included both officers and enlisted personnel, analyses for this study were conducted primarily to examine the subsample of enlisted women in the Army and Navy.

The primary analyses were limited to enlisted women in the Army and Navy for the following reasons:

- The study was funded to examine the specific health education needs of enlisted women in the Army and Navy.
- The findings were to be used to develop an intervention directed at reducing reproductive health problems specific to women.
- We planned to compare the findings with the qualitative needs assessments data collected for the project, which was limited to the Army and Navy.
- We assumed that educational interventions targeting enlisted personnel would differ from educational interventions for officers, because enlisted women were at increased risk of reproductive health problems and had different educational needs than female officers.

Data on age, years of military service, education level, lifetime STD infection, pregnancy during active duty, and Pap test screening behavior were compared for enlisted women and female officers to test our assumption that enlisted women have a significantly greater need for reproductive health education.

We examined several factors that may be related to enlisted women's history of STD infection, Pap test screening, and pregnancy while on active duty, including sexual risk behavior, alcohol

consumption, stress factors, and military health education. Unless otherwise indicated, all analyses were conducted on the subsample of enlisted women in the Army and Navy who completed the *1995 DoD Survey of Health Related Behaviors Among Military Personnel.* The secondary analysis included the following:

- Univariate analysis of individual items (means, standard deviations, percentages) for women in the Army and Navy.

- Bivariate analysis (crosstabs, correlations, t-tests) to examine relationships among variables and look for significant differences between enlisted women and female officers and between enlisted women in the Army and the Navy.

- Discriminant analyses with three dependent variables (STD history, Pap test screening behavior, reported pregnancy on active duty) to determine which factors were most related to reproductive health problems. (Variables entered into the equation are listed in Figure 1.) A discriminant analysis with the same factors was used to determine factors related to satisfaction with the STD education at the woman's current installation.

- Univariate (percentages) and bivariate (crosstabs, correlations) analysis of items examining attitudes toward military health education programs (i.e., alcohol education program, drug education, and STD education) to determine if if these programs are perceived to be effective by enlisted Army and Navy women and to compare differences in ratings of these programs between services, enlisted personnel and officers, and males and females.

Figure 1 lists the factors that were included in the discriminant analyses. The factors are grouped by the following categories: demographics, military service, use and abuse of alcohol, use and abuse of tobacco, stress, sexual behavior, health status, and military health care delivery.

Figure 1: Factors Included in Discriminant Analyses		
Demographics	▸ Service ▸ Pay grade ▸ Education level ▸ Age ▸ Race	▸ Type of housing ▸ Marital status ▸ Whether or not resides with spouse ▸ Whether or not resides with children (excluded from pregnancy analysis)
Military Service	▸ Number of days deployed past month ▸ Time since last deployment ▸ Number of months at present post	▸ Military job ▸ Level of satisfaction with military job ▸ Number of months on active duty
Use and Abuse of Alcohol	▸ Number of days drank beer in past month ▸ Number of days drank wine in past month ▸ Number of days drank liquor in past month ▸ Quantity of beer drunk on a typical drinking day ▸ Quantity of wine drunk on a typical drinking day ▸ Quantity of liquor drunk on a typical drinking day ▸ Number of days had 8 or more drinks of beer in past year ▸ Number of days had 8 or more drinks of wine in past year ▸ Number of days had 8 or more drinks of liquor in past year ▸ Whether drinking more, less, or the same as before enlisting	
Use and Abuse of Tobacco	▸ Age respondent began smoking ▸ Number of years smoking	▸ Last time smoked a cigarette ▸ Number of cigarettes smoked daily
Sexual Behavior	▸ Number of lifetime sex partners ▸ Number of sex partners in past year ▸ Time since last intercourse	▸ Condom use at last intercourse ▸ Frequency of condom use ▸ Frequency of intercourse
Stress	▸ Amount of stress at work in past year ▸ Amount of stress resulting from deployment ▸ Amount of stress resulting from concern about being separated from military ▸ Amount of stress caused by separation from family ▸ Amount of stress caused by conflicts between work/family responsibilities ▸ Amount of stress resulting from being a woman in the military ▸ Amount of stress caused by health problems ▸ When under stress, how often respondent exercises ▸ When under stress, how often respondent talks to friend or family member • When under stress, how often respondent eats ▸ When under stress, how often respondent lights up a cigarette ▸ When under stress, how often respondent has a drink ▸ When under stress, how often respondent uses marijuana or other illegal drugs ▸ When under stress, how often respondent thinks of a plan to solve problem ▸ When under stress, how often respondent thinks of hurting or killing self	
Health Status	• Overall health rating ▸ How often respondent had an illness of 1 week or more in the past year ▸ Frequency of health problems in past year ▸ Frequency of ER visits in past year ▸ Frequency of outpatient visits to a military facility in past year	▸ Frequency of outpatient visits to a civilian facility in past year ▸ Frequency of visits to a specialist in past year ▸ Reported STD infection in past year ▸ Frequency of illness/ injury in past month • Number of months since last Pap test
Military Health Care	▸ Ease obtaining military health care ▸ Ease obtaining health care at installation ▸ Satisfaction with health care quality ▸ Agreement that STD education helpful	▸ Ease obtaining military OB/GYN care ▸ Ease obtaining OB/GYN care at installation ▸ Satisfaction with quality of OB/GYN care at installation

Results

Demographics

Out of a total of 16,122 respondents, 2,937 were female (18.3%) and 13,165 were male (81.7%). A total of 616 of the women were officers, leaving 2,341 enlisted female respondents in all four branches of the military. Tables 1 and 2 display demographic data for the enlisted female respondents to the 1995 survey who were in the Army (N=529) and Navy (N=693).

Most enlisted women responding to this survey had received some college education. Education levels of the enlisted females in the Army were significantly higher than education levels for the comparable Navy group. An examination of the percentages shows that the difference in education levels between services was largely explained by the greater likelihood that enlisted Army women had received some college education.

The racial breakdown of enlisted females reveals that blacks represented the largest proportion of women in the Army. Among Navy women, however, the largest proportion was white. The difference between services in the proportion of enlisted black female respondents mostly explains the significant difference in racial make up between the two services.

Most enlisted female respondents from both services were in the mid-range pay grades, between E3 and E5. A significant difference between services was found for pay grade. Percentages indicate that enlisted female respondents in one service were not more likely to be in a higher pay grade than women in the other service. Rather, proportions of Army and Navy women at a specific pay grade differed markedly. For example, by far the largest proportion of Army women were E-4s, whereas most Navy women tended to be spread fairly evenly across pay grades E-3 through E-5.

Table 1 also shows that enlisted women in the two services did not differ significantly in age. Mean age for the entire sample was 27.9 years. The enlisted Army and Navy women had comparable mean ages, 28.35 years of age (s.d.=7.44) in the Army and 27.55 years of age (s.d.=7.21) in the Navy. In both services, nearly half of the respondents were 25 years of age or younger. These findings also show that the sample population reflects similar ages as those in the enlisted female population the entire Army and Navy (Defense Manpower Data Center, 1995).

About half of the enlisted women in the Army and Navy responding to the survey were married. About one-third from each service were single and never married. No significant differences in marital status were found between services. Further analysis indicated that the services did not differ significantly in the proportion of married enlisted women.

Although enlisted women in the two services did not differ by marital status, they did differ significantly in the proportion reporting that they currently residing with a spouse or children (see Table 2). Navy women were much more likely to be living with their spouse than were Army women. Similarly, enlisted women in the two services differed significantly in the proportion who were currently residing with children. Women in the two services did not differ significantly in the proportion who reported having children. However, Army women were more likely to report that they did not currently reside with their children.

Table 1: Demographic Characteristics of Enlisted Women Respondents (N=1,222)		
	Army	**Navy**
Total N	529	693
Category	N (%)	N (%)
Education**		
Did not graduate from H.S.	1 (0.2)	3 (0.4)
High school graduate or equivalent	137 (25.9)	294 (42.4)
Some postsecondary education	344 (65.0)	351 (50.6)
4-year college degree	33 (6.2)	35 (5.1)
Graduate or professional study	14 (2.6)	10 (1.4)
Race**		
Black	238 (45.0)	156 (22.5)
Caucasian	227 (42.9)	453 (65.4)
Asian/Pacific Islander	13 (2.5)	27 (3.9)
American Indian	6 (1.1)	11 (1.6)
Other	45 (8.5)	46 (6.6)
Hispanic Origin		
Not Hispanic	490 (92.6)	629 (90.8)
Hispanic	39 (7.4)	64 (9.2)
Pay Grade*		
E1	3 (0.6)	23 (3.3)
E2	24 (4.5)	63 (9.1)
E3	79 (14.9)	143 (20.6)
E4	170 (32.1)	132 (19.0)
E5	89 (16.8)	133 (19.2)
E6	51 (9.6)	94 (13.6)
E7	88 (16.6)	73 (10.5)
E8	24 (4.5)	28 (4.0)
E9	1 (0.2)	4 (0.6)
Age Group		
≤20	76 (14.4)	139 (20.1)
21-25	167 (31.6)	200 (28.9)
26-30	85 (16.1)	116 (16.7)
31-35	98 (18.5)	118 (17.0)
36-40	72 (13.6)	86 (12.4)
41+	31 (5.9)	34 (4.9)
Marital Status		
Married	257 (48.9)	345 (50.0)
Separated	38 (7.2)	34 (4.9)
Divorced	69 (13.1)	61 (8.8)
Widowed	0 (0.0)	6 (0.9)
Single	162 (30.8)	244 (35.4)

* Difference between services significant at $p<.005$

**Difference between services significant at $p<.001$

Table 2: Residential Characteristics of Enlisted Women Respondents (N=1,222)		
	Army	**Navy**
Total N	529	693
Category	N (%)	N (%)
Living with spouse?**		
Yes	39.3	45.9
No	18.2	9.0
No spouse	42.4	45.1
Living with children?**		
Yes	39.7	42.9
No	21.8	13.4
No children	38.5	43.6

**Difference between services significant at p<.001

The mean number of months on active duty for the entire sample of enlisted women in the Army and Navy was 86.01. The Army enlisted women had an average of 85.5 months on active duty (s.d.=76.89), and the enlisted women in the Navy had an average of 86.4 months on active duty (s.d.=74.52). The large standard deviations suggest that the range in number of months on active duty was large among respondents. Mean number of months on active duty for the enlisted women did not differ significantly by service.

Health History

Further descriptive statistics were calculated for selected health history variables of the enlisted female respondents in the Army and Navy. These included prior pregnancy, pregnancy which occurred while on active duty, lifetime history of an STD infection, STD infection in the past year, and adherence to Pap test screening recommendations. Table 3 summarizes the percentage of respondents in the Army and Navy who responded positively to the health history question.

Some women were unsure if they were pregnant at the time of the survey or did not answer questions in such a way as to ascertain their pregnancy status while in the military. These women were assumed to never have been pregnant nor to have been pregnant while on active duty for the purpose of these analyses. According to these data, enlisted women in the Army and Navy did not significantly differ in their rates of pregnancy while on active duty. However, those in the Army were significantly more likely to have ever been pregnant.

When examining STD infection history, approximately one-fourth of enlisted women self-reported having had an infection in their lifetimes. Although the proportion of Army women responding that they had a previous STD infection was larger than Navy women responding positively, this difference was not statistically significant. Women in the two services also reported similar proportions of STD infection in the past year (6.4% in the Army and 7.0% in the Navy).

Table 3: Selected Health History Characteristics of Enlisted Women Respondents (N=1,222)		
	Army	Navy
Category	N (%)	N (%)
Prior Pregnancy *	337 (63.9)	396 (57.6)
Pregnancy on Active Duty	157 (29.7)	207 (29.9)
Lifetime History of STD	160 (30.9)	178 (26.3)
STD Infection in Past Year	33 (6.4)	47 (7.0)
Adherent to ACS Pap Test Recommendations (every 3 years)	479 (93.7)	654 (96.2)
Total N	529	693

* Difference between services significant at $p<.05$.

For the purpose of these analyses, Pap test screening recommendations were defined as those from the American Cancer Society (ACS) stipulating that women have a Pap test every three years unless directed otherwise by their doctors. Therefore, women who had been screened in the past 3 years were defined as adherent. Results show that more than 90 percent of enlisted women in the Army and Navy were adherent to ACS Pap test screening recommendations. The services did not differ significantly in Pap test screening adherence.

Comparisons Between Enlisted Women and Female Officers

Analyses were also conducted to determine whether significant differences existed between women in the Army and Navy and between enlisted women and female officers for selected demographic and health history variables. Chi-square tests were used to determine these groups of women differed significantly with regard to the percentage with a college degree. Two-way ANOVAs were used to determine whether these groups differed significantly on age and number of months on active duty.

Table 4 shows that the sample of active duty women differed significantly on mean age, total months on active duty, and education level. A two-way ANOVA showed that women's ages differed significantly across both service ($F=4.49$; $p=.034$) and rank ($F=256.73$; $p<.000$), but there was no interaction between the two independent variables. Active duty women also differed significantly in total months on active duty, but only by rank ($F=59.83$; $p<.000$). Chi-square tests showed that enlisted women and female officers in both services differed significantly by education level. Table 3 illustrates the stark difference in education level between enlisted women by showing the percentage of respondents who had a college degree. These findings show that, compared with female officers, enlisted women were significantly younger, had less time on active duty, and had less formal education.

Table 4: Selected Demographic Characteristics of Female Respondents by Service and Rank (N=1,550)				
Category	Army		Navy	
	Enlisted	Officer	Enlisted	Officer
Mean Age *	28.4	35.7	27.6	34.6
Mean months of active duty **	85.5	130.5	86.4	115.8
Percentage with a college degree **	8.8%	89.8%	6.5%	93.0%
Total N	529	157	693	171

* Difference was significant by service and rank.
** Difference was significant by rank.

Data from the *1995 DoD Survey of Health Related Behaviors Among Military Personnel* also suggested that, relative to female officers, enlisted women had a greater need for reproductive health education interventions designed to reduce STD infection and unintended pregnancy. An analysis of data on pregnancy, STD infection, and Pap test screening among females in the Army and Navy indicated that enlisted female respondents had significantly higher rates of STD infection and pregnancy relative to female officer respondents (see Table 5). However, officers and enlisted females did not differ significantly in their adherence to Pap test screening guidelines.

Table 5: Selected Health History Characteristics of Female Respondents by Service and Rank (N=1,550)				
Category	Army		Navy	
	Enlisted N (%)	Officer N (%)	Enlisted N (%)	Officer N (%)
Prior Pregnancy **	337 (63.7)	87 (55.4)	396 (57.1)	79 (46.2)
Pregnancy on Active Duty *	157 (29.7)	32 (20.4)	207 (29.9)	34 (19.9)
Lifetime History of STD *	160 (30.2)	29 (18.5)	178 (25.7)	29 (17.0)
STD Infection in Past Year ***	33 (6.2)	5 (3.2)	47 (6.8)	3 (1.8)
Adherent to Pap Test Recommendations	479 (90.5)	149 (94.9)	654 (94.4)	163 (95.3)
Total N	529	157	693	171

* Difference significant for both services.
** Difference significant for Army only.
*** Difference significant for Navy only.

Reproductive Health Related Factors

Preliminary multivariate analyses were conducted to examine the contribution of demographic and behavioral factors to the prediction of three reproductive health conditions/issues of interest: 1) lifetime STD infection, 2) pregnancy during active duty, and 3) recent Pap test screening. The first dependent variable, "Lifetime STD," indicates whether the respondent reported ever having an STD in her lifetime. The second dependent variable, "Pregnancy on Active Duty," indicates whether or not the respondent has been pregnant while on active duty ("uncertain" indicates that the respondent either indicated she is unsure whether or not she has been or was pregnant or did not respond to this question). The third dependent variable, "Pap Test Screening," indicated the reported period of time since the respondent's last Pap test. The rows represent the independent variables that were into the discriminant function of at least one dependent variable. Table 6 presents the results of discriminant analyses using the data for enlisted females in the Army and Navy from the 1995 DoD Survey of Health Related Behaviors among Military Personnel (N= 1,222).

Table 6: Discriminant Analysis Findings for Factors Significantly Related to Variables of Interest for All Enlisted Women in the Army and Navy (N=1,222)

Factors	Lifetime STD F score (significance)	Pregnancy on active duty F score (significance)	Pap Test Screening F score (significance)
Service	N/A	N/A	9.32 (.000)
Whether drinking more, less, or the same as before enlisting	N/A	8.46 (.000)	N/A
Number of months on active duty	N/A	15.35 (.000)	N/A
Number of months since last Pap test	N/A	7.10 (.000)	N/A
Number of months at present post	N/A	N/A	12.35 (.000)
Satisfaction with quality of OB/GYN care received at installation	N/A	N/A	19.66 (.000)
Amount of stress experienced as woman in the military	N/A	N/A	10.61 (.000)
Overall health rating	7.85 (.001)	10.16 (.000)	N/A
How often eats to relieve stress	6.54 (.000)	N/A	N/A
Lifetime number of sex partners	8.44 (.004)	7.57 (.000)	N/A
Agreement that STD education at post was helpful	6.92 (.000)	N/A	N/A

N/A – Nonsignificant finding.

These data show that the respondent's lifetime number of sexual partners and overall health rating were related to both reported lifetime STD infection and reported pregnancy while on active duty. Aside from these two variables, the variables that related to categories for each dependent variable were different.

- **Lifetime STD Infection:** Two variables indicative of the respondent's general health (overall health rating and eating when stressed) appeared related to lifetime STD infection. Number of sex partners and response to education on STDs was also related to lifetime STD infection.

- **Pregnancy on Active Duty:** Health risk behavior variables—number of sex partners, time since last pelvic exam/Pap test, and drinking behavior—appeared most related to this health issue. With the exception of lifetime number of sex partners, women who reported being pregnant on active duty were more likely to report positive health behaviors such as recent Pap tests and less current drinking. Overall health rating and number of months on active duty were the only other variables related to pregnancy on active duty.

- **Pap Test Screening:** Variables related to time since last Pap test differed completely from variables that predicted pregnancy and STD infection. Demographic variables (branch of service, time at present post) and variables representing unique concerns of women in the military (stress related to military service and satisfaction with installation OB/GYN care) were related to the time since last Pap test.

Most variables entered into these discriminant analyses did not relate to any of the three dependent variables. For example, several demographic variables that might be expected to be part of the discriminant function did not make a significant contribution when other variables were entered into the functions. No variables related to perceived helpfulness of military alcohol and drug education programs or AIDS knowledge were related to any dependent variable. No variables related to pregnancy history were predictive of lifetime STD infection or time since last Pap test screening.

More detail regarding the variables in each discriminant function is given below in sections corresponding to the analysis for each dependent variable. These tables indicate the ability of each discriminant function to predict the proportion of women falling into each category of a specific dependent variable.

STD-Related Factors

The discriminant analysis function that included four variables (lifetime number of sex partners, overall health rating, how often respondent eats to relieve stress, depression, etc., and level of agreement that the post's STD education program is helpful) was able to correctly classify subjects' responses regarding lifetime history of STD infection 69.8 percent of the time ($F= 28.14$, $p<.001$). The results are presented below in Table 7. This function correctly classified about a third (32.4%) of women who reported having had an STD in their lifetime. The model was better at classifying women who reported no STD infection in their lifetime. Among women who reported never having had an STD, 84.8 percent were correctly classified.

Table 7: Predicted group membership among enlisted women for reported STD in lifetime (N= 1,163)			
Actual group	**Group N**	**Yes N (%)**	**No N (%)**
Yes	333	**108 (32.4)**	225 (67.6)
No	829	126 (15.2)	**703 (84.8)**
Ungrouped	1	0 (0.0)	1 (100.0)

Further analyses (crosstabs, Spearman correlations, MANOVAs) were conducted post hoc on the four variables in the final model of this discriminant analysis. The purpose of these analyses was to determine the direction of effects for each variable and the how proportions of women in each category differed. These post hoc analyses revealed the following:

- The more sex partners the respondent reported having had in her lifetime, the more likely she was to report having had an STD either now or in the past. Among women reporting 20 or more sex partners in their lifetime, nearly half (47.6%) reported having had an STD. Over a third (36.5%) of the women reporting 10 to 19 sex partners in their lifetime reported having had an STD. Among women who reported five to nine sex partners in their lifetime, over a quarter (28.7%) reported having had an STD. Among women reporting two to four sex partners in their lifetime, 13.4 percent reported having had an STD. For the entire sample of enlisted women in the Army and Navy, 27.7 percent reported having had an STD. Therefore, women with more than four lifetime sex partners had a higher the average risk of having had an STD relative to the entire population of enlisted women in the Army and Navy.

- Respondents who rated their overall health as very good or excellent were less likely to report having had an STD in their lifetime. The majority of women who reported having an STD in their lifetime rated their health as poor, fair, or good (54.3%). The majority of women who reported never having an STD in their lifetime rated their health as very good or excellent (56.5%). Although these proportional differences do not appear large, chi-square tests of the relationship between reported lifetime STD and women's ratings of their overall health were also significant with Pearson's χ^2 (3) = 13.44, p = .004.

- Respondents who reported that they frequently ate to relieve stress also were more likely to report having had an STD. About a third (32.6%) of the respondents who reported frequently eating to relieve stress, depression, etc., also reported having had an STD infection. Conversely, less than a quarter (23.1%) of the respondents who said they never eat to relieve stress, depression, etc. reported having had an STD infection.

- Respondents who reported having had an STD in their lifetime were more likely to report that the STD education program at their installation was helpful. Post hoc analyses revealed that women who reported having had an STD were not more likely to agree that the STD education program was helpful. Rather, women who reported no STD were most likely to respond "don't know/no opinion" when asked whether they agreed that the installation's STD program was helpful. About a quarter (25.6%) of all respondents who

reported never having had an STD had no opinion about the STD education program at their post compared to 18.1 percent of all respondents who reported having had an STD.

Post hoc univariate analyses revealed no significant relationship between two variables in the final discriminant analysis model and history of STD infection. These variables were: frequency respondent reported eating to relieve stress and level of agreement that the post's STD education program was helpful. Eating to relieve stress and agreement that the post's STD education was helpful were related to the respondents' STD history only when the effects of the other variables were controlled for in a multivariate analysis.

Pregnancy on Active Duty

A discriminant analysis function that included five variables (change in amount of alcohol drunk by respondent since enlistment, total months on active duty, time since last Pap test, overall health rating, and lifetime number of sex partners) was able to correctly classify subjects' responses regarding whether they reported being pregnant on active duty 53.3 percent of the time ($F= 35.89$, $p<.001$). See Table 8. This model correctly classified over a quarter (29.4%) of women who had been pregnant on active duty. The model correctly classified the majority (51.4%) of women who did not provide sufficient data for determining whether they had been pregnant on active duty. The model primarily served to classify women who had not been pregnant on active duty. The great majority (72.5%) of these women were correctly classified.

Table 8: Predicted group membership among enlisted women for pregnancy during active duty (N = 1,112)

Actual group	Group N	Yes N (%)	No N (%)	Uncertain N (%)
Yes	350	**103 (29.4)**	173 (49.4)	74 (21.1)
No	466	72 (15.5)	**338 (72.5)**	56 (12.0)
Uncertain	296	56 (18.9)	88 (29.7)	**152 (51.4)**

Post hoc analyses (crosstabs, Spearman correlations, ANOVAs) were conducted on the four variables in the final model for this discriminant analysis to determine the direction of effects for each variable and the how proportions of women in each category differed. The results of these post hoc analyses revealed the following:

- Overall, women with a greater number of lifetime sex partners were more likely to report having been pregnant on active duty than women with fewer partners. The only exception to this general trend was found among women reporting only one lifetime sex partner, the group with the largest proportion of women reporting pregnancy on active duty (48.8%). This discrepancy is explained mostly by responses from married women whose only lifetime sex partner was their spouse. A Pearson's chi-square analysis confirmed that married women were much more likely to report a pregnancy while on active duty than single women ($\chi 2\ (1) = 84.62$, $p<.001$). The majority of married women (59.1%) reported a pregnancy on active duty compared to only 28.1 percent of single women. When married women were eliminated from the sample, crosstabs revealed a steady increase in the proportion of women reporting pregnancy while on active duty as

number of lifetime sex partners increased. Among single enlisted women, only 11.8 percent of women reporting one partner had been pregnant on active duty compared to 40 percent of women reporting 20 or more partners in their lifetime.

- A lower self-rating of overall health was related to pregnancy on active duty. However, Pearson's chi-square analysis of pregnancy on active duty and overall health self-rating did not approach significance. Since the independent variable (overall health rating) was significant in the final model for the predicting whether the respondent reported being pregnant on active duty, it is possible that the independent variable is related to other independent variables in the original model. Only when the effects of the other variables were controlled for did overall health rating reach significance as a factor in pregnancy on active duty.

- Greater number of months on active duty was related to pregnancy on active duty. Total number of months on active duty was greatest among women who were either uncertain whether they had been pregnant or who provided no data on pregnancy during active duty (M=139.9, s.d.=77.9). Among women who provided data, those who had been pregnant on active duty also had more time on active duty ($\bar{x}$=80.6, s.d.=57.9). Women who had not been pregnant on active had the lowest mean number of months on active duty ($\bar{x}$=53.3, s.d.=64.4).

- Changes in the quantity of alcohol drunk before and after enlistment were also predictive of pregnancy on active duty. Among women who reported a pregnancy on active duty, the largest proportion (40.7%) reported that they drank before enlisting but did not drink now. Among women who reported no pregnancy on active duty, the largest proportion (52%) reported that they drank about the same amount as before enlisting.

- Pap test screening within the past year was predictive of pregnancy on active duty. The largest proportion of women who had a Pap test in the past year were those who were pregnant on active duty (81.8%), followed by those who were not pregnant on active duty (74.5%), with women who were uncertain or did not provide data having the lowest rate of Pap test screening in the past year (69.9%).

Pap Test Screening

Table 9 presents the classification results for the discriminant analysis function that included four variables (service, number of months at installation, satisfaction with OB/GYN care at the installation, and amount of stress reported as a result of being a woman in the military) to classify enlisted women regarding the time since their last Pap test. The function was able to correctly classify subjects' responses regarding time since last Pap test 68.2 percent of the time ($F= 28.03$, $p<.001$).

Table 9: Predicted group membership among enlisted women for time since last Pap test (N = 1,170)				
Actual group	**Group N**	**Not in past 2 years N (%)**	**More than 1 year but within past 2 years N (%)**	**Within the past year N (%)**
Not in past 2 years	93	**39 (41.9)**	12 (12.9)	42 (45.2)
More than 1 year but within past 2 years	193	39 (20.2)	**26 (13.5)**	128 (66.3)
Within the past year	882	50 (5.7)	100 (11.3)	**732 (83.0)**
Ungrouped	2	0 (0.0)	0 (0.0)	2 (100.0)

This function correctly classified about a 41.9 percent of women who did not have a Pap test in the past two years. The model did not correctly classify a large proportion of women who had a Pap test more than one year ago but within the past two years. Only 13.5 percent of these respondents were correctly classified. The model was able to classify 83 percent of women who had received a Pap test in the past year.

Post hoc analyses (crosstabs, Spearman correlations, multivariate ANOVAs) were conducted on the four variables in the final discriminant function to determine the direction of effects for each variable and the how proportions of respondents in each category differed. The results of these post hoc analyses revealed the following:

- Branch of the military (Army vs. Navy) was related to time since last Pap test screening. Larger proportions of Navy women (78.8%) than Army women (71%) reported receiving a Pap test within the past year.

- Number of months at present post was another demographic variable related to time since last Pap test. Overall, the more months a respondent was at her present post, the more likely she was to have received a Pap test within the past two years. However, Pap test screening rates did not increase steadily as number of months at a post increased. Women who had been at the post one month or less were least likely to report having had a Pap test in the past year (58.3%) or the past two years (83.3%). Women who had been at a post for two to three months were most likely to report having had a Pap test in the past year (92.7%).

- Higher satisfaction with OB/GYN care at an installation was related to a respondent having had a recent Pap test. Of women who said they were very satisfied with OB/GYN care at their installation, 92.9 percent reported having had a Pap test in the past year. Of women who reported being very dissatisfied with OB/GYN care at their installation, 65.9 percent reported having a Pap test in the past year. Only women who had no opinion about OB/GYN care were lower in the proportion reporting Pap test screening in the last year (49%).

- Lower levels of reported stress as a result of being a woman in the military were related to higher Pap test screening rates within the past year. Only 67 percent of women who reported a great deal of stress as a result of being a woman in the military reported having

a Pap test in the past year compared to 78.7 percent of women who reported no stress as a result of being a woman in the military. Further, about a fifth (20.4%) of women who reported a great deal of stress resulting from being a woman in the military had not received a Pap test in the past two years.

Perceived Helpfulness of Military Health Education

Women were asked to rate their agreement with statements regarding the helpfulness of military alcohol education and their current installation's drug and STD education. Crosstabs and Pearson Chi-Squares were used to examine the differences in perceived helpfulness of these programs among enlisted women. Differences were examined across service, across gender, and across rank.

Table 10 presents the results of the analyses by service for all enlisted women in the Army and Navy. Results show that there were significant differences across services by service for all of the programs. In general, enlisted women in the Army were more likely to find military education programs unhelpful than those in the Navy.

Table 10: Perceived Helpfulness of Military Health Education Programs Among Enlisted Women Respondents (N=1,222)

	Army	Navy
Total N	529	693
Category	N (%)	N (%)
Helpfulness of Military Alcohol Education **		
Strongly Disagree	278 (52.6)	276 (39.8)
Disagree	29 (5.5)	50 (7.2)
Don't Know/No Opinion	91 (17.2)	121 (17.5)
Agree	95 (18.0)	173 (25.0)
Strongly Agree	32 (6.0)	67 (9.7)
Missing	4 (0.8)	6 (0.9)
Helpfulness of Installation Drug Education *		
Strongly Disagree	127 (24.0)	166 (24.0)
Disagree	61 (11.5)	45 (6.5)
Don't Know/No Opinion	181 (34.2)	227 (32.8)
Agree	126 (23.8)	188 (27.1)
Strongly Agree	30 (5.7)	65 (9.4)
Missing	4 (0.8)	2 (0.3)
Helpfulness of Installation STD Education		
Strongly Disagree	118 (22.3)	163 (23.5)
Disagree	83 (15.7)	90 (13.0)
Don't Know/No Opinion	122 (23.1)	149 21.5)
Agree	127 (24.0)	185 (26.7)
Strongly Agree	69 (13.0)	89 (12.8)
Missing	10 (1.9)	17 (2.5)

* $p<.01$ ** $p<.001$

Table 11 presents results comparing perceived helpfulness of education programs by gender and service for all enlisted respondents. Compared to enlisted male personnel in the Army and Navy, enlisted women in both services were significantly less favorable toward military alcohol education. However, only Navy women were significantly less favorable toward the drug and STD education provided at their installation compared to Navy males.

Table 11: Perceived Helpfulness of Military Health Education Programs Among Enlisted Respondents (N=6,025)

	Army		Navy	
	Males	Females	Males	Females
Total N	2,108	529	2,695	693
Category	N (%)	N (%)	N (%)	N (%)
Helpfulness of Military Alcohol Education *				
Strongly Disagree	909 (43.1)	278 (52.6)	873 (32.4)	276 (39.8)
Disagree	179 (8.5)	29 (5.5)	248 (9.2)	50 (7.2)
Don't Know/No Opinion	380 (18.0)	91 (17.2)	455 (16.9)	121 (17.5)
Agree	447 (21.2)	95 (18.0)	786 (29.2)	173 (25.0)
Strongly Agree	182 (8.6)	32 (6.0)	320 (11.9)	67 (9.7)
Missing	11 (0.5)	4 (0.8)	13 (0.5)	6 (0.9)
Helpfulness of Military Drug Education **				
Strongly Disagree	460 (21.8)	127 (24.0)	405 (15.0)	166 (24.0)
Disagree	189 (9.0)	61 (11.5)	249 (9.2)	45 (6.5)
Don't Know/No Opinion	709 (33.6)	181 (34.2)	784 (29.1)	227 (32.8)
Agree	566 (26.9)	126 (23.8)	921 (34.2)	188 (27.1)
Strongly Agree	166 (7.9)	30 (5.7)	324 (12.0)	65 (9.4)
Missing	18 (0.8)	4 (0.8)	12 (0.4)	2 (0.3)
Helpfulness of Military STD Education **				
Strongly Disagree	468 (22.2)	118 (22.3)	516 (19.1)	163 (23.5)
Disagree	334 (15.8)	83 (15.7)	318 (11.8)	90 (13.0)
Don't Know/No Opinion	478 (22.7)	122 (23.1)	535 (19.9)	149 21.5)
Agree	559 (26.5)	127 (24.0)	848 (31.5)	185 (26.7)
Strongly Agree	242 (11.5)	69 (13.0)	426 (15.8)	89 (12.8)
Missing	27 (1.3)	10 (1.9)	52 (1.9)	17 (2.5)

* Difference significant for both services.
** Difference significant for Navy only.

Lastly, we compared the perceived helpfulness of education programs by rank and service for all active duty female respondents (see Table 12). Compared to female officers in the Army and Navy, enlisted women in both services were significantly less favorable toward military alcohol education and STD education provided at their respective installations. However, only enlisted Army women were significantly less favorable than officers toward the drug education provided at their installation.

Table 12: Perceived Helpfulness of Military Health Education Programs Among Female Respondents (N=1,222)				
	Army		Navy	
	Enlisted	Officer	Enlisted	Officer
Total N	529	157	693	171
Category	N (%)	N (%)	N (%)	N (%)
Helpfulness of Military Alcohol Education *				
Strongly Disagree	278 (52.6)	64 (40.8)	276 (39.8)	75 (43.9)
Disagree	29 (5.5)	25 (15.9)	50 (7.2)	11 (6.4)
Don't Know/No Opinion	91 (17.2)	32 (20.4)	121 (17.5)	44 (25.7)
Agree	95 (18.0)	26 (16.6)	173 (25.0)	34 (19.9)
Strongly Agree	32 (6.0)	8 (5.1)	67 (9.7)	4 (2.3)
Missing	4 (0.8)	2 (1.2)	6 (0.9)	3 (1.8)
Helpfulness of Military Drug Education **				
Strongly Disagree	127 (24.0)	53 (33.8)	166 (24.0)	39 (22.8)
Disagree	61 (11.5)	8 (5.1)	45 (6.5)	9 (5.3)
Don't Know/No Opinion	181 (34.2)	44 (28.0)	227 (32.8)	52 (30.4)
Agree	126 (23.8)	44 (28.0)	188 (27.1)	58 (33.9)
Strongly Agree	30 (5.7)	6 (3.8)	65 (9.4)	12 (7.0)
Missing	4 (0.8)	2 (1.3)	2 (0.3)	1 (0.9)
Helpfulness of Military STD Education *				
Strongly Disagree	118 (22.3)	45 (28.7)	163 (23.5)	47 (27.5)
Disagree	83 (15.7)	35 (22.3)	90 (13.0)	27 (15.8)
Don't Know/No Opinion	122 (23.1)	31 (19.7)	149 21.5)	54 (31.6)
Agree	127 (24.0)	35 (22.3)	185 (26.7)	32 (18.7)
Strongly Agree	69 (13.0)	9 (5.7)	89 (12.8)	7 (4.1)
Missing	10 (1.9)	2 (1.3)	17 (2.5)	4 (2.3)

* Difference significant for both services.
** Difference significant for Army only.

Factors Related to Perceived Helpfulness of STD Education

The factors in Figure 1 were used in a discriminant analysis to determine those related to agreement that the installation's STD education helped the respondent make better decisions about her sexual behavior. The resulting discriminant function included four variables: frequency of condom use in the past year, lifetime number of sex partners, stress related to carrying out military duties, and not being promoted when respondent thought she should have been. See Table 13.

Table 13: Discriminant Analysis Findings for Factors Significantly Related to Perceived Helpfulness of STD Education for Enlisted Women in the Army and Navy (N=1,222)		
Factors	**F score**	**Significance**
Condom use frequency in past year	11.22	.000
Lifetime number of sex partners	10.85	.000
Amount of stress experienced as part of carrying out military duties	8.63	.000
Agreement that didn't get promoted when respondent thought she should	7.45	.000

The function was able to correctly classify subjects' responses regarding agreement with the statement "The education I received at this installation about STDs has helped me make better decisions about my sexual behavior" about one third of the time. The results are presented below in Table 14. The model was better at classifying women who strongly agreed that the STD education they received was helpful.

Table 14: Predicted group membership among enlisted women for perceived helpfulness of STD education at installation (N= 1,169)						
Actual group	**Group N**	**Strongly Disagree N (%)**	**Disagree N (%)**	**Don't Know N (%)**	**Agree N (%)**	**Strongly Agree N (%)**
Strongly Disagree	273	**140 (51.3)**	9 (3.3)	43 (15.8)	77 (28.2)	4 (1.5)
Disagree	168	54 (32.1)	**11 (6.5)**	39 (23.2)	55 (32.7)	9 (5.4)
Don't Know	267	70 (26.2)	6 (2.2)	**75 (28.1)**	106 (39.7)	10 (3.7)
Agree	307	94 (30.6)	7 (2.3)	74 (24.1)	**123 (40.1)**	9 (2.9)
Strongly Agree	154	48 (31.2)	4 (2.6)	18 (11.7)	71 (46.1)	**13 (8.4)**

Further analyses (crosstabs and chi-squares) were conducted post hoc on the four variables in the final model of this discriminant analysis. The purpose of these analyses was to determine the direction of effects for each variable and the how proportions of women in each category differed. These post hoc analyses revealed the following:

- Respondents who reported that they never used condoms were more likely to disagree that STD education at the installation was helpful. However, nearly half of every group (strongly agree to strongly disagree) reported never using condoms in the past year. Over third (35%) of those who strongly agreed that the STD education was helpful reported using condoms all or most of the time. frequently ate to relieve stress also were more likely to report having had an STD. Differences in STD education perceptions by condom use frequency were significant (χ^2=71.33; p=.000).

- Women who reported having 10 or more sex partners in their lifetime were more likely to agree that their installation's STD education was helpful. Women with fewer than 10 lifetime sex partners were split in their opinion about their STD education; they were

likely to strongly disagree or agree on its helpfulness. The difference in groups by STD education perception and number of lifetime sex partners was significant (χ^2=78.65; p=.000).

- Stress associated with carrying out military duties was significantly related to perceived helpfulness of the installation's STD education (χ^2=133.90; p=.000). Respondents who rated their stress level low appeared more likely to disagree that the education was helpful. As stress levels rose, women appeared more likely to rate the STD education more favorably or have no opinion about it.

Conclusions

A secondary analysis was conducted of the *1995 Department of Defense Survey of Health Related Behaviors* to inform the development of education materials based on the reproductive health needs of enlisted women in the Army and Navy. Several demographic variables, stress variables, overall health variables, health care variables, health risk behavior variables, and health education variables were examined as to their relationship to the reproductive health of enlisted women. Three primary variables of interest were examined using discriminant analysis: pregnancy on active duty, sexually transmitted disease infection, and time since last Pap test. A discriminant analysis was also conducted to see what variables were related to perceived helpfulness of STD education.

Sample Characteristics

The enlisted women in the Army and Navy who responded to the 1995 DoD health survey in 1995 were largely young with some college education. Age ranges reflected the population of active duty. Nearly half were married, and one-third were single. While the Navy respondents were mostly Caucasian, enlisted female respondents in the Army were Black and Caucasian. On average, these women had been in the Armed Services for 86 months, or just over 7 years.

Women in the two services had similar health histories in terms of the percentages being pregnant on active duty, prior STD infection (lifetime and in the past year), and adherence to Pap test screening recommendations. However, enlisted in the Army were significantly more likely to have been pregnant in their lifetime.

Our assumptions were that enlisted women were different from female officers on a several key variables was supported. Enlisted women were younger and less educated and had less time on active duty. Except for Pap test screening adherence, enlisted women also exhibited greater need for health education interventions. They were more likely than female officers to have been pregnant, ever or on active duty, and to have had an STD. These findings support the need for educational materials targeted to the needs of enlisted female soldiers and sailors.

STD Infection

The findings revealed that only a few factors discriminated among enlisted women concerning

the likelihood of having had an STD infection. As would be expected, fewer sex partners over the course of the respondents' lifetimes was related to lower prevalence of reported lifetime STD infection among all enlisted women. Better overall health self-ratings also predicted lower prevalence of reported lifetime STD infection among respondents. However, the direction of cause-effect is less clear for this finding since better health may be the result of not having had an STD. Alternatively, a respondent's perception of better overall health may make her less likely to obtain health care and testing that would lead to the diagnosis of an STD infection.

Eating to relieve stress and depression was also related to reported STD infection in the respondent's lifetime. The explanation for this finding is unclear. Women who reported that they rarely or ever eat to relieve stress may have specific characteristics not included in this analysis or survey that make them less vulnerable to either STD infection or make them less likely to get an STD diagnosed. However, the specific findings for stress-related eating are somewhat unclear. For example, single women who reported never eating to relieve stress and who reported eating frequently to relieve stress were less likely to report an STD in their lifetime.

Respondents who had no opinion about their post's STD education program were less likely to report having had an STD in their lifetimes. This finding may indicate that respondents who did not have an STD were less likely to be referred to or voluntarily receive STD education. It may also indicate that respondents who received STD education may have been more likely to seek or be referred for STD testing and, therefore, were more likely to have a diagnosed STD.

Pregnancy on Active Duty

Besides STD infection, lifetime number of sex partners and overall health rating also discriminated among enlisted women on whether they had ever been pregnant on active duty. Both married and single women with more sex partners in their lifetimes were more likely to have been pregnant on active duty. Women with one partner also appeared to be likely to have been pregnant on active duty, but they were primarily married women with children whose spouse was their only lifetime sex partner. Married women were significantly more likely to have been pregnant on active duty than single women. For single enlisted women, the proportion who had been pregnant on active duty increased steadily with number of lifetime sex partners.

Women who had rated their overall health lower were more likely to report having been pregnant on active duty. However, women with lower health ratings were also likely to be uncertain if they were pregnant on active duty. Enlisted women reporting pregnancy on active duty were least likely to report "excellent" health. The cause-effect direction of this finding is unclear. Women who have been pregnant on active duty may perceive their overall health to be poorer, or women who perceive their health to be poorer may have other characteristics that could increase their risk of becoming pregnant on active duty.

Greater number of months on active duty also discriminated among women concerning pregnancy on active duty. While women who were uncertain whether they had been pregnant or who did not provide sufficient data to determine pregnancy status had the greatest mean number of months on active duty, women who had been pregnant on active duty still had significantly

more months on active duty than women who had not been pregnant on active duty. These findings suggest that women who make the military a career are unlikely to forego childbearing indefinitely.

Change in alcohol consumption since enlistment was related to pregnancy on active duty. A large proportion (although not the majority) of women who reported that they had been pregnant on active duty also reported that, although they drank before enlisting, they no longer drank alcoholic beverages. Women in the total sample who had not been pregnant on active duty most often reported drinking the same amount as before enlisting. The finding that, in general, enlisted women who have been pregnant on active duty tend to reduce their alcohol consumption after enlistment is explained in part by women ceasing to drink in order to protect the fetus' health. In addition, parents may not have time for the same level of social drinking as those without children. Parents may also decrease their drinking in order to model better behavior or better perform the myriad responsibilities that come with parenthood.

Pap test screening within the past year was predictive of the total sample of enlisted women having been pregnant on active duty. Rates of Pap test screening within the past year were highest for women who reported having been pregnant during the time period when they were on active duty. This finding would be expected for women who have a recent pregnancy, since a pelvic exam is part of pre- and post-natal care. Women who were pregnant on active duty might also be more likely to receive Pap tests at the intervals recommended by military clinicians because extended contact with military OB/GYN clinicians would increase their chances of receiving education and advice regarding their gynecological health care needs.

Pap Test Screening

Satisfaction with OB/GYN care at the post was the most significant factor discriminating among enlisted women concerning Pap test screening. Findings suggest that greater satisfaction with OB/GYN care led to women in this sample to receive a Pap test in the past year and that women who had received a Pap test in the past year were more likely to report satisfaction with OB/GYN care. Compared to women who were dissatisfied with OB/GYN care at the post, women who were satisfied with OB/GYN care at their post were more likely to have received a Pap test in the past year. However, women who had no opinion regarding OB/GYN care at their post had the lowest rate of Pap test screening in the past year, suggesting that these women might not have yet received any OB/GYN care at the post.

More months at current post was generally related to more recent Pap test screening among all enlisted women in the Army and Navy. However, this effect was not consistent as time at current post increased. In general, new arrivals at the post (two months or less) were much less likely to have had a Pap test in the past year. These women appeared to get their screening in about the second or third month at the post. After that time, patterns were less consistent, although women with the most time at the post (3 or more years) were more likely to have had a Pap test at least within the past two years. These patterns suggest that some system is in effect to ensure that new arrivals at a post get a Pap test shortly after their arrival. After that, the less consistent pattern of Pap test screening suggests that women may be more responsible for obtaining their own Pap tests. Greater familiarity with the post and its medical system may help facilitate adherence to at least minimal Pap test screening guidelines.

Stress resulting from being a woman in the military was also related to Pap test screening. Women reporting a great deal of stress from being a woman in the military were least likely to report a Pap test in the past year and most likely to report not having had a Pap test in over two years. Conversely, women reporting no stress as a woman in the military were most likely to have received a Pap test in the past year. Apparently, the experience of stress as a result of being an enlisted woman leads to less frequent Pap test screening. More information is needed on the causes of this type of stress in order to determine why it might affect Pap test screening adherence.

Being in the Navy discriminated among enlisted women concerning how recently they received Pap test screening within the past year among all enlisted women in the Army and Navy. Apparently, enlisted Navy women were more likely than Army women to receive a Pap test in the past year at the time of the survey. Further investigation may be needed to determine what practices within the Navy may have led a significantly greater proportion of enlisted Navy women adhering to the Pap test screening guidelines.

Health Education

Few questions on the survey examined the perceptions of military health education program. The three that focused on the helpfulness of alcohol education in the military and drug and STD education at the installation revealed that many enlisted women do not find these programs to be helpful. Compared with enlisted males and female officers, enlisted women were less likely to agree that the health education available to them was helpful in most cases. In no instance were enlisted women more favorable toward health education they received. The perceptions of STD education were similar among both Army and Navy enlisted women and among male and female enlisted in the Army.

STD education was examined more closely because of its relevance to reproductive health. A discriminant analysis revealed that two health behavior factors and two military-related factors were related to perceived helpfulness of STD education at the woman's installation. Enlisted women who used condoms all or most of the time were more likely to find STD education helpful. Either the education these women received made the desired impact or these women already believed in and agreed with safer sex recommendations. Those who did not find the education helpful were more likely to report never using condoms in the past year, suggesting that the health education they received was not effective. Findings that women with more lifetime sex partners (10 or more) were encouraging. These findings may suggest that women who have multiple partners may perceive STD education to be more relevant or that the education was effectively tailored to their needs.

Stress associated with one's military duties and feeling one should have been promoted in the past year were also factors related to perceived helpfulness of STD education. Those with higher stress levels were more likely to agree that STD education was helpful. These findings may suggest that participation in STD education programs may provide a support to those struggling with military service. Although concerns about promotions were a factor in the discriminant function, post hoc tests found it was not significantly related to STD education perceptions.

Recommendations

Below are some recommendations that stem from the findings of the secondary analysis. These recommendations may be used to guide the development of an intervention designed to increase preventive and self-care behaviors among enlisted women in the Army and Navy.

- Enlisted women were younger, had less education, and were at greater risk of reproductive health problems compared to female officers in the Army and Navy. Therefore, health education efforts must be tailored to the unique needs of enlisted women.

- Higher levels of formal education and exposure to military health education programs both were positively related to several indicators of good health and low risk behavior. This finding confirms the overall value of any type of education in increasing preventive care behaviors among enlisted women.

- While Pap test screening adherence in both services is high, Navy women appear to be slightly more adherent to screening recommendations. Findings from the *1998 Department of Defense Survey of Health Related Behaviors Among Military Personnel* may reveal different trends and should be examined. However, if this trend persists, it may be worth investigating what factors lead to increased adherence to Pap test screening recommendations in the Navy in order to develop an intervention that may help increase adherence among enlisted Army women.

- Analyses revealed that Pap test screening was most likely to occur during or after pregnancy and about three months after an enlisted woman arrives at a new post. These findings suggest that Pap test screening for new arrivals at a post and OB/GYN visits for pregnant soldiers may be key intervention points for educating enlisted women.

- Satisfaction with OB/GYN care at an installation was significantly related to recent Pap test screening. This finding was due to women who had no opinion regarding OB/GYN care because they have never received it. However, this finding suggests the need to further study the sample of women who have "no opinion" regarding OB/GYN care in order to determine their unique characteristics so that can be targeted in an educational intervention.

- Greater stress experienced as a result of being a woman in the military was predictive of less recent Pap test screening. This finding suggests that an investigation of the reasons enlisted women perceive being female in the military as stressful may help to inform any educational intervention directed at increasing use of military gynecological care services.

- One unexpected finding was that frequent use of eating to relieve stress predicted lifetime STD infection. The reasons for this finding warrant further investigation.

- As would be expected, more lifetime sex partners was related to both STD infection and pregnancy on active duty. Enlisted women clearly need education that emphasizes the

importance of limiting the number of sex partners to limit one's risk of STD infection and pregnancy. Women who have a history of multiple partners should be identified through sexual history taking and encouraged to obtain both pregnancy and STD testing. These women also need to receive additional education on the prevention of STD infection and unintended pregnancy.

- Overall health status was also related to STD infection and pregnancy on active duty. The physical demands of military service may predispose women to these health concerns. The importance of several military-related factors may further support the effect of military service on women's health and well-being. However, poor health may be the result of having an STD infection or being pregnant. Further investigation is needed to determine if poor health is a precursor or a determinant of these health issues.

- The fact that enlisted women perceive that they get little help from existing health education programs points to the need for better interventions. However, some programs were perceived as helpful. That perceived helpfulness of the post's STD education program was related to lifetime number of sex partners suggests that women who receive this education find it useful. Existing STD education programs could be examined to inform the development of a new intervention to prevent STD infection among enlisted women. Analyses also suggested that women who have not been diagnosed with an STD are much less likely to receive any type of STD education in the military. Prevention, diagnosis, and treatment of STDs among enlisted women may be greatly increased by developing an intervention that can educate all enlisted women about consequences, risks, prevention, diagnosis, and treatment of STD infections.

APPENDIX N

CD-ROM Technology to Increase Appropriate Self-Care and Preventive Behaviors Among Army and Navy Women

Report of Military Clinician and Chief of Service Needs Assessment Surveys

September 1999

July 1999

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Appendix A: Needs Assessment Survey of Military Clinicians

Appendix B: Needs Assessment Survey of Military Chiefs of Service

Introduction

The study entitled "CD-ROM Technology to Increase Appropriate Self-Care and Preventive Behaviors Among Enlisted Army and Navy Women" was funded as part of the Defense Women's Health Initiative. The overall purpose of the study is to investigate enlisted women's needs for basic gynecological and reproductive health education, as evidenced by a needs assessment process to be conducted with military health care providers and enlisted women themselves. Based on the results of the needs assessment, a culturally sensitive, multimedia CD-ROM and accompanying materials will be tested in an Army and Navy medical clinic in conjunction with annual Pap screenings.

A needs assessment survey study was conducted with clinicians and chiefs of service in the U.S. Army and U.S. Navy to determine the factors that contribute to the reproductive health problems among enlisted women in the Army and Navy. Results were focused on the multiple factors, both demographic and behavioral, that were related to unintentional pregnancy, STD infection, and vaginal infections.

The needs assessment surveys discussed in this report were part of a larger needs assessment study conducted for the project. As part of the needs assessment, two surveys were planned. One was with military clinicians serving the reproductive health care needs of enlisted Army and Navy women. The other survey was conducted with chiefs of service who head health service departments charged with serving the reproductive health needs of enlisted Army and Navy women (depending on each medical facility, these medical departments may include obstetrics/gynecology, family practice, and/or sick call/troop medical clinic/branch medical clinic).

Technical objectives of the needs assessment surveys that relate to the overall needs assessment were:

1) To assess the most pressing reproductive and gynecological self-care education needs of enlisted women on base and in the field.

2) To assess the current health education efforts for enlisted women.

Methods

Instrumentation

The purpose of the needs assessment surveys was unique in that they sought to obtain information that would allow tailoring of information in an educational application focused on a particular aspect of enlisted women's health. Further, the surveys were also designed to complement qualitative data gathering for the same purpose. Therefore, obtaining data from existing datasets or reports was not possible.

As a result, data collection instruments were created to examine the attitudes and practices of military clinicians (see Appendix A) and chiefs of service (see Appendix B) as they pertained to the reproductive health needs of enlisted women. The instruments consisted of equivalent items, but the chief of service survey had fewer questions and was formatted to appear shorter to ease ability to respond, because expert reviewers advised that chiefs often had little time to respond to surveys.

Researchers drafted instruments and submitted them for review by an expert panel of military clinicians. In addition, a retired chief of an Army obstetrics and gynecology department reviewed the chief of service survey form. Comments from these individuals were incorporated into the surveys. The surveys were then pilot tested. Nine military clinicians (a mix of nurse practitioners and physicians) completed the clinicians survey twice, and correlations revealed acceptable stability reliability. Respondents also wrote comments on the survey that facilitated further refinement of the items. Four chiefs of service completed the chiefs of service survey once and forwarded comments to the study team, and these comments were used for revision. Lastly, DoD Health Affairs and the Defense Manpower Data Center reviewed the instruments prior to giving the surveys a Report Control Symbol (RCS), allowing fielding of the survey. Several comments focused on making questions across instruments equivalent in wording and response category.

Sample

We obtained lists of military health care providers (physicians and nurse practioners) in obstetrics and gynecology and family practice in the Army and Navy. We also obtained lists of chiefs of service in the following medical services: obstetrics and gynecology, family practice, branch medical clinic, and troop medical clinic. Random samples of 260 health care providers and 160 chiefs of service were drawn with care to obtain representative samples from the Army and Navy.

The two surveys had different populations, each which were clearly defined:

- The Clinician Survey population was stateside, active-duty military clinicians who provide reproductive health care to enlisted Army and Navy women, including physicians (in obstetrics/gynecology and family practice), and nurse practitioners (in obstetrics/gynecology and family practice).

- The Chiefs of Service Survey was directed toward those who direct the operation of stateside military medical departments or clinics that provide reproductive health care to enlisted Army and Navy women. The departments may include obstetrics and gynecology (OB/GYN), family practice, sick call, troop medical clinic (TMC), or branch medical clinic (BMC).

For the clinician survey, a probability sample was drawn using a stratified sampling technique. The sample was stratified by service (Army and Navy), with equal numbers

of participants coming from each service. The survey respondents were randomly drawn from several mailing lists from the Army and Navy obtained through the specialty leaders to the surgeons general of the Army and Navy: OB/GYN physicians, family practice physicians, OB/GYN nurse practitioners, and family practice nurse practitioners. We used proportional representation by physician and nurse practitioners. Although respondents were drawn from two professional levels and different services, we only used these variables to guarantee proportional representation but not to draw comparisons. The proposed final sample size was 260, with 130 in each cell by service.

For the chiefs of service survey, a probability sample was drawn using a stratified sampling technique. The sample was stratified by service (Army and Navy), with equal numbers of participants coming from each service. The survey respondents were randomly drawn from mailing lists from the Army and Navy chiefs of the following services: OB/GYN, family practice, sick call/TMC/BMC, with approximately one-third coming from each service type. Although respondents were drawn from different services, we only used these variables to guarantee proportional representation but not to draw comparisons.

Data Collection

The surveys were sent to those individuals drawn in the samples with a cover letter and return envelope between January and April 1999. The surveys were distributed and collected via U.S. mail. The surveys were mailed to each participant with a cover letter and postage-paid return envelope. Each respondent who chose to respond enclosed his or her survey in a personal, self-addressed, pre-stamped envelope. Surveys were marked with a unique identification number so that an individual's name and address would be removed from the sample upon receipt of his or her survey. If no response is received, a second survey was mailed. If there was still no response, a third survey was sent. After three rounds of mailings, we received 110 surveys from clinicians (response rate = 42.3%) and 105 surveys from chiefs of service (response rate = 65.6%).

Data Analysis

The data from returned surveys were entered into two SPSS spreadsheets. A third SPSS spreadsheet was created for analysis with the items that were same on the two surveys. The findings below focus on the variables that are similar across surveys with a few additional analyses from the clinicians survey.

Frequencies, crosstabs, means, and standard deviations were calculated to determine relevant percentages reporting and central tendency. As appropriate, chi-squares, t-tests, and analysis of variance were conducted to examine significance. Differences in responses between clinicians and chiefs of service were examined as well as differences between respondents in the different services.

Because of the formatting of the chiefs of service survey, some items available on the clinician survey would not fit and were, therefore, not available. As a result, significance testing on some items was not done because the results would not have been interpretable.

Results

Demographics

Out of 215 respondents, 110 were clinicians (51.2%) and 105 were chiefs of service (48.8%). Tables 1 and 2 present selected demographic, military, and medical service related characteristics of respondents. Table 3 presents selected characteristics of military clinician respondents.

Table 1: Selected Demographic Characteristics by Occupation (N=215)

Characteristic	Clinicians N (%)	Chiefs of Service N (%)
Total N	110	105
Age		
<30	4 (3.7)	6 (5.8)
30-39	46 (42.2)	40 (38.5)
40-49	44 (40.4)	44 (42.3)
50-59	12 (11.0)	13 (12.5)
60+	2 (1.8)	1 (1.0)
Missing	1 (0.9)	1 (1.0)
Sex		
Female	41 (37.6)	38 (36.2)
Male	67 (61.5)	67 (63.8)
Missing	1 (0.9)	0 (0.0)
Race/Ethnicity		
White (non-Hispanic)	94 (86.2)	85 (81.0)
Black (non-Hispanic)	4 (3.7)	11 (10.5)
Hispanic	4 (3.7)	5 (4.8)
Asian/Pacific Islander	6 (5.5)	3 (2.9)
American Indian	6 (5.5)	0 (0.0)
Missing	1 (0.9)	1 (1.0)

The majority of respondents to both surveys were non-Hispanic whites and between the ages of 30 and 50. The mean age for chiefs was 40.9 (s.d.=7.75) and for clinicians was 40.5 (s.d.=8.21). Approximately two-thirds of the respondents were male and one-third female. There were no significant differences in these proportions by clinical role (clinician vs. chief of service) or by branch of service.

Table 2 presents medical and military service characteristics of the respondents. More Navy respondents than Army clinicians and chiefs of service responded to the surveys. Chiefs of service and clinicians differed significantly in terms of medical service where they worked and years since their medical training ended. Army and Navy respondents

also differed significantly by medical service (χ^2=15.56, p=.049) and years since medical training ended (χ^2=21.94, p=.038). Specifically, more Army OB/GYNs and more Naval preventive medicine practitioners responded to the survey, but proportions of those in family practice were similar. Years since medical training ended was greater on average among clinicians compared to chiefs of service.

Table 2: Selected Medical and Military Service Characteristics by Occupation (N=215)

Characteristic	Clinicians N (%)	Chiefs of Service N (%)
Service Branch		
Army	48 (44.0)	44 (41.9)
Navy	61 (56.0)	59 (56.2)
Other	0 (0.0)	2 (1.9)
Medical Service **		
Family Practice	72 (66.1)	33 (31.4)
OB/GYN	28 (25.7)	29 (27.6)
Preventive Medicine	1 (0.9)	1 (1.0)
Active Duty Medical Clinic	1 (0.9)	25 (23.8)
Other	6 (5.5)	16 (15.2)
Missing	1 (0.9)	1 (1.0)
Years Since Medical Training Ended *		
>5	11 (10.1)	9 (8.6)
5-9	33 (30.3)	24 (22.9)
10-14	17 (15.6)	28 (26.7)
15-19	17 (15.6)	0 (0.0)
20-24	19 (17.4)	13 (12.4)
25-29	5 (4.5)	4 (3.8)
30+	6 (5.5)	6 (5.7)
Missing	1 (0.9)	21 (20.0)
Deployment Experience ***		
Never deployed	16 (14.7)	16 (15.2)
Field training	76 (69.7)	71 (67.6)
Combat duty	16 (14.7)	22 (21.0)
Humanitarian mission	32 (29.4)	32 (30.5)
Other	32 (29.4)	30 (28.6)
Training in Health Care Readiness		
Yes	91 (83.5)	83 (79.0)
No	17 (15.6)	18 (17.1)
Missing	0 (0.0)	4 (3.8)

* p<.01 for differences between clinicians and chiefs of service.
** p<.001 for differences between clinicians and chiefs of service.
*** Choices were not mutually exclusive so percentages do not add up to 100.

Deployment and readiness training are also presented in Table 2. Findings indicate most respondents had experience with field training deployments, followed by humanitarian, and "other" deployments. Only around 15 percent of respondents had never been deployed. Although no significant differences were apparent between clinicians and chiefs of service on field training deployment experience, significantly more respondents in the Army (82.4%) had been deployed for field training than Navy respondents (60.0%)

(χ^2=19.076, p=.001). Most respondents reported that they had received training in health care readiness, and there were no significant differences by medical role (clinician vs. chief) or by branch of service.

Among clinician respondents, most were physicians (N=78; 71.6%) followed by nurse practitioners (N=21; 19.3%), and nurses (N=9; 8.3%). One respondent to the clinician survey did not provide this information.

Table 3 presents training that military clinicians respondents reported having in areas related to reproductive health, including STD prevention, sexual risk assessment, contraceptive counseling, and women's health. (These questions were not included on the chiefs of service survey.) Most clinician respondents had received training in all of these areas, many in more than one setting. Medical and nursing school, residency, and continuing medical education were primary settings for receiving training in reproductive health related issues. Few respondents reported having no interest in such training opportunities.

Table 3: Reported Training Experience in Reproductive Health Related Areas Among Military Clinicians (N=110) *

Training Experience and Interest	STD Prevention Education	Sexual Risk Assessment	Contraceptive Counseling	Women's Health
None, not interested	1 (0.9)	1 (0.9)	0 (0.0)	0 (0.0)
None, interested	5 (4.6)	6 (5.5)	2 (1.8)	1 (0.9)
Medical/nursing school	83 (76.1)	73 (67.0)	78 (71.6)	83 (76.1)
Residency	69 (63.3)	67 (61.5)	74 (67.9)	71 (65.1)
Subspecialty certification	16 (14.7)	15 (13.8)	18 (16.5)	21 (19.3)
Continuing medical education	74 (67.9)	64 (58.7)	75 (68.8)	84 (77.1)
Other	8 (7.3)	8 (7.3)	7 (6.4)	7 (6.4)

* Items were not mutually exclusive, so percentages do not add up to 100.

A subset of questions was asked of military clinicians who were physicians (N=78) about board certifications and location of internship and residency training. Three fourths of physician respondents were board certified in family practice (76.9%), and 21.8 percent were certified in OB/GYN. Most had done their medical internship (75.6%) and residency (82.1%) in a military medical facility.

Enlisted Women's Reproductive Health

Both clinicians and chiefs of service were asked about their impressions of the common and serious reproductive health problems that enlisted women face in general and when they are deployed in the field. Table 4 presents the findings.

Perceptions of clinicians and chiefs of service were significantly different in all four of the above areas (p=.000). In terms of reproductive health problems that enlisted women experience in general, clinicians reported that non-STD vaginal infections were the most

common reproductive health problem among enlisted women, but chiefs of service reported that urinary tract infections were. Although both groups reported unintended pregnancy as a serious reproductive health problem for enlisted women, clinicians were more likely to say it was serious compared to chiefs of service.

Table 4: Perceived Prevalence and Severity of Reproductive Health Problems Among Enlisted Women, In General and In the Field, by Military Clinicians (N=110) and Chiefs of Service (N=105)*

Health Problems in General	Most Common		Most Serious	
	Clinicians	Chiefs of Service	Clinicians	Chiefs of Service
STD infection	14 (12.8)	13 (12.4)	19 (17.4)	20 (19.0)
Unintended pregnancy	27 (24.8)	16 (15.2)	50 (46.9)	39 (37.1)
Ectopic pregnancy	0 (0.0)	0 (0.0)	33 (30.3)	40 (38.1)
Vaginal infection (non-STD)	41 (37.6)	1 (1.0)	0 (0.0)	0 (0.0)
Urinary Tract Infection	20 (18.3)	44 (41.9)	0 (0.0)	1 (1.0)
Other	4 (3.7)	4 (3.8)	1 (0.9)	2 (1.9)
More than one response	2 (1.8)	0 (0.0)	5 (4.6)	0 (0.0)
Missing	1 (0.9)	2 (1.9)	1 (0.9)	3 (2.9)
Health Problems in the Field	**Most Common**		**Most Serious**	
	Clinicians	Chiefs of Service	Clinicians	Chiefs of Service
STD infection	3 (2.8)	4 (3.8)	11 (10.1)	14 (13.3)
Unintended pregnancy	4 (3.7)	12 (11.4)	21 (19.3)	19 (18.1)
Ectopic pregnancy	0 (0.0)	0 (0.0)	39 (35.8)	51 (48.6)
Vaginal infection (non-STD)	45 (41.3)	50 (47.6)	3 (2.8)	2 (1.9)
Urinary Tract Infection	20 (18.3)	27 (25.7)	3 (2.8)	9 (8.6)
Other	2 (1.8)	5 (4.8)	1 (0.9)	4 (3.8)
No field experience	33 (30.3)	N/A	30 (27.5)	N/A
More than one response	2 (1.8)	N/A	1 (0.9)	N/A
Missing	0 (0.0)	7 (6.7)	0 (0.0)	6 (5.7)

* Clinicians and chiefs of service differed significantly in their perceptions of all four areas regarding common and serious reproductive health problems among enlisted women.

For women in field conditions, clinicians and chiefs of service also had differing perceptions. Although both groups perceived that non-STD vaginal infections were the most common complaint for women in the field, chiefs were more likely than clinicians to perceive urinary tract infections and unintended pregnancy as the most common problem. Ectopic pregnancy and urinary tract infections were more likely to be viewed by chiefs as the most serious problem for women in the field than enlisted women.

Army and Navy respondents only differed significantly in their perceptions of field-related reproductive health problems, both the most common problems (χ^2=25.32, p=.001) and the most serious (χ^2=25.28, p=.001). While no Army respondents considered unintentional pregnancy as a common problem among women in the field, 14 percent of Navy respondents did. Army respondents were more likely to perceive that non-STD vaginal infections and "other" health problems were common health problems among enlisted women. Navy respondents were also more likely to perceive

unintentional pregnancy as the most serious (26.1%) problem for enlisted women in the field compared to Army respondents (10.9%). Nearly three times as many Army respondents (17.4%) perceived STD infections to be the most serious health problem for women in the field compared to Navy respondents (6.1%).

Military clinicians were also asked their perceptions of the likelihood that enlisted women would experience an STD infection, an unintended pregnancy, or a vaginal infection (see Table 5). Over half the clinicians thought enlisted women were "likely" or "very likely" to experience one of these problems. However, the respondents seemed to think that vaginal infections were the most likely problem enlisted women would face, because 9.2 percent thought that they would "almost definitely" have a vaginal infection but almost no respondents thought enlisted women would "almost definitely" have an STD or unintentional pregnancy. No significant differences by service branch were found.

Table 5: Perceived Likelihood of Enlisted Women's Reproductive Health Problems, According to Military Clinicians (N=110)

Perceived Likelihood	STD Infection	Unintentional Pregnancy	Vaginal Infections
Very unlikely	2 (1.8)	2 (1.8)	2 (1.8)
Unlikely	39 (35.8)	44 (40.4)	9 (8.3)
Likely	47 (43.1)	46 (42.2)	48 (44.0)
Very likely	14 (12.8)	10 (9.2)	38 (34.9)
Almost definitely	1 (0.9)	0 (0.0)	10 (9.2)
Don't know	6 (5.5)	7 (6.4)	2 (1.8)

Sexually Transmitted Disease Infection Factors

Clinicians and chiefs of service were asked their perceptions of why enlisted women engaged in unsafe sexual behavior that placed them at risk for STD infection. Table 6 lists the reasons that were chosen by occupation.

The majority of respondents reported that enlisted women engage in unsafe sex because they did not perceive themselves at risk for unintended consequences such as STD infection. The next most common reason for unsafe sex was negative partner attitudes toward condoms. No significant differences between perceptions of clinicians and chiefs of service nor Army and Navy respondents were found.

Table 6: Perceived Reasons Enlisted Women Engage in Unsafe Sex by Occupation (N=215)		
Reason for Unsafe Sex	Clinicians	Chiefs of Service
No perceived risk	64 (58.7)	61 (58.1)
Lack of knowledge	7 (6.4)	5 (4.8)
Lack of skill	2 (1.8)	1 (1.0)
Negative attitudes	2 (1.8)	11 (10.5)
Negative partner attitudes	16 (14.7)	19 (18.1)
Low self-esteem	6 (5.5)	2 (1.9)
Other	4 (3.7)	4 (3.8)
Total	110	105

Military clinicians were asked their opinion on the condom attitudes of enlisted women in the Army and Navy (see Table 7). Respondents generally reported that women were positive or neutral about condoms. However, one fifth of the clinicians reporting (20.2%) said that they did not know what the condom attitudes of enlisted women were.

Table 7: Perceived Condom Attitudes of Enlisted Women, According to Military Clinicians (N=110)	
Attitudes Toward Condom Use	N (%)
Very positive	6 (5.5)
Positive	41 (37.6)
Neutral	27 (24.8)
Negative	11 (10.1)
Very negative	2 (1.8)
Don't know	22 (20.2)

Unintentional Pregnancy Factors

Clinicians and chiefs of service were also asked why they thought enlisted women had unintentional pregnancies. Table 8 lists the reasons that were chosen by occupation.

Results showed that the largest proportions of clinicians and chiefs of service reporting perceive that enlisted women have unintentional pregnancies because they do not perceive their risk of becoming pregnant. However, more clinicians thought another reason for unintentional pregnancy was lack of skill with contraception, and more chiefs thought negative attitudes toward contraception was an important reason. No difference was found in the perceptions of Army and Navy clinicians.

Table 8: Perceived Reasons Enlisted Women Have Unintentional Pregnancies by Occupation (N=215)		
Reason for Unintentional Pregnancy	Clinicians	Chiefs of Service
No perceived risk	44 (40.4)	54 (51.4)
Lack of knowledge	11 (10.1)	9 (8.6)
Lack of skill	17 (15.6)	4 (3.8)
Negative attitudes	5 (4.6)	21 (20.0)
Negative partner attitudes	1 (0.9)	3 (2.9)
Low self-esteem *	N/A	4 (3.8)
Other	8 (7.3)	8 (7.6)
Total	110	105

* This option was not included on the clinician survey.

Some clinicians who responded to "other" specified the following additional reasons for unintentional pregnancy among enlisted women: acceptance of premarital sex, lack of judgment, birth control inconvenience, denial, avoidance of duty, counselors lack of knowledge, lack of planning ahead, low self-esteem, and cultural and peer pressure.

Enlisted women's attitudes toward contraception were more closely examined through the responses of military clinicians to this question (see Table 9). Both Army and Navy clinicians thought that enlisted women were positive (72.5%) or very positive (13.8%) toward contraception. Only 2 respondents thought that enlisted women had negative attitudes toward contraception.

Table 9: Perceived Contraception Attitudes of Enlisted Women, According to Military Clinicians (N=110)	
Attitudes Toward Contraception	N (%)
Very positive	15 (13.8)
Positive	79 (72.5)
Neutral	11 (10.1)
Negative	2 (1.8)
Very negative	0 (0.0)
Don't know	2 (1.8)

Vaginal Infection Factors

The vaginal infection factors examined were different in the clinician and chiefs of service surveys because the space limitations in the chiefs survey. Table 10 presents the results.

Unlike the reasons for unintentional pregnancy and STD infection, chiefs of service and clinicians did not think lack of perceived risk was a common reason for vaginal infections among enlisted women. Instead, many factors perceived to be important were related to knowledge (lack of knowledge) and skill (unable to stay clean in the field, lack of skill,

improper use of hygiene products). Clinicians also specified other reasons for vaginal infections among enlisted women, including: use of antibiotics, excessive douching, and tight clothing. No differences by service branch were noted in the responses.

Table 10: Perceived Reasons Enlisted Women Develop Vaginal Infections by Occupation (N=215)

Reason for Vaginal Infections	Clinicians	Chiefs of Service
No perceived risk	3 (2.8)	13 (12.4)
Lack of knowledge	16 (14.7)	51 (48.6)
Lack of skill	10 (9.2)	12 (11.4)
Unhealthy lifestyle *	27 (24.8)	N/A
Unable to stay clean in field *	24 (22.0)	N/A
Improper use of hygiene products.	5 (4.6)	16 (15.2)
Other	6 (5.5)	0 (0.0)
Total	110	105

* This option was not included on the chief of service survey.

Patient Education

Table 11 presents the patient education services provided during routine and predeployment care as reported by individual clinicians and chiefs supervising different departments that provide medical care to enlisted women in the Army and Navy. Results show that clinicians were significantly less likely than chiefs to report providing patient education on contraceptives, STD prevention, and hygiene as part of routine care. However, clinicians and chiefs reported similar levels of predeployment patient education in all areas. Crosstabs and chi-squares found that no differences existed between the services (Army and Navy) on the level of patient education provided during routine care and predeployment care.

Table 11: Reproductive Health Education and Counseling Provided to Enlisted Women According to Military Clinicians (N=109) and Chiefs of Service (N=105)

Reproductive Health Education and Counseling	Routine Care		Predeployment Care	
	Clinicians N (%)	Chiefs N (%)	Clinicians N (%)	Chiefs N (%)
Contraceptive Education	53 (48.6)	94 (89.5)*	44 (40.4)	44 (41.9)
STD Prevention Education	39 (35.8)	73 (69.5)*	38 (34.9)	34 (32.4)
Hygiene Education	17 (15.6)	43 (41.0)*	22 (20.2)	21 (20.0)
Total	109	105	109	105

* $p<.01$

The reasons patients may not receive patient education on reproductive health was further examined. Table 12 presents the reasons health education may not be provided during routine and predeployment care according to clinicians and chiefs of service. Lack of time was one of the most commonly reported barriers to providing patient education to

enlisted women, followed by lack of staff. During routine care, clinicians were more likely than chiefs to report that not all patients needed patient education in these reproductive health areas as a reason they did not receive it. Chiefs were more likely to say that lack of time, staff, and skills (in the form of skilled staff) were barriers to providing reproductive health education to enlisted women. Chiefs were also significantly more likely to view STD prevention education as being ineffective.

Only one significant difference was apparent in routine patient education by service branch. For routine birth control education, Navy respondents were significantly more likely to report that not all patients needed routine contraceptive education and counseling (χ^2=7.84; p=.02).

Table 12: Barriers to Providing Reproductive Health Education to Enlisted Women According to Military Clinicians (N=109) and Chiefs of Service (N=105)

Barriers to Reproductive Health Education	Routine Care		Predeployment Care	
	Clinicians N (%)	Chiefs N (%)	Clinicians N (%)	Chiefs N (%)
Contraceptive Education				
Not needed by all patients	28 (25.7)	12 (11.4)**	14 (12.8)	10 (9.5)
No time	27 (24.8)	58 (55.2)**	12 (11.0)	46 (43.8)**
Lack of staff	15 (13.8)	35 (33.3)**	7 (6.4)	20 (19.0)**
Lack of skills	0 (0.0)	29 (27.6)**	1 (0.9)	21 (20.0)**
Lack of comfort	1 (0.9)	0 (0.0)	2 (1.8)	0 (0.0)
No policy making this standard	7 (6.4)	10 (9.5)	2 (2.8)	14 (13.3)**
Not effective	2 (1.8)	6 (5.7)	0 (0.0)	0 (0.0)
Other	11 (10.1)	9 (8.6)**	3 (2.8)	10 (9.5)*
STD Prevention Education				
Not needed by all patients	39 (35.8)	9 (8.6)**	11 (10.1)	5 (4.8)
No time	32 (29.4)	55 (52.4)**	11 (10.1)	41 (39.0)**
Lack of staff	19 (17.4)	31 (29.5)*	7 (6.4)	21 (20.0)**
Lack of skills	0 (0.0)	32 (30.5)**	0 (0.0)	0 (0.0)
Lack of comfort	2 (1.8)	3 (2.9)	2 (0.9)	2 (1.9)
No policy making this standard	8 (7.3)	9 (8.6)	3 (2.8)	15 (14.3)**
Not effective	1 (0.9)	11 (10.5)**	1 (0.9)	3 (2.9)**
Other	5 (4.6)	0 (0.0)	0 (0.0)	0 (0.0)
Hygiene Education				
Not needed by all patients	46 (42.2)	22 (21.0)**	17 (15.6)	10 (9.5)
No time	28 (25.7)	54 (51.4)**	14 (13.0)	39 (37.1)**
Lack of staff	11 (10.1)	28 (26.7)**	8 (7.3)	22 (21.0)*
Lack of skills	7 (6.4)	26 (24.8)**	4 (3.7)	16 (15.2)**
Lack of comfort	2 (1.8)	7 (6.7)	1 (0.9)	3 (2.9)
No policy making this standard	6 (5.5)	11 (10.5)	6 (5.5)	16 (15.2)*
Not effective	2 (1.8)	4 (3.8)	1 (0.9)	3 (2.9)
Other	8 (7.3)	7 (6.7)	4 (3.7)	7 (6.7)
Total	109	105	109	105

* p<.05; ** p<.01

Predeployment patient education showed similar patterns. Both clinicians and chiefs of service reported that time constraints were an important barrier to predeployment reproductive health education. Chiefs were significantly more likely than clinicians to report barriers of time, lack of staff, and lack of standard policy. For contraceptive education and hygiene education, chiefs were also significantly more likely than clinicians to report lack of skilled staff as a barrier. For STD prevention education during predeployment, chiefs were again significantly more likely to report that it was not effective compared to clinicians. Barriers reported by clinicians were much lower in frequency for predeployment patient education, probably because several reported not being responsible for predeployment care.

Only two differences between service branches were found in predeployment patient education in terms of hygiene education. Army respondents were more likely to report that time was a barrier, and the Navy was more likely to report that all patients did not need hygiene education at predeployment. The services did not differ significantly in any barriers to predeployment contraceptive education or STD prevention education.

Military clinicians specified "other" reasons they may not provide specific patient education services to enlisted women. Table 13 summarizes these comments. Fear of harassment and concerns about privacy were mentioned more than once. Another barrier that was reported for each category was "depends on type of appointment," suggesting that clinicians may not provide routine education to women unless they had symptoms or questions indicating they needed patient education on that topic.

Table 13: Other Reasons Clinicians Do Not Provide Specific Patient Education

Contraceptive Education	STD Prevention Education	Hygiene Education
• Responsibility of another clinic • Depends on type of appointment • Lack of privacy • See military dependents only • See enlisted women referred with specific health problems • Fear harassment	• Patient reticence • Fear harassment • Privacy issues • Depends on type of appointment	• Lack knowledge • Give educational material • Give if asked • Depends on type of appointment • Lack of patient interest

Health Education

Apart from the patient education provided during routine and predeployment care, respondents were asked about health education they or their departments provided. Table 14 summarizes the type of media by health education topic.

Table 14: Reported Health Education Provided to Enlisted Women by Clinicians and Chiefs of Service (N=215)				
Health Education Topic	Class	Written Information	Audio/Video	Computer-Assisted Instruction
Alcohol and other Drug Prevention	51 (23.8)	84 (39.3) *	19 (8.9)	3 (1.4)
Contraception	82 (38.3) **	164 (76.6) **	56 (26.2)	14 (6.5)
STD Prevention	80 (37.4)	158 (73.8)	54 (25.2)	8 (3.7)
HIV/AIDS Prevention	72 (33.6)	131 (61.2)	46 (21.5)	7 (3.3)
Vaginitis Prevention	40 (18.7)	120 (56.1)	15 (7.0)	6 (2.8)
Hygiene	35 (16.4)	58 (27.1) **	13 (6.1)	4 (1.9)
Assertiveness Training	22 (10.3)	38 (17.8) **	9 (4.2)	0 (0.0)

* $p<.05$; ** $p<.01$ differences between clinician and chief of service respondents.

Across all educational topics, respondents were most likely to report having provided written information followed by classes, and then audio/video materials. Respondents were least likely to have provided computer-assisted instruction (CAI) in health education.

A few significant differences were noted between chiefs of service and clinicians on health education provided to enlisted women. Chiefs were significantly more likely to report giving written information on alcohol and other drug (AOD) prevention and hygiene education. Clinicians were significantly more likely to report giving classes and written information on contraception and giving written information on assertiveness.

When examining differences by service branch, we found that Navy respondents were more likely to report having used audio/video materials for all of the educational areas except for assertiveness training. They were also more likely than Army respondents to report having given a class on STD prevention.

Respondents were asked to rate the quality and quantity of health education programs provided to enlisted women. Table 15 presents the overall ratings of quality, and Table 16 presents the overall ratings of quantity.

Half of respondents rated both military contraception and STD prevention education as good, but most rated hygiene and assertiveness training education as neither good nor bad. Chiefs of service were significantly more likely to rate military contraceptive education as "very good," but no other significant differences between clinicians and chiefs of service were noted on quality of military health education. Army and Navy respondents did not differ significantly in any of the ratings of quality.

Table 15: Perceived Quality of Health Education Provided to Enlisted Women, According to Clinicians and Chiefs of Service (N=215)					
Topic	Very Good	Good	Neither Good nor Bad	Bad	Very Bad
Contraception *	20 (10.0)	100 (49.8)	61 (30.3)	20 (10.0)	0 (0.0)
STD Prevention	19 (9.4)	103 (50.7)	60 (29.6)	18 (8.9)	3 (1.5)
Hygiene Education	7 (3.5)	49 (24.7)	102 (51.5)	35 (17.7)	5 (2.5)
Assertiveness Training	3 (1.6)	24 (13.0)	116 (62.7)	33 (17.8)	8 (4.3)

* p<.05 difference between clinicians and chiefs of service.

Unlike quality, the perception of quantity of health education was viewed less favorably (see Table 16). Very few respondents reported that enlisted women received too much health education, and only one-fourth to one-third thought the military health education they received was "just right" or adequate. Two-thirds or more perceived that enlisted women received too little health education on contraception, STD prevention, hygiene, and assertiveness. Chiefs of service were significantly more likely to perceive that the amount of hygiene education was inadequate, but they were also less likely to rate hygiene education at all, suggesting that they were unaware of the amount provided.

Table 16: Perceived Amount of Health Education Provided to Enlisted Women, According to Clinicians and Chiefs of Service (N=215)			
Topic	Too Much	Just Right	Too Little
Contraception	3 (1.7)	54 (30.5)	120 (67.8)
STD Prevention	3 (1.7)	56 (31.5)	119 (66.9)
Hygiene **	0 (0.0)	34 (27.2)	91 (72.8)
Assertiveness Training	5 (3.0)	47 (27.8)	115 (68.0)

* p<.05; ** p<.01 difference between clinicians and chiefs

No significant differences were found by branch of service; respondents in the Army and Navy answered similarly.

Conclusions

The current needs assessment study examined the perceptions of military clinicians and chiefs of service in the Army and Navy to determine the reproductive health education needs of enlisted women they serve. The results are exploratory and show that attention to several areas could improve the situation for enlisted women.

Limitations

The present study has limitations concerning instrumentation and response rate, which affect the internal and external validity of the study. Regarding instrumentation, the use

of a newly developed survey may have introduced error into data and the results of the data analysis. Although the questionnaires were developed with the help of an expert panel and were pilot tested, open-ended questions revealed new areas for further exploration.

The study is also limited by the response rate. Although the sample was random, self-selection is a possibility because only about 40 percent of clinicians in the original sample submitted questionnaires after three rounds of data collection. Interpretation of findings must be tempered by knowledge of these limitations.

Sample

Respondents to the surveys were largely white males between the ages 30 and 50. These findings should be compared to demographics of military clinicians and chiefs of service to determine the degree to which the sample reflects the population from which they were drawn. Because the response rate among clinicians was less than 50 percent and most clinicians who responded were physicians, the findings are more applicable to physicians and chiefs than nurses.

Most respondents had completed their medical training 10 or more years ago, and the vast majority had received health care readiness training and had deployment experience. The consistent amount of training in health care readiness confirms the importance of this activity for clinical staff across services and clinical roles. The clinician respondents also reported high levels of training in reproductive health issues relevant to enlisted women, suggesting that they were informed of women's health needs.

More respondents were in the Navy than the Army, but more Army respondents reported field training deployment experience. These findings suggest that clinical staff in the Army may have more opportunity to participate in limited field training than those in the Navy.

Enlisted Women's Reproductive Health

Clinicians and chiefs of service had very different perceptions of the common and serious reproductive health problems experienced by enlisted women, both in general and the field. The difference in perceptions may be attributed to different concerns about the impact of health problems on individual women compared to the impact on the unit. For example, clinicians may be aware of individual women becoming pregnant, but chiefs of service may know unit-wide statistics.

Army and Navy respondents also had different perceptions about reproductive health problems experienced in the field. Navy respondents were more likely than those in the Army to view unintentional pregnancy as a common and serious problem. The perception of pregnancy as common among Navy women may be because shipboard

deployments are longer and pregnancy is more likely to be diagnosed while at sea than when in field conditions. Also, shipboard evacuations of pregnant female sailors may be considered more serious because they may be more disruptive and costly than evacuating soldiers from the field. Sexually transmitted disease infections were viewed as more serious among Army respondents, perhaps because they can lead to acute conditions and emergencies that disrupt field operations.

Clinicians were slightly more likely than unlikely to believe that enlisted women would contract an STD infection or become pregnant, but they were very likely to believe than an enlisted woman would contract a non-STD vaginal infection. These findings suggest that vaginal infections are more common than pregnancy and STDs among enlisted women as they are among women in general. However, the findings also suggest that clinicians view pregnancy and STDs as health issues affecting enlisted women more than they should.

Lack of perceived risk was an important reason for STD infection and unintentional pregnancy among enlisted women, according to all respondents. These findings suggest that increasing the perception of risk would be more effective than increasing knowledge to making a change in these health problems.

Negative partner attitudes were also rated as important in unsafe sex practices. Because enlisted women were perceived to have generally positive or neutral attitudes toward condoms, promoting condom use among their sexual partners may be more useful.

In terms of unintentional pregnancy, lack of skills and negative attitudes were rated as important factors, even though enlisted women in general were perceived as having positive or very positive attitudes toward contraception. These findings suggest that the subgroup of enlisted women with negative attitudes toward contraception and poor skills in use of contraceptive methods should be targeted.

Lack of perceived risk was not viewed as an important factor in contracting vaginal infections for enlisted women. Instead, lack of knowledge and skills—particularly in field conditions—were important determinants. These findings indicate the need for didactic information in proper hygiene practices and may include modeling ways to bathe while living in field conditions.

For each of the questions related to the reasons for STD infection, unintentional pregnancy, and vaginal infection, clinicians provided additional reasons enlisted women were at risk, including cultural and peer factors and the effect of other negative health behaviors. These factors should be further examined to determine their relative prevalence and importance.

Patient Education

Compared to chiefs of service, military clinicians reported much lower levels of routine patient education in contraception, STD prevention, and hygiene being provided to enlisted women. Such education may be a service goal of the command, but clinicians may not always be able to or choose to provide it. For example, clinicians reported that such education is not always provided because it is not always necessary. Chiefs of service were more likely to cite lack of time, staff, and skills as primary barriers to providing patient education during routine care visits.

Patient education was provided less than half the time to enlisted women during predeployment care visits, according to both clinicians and chiefs of service. Several chiefs of service reported that policy did not support patient education on contraception, STD prevention, and hygiene as part of standard predeployment care. Because of the perceived severity of STD infection and unintentional pregnancy on the readiness of the deployed unit, military commands may want to change the policy on predeployment care for enlisted women to include patient education in these areas.

Chiefs of service perceived that a primary reason STD prevention education was not provided (routinely or during predeployment) was because it was not effective. Further examination is needed to determine whether this perception is accurate or whether chiefs are misinformed about the usefulness of STD prevention education.

Army respondents were more likely to feel hygiene education was needed prior to deployment. These findings indicate that the field conditions experienced by enlisted women in the Army placed them at greater risk of hygiene-related health problems than Navy women on shipboard. Therefore, Army women may require more attention to hygiene education than Navy women, depending upon length and type of deployment.

Clinicians suggested other reasons enlisted women do not receive patient education, such as lack of privacy and clinician fears of being charged with harassment. Because these reasons were not listed on the surveys, they need to be examined further to determine their importance.

Health Education

Among several health education topics, respondents were most likely to report providing education on contraception, STD prevention, and HIV/AIDS prevention. Written material was the most common form of education provided, followed by classes and then audio and video materials. Very few respondents reported using computer-assisted instruction to provide health education. These findings support other results that show that respondents do not think that enlisted women receive enough health education on topics related to reproductive health.

Most respondents rated the health education that enlisted women receive in contraception and STD prevention as very good or good, but their ratings of education in hygiene and assertiveness were more moderate. These results, combined with the perceptions of the amount of health education enlisted women receive, indicate that there is a need to examine the contraception and STD prevention education currently being provided and to make it more widely available to enlisted women.

Appendix A
Needs Assessment Survey of Military Clinicians

Health Care Provider Survey: Health Needs of Enlisted Army and Navy Women

The purpose of this survey is to collect information about the health knowledge, attitudes, and practices of military health care providers who serve enlisted Army and Navy women. The information you provide will help to identify the kind of health programs and services enlisted women in the Army and Navy need.

The survey asks several questions about reproductive health care provided to enlisted women. We realize that some of the questions may be sensitive for health care providers who may feel that standard medical care should include some services that they are unable to provide because of constraints. To get good information, it is important that everyone be as honest as possible.

Completing the survey is voluntary, and the answers you give will be safeguarded to the fullest extent possible in accordance with the applicable statutes. Once we receive your survey, we will destroy the information linking your answers with any personal information, so your answers will then be anonymous. Your answers will be combined with the answers of other military health care providers serving enlisted Army and Navy women. No individual responses will be reported, so please answer every question as honestly as you can.

Do not write your name on this survey.

When you are finished, send back the completed survey in the return envelope. No postage is necessary.

Privacy Act Statement

Needs Assessment Survey among Military Clinicians

Authority:	10 U.S.C. §136 and §2358
Principal Purpose(s):	To assess the range of reproductive health education efforts and needs of enlisted women in the armed services.
Routine Use(s):	None. (Data concerning individual participants and their survey answers will not be distributed outside the DoD or its contractors.)
Disclosure:	Voluntary. There is no penalty if you choose not to respond. However, maximum participation is encouraged so that the data will be complete and representative.

Thank you very much for your help.

I. Demographics Mark only one answer to each question unless you are asked to check all that apply.

1. How old are you? _____ Years

2. What is your sex?
   a. Female
   b. Male

3. How do you describe yourself?
   a. White - not Hispanic
   b. Black - not Hispanic
   c. Hispanic or Latino
   d. Asian or Pacific Islander
   e. American Indian or Alaskan Native
   f. Other (specify):

4. In what branch of the service are you?
   a. Army
   b. Navy
   c. Air Force
   d. Other (Specify):

5. Date of entry in the service:

   Month ____ Day ____ Year

6. Date of separation/Estimated time of separation

   Month ____ Day ____ Year

7. Type of health care provider:
   a. Nurse
   b. Nurse Practitioner
   c. Physician's Assistant
   d. Physician
   e. Other (Specify):

8. Type of clinic/service where you practice:
   a. Family Practice
   b. Internal Medicine
   c. Obstetrics/Gynecology
   d. Preventive Medicine
   e. Primary Care
   f. Other (Specify):

9. In what year did you complete your medical training (e.g., medical/nursing school, etc.)?

   19 __ __

10. In what type of health care facility did you receive your medical/nursing training?
    a. Military
    b. Civilian

11. Have you had training in health care as it pertains to readiness?
    a. Yes
    b. No

12. What type of deployment experience do you have? **(Select all that apply.)**
    a. None
    b. Field training exercises
    c. Combat duty
    d. Humanitarian missions
    e. Other (Specify):

13. Prior to this study have you ever had any training in **women's health**? Please do not count participation in this study. **(Select all that apply.)**
    a. None, and I am not interested in any
    b. None, but I would like to have training in this area.
    c. Medical/nursing school
    d. Residency
    e. Subspecialty certification
    f. Continuing medical education
    g. Other (Specify):

14. Prior to this study have you ever had any training in **STD prevention counseling** skills? **(Select all that apply.)**
    a. None, and I am not interested in any
    b. None, but I would like to have training in this area.
    c. Medical/nursing school
    d. Residency
    e. Subspecialty certification
    f. Continuing medical education
    g. Other (Specify):

15. Prior to this study have you ever had any training in **sexual risk assessment** (sexual history taking) skills ? **(Select all that apply.)**
    a. None, and I am not interested in any
    b. None, but I would like to.
    c. Medical/nursing school
    d. Residency
    e. Subspecialty certification
    f. Continuing medical education
    g. Other (Specify):

16. Prior to this study have you ever had any training in **contraception counseling** skills? **(Select all that apply.)**
    a. None, and I am not interested in any
    b. None, but I would like to.
    c. Medical/nursing school
    d. Residency
    e. Subspecialty certification
    f. Continuing medical education
    g. Other (Specify):

If you are not a physician, GO TO QUESTION #20.

For Physicians:

17. In which of the following specialties are you board certified or board eligible? **(Select all that apply.)**
    a. Family Practice
    b. Internal Medicine
    c. Obstetrics/Gynecology
    d. None, I am a General Medical Officer.
    e. I am not a physician

18. In which type of health care facility did you do your internship?
    a. Military
    b. Civilian

19. In which type of health care facility did you do your residency?
    a. Military
    b. Civilian
    c. None, I am a General Medical Officer

II. Knowledge Read each of the following questions, and select the answers you think are correct. It is important that we find out what women do and do not know, so please do not discuss your answers with anyone or ask anyone for help in answering the questions. You are **not** expected to know all the correct answers.

20. When does the ovulation phase of the female reproductive cycle usually occur?
    a. Right before a woman's period
    b. During a woman's period
    c. Right after a woman's period
    d. Mid-cycle

21. What is the best method for cleaning the vagina?
    a. Using vinegar and water douche
    b. Using vaginal deodorants
    c. Letting normal secretions cleanse the vagina
    d. Using Deodorant soap

22. Which is the best way to clean the vagina in the field?
    a. With scented deodorant sprays
    b. With disposable wipes
    c. By drinking plenty of water
    d. There is no way to be clean in the field.

23. How can a woman be sure she has **NO** STDs?
    a. When she has no symptoms of itching or burning
    b. When she has a normal Pap test
    c. When her doctor does not notice any problems
    d. When screening tests show no infection

24. Which of the following is most responsible for contraceptive failure among American women?
    a. User error by either partner
    b. Faulty devices
    c. Lack of directions
    d. Poor selection of method

25. Which of the following is an effective method of birth control?
    a. Condoms
    b. Withdrawal
    c. Calendar method (rhythm)
    d. Douching

26. At what point in the monthly reproductive cycle can a woman most likely become pregnant?
    a. Just after period (menstrual phase)
    b. Just before period (menstrual phase)
    c. Within one day of ovulation
    d. Four days after ovulation

27. Which of the following is **NOT** important for enlisted women preparing for deployment?
    a. Having an OB/GYN exam
    b. Having a pregnancy test
    c. Stopping contraceptive use
    d. Packing plenty of personal hygiene supplies

For the following questions, check whether the statements that finish the phrase are true or false. If you do not know the answer, circle, "Don't know."

28. Being assertive in sexual matters means:			
a. Taking responsibility for protection against disease and pregnancy	True	False	Don't Know
b. Relying on your partner to be responsible for protection against disease and pregnancy	True	False	Don't Know
c. Saying no to a partner when necessary	True	False	Don't Know
d. Talking with a partner about sex	True	False	Don't Know
29. Sexually transmitted diseases (STDs) can lead to all the following health problems:			
a. Premenstrual syndrome (PMS)	True	False	Don't Know
b. Cervical cancer	True	False	Don't Know
c. Infertility/sterility	True	False	Don't Know
d. Pelvic inflammatory disease (PID)	True	False	Don't Know
e. Endometriosis	True	False	Don't Know
30. The risk of an STD infection is increased by:			
a. Having many steady boyfriends with whom one has had sex	True	False	Don't Know
b. Having sex when drunk or high	True	False	Don't Know
c. Having sex when dirty	True	False	Don't Know
d. Having sex without a barrier method, such as condoms	True	False	Don't Know
31. A woman can minimize sexual health problems in the field by:			
a. Using condoms if any sexual contact occurs	True	False	Don't Know
b. Cleaning genitals with scented products	True	False	Don't Know
c. Wearing cotton underwear	True	False	Don't Know
d. Cleaning genitals with water	True	False	Don't Know
32. Enlisted women who become pregnant are more likely to experience:			
a. Mandatory discharge from the military	True	False	Don't Know
b. Fewer career/advancement opportunities	True	False	Don't Know
c. Avoidance of field duty	True	False	Don't Know
d. Avoidance of physical training (PT)	True	False	Don't Know
e. Place on non-deployable status	True	False	Don't Know
f. Harassment from peers/commander	True	False	Don't Know
g. Light duty assignment	True	False	Don't Know

33. Yeast infections are **more common** among women who:
   a. Are pregnant
   b. Have diabetes
   c. Take birth control pills
   d. Do not douche

True	False	Don't Know
True	False	Don't Know

True	False	Don't Know
True	False	Don't Know

III. Attitudes The following questions ask your opinion about specific health problems and behaviors that are important for enlisted Army and Navy women.

34. **Ideally**, which of the following should be included in a **routine care visit** for enlisted women for their reproductive health? **(Select all that apply.)**
    a. Pregnancy screening
    b. Contraceptive education/counseling
    c. STD screening
    d. Sexual history taking
    e. STD prevention education
    f. Education on hygiene practices
    g. None.
    h. Other (Specify):
35. **Realistically**, which of the following are included in a **routine care visit** for enlisted women for their reproductive health? **(Select all that apply.)**
    a. Pregnancy screening
    b. Contraceptive education/counseling
    c. STD screening
    d. Sexual history taking
    e. STD prevention education
    f. Education on hygiene practices
    g. None.
    h. Other (Specify):
36. **Ideally**, which of the following should be included in **predeployment care** for enlisted women for their reproductive health? **(Select all that apply.)**
    a. Pregnancy testing
    b. Contraceptive education/counseling
    c. STD prevention education
    d. Prescription medication review
    e. Education on hygiene practices
    f. None
    h. Other (Specify):
37. **Realistically**, which of the following are included in **predeployment care** for enlisted women for their reproductive health? **(Select all that apply.)**
    a. Pregnancy testing
    b. Contraceptive education/counseling
    c. STD prevention education
    d. Prescription medication review
    e. Education on hygiene practices
    f. None
    h. Other (Specify):

38. **Ideally**, what medical and hygiene supplies would you **recommend be available** during deployment to care for the reproductive health needs of enlisted women? **(Select all that apply.)**
    a. None.
    b. Oral contraceptives
    c. Depo Provera injections
    d. Condoms
    e. Unscented tampons
    f. Unscented panty liners
    g. Unscented wet-wipes
    h. Yeast infection medication
    i. Female urinary director
    j. Other:

39. In your experience, what is the **most common** reproductive health problem among enlisted women?
    a. STD infection
    b. Unintended pregnancy
    c. Ectopic pregnancy
    d. Spontaneous abortion
    e. Vaginal infection (non-STD)
    f. Urinary tract infection
    g. Other:

40. In your experience, what is the **most serious** reproductive health problem among enlisted women?
    a. STD infection
    b. Unintended pregnancy
    c. Spontaneous abortion
    d. Ectopic pregnancy
    e. Yeast infection
    f. Urinary tract infection
    g. Other:

41. In your experience, what is the **most common** reproductive health problem among enlisted women **in the field**?
    a. STD infection
    b. Unintended pregnancy
    c. Spontaneous abortion
    d. Ectopic pregnancy
    e. Vaginal infection (non-STD)
    f. Urinary tract infection
    g. Other:

42. In your experience, what is the **most serious** reproductive health problem among enlisted women **in the field**?
    a. STD infection
    b. Unintended pregnancy
    c. Spontaneous abortion
    d. Ectopic pregnancy
    e. Yeast infection
    f. Urinary tract infection
    g. Other:

43. In your experience, what is the **most common reason for premature separation** from the military among enlisted women?
    a. Exceeding height/weight/body fat standards
    a. Drug/alcohol abuse
    b. Criminal activity
    c. Physical disability/injury
    d. Pregnancy
    e. Other:

44. What is the likelihood that the average enlisted woman will experience an STD within the next year?
    a. Very likely
    b. Likely
    c. Unsure
    d. Unlikely
    e. Very Unlikely

45. What is the likelihood that the average enlisted woman will experience an **unintentional pregnancy** within the

next year?
a. Very likely
b. Likely
c. Unsure
d. Unlikely
e. Very unlikely

46. What is the likelihood that the average enlisted woman will experience a vaginal infection (non-STD) within the next year?
a. Very likely
b. Likely
c. Unsure
d. Unlikely
e. Very unlikely

47. In general, what is the attitude of enlisted women toward **using condoms**?
a. Very positive
b. Positive
c. Neutral
d. Negative
e. Very negative
f. I don't know.

48. In general, what is the attitude of enlisted women toward **using a method of birth control**?
a. Very positive
b. Positive
c. Neutral
d. Negative
e. Very negative
f. I don't know.

49. What is the most common reason that enlisted women have **unintentional pregnancies**?
a. Lack of knowledge about reproduction
b. Lack of skill using birth control
c. Inability to persuade partner to use birth control method
d. Not feeling that she is at risk
e. Lack of awareness of effect on life
f. Negative attitudes toward birth control
g. Religious reasons
h. Partner's negative attitudes toward birth control
i. Strategy to avoid field duty
j. Other:
k. I don't know.

50. What is the most common reason that enlisted women **do not use safer sex practices**?
a. Lack of knowledge about STDs
b. Lack of skill using condoms
c. Inability to persuade partner to use STD prevention method
d. Not feeling that she is at risk
e. Low self-esteem
f. Negative attitudes toward condoms
g. Religious reasons
h. Partner's negative attitudes toward
i. Other:
j. I don't know.

51. What is the most common reason that enlisted women get **non-STD vaginal infections** (yeast, etc.)?
a. Lack of knowledge about hygiene
b. Improper use of hygiene products
c. Unhealthy lifestyle (stress, poor diet)
d. Lack of skill in proper hygiene
e. Inability to practice proper hygiene in the field environment
f. Not feeling that she is at risk
g. Other:
h. I don't know.

IV. Health Services. The next questions are about services you may provide to enlisted women during routine health visits (annual Pap test), during predeployment, and during deployment. We realize that health care providers often have "ideal" standards but that they may not be able to deliver their "ideal" health care due to different constraints. We are interested in what you are able to do.

The following 11 questions are about routine care visits.

52. What proportion of your patients are enlisted women?
    a. All or nearly all (81-100%)
    b. Most (61-80%)
    c. About half (41-60%)
    d. Some (21-40%)
    e. Few (1-20%)
    f. None (0%)

53. What proportion of your enlisted female patients do you provide with **contraceptive counseling and education**?
    a. All or nearly all (81-100%)
    b. Most (61-80%)
    c. About half (41-60%)
    d. Some (21-40%)
    e. Few (1-20%)
    f. None (0%)

54. What proportion of your enlisted female patients do you provide with **STD prevention counseling and education**?
    a. All or nearly all (81-100%)
    b. Most (61-80%)
    c. About half (41-60%)
    d. Some (21-40%)
    e. Few (1-20%)
    f. None (0%)

55. On what proportion of your enlisted female patients do you take a **sexual history (sexual risk assessment)**?
    a. All or nearly all (81-100%)
    b. Most (61-80%)
    c. About half (41-60%)
    d. Some (21-40%)
    e. Few (1-20%)
    f. None (0%)

56. What proportion of your enlisted female patients do you personally ask about their **use of STD prevention methods**?
    a. All or nearly all (81-100%)
    b. Most (61-80%)
    c. About half (41-60%)
    d. Some (21-40%)
    e. Few (1-20%)
    f. None (0%)

57. What proportion of your enlisted female patients do you provide with information on **personal hygiene**?
    a. All or nearly all (81-100%)
    b. Most (61-80%)
    c. About half (41-60%)
    d. Some (21-40%)
    e. Few (1-20%)
    f. None (0%)

58. What prevents you from providing routine **contraceptive counseling and education** to your enlisted female patients? **(Select all that apply.)**
    a. I provide this service to all patients.
    b. Not needed by all patients
    c. No time
    d. Lack of staff
    e. Lack of skills
    f. Lack of comfort
    g. No policy making this standard care
    h. Not effective
    i. Other:

59. What prevents you from taking a **sexual history** (sexual risk assessment) from your enlisted female patients? **(Select all that apply.)**
    a. I provide this service to all patients.
    b. Not needed by all patients
    c. No time
    d. Lack of staff
    e. Lack of skills
    f. Lack of comfort
    g. No policy making this standard care.
    h. Not effective
    i. Other:

60. What prevents you from providing **STD prevention counseling and education** to your enlisted female patients? **(Select all that apply.)**
    a. I provide this service to all patients.
    b. Not needed by all patients
    c. No time
    d. Lack of staff
    e. Lack of skills
    f. Lack of comfort
    g. No policy making this standard care.
    h. Not effective
    i. Other:

61. What prevents you from asking enlisted female patients about their use of **STD prevention methods**? **(Select all that apply.)**
    a. I provide this service to all patients.
    b. Not needed by all patients
    c. No time
    d. Lack of staff
    e. Lack of skills
    f. Lack of comfort
    g. No policy making this standard care
    h. Not effective
    i. Other:

62. What prevents you from providing **personal hygiene information** to enlisted female patients? **(Select all that apply.)**
    a. I provide this service to all patients.
    b. Not needed by all patients
    c. No time
    d. Lack of staff
    e. Lack of skills
    f. No policy making this standard care
    g. Not effective
    h. Other:

The following 5 questions refer to care given to enlisted women during predeployment.

63. What proportion of your enlisted female patients do you see for a **predeployment** medical appointment?
    a. All or nearly all (81-100%)
    b. Most (61-80%)
    c. About half (41-60%)
    d. Some (21-40%)
    e. Few (1-20%)
    f. None (0%)

64. What do you do to prepare enlisted female patients for their reproductive health needs **during predeployment planning? (Select all that apply.)**
    a. Pregnancy testing
    b. Contraceptive education/counseling
    c. STD prevention education
    d. Prescription medication review
    e. Education on hygiene practices
    f. None
    g. Other:
    h. I am not responsible for predeployment screening.

65. What prevents you from providing **predeployment contraceptive education and counseling** to enlisted female patients? (Select all that apply.)
    a. I provide this service to all patients.
    b. Not needed by all patients
    c. No time
    d. Lack of staff
    e. Lack of skills
    f. Lack of comfort
    g. No policy making this standard care.
    h. Not effective
    i. Other:

66. What prevents you from providing **personal hygiene information** to enlisted female patients during predeployment planning? **(Select all that apply.)**
    a. I provide this service to all patients.
    b. Not needed by all enlisted women
    c. No time
    d. Lack of staff
    e. Lack of skills
    f. No policy making this standard care.
    g. Not effective
    h. Other:

67. What prevents you from providing **STD prevention counseling** and education to enlisted female patients during **predeployment** planning? **(Select all that apply.)**
    a. I provide this service to all patients.
    b. Not needed by all enlisted women
    c. No time
    d. Lack of staff
    e. Lack of skills
    f. No policy making this standard care.
    g. Not effective
    h. Other:

The next 4 questions ask about care you have given to enlisted women during deployment.

68. What do you do to educate **individual** enlisted female patients about their reproductive health needs **during deployment**? (Select all that apply.)
    a. Contraceptive education/counseling
    b. STD prevention education
    c. Education on hygiene practices
    d. None
    e. Other:
    f. I have not participated in a deployment

69. What do you do to educate enlisted female patients **as a group** about their reproductive health needs **during deployment? (Select all that apply.)**
    a. Contraceptive education/counseling
    b. STD prevention education
    c. Education on hygiene practices
    d. None
    e. Other:
    f. I have not participated in a deployment

70. What do you do when treating enlisted female patients with their reproductive health needs **during deployment**? **(Select all that apply.)**
   a. Sexual history taking
   b. Pregnancy testing
   c. Contraceptive education/counseling
   d. STD prevention education
   e. Education on hygiene practices
   f. Treatment of acute infection
   g. Dispense oral contraceptive
   h. None
   i. Other:
   j. I have not participated in a deployment

71. What medical and hygiene supplies are **routinely available** to you during deployment to care for the reproductive health needs of enlisted women? **(Select all that apply.)**
   a. I am not responsible for packing medical supplies.
   b. Oral contraceptives
   c. Depo Provera injections
   d. Condoms
   e. Unscented tampons
   f. Unscented panty liners
   g. Unscented wet-wipes
   h. Yeast infection medication
   i. Female urinary director
   j. Other:

Put an X in the box that most closely shows you opinion about the medical care enlisted women receive in the military.

72.	Very Positive	☐☐☐☐☐☐☐	Very Negative
73.	Low Quality	☐☐☐☐☐☐☐	High Quality
74.	Easy to get appointments	☐☐☐☐☐☐☐	Hard to get appointments
75.	Overdue test results	☐☐☐☐☐☐☐	Timely test results
76.	Confidential	☐☐☐☐☐☐☐	Not confidential
77.	Competent staff	☐☐☐☐☐☐☐	Incompetent staff
78.	Inadequate time with clinician	☐☐☐☐☐☐☐	Adequate time with clinician
79.	Hard to talk to clinician	☐☐☐☐☐☐☐	Easy to talk to clinician

V. Health Education. We are interested in how you feel about the health education that enlisted women receive in the military in general. Please answer the following questions.

80. On which reproductive health topics have you ever given a class (or presentation) to enlisted female patients?
    a. Alcohol and other drug use prevention
    b. Birth control/family planning
    c. STD prevention
    d. AIDS or HIV infection prevention
    e. Prevention of vaginal infections
    f. Personal hygiene
    g. Empowerment/assertiveness training
    h. I have never presented information on any of these topics.

81. Which **written** health education materials have you given to enlisted female patients about their health?
    a. Alcohol and other drug use prevention
    b. Birth control/family planning
    c. STD prevention
    d. AIDS or HIV infection prevention
    e. Prevention of vaginal infections
    f. Empowerment/assertiveness training
    h. Personal hygiene
    g. I have never given written information on any of these topics.

82. Which **video/audio** health education materials have you used to teach enlisted female patients about their health?
    a. Alcohol and other drug use prevention
    b. Birth control/family planning
    c. STD prevention
    d. AIDS or HIV infection prevention
    e. Prevention of vaginal infections
    f. Personal hygiene
    g. Empowerment/assertiveness training
    h. I have never given video or audio information on any of these topics.

83. Which **computer-based** health education materials have you used to teach enlisted female patients about their health?
    a. Alcohol and other drug use prevention
    b. Birth control/family planning
    c. STD prevention
    d. AIDS or HIV infection prevention
    e. Prevention of vaginal infections
    f. Personal hygiene
    g. Empowerment/assertiveness training
    h. I have never given computer-based information on any of these topics.

84. Choose the statement that bests describes the **quality of contraceptive education** enlisted women receive:
    a. Very good
    b. Above average
    c. Average
    d. Below average
    e. Very bad

85. Choose the statement that bests describes the **amount of contraceptive education** enlisted women receive:
    a. Too much
    b. A lot
    c. Average amount
    d. Some
    e. Very little

86. Choose the statement that bests describes the **quality of STD prevention education** enlisted women receive:
    a. Very good
    b. Above average
    c. Average

d. Below average
e. Very bad

87. Choose the statement that bests describes the **amount of STD prevention** education enlisted women receive:
a. Too much
b. A lot
c. Average amount
d. Some
e. Very little

88. Choose the statement that bests describes the **quality of personal hygiene education** enlisted women receive:
a. Very good
b. Above average
c. Average
d. Below average
e. Very bad

89. Choose the statement that bests describes the **amount of personal hygiene education** enlisted women receive:
a. Too much
b. A lot
c. Average amount
d. Some
e. Very little

Appendix B
Needs Assessment Survey of Military Chiefs of Service

Needs Assessment Survey: Health Education of Enlisted Army and Navy Women

This survey is about health education and health services as they pertain to the reproductive health needs of enlisted women in the U.S. Army and Navy. The information you provide will help identify the kind of health programs and services enlisted women in the Army and Navy need.

Do not write your name or any other identifying information on this survey.

Privacy Act Statement

Needs Assessment Survey among Military Clinicians

Authority:	10 U.S.C. §136 and §2358
Principal Purpose(s):	To assess the range of reproductive health education efforts and needs of enlisted women in the armed services.
Routine Use(s):	None. (Data concerning individual participants and their survey answers will not be distributed outside the DoD or its contractors.)
Disclosure:	Voluntary. There is no penalty if you choose not to respond. However, maximum participation is encouraged so that the data will be complete and representative.

I. Demographics

1. Age: _____ Years

2. Sex:
   - ☐ Female
   - ☐ Male

3. Race/Ethnicity:
   - ☐ White - not Hispanic
   - ☐ Black - not Hispanic
   - ☐ Hispanic or Latino
   - ☐ Asian or Pacific Islander
   - ☐ American Indian/Alaskan Native
   - ☐ Other (specify): _____

4. Service Branch:
   - ☐ Army
   - ☐ Navy
   - ☐ Other (Specify): _____

5. Your title:
   - ☐ Chairperson
   - ☐ Troop Clinic Commander
   - ☐ Senior Medical Officer
   - ☐ Other (Specify): _____

6. Department:
   - ☐ Family Practice
   - ☐ Internal Medicine
   - ☐ Obstetrics/Gynecology
   - ☐ Preventive Medicine
   - ☐ Active Duty Medical Clinic/Sick Call
   - ☐ Other (Specify): _____

7. Where is your service/department located?
   - ☐ In a teaching medical center
   - ☐ In a community hospital
   - ☐ In a freestanding clinic
   - ☐ Other (Specify): _____

8. Year medical training completed:

   Medical School: 19 __ __

   Residency: 19 __ __

9. Have you had training in health care as it pertains to readiness?
   - ☐ Yes
   - ☐ No

10. What type of deployment experience do you have? **(Check all that apply.)**
    - ☐ None
    - ☐ Field training exercises
    - ☐ Combat duty
    - ☐ Humanitarian missions
    - ☐ Other (Specify): _____

11. On average, how many outpatient visits does your department have **per month**?

    _____

12. What proportion of your patients are enlisted women?
    - ☐ All or nearly all (81-100%)
    - ☐ Most (61-80%)
    - ☐ About half (41-60%)
    - ☐ Some (21-40%)
    - ☐ Few (1-20%)
    - ☐ None (0%)

13. What is the primary mission of your base/post? **(Check all that apply.)**
    - ☐ Deployment
    - ☐ Basic training
    - ☐ Education
    - ☐ Other (Specify): _____

14. What other departments provide routine gynecologic care to enlisted Army/Navy women?
    - ☐ Family Practice
    - ☐ Internal Medicine
    - ☐ Obstetrics/Gynecology
    - ☐ Preventive Medicine
    - ☐ Active Duty Medical Clinic
    - ☐ Other (Specify): _____

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II. Reproductive Health of Enlisted Women—Please answer the following questions on the basis of your clinical experience with enlisted female patients in the Army or Navy.

15. **Check one only in each row:** In your experience, what **reproductive health problem** among enlisted women is. . .	STD infection	Unintended pregnancy	Spontaneous Abortion	Ectopic pregnancy	Vaginal Infection (non-STD)	Urinary tract infection	Other (Specify)
most common overall?							
most serious overall?							
most common in the field environment?							
most serious in the field environment?							

16. **Check one only in each row:** In your experience, what is the **most common reason** that enlisted women. . .	Lack of knowledge	Lack of skills	Negative attitudes about preventive behaviors	Negative Partner's attitudes	Lack of perceived risk	Low self-confidence	Other (Specify)
do not practice safer sex?							
have unintentional pregnancies?							
get non-STD vaginal infections (yeast, etc.)?							

III. Health Services—The following questions ask about the types of health services your department offers to all enlisted female patients during **routine** health care appointments (annual Pap tests) and during **predeployment planning in the last 6 months.**

17. What does your department do routinely for enlisted female patients <u>during annual exams</u>? **(Check all that apply.)**

- ❑ Contraceptive education and counseling
- ❑ Sexual history taking
- ❑ STD prevention education
- ❑ Education on hygiene practices
- ❑ HIV testing
- ❑ None of the above
- ❑ Unknown

18. **Check all that apply in each row:** Which of the following are obstacles to providing routine. . .	Lack of time	Lack of staff	Lack of skilled staff	Not all patients need	Lack of comfort	Not effective	No policy making this standard care	Other (Specify)
contraceptive education/counseling?								
sexual history taking?								
STD prevention education?								
personal hygiene information?								

19. What proportion of your enlisted female patients come to your department for a **predeployment medical appointment?**

- ❑ All or nearly all
- ❑ Most
- ❑ About half
- ❑ Some
- ❑ Few
- ❑ None
- ❑ Unknown
- ❑ Not responsible for predeployment care (skip to question 23).

20. **During predeployment planning**, what does your department do routinely to help prepare enlisted female patients for their deployment reproductive health needs? **(Check all that apply.)**

- ❑ Pregnancy testing
- ❑ Contraceptive education and counseling
- ❑ STD prevention education
- ❑ Prescription medication review
- ❑ Recommend supplies for period
- ❑ Education on hygiene practices
- ❑ No special preparation for deployment
- ❑ Unknown

21. **Check all that apply in each row:** At predeployment, which of the following are obstacles to providing. . .	Lack of time	Lack of staff	Lack of skilled staff	Not needed by all patients	Lack of comfort	Not effective	No policy making this standard care	Other (Specify)
contraceptive education/counseling?								
sexual history taking?								
STD prevention education?								
personal hygiene education?								

22. **During predeployment planning**, what medical and hygiene supplies does your department **recommend** be supplied to units for the reproductive health needs of enlisted women? **(Check all that apply, and add others not listed.)**

- ❑ Not responsible for medical supplies.
- ❑ Oral contraceptives
- ❑ Unscented tampons
- ❑ Unscented panty liners
- ❑ Unscented wet-wipes
- ❑ Yeast infection medication
- ❑ Female urinary director
- ❑ Other: _____

_____

- ❑ Unknown

IV. Health Education—We are interested in how you feel about the health care and the health education that enlisted women receive in the military.

23. **In each row, check all media that apply**: On which of the following health topics has your department provided education to enlisted women in the past year?

	Course or presentation	Written materials	Video or audiotaped instruction	Computer-based instruction	None	Unknown
Alcohol and other drug use prevention						
Birth control/family planning						
STD prevention education						
AIDS or HIV infection prevention						
Prevention of vaginal infections						
Personal hygiene						
Empowerment/assertiveness skills						

24. **In each row, check one box in each area:** Rate the health education that enlisted women receive in the military.

	Qualtiy					Amount		
	Very Bad	Bad	Neither Good nor Bad	Goo d	Very Good	Too Little	Right Amount	Too Much
Contraceptive education								
STD prevention education								
Personal hygiene education								
Empowerment/assertiveness skill training								
Other:								

25. Other comments about enlisted women's reproductive health? (Please describe briefly below.)

APPENDIX O

CD-ROM Technology to Increase Appropriate Self-Care and Preventive Behaviors Among Army and Navy Women

Focus Group Reports:

Fort Bragg — June 24-25, 1998
Fort Lewis — September 15-16, 1998
Naval Station San Diego — October 10, 1998
Naval Medical Center Norfolk — June 2-3, 1999

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CD-ROM Technology to Increase Appropriate Self-Care and Preventive Behaviors Among Army and Navy Women

Focus Group Report for Fort Bragg

June 24-25, 1998

Background

The Department of Defense (DoD) contracted with Macro International Inc. to conduct a study of enlisted women's needs for basic gynecological and reproductive health education, from the perspective of military health care providers and enlisted women themselves. Based on the results of this needs assessment, a culturally sensitive, multimedia CD-ROM and accompanying materials will be developed. This intervention will then be tested in Army and Navy medical clinics in conjunction with annual Pap test screening. As part of the needs assessment, a series of focus groups are being conducted to ensure that attitudes and beliefs related to reproductive health behavior of enlisted women are examined. A total of 8 groups with enlisted women, 4 groups with physicians, and 4 groups with nurse practitioners, physician assistants, and medical corps personnel will be conducted at two Army and two Navy installations. At each installation, one focus group will be conducted with married, enlisted women; one with single, enlisted women, one with military physicians, and one with other military providers of health care for enlisted women. This report discusses the findings of four focus groups conducted with enlisted Army women and their health care providers at Fort Bragg, N.C.

The purposes of all focus groups conducted for this project are:

1) To assess the most pressing reproductive and gynecological self-care education needs of enlisted women on base and in the field; and

2) To assess the range of current health education efforts for enlisted women.

Strengths and Limitations of Qualitative Research

Focus groups were chosen as one research method to be used in determining the reproductive education needs of enlisted Army and Navy women. Focus group research is qualitative in nature, so the results are not quantifiable. Qualitative research provides information for clarifying theories, creating hypotheses, and giving direction for future research. The results presented in this report are an objective observation of attitudes, preferences, and comments of those participating in the focus groups. Although focus group participants were drawn from the target populations of enlisted women and their health care providers, they were not chosen on

any statistical basis. Therefore, no statistical inferences should be drawn from the results of the focus groups. Findings also cannot be generalized to the target population.

Methodology

Macro International conducted four focus groups to address the needs of this project. One focus group of Army physician's assistants (P.A.s) was conducted at the Roscoe Robinson Clinic at Fort Bragg, North Carolina on June 24, 1998. Another focus group of Army physicians was conducted at the Womack Army Medical Center (WAMC) at Fort Bragg, North Carolina on June 25, 1998. Two more focus groups, one consisting of married enlisted women and one of single enlisted women, were conducted in a meeting facility near the barracks of the 82nd Airborne Division, at Fort Bragg, North Carolina, on June 25, 1998. All focus groups were held during duty hours and participants therefore received no monetary compensation for their voluntary participation in the focus groups.

Army physicians with experience treating enlisted women were recruited from WAMC. Physician's assistants (P.A.s) who had experience treating enlisted women were recruited from the Roscoe Robinson Clinic. The participants in the clinicians' focus groups were primarily white and male. One woman participated in the focus group of P.A.s and two women participated in the physicians' focus group. Most participants in the P.A. focus group had over 10 years of service in the Army, with years of service ranging from 8 to 27. Most, if not all, of the P.A.s had been deployed overseas. Participants in the physicians' focus group had, on average, fewer years of service than the P.A.s. Years of service ranged from 3 to 12. Half of the physicians had been deployed.

Both groups of enlisted women were recruited from the 82nd Airborne Division. The enlisted women's focus groups included a good mix of women of various ethnicities and from a range of geographical regions in the U.S. At least two participants in each enlisted women's focus groups were African American, at least two were Caucasian, and at least two were Hispanic. Most enlisted women participating in the focus groups had less than 6 years of service in the Army. On average, the married women had more years of service than the single women. Time in the Army (post basic training) ranged from one month to 14 years among enlisted women. Few of the enlisted women had been deployed overseas. However, all participants in the enlisted women's focus groups had field experience, since their division was deployed to the field every three months.

All focus group participants were recruited by LtC. Alan Janusciewitcz, M.D., who serves at WAMC. A screener was developed at Macro International Inc. to be used as a guide by Dr. Janusciewitcz for selecting focus group participants.

A moderator's guide was developed at Macro International Inc. to answer the general questions listed in the Background section of this report and to obtain other feedback that may be useful in developing an educational CD-ROM to help enlisted women care for their reproductive health.

The moderator's guide was approved by the internal review board at Macro, the U.S. Army Medical Research Acquisition Activity at Fort Detrick, MD., and the head of Clinical Investigations at WAMC. All focus groups were led by a trained moderator from Macro International Inc. A project manager, who is an experienced focus group moderator from Macro International Inc., also observed the focus groups and took notes. Both focus group facilitators from Macro were female. Dr. Janusciewitcz also observed the two clinician focus groups at Fort Bragg. All focus groups were audio taped.

General Findings

Below are the general findings of the four focus groups conducted at Fort Bragg for the project, "CD-ROM Technology to Increase Appropriate Self-Care and Preventive Behaviors Among Army and Navy Women." The findings are organized under the general categories of topics to be covered in the moderators' guides (see Appendices C and D).

General Health

Fitness is highly valued in the military. According to focus group participants, expectations for fitness go beyond the high requirements for enlistment and retention in the armed services. Both groups of enlisted women began their discussion by emphasizing the need for enlisted women to remain healthy in order to fulfill their mission. These women noted that enlisted women who harm their health through dieting, poor eating habits, or other means, will not perform adequately. For this reason, there is a lot of emphasis on preventive health in the military. Physicians recognized that enlisted women are very concerned about their health and will use health care services if they are available and convenient. Health care providers also pointed out that the high value the military places on health and fitness creates a certain stigma attached to illness among soldiers. This stigma may lead some soldiers to avoid going to the clinic for needed treatment, or at least keep them from doing so in a timely manner. Comments from enlisted women suggest that many commanders attach a stigma to sick call which may cause enlisted women to hesitate in getting treatment. Some women reported that whenever they went to the clinic, they were asked by their whole chain of command "What did you get a profile for?" Enlisted women also noted that they simply did not have as much time to care for their health in the military compared to when they were civilians.

Pregnancy

Comments from focus group participants provided insight into the reasons that many enlisted women become pregnant. Several participants in all focus groups felt that it was not uncommon for an enlisted women to get pregnant in order to obtain some advantage in the military. Participants described a number of incentives for getting pregnant in the military including escaping deployment, getting out of the military, getting out of the barracks, getting the financial benefits the military offers dependent children, getting "promoted" to a desk job, or not having to

meet weight requirements. Most participants agreed that women either tried to get pregnant or did not see pregnancy as a problem to be prevented because of the benefits and support the military provides for pregnant women and single parents. Physician's assistants (P.A.s) estimated that as many as one in three single, female soldiers at Fort Bragg gets pregnant. Enlisted women also indicated that they thought the pregnancy rate among soldiers was fairly high. They stated that most enlisted women feel free to get pregnant whenever they want to.

Comments from focus group participants indicated that the high rate of unintended pregnancy among enlisted women, and the incentives for getting pregnant in the military, may lead to the perception among Army personnel that enlisted women who get pregnant for any reason are trying to "milk" the system. The stigma attached to pregnancy in the military is perceived to be compounded by male NCOs who do not know how to react to pregnant women, and P.A.s who may not know how to care for pregnant soldiers. An example was given of an enlisted pregnant woman who was told to go on an 8 mile run when she was pregnant and subsequently miscarried.

Participants in several groups also mentioned enlisted women they had known or treated who did not believe they could get pregnant for various reasons (e.g. "can't get pregnant the first time"), and then got pregnant. Enlisted women told stories of women who had refused to use contraception because they did not plan to become sexually active in the military; then met someone and became pregnant. Some participants (primarily enlisted women) believed that all single, enlisted women should be on some kind of contraception, regardless of whether they were sexually active. Participants in all groups agreed that many enlisted women would benefit from a basic briefing on how pregnancy occurs and how to obtain, choose, and use contraception.

Health care providers added that many enlisted women needed to know the real costs associated with a mistimed pregnancy during military service. Too many enlisted women see only the benefits of pregnancy. Married enlisted women agreed that single women need to be more concerned about the struggle of raising children. They also mentioned that it is tough for a soldier to get back into shape and stay in good enough shape to meet the fitness requirements after a pregnancy.

Contraception

According to the clinicians, enlisted women most often use 1) oral contraceptive pills (OCPs), and 2) Depo Provera. Women who take OCPs may switch to Depo Provera before going into the field. OCPs become one more item to carry into the field, and women with hectic schedules may forget to take them. However, some women dislike the side effects of Depo Provera, such as weight gain and mood swings. Less frequently, enlisted women may also use 3) condoms, 4) IUDs (married women -- most singles do not qualify), and 5) diaphragms to prevent pregnancy. Condoms are still seen as a male contraceptive, and women feel embarrassed picking up some in the clinic, with members of their unit observing them. NorPlant is rarely used. P.A.s reported removing NorPlant more often than they insert it. According to the P.A.s., abstinence is less common than NorPlant.

Enlisted women usually choose their method of birth control based on its convenience, their experience with it, its effectiveness, and what others used and liked. Many enlisted women, however, may be unaware of the types of contraception available and how to obtain them. Although enlisted women are supposed to receive a briefing on available options for contraception, this may not happen often. One enlisted woman reported that, in 6 years of service, she had only received one briefing in her fifth year. Women added that they were more likely to get contraceptive information before going overseas.

Most types of contraception can be prescribed at the annual exam. However, there is often a relatively long wait to get an annual exam. According to some enlisted women, health care providers may also delay in prescribing contraceptives to some women who request them for various medical reasons. Enlisted women mentioned the case of a soldier who went off birth control to get into the Army, then, once enlisted, went to the clinic to obtain Depo Provera injections. The clinician made her wait until her menses started again before giving the injections. During this waiting period the woman became pregnant and miscarried.

Genitourinary infections/Hygiene

Participants in the focus groups of enlisted women appeared most concerned about issues related to hygiene and the prevention and treatment of common genitourinary infections. Both enlisted women and their health care providers reported that vaginal infections and urinary tract infections (UTIs) are common among enlisted women. The majority of these infections were attributed to poor hygiene practices, particularly in the field.

Hygiene issues for enlisted women

Both the health care providers and the enlisted women acknowledged that conditions in the barracks and the field make proper female hygiene practices difficult if not impossible. Many of the enlisted women live in the older barracks, which have a common latrine for all soldiers. The shortage of latrines in the barracks and the need to share them with males may lead to women not having enough time to clean up after physical training. Sweating and wearing the same clothes for several days increases the risk of vaginal infections. Field conditions exacerbate this problem, since opportunities to wash and change clothes are even more limited. Many women get UTIs in the field because they do not relieve themselves regularly, and drink little water to avoid the need to urinate. In the field, the nearest latrine is often a good distance away, and field activities may not leave women enough time to go there or at least find a private spot where they can relieve themselves and clean up. For this reason, women in the field reported "holding it in" and limiting their liquid intake so that they would not need to urinate often.

Living and working with a majority of male soldiers is clearly a factor contributing to inadequate hygiene practices among females. Because the majority of soldiers are male, facilities and materials necessary for proper female hygiene are frequently not available. Additionally, the lack of privacy and time limit the attention women can give to even the most basic hygiene practices, such as relieving themselves or washing. Some women reported that they did not take

the time they needed to maintain hygiene because they felt that they needed to be "like the guys." In the field, women generally share sleeping, bathing and elimination facilities with males, and these "facilities" (often just holes in the ground) are usually not private. However, both the enlisted women and their health care providers admitted that male soldiers were generally willing to respect female soldiers' need for privacy, particularly in the field. Male soldiers were also described as helpful resources. Many enlisted women reported that male soldiers had helped them learn how to create facilities for maintaining hygiene in the field. For example, males might show females how to set up a temporary shower. The health care providers pointed out that it is in the best interest of the male soldiers to ensure that the females in their team remain healthy in the field because, if a woman is pulled out, the men could be assigned her duties in addition to their own. According to both the enlisted women and the clinicians, the commanders and regulations may create more problems for women in the field than the male soldiers. For example, commanders often expect women to relieve themselves as quickly as the men.

Several health care providers reported trying to improve the hygiene conditions for soldiers in the field. For example, one P.A. reported that a shower point had been set up in the field to help soldiers practice better hygiene. The command did not sanction this shower point, so the soldiers did not use it. Health care providers repeatedly emphasized the importance of coordinating with the command in order to make changes. Some of the health care providers thought it would be possible for the P.A.s and nurse practitioners (NPs) to coordinate with command to make sure that females have what they need to practice good hygiene and protect their health in the barracks and the field. Currently, there is nothing on the inspection list that would help women practice appropriate hygiene in the field.

There is also nothing in the kit that soldiers currently carry into the field that would help women protect their genitourinary health. According to the P.A.s, the "field kit" only includes basic items such as food, water and insect repellent. Many enlisted women pack their own "baby wipes" when they go into the field and use those to clean up after elimination, since toilet paper is often not available. When access to water is limited, women may also use the baby wipes to wash. Women also need to pack their own sanitary pads if they expect to get their periods in the field. Sometimes enlisted women will either intentionally or unintentionally forget to pack sanitary pads, and must be sent back from the field. Other items that might help women to maintain hygiene in the field, such as a shower tent, are not readily available and many women do not know where to get these items.

Prevention and treatment of genitourinary infections

Few health care services exist in the field, so vaginal infections and UTIs generally cannot be treated there. However, a medic in the enlisted women's groups reported that her team brings equipment to test for yeast infections and medicated suppositories into the field. She also reported that few women come to take advantage of the medics' services. If the infections are severe enough, women generally obtain permission to leave the field to get treatment. Other women simply "wait out" an infection until they get back home. Apparently, few systems exist for communicating to the soldiers what services are available in the field. Clinicians reported

that some enlisted women try to treat infections themselves, through douching and other means that often make the infections worse. However, many enlisted women were aware that they needed to drink a lot of water or cranberry juice, keep their genital region clean, and urinate after intercourse to prevent UTIs and vaginal infections. Some enlisted women also recommended packing the Vagisil powder and using it daily to keep the vaginal area dry and reduce infections.

Health care providers most often prescribe an antifungal cream to treat vaginal infections, presumably because the majority of these infections are caused by yeast. Some enlisted women, however, reported that they had been given prescriptions that did not cure their vaginal infections, suggesting that nonfungal vaginal infections may not always get diagnosed correctly. Enlisted women also reported being dissatisfied with the 7-day cream commonly prescribed for yeast infections because it is messy, slow acting, and inconvenient (particularly in the field). Health care providers have begun prescribing pills to treat yeast infections. According to participants in the enlisted women's groups, women often need to ask directly for the "yeast infection pill," or the P.A. will automatically prescribe the 7-day cream.

Sexually Transmitted Diseases (STDs)

Both groups of enlisted women recognized chlamydia as one of the most common STDs among their peers. Perhaps because of their increased risk for STD infection, single enlisted women appeared most concerned about STD infection and mentioned more STDs than the married enlisted women. Single enlisted women believed that gonorrhea, herpes, and syphilis were relatively common at Fort Bragg. These women were also aware that the population of Fayetteville had a high rate of HIV infection and expressed some concern about soldiers getting infected from the local population.

Physicians reported that human papillomavirus (HPV) was epidemic at Fort Bragg and added that herpes and chlamydia were also common. Clinicians stated that the most common STDs among enlisted Army women were chlamydia, HPV, herpes, and gonorrhea. Physicians were particularly concerned about genital warts and HPV infection because of their relationship to cervical cancer, the silent nature of long term infection, the lack of information on this STD in women, and the inability of condoms to prevent infection.

Participants in all groups most often estimated that 30 to 40 percent of enlisted women had had an STD. These estimated STD prevalence rates are close to the lifetime STD prevalence rate among enlisted women reported in the 1995 *DoD Survey of Health Related Behaviors Among Military Personnel* (27.8%). In general, both enlisted women and their health care providers in the Fort Bragg focus groups gave relatively high estimates of the proportion of enlisted women who had ever had an STD. Some single enlisted women in the focus groups gave estimates of over 50 percent.

Participants in all focus groups agreed that a significant number of enlisted women do not worry about STD infection and engage in high risk sexual behavior. Enlisted women reported that some women enter the Army with no knowledge of STD risk factors, and these women often end

up "sleeping with everyone." The enlisted women most likely to put themselves at risk for STD infection are younger or inexperienced soldiers, singles, "short timers," and those residing in the barracks. Health care providers stated in the focus groups that soldiers' behaviors were similar in many ways to those of students away at college for the first time. These clinicians concluded that soldiers' risk for STD infection was probably about the same as that of college students. Like college students, the youth and inexperience of many soldiers can lead them to feel "invulnerable," and therefore engage in risky sexual behaviors. Clinicians also noted that, because all soldiers must pass a general health exam, including an AIDS test, in order to enter the military, many females assume that male soldiers are "safe" sexual partners. Single enlisted women also stated that many women think that they cannot get an STD in the military.

Physicians' noted that many enlisted women are concerned about HIV infection but not infection with other STDs. The lack of concern about other STDs was attributed to a lack of education, a lack of coverage in the media, and the lack of symptoms in many women. Some P.A.s reported that some enlisted women were so unconcerned about infection with other STDs that they had unprotected sex with male soldiers who were known to have been treated for an STD. Physicians attributed this lack of concern to ignorance of the consequences of the less publicized STDs.

P.A.s reported that few women came to see them for STD testing or counseling. P.A.s tended to perceive enlisted women as mostly unconcerned about STD infection. On the other hand, several physicians reported that they frequently saw enlisted women with concerns about STD infection. Physicians also believed that most enlisted women are not sufficiently concerned about STDs but that many are concerned. The differences in the perceptions of the physicians and P.A.s may be explained by comments from the enlisted women participating in the focus groups. Comments from these women suggest that enlisted women may be more likely to seek STD counseling and testing through physicians at the hospital because they believe that they will have more privacy and receive higher quality care there. Therefore, physicians would be more likely than P.A.s to see women who were concerned about STD infection.

Overall, enlisted women in the focus groups appeared concerned about STD infection and had a moderate level of knowledge about STDs. These participants were able to name most of the common STDs (with the exception of HPV) and mentioned some of the consequences of these STDs, such as infertility. Some enlisted women were also aware that women infected with STDs are often asymptomatic. Most participants in the focus groups of enlisted women agreed that women should be concerned about STDs in the military, particularly since "cheating" (multiple partners) is common. The enlisted women also noted that a soldier can get an Article 15 (formal military punishment for violation of a regulation or law) for becoming infected with an STD while in the military. A punishment under Article 15 goes on a soldier's service record.

Condoms

Condoms are available and distributed free of charge at the clinics. P.A.s reported that they encourage both women and men to take condoms. Enlisted women, however, complained that

they have to ask for condoms at Robinson Clinic and that some clinicians ask women why they want the condoms.

The enlisted women were aware that sexual activity was not supposed to occur in the field and therefore did not expect to obtain condoms there. However, the enlisted women reported that sexual activity was not uncommon in the field, despite the regulations and the poor hygiene conditions. Health care providers were also aware that there was sexual activity in the field, and some wanted to dispense condoms there. Because regulations prohibit sexual activity in the field, command will generally not allow condoms to be distributed there, either during short, local exercises or long-term deployment overseas. For example, during a tour of duty in Bosnia, one P.A. noticed a higher rate of STDs among military personnel going to Budapest. This P.A. wanted to dispense condoms to the soldiers going to Budapest, but the command opposed this practice.

Enlisted women in the focus groups indicated that they were uncomfortable with obtaining and using condoms. Both married and single enlisted women reported being too embarrassed to request condoms at the clinic. They indicated that women are unlikely to pick up condoms at a clinic where other enlisted males were observing them. Single enlisted women also perceived that most soldiers prefer not to use condoms and that they do not "feel good." Other single enlisted women pointed out that people often do not think of contraception during sexual relations. Enlisted women also mentioned that some women cannot use condoms because of allergic reactions.

Health Care

Barriers to effective utilization

Participants in all four groups stated that, although female soldiers know that an annual gynecological (GYN) exam is recommended and easily available and that the annual Pap is required, many do not regularly take advantage of this service. Since there is no system in place for tracking Paps for enlisted women, the level of adherence to the annual Pap requirement is unknown. One reason for women not getting pelvic exams and Pap tests in the past may have been the time consuming procedures for obtaining this care at Fort Bragg. Steps have recently been taken at Robinson Clinic to make the process of care seeking more efficient for soldiers. For example, an appointment system has been implemented for preventive care visits (previously, only civilian dependents could do this) and clinic hours have been extended. However, the waiting period for the annual gynecological exams is still about three weeks, although this waiting period varies between the different clinics at Fort Bragg. The waiting period generally depends on the number of providers and the proportion of females seen at a clinic. Some clinics only perform annual GYN exams one day each week. Enlisted women reported that the wait at the clinic can also be quite long.

Enlisted women may also fail to obtain annual exams or other health care in a timely manner because of a lack of trust of the military health care providers who are normally available at the

clinics. Several participants in the groups of enlisted women openly voiced their lack of confidence in the quality and confidentiality of the care women receive from P.A.s at the Troop Medical Clinics (TMCs) outside of WAMC. Enlisted women at Fort Bragg are most often seen by P.A.s, most of whom are male. Many enlisted women felt that the P.A.s are not trained to handle some of the conditions they treat, particularly gynecological conditions. The women also indicated that some P.A.s were hesitant to refer a woman to a specialist when they could not diagnose her condition. Several women indicated that they would prefer to have specialists available in the clinics, such as a gynecologist. Physicians, but not P.A.s, mentioned that they were aware of the enlisted women's desire for more highly qualified health care providers. Enlisted women also stated that they would like have the option of requesting a female clinician. Some enlisted women, particularly those who have been sexually abused, may be very uncomfortable with a male health care provider.

Another concern voiced by the enlisted women in the focus groups was the fact that soldiers are seen by a different health care provider each time they go to the clinic (with the exception of pregnant women, who are assigned a physician). Apparently, this is not the case at all installations. One enlisted woman reported that, at her last duty station, soldiers had the same doctor all the time. Enlisted women said that they would prefer to have a regular provider who knows their history and therefore can provide them with more appropriate care. The lack of continuity in providers can lead to inappropriate care for enlisted women. For example, several enlisted women reported receiving multiple Pap smears over the course of one year. Other enlisted women reported being asked at each visit whether they needed a Pap test. Several enlisted women also agreed that lack of familiarity with the health care providers at the clinics makes them hesitate to obtain care there when they had a sensitive or more personal health concern. Many women said that they had or planned to obtain care at the hospital or pay for care through a civilian physician in order to assure the quality and privacy of their care.

Lack of privacy and confidentiality in care was a major concern for enlisted women. Enlisted women in both focus groups gave numerous reports of personal medical information being openly discussed within hearing of both patients and other medical personnel at clinics. Enlisted women also reported that confidential medical information can also get out through lower level privates who have access to the medical records. For example, enlisted women reported that some males in the clinic heard about women who had yeast infections and spread the word that these women had an STD. Because of this lack of privacy, some enlisted women suggested that women refuse to speak about personal medical concerns at the clinics. They suggested that women request to see a doctor or go to another team if necessary. Reportedly, level of care differs for different teams. Women also reported that many male clinicians were not sensitive to women's need for privacy. One case was described where a clinician had found some cancerous cells on the cervix of a patient and brought a group of clinicians in to look at it. Physicians at the focus group recognized that sick call did not allow for much privacy or confidentiality with so many people being treated or waiting to be treated at the same time. Some physicians described this process a humiliating and understood why enlisted women were hesitant to discuss personal health concerns with so many men listening.

Enlisted women added that, in spite of the frequent sharing of their medical information with

other personnel, clinicians were frequently hesitant to provide the women with a complete explanation of their own medical problems. For example, an enlisted woman had been diagnosed with cervical cancer, but she said that no one would talk to her about her illness. Enlisted women suggested that a woman who was not receiving necessary medical information or who was otherwise dissatisfied with her care should complain to the Officer-in-Charge (OIC).

Despite the numerous barriers to women obtaining health care in the military, physicians estimated utilization rates of health care services by enlisted women to be roughly two times that of civilians. Most clinicians attributed higher utilization rates to the free care provided to enlisted personnel rather than the quality of that care.

Provider practices

Statements from all focus groups suggested that many health care providers are trying to test enlisted women for pregnancy and STDs whenever possible. Most enlisted women reported that they had undergone several pelvic exams and had been tested for pregnancy. Some enlisted women reported that they had been tested for pregnancy even when their visit to the clinic was not for a gynecological problem (e.g. an injury). The physicians reported that they frequently screened women for certain STDs.

Health care prior to and during deployment may differ markedly from standard care for enlisted women. For example, enlisted women stated that "real doctors" from the Army Reserves gave women their predeployment exams. However, not all soldiers get a predeployment exam.

Health Education

In the military

The general consensus of participants in all focus groups was that some reproductive health education has been given to enlisted women at Fort Bragg, but it is minimal, not systematized, and often informal (e.g. team leaders may give some general "advice" to new soldiers regarding their sexual behavior). Both clinicians and enlisted women stated that health education in the military is inadequate, particularly on the topics of STDs and pregnancy. Soldiers are required to receive health "briefings" within a month of arrival at the base (for basic training or permanent duty); but what comprises these "briefings" varies. Health briefings are usually given either by a community health nurse or a designated unit representative. Enlisted women reported that briefings and other reproductive health education given at the hospital are better. Enlisted women also reported that health classes are offered every six months. These classes were not mentioned by the health care providers in the focus groups, because they may not deliver them. The reproductive health education classes given during basic training are usually delivered by drill sergeants with minimal medical training. Most enlisted women had taken some reproductive health classes during basic training. Focus group participants described these

classes as cursory lectures emphasizing abstinence or out-dated videos depicting STDs, more often in males. Both the health care providers and the enlisted women felt that these basic-training "classes" were fairly ineffective.

Information on condoms, STDs, and birth control is available at the clinics, often in the form of pamphlets. At WAMC, each department has its own set of handouts. The OB-GYN department distributes handouts published by the American College of Obstetricians and Gynecologists (ACOG). Family Practice has handouts produced by different organizations. According to the physicians, informational handouts at WAMC are available through the clinicians only. One local nonmilitary clinic reportedly has a spot set up by a community health nurse where enlisted personnel can pick up their own information. There is also a health kiosk at WAMC, but it reportedly takes about 20 minutes to get on-line. There is also a telephone help-line, but the time callers are put on hold can be very long. Participants in all focus groups indicated that peers were the primary source of reproductive health information for enlisted women. Other sources of health information reported by enlisted women included books, television and trial-and-error experience.

Health education needs in the military

Several comments from focus group participants suggested that the system for disseminating information on services and resources available to enlisted women is fairly ineffective. Participants indicated that there is a lack of knowledge and communication about the services, equipment, supplies, and other support available to help enlisted women maintain their reproductive health, particularly in the field. In the enlisted women's focus groups, more experienced soldiers described services and supplies that were available in the field of which other participants were not aware. One medic mentioned that her team always brought suppositories to treat yeast infections into the field, yet all other participants were unaware that there was any treatment available for vaginal infections in the field. Another enlisted women mentioned that she had learned from the males how to set up a shower tent in the field. Most women in the focus groups reported that women could not get a private shower in the field and, as a result, often did not shower while in the field. Enlisted women said that it was very difficult to obtain the information they needed to protect their reproductive health because they had to ask several people before getting to a person who could help them. The process of going through so many people to deal with a specific health concern also made it nearly impossible to maintain confidentiality.

Another concern that was brought up by participants in both groups of health care providers was the need for reproductive health education "at the lower levels," that is, either prior to or during basic training. One physician reported that he was conducting a reproductive health education program at a local junior high school. He suggested that the military's support of these early health education programs would be the most effective way to reduce unintended pregnancy and STD infection of future recruits. Several participants also indicated that basic training provided a good opportunity to provide reproductive health education to all enlisted women since that is their introduction to the military as well as their first field experience. Some enlisted women also suggested that health education for soldiers be part of the recruiting process so that women

will know what impact military service may have on their health, such as how field duty affects hygiene.

Health care providers repeatedly brought up the fact that delivering reproductive health care counseling or education at any point would be very difficult without strong support from the chain of command. They noted that most commanders are not motivated to make reproductive health counseling and education readily available to enlisted women. In order to motivate commanders to make reproductive health education widely available to enlisted women, such education would need to become a requirement at the unit level, like dental care. In order to maintain support of the command, a mechanism would also need to be in place to make reproductive health education a reportable statistic.

There is a possibility that the Army's chain of command will not support a health education intervention exclusively for females. For example, the attached U.S. Army publication, "Staying Healthy in Deployment: A Female Soldier's Guide" has already been discontinued because it does not apply to male soldiers. Participants in all four focus groups also indicated that any reproductive health education intervention should developed to be used by both males and females in the armed services. Clinicians emphasized that soldiers of both genders need to maintain their overall health in order to perform their duties, and that the males need education about reproductive health as much as the females. Additionally, soldiers of both genders may perceive that it is unfair to require women to receive reproductive health education that their male colleagues do not receive. The women in the focus groups stated that they would resent a requirement to receive additional education while males got free time. Clinicians added that men may also resent the fact that they do not receive the same level of reproductive health education as the women.

Although enlisted women in the focus groups indicated that they would like the option of receiving reproductive health education privately or without the males being present, they also said that the males would benefit from receiving the same education. Both clinicians and enlisted women made comments suggesting that there are several actions males can take to help females maintain their health in the field and barracks. According to focus group participants, enlisted men want to help enlisted women protect their health so that women can perform their duties. If a female soldier is removed from duty or is unproductive, some her duties may fall to the male soldiers to complete. Enlisted women also pointed out that men do not understand their unique health problems and often accuse them of "whining" or trying to get out of duty when they have legitimate health problems.

Several participants across groups also noted that any educational intervention designed to prevent STDs and unintended pregnancy must target males as well as females, since males are at least 50 percent of the problem. For example, comments from enlisted women and their clinicians clearly indicated that males are much more likely to obtain condoms at the TMC than are enlisted women. Reproductive health education for male soldiers should highlight the risks and consequences enlisted men experience with regard to STD infection and mistimed pregnancy.

Reproductive health counseling

Overall, reproductive health counseling for enlisted women a Fort Bragg appears to be rare. Health care providers indicated that women were supposed to receive some education during the required, annual "well woman" exam but this seldom happened due to time constraints. At the annual exam, enlisted women are given a pre-printed questionnaire which asks some reproductive health questions (e.g. "Have you had any problems with your current method of birth control?"). However, women often fail to complete the questionnaire, and clinicians often do not have time to discuss the women's responses on the questionnaire when they do complete it. Clinicians admitted that many health care providers do not or cannot take the time to provide a woman with detailed information unless a problem comes up. Enlisted women said that they needed to make an appointment to get counseling. In general, enlisted women must proactively seek counseling and information, at least by asking questions of their health care providers.

Enlisted women's comments suggested that, although real counseling is rare, it is not uncommon for clinicians to ask women about their sexual behavior. The women reported that clinicians often asked them whether they might be pregnant. Some clinicians also asked them whether they had multiple partners. One married soldier said that a clinician had asked "Do you have more than one partner? Are you sure?" The enlisted women agreed that questioning of this nature made them feel that their integrity was being questioned. Enlisted women in both groups made comments indicating that they were weary of both their clinicians and their superiors questioning them about pregnancy and sexual behavior.

Responses to informational material

Focus group participants were asked to review two handouts produced specifically to provide reproductive health information to enlisted women. One was a newsletter produced by the Naval Medical Clinic in New Orleans in 1996. The other handout was the publication "Staying Healthy in Deployment: A Female Soldier's Guide" produced by the U.S. Army Center for Health Promotion and Preventive Medicine and the U.S. Army Research Institute of Environmental Medicine in October, 1996 (see Appendix E for copies of these handouts). Enlisted women responded that they had not seen any of these materials before. They also thought that the handouts were more comprehensive than other reproductive health education materials they had seen to date. They agreed that most of what was covered in the focus group discussion was covered in these handouts.

Conclusions

Most focus group participants at Fort Bragg agreed that there is an unmet need for basic reproductive health education for enlisted women. Education on preventive health is especially critical because of the high value placed on fitness in the military. Participants in the focus groups of enlisted women and their military health care providers agreed that there are several

gaps in the education soldiers receive on STD and pregnancy prevention as well as ways to maintain hygiene and prevent genitourinary infections.

Education is needed to prevent pregnancies that interfere with mission of all soldiers. However, because there are so many incentives and other factors that may put enlisted women at greater risk for mistimed pregnancies, effective pregnancy-prevention education may be difficult. Focus group participants agreed that the most effective approach may be to emphasize the drawbacks of pregnancy in the military via "real-life" testimonials, stories, statistics, and decision games.

Basic education on contraception is also needed to help enlisted women prevent unwanted pregnancies. Contraception is widely available in the military; but little contraceptive information is available. Enlisted women need to know about their contraceptive options, the risks and benefits of each option, how to obtain the contraception they need, and how to deal with the potential side effects of contraceptives.

Although the enlisted women were very concerned about pregnancy, they tended to talk more about issues of basic hygiene and the conditions women experience as a result of poor hygiene. Participants in the focus groups of enlisted women may have been most interested in the topics of hygiene and genitourinary infections because these are issues that almost all enlisted women deal with on a regular basis. According to focus group participants, enlisted women are frequently unable to practice good hygiene because of conditions in the field and in the barracks. Working and living in close quarters with a majority of males decreases women's access to the resources they need to maintain good feminine hygiene (e.g. time, privacy, materials). As a result, enlisted women experience a high rate of genitourinary infections. According to the enlisted women in the focus groups, information on the prevention and treatment of female genitourinary infections in a military environment is not readily available.

According to focus group participants, genitourinary infections in enlisted women often create a lot of concern because enlisted women, their commanders, and male soldiers fear that they may have been sexually transmitted. Sexually transmitted disease (STD) is clearly a major concern in the military and is viewed as relatively common among soldiers. Participants in both clinician and enlisted women focus groups estimated the prevalence of STD infection among enlisted women to be slightly higher than recent data have shown. Participants in all focus groups were aware of many STDs common among enlisted women. All groups mentioned that chlamydia was common among enlisted women. Interestingly, the one STD enlisted women failed to mention was HPV. Conversely, clinicians stated that HPV infection was "epidemic" and gave some indication that they may be over screening for this STD. Clinicians and enlisted women in the focus groups agreed that most enlisted women are not sufficiently concerned about STD infection. In particular, young and inexperienced enlisted women reportedly were likely to engage in high risk sexual behaviors because of their ignorance of the risks and consequences of STDs other than HIV (for which all soldiers are tested). Comments across focus groups also suggested that use of condoms by female soldiers was relatively rare, perhaps due to lack of ready and confidential access to condoms in the military.

During discussions of all focus group topics (pregnancy, STDs, hygiene and genitourinary

infections) participants repeatedly brought up issues of health care delivery in the military. Reports from all focus groups indicated that clinicians frequently conduct Pap tests and screen enlisted women for pregnancy and STD infection. However, several barriers to enlisted women receiving preventive care and treatment were described by focus group participants. These barriers included:

- Lack of time on the part of both the health care providers and enlisted women to deliver and obtain health care
- Long waits for appointments and in the waiting area
- Lack of privacy during sick call
- Lack of confidentiality of personal medical information
- Lack of continuity in care because a different clinician is seen each time
- Poor patient/provider communication (e.g. women are not given a full explanation of what is wrong with them)

According to focus group participants, many of the barriers to obtaining health care in the military also interfere with enlisted women obtaining information they need to protect their reproductive health. Participants report that little time is allotted for educating soldiers about their reproductive health -- they generally receive a class in basic training and one briefing at Fort Bragg. Clinicians report that they do not have time to educate soldiers during visits to the clinic. Enlisted women also say that they have little time to seek information on their reproductive health; and the sources available at Fort Bragg are time consuming to access (e.g. the kiosk takes 20 minutes to log on, the phone line puts you on hold, obtaining written information or counseling requires an appointment). According to participants in the focus groups of enlisted women, lack of privacy and trust that their personal information will remain confidential keeps many enlisted women from seeking information on their reproductive health from either their clinicians or commanders. They also report that commanders and clinicians are frequently unwilling or unable to provide them with the information they need. Additionally, because these enlisted women do not have a regular health care provider, they are not likely to receive or be referred for individual counseling on their reproductive health unless they take the initiative to do so. Focus group participants report that most enlisted women do not take the initiative to obtain accurate information on their reproductive health. They are more likely to rely on peers, the media, and their own experience to make decisions that affect their reproductive health.

Overall, findings from the Fort Bragg focus groups indicated that enlisted women would benefit from a computer-based reproductive health education intervention if it could be made accessible to all soldiers in a private setting. Participants indicated that, to their knowledge, CD-ROM based materials had not been used to deliver reproductive health education to Army personnel. Comments from participants suggested that this type of health education intervention would be useful to soldiers if the materials were adaptable to the user, and use of the CD-ROM was not too time consuming. Participants in the clinician's focus groups emphasized that command support would be critical to making any health education intervention available to the soldiers. Participants also recommended that the intervention be mandatory to ensure that the soldiers used it; and to avoid the stigma that might be attached to a soldier accessing information on

reproductive health issues. Findings from the focus groups also indicated that enlisted women need a mechanism for obtaining reproductive health information that is current and tailored to their installation or even their platoon. These findings suggest the need for an educational intervention in which the information can be 1) tailored to the user's input, and 2) updated regularly.

Recommendations

Below is a detailed list of recommendations for developing a interactive, computer-based materials to educate enlisted women about their reproductive health. Recommendations were either offered by focus group participants or developed based on comments made by focus group participants. The first set of recommendations deals with content for the intervention. The second set of recommendations deals with the delivery of the intervention. This section concludes with a list of questions that should addressed by the intervention.

Content

General format

- All material should be interesting, relevant, in-depth, and up-to-date.
- Make the intervention fun by putting the educational activities in a game format.
- Include quizzes or some other mechanism to allow them to check their basic knowledge, understanding of "lessons", and progress.
- Use case studies, case reports, stories, and scenarios to illustrate educational points.
- Include a menu of questions (see "Specific questions enlisted women need answered" below.)
- Some mechanism for tracking the number or type of users (even which modules are used) might be useful for evaluating the educational intervention and reporting on its utility.
- If possible, the educational intervention should be extended to or adapted for male soldiers and commanders of enlisted women (officers). The behaviors of both of these groups impact the reproductive health of enlisted women and they need to know the repercussions of their actions. Further, soldiers will not perceive that it is fair to have an intervention that women must see, but that does not apply to men.
- It would be useful to include content that can be tailored to the user based on service, age, job, marital status, ethnicity, etc.
- Military terminology should be used in writing the content.
- Some good information, videos, and graphics are available in the military which could be included in the CD-ROM. For example, include the "What to Expect When You're Expecting" module. Clips from the STD video in the USUHS library might also be included.
- Because of the limited access most enlisted personnel have to computers, creating a program that could produce brochures or slides, or be adapted to a videotape format

would be useful. Clinicians want something they can use to educate a group of soldiers at one time. Women want something they can take home.

General women's health content

- Include information on basic female physiology.
- Include basic education on recognizing symptoms of UTIs, vaginal infections, STDs, and pregnancy; and on how to react to those symptoms.
- Include information on causes of vaginal infections, UTIs, and the various STDs; then educate on their prevention and treatment.
- Include stories or testimonials on the real consequences and costs of reproductive health problems. Participants indicated that personalized, "real" information would have a greater impact.
- Instruct women on how to ask about diagnoses and treatment options.
- Emphasize the importance of the annual "well woman" exam.
- Include a directory of information resources for enlisted women to find out how to deal with their unique reproductive health concerns.
- Deal with concerns about confidentiality of treatment (e.g. alternatives, advice from experienced female soldiers, your rights in the military)
- Provide practical suggestions for preventing STDs and pregnancy that go beyond contraception (e.g. communication, safe dating practices, etc.)

Specific pregnancy and contraception content

- Include a section on birth control alternatives, their effectiveness, risks, benefits, etc.
- Include instruction on normal vs. abnormal pregnancy and how to treat.
- Include "real-life" stories of women who have experienced pregnancy in the military with an emphasis on costs (e.g. being separated from children for long periods during deployment, struggles with obtaining reliable child care during deployment and duty, women experiencing pregnancy complications, weight gain, etc.)

Hygiene and genitourinary infections

- Provide tips (perhaps from experienced soldiers, health care providers, and commanders) for maintaining hygiene on base and in the field (e.g. "Here's what you may encounter, here's how to deal with it"). During the focus groups, enlisted women proved to be valuable sources of information for each other. Peer information sources should be drawn upon more effectively.
- Recommend items, medications, etc. to use in the field.

Sexually transmitted diseases

- Emphasize the importance of using condoms alone or with other contraception to prevent STD infection.
- Let women know that they will get a lot of attention from males because they are the minority in the military. Teach them strategies for handling this attention and avoiding risky sexual behavior.
- Include "real life stories" of enlisted women and men who were infected with STDs and treated.

- Also include prevalence data (perhaps from the local clinic on base) or at least pictures of the waiting line for the "STD clinic", to give users the sense that infection is common.

Delivery

Who?

- Enlisted women may be more responsive to reproductive health information delivered by a friend or peer rather than a health care provider.
- Small group leaders may be the best people to deliver reproductive health education, but they need to learn how to deliver the education without judging or lecturing.

When?

- Educate soldiers as early as possible. Provide reproductive health education during basic training or before. Health education during basic should not be delivered by drill sergeants.
- Reproductive self-care and prevention education should be provided at several points by a team of trained individuals who work closely with enlisted women. This team may include P.A.s, team leaders, commanders, etc. The education provided by each individual at each point should match. In other words, a consistent curriculum should be developed and delivered at different points, through different personnel.
- One way to deal with the embarrassment of having others know that a woman is using this intervention is to make it part of an annual review or exam, so that everyone has to view it.
- Another way to ensure universal access and use, overcome fears of being singled out for using the "STD computer," and ensure early education prior to entry into service is to make the intervention available during processing.

Where?

- Education must be delivered in a manner that ensures confidentiality and privacy while being available to all enlisted personnel. Women do not want to use this type of intervention in front of others (e.g. at a TMC).
- Many enlisted personnel do not have regular access to a computer. Therefore, a computer should either be set up at the clinic or the CD-ROM should be installed in the library. At the library, women could sign out the CD-ROM.

How (what will it take to deliver?)

- Education and support of the chain of command is critical to implementing any reproductive health education intervention for enlisted women.
- Make the use of the intervention mandatory to ensure that soldiers use it and no one is "singled out."

Specific questions enlisted women need answered

About general women's health

- What reproductive health problems might I experience in the military (e.g. field exercises, barracks living, deployment, basic training)?
- How can I deal with these health problems in the various settings?
- What are my options if I have reproductive health problems in the field (e.g. breakthrough bleeding, cramps, vaginal infections, UTIs)?
- (When anatomical pictures are used) What body part is this and what does it do?
- What chemicals may affect my reproductive health? How?
- What happens during a pelvic exam?
- Why am I getting a Pap smear?
- What is a Pap smear?
- What is normal menstruation?
- What causes breakthrough bleeding?
- What are the risk factors for cervical cancer?

About pregnancy and contraception

- How do I get pregnant?
- How do I know I am preganant?
- What regulations may impact my pregnancy?
- What should I do if I suspect I might be pregnant?
- What impact could pregnancy have on my military career/service?
- How can I ensure that I have a healthy baby while in the military?
- What impact could military service have on my pregnancy/baby?
- What chemicals may affect the health of my baby during pregnancy? How?
- What is infertility?
- What causes infertility?
- What can one do about infertility?
- What are my contraceptive options?
- How do I choose effective contraception that works for me?
- What can I use in the field for birth control?

About hygiene and genitourinary infections

- How can I practice good hygiene? In the barracks? In the field? During deployment?
- What do I need to take into the field to maintain hygiene and genitourinary health?
- How do I get the items I need in the field to maintain good hygiene and health?
- What are the different types of genitourinary infections?
- What causes them?
- How are they treated?
- What makes them worse?
- How can genitourinary infections be treated in the field?

About sexually transmitted diseases (STDs)

- What STDs can women get?

- How do women get these STDs?
- How do I know I have one of these STDs?
- What are the consequences of having each type of STD infection?
- How likely am I to get or have and STD (based on my sexual practices)?
- How do I know if my partner has an STD?
- How can I protect myself from STD infection?
- What should I do if I think I might have been infected?
- How can STDs be treated?

CD-ROM Technology to Increase Appropriate Self-Care and Preventive Behaviors Among Army and Navy Women

Focus Group Report for Fort Bragg

Appendices

Appendix A: Enlisted Women's Screener

Participant Screeners for
Focus Groups on Enlisted Army Women's Reproductive Health

Recruiting Goals

- The participants shall be enlisted Army women.
- Twelve married, enlisted Army women will be recruited for the first group. (The final group will include 8 to 10 participants but over recruiting is necessary to allow for attrition).
- Twelve single, enlisted Army women will be recruited for the second group. (The final group will include 8 to 10 participants but over recruiting is necessary to allow for attrition).
- Each group shall have a mix of race/ethnicities reflective of the Army enlisted female population. In order to be representative of the female enlisted Army population, approximately half of the participants in each group should be African American. At least a third of the participants should be white. Ideally, at least one Hispanic women would participate in each focus group as well.
- Participants shall not have participated in a focus group or other qualitative research study during the past year (telephone studies are acceptable).
- Officers will be excluded.

Scheduling
The schedule for the focus groups follows:

June, 1998
Site: _____ **10 participants each group.**

- Participants will be paid $25 for their participation, provided they are off-duty at the time of the focus group.

- Refreshments will be offered to participants.

- The identity of the participants will remain confidential.

Appendix B: Clinician's Screener

Clinical Participant Screeners for
Focus Groups on Enlisted Women's Reproductive Health

Recruiting Goals

- The participants shall be physicians, nurse practitioners, and physician assistants who provide reproductive health care services for enlisted Army women.
- Participants shall not have participated in a focus group or other qualitative research study during the past year (telephone studies are acceptable).

Scheduling
The schedule for the focus groups follows:

June, 1998
Site: _____ **10 participants each group.**

- Participants will be paid $25 for their participation, provided they are off-duty at the time of the focus group.
- Refreshments will be offered to participants.
- The identity of the participants will remain confidential.

Appendix C: Moderator's guide for focus groups with enlisted women

Focus Group Questions: Enlisted Army Women

Introduction:

Hello, my name is _____. Thank you for participating in this focus group today. A focus group is a group discussion where several participants explore a topic. I will be moderating this focus group, and _____(name of recorder) will be taking notes.

We are here from Macro International, which has been contracted by the U.S. Army to conduct a 4-year research project to investigate enlisted women's needs for health education on basic gynecological and reproductive health issues. We are conducting surveys and focus groups like this one to determine the needs of enlisted women. Based on that information, we plan to develop and test educational materials with enlisted Army and Navy women. This study is important because the number of women in the U.S. Armed Forces is increasing, and statistics show that the rate of unintended pregnancies, sexually transmitted diseases (STDs), and common preventable gynecological conditions, such as vaginitis, among enlisted women deserve attention.

The purpose of this focus group is to gather information which will help in designing the educational materials. This information is being gathered from enlisted Army and Navy women at four bases in the United States. During the group, we will be discussing reproductive health issues, military health care, and health education in the military. I will ask you about your perceptions of the attitudes, behaviors, and preferences of enlisted Army women in general. At no time will you be asked about your own behavior. The focus group should take about an hour and a half.

This study is anonymous, so your name or any other identifying information will not be included in the report. All information will be kept confidential. Your participation is voluntary, and you may decide to stop at any time. If you decide to stop you will not be penalized in any way. If you have any questions or don't understand what I am asking at any time, please let me know and I will explain further.

The most important thing is to be straightforward and honest. We are interested in your opinions, and different opinions are welcomed. There are no right or wrong answers. We understand that talking about reproductive and gynecological issues can be uncomfortable, but please say whatever you are thinking.

I would just like to ask that you speak one at a time and that everyone participate. If you have any questions about this process, I will answer them now.

(tell them about tape recorder and/or note taker. Give them consent form to read and sign, and explain honorarium. Have them put name [first name or nick name] on a sign to place in front of them.)

I'd like to start the discussion with a round of introductions. Let's go around the table. I'd like each of you to give your name, say where you are from, and how long you've been in the Army.

GENERAL HEALTH

How important is health to women? How do you think being an enlisted Army soldier affects feelings about health?

What do Army women worry about most when it comes to their health?
- What should they worry about?
- What about their reproductive health? *(Paraphrase to explain "reproductive" if needed.) Go to section below that was mentioned first or most often by participants.*

HEALTH CARE

How do enlisted women feel about health care in the Army?

Where do most enlisted Army women get gynecological care?
- Why? (*If respondent says private physician, probe* Why not military?)

What types of questions do Army women ask their health care providers?
- What should they ask?
- Why don't they ask these questions?
- Are the questions that Army women ask military health care providers different from those they ask civilian health care providers?

What are the reasons women do not to get an annual Pap test?
- What would make it easier?

What types of health services and/or counseling do Army women typically get before deployment?
- What services should they get?

How common is it for women to get a physical before deployment? How about a Pap and pelvic exam?
- When is it important for a woman to get a predeployment gynecological exam?
- What are reasons women do not get this exam before deployment?

VAGINAL INFECTIONS/HYGIENE

What do most Army women do when they think they have a vaginal infection?

What do most Army women do to prevent vaginal infections?
- Are there any reasons that Army women may have trouble preventing vaginal infections

What would help Army women to prevent vaginal infections? What would help them get

appropriate treatment for vaginal infections?

What do Army women do to prevent infections when they are in the field?
- What do they do when they think they have a vaginal infection in the field?
- What medical and hygiene supplies do Army women pack when they are deployed?

PREGNANCY

How common do you think unintentional pregnancy is among enlisted Army women?

How much do you think Army women worry about getting pregnant?
- Do you think they should be more concerned? Why or why not?
- What happens to enlisted women who get pregnant in the Army?
- Why do you think some enlisted women get pregnant in the Army?

What should an enlisted woman do if she thinks she might be pregnant?

CONTRACEPTION

What do enlisted women need to know to better prevent unintentional pregnancy?

What are the ways that Army women prevent pregnancy? How about in the field?
- What are the types of contraceptives most often used by Army women? Why?
- What types of contraception are used in the field? *(If different from general types, probe to find out why.)*

How hard is it to get contraception when you need it in the Army?
- What makes it hard to get?
- What could make it easier?

How hard is it to get contraception in the field?
- What makes it hard to get?
- What could make it easier?

What do enlisted women need to know to use contraception consistently and effectively?

SEXUALLY TRANSMITTED DISEASES

What STDs do you think are most common among women?

Repeat with each STD indicated:

- How much do you think Army women worry about getting _____?
- Do you think they should be more concerned? Why or why not?
- What are some of the things that can happen to a woman who gets this STD?

What percent of Army women do you think have STDs?

- A 1995 survey says that ___ % of Army women reported having an STD last year.
- How do you feel about this information? Does it seem high or low to you? Why?

What are some ways that women protect themselves from STDs?

- Why don't some women do these things?

What do enlisted women need to know to better protect themselves from STDs?

CONDOM USAGE

What do you think most sexually active women in the Army think about using condoms?

- How about their partners?
- What do their health care providers tell them?
- What other messages do they get about condom use?

When should a woman use a condom?

- Does it depend on other contraception she is using? Does it depend on her partner? Something else?

What makes it hard to use condoms every time?

- What would make it easier?

SEXUAL COMMUNICATION

We know that people who are able to talk with their sexual partners about sex and condoms are more likely to practice safe sex.

- Why do you think this is so?

What makes talking about these issues with partners difficult for women? Why?

- What would make it easier?

What do you think are the costs, or risks, of talking about sex with a partner (e.g., condoms, sexual history)? What would be the benefits?

HEALTH EDUCATION

What kinds of health education are available in the Army? How about reproductive health or women's health?

- How helpful was it? Why?

What reproductive health topics do you think enlisted Army women **need** to know more about?

- Why?
- Is this different from what they **want** to know more about?

How can enlisted Army women find out about these topics now?

- Where do they go? Who do they usually talk to?

We want to teach enlisted women about prevention and self-care.

Imagine that you were put in charge of getting information on reproductive health to all women at your base. What do you think would be the best way to get this information to enlisted women?

- What would be the most effective way to present it?
- What would help them learn more about self-care and prevention?

What could the Army do to get health information to all enlisted women in the Army?

If we made a computer program about prevention and self care, what are some things that would make enlisted women interested in using it?

Have you ever used a computer to learn about health (e.g. via the Internet, in classrooms, etc.?) Would you recommend it to other women? Why or why not?

- What would you change?

What skills would women like yourselves like to see demonstrated on a computer program?

Give a couple of examples: How to use condoms correctly? How to talk to a partner about sexual matters? How to practice proper hygiene in the field?

What kinds of scenarios, or stories, would enlisted Army women like to see in this program?

- What would be realistic?

Where would enlisted Army women want to use a program like this?

- *Probe if unresponsive: Health center/clinic? Computer laboratory? Kiosk? Other place?*

What other materials or education would help enlisted women improve their self-care and preventive behaviors?

If we make a pocket field guide that summarizes prevention and self-care information, what would be helpful to include in it? What should it look like?

How could the Army ensure that every active duty women received a pocket field guide?

Appendix D: Moderator's guide for focus groups with Army health care providers

Focus Group Questions: Military Clinicians Serving Army Women

Introduction:

Hello, my name is _____. Thank you for participating in this focus group today. A focus group is a group discussion where several participants explore a topic. I will be moderating this focus group, and _____(name of recorder) will be taking notes.

We are here from Macro International, which has been contracted by the U.S. Army to conduct a 4-year research project to investigate enlisted women's needs for health education on basic gynecological and reproductive health issues. We are conducting surveys and focus groups like this one to determine the needs of enlisted women. Based on that information, we plan to develop and test educational materials with enlisted Army and Army women. This study is important because the number of women in the U.S. Armed Forces is increasing, and statistics show that the rate of unintended pregnancies, sexually transmitted diseases (STDs), and common preventable gynecological conditions, such as vaginitis, among enlisted women deserve attention.

The purpose of this focus group is to gather information which will help in designing the educational materials. This information is being gathered from military clinicians at four bases in the United States. During the group, we will be discussing health and issues of concern to enlisted Army women including reproductive health issues, military health care, and health education in the military. I will asking you about your perceptions of the attitudes, behaviors, and preferences of enlisted Army women and their clinicians in general. At no time will you be asked about your own behavior. The focus group should take about an hour and a half.

This study is anonymous, so your name or any other identifying information will not be included in the report. All information will be kept confidential. Your participation is voluntary, and you may decide to stop at any time. If you decide to stop you will not be penalized in any way. If you have any questions or don't understand what I am asking at any time, please let me know and I will explain further.

The most important thing is to be straightforward and honest. We are interested in your opinions, and different opinions are welcomed. There are no right or wrong answers. We understand that talking about reproductive and gynecological issues can be uncomfortable, but please say whatever you are thinking.

I would just like to ask that you speak one at a time and that everyone participate. If you have any questions about this process, I will answer them now.

(tell them about tape recorder and/or note taker. Give them consent form to read and sign, and explain honorarium. Have them put name on a sign to place in front of them.)

I'd like to start the discussion with a round of introductions. Let's go around the table. I'd like each of you to give your name, say where you are from, and how long you've been in the Army.

GENERAL HEALTH

How important do you think health is to enlisted women in the Army? Why do you think this? How do you think being an enlisted Army soldier affects enlisted women's feelings about health?

What do Army women worry about most when it comes to their health?
- What should they worry more about?
- What about their reproductive health?

HEALTH CARE

In general, how do you think enlisted women feel about health care in the Army?

What do Army women have a right to expect from their health care providers?

How comfortable do you think most women feel talking to their health care provider? *(Give examples: talking about STDs, condom use, sexual dysfunction.)*
- What makes them more or less comfortable?

How comfortable are health care providers in talking about these matters with patients?

What types of questions do Army women ask their health care providers?
- What should they ask?

What types of questions do health care providers ask enlisted women about their reproductive health (i.e., sexual practices history)?
- What should they ask?

What types of reproductive health screening and/or counseling are typically provided to enlisted Army women?
- What should be provided (that isn't currently)?

What types of health services and/or counseling do Army women typically get before deployment?
- What about pregnancy testing?

How common is it for women to get a physical before deployment? How about a Pap and pelvic exam?
- When is it important for a woman to get a predeployment gynecological exam?
- What are reasons women do not get this exam before deployment?

What types of health services and/or counseling do Army women typically receive in the field?
- What health services or counseling should they receive in the field?

VAGINAL INFECTIONS/HYGIENE

How common do you think vaginal infections are among enlisted women in the Army? How do you think being a soldier in the Army affects enlisted women's risk for vaginal infection?

What do most Army women do to prevent vaginal infections?
- How about in the field?

What medical and hygiene supplies do Army women pack when they are deployed?
- What should they pack?

How should health care providers prepare for the hygiene needs of enlisted women in the field?
- What supplies should health care providers make sure are available to enlisted women?

What would help them get appropriate treatment for vaginal infections?
- Again, what do they do differently in the field?

PREGNANCY

How common is unintentional pregnancy among enlisted Army women? How do you think this compares to civilian women?

How much do you think Army women worry about getting pregnant?
- Do you think they should be more concerned? Why or why not? *(Prompt: What happens to enlisted women who get pregnant in the Army?)*
- Why do you think some enlisted women get pregnant in the Army?

What would help Army women avoid unintended pregnancies?
- What can their health care providers do to help?

CONTRACEPTION

What are the types of contraceptives most often used by Army women? Why?

What type of counseling/education about contraception do health care providers give enlisted women? When?
- How could they do this more effectively?

How hard is it for enlisted to get contraception when they you need it?

- What makes it hard to get? What could make it easier?

What do enlisted women need to know to use contraception consistently and effectively?
- What else do enlisted women need to know to better prevent unintentional pregnancy?

How do most Army women prevent pregnancy when they are in the field?

How hard is it for enlisted women to get contraception in the field?
- What makes it hard to get? What could make it easier?

What should health care providers do to address the contraceptive needs of enlisted women in the field?

SEXUALLY TRANSMITTED DISEASES/CONDOM USE

Let's talk a little about STDs. What STDs do you think are most common among Army women?

How much do you think Army women worry about STDs?
- Do you think they should be more concerned? Why or why not?

What percent of Army women do you think have STDs?
- A 1995 survey says that ___ % of Army women reported having an STD last year.
- How do you feel about this information? Does it seem high or low to you? Why?

What do enlisted women need to know to better protect themselves from STDs?
- What about condoms? What do they need to know?
- What do they think about using condoms? What about their partners?

Should health care providers be responsible for giving STD prevention information to enlisted women?
- How should health care providers promote condom use among enlisted women?

HEALTH EDUCATION

Let's talk more about health education in the Army. What kinds of health education are available? How about reproductive health or women's health?
- How adequate is the health education that enlisted women receive? Why do you think this?

What reproductive health topics do you think enlisted Army women **need** to know more about?
- Why? Is this different from what they **want** to know more about?

How can Army women find out about these topics now? How do they?
- Where do they go? Who do they usually talk to?

We are developing a reproductive health intervention to teach enlisted women about prevention and self-care.

Imagine that you were put in charge of getting information on reproductive health to all women at your base. What do you think would be the best way to do this?

- What would be the most effective way to present it?
- What would help them learn more about self-care and prevention? What content?

What could the Army do to get health information to all enlisted women in the Army?

If we made a computer program about prevention and self care, what are some things that would make enlisted women interested in using it?

- What would it look like?

What skills would enlisted women benefit from seeing demonstrated on a computer program?

Give a couple of examples: How to use condoms correctly? How to talk to a partner about sexual matters? How to practice proper hygiene in the field?

What kinds of dramatic stories do you think would be useful for enlisted Army women to see in this program? What are some realistic scenarios?

Where would enlisted Army women use a program like this?

Have you ever used a computer to teach about health (e.g. via the Internet, in classrooms, etc.)? Would you recommend it to other clinicians?

- Why or why not?

What are some things that would make clinicians interested in using computer-based education with patients? Does being a military clinician affect the willingness or interest in using computer materials with patients?

What other materials or education would help enlisted women improve their self-care and preventive behaviors?

If we make a pocket field guide that summarizes prevention and self-care information, what would be helpful to include in it? What should it look like?

How could the Army ensure that every active duty women received a pocket field guide?

Appendix E: Informational handouts reviewed at focus groups

See attachments.

CD-ROM Technology to Increase Appropriate Self-Care and Preventive Behaviors Among Army and Navy Women

Focus Group Report for Fort Lewis

September 15-16, 1998

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Background

The Department of Defense (DoD) contracted with Macro International Inc. to conduct a study of enlisted women's needs for basic gynecological and reproductive health education, from the perspective of military health care providers and enlisted women themselves. Based on the results of this needs assessment, a culturally sensitive, multimedia CD-ROM and accompanying materials will be developed. This intervention will then be tested in Army and Navy medical clinics in conjunction with annual Pap test screening. As part of the needs assessment, a series of focus groups were conducted to ensure that attitudes and beliefs related to reproductive health behavior of enlisted women are examined. A total of 8 groups with enlisted women, 4 groups with physicians, and 4 groups with nurse practitioners, physician assistants, and medical corps personnel were conducted at two Army and two Navy installations. At each installation, one focus group was conducted with married, enlisted women; one with single, enlisted women, one with military physicians, and one with other military providers of health care for enlisted women. This report discusses the findings of four focus groups conducted with enlisted Army women and their health care providers at Fort Lewis, Washington.

The purposes of all focus groups conducted for this project are:

1) To assess the most pressing reproductive and gynecological self-care education needs of enlisted women on base and in the field; and

2) To assess the range of current health education efforts for enlisted women.

Strengths and Limitations of Qualitative Research

Focus groups were chosen as one research method to be used in determining the reproductive education needs of enlisted Army and Navy women. Focus group research is qualitative in nature, so the results are not quantifiable. Qualitative research provides information for clarifying theories, creating hypotheses, and giving direction for future research. The results presented in this report are an objective observation of attitudes, preferences, and comments of those participating in the focus groups. Although focus group participants were drawn from the target populations of enlisted women and their health care providers, they were not chosen on any statistical basis. Therefore, no statistical inferences should be drawn from the results of the focus groups. Findings also cannot be generalized to the target population.

Methodology

Macro International conducted four focus groups at the installation hospital to address the needs of this project. One focus group of Army physician's assistants (PAs) and nurse practitioners (NPs) and another focus group of Army physicians was conducted at Madigan Army Medical Center at Fort Lewis, Washington on September 15, 1998. Two more focus groups, one

consisting of married enlisted women and one of single enlisted women, were conducted at the same location on September 16, 1998. All focus groups were held after duty hours and the participants received $25 each for their voluntary participation in the focus groups.

Army physicians with experience treating enlisted women were recruited from the hospital. Physician's assistants (PAs) who had experience treating enlisted women were also recruited from the hospital. The participants in the clinicians' focus groups were primarily white and male. One woman participated in the PA/NP focus group. Two women participated in the physician focus group. Most participants in the PA/NP focus group had at least five years of experience treating active duty Army women. Years of Army service reported by participants in the PA/NP group ranged from 15 to 35. Participants in the physicians' focus group had, on average, fewer years of service than those the PA/NP focus group. Reported years of service among participants in the physician focus group ranged from 3 to 23. Many of the physician participants had extensive experience delivering gynecological care to enlisted women.

Enlisted women were recruited from several divisions. The majority of these participants held medical and administrative support positions. Participants in the married, enlisted women's focus groups were primarily African American. The single, enlisted women's focus group included a good mix of women of various ethnicities. At least two African American, two Caucasian, and two Hispanic women, and at least one Asian woman participated in the single enlisted women's focus group . Most enlisted women participating in the focus groups had less than four years of service in the Army. On average, the married women had more years of service than the single women. Time in the Army for the married enlisted women ranged from 19 months to 18 years. Few of the enlisted women had been deployed overseas. However, most participants in the enlisted women's focus groups had some field experience.

Major Diane Flynn, M.D., who serves at the installation hospital recruited all focus group participants. A screener was developed at Macro International Inc. to be used as a guide by Dr. Flynn for selecting focus group participants.

A moderator's guide was also developed at Macro International Inc. to answer the general questions listed in the background section of this report and to obtain other feedback that may be useful in developing an educational CD-ROM to help enlisted women care for their reproductive health. The moderator's guide was approved by the internal review board at Macro, the U.S. Army Medical Research Acquisition Activity at Fort Detrick, Maryland., and the head of Clinical Investigations at Madigan. All focus groups were led by a trained moderator from Macro International Inc. A project manager, who is an experienced focus group moderator from Macro International Inc., also observed the focus groups and took notes. Both focus group facilitators from Macro were female. Dr. Flynn also observed the focus groups. All focus groups were audiotaped.

General Findings

Below are the general findings of the four focus groups conducted at Fort Lewis for the project, "CD-ROM Technology to Increase Appropriate Self-Care and Preventive Behaviors Among Army and Navy Women." The findings are organized under the general categories of topics covered in the moderators' guides (see Appendices C and D).

General Health

According to both the clinicians and the enlisted women who participated in the focus groups, health and fitness are highly valued in the Army. Expectations for health and fitness among enlisted women go beyond the requirements for enlistment and retention in the Army. Participants in the focus groups agreed that good health in the Army is very important because it is critical to readiness. If one soldier in a company is down because of health problems, the effectiveness of the company is affected. A soldier who is not in top physical condition may risk injury when engaging in duties such as physical training (PT) and hard labor in the field. For this reason, preventive health is emphasized in the Army. Soldiers' health is more closely monitored because regular physical exams are free and mandatory. For this reason, and because good health is vital to the performance of their duties, enlisted women tend to be aware of preventive measures relative to civilian women. As a result, health problems may be identified more quickly in the active duty population.

Clinicians recognized that enlisted women are very concerned about their health and will use health care services if they are available and convenient. Clinicians who participated in the focus groups also noted that enlisted females appear more interested than enlisted males in their health. The women utilized health care more often and expressed more interest in receiving health education. However, some participants in the PA/NP focus group said that many enlisted women did not appear to be concerned about their reproductive health until they experienced a problem such as an STD or pregnancy. The overall sense among the physicians was that the general level of reproductive health knowledge among enlisted women was unknown. However, physicians were fairly certain that enlisted women knew more than they practiced. They also noted that the women generally know more than the men about reproductive health because women, at a minimum, must deal with menses. Women are usually the ones making the contraceptive decisions as well.

Women in the Army are often likely to put their health at risk because of the military environment. Military women are placed in competition with males and often attempt to "out do" males physically and sexually. Women may also hesitate to take advantage of health care services or go to sick call because their commanders (male or female) and/or male soldiers may view them as "weak," accuse them of whining, or accuse them of using female complaints to get out of duty. During field exercises, commanders may refuse a soldier's request to go to sick call. According to some enlisted women, this is especially true for medics, who are expected to "know better" than to get sick.

According to the clinicians, the unique characteristics of the population of Army women also put them at risk for poor health behaviors. Most military women are young (under 25) and inexperienced. Many are away from home and parental support for the first time. These situations often lead to poor health decisions and risk taking. Clinicians also feel that many soldiers are simply too young and immature to deal effectively with the stressors of military life. They believe that many soldiers engage in risky behaviors in order to temporarily escape the stress of military life. Clinicians added that most soldiers are kept in line during basic training by their drill sergeants. They are therefore most likely to engage in risky behavior when they arrive at their first post and experience a certain amount of autonomy, often more than they have ever had in their lives.

Pregnancy

Unintended Pregnancy

Participants in both enlisted women's and clinician's focus groups reported that unplanned pregnancy in the Army was fairly common. Some participants estimated that more than half of all pregnancies among Army women were not planned. Physicians believed this rate of unintended pregnancy to be about the same as that of the general U.S. population. However, some physicians also said that they were "shocked" at the number of sexually active enlisted women who do not do anything to prevent unintended pregnancy. Enlisted women have a slightly different perspective. Their comments suggested that certain conditions in the military may encourage unintended pregnancy. For example, soldiers may be discouraged from bringing contraception into the field, or it may simply be unavailable. It is assumed that soldiers will follow regulations and not engage in sexual relations while in the field. However, because of the ratio of males to females, women in the Army receive a great deal of sexual attention, even in the field. These women are often too young and inexperienced to deal effectively with this type of attention, and pregnancy "just happens."

Apparently, many enlisted women are indifferent about getting pregnant, perhaps because of the supports the military provides for pregnant women and single parents. Participants' comments also indicated that what is commonly defined as "unintended pregnancy" may be intentional for some enlisted women. Some participants believe that some Army women get pregnant to avoid deployment, get out of the military, or simply gain more pay and benefits. Some enlisted women may also use pregnancy to get a profile that allows them to be released from certain duties or activities. Enlisted women complained that the few women who use pregnancy in this way have created a stereotype among commanders who may accuse any pregnant enlisted woman of getting pregnant to get out of something as basic as a physical training (PT) test. Participants disagree as to the extent to which Army women get pregnant for these reasons. Most participants believed that a minority of enlisted women get pregnant in order to get out of duty, deployment, or the military. However, pregnancy among enlisted women can create significant problems in the military. For example, one clinician mentioned a Navy ship that had evacuated 40 to 45 female sailors because of pregnancy.

Clinicians explained that pregnancy among enlisted women became an important issue during Operation Desert Storm because of the rapid expansion of women in the military. During Operation Desert Storm, the Army was generally unprepared to deal with pregnancy among enlisted women. Several women became pregnant before deployment, but their pregnancy was not diagnosed until after they deployed. In the field, pregnancy tests were often unavailable and clinicians had to diagnose a suspected pregnancy with a pelvic exam. Some clinicians pointed out that many enlisted women were not aware that they were pregnant. For example, one clinician reported seeing enlisted women who were unaware they were pregnant until they were ready to deliver. Because of many enlisted women's lack of knowledge about pregnancy and their own body, clinicians feel they need to take greater initiative in testing enlisted women for pregnancy before deployment.

According to the clinicians, many commanders have attempted to control unintended pregnancy by requesting that the women in their command be on birth control at all times. Some enlisted women will resist this request in order to retain control over their reproductive capabilities. Clinicians suggested that further research is needed to identify the types of enlisted women who get pregnant, and, specifically, those women who do not use birth control consistently and correctly. Identifying characteristics of enlisted women who experience unintended pregnancy may be the first step toward significantly reducing the rate of unintended and mistimed pregnancy among enlisted women.

Pregnancy Care

In the focus groups at this installation, participants more often mentioned issues for pregnant enlisted woman than issues for enlisted women who want to prevent pregnancy. Both enlisted women and clinicians repeatedly brought up issues related to pre- and post natal care for women in the Army.

Many participants in the enlisted women's focus groups expressed a lot of concern about how field duty, PT, and exposures to toxic substances may affect their pregnancies and the babies they deliver. They were concerned about issues such as the effects of anthrax on the reproductive system and pregnancy, how to breastfeed while on active duty, expressing milk in the field, how long a pregnant women can safely be in the field, and the impact of certain physical activities on pregnant women. Some married enlisted women felt that the Army should not allow pregnant women to go to the field. Others disagreed and stated that whether and how long a pregnant soldier should have field duty depended on her specific duties (e.g. whether heavy lifting was involved) and whether she had a "high risk" pregnancy. Participants gave examples of women who continued to perform all their normal duties as a soldier well into their pregnancy and had no problems. They also gave examples of women who took advantage of their pregnancy. For example, pregnant soldiers had made prenatal appointments they did not attend just to get out of duty. Other pregnant soldiers had directed their physicians to include in their profile that they could not perform certain activities that they simply considered unpleasant. As a result of these abuses, some clinicians may hesitate to include women's legitimate complaints in a profile.

Most enlisted women understood that pregnancy was not considered acceptable for soldiers, even if they were married. Single enlisted women stated that pregnancy was viewed as a "disease" among enlisted women but not officers.

Contraception

The preferred form of contraception among enlisted women is still birth control pills. However, more women are requesting DepoProvera because it is difficult to bring birth control pills into the field, and DepoProvera is more cost effective. DepoProvera also stops menstrual bleeding in some women, which some see as a benefit. However, DepoProvera can also cause continuous bleeding and other side effects in some women, which may explain why many enlisted women have refused DepoProvera shots even at their commander's urging. Enlisted women also said that it is difficult to get an appointment to get a DepoProvera shot, which must be administered every three months. Clinicians report that more enlisted women are using condoms but fear that they may not be effective, will not feel right, or males will think they are promiscuous for having them. Both women and health care providers prefer to avoid Norplant. Women who have used it have reported menstrual problems, and it is hard to remove.

Contraceptive use among military women may be problematic for a few reasons. First, weight gain caused by hormonal contraceptives may make it difficult for stockier women to stay within military weight standards. One solution to this problem that was proposed in a clinician's focus group was that health care providers recommend that heavier women use low dose birth control pills. Contraceptives are also difficult to obtain in the field. During long term deployment overseas, contraceptives and other medications may be depleted or simply unavailable.

Sexually Transmitted Diseases (STDs)

The most commonly reported STDs by the participants were chlamydia, herpes, and human papillomavirus (HPV), or genital warts. Other STDs, such as trichomonas and syphilis, were considered rare among Army women. Some clinicians have seen a sharp rise in the number of abnormal Pap tests and believe that HPV infection is on the rise. Clinicians also stated that herpes and chlamydia are very common among enlisted women, but these STDs often go undiagnosed or are misdiagnosed as chronic urinary tract infections (UTIs) or vaginal infections.

Many STDs in females go undiagnosed for extended periods because females experience few, if any, symptoms. According to physicians, chlamydia often does not get diagnosed until a woman gets treated for pelvic inflammatory disease (PID). Because of the lack of symptoms and the fact that females have more long-term complications as a result of STDs, some clinicians would like to screen female soldiers for STDs such as chlamydia and herpes regularly. However, other clinicians pointed out that enlisted women do not normally want to come to the clinic for STD testing. Use of non-invasive methods for STD screening may be an alternative in the future. Enlisted women also suggested that clinicians routinely test women for common STDs during their annual pelvic exam. Clinicians also said that health care providers need to identify

partners of female soldiers infected with STDs and treat them to avoid reinfection. Partners are usually other soldiers; but nonmilitary partners usually cannot be treated by military clinicians because of liability issues.

The STD infection rate among Army women of 27.8 percent, reported in the *1995 Department of Defense Survey of Health Related Behaviors among Military Personnel* seemed low to many participants. Participants guessed that the proportion of enlisted women who have been infected with an STD to be from 40 to 90 percent. Health care providers indicated that the STD rate in the *1995 Survey of Health Related Behaviors among Military Personnel* may be inaccurate, since many STDs in women are undiagnosed, particularly among young, single women. One clinician pointed out that a University of Washington study had found HPV in the bloodstream of 70 percent of subjects, and 100 percent of those with multiple partners. Another clinician cited an estimate that 40 percent of adults have been infected with some form of HPV by the age of 25. One clinician said that about 50 percent of the women seen in her clinic test positive for HPV infection. Most did not know they were infected. However, another clinician pointed out that all clinicians who work in "STD" clinics will perceive the infection rate to be high. Some participants in both clinicians' focus groups had experience the "STD clinic" at the hospital.

STD clinics or education programs can have a negative stigma attached to them. Some female soldiers are embarrassed to make use of these services on a voluntary basis. Others feel they have greater privacy at an STD clinic because it is in the main hospital rather than in the troop medical clinic (TMC).

Prevention

Participants' comments suggested that prevention of STD infection may not be adequately emphasized in the Army. The greater focus, at present, may be on diagnosis and treatment. According to physicians, enlisted women tend to worry about STD infection after the fact, when they go to the STD clinic and ask to be tested for "everything." Many participants agreed that enlisted women need to discuss what safe sex is. Physicians admitted that health care providers and other health educators in the military also need to learn what safe sex is, in order to appropriately educate the people they serve. Most clinicians agreed that enlisted women need to learn more about barrier methods of contraception, particularly condoms, in order to protect themselves from STDs. These clinicians also indicated that education about barrier methods that help protect women and their partners from STD transmission should be offered as early as possible, preferably in basic training.

Participants in the enlisted women's focus groups mentioned several barriers to enlisted women protecting themselves from STD infection. Some women may fail to protect themselves from STDs simply because of inaccurate beliefs or information. For example, many women believe that males in the Army are safe sexual partners because they are tested for AIDS before entering the military. However, some enlisted women in these focus groups recognized that males in the military may have AIDS. Soldiers are only tested every two years, unless they are deployed. Enlisted women may also fail to use condoms because they believe they are promiscuous for

having them, their partner does not want to use them, or they have allergic reactions to the latex or lubricant.

Genitourinary Infections/Hygiene

Participants in the focus groups of enlisted women appeared most concerned about issues related to hygiene and the prevention and treatment of common genitourinary infections. Both enlisted women and their health care providers reported that vaginal infections and UTIs are common among enlisted women. The majority of these infections were attributed to poor hygiene practices, particularly in the field.

Hygiene Issues for Enlisted Women

Several statements made by participants in the enlisted women's focus groups suggested that the predominantly male environment in the Army makes it difficult for female soldiers to consistently practice proper hygiene. Participants indicated that women tend to attribute more importance to good hygiene than men, partly out of habit, but also because they are more prone to genitourinary infections as a result of poor hygiene. Enlisted women noted that many male soldiers either do not know or do not care when "they stink." What women need in order to practice good hygiene is also different from what men need. For example, male soldiers do not need to deal with hygiene issues related to menstruation while performing their duties. Males may not understand what women need to do to care for themselves, and may perceive women as taking too much time to clean themselves. According to participants, the Army has not adequately dealt with the unique and probably greater need female soldiers have for maintaining good hygiene while performing their duties.

Both the health care providers and the enlisted women acknowledged that conditions in the field make proper female hygiene practices especially difficult. In the field, there are limited opportunities for both male and female soldiers to bathe, change clothes, or relieve themselves. Units with more women are more likely to have access to showers in the field. However, women in predominantly male units may not be able to shower at all while in the field. Women need to learn to take advantage of every opportunity for a shower in the field. Women frequently use baby wipes to clean themselves in the field, but many women reported that baby wipes are inadequate for maintaining hygiene. Perfumes in baby wipes can also cause or aggravate allergic reactions and/or infections in the genital area. Some more experienced enlisted women suggested that a basin and wash cloth need to be brought into the field to maintain personal hygiene. A canteen cup, bedpan, or cookie tin can also be used as a basin. Some enlisted women noted that a portable shower can also be brought into the field, but this is not generally done. Many enlisted women thought that the Army should issue materials to help soldiers keep clean in the field. Elimination facilities are also inadequate in the field, according to the focus group participants. Women reported that "porto potties" are available in the field, but they are usually filthy and sometimes filled to the top. They also do not have sinks for handwashing. Many women said that they try to minimize their trips to the "porto potty" and do not clean

themselves after elimination because these facilities are so unclean. Women also reported that they often needed permission to leave duty to use the "porto potty," and permission was not always granted.

Clinicians acknowledged that few products necessary for maintaining basic feminine hygiene are included in field packs or available in the field. Enlisted women said that, because of the lack of resources in the field, women need to know how to keep themselves clean and protect their own health during deployment. Women also need to know what to expect in the field so that they can prepare the items they will need to bring in advance. For example, women may not expect to have their period during a short field exercise, but the field environment is often so stressful that a woman's menstrual cycle may be irregular and breakthrough bleeding may occur. Female soldiers need to know what they should always bring into the field and how much. At this installation, a list of hygiene products that women may need to bring into the field is available. Women also have the option of going to the PX during breaks from local field exercises. Enlisted women and clinicians in the focus groups gave a few suggestions for items women need to bring into the field in order to maintain good hygiene.

- Sanitary pads regardless of whether a woman expects her period.
- Panty liners, which protect from spotting and can be changed when clean underwear is not available.
- A wash basin and wash cloth.
- Enough sets of clean, white, cotton under clothes to change twice daily.

Many women get UTIs in the field because they do not relieve themselves regularly, and they drink little water to avoid the need to urinate. In the field, the nearest latrine is often a good distance away, and field activities may not leave women enough time to go there or at least find a private spot where they can relieve themselves and clean up.

Prevention and Treatment of Genitourinary Infections

Vaginal infections and UTIs are common in the field because of poor hygiene. Women get vaginal infections and UTIs in the field, in part, because they do not urinate or clean the genital area frequently due to a shortage of female sanitary supplies as well as clean, private, accessible elimination facilities. Additionally, health care services in the field are minimal, so vaginal infections and UTIs generally cannot be treated there.

Most women who experience a vaginal infection in the field reportedly go to sick call to get a cream to treat the infection. Some women opt not to go to sick call and attempt to treat themselves in the field, often using douches which may worsen the infection. Diagnosis and treatment of vaginal infections and UTIs are sometimes complicated by the soldiers' confusion between these two conditions and STDs. Some women who experience simple vaginal or urinary tract infections believe they have an STD. This confusion may come, in part, from the fact that bacterial vaginosis, the most common type of vaginal infection, is treated in the same way that sexually transmitted trichomonas is treated. Additionally, frequent UTIs may also be an

indicator of a chlamydia infection, but not necessarily.

Health Care in the Military

Barriers to Effective Utilization

Enlisted women may fail to obtain annual exams or other health care in a timely manner because of a lack of confidence in the quality of care they normally receive at the Troop Medical Clinics (TMCs). Several enlisted women mentioned cases in which women received incorrect or inadequate treatment for various conditions. Many enlisted women felt that the PAs are not trained to handle some of the conditions they treat, particularly gynecological conditions. Clinicians at the TMC may also assume that most patients are just trying to get out of duty and thus do not take their complaints seriously. Some women said that PAs often hesitate to refer women to a specialist at the hospital when they are having difficulty diagnosing or treating a condition. These PAs may assume that a condition they cannot diagnose or treat is not legitimate. Follow up care may also be inadequate. Participants in both clinician and enlisted women's groups reported that follow up visits for abnormal Pap tests often take several months to schedule. Many women with abnormal Pap tests do not receive follow up care, particularly if they are deployed before the scheduled follow up visit. Some enlisted women said that they had given up on getting health care, at least at the TMCs, because they only receive ibuprofen and/or a pregnancy test after waiting an hour.

Another concern voiced by the enlisted women in the focus groups was that the continuity of care suffers as a result of the soldiers not having a regular health care provider. Enlisted women said that they would prefer to have a regular provider who knows their history and therefore can provide them with more appropriate care. One consequence of not having regular health care providers for soldiers is that many health problems that require follow up care or testing, or that do not improve, may go untreated or mistreated by a new clinician when the profile is not changed. According to some enlisted women, the profile may not be changed even when a soldier's condition does not improve.

Privacy and confidentiality in care were important concerns for enlisted women. However, participants in both the clinician's groups and the groups of enlisted women admitted that sick call offers little privacy. Confidential medical information has been shared by the medics who have access to the medical records. For example, one physician mentioned that a medic had recently received disciplinary action for sharing medical information on an enlisted female with other soldiers. Both the PAs/NP and the enlisted women reported that the lack of privacy and confidentiality at the TMCs leads many female soldiers to seek medical care at the hospital emergency room rather than go to the TMC. Enlisted women also said that many of them go to the OB-GYN clinic at the hospital to obtain gynecological care. In general, the enlisted women expressed a preference for care at the hospital because of the greater availability of highly trained clinicians (e.g. physicians or registered nurses as opposed physicians assistants and medics), the availability of specialized care, the increased time and attention that can be given to individual patients, and the increased privacy. Soldiers believe that care at the hospital is more

private since it is not directly connected to most soldiers' commands. The PAs at the TMC often have the same commander as the soldiers who use that TMC. The soldiers may therefore fear that the PA will divulge their personal medical information to the commander.

Although the clinicians disagreed as to whether access to care was a problem at the medical facilities at the installation, nearly all participants acknowledged that soldiers frequently have to go through their chain of command in order to obtain care, which can pose a significant barrier. Many enlisted women reported that they must explain their condition to their commanders when they go to sick call during duty hours. Physicians discussed the need to add evening and weekend hours at health care facilities so that more soldiers will seek care. However, enlisted women indicated that even a soldier who obtains health care on off-duty hours may be questioned about her health problems or the profile she received. Commanders often attach a negative stigma to a soldier's sick call visits in general, viewing them as signs of weakness or attempts to escape duties. Commanders may therefore pressure soldiers not to take time to care for their health or obtain professional care during duty hours. Commanders also expect their soldiers to be in top condition and may view care seeking even during off-duty hours as an indication of a problem that may interfere with their soldier's ability to perform.

Time pressures in the Army may also interfere with enlisted women's ability to obtain quality health care. According to participants in clinician and enlisted women's groups, active duty women, on average, have less time to care for their health than their civilian peers. For example, some clinicians reported that they have often heard from enlisted women statements such as "I was too busy to get birth control." Enlisted women also said that they often did not have adequate time to recover from certain conditions. An example was given of a woman who had kidney stones but was not given any time to recover. Clinicians may also have less time available to provide quality care because of the large volume of patients seen, especially at sick call. During sick call, a large number of soldiers are seen in a relatively short period of time. Time pressures created by this situation leave little time for clinician/patient communication.

Comments made by participants in all focus groups suggest that many enlisted women, particularly those with less time in the military or at a post, are unaware of the health care services available to them. According to some of the clinicians, many younger enlisted women who are new to the Army or to their post have no sense of what they need to do to care for their health. Many do not even know about either their need or the Army's requirement for an annual Pap test.

Preventive Health Care Practices

Preventive health care for most enlisted women is comprised of the annual Pap test and an occasional pregnancy test. Most enlisted women report that they regularly receive pelvic exams and Pap tests. According to both enlisted women and PAs, many clinicians also give pregnancy tests to enlisted women when they have the opportunity. A health risk assessment is also supposed to be done for all soldiers every five years, but this does not always happen because of frequent relocations. Additionally, the unit has to request that a health risk assessment be done.

Military Health Education

Enlisted women who participated in the focus groups were interested in receiving education about reproductive health issues. Participants in the clinician's focus groups noted that enlisted women tend to be more interested in receiving general and reproductive health education than enlisted men. Participants also believed that enlisted women need reproductive health education. Clinicians reported frequently hearing from their enlisted female patients that "no one ever told me..." (something vital about their reproductive health).

Offered

The general consensus of participants in all focus groups was that some reproductive health education has been given to enlisted women at the installation. Corporate wellness classes (general health classes for all soldiers) are given at the hospital annually. Enlisted women felt that these classes were too brief and the classes too large. However, the women also mentioned that the corporate wellness classes taught them a lot and they liked getting that education. Most enlisted women also reported receiving some reproductive health classes during basic training. Focus group participants described these classes as consisting of lectures and films briefly covering topics of relevance to both sexes, such as STDs. Both the health care providers and the enlisted women felt that these basic-training classes were fairly ineffective. After basic training, most enlisted women are not encouraged to receive reproductive health education, although it may be offered on base. Enlisted women said that soldiers who are interested in receiving this type of health education often have difficulty getting released from duty to get the education. Participants in the focus groups of enlisted women said that the only education promoted for women at their post dealt with sexual harassment.

Clinicians reported being involved in several classes that gave soldiers some reproductive health education. Clinicians also noted that opportunities to educate about reproductive health issues can be taken during other types of health education. For example, one clinician says that he uses talks about medications to discuss birth control pills.

Written information on reproductive health issues such as Pap tests, breast self exams, STDs, and birth control is available at the hospital, often in the form of pamphlets. However, no pamphlets on women's reproductive health are available at the TMCs outside of the hospital. Clinicians at the hospital have reportedly made more of an effort over the past year to distribute pamphlets on contraception to enlisted women. TRICARE also mails information on reproductive health to all married soldiers. However, single soldiers receive nothing similar. Some health care providers suggested that this information be made available at the barracks.

Needed

A number of suggestions were offered during the focus groups for developing and effective reproductive health education program for soldiers. Because of the varieity of suggestions offered by participants, the discussion of what is needed in a reproductive health education

program is divided into several categories including: content, format, timing, target audience, and dissemination.

Content

The content of any reproductive health education program for enlisted women should start with the basics of how the female reproductive system works and what affects this system. Many enlisted women have knowledge gaps in this area. In particular, enlisted women need to know how a woman gets pregnant and what happens to her body during pregnancy. Women also need to know the effectiveness of different contraceptive methods, including condoms. According to clinicians, enlisted women also need to know how diseases of the reproductive system can alter or damage that and other systems in the body. If women understand the potential consequences of different reproductive health problems, they may be more motivated to protect their reproductive health. Enlisted women also saw the need for basic information on what the STDs are and how they are diagnosed and treated. Many enlisted women reportedly do not know what certain STDs are. For example, a woman may be told she has chlamydia, get treated for it, and never realize that she has had an STD.

Many women also do not understand the purpose of basic gynecological (GYN) exams and Pap tests. Some assume that they are being examined because they have some problem. Women need to understand the reasons for obtaining annual GYN exams, what to expect during this exam, what they are tested for, what questions to ask, how to know when there is a problem, and what to do about it.

Since many women in the military get pregnant, and pregnancy no longer guarantees that an enlisted woman will be released from service or her day-to-day duties, enlisted women need information on how to protect their own and their baby's physical and mental health during and after pregnancy. Participants suggested including information on substances to avoid and how they affect both mother and child (e.g. smoking, contraception, medications taken during deployment, toxic substances soldiers may be exposed to in carrying out their duties). Participants also frequently mentioned issues of breastfeeding while on active duty. Reportedly, many enlisted women do not know the benefits of breastfeeding or how to continue breastfeeding while performing duties. For example, some women have continued to use a breast pump in the field and saved the breast milk for their babies by carrying a freezer pack into the field. Physicians pointed out that little or no specific health information is available for mothers on active duty. Most information available for mothers on base is not distributed outside the hospital. Additionally, most of this information is obtained through nonmilitary sources and is primarily available for spouses of male soldiers. Little or no information is tailored to the unique needs of pregnant women and new mothers who are also soldiers.

Clinicians also emphasized that social or peer pressure issues should somehow be covered in any intervention directed at preventing unintended pregnancy and STD infection. For example, soldiers may view sex outside of marriage or a monogamous relationship as less "sinful" if it occurs in the "heat of the moment" and is apparently not expected or planned for. Use of

condoms and/or other forms of contraception is an indication that sexual activity was at least considered to be a possibility by the user. Both clinicians and enlisted women also mentioned the issue of self-esteem and felt that the women who took the greatest risks with their reproductive health likely had the lowest self esteem. Enlisted women may need tools to help them develop a sense of self worth so that they can resist peer and partner pressure and see their own health as worth protecting. Enlisted women also mentioned that teaching women how to effectively communicate with their partners may help reduce risky sexual activity. They suggested that Army women need to learn how to communicate more effectively, in general. They suggested that overall improved communication skills with peers would help women communicate more effectively with males and females in every situation. Several clinicians and enlisted women also felt that the Army might need to take stronger steps to promote the message that abstinence is a norm, expectation, and a positive quality for unmarried males and females in the Armed Forces.

Another informational need that was emphasized by the focus group participants, particularly the enlisted women, was hygiene in the field. Women do not know how to adequately maintain proper hygiene and protect their genitourinary health in the field. Women need to know what to bring into the field and how much. More experienced female soldiers have developed techniques for self-care in the field; and know how to locate resources that help enlisted women protect their health. The collective knowledge of experienced female soldiers needs to be shared with new recruits.

Enlisted women also expressed that they would like to have better communication with their health care providers. Women said that physicians should be more proactive in educating as well as treating soldiers. These participants felt that doctors should ask and invite questions. Participants also said that enlisted women need to take responsibility for their own health and be proactive in asking for the information and care they need. However, they felt that many enlisted women do not know what to ask or how to deal with their health care providers. Enlisted women need to know what questions to ask their clinicians, and how and when to get a second opinion.

Enlisted women also need to know that they have options for treatments and providers, what those options are (e.g. providers could include a PA at the TMC, physician, or nurse at the hospital, or civilian doctor), and the pros and cons of each option. Women also need information on how to access the medical system at an installation, since they are not briefed in this area. Some single enlisted women said that many women at the installation do not know how to go to sick call, how to obtain OB-GYN care, or what hours the TMC and hospital clinics are open.

Format

Most participants agreed that reproductive health education would not be effective unless it was delivered in an interactive format that allowed users to select and respond to information and to practice making health decisions. Too much health education in the military is delivered in a lecture format, in which soldiers are often directed rather than encouraged to actively make their own decisions. Most enlisted women reported that this type of health education was boring, and

they did not retain much of what was taught. Clinicians also recognized that this format did not work well with enlisted personnel, in general. Participants said that an effective health education intervention would:

- Involve information sharing, teaching, and interaction between soldiers (particularly woman-to-woman);
- Have interesting and current visuals;
- Include decision-making exercises;
- Have role playing activities and/or "true-to-life" scenarios that model positive behaviors;
- Use an adult education format that provides the user with tools to change her own behavior but does not "talk down" to the user;
- Include stories or quotes from real soldiers;
- Be updated and delivered on an on-going basis so that users can stay current and retain the information;
- Have at least a portion that is mandatory;
- Be accessible at the barracks;
- Be interactive; and
- Include accurate information on local resources and services to help women protect their reproductive health.

Timing

Participants said that reproductive health education should be provided to soldiers as early as possible, since most enter the military at a young age, with relatively low levels of health education. Some participants felt that more effective reproductive health education should be provided during basic training, since that is all soldiers' introduction to the Army as well as their first field experience. Several participants in both clinician's and enlisted women's groups suggested that some type of health education for soldiers also be provided during in-processing at each installation so that women will know what to conditions to expect and how to protect their health using the resources available at that location. Both clinicians and enlisted women noted that many women enter the Army without knowing what to expect.

Participants, particularly the enlisted women, also wanted education to be on-going so that women could keep current. They also felt reiteration would help remind women about protecting their reproductive health and increase learning as material was repeated. Enlisted women thought that new recruits needed to receive more detailed reproductive health education more often. Participants in both clinician and enlisted women's groups agreed that reproductive health education that was not on-going and regular would have little impact on the day-to-day behaviors of enlisted women. Some physicians suggested that health education sessions be conducted as often as every week to allow enlisted women the opportunity to recall what they have learned and keep updated on new information that may affect their reproductive health.

Target audience

Although most participants agreed that reproductive health education was most critical for women under age 25 and needed to be delivered as early as possible, many participants indicated that older, better educated, more experienced enlisted women also need on-going, reproductive health education. Clinicians offered examples they had seen of female officers in their 30s needing basic information on pregnancy issues, such as how to stop using a breast pump.

Participants in all four focus groups indicated that any reproductive health education intervention should be developed for use by both males and females in the military. Clinicians emphasized that the males need education about reproductive health as much as the females. Reportedly, an existing pregnancy prevention program at this installation does target the males. Although enlisted women said that they would want the option of receiving reproductive health education privately or without the males being present, they also said that the males would benefit from receiving education about reproductive health, particularly female reproductive health. Some of the enlisted women added that they might resent a requirement to receive additional education that males were not required to receive. Males may also resent the fact that they do not receive the same level of reproductive health education as the women. Several participants believed that enlisted females would likely benefit from any program that increased the awareness of enlisted males with regard to women's unique health concerns. Some enlisted women pointed out that men do not understand their unique health problems and often accuse them of "whining" or trying to get out of duty when they have legitimate health problems. Also, both enlisted women and clinicians felt that enlisted males need to have a better appreciation of their part in pregnancy and STD transmission. For example, participants in all focus groups appeared to agree that pressure from male partners, usually other soldiers, is a major factor in female soldiers engaging in sexual activity and unprotected sexual activity. Males also need to know the health issues that may arise for their partners and other females in their unit when they are pregnant. For example, male commanders often do not know how to treat pregnant females in their command aside from the recommendations in the pregnant soldier's profile. Males also need to know how to protect both themselves and their partners from STD infection and unintended pregnancy. For example, clinicians reported that many males seem unaware of the fact that females infected with certain STDs are often symptomless and do not know they have an STD. Males also need to know the unique consequences for both males and females when an unplanned pregnancy occurs or when someone becomes infected with a particular STD. For example, males may need to be made aware of the amount that may be deducted from their pay in order to provide child support.

Whether or not a reproductive health education program targets only enlisted women, it will need to be culturally sensitive in order to target the diverse cultures and ethnic backgrounds that soldiers in general, and enlisted women in particular, come from. For example, feedback from the participants in the enlisted women's focus groups indicates that sex is a taboo topic, at least for young females, in many families. Hispanic and Asian families may be less likely to openly discuss sexual and reproductive issues with their daughters relative to families from other cultural backgrounds. As a result, many Hispanic and Asian women who enter the military may have a greater need for reproductive health information that is delivered in a culturally sensitive, private, and confidential way.

Dissemination

Several comments from focus group participants suggested that women's self-care and preventive behavior may suffer because the system for disseminating information on services and resources currently available to enlisted women is fairly ineffective. Participants indicated that there is a lack of knowledge and communication about the services and support available to help enlisted women maintain their reproductive health, particularly in the field. Participants in the PA/NP group emphasized enlisted women's need for basic information on how to access health care. Some believed that this topic should be covered during basic training, but was not.

During the discussion of the system for disseminating information on existing resources and services, participants were asked what they thought was the best method for delivering education on women's reproductive health and disseminating information on services and resources available to help enlisted women maintain their reproductive health. Clinicians suggested that:

- An NCO (preferably female) be responsible for disseminating information to all enlisted females and making sure they have all necessary supplies.
- Education become part of basic training.
- There be a unit level program for educating and disseminating this information.
- Health care providers be involved in educating and disseminating information.
- Education be provided and materials distributed as part of in-processing.
- Older female soldiers impart their experience to younger soldiers in classes or other interactive settings.
- Use a variety of channels to reach enlisted women with reproductive health education (i.e. media, Internet) since different women will prefer different channels of communication.

Enlisted women suggested that:

- Groups similar to the focus group being conducted be used to educate women about reproductive health and disseminate information in this area. The women liked the interactive group setting and used it to discuss their own experiences and share information with one another.
- The annual health classes at the hospital be used to focus on women's health issues.
- Doctors be more proactive in educating women at each visit. For example, when they give DepoProvera injections, they should warn the women that this contraception does not protect from STD infection. Clinicians should invite and ask questions.
- Women be asked about STD/health issues at monthly counseling and be educated at that time. Currently, this type of counseling is used to deal with non-health related issues such as finances.
- Women teach other enlisted women about hygiene and other reproductive health issues.
- Education be delivered at the unit level.

Computer-based Education

No participants specifically suggested that education be disseminated using computer technology. When asked what participants thought of a computer-based health education program, they generally responded positively but had a few reservations. Participants mentioned a few computer-based health education programs available at the installation that appeared to be at least somewhat successful. One program was entitled PACE, which provides information on birth control options for enlisted women. Clinicians believed that this computer-based education program had been well received. Several participants also pointed out that there is a health kiosk at the hospital that is frequently utilized, but the enlisted women reported that they had never used this. In general, most participants felt that the majority of enlisted women are computer literate and will likely use computer-based programs if they are publicized and easily accessible. However, most enlisted women do not have their own computer on base and soldiers rarely have access to computers in the field. Clinicians pointed out that several computers are available for use at the education center, but only a subset of soldiers make use of these computers. They suggested that portable computers be brought into the field and that computers be available at the barracks to allow soldiers to use this intervention. Other locations where a computer-based health education program might be used by enlisted women are in the day room at the barracks or on an intranet/home page. Assuming some of the main barriers to access could be overcome, participants saw several advantages to having a computer-based health education program available to enlisted women, including:

- Women can be educated before meeting with health care providers, so that the women are prepared.
- Women would have the freedom to explore different topics at their own pace.

Education Recommendations

- Content should start with basics of how the female reproductive system works, what affects this system and how, how women get pregnant, etc. Many women have knowledge gaps in this area.

- Enlisted women also need to know how to assess their reproductive health by recognizing indicators of good health and indicators of potential health problems.

- Women need to know how different medications affect their body and reproductive health, particularly contraceptives and medications they must take during deployment.

- Women need to know what STDs they can contract in the military, their likelihood of becoming infected at each sexual encounter, and the consequences of specific STDs (e.g. HPV is incurable and may lead to cervical cancer at a relatively young age). Information will need to emphasize the severity and complexity of STDs and their impact on the body.

- Enlisted women want to know what questions to ask a provider.
- Enlisted women need to know the differences between vaginal and urinary tract infections and the various STDs. Women need to know that similar symptoms and treatments may accompany very different diagnoses.
- An adult education format should be used for teaching enlisted women. They will not respond as well to lectures or being "talked down to." Education that addresses women's issues at different stages of the behavior decision making process was suggested.
- Education should be interactive and get women involved. Most current health education in the military is viewed as boring and easily forgotten because it is delivered in a lecture format.
- Women need reproductive health information in basic training or during in-processing upon arrival at an installation.
- Males should be educated about female reproductive health. Males also need education on preventing STD transmission and unintended pregnancy.
- Commanders need to be educated and held responsible for the health of the females under their command. They need to be convinced that increased health care and education will improve readiness.
- Commanders also need to know how to deal with sensitive health issues for those in their command without compromising the soldier's privacy.
- Most participants like the idea of a computer-based education program because of the privacy and interactivity it offers. However, many soldiers have limited access to a computer.
- At least some portion of the reproductive health education should be mandatory so that all soldiers receive it uniformly, and no one is singled out.
- Experienced, female soldiers can be used to provide information and share experiences.
- Multiple channels should be used to effectively educate women about their reproductive health.
- Any education program should be available in the barracks if it is to be used regularly.
- Regular education is important to ensure retention of information, allow users to explore different areas, and to provide updated information.

Conclusions

Most focus group participants at this installation agreed that there is an unmet need for basic reproductive health education for enlisted women. Education on preventive health is especially critical because of the high value placed on fitness in the military. Participants in the focus groups of enlisted women and their military health care providers agreed that there are several gaps in the education soldiers receive on STD and pregnancy prevention as well as ways to maintain hygiene and prevent genitourinary infections in the field.

Education is needed to prevent pregnancies that interfere with the mission of all soldiers. However, because there are so many incentives and other factors that may put enlisted women at greater risk for mistimed pregnancies, effective pregnancy-prevention education may be difficult. Focus group participants agreed that enlisted women need greater access to birth control at all times (including during deployment), in order to prevent unintended pregnancy. Participants also indicated that education, perhaps through peers who have experienced unintended pregnancy in the military, might help enlisted women prevent unintended pregnancy. However, both clinicians and enlisted women appeared to accept pregnancy among enlisted females as a given at present. All groups mentioned a need for information and support to help enlisted women deal effectively with pregnancy in the military. Many enlisted women wanted information that would help a woman care for her health, her child's health, and still perform her duties as a soldier.

Basic education on contraception is also needed to help enlisted women prevent unwanted pregnancies. Contraception is widely available in the military, but little contraceptive information is available. Enlisted women need to know about their contraceptive options, the risks and benefits of each option, how to obtain the contraception they need, and how to deal with the potential side effects of contraceptives. Information on viable contraceptive options in the field is especially needed.

Although the enlisted women participants were very concerned about pregnancy, they tended to talk more about issues of basic hygiene and the conditions women experience as a result of poor hygiene. Participants in the focus groups of enlisted women may have been most interested in the topics of hygiene and genitourinary infections because these are issues that almost all enlisted women deal with on a regular basis. According to focus group participants, enlisted women are frequently unable to practice good hygiene in the field. Working and living in close quarters with males decreases women's access to the resources they need to maintain good feminine hygiene. As a result, enlisted women experience a high rate of genitourinary infections. According to the enlisted women in the focus groups, information on the prevention and treatment of female genitourinary infections in a military environment is not readily available. Enlisted women reportedly need basic information on the type and quantity of supplies needed for female soldiers to protect their genitourinary health, especially in the field. Women also need to know what to do when they experience an infection.

According to focus group participants, genitourinary infections among enlisted women often create more concern than is warranted because enlisted women, their commanders, and male

soldiers fear that these infections may have been sexually transmitted. Sexually transmitted disease (STD) is clearly a major concern in the military and is viewed as relatively common among soldiers. Participants in both clinician and enlisted women focus groups estimated the prevalence of STD infection among enlisted women to range from 40 to 90 percent. Participants in all focus groups were aware of many STDs common among enlisted women. All groups mentioned that chlamydia and herpes were common among enlisted women. Clinicians also believed HPV infection was very common. Clinicians and enlisted women in the focus groups agreed that most enlisted women are not sufficiently concerned about STD infection. In particular, young and inexperienced enlisted women reportedly were likely to engage in high risk sexual behaviors because of their ignorance of the risks and consequences of STDs other than HIV (for which all soldiers are tested). Comments across focus groups also suggested that use of condoms by female soldiers was increasing but still relatively rare, in part because many females believe that having condoms is a sign of sexual promiscuity.

During discussions of all focus group topics (pregnancy, STDs, hygiene and genitourinary infections) participants repeatedly brought up issues of health care delivery in the military. Reports from all focus groups indicated that clinicians frequently conduct Pap tests and screen enlisted women for pregnancy and STD infection. However, focus group participants described several barriers to enlisted women receiving preventive care and treatment. These barriers included:

- Lack of time on the part of both the health care providers and enlisted women to deliver and obtain health care;
- Long waits for appointments and in the waiting area;
- Lack of privacy during sick call;
- Lack of confidentiality of personal medical information;
- Lack of continuity in care because a different clinician is seen each time;
- Poor patient/provider communication (e.g. women are not given a full explanation of what is wrong with them);
- Pressure from commanders to remain healthy and not seek health care except in emergency situations; and
- Questioning from commanders about reasons for women seeking health care, particularly for sensitive, reproductive health concerns.

These factors decrease enlisted women's comfort with receiving health care in the military, and may cause some to avoid seeking necessary care or delay obtaining care until they can get an appointment at the hospital or go home and see a known physician.

According to focus group participants, many of the barriers to obtaining health care in the military also interfere with enlisted women obtaining information they need to protect their reproductive health. Participants report that little time is allotted for educating soldiers about their reproductive health. Women generally receive a few classes in basic training and an annual "corporate health" class at the installation. Enlisted women also say that they have little time to seek information on their reproductive health, and the sources available at the installation are primarily at the hospital and not the TMCs. Soldiers generally have few opportunities for

hospital visits, and may be hassled by commanders if they take much time off from duty to obtain care. According to participants in the focus groups, lack of privacy and trust that their personal information will remain confidential keeps many enlisted women from seeking information on their reproductive health from either their clinicians or commanders. They also report that commanders and clinicians are frequently unwilling or unable to provide them with the information they need. Additionally, because these enlisted women do not have a regular health care provider, they are not likely to receive or be referred for individual counseling on their reproductive health unless they take the initiative to ask for it. Focus group participants reported that most enlisted women do not take the initiative to obtain accurate information on their reproductive health.

Overall, findings from these focus groups indicated that enlisted women would benefit from a computer-based reproductive health education intervention if it could be made accessible to all soldiers in a private setting. Comments from participants suggested that this type of health education intervention would be useful to soldiers if the materials were adaptable to the user, and at least a portion of the education was mandatory. Findings from the focus groups also indicated that enlisted women need a mechanism for obtaining reproductive health information that is current and tailored to their installation and culture. These findings suggest the need for an educational intervention in which the information can be: (1) tailored to the user's input, and (2) updated regularly.

Recommendations

Below is a detailed list of recommendations for developing a interactive, computer-based materials to educate enlisted women about their reproductive health. Recommendations were either offered by focus group participants or developed based on comments made by focus group participants. The first set of recommendations deals with content for the intervention. The second set of recommendations deals with the delivery of the intervention. This section concludes with a list of questions that should addressed by the intervention.

Content

General format

- All material should be interesting, relevant, in-depth, and up to date.
- Include a menu of questions (see "Specific Questions Enlisted Women Need Answered" below.)
- If possible, the educational intervention should be extended to or adapted for male soldiers and commanders of enlisted women (officers). The behaviors of both of these groups impact the reproductive health of enlisted women and they need to know the repercussions of their actions.
- It would be useful to include content that can be tailored to the user based on service, age, job, marital status, ethnicity, etc.

- Army terminology should be used in writing the content.
- Some good information, videos, and graphics are available in the military which could be included in the CD-ROM. It may be helpful and more efficient to use some materials and information from existing reproductive health programs in the military.
- Because of the limited access most enlisted personnel have to computers, creating a program that could produce brochures or slides, or be adapted to a videotape format would be useful. Clinicians want something they can use to educate a group of soldiers at one time. Women want something they can take home.

General women's health content

- Include information on basic female physiology.
- Teach women the relationship of other health problems to their reproductive health (e.g. smoking to HPV infection, stress to problems such as menstrual irregularity and herpes outbreaks, etc.)
- Include basic education on recognizing and distinguishing symptoms of UTIs, vaginal infections, STDs, menstrual disorders, and pregnancy; and on how to react to those symptoms.
- Include stories or testimonials on the real consequences and costs of reproductive health problems. Participants indicated that real experiences of enlisted women would have a greater impact.
- Instruct women on how to ask about diagnoses and treatment options.
- Provide information on the contraceptives, other medications, and toxic substances women may be exposed to in the military. Include detailed information on the possible effects of these chemicals on their reproductive as well as overall health.
- Explain what is done during a pelvic exam and Pap test and why.
- Explain the need for breast exams and how to do a self exam.
- Include a directory of information resources for enlisted women to find out how to deal with their unique reproductive health concerns at their installation.
- Deal with concerns about confidentiality of treatment (e.g. alternatives, advice from experienced female soldiers, your rights in the Army)
- Provide practical suggestions for preventing STDs and pregnancy that go beyond contraception (e.g. communication).
- Provide information to help women prepare for deployment. Predeployment information may cover topics such as choosing a viable contraceptive, suggested medications for various chronic conditions women may have, possible side effects of medications and how to deal with them, basic hygiene items needed, and how much.
- Provide advice on staying healthy in the field. Topics to cover may include how to stay hydrated, recommended elimination procedures, and how to treat specific women's health problems in the field. Also include information on recommend items, medications, etc., to use in the field, and how much women should bring for different types of deployment. Some items that should be mentioned are contraceptives and herpes medication.

Specific pregnancy and contraception content

- Include a section on birth control alternatives, their effectiveness, risks, benefits, etc.
- Include instruction on how to recognize symptoms of an abnormal pregnancy, and what a

woman should do if she may be pregnant and is experiencing specific symptoms.

- Include "real-life" stories of women who have experienced pregnancy in the military with an emphasis on costs (e.g. women experiencing pregnancy complications, weight gain, etc.)
- Include information on proper care and precautions for active duty women during pregnancy.
- Include information on breastfeeding as a soldier.
- Although the military cannot or does not provide information on certain alternatives for dealing with an unintended pregnancy, such as abortion or adoption, it may be useful to direct enlisted women to social service and nonprofit organizations that may offer them more information about their options with an unwanted pregnancy.

Hygiene and genitourinary infections

- Provide tips (perhaps from experienced soldiers, health care providers, and commanders) for maintaining hygiene on base and in the field. Peer information sources could be drawn upon more effectively.
- Include an activity that will help women determine what to bring into the field and how much for each type of deployment.

Sexually transmitted diseases

- Emphasize the importance of using condoms alone or with other contraception to prevent STD infection.
- Let women know that they may receive a lot of attention from males because females are the minority in the military. Teach them strategies for handling this attention and avoiding risky sexual behavior.
- Also include prevalence data (perhaps from the local clinic on base) to give users the sense that infection is common.
- Include information on the symptoms and possible health consequences of the various STDs.
- Use visuals to emphasize the severity of STD infection.

Delivery

Who?

- Enlisted women may be more responsive to reproductive health information delivered by a female peer. Women also want information from medical professionals with experience dealing with military women's health issues.

When?

- Educate soldiers as early as possible. Provide reproductive health education during basic training or before.
- Reproductive self-care and prevention education should be provided at several points by a team of trained individuals who work closely with enlisted women. This team may include specialists at the hospital, experienced female soldiers, commanders, etc. A

consistent but continuously updated curriculum should be developed, and delivery should be on-going and regular.

- One way to deal with women's concerns about privacy and time issues in using this intervention is to make it part of an annual training or briefing, so that everyone has to use it.

Where?

- Education must be delivered in a manner that ensures confidentiality and privacy while being available to all enlisted personnel.
- Many enlisted personnel do not have regular access to a computer. Therefore, a computer should either be set up at the clinic, in the barracks, or even carried into the field. Computers are already available at the education center on base, where this intervention could also be made available.

How (what will it take to deliver)?

- Education and support of the chain of command is critical to implementing any reproductive health education intervention for enlisted women.
- Make the use of the intervention mandatory to ensure that soldiers use it and no one is "singled out."

Specific Questions Enlisted Women Need Answered

About general women's health

- What reproductive health problems might I experience in the military (e.g. field exercises, deployment, basic training)?
- How can I deal with these health problems in the various settings?
- What are my options if I have reproductive health problems in the field (e.g. vaginal infections, UTIs)?
- What chemicals may affect my reproductive health? How?
- What happens during a pelvic exam?
- Why am I getting a Pap smear?
- What is a Pap smear?
- What is normal menstruation?
- What are the risk factors for cervical cancer?

About pregnancy and contraception

- How do I get pregnant?
- What regulations may impact my pregnancy?
- How do I prepare for a normal pregnancy?
- How can I ensure that I have a healthy baby while in the military?
- What impact could military service have on my pregnancy/baby?
- What chemicals may affect the health of my baby during pregnancy? How?
- What causes infertility?
- What are my contraceptive options?

- What can I use in the field for birth control?

About hygiene and genitourinary infections

- How can I practice good hygiene? In the field? During deployment?
- What do I need to take into the field to maintain hygiene and genitourinary health?
- How do I get the items I need in the field to maintain good hygiene and health?
- What causes them genitourinary infections?
- How can they be treated?
- What makes them worse?
- How can genitourinary infections be treated in the field?

About sexually transmitted diseases (STDs)

- What STDs can women get?
- How do women get these STDs?
- How do I know I have one of these STDs?
- What are the consequences of having each type of STD infection?
- How likely am I to get or have and STD (based on my sexual practices)?
- How do I know if my partner has an STD?
- How can I protect myself from STD infection?
- What should I do if I think I might have been infected?
- How can STDs be treated?

CD-ROM Technology to Increase Appropriate Self-Care and Preventive Behaviors Among Army and Navy Women

Focus Group Report for Naval Station San Diego

October 10, 1998

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Background

The Department of Defense (DoD) contracted with Macro International Inc. to conduct a study of enlisted women's needs for basic gynecological and reproductive health education, from the perspective of military health care providers and enlisted women themselves. Based on the results of this needs assessment, a culturally sensitive, multimedia CD-ROM and accompanying materials will be developed. This intervention will then be tested in Army and Navy medical clinics in conjunction with annual Pap test screening. As part of the needs assessment, a series of focus groups were being conducted to ensure that attitudes and beliefs related to reproductive health behavior of enlisted women are examined. A total of 8 groups with enlisted women, 4 groups with physicians, and 4 groups with nurse practitioners, physician assistants, and medical corps personnel were conducted at two Army and two Navy installations. At each installation, focus groups were conducted with married enlisted women; single enlisted women; military physicians; and other military providers of health care for enlisted women. This report discusses the findings of focus groups conducted with enlisted Navy women and their health care providers at San Diego, California.

The purposes of all focus groups conducted for this project are:

1) To assess the most pressing reproductive and gynecological self-care education needs of enlisted women on base and in the field or at sea; and

2) To assess the range of current health education efforts for enlisted women.

Strengths and Limitations of Qualitative Research

Focus groups were chosen as one research method to be used in determining the reproductive education needs of enlisted Army and Navy women. Focus group research is qualitative in nature, so the results are not quantifiable. Qualitative research provides information for clarifying theories, creating hypotheses, and giving direction for future research. The results presented in this report are an objective observation of attitudes, preferences, and comments of those participating in the focus groups. Although focus group participants were drawn from the target populations of enlisted women and their health care providers, they were not chosen on any statistical basis. Therefore, no statistical inferences should be drawn from the results of the focus groups. Findings also cannot be generalized to the target population.

Methodology

Macro International conducted one focus group, consisting of married and single enlisted women, in a meeting facility near the OB-GYN clinic at the Naval Training Center in San Diego, California on October 10, 1998. The focus group of enlisted women was not held during duty hours. Therefore, each participant in this focus group received $25 as compensation her time and

expenses involved in voluntarily attending the focus group.

All participants in the focus group of enlisted women were recruited by LCDR Mark Stephens, who is part of the Primary Care Group at the U.S. Navy Medical Center in San Diego. A screener was developed at Macro International Inc. to be used as a guide by Dr. Stephens for selecting focus group participants.

A moderator's guide was developed at Macro International Inc. to answer the general questions listed in the background section of this report and to obtain other feedback that may be useful in developing an educational CD-ROM to help enlisted women care for their reproductive health. The moderator's guide was approved by the internal review board at Macro, the U.S. Army Medical Research Acquisition Activity at Fort Detrick, Maryland, and the Quality Control Department at San Diego Naval Medical Center. All focus groups were led by a trained moderator from Macro International Inc. A project manager, who is also an experienced focus group moderator from Macro International Inc., observed the focus groups and took notes. Both focus group facilitators from Macro were female. All focus groups were audiotaped.

General Findings

Below are the general findings of the focus group conducted at San Diego Naval Station for the project, "CD-ROM Technology to Increase Appropriate Self-Care and Preventive Behaviors Among Army and Navy Women." The findings are organized under the general categories of topics to be covered in the moderators' guides (see Appendices C and D).

General Health

Fitness is highly valued in the military. Enlisted women reported that fitness is important to women in the Navy, but many women are "lazy" when it comes to caring for their health. Navy women reportedly worry about their health, but their work environment often does not allow them sufficient time to obtain health care.

Enlisted women reported that they worry most about their weight because of physical training (PT) requirements. Some Navy women gain enough weight that they do not make the PT requirements. As with their health, participants in the enlisted women's focus group reported that Navy women worry about weight but often do not do anything to control their weight.

Other health concerns reported by enlisted women were breast, ovarian, and cervical cancer. Cervical cancer, in particular, was perceived as an illness that was commonly diagnosed among Navy women. Some participants in the enlisted women's focus group mentioned the possibility that cervical cancer may be over diagnosed by clinicians at Navy medical clinics.

Pregnancy

Enlisted women in the focus group also reported that they worried about getting pregnant, perhaps because many of these participants had experienced a recent pregnancy while on active duty. According to these participants, unintended pregnancy is very common among Navy women because many do not worry about pregnancy until it occurs. Many women enter the Navy right out of high school and may indulge in irresponsible sexual experimentation because of their youth, inexperience, and new freedom from parental and other social controls found at home. Some women may also use sexual relations or even pregnancy as a way of dealing with the stress they experience in the Navy. Participants acknowledged that some women get pregnant in order to fill some emotional need. Enlisted women in the focus group indicated that Navy women are no longer likely to get pregnant to get out of the Navy, or out of sea duty. Changes in regulations have made it more difficult to obtain both a discharge from the Navy and a release from sea duty because of pregnancy.

Despite the more stringent regulations that disallow pregnant women an automatic release from sea duty, many females reportedly continue to get pregnant aboard ship. Many of these women eventually get reassigned to specific commands on shore duty. Participants in the focus group of enlisted women did not describe shore duty as a desirable outcome of pregnancy. Participants indicated that they resented getting "put behind a desk" because of pregnancy. An example was even given of an enlisted woman who had tried to hide her pregnancy from her commander so that she would not be transferred to a desk job.

Overall, the group of enlisted women described pregnancy in the Navy as an unpleasant experience. Duty reassignments are common for women who get pregnant in the Navy, especially those who regularly serve aboard ship. Comments from enlisted women participating in the focus group suggest that shore duty and desk jobs that pregnant Navy women are usually assigned have a negative stigma attached to them. These enlisted women believed that many pregnant women in the Navy were assigned desk jobs unnecessarily. Participants believed that many Navy women can continue to carry out their usual duties during pregnancy.

Pregnant women in the Navy reportedly encounter a number of other difficulties. Key among these difficulties is having "to explain to men about what is involved in childbirth, breastfeeding," and other women's health concerns. According to enlisted women participating in the focus group, many problems faced by pregnant women in the Navy stem from a lack of knowledge among males in the Navy. Lack of knowledge among commanders may lead to women being removed from duties they could continue to perform throughout most of a low-risk pregnancy. Women may also have to explain health concerns related to pregnancy to male peers and commanders. In the process, some Navy women may be forced to reveal details of their pregnancy that can affect the way they are treated. An example was given of a pregnant women who had to announce her due date to her command. Sailors working with her became overly concerned with the fact that she might go into labor as her due date approached.

Enlisted women agreed that pregnancy was easier for married than for single women in the Navy. Married women mentioned single friends who had become pregnant in the Navy and

recognized that these women had to endure many difficulties alone.

Participants added that many enlisted women needed to know the real costs associated with a mistimed pregnancy during military service. Young, single women need to be more concerned about the struggle of raising children. Pregnancy at sea is problematic, particularly if the pregnancy requires an evacuation. Evacuation of any sailors can dramatically affect the troop strength of a vessel. Evacuation of pregnant women is therefore no longer automatic, and women in the early stages of pregnancy may be forced to complete their sea duty. However, comments from enlisted women in the focus group suggest that women who become pregnant prior to deployment may be reassigned to shore duty.

Contraception

According to participants in the enlisted women's focus group, women frequently cannot obtain or do not have room to store sufficient contraception for a long deployment at sea. However, some participants mentioned that additional supplies can sometimes be kept at the work center. Additionally, some women in this group knew that birth control pills and Depo Provera shots can be obtained at the ship "store" or clinic. However, they were uncertain as to whether condoms could be obtained aboard ship. These participants stated that condoms may be available aboard ship, but their availability is not advertised to females. The enlisted women agreed that the availability of condoms aboard ship should be advertised to both males and females.

Enlisted women in the focus group reported that birth control pills were the most commonly used contraceptive for Navy women. Depo Provera shots were also commonly administered to Navy women. Birth control pills, Depo Provera shots, and condoms are reportedly easy to obtain in the Navy. According to participants, enlisted women in some commands are even "forced" to take birth control pills. Enlisted women may also receive pressure to obtain Depo Provera shots. An example was given of a pregnant woman in the Navy who was scheduled to receive a Depo Provera shot shortly after delivery. Although condoms are readily available and are distributed free of cost at some Navy clinics, comments do not suggest that women are encouraged to use condoms. Overall, comments from enlisted women suggested that there is a strong push within the Navy to ensure that women stay on some form of contraception. However, little information may be provided to the women themselves regarding their contraceptive options and how to use them.

Some participants in the enlisted women's focus group indicated that Navy women may sometimes have difficulty avoiding lapses in their contraceptive use due to lack of time available to obtain contraceptives. Many Navy women only see their health care provider during the annual pelvic exam because of the difficulty obtaining release from duty for any type of health care. If the health care provider does not prescribe one year's worth of birth control pills at that time, a woman may run out before her next visit to a health care provider. According to participants in the enlisted women's focus group, some Navy health care providers prescribe only a three or six month supply of oral contraceptives.

Short-term supplies of contraceptives prescribed by health care providers in the Navy may also be problematic for women who are deployed. Although some contraceptives are available aboard ship, women may not make the requisite visit to the independent duty corpsman (IDC) to renew their contraceptive supply. Although only one woman in the focus group of enlisted women had served aboard ship, participants in this group knew other Navy women who had sea duty. These participants reported that Navy women may avoid seeing the IDC aboard ship, in general, because of lack of time and the impersonal care they receive from the IDC.

Some participants in the group of enlisted women expressed some concern about the long and short-term health effects of hormonal contraception. Some feared that extended use of this type of contraception might increase their risk of cancer. Some also reported that side effects were common because health care providers could not easily determine what type of pill might work best for a particular woman.

Genitourinary Infections/Hygiene

Participants in the focus groups of enlisted women appeared most concerned about issues related to hygiene and the prevention and treatment of common genitourinary infections. Both enlisted women and their health care providers reported that vaginal infections and urinary tract infections (UTIs) are common among enlisted women. The majority of these infections were attributed to poor hygiene practices, particularly in the field.

Hygiene Issues for Enlisted Women

Enlisted women acknowledged that conditions at sea make proper female hygiene practices difficult if not impossible. Opportunities to wash and change clothes are limited aboard ship or submarine, since fresh water is frequently in limited supply and all of the sailor's possessions must be stored in one relatively small locker, regardless of the length of sea duty. On submarines no water is available for washing, which reportedly poses great difficulties for enlisted women when they are menstruating. Women often bring bottled water and wet wipes aboard ship or submarine. However, the quantity they can bring aboard generally lasts only a couple of weeks. Similarly, supplies of sanitary pads or tampons women can bring aboard may be limited by storage space. However, participants in the enlisted women's group reported that additional storage space can sometimes be obtained aboard ship, and sanitary pads are sold at the ship store, on most ships. Women also have difficulty practicing appropriate hygiene during regular field exercises, due to limitations on time and supplies. Women at sea and in the field may not be allowed sufficient time for cleaning and basic hygiene practices. The amount of time allowed for hygiene practices varies widely and depends on the particular work center.

Sexually Transmitted Diseases (STDs)

Enlisted women participating in the focus group said they had no idea how many in the Navy in get an STD, but indicated that the percentage was likely to be higher among singles. However,

all participants in this group indicated that the 28 percent STD infection rate found among Navy women in the *1995 DoD Survey of Health Related Behaviors Among Military Personnel* seemed high.

Participants in the enlisted women's focus group generally agreed that most Navy women do not worry much about STDs unless they know someone who had one. However, they recognized that many people may know someone who has had an STD and not be aware of it, since the topic is too personal for many people to discuss. An example was given of a Navy woman who was infected with an STD by a man who knew he was infected yet did not tell her.

Participants in the enlisted women's focus group named chlamydia and herpes as the most common STDs among Navy women. Human papillomvirus (HPV) was also mentioned. Not all of the participants had heard of HPV. Comments by participants further suggested that Navy women may be unclear on the health consequences of HPV infection. For example, a case was described of a woman with HPV who believed that she could not get pregnant.

Overall, enlisted women in the focus group appeared concerned about STD infection and had a moderate level of knowledge about STDs. Most participants in the focus group of enlisted women agreed that women should be concerned about STDs in the military, particularly since "cheating" (multiple partners) is common.

Condoms

According to participants, condoms are available and distributed free of charge at most Navy clinics in San Diego. However, enlisted women in the focus group said that condom use was not emphasized by medical personnel at the Navy clinics and hospitals they had gone to. Conversely, hormonal birth control was widely publicized and encouraged at these medical facilities.

Participants in the focus group of enlisted women appeared to recognize the need to use condoms to prevent STD infection even when using other forms of birth control. They also agreed that everyone should be using condoms, regardless of marital status, because many men cheat on their wives. Participants told a few stories of Navy men who contracted STDs, including AIDS, and did not tell their wives. They indicated that many women think about using condoms because of all the STDs that are going around. However, participants' comments suggested that many women who know they should use condoms do not take action and use condoms at each sexual encounter. Single women are reportedly more likely to use condoms, but even most single women do not use condoms consistently. Participants stated that women are generally not concerned about condom use, leaving the decision to use this type of protection up to the men. However, participants recognized that many men do not want to use condoms. Enlisted women explained that many women agree to sexual relations with a man who is not using a condom because they believe, at that time, that they will be with this man forever.

Health Care

Barriers to Effective Utilization

Participants in the focus group of enlisted women reported many deterrents to their receiving necessary health care and treatment. These women indicated that it was difficult for sailors to get time off from duty to go to sick call. A case was described in which a Navy woman had a bladder infection but did not have time to get it treated. They indicated that sailors generally go to sick call only when they are truly too sick to perform their duties. When sailors go to sick call, they often have to wait "all day" before getting treated. Waits in the hospital emergency room can also be as much as eight hours. When enlisted personnel see a Navy clinician, they reportedly must "beg" the clinician to approve SAQ (sick and quarters). SAQ allows sailors with health problems time off from duty to rest in their living quarters. Enlisted women who participated in the focus group reported that, in general, only two days of SAQ are approved. Enlisted women also reported that they need to make an appointment not only for preventive care but for sick call as well. Sailors must also obtain clearance from the base clinic to go to the emergency room in the Naval hospital. These participants felt that the Navy's policy regarding sick call and emergency room visits did not make sense, since unexpected, acute illnesses and injuries need to be treated immediately. Some participants in the enlisted women's focus group suggested that it may be preferable for sailors to pay to see a civilian physician during off-duty hours in order to avoid the wait and hassle experienced in Navy medical facilities.

Another concern voiced by the enlisted women in the focus group was the fact that sailors are seen by a different health care provider each time they go to the clinic. Enlisted women indicated that health education and counseling cannot easily be done by clinicians in the Navy because clinicians often do not know the patients they see, or what their needs are.

Provider Practices

Navy women are required to receive an annual pelvic exam and most women reportedly comply. At San Diego, the annual exam includes a Pap test, testing for STDs, and a breast exam. Women are considered "high-risk" (possibly due to infection with other STDs) or who are experiencing certain health problems may also be referred for an AIDS test at this time.

According to enlisted women, health care providers readily prescribe contraceptives at either the request of the patient or her commanders. However, some enlisted women continue to experience difficulty in obtaining contraceptives. For example, some physicians reportedly refuse to prescribe oral contraceptives to women over 35, even when these women are in good health and do not smoke. Younger women may also fail to obtain the contraceptives they need because they do not request them. Young women do not request contraceptives or fail to take them regularly because they do not feel they need them, are afraid of the real or possible health effects of contraceptives, or do not have time to obtain regular prescriptions.

Health Education

In the Military

The general consensus of participants in the enlisted women's focus group was that some reproductive health education is given to women in the Navy, but it is minimal. Enlisted women stated that health education in the military is inadequate, particularly on the topics of hygiene, STDs, and pregnancy prevention. Enlisted women indicated that they would like to receive more education on health issues that immediately affect them, such as hygiene, genitourinary infections, and contraception. These women reported that they more often receive education on less immediate and less common health concerns, such as breast cancer. Some commands provide education on certain types of contraception. Some Navy physicians also provide extensive information on birth control and let women know their options. However, participants indicated that the majority of enlisted women must be very proactive in order to obtain complete and accurate information on contraception.

Most enlisted women had taken some reproductive health classes during basic training, including some classes on STDs. However, participants in the focus group of enlisted women said that they retained little of the information given in the boot camp classes since they were usually too exhausted to absorb it. Information on STDs, pregnancy, and other reproductive health topics is also available at Navy clinics, usually in the form of pamphlets. However, enlisted women in the focus groups indicated that they need more regular and comprehensive education on all of these topics. For example, enlisted women suggested that Navy personnel need more information on asymptomatic STDs, so that STD infection is not automatically attributed to a partner's "cheating."

Health Education Needs in the Military

Audience

Enlisted women in the group felt that reproductive health education should be delivered to the whole command, with no group singled out. Several participants specifically noted that women's reproductive health education should also target males. Males supervise and work with females and therefore need to understand women's unique health issues and how these issues relate to women's performance of their duties. As a result of this education, males in the Navy may be more likely to allow females time to care for their health and less likely to overreact to health conditions common among females, such as pregnancy or menstruation. Reproductive health education for male soldiers should also highlight the risks and consequences enlisted men experience with regard to STD infection and mistimed pregnancy.

Enlisted female participants also felt that education that encouraged males to get tested for STD infection would help prevent STD infection among Navy personnel in general. These women did not believe that most Navy males received an annual exam, either because they tended to worry less about their health and/or because they fear the painful urethra test.

Content

Enlisted women who participated in the focus group emphasized that Navy women need reproductive health education that focuses on prevention. In order to prevent reproductive health problems, these participants indicated that women need to first learn how a woman's body works so that they that they can distinguish normal from abnormal changes, particularly as they grow older. Enlisted women also indicated that they would like education on how to talk to their health care provider. These women also thought that enlisted women would benefit from education that highlights the importance of the annual exam. Although most enlisted women get an annual exam and Pap test, some do not realize that the Pap is necessary to detect cervical cancer. Participants in the enlisted women's group mentioned other Navy women and friends who had been diagnosed with cervical cancer and expressed particular concern about this disease. Comments from participants in the enlisted women's group suggest that some Navy women who have an abnormal Pap test may assume they have cervical cancer. Enlisted women may benefit from education on the possible meanings of abnormal Pap test results and what further tests and treatments may be necessary.

Enlisted women also indicated that they would like to receive more education on health issues that immediately affect them, such as hygiene and genitourinary infections. Participants in the enlisted women's focus groups specifically indicated that many enlisted women do not recognize the symptoms or know how to treat a simple yeast infection. These women expressed a need for education regarding recognition, prevention, and treatment of yeast and other vaginal infections, as well as urinary tract infections. Participants suggested including information on basic preventive behaviors that they had learned after getting an infection, such as regularly wiping from front to back, and urinating after intercourse. These women also expressed an interest in education on how to practice good hygiene in the field. Most of these women had not served aboard ship, but indicated that women who do serve at sea are likely to have similar needs for information regarding ways to practice good hygiene in while serving on various types of sea duty.

Enlisted women also expressed a desire for more education on contraceptive options, and the risks and benefits of each option. Some women were particularly concerned about the risks of various types of cancer that might be associated with hormonal contraceptives.

Participants in the enlisted women's focus group suggested that there should be mandatory education for women in the Navy who are pregnant. Topics covered should include child care, nutrition, and budgeting.

The enlisted female participants' surprise at the rate of STD infection found among Navy women in the *1995 DoD Survey of Health and Related Behaviors Among Military Personnel* suggests a need for education regarding Navy women's risk of contracting an STD. General comments also indicated that many Navy women do not obtain condoms or insist that their partners use them. This reported behavior lends further support to the need for education regarding the risks and consequences of STD infection among Navy women. Some comments also suggested that many Navy women may lack critical knowledge about the consequences of different STDs. For

example, participants directly stated that many Navy women do not know that some STDs, particularly in women, can be asymptomatic. A case was also mentioned of a Navy woman diagnosed with HPV who believed that she could not get pregnant. Such inaccurate beliefs about HPV may lead to unwanted and potentially high-risk pregnancies among women diagnosed with this infection. Navy women participating in the focus group agreed that education about the consequences of the various STDs was needed.

Format

Enlisted women in the focus group agreed that any reproductive health intervention for enlisted women should differ from and go beyond the health education already offered in the Navy. Specifically, education should be delivered in an interactive format rather than a lecture format. Enlisted women participating in the group expressed an interest in group discussions of reproductive health issues, so discussion and exchange of information between peers (other enlisted women) should be included. In general, a directive tone should be avoided in any type of educational intervention for enlisted women. Enlisted women in the focus group suggested that education should let women know what to look for rather than tell them what to do. Enlisted women also emphasized that care should be taken to deliver health education in a format that is interesting and relevant to Navy women.

Delivery

Due to the limited nature of reproductive health education during basic training, as well as the difficulty many new recruits experience in absorbing this information at that time, enlisted women in the focus group suggested delivering this education later, possibly at A school or during ATD. Monthly, mandatory classes on specific reproductive health topics such as pregnancy were also recommended. Monthly or at least periodic "booster" education sessions were considered necessary to keeping a sailor's knowledge fresh and current. Participants also emphasized the importance of mandatory education, since they reportedly have difficulty obtaining clearance from the work center to receive any nonmandatory education. Alternatively, women might be available to attend a regular brown bag lunch discussion session that focuses on increasing enlisted women's reproductive health knowledge in an interesting and relevant format.

Enlisted female participants also noted that reproductive health education information could be easily disseminated by Navy clinicians at women's annual examinations. All enlisted women are required to get an annual exam, and many may not see their health care providers at any other time. For this reason, many enlisted women in the focus groups felt that more health information, particularly on contraception, should be delivered at annual exams for enlisted women.

Enlisted participants noted that, if education is not delivered at some universal service point, such as the annual exam, then it would be most feasible and effective to deliver education to smaller units such as work areas, rather than entire companies.

When the idea for a computer-based reproductive health intervention was presented, enlisted women in the focus group generally agreed that this was a good idea because computer education is more private, less time consuming, can be tailored to the user, can be used to obtain responses to specific questions. However, these women were concerned about computer access issues. They were not certain where all Navy women could easily access computers. They also acknowledged that some individuals are not computer literate.

Promoting use of computer-based health education

Participants in the focus group of enlisted women may several suggestions for promoting the use of a reproductive health education program that is computer-based. These women suggested that the computer intervention be:

- Very eye-catching,
- Placed in locations other than the clinic, since people there are usually already sick and may not feel like using it,
- Located in a private place to ensure confidentiality.
- Advertised throughout the installation.

Conclusions

Comments from enlisted women in the focus group indicated that reproductive health education for Navy women is not delivered effectively or frequently enough. According to these participants, effective education would be delivered regularly, in an interactive format, and include current and relevant information. Effective reproductive health education should let women know what to look for rather than tell them what to do. The implication is that women who know what to look for and who know their reproductive health care options will be better able to make informed decisions about their reproductive health. As a result, these women will be more proactive in caring for their own health as well as seeking care when necessary. Enlisted women also agreed that education should include instruction on how to speak to a health care provider to get the information necessary to protect one's health. Since Navy women said that they generally do not see a health care provider frequently, and cannot expect to have a regular provider who knows their history, effective communication on the part of the patient at the few, key medical visits may be critical to obtaining important medical information and advice.

More specifically, education is needed to prevent pregnancies that interfere with the mission of all enlisted personnel. Comments from participants in the enlisted women's group provided valuable insight into the reasons for unintended pregnancy among Navy women, as well as the consequences, since many of these women had been reassigned as a result of pregnancy while on active duty. These participants indicated that most Navy women who experienced mistimed

pregnancies probably do because of 1) lack of knowledge with regard to their chances of getting pregnant with various forms of contraception (including none), 2) lack of understanding of the negative consequences of pregnancy for enlisted Navy women, 3) an unmet emotional need that they feel will be met either by their sexual partner or by a baby, 4) an expectation that their partner will stay with them and support them if pregnancy does occur. Participants in the group of enlisted females did not indicate that Navy women get pregnant in order to obtain institutional benefits such as a discharge, release from duty or deployment, a more desirable assignment, or more money. Their comments suggested that a discharge was not likely, release from duty was no longer automatic or simple, duties assigned pregnant women were not desirable, and financial support was not likely to be adequate for comfortably raising a child. Comments from the focus group participants indicated that the following approaches that may prove effective in reducing unintended or mistimed pregnancy among Navy women:

- Early and repeated education on the costs and consequences of unplanned pregnancy in the Navy,
- Presentation of testimonials from Navy women who have experienced unintended pregnancy during active duty,
- Clear, detailed information about contraceptive options and their potential risks and benefits to different women in different situations,
- Education on how to deal with the possible side effects of different contraceptives,
- Education on obtaining adequate supplies of a preferred contraceptive in preparation for deployment, and
- Positive sources of support, counseling, and advice for women during periods when they may be at increased "risk" for unplanned or unprotected sexual activity (e.g. the first year of service, combat, sea duty, in the field, relocation, assignment to companies with a predominance of males).

Basic education on contraception is also needed to help enlisted women prevent unintended pregnancies. Contraception is widely available in the military; but little contraceptive information is available. Enlisted women need to know about their contraceptive options, the risks and benefits of each option, how to obtain the type and quantity contraception to meet their specific health and lifestyle needs, and how to deal with the potential side effects of contraceptives.

Although the enlisted women were very concerned about pregnancy, they tended to talk more about issues of basic hygiene and the conditions women experience as a result of poor hygiene. Participants in the focus groups of enlisted women may have been most interested in the topics of hygiene and genitourinary infections because these are issues that almost all enlisted women deal with on a regular basis. According to the enlisted women in the focus group, information on the prevention and treatment of female genitourinary infections in a military environment is not readily available.

Comments made during the enlisted women's focus group suggested that Navy women may be less concerned about STD infection than either other genitourinary infections or pregnancy. The relative lack of concern with STD infection among Navy women could be due in part to the lack

of educational emphasis on risks, prevention, and consequences of infection with the various types of STDs for women in the Navy. Some participants in the enlisted women's focus group made comments indicating that either they or Navy women they knew had received inaccurate or incomplete information about STDs and their potential consequences.

During discussions of all focus group topics (pregnancy, STDs, hygiene, and genitourinary infections) participants repeatedly brought up issues of health care delivery in the military. Reports from participants indicated that clinicians frequently conduct Pap tests and screen enlisted women for pregnancy and STD infection. However, focus group participants described several barriers to enlisted women receiving preventive care and treatment. These barriers included:

- Lack of time on the part of both the health care providers and enlisted women to deliver and obtain health care,
- Long waits for appointments and at the clinic after a woman shows up for an appointment,
- Lack of continuity in care because a different clinician is seen each time, and
- Poor patient/provider communication.

Overall, findings from the San Diego focus groups indicated that enlisted women would benefit from a computer-based reproductive health education intervention if it could be made accessible to all enlisted personnel. Participants indicated that, to their knowledge, CD-ROM based materials had not been used to deliver reproductive health education to Navy women. Comments from participants suggested that this type of health education intervention would be useful to Navy women if the materials were adaptable to the user, accessible to all personnel, and use of the CD-ROM was not too time consuming. Participants also recommended that the intervention be mandatory to ensure that the Navy personnel use it. Findings from the focus groups also indicated that enlisted women need a mechanism for obtaining reproductive health information that is current and tailored to their installation and service. These findings suggest the need for an educational intervention in which the information can be 1) tailored to the user's input, and 2) updated regularly.

Recommendations

Below is a detailed list of recommendations for developing a interactive, computer-based materials to educate enlisted women about their reproductive health. Recommendations were either offered by focus group participants or developed based on comments made by focus group participants. The first set of recommendations deals with content for the intervention. The second set of recommendations deals with the delivery of the intervention. This section concludes with a list of questions that should addressed by the intervention.

Content

General format

- Make all material should be interesting, relevant, in-depth, and up to date.
- Use case studies, case reports, stories, and scenarios to illustrate educational points.
- Include a menu of questions (see "Specific questions enlisted women need answered" below.)
- If possible, extend or adapt the educational intervention to Navy males and commanders of enlisted women (officers). The behaviors of both of these groups impact the reproductive health of enlisted women and they need to know the repercussions of their actions.
- It would be useful to include content that can be tailored to the user based on service, age, job, marital status, etc.
- Military terminology should be used in writing the content.
- Because of the limited access most enlisted personnel have to computers, creating a program that could produce brochures or slides, or be adapted to a videotape format would be useful.

General women's health content

- Include information on basic female physiology.
- Include basic education on recognizing symptoms of UTIs, vaginal infections, STDs, and pregnancy; and on how to react to those symptoms.
- Include information on causes of vaginal infections, UTIs, and the various STDs; then educate on their prevention and treatment.
- Include stories or testimonials on the real consequences and costs of reproductive health problems. Participants indicated that personalized information would have a greater impact.
- Instruct women on how to ask about diagnoses and treatment options.
- Emphasize the importance of the annual well woman exam.
- Include a directory of information resources for enlisted women to find out how to deal with their unique reproductive health concerns.
- Provide practical suggestions for preventing STDs and pregnancy that go beyond contraception (e.g. communication, safe dating practices, etc.).
- Clarify what causes cervical cancer and how it is diagnosed and treated. Comments from enlisted women suggested that abnormal Pap results may be confused with a definitive diagnosis of cervical cancer by patients and possibly some Navy clinicians as well.

Specific pregnancy and contraception content

- Include a section on birth control alternatives, their effectiveness, risks, benefits, etc.
- Include instruction on normal vs. abnormal pregnancy and how to treat.
- Include "real-life" stories of women who have experienced pregnancy in the military with an emphasis on costs (e.g. being separated from children for long periods during deployment, struggles with obtaining reliable child care during deployment and duty, women experiencing pregnancy complications, weight gain, etc.)

Hygiene and genitourinary infections

- Provide tips (perhaps from experienced soldiers, health care providers, and commanders) for maintaining hygiene on base, at sea, and in the field. During the focus groups, more experienced enlisted women served as sources of information for the younger women with less military experience. Peer information sources should be drawn upon more effectively.
- Recommend items, medications, etc. to use aboard a vessel or in the field.

Sexually transmitted diseases

- Emphasize the importance of using condoms alone or with other contraception to prevent STD infection.
- Include "real life stories" of enlisted women and men who were infected with STDs and treated.
- Also include prevalence data (perhaps from the local clinic on base) to give users the sense that STD infection is common.

Delivery

Who?

- Small group leaders may be the best people to deliver reproductive health education, but they need to learn how to deliver the education without judging or lecturing.
- Health care providers may also be able to expose women to reproductive health education and the intervention at the clinic during the women's annual exam.

When?

- Educate Navy women as early as possible. Provide reproductive health education during basic training or before.
- Reproductive self-care and prevention education should be provided at several points by a team of trained individuals. This team may include NPs, IDCs, physicians, work group leaders, commanders, etc. The education provided by each individual at each point should follow on earlier education from other educators.
- One way to deal with the embarrassment of having others know that a woman is using this intervention is to make it part of a mandatory training or the annual exam, so that everyone has to view it.

Where?

- Education must be delivered in a manner that ensures confidentiality and privacy while being available to all enlisted personnel. Women do not want to use this type of intervention in front of others.
- Many enlisted personnel do not have easy access to a computer. Therefore, a computer should either be set up at the clinic or at another location with public access but private user areas.

How (what will it take to deliver?)

- Make the use of the intervention mandatory to ensure that enlisted personnel use it and no one is singled out.

Specific questions enlisted women need answered

About general women's health

- What reproductive health problems might I experience in the military (e.g. during field exercises, deployment, basic training)?
- How can I deal with these health problems in the various settings?
- What are my options if I have reproductive health problems in the field or at sea (e.g. menstrual changes, vaginal infections, UTIs)?
- How does each reproductive organ in a woman function?
- What chemicals may affect my reproductive health and/or pregnancy? How?
- Why is a pelvic exam and Pap important?
- What is a Pap smear?
- What are the signs of a problem (infection, pregnancy)?
- What causes cervical cancer?
- How is cervical cancer diagnosed and treated?

About pregnancy and contraception

- How do I get pregnant?
- How do I know I am pregnant?
- What regulations may impact my pregnancy?
- What should I do if I suspect I might be pregnant?
- What impact could pregnancy have on my military career/service?
- What impact could military service have on my pregnancy/baby?
- What chemicals may affect the health of my baby during pregnancy? How?
- What are my contraceptive options?
- How do I choose contraception that works for me?
- What type of birth control is best to use in the field and at sea? Why?

About hygiene and genitourinary infections

- How can I practice good hygiene? In the field? During deployment?
- What do I need to take into the field and aboard a vessel to maintain hygiene and genitourinary health?
- What are the different types of genitourinary infections?
- What causes them?
- How are they treated?
- What makes them worse?
- How can genitourinary infections be treated in the field or aboard a vessel?

About sexually transmitted diseases (STDs)

- What STDs can women get?

- How do women get these STDs?
- How do I know I have one of these STDs?
- What are the consequences of having each type of STD infection?
- How likely am I to get or have and STD (based on my sexual practices)?
- How do I know if my partner has an STD?
- How can I protect myself from STD infection?
- What should I do if I think I might have been infected?
- How can STDs be treated?

CD-ROM Technology to Increase Appropriate Self-Care and Preventive Behaviors Among Army and Navy Women

Focus Group Report for Naval Medical Center Norfolk

June 2-3, 1999

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Background

The Department of Defense (DoD) contracted with Macro International Inc. to conduct a study of enlisted women's needs for basic gynecological and reproductive health education, from the perspective of military health care providers and enlisted women themselves. Based on the results of this needs assessment, a culturally sensitive, multimedia CD-ROM and accompanying materials will be developed. This intervention will then be tested in Army and Navy medical clinics in conjunction with annual Pap test screening. As part of the needs assessment, a series of focus groups were conducted to ensure that attitudes and beliefs related to reproductive health behavior of enlisted women were examined. A total of 8 groups with enlisted women, 4 groups with physicians, and 4 groups with nurse practitioners, physician assistants, and medical corps personnel were conducted at two Army and two Navy installations. At each installation, one focus group will be conducted with married, enlisted women; one with single, enlisted women, one with military physicians, and one with other military providers of health care for enlisted women. This report discusses the findings of four focus groups conducted with enlisted Army women and their health care providers at Naval Medical Center Portsmouth, Virginia.

The purposes of all focus groups conducted for this project were:

1) To assess the most pressing reproductive and gynecological self-care education needs of enlisted women on base and in the field; and

2) To assess the range of current health education efforts for enlisted women.

Strengths and Limitations of Qualitative Research

Focus groups were chosen as one research method to be used in determining the reproductive education needs of enlisted Army and Navy women. Focus group research is qualitative in nature, so the results are not quantifiable. Qualitative research provides information for clarifying theories, creating hypotheses, and giving direction for future research. The results presented in this report are an objective observation of attitudes, preferences, and comments of those participating in the focus groups. Although focus group participants were drawn from the target populations of enlisted women and their health care providers, they were not chosen on any statistical basis. Therefore, no statistical inferences should be drawn from the results of the focus groups. Findings also cannot be generalized to the target population.

Methodology

Macro International conducted four focus groups to address the needs of this project. Two more focus groups, one consisting of married enlisted women and one of single enlisted women, were conducted in a meeting facility near the Cheatham Annex on June 2, 1998. One focus groups consisting of married and single enlisted women working in the Medical Corps was held at the

Portsmouth Naval Medical Center on June 2, 1999. One focus group of Navy physicians and nurse practitioners (NPs) was conducted at the Navy Obstetrics and Gynecology Clinic at DePaul Hospital in Norfolk on June 3, 1999. Participants received no monetary compensation for their voluntary participation in the focus groups.

Navy physicians and NPs with experience treating enlisted women were recruited from WAMC. Physician's assistants (P.A.s) who had experience treating enlisted women were recruited from a variety of clinics and departments in the Portsmouth area. The participants in the clinician focus group were primarily white with a mix of male and female clinicians. The clinicians had a variety of deployment, clinical, and educational experiences. Most, if not all, of the P.A.s had been deployed overseas. Participants in the physicians' focus group had, on average, fewer years of service than the NPs.

Two groups of enlisted women were recruited from the Cheatham Annex. These enlisted women's focus groups included primarily women of African American descent. Half the women in the focus group at Portsmouth Naval Medical Center were white and half were black. Most enlisted women participating in the focus groups had less than 6 years of service in the Navy. On average, the married women had more years of service than the single women. Several of the enlisted women had been deployed overseas and aboard ship.

CDR Margaret Ann Connors, a nurse practitioner who serves at Portsmouth Naval Medical Center, recruited all focus group participants were recruited. A screener was developed at Macro International Inc. to be used as a guide by CDR Connors for selecting focus group participants. A moderator's guide was developed at Macro International Inc. to answer the general questions listed in the Background section of this report and to obtain other feedback that may be useful in developing an educational CD-ROM to help enlisted women care for their reproductive health. The moderator's guide was approved by the Internal Review Board (IRB) at Macro, the U.S. Army Medical Research Acquisition Activity at Fort Detrick, Maryland, and the head of Clinical Investigation & Research Department (CIRD) at Naval Medical Center Portsmouth. A trained moderator from Macro International Inc led all focus groups. A research assistant, who is a trained focus group moderator from Macro International Inc., also observed the focus groups and took notes. Both focus group facilitators from Macro were female. CDR Connors also observed the enlisted women's focus group at Naval Medical Center Portsmouth. All focus groups were audio taped.

General Findings

Below are the general findings of the four focus groups conducted at Portsmouth for the project, "CD-ROM Technology to Increase Appropriate Self-Care and Preventive Behaviors Among Army and Navy Women." The findings are organized under the general categories of topics to be covered in the moderators' guides (see Appendices C and D).

General Health

Most participants, enlisted women as well as their clinicians, agreed that health was important for enlisted women in the Navy so they could take care of their bodies and be able to handle the physical demands of their jobs. While some felt that Navy women were likely to care about their health because they were women, others felt that enlisted women did not take their health as seriously as they should. Some felt that enlisted women did not care enough about their health because they had free medical care through the military and any problems would be handled for them. Others said that enlisted women were unlikely to care about their health unless they had a problem. However, enlisted women who worked in the Medical Corps thought that their peers were more likely to recognize and address a medical problem while those with other types of jobs would be likely to ignore symptoms. The clinicians agreed that enlisted women took their health for granted unless they had a problem, but they felt that this was mostly true for younger women. While older enlisted women seek out good health care, the younger women have little knowledge or experience about preventive health care when they enter the military. Participants thought that this lack of experience was due to adolescent behavior or from having a lower socioeconomic background. One clinician stated, "Health is only important to them when they need something."

When asked about what Navy women worry about concerning their health, a variety of issues emerged. Older, married enlisted women appeared to be more concerned about issues related to their health care, such as proper treatment and care, especially continuity of care, quality of military medical care, and accuracy of tests. Younger, enlisted women said that their peers were concerned about infectious diseases, such as sexually transmitted diseases (STDs) and urinary tract infections (UTIs). Fatigue and general concerns about physical labor in the Navy were also mentioned.

Health Care

Many of the enlisted women focus group participants cited quality of medical care as a primary area that women in the Navy were concerned about in terms of their health. The issues included concerns in the following categories: lack of continuity of care, poor quality of care, discomfort with certain practitioners, and problems during deployment.

Several women were concerned that they were unable to see the same doctor at each medical visit, leading them to feel that the care provider they saw was unlikely to "know what was going on." Others said they felt unimportant to their doctors when they could not see the same one. The enlisted women were particularly concerned about lack of continuity of care when they had a health problem, such as an abnormal Pap test. The enlisted women in the Medical Corps said that a new system was in place where women were supposed to see the same practitioner at each visit at the hospital clinic. However, at least one corpsman found this system to be lacking; she had been assigned to a particular doctor but had not seen him in any of her visits to the clinic.

Several issues arose concerning quality of care. Participants felt that the PAs, general practitioners, and corpsman providing care at sick call and in clinics were inexperienced in women's health care. Several of the medical facilities were training facilities for student physicians and corpsman, which promoted the perception that care was not high quality. Some women stated that they wanted to see an OB/GYN physician and other specialists ("a real doctor") when they had a health problem.

Quality of care was also raised when participants had specific complaints. For example, some participants said that the care they received was cursory and inaccurate at times ("They give you Motrin and tell you to go back to work."), so that they had to "be seen 6 or 7 times" before a problem was identified. Some enlisted women believed that tests done at annual exams were not accurate. Others said that tests were not taken when they should have been, and the clinician treated them based on a visual exam ("They can't tell just by looking what you have."). Participants in the clinician groups said that OB/GYN appointments often don't include a sexual history, making it difficult to identify which women needed STD screening.

Enlisted women participants who worked at a branch station were particularly dissatisfied with the quality of care they received because they had a male medical provider who they believed had little knowledge of women's health needs to provide well woman care for them. If they needed any specialty care or testing, the male provider would refer them, so the office visit was seen as a waste of time. Several of the participants from this installation said they needed a female doctor to deal with female problems.

Health care issues were also related to deployment. Prior to deployment, enlisted women received little in the way of women's health services, according to many of the participants. A physical examination is only done if a problem is detected during sea duty screening. One corpsman said, "Sometimes they'll give you physicals before deployment, but they're mostly for immunization." Women's health during these exams is often limited to recommending contraceptive supplies. Clinicians stated that predeployment examinations depend on the command and on access to care. Women also may not have time to get exams prior to deployment. During deployment, enlisted women reported having no trouble obtaining medical and hygiene supplies, but the health care provider they saw for care became a concern. They were more likely to see a corpsman rather than a doctor for care. Because the corpsman was likely to be a peer, which leads to issues about trust and confidentiality.

Other miscellaneous issues were raised concerning enlisted women's health care. One problem for the women at the branch installation was inconvenient hours of the medical facility. They were unable to see the clinician unless they took time off of work, when they would have preferred going in the evening or on the weekend. Another issue raised by clinicians was that women getting Pap tests often have a bad experience and do not return for later screening or for repeat tests. Lastly, one medical corpsman said that medical care is provided differently depending on rank. Officers receive favoritism in getting appointments and get to see the same provider, and enlisted women get "the short end of the stick." This participant said, "Sometimes, it's all about khaki."

Patient/Provider Communication

The enlisted women participants tended to describe communication from their health care providers as limited. The health care provider had little time, maybe 5 minutes to talk, and his or her questions were limited to questions such as "Do you smoke?" and "How often do you have sex?" Some health care providers tell people to use condoms. Some participants reported that clinicians often bring in other people to talk about health care issues with their patients.

When asked what enlisted women should ask their health care providers, the participants mentioned questions such as:

- "Does it look normal?"
- "Does it feel normal?"
- "What are you doing?"
- "Why are you doing it?"
- "Is anything wrong?"

Moreover, some participants felt women should ask their doctors for answers rather than relying on pamphlets for health information.

One participant thought that women wanting condoms should have to ask their doctors for them rather than getting them anonymously, so the doctors could provide health education about STDs and pregnancy. Others thought this would prevent people who were embarrassed to ask from getting the condoms they needed to protect themselves.

Both clinicians and enlisted women reported the need for women to ask doctors to do Pap tests and other tests. In a couple of the groups, participants told the rest of their group that health care providers do not routinely test for STDs, only for HIV. Several women were surprised because they had received STD screening in boot camp and assumed that they received screening every time they had a gynecological examination. One enlisted woman said, "Women would ask if they knew they had to."

One participant said that doctors should just tell patients about their health and any problems they were experiencing. She said, "They (doctors) can just tell us stuff. I mean he (the doctor) knows, I don't know. They can tell when something's going on."

The enlisted women participants reported several barriers to communication with health care providers, including embarrassment, naiveté, apathy, lack of confidentiality, and lack of a consistent provider of care. While some felt that women were too embarrassed to ask questions of their health care provider, others disagreed, feeling that women were well able to ask sensitive questions about their health. Some stated that women should not let embarrassment keep them from getting their questions answered. Another barrier was that some young women in the Navy might also not have introduced to women's health issues. Another woman said that women do not ask their health care providers questions about their health because the women were focused

on the specific health problem during the office visit. One woman stated she did not think asking questions was always worth the effort.

Concerns about confidentiality or quality of care from their sick call clinicians may also prevent candid discussion of health issues according to participants. The participants said women need a confidential counselor, in case they get pregnant or if they get a disease. Others said that they would hesitate to open up to a doctor they did not know. Being an enlisted woman and being in a larger unit were factors seen as contributing to lack of continuity of care, and thus also to poor patient/provider communication. Having a peer as a health care provider—a condition that was more likely on a ship or in the field—made women uncomfortable and kept them from asking questions about their health.

In the clinician group, other barriers to communication were mentioned. For example, clinicians may not have time or support staff to discuss and provide education to women. Several clinicians stated that enlisted women were intimidated by high-ranking officers asking questions. Building trust often takes time, given the training about rank. One participant said that clinicians should not put the responsibility for communication on enlisted women but rather should take the responsibility themselves as well as train other clinicians to promote communication with patients. "It certainly causes problems when you put this responsibility on these 18-year-old women. Maybe we have to take the pressure off of patients. We need to education GMO's (General Medical Officers), who have very little previous clinical experience, on taking care of patients."

Both enlisted women and clinicians in the focus groups stated that having female peers as educators would be beneficial. The women stated that they preferred talking to other more experienced women in the Navy rather than their health care providers. One woman said, "Not doctors. Most of them aren't any older than us." Some clinicians agreed, saying that having a peer educator may be more beneficial for providing education because of the trust issues some enlisted women had in talking to health care providers of a higher rank.

In the discussions of communication with health care providers, general issues about the Navy's integration of women were raised. The enlisted women stated that the "Navy is not prepared for women" and does not know how to accept the changes that were inherent to integrating women into it. Outside of the medical care, women's health issues could be addressed better boot camp or through periodic briefs on women's issues.

Genitourinary Infections/Hygiene

Participants in the focus groups of enlisted women who were single and who were corpsman appeared most concerned about issues related to hygiene and the prevention and treatment of common genitourinary infections. Both enlisted women and their health care providers reported that vaginal infections and urinary tract infections (UTIs) were common among enlisted women.

Hygiene Issues for Enlisted Women

Some participants perceived few problems with vaginal infections for enlisted women in the Navy. One participant in the group of married enlisted women said, "There are really no problems in the field, when deployed." A clinician reported that vaginal infections during boot camp were not higher than in the general population.

Other women disagreed. Participants reported that uncomfortable discharge or pain was one of the primary health issues about which enlisted women most worry. Some women complained that vaginal infections were a problem in boot camp, because "It's hard to get clean." One clinician explained that enlisted women become concerned about vaginal discharge during boot camp because they were not allowed to bathe as frequently as they were accustomed. However, the vaginal discharge they were experiencing was normal.

Finding the opportunity to practice proper hygiene was also a problem during ship and field deployments. "Sometimes you only have 5 minutes to go to the restroom when you may need 10. You may not have time to clean the way you'd like." Women may have no time at all to shower when in the field. Close quarters, poor sanitation, and poor quality toilet paper were also blamed for causing poor hygiene difficult in deployment situations. "You have to use whatever facilities are around," said one participant.

Poor hygiene was the result of actions by the women and by others. For example, both enlisted women and clinicians participating in the focus groups said that some women do not wash their underwear or other clothes regularly, even though washers and dryers were free. Others reported that some women did not bathe often enough because they were scared to take showers in the shower stalls. At boot camp, commanders made women wear tampons in the pool, even when they were not menstruating, which could lead to vaginal hygiene problems. Concerning deployment, one participant said, "The medical people give you a brief about insects and common diseases but not about women's issues." One woman said that her husband gave her a yeast infection when he committed adultery.

Prevention and Treatment

To prevent yeast infections, enlisted female participants recommended giving information to Navy women about how to keep themselves clean: "It's not hard to stay clean, but it's easier for women to get something." Teaching women how to take care of themselves could occur during boot camp and throughout their Navy career. Advice included: "Bring baby wipes and alcohol pads," and "The water may be cold, so it's hard to take a good shower (when deployed)."

Concerning treatment, the participants said that women can get treated when deployed on the ship, but treatment is more difficult to obtain on other deployments, such as when one is in a tent camp. However, once a woman sees a clinician, yeast infection medication is readily available.

Pregnancy

Pregnancy was of great concern to the Navy, according to participants in all of the groups. The women stationed at the branch installation stated that their command was particularly concerned about pregnancy: "There are 40-50 women here, and about 10 get pregnant every year." The commanders were concerned because women who were pregnant cannot do as much work and cannot be deployed. "There are a lot of females on base that are pregnant, and that means less work getting done," said one participant. Line supervisors were also angry with pregnant women, because other sailors have to pick up their workload. The command and medical personnel were also worried about the fact that these women who get pregnant were often so young and were unaware of the struggle involved in pregnancy and raising kids, especially when one is in the military.

Women who were pregnant can request administrative leave, but it's up to the senior leadership whether to grant it. Some commands treat a woman the same whether or not she is pregnant. For example, hospital corpsmen were worked longer than pregnant women in other jobs, according to clinicians. In other jobs, pregnant women often were assigned to menial tasks. Sometimes supervisors have so many pregnant women that there is not enough light work to assign, and they send the pregnant seamen home. Female supervisors were perceived as being stricter with pregnant women than male supervisors. Other supervisors give women light duty, because they were uneducated about the demands of pregnancy or because they were scared of being blamed for harassment or discrimination. One clinician said, "They have treated women so badly in the past that now they were afraid." Another clinician was critical of supervisors who were too lenient with pregnant women. These supervisors will not make pregnant sailors do work unless a doctor or nurse practitioner tells them that the pregnant women were able to work harder and provides specific instructions.

Most of the participants agreed that some people try to get pregnant to get out of the Navy or to avoid some duty or deployment. Older enlisted women and clinicians said that the number of dependents would change if there were not the incentives. Some of the incentives include getting out of work time, getting out of the barracks, better housing, and paid maternity leave. If they were at sea, they can get off the ship after 20 weeks of pregnancy. According to one clinician, "There are no reasons not to get pregnant." Male sailors also received incentives from the pregnancy: they received paternity benefits and may even get time off duty to attend prenatal appointments. Clinicians said that single mothers were being recruited into the Navy, often with the mistaken belief that all of their needs (family housing, etc.) will be cared for immediately.

Not all women in the Navy try to get pregnant to avoid duty, according to participants. Some Navy women worry about pregnancy, especially if they were not ready or if they were involved with a man who is less prepared for a relationship and parenthood than they were. Those who do not try to get pregnant do so because of mistakes (e.g., being drunk, a broken condom, forgetting to take one's birth control pills). One participant reported getting pregnant while taking birth control pills. Pregnancy also occurs because the women were taking no precautions at all. For example, one single enlisted woman said "Pregnancy is natural. You can't do anything about it." According to the clinicians, enlisted women were often not in stable

relationships: they consider themselves "engaged" but they have only known the male for a week. Some were involved with a man has been discharged from the Navy under shady circumstances, or they were with a male who is not the father. Both enlisted women and clinicians reported high-risk sexual behavior as a contributing factor. In "tent camp," people often were caught having sex in laundry rooms and showers. One clinician said, "these kids are like rabbits; they'll do it anywhere. It's a love-fest after 8 weeks of abstinence (in boot camp)."

Whether intentional or unintentional, the enlisted women perceived negative attitudes against them when they became pregnant:

- "They look down on pregnant women, whether they are married or single."
- "People point at you and stare, make you feel like an object, they make you feel like you've done something so wrong. Females, males, your boyfriend."
- "If other people think the pregnancy was intentional, the thought can be that they are trying to get out of things."
- "No matter how hard we try to not look like a slacker, they give you a hard time. But you can't do much (work) when you're pregnant."

Three main recommendations were made concerning how to reduce unintentional pregnancy in the Navy: educating younger women about pregnancy, educating their partners, and replacing the incentives with disincentives. Besides general family planning advice, many of the suggestions for messages for the enlisted women involved informing women of the demands of pregnancy. Participants advised that enlisted women "need to plan" and "need to wait" because women will go through many changes in their early twenties and in the Navy, and many young women end up getting divorced. The participants also warned about the difficulty of having children when in the Navy, where there can be a lot of separation from family when deployed. Those who were single will have more difficulties: "You have to do everything, and it's hard to find a babysitter." To those who may be using pregnancy as a way to get discharged, one participant would say, "It used to be easy to get out of the Navy if you became pregnant, but it is not so easy anymore." The participants recommended providing similar education to males in the Navy, regarding family planning and responsibility. One enlisted woman participant said, "They need to teach men they are responsible, they could be a daddy. Society doesn't make them feel responsible."

The clinicians group had an extended discussion concerning incentives and disincentives. They thought incentives should be instituted for avoiding pregnancy (such as allowing non-pregnant women to move out of the barracks), and disincentives for becoming pregnant (time in pregnancy and on maternity leave not counted toward military service; pregnant woman and father could be discharged). Barriers to these disincentives included the cost of paternity tests and the inability to punish fathers would lead to charges of discrimination.

Contraception

In one group, concerns about getting birth control (i.e., getting oral contraception prescription refilled) was seen as a key worry of young enlisted women. Another participant said that women should worry about contraception and taking care of their bodies because male partners did not care.

Getting on birth control and "waiting" were important for reducing pregnancy among women in the Navy. Someone in each of the groups said that most enlisted women knew how to avoid pregnancy through use of contraception. One said, "If you don't want to get pregnant, you can avoid it." Contraception was easy to obtain in the Navy, even when deployed. Even women in boot camp were given a lot of prescriptions, according to one clinician. Participants mentioned oral contraceptives and DepoProvera ("the shot") as two of the most common methods of birth control used by Navy enlisted women. Other methods mentioned included condoms, Norplant, and the "IUD" (intrauterine device). Women were unlikely to use the female condom in place of the male condom because it was not distributed for free like the male condom was. Participants in a couple of groups also mentioned abortion as a method of birth control. One single woman participant who experienced an unintentional pregnancy wanted to have a tubal ligation, but the Navy denied her the procedure. "So I can get rid of it (through an abortion), but I can't get my tubes tied to really keep it from happening again."

Despite easy accessibility, enlisted women were often not consistent users of birth control. They may quit using certain birth control methods because of the side effects, such as gaining weight and migraines when using birth control pills or DepoProvera. Also, some may not be comfortable with a method and not use it regularly. Condoms, which were readily available, were not always used because some people did not like how they felt. A woman who had the birth control pill fail, was skeptical of the effectiveness of birth control, saying, "How many forms of birth control do I have to go through before I find what's most effective?"

Enlisted women also made mistakes in using their birth control that resulted in pregnancy. For example, some women became pregnant by forgetting to take their birth control pills or the pills were not effective for some reason.

Sexually Transmitted Diseases (STDs)

Participants in the two focus groups with single enlisted women said that their peers worried about infectious diseases, especially STD and HIV infections. The concern about infectious diseases was exacerbated when they were deployed in some foreign countries with high rates of these diseases. They also may be at more chance for contracting an infection in a concentrated community, such as occurs on shipboard deployments.

Other participants said that enlisted women should be concerned about STDs but were not. They thought people should be concerned because a significant number of enlisted women engage in high risk sexual behavior and being infected can affect one's ability to work. However, many

enlisted women were away from home for the first time and "don't think it (an STD infection) will happen to them." One participant said that though people know about STDs they put themselves in situations that will place them at risk of infection. One gave the example of married people who sleeping with single people and bring the infection home to their spouse, a problem that could occur easily in the Navy because of the incidence of adultery in the Navy.

All groups of enlisted women perceived a high rate of STDs among women in the Navy. Those in the enlisted women's groups most often estimated that 70 to 80 percent of enlisted women had had an STD. These estimated STD prevalence rates were much higher than the lifetime STD prevalence rate among enlisted women reported in the 1995 *DoD Survey of Health Related Behaviors Among Military Personnel* (27.8%). When told about the prevalence rate reported in the health behavior survey, participants were skeptical of the figure, saying the rate seemed low. Participants thought that people do not always disclose that they have had an STD. In contrast, a clinician who provided reproductive health education during boot camp said that STDs and vaginal infections during boot camp were not higher than in the general population.

All groups of enlisted women recognized chlamydia and gonorrhea as common STDs among their peers. Chlamydia was perceived to be common among both males and females, but corpsman added that they perceived it to be more common among younger enlisted personnel. Clinicians mentioned human papillomavirus as another STD common among enlisted women. Clinicians were concerned that enlisted women did not know that human papillomavirus (HPV), was related to cervical cancer.

Prevention Issues/Condoms

Participants discussed empowerment education, partner communication, abstinence, and condom usage as methods to control and prevent STD infection. Empowerment issues were discussed in terms of women being aware of the risks inherent in practicing sexual behavior in general and in the Navy. In general, participants explained that women needed to know how to protect themselves against men with whom they become involved sexually. Comments included: "Females don't ask, and guys lie" and "Women should take care of their bodies, because a man won't." Several participants saw this as an important problem in the Navy, where they perceived that males were likely to be untruthful and hide their marital status. Some enlisted women were seen as having low self-esteem that led them to be dependent on a male partner. In a couple of groups of enlisted women, participants noted that women may not use contraception or STD protection if their partner did not approve. One said, "The female condom is not used much... they wait to see if men are going to use them." Another said, "Sometimes conflict can arise when one person wants to use a condom and the other doesn't."

Most participants did not think male and female were likely to discuss STDs with each other. However, they did see that it could be useful. One said, "You get to see each other's views." Getting to know a partner was considered one way to make communication less difficult. One woman advised, "Ask questions, don't be embarrassed, don't assume. Don't be ashamed to ask questions."

Participants thought that enlisted women practiced abstinence and used condoms to protect themselves from STDs. Abstinence was not discussed at length except in terms of enlisted women needing to protect themselves and needing to "wait." Participants thought that women should use condoms, but they recognized that some barriers existed. For example, women or their partners may think that condoms were uncomfortable or did not feel good. As mentioned above, some couples may disagree over whether or not to use a condom. Some people may need to learn to use condoms, and condoms could break if used improperly. Participants did not consider access to condoms a problem because they were readily available in the health clinics from providers and on shipboard in dispensers. One participant in the corpsman group thought that availability of condoms might encourage people to have sex by implying that they have permission. She also thought enlisted personnel should have to go see a doctor to get free condoms. Others disagreed, saying that making condoms available for STD protection is too important.

Participants in every group thought that people would take more precautions if they were sensitized to the severity of STD infections, and they believed graphic visuals were important to show people the consequences of these diseases. Comments included, "Maybe it'll make people think twice about sleeping around," and "It will scare off people from having sex."

Treatment Issues

According to a few participants in each group, STD screening was provided to all enlisted during basic training. While HIV screening is done every 6 months, women had to request screening for other STDs at subsequent exams. Clinicians added that STD screening was done if a woman's sexual practices history indicated that she was at risk for contracting an STD. However, the clinicians said that this history was not taken routinely, so women who needed screening often went undetected. Several enlisted women in the groups were surprised to hear that they had to request cultures if they themselves suspected they had problems. One woman said, "Women would ask if they knew they had to." A few participants were aware of asymptomatic STDs and were concerned that women would not be cued to ask for screening if they had no symptoms, the women would "think they are okay." Some of the corpsman were concerned that routine tests during annual examinations, like the Pap test, were not accurate, and women should not rely on the results.

Other concerns and issues were raised concerning STD diagnosis and treatment. One concern was that some clinicians were diagnosing infections without the proper tests and prescribing incorrect treatment. One woman had been given yeast infection medication, but she did not notice the doctor doing any tests that would have shown if the infection was something else. One enlisted woman also said that she thought women needed a confidential counselor if they contracted an STD infection. STD reinfection was also a concern, because clinicians were not always able to treat the male partner, either because the partner was not in the Navy or the partner did not come to the office visit (clinicians cannot write a prescription for patients who were not present).

Health Education

In the Navy

The general consensus of participants in all focus groups was that some reproductive health education has been given to enlisted women, but it was only made available in a systematic way during boot camp. Besides lectures on reproductive health, enlisted women received medical care and contraception prescriptions—some have their first Pap test and pelvic examination during boot camp. Both clinicians and women complained that this information was inadequate, both because so much else was covered during boot camp and because follow up discussions were needed to reinforce the information. However, no briefings were required after boot camp: "The medical people give you a brief about insects and diseases common to different areas, but there are no briefings on women's issues." The women working in the branch installation received a recent women's health briefing by a nurse, but only because the pregnancy rate was considered excessive. Moreover, the health briefing was deemed "discrimination" by a supervisor because it was not made available to male enlisted as well. Informal talks between female enlisted sailors may occur spontaneously or through suggestion by the command. For example, One of the older, experienced female sailors at this installation had been asked to have informal talks with younger enlisted women, in which she explained the effects of different birth control options. These talks could not be mandatory requirements; women could only be invited on a voluntary basis. All the enlisted women agreed that such women's health classes ("open discussions") should be given on a regular basis.

Participants said that information on condoms, STDs, and birth control was available at Navy hospitals and clinics, often in the form of pamphlets. The women in the branch installation reported that they obtained this information and other health counseling at a nearby Army installation. While participants in each of the groups supported having written material available, the clinicians explained that they had to buy materials out of their budgets, and they were often unable to afford many. Others complained that the classes and written information that was available was inadequate, containing information women already knew.

The clinicians reported several different women's health education programs that they or their peers had conducted. These included open discussions, "baby wannabes" (activity in which women learn about the demands of caring for a baby by caring for a doll), and a baby budget. Several clinicians said that preventive medicine clinics had programs and they distributed condoms and pamphlets, so the clinicians recommended that doctors send enlisted personnel to these clinics for health educations. Clinicians also said that many health education programs tended to be decentralized and were provided at smaller installations. They said that smaller installations tended to do more education because staff had more time and money, and larger bases had too many different foci. However, finding out about these programs was difficult and usually occurred through word of mouth.

Most participants were favorable about computer-assisted instruction for women's health, because younger enlisted people would be interested. Across groups, Internet-based education was perceived as useful because it would be interesting, anonymous, and accessible to those in

secluded areas. While some participants had heard of computer- and Internet-based health education in the Navy, it was not prevalent, partly because of limited access to computers among enlisted women. Enlisted women in one group said they had not used computer software for health, but they had used the Internet. They were aware of free Internet access at the library in the Yorktown installation. As for computer-based applications, clinicians mentioned applications such as the Virtual Navy Hospital CD-ROM, the Breast Cancer Awareness CD-ROM, and kiosk-based applications in neurosurgery. However, the clinicians said that these were not used much despite a large amount of money spent to develop them. One of the participants in the clinician group was seen as an innovator by his peers for having set up a computer station for health education programs, but he saw few sailors use it. The clinicians said that computer availability was important, either in libraries, on shipboard, or in a clinic. The clinicians were concerned about ensuring privacy, whether all enlisted would know how to use the computer, and whether computer-based materials would reach the at-risk population. In other words, people going to the library and using computers there may not be the population in most need of health education.

Both clinicians and enlisted women said that enlisted women were more likely to consider experienced peers as credible sources of information than health care providers, commanders, or civilians. While older peers have relevant life experiences, many doctors were perceived as being young and inexperienced and not as believed. One clinician said, "Even when reports from peers are counter to doctors' orders, they will act on the word of peers not doctors."

Health Education Needs

Several comments from focus group participants suggested that the system for disseminating information on services and resources available to enlisted women was uneven. Participants indicated that there was sufficient information about equipment and supplies available to help enlisted women maintain their reproductive health, particularly in the field. However, less information and support was available for health care and health education. In the focus groups, more experienced sailors and clinicians described the need for women to request screening services, and other participants were not aware of this need.

Another concern that was brought up by participants in the group of health care providers was the need for reproductive health education throughout one's Navy career, from basic training and afterward. One enlisted woman thought the information given in basic training could be improved: "They teach you a lot of useless information in boot camp. They could spend a lot more time on how to take care of yourself." After basic training, health education needs to be repeated concerning hygiene, sex education, condoms, and other reproductive health issues. Participants suggested repeating this training when women were checking into a command and while sailors on shipboard. Several clinicians and corpsman agreed that follow-up education will require support from the supervisors, commanders, and policy. For example, one clinician said that, to bring health education to the ships, one would "need cooperation with bosses on the line." To conduct innovative health education programs, one would need "cooperation from line." One clinician said, "Nothing's going to get accomplished without follow-up after boot camp. Follow

up with someone who knows them is impossible, so something more system-wide is necessary." Another clinician said that getting support may be difficult because the command was "concentrating on the short-term tasks, not long-term picture."

After discussing health education programming for sailors, some of the clinicians mentioned others that needed education so that enlisted women's needs were met, particularly supervisors and clinicians. The supervisors need to be educated about the importance of women's health education for reaching long-term objectives so that they will make it a priority and allow women to participate.

Health care providers also need to be educated about the needs of female enlisted patients. General Medical Officers (GMO's) may have little clinical experience and may not want to provide reproductive health care, so they were not prepared to provide adequate care or education to women. The clinicians recommended that health care providers learn how to educate patients about health examinations rather than waiting for patients to ask for the care they need. Besides being educated on what to tell women, health care providers need education on communication skills so they can improve their interactions with patients. One clinician explained, "Providers have to break the ice with enlisted women or wives who were intimidated by officers. Somehow you've got to make them trust you and relax. This may take time, especially given the training that is programmed into them."

A key audience that has been overlooked in health education was enlisted men, according to both enlisted women and clinicians. Although men and women both get wellness training at boot camp, they need further education so they were aware of their responsibilities; were able to protect themselves against health risks, like STDs; and were aware of women's health issues and appreciated "what women go through." Including men was seen as important because society does not make them feel responsible, especially concerning pregnancy. The participants thought that men and women needed to hear the same messages. Participants also suggested having discussions in which men and women discussed issues together so that openness was encouraged rather than reinforcing the barriers between men and women. These sessions may need to be mandatory because men did not come to voluntary health education sessions like women did.

The last issue raised concerning health education was the matter of evaluation. Through the discussion of existing health education programs, one clinician suggested the need to test educational material on a segment of the enlisted female population over a 6-month period. Based on the results, the program could be refined then disseminated to other sites.

Responses to Written Material

Focus group participants were asked to review two handouts produced specifically to provide reproductive health information to enlisted women. One was a newsletter produced by the Naval Medical Clinic in New Orleans in 1996. The other handout was the publication "Staying Healthy in Deployment: A Female Soldier's Guide" produced by the U.S. Army Center for Health

Promotion and Preventive Medicine and the U.S. Army Research Institute of Environmental Medicine in October, 1996 (see Appendix E for copies of these handouts). Enlisted women and clinicians responded that they had not seen any of these materials before. They also thought that the handouts were more comprehensive than other reproductive health education materials they had seen to date.

Several participants thought the longer resource guide was helpful and better than fact sheets because it had more detail. Other enlisted women thought their peers would like both types of materials, because the longer package is more detailed and covers everything, and the short guide provides basic information in a concise manner. One participant said, "More detail is good but plain information is necessary, too."

The focus group participants offered suggestions for how to improve these materials. They recommended adding:

- Statistics on risk behavior;
- Information on what to bring during deployment and emergency contraception;
- Symptom-based information;
- Personalized information; and
- Pictures (though some said pictures were not necessary).

The participants in several groups thought this information should be made widely available to enlisted Navy women. The written materials could be handed out in the beginning of one's Navy career, mailed to every woman, or included in the Blue Jacket Manual (a resource guide they received in boot camp).

Conclusions

Most focus group participants at Naval Station Norfolk agreed that there is an unmet need for basic reproductive health education for enlisted women. Education on preventive health is especially critical because of the high value placed on fitness in the military. Participants in the focus groups of enlisted women and their military health care providers agreed that several gaps exist in the education sailors receive on STD and pregnancy prevention as well as ways to maintain hygiene and prevent genitourinary infections.

Education is needed to prevent pregnancies that interfere with the mission of all sailors. However, because so many incentives and other factors exist that put enlisted women at greater risk for mistimed pregnancies, effective pregnancy-prevention education may be difficult. Focus group participants agreed that the most effective approach may be to emphasize the demands of parenthood, particularly in the military, to both females and males.

Basic education on contraception is also needed to help enlisted women prevent unwanted pregnancies. Contraception is widely available in the Navy, but contraceptive information needs

to be more accessible outside of the clinical visit and pamphlets. Enlisted women need to know about their contraceptive options, the risks and benefits of each option, how to obtain the contraception they need, and how to deal with the potential side effects of contraceptives.

Navy women were concerned about vaginal infections because they were acute conditions that were uncomfortable. According to focus group participants, enlisted women were frequently unable to practice good hygiene in the field (in countries with poor facilities) and on shipboard. Working and living in close quarters in tent camp and on the ship decreases women's access to the resources they need to maintain good feminine hygiene (e.g. time, privacy, materials). According to the enlisted women and clinicians, information on normal discharge and how to practice good hygiene in general and in the in a military environment was needed. However, treatment was readily available on base and during deployments.

Sexually transmitted disease (STD) was clearly a major concern in the Navy. Participants in enlisted women focus groups estimated the prevalence of STD infection among enlisted women to be much higher than recent data have shown. Participants in all focus groups were aware of many STDs common among enlisted women. All groups mentioned that chlamydia was common among enlisted women. Interestingly, the one STD enlisted women failed to mention was HPV. Conversely, clinicians were concerned that HPV infection was prevalent and that women were unaware of its relationship to cervical cancer.

Clinicians and enlisted women in the focus groups agreed that most enlisted women were not sufficiently concerned about STD infection. In particular, young and inexperienced enlisted women reportedly were likely to engage in high-risk sexual behaviors because of their ignorance of the risks and consequences of STDs other than HIV (for which all sailors are tested). Navy women experienced unique STD risk factors: deployment in foreign countries with high STD rates and the perceived high rates of multiple sexual partners and adultery among Navy personnel.

Because routine STD screening was not provided, enlisted women need to be made aware that they need to request such testing if they think they have been exposed. Although an awareness of STD signs and symptoms may cue them to the need for screening, they need to understand asymptomatic STD infection so they base the need for screening on their behavior. Comments across focus groups also suggested that use of condoms by enlisted women could be improved, perhaps due to lack of confidence with partners and lack of condom use skills. Ready and confidential access to condoms in the Navy appears common.

During discussions of all focus group topics (pregnancy, STDs, hygiene and genitourinary infections) participants repeatedly brought up issues of health care delivery in the military. However, several barriers to enlisted women receiving preventive care and treatment were described by focus group participants. These barriers included:

- Lack of confidence in the quality of medical care because of the dependence on independent duty corpsmen (IDCs) and PAs as well as the use of facilities where they were likely to see clinicians who were being trained.

- Lack of access to health care providers with training in women's health issues.
- Lack of confidentiality of personal medical information.
- Lack of continuity in care because a different clinician is seen each time.
- Poor patient/provider communication due to embarrassment or discomfort on the part of the women and lack of time and support staff on the part of clinicians.

According to focus group participants, many of the barriers to obtaining health care in the military also interfere with enlisted women obtaining information they need to protect their reproductive health. Participants report that little time is allotted for educating sailors about their reproductive health—they generally receive a class in basic training. The clinicians who many women usually saw were in Sick Call and tended to be IDCs or PAs, and they had little knowledge or training in reproductive health care. Clinicians in the hospital and specialty clinics (family practice and OB/GYN) reported that they often did not have time for education. Further, focus group participants reported that most enlisted women do not follow the recommendations of clinicians or commanders concerning their reproductive health. They were more likely to rely on peers to make decisions that affect their reproductive health.

Overall, findings from the Norfolk area focus groups indicated that enlisted women would benefit from a computer-based reproductive health education intervention, provided it could be made accessible to all sailors. Internet-based methods may be more accessible in the long term as more access points were made available to seamen on installations, in Navy clinics, and on shipboard. Few participants were aware of computer-based materials for reproductive health education, except for one clinician who had an interest in it. Findings from the focus groups also indicated that enlisted women need a mechanism for obtaining reproductive health information that was current and tailored to their situation, and computer-assisted instruction was a useful method to provide such information.

Reproductive health education was only made available to enlisted Navy women in a systematic way during basic training. Later educational sessions were seen as crucial to reinforce health messages and promote responsible behavior, but such efforts were not yet supported by line commanders. Preventive health clinics have materials and provide education, but most other health education efforts were decentralized and available in smaller installations with more staff and resources. Clinicians recommended finding out about these programs and materials in order to reduce redundancy of effort and to take advantage of what others had learned before.

Participants in the clinician's focus groups also emphasized that command support was critical to making any health education intervention available to enlisted women. Women's health programs were sometimes stopped by commanders who saw them as discriminatory because they were not provided to males as well. However, most participants supported reproductive health education directed at both men and women. In addition, education to raise the awareness of line supervisors and clinicians, particularly IDCs and GMOs, would enable enlisted women to get the health care and health education they needed.

Recommendations

Below is a detailed list of recommendations for developing interactive, computer-based materials to educate enlisted women about their reproductive health. Recommendations were either offered by focus group participants or developed based on comments made by focus group participants. The first set of recommendations deals with content for the intervention. The second set of recommendations deals with the delivery of the intervention. This section concludes with a list of questions that should addressed by the intervention.

Content

General format

- Use a variety of formats to convey information so that it appeals to a broad range of users. Include video, graphics, statistics, models, and scenarios.
- Some mechanism for tracking the number or type of users (even which modules were used) should be included for evaluating the educational intervention and reporting on its utility.
- If possible, the educational intervention should be extended to or adapted for male sailors, commanders of enlisted women (officers), and military health care providers. Information for males would raise awareness of the risks and issues women confront in their reproductive health.
- It would be useful to include content that can be tailored to the user based on service, age, job, marital status, ethnicity, etc.
- Military terminology should be used in writing the content.
- Repurpose when possible information, videos, and graphics already available from military sources.
- Because of the limited access most enlisted personnel have to computers, creating a program that could produce brochures or slides, or be adapted to a videotape format would be useful. Women want something they can take home.
- Content should be available in a both a shortened version and in a longer resource guide.
- The content should be focused and interactive to keep the attention of the target population.
- Provide a website for those who have access to the Internet.
- Include resource information and contact numbers where they can obtain confidential health counseling or information.
- Provide behavioral modeling and testimonials by experienced peers (enlisted females). Vignettes should be entertaining and practical.
- Present information in lay terms, preferably at sixth grade reading level.

General women's health content

- Include information on basic female physiology and menstruation, including how to recognize what is normal discharge.
- Include basic education on recognizing symptoms of UTIs, vaginal infections, STDs, and

pregnancy; and on how to react to those symptoms.

- Provide information on responsible behavior.
- Give general information on how to stay healthy through adequate rest and nutrition.
- Instruct women on how to ask about diagnoses and treatment options.
- Emphasize the importance of the annual "well woman" exam.
- Include a directory of information resources for enlisted women to find out how to deal with their unique reproductive health concerns.
- Deal with concerns about confidentiality of treatment.
- Provide practical suggestions for preventing STDs and pregnancy that go beyond contraception (e.g. communication, safe dating practices, etc.).
- Provide general information about military health care, including what is covered.
- Provide guidelines on what an enlisted women's rights and responsibilities are as a patient.
- Include guidelines on how and when to seek medical care. Emphasize importance of seeking help when one has a problem
- Explain the well woman examination and the importance of having one annually. Explain how and when a Pap test is done.
- Promote being an active health consumer. Instruct women on how to ask questions and the importance of being honest with health care providers. Provide scenarios on communicating with health care providers.
- Provide information on when to follow up with care providers concerning tests.

<u>Specific pregnancy and contraception content</u>

- Include a section on birth control alternatives, their effectiveness, risks, benefits, and side effects. Dispel myths and misconceptions.
- Educate women about how to avoid contraceptive failure.
- Provide information about obtaining contraception and ensuring adequate supplies prior to and during deployments.
- Include information on emergency contraception.
- Promote importance of family planning, including the importance of preconception care if one decides to become pregnant.
- Include information on the difficulties and demands of being a mother in the Navy, particularly for single women.
- Provide the policies on being discharged and avoiding deployment for enlisted women who become pregnant.
- Include instruction on normal vs. abnormal pregnancy and how to treat.
- Include information on the financial costs of raising a child (baby budget).

<u>Hygiene and genitourinary infection content</u>

- Explain the difference between yeast and other vaginal infections.
- Provide tips (perhaps from experienced sailors, health care providers, and commanders) for maintaining personal hygiene on base and in the field (i.e., boot camp, shipboard, and "tent camp" in countries like Turkey).
- Recommend items, medications, etc., to bring during deployments.
- Inform women how to obtain treatment when in the field.

STD infection content

- Promote abstinence and STD prevention methods and provide information about how to practice each.
- Inform women about the symptoms of STD infection as well as the likelihood of asymptomatic STDs. Provide symptom-based information so women will have something to which they can relate.
- Let women know the importance of discussing sex and condoms with partners. They should be made aware that not all sexual partners will be honest about having had an STD infection or about their sexual risk behavior in general.
- Promote and demonstrate proper condom use for STD prevention.
- Inform women how to obtain condoms on base, in the field, and on shipboard.
- Educate women about the link between HPV infection and abnormal Pap tests.
- Provide information about what they can expect in STD screening, diagnosis, and treatment. Advise them how to request testing if they think they have been infected.
- Provide education about how reinfection and the importance of having sexual partners receive treatment.
- Provide information and scenarios on partner communication skills. Include negotiation skills.

Delivery

Who?

- Enlisted women may be more responsive to reproductive health information delivered by a friend or peer rather than a health care provider.
- Small group leaders may be the best people to deliver reproductive health education, but they need to learn how to deliver the education without judging or lecturing.

When?

- Educate sailors as early as possible. Provide reproductive health education during basic training.
- Reproductive self-care and prevention education should be provided at several points through a woman's Navy career by a team of trained individuals who work closely with enlisted women.

Where?

- Many enlisted personnel do not have regular access to a computer. Therefore, a computer should either be set up at the clinic or the CD-ROM should be installed in the library. At the library, women could sign out the CD-ROM.
- The education should be available on the ships.

How (what will it take to deliver?)

- Education and support of the chain of command is critical to implementing any reproductive health education intervention for enlisted women.

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Determinants of Reproductive Health and Health Behaviors Among Women in the U.S. Armed Forces

Kathryn Brown-Huamani
Nancy L. Atkinson
Robert S. Gold
Evelyn L. Lewis

Topics of Discussion

- Background
- Purpose of the Study
- Methodology
- Findings
- Conclusions

Background

- Growing percentage of active duty women in the U.S. Armed Forces
- Repeal of the combat exclusion law
- Unique health concerns of active duty women
- Impact of gynecologic complaints on readiness
- Developmental concerns

Purpose of the Study

In order to inform the development of a health education intervention for women in the U.S. armed forces, this study seeks to:

- assess the most pressing gynecological self-care education needs of military women.
- assess current health education for military women.

Primary Data Collection:
1995 DoD Survey of Health Related Behaviors among Military Personnel Sample

- Two-stage cluster sampling design
  - First stage: units located in geographical proximity within each Service.
  - Second stage: eligible active duty military personnel (N=27,141) stratified by pay grade and sex.
- Inclusion criteria: all active duty military personnel
- Exclusion criteria
  - Recruits,
  - Service academy students,
  - Persons absent without leave (AWOL), and
  - Persons with a permanent change of station at time of data collection

Primary Data Collection: Instrument

- attitudes and behaviors related to alcohol, tobacco, and drug
- health behaviors related to exercise, eating and sleeping
- illness history and medical care received
- road safety practices
- stress experienced in work and family life
- physical and mental health status
- health risks, such as high blood pressure
- access to and satisfaction with health care
- knowledge regarding HIV transmission
- sexual practices and sexually transmitted disease (STD) history
- sociodemographics and military experience
- women's health issues including OB-GYN care, pregnancy, and prenatal behaviors

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Secondary Data Analysis

- Most analyses were conducted on the female subsample (N=2,957).
- Bivariate analyses (chi-square, Kruskal-Wallis H, Mann-Whitney U)
  - Differences between enlisted women and female officers as well as between Services.
  - Differences between male and female responses to questions about the military's alcohol, drug, and STD education programs
- Discriminant analyses
  - Factors related to STD history
  - Factors related to Pap test screening behavior
  - Factors related to pregnancy while on active duty.

Sample Characteristics (N=2,957)

Category	Group	N	%
Age	17-20	391	13.2
	21-25	855	28.9
	26-30	499	16.9
	31-35	513	17.3
	36-40	458	15.5
	41+	241	8.2
Race/ethnicity	American Indian	40	1.4
	Black	719	24.3
	Asian/Pacific Is.	95	3.2
	White	1879	63.5
	Hispanic	149	5.0
	Other	75	2.5
Education	<12 years	4	0.1
	High School Graduate	788	26.6
	Some Postsecondary Educ.	1414	47.8
	College Graduate	335	11.3
	Grad/professional Study	416	14.1
Marital Status	Married	1567	53.0
	Single	1379	46.6
	Missing	11	0.4

Sample Characteristics (N=2,957)

Category	Group	N	%
Branch	Army	686	23.2
	Navy	864	29.2
	Marine Corps	576	19.5
	Air Force	831	28.1
Level	Enlisted	2341	79.2
	Officer	616	20.8
Time on Active Duty (not significant by service)	≤12 mos.	308	10.4
	13 – 24 mos.	379	12.8
	25 – 48 mos.	522	17.7
	49 – 72 mos.	271	9.2
	73 – 96 mos.	217	7.3
	97 – 120 mos.	181	6.1
	10 years +	994	33.6
	Missing	85	2.9

Sample Characteristics (N=2,957)

Health History	Categories	Army N (%)	Navy N (%)	Air Force N (%)	Marines N (%)
Prior STD	Yes	189 (28.1)	207 (24.5)	188 (23.0)	144 (25.3)
	No	484 (71.9)	637 (75.5)	628 (77.0)	426 (74.7)
Pap Test History**	Not in past 2 yrs	68 (10.2)	58 (6.8)	47 (5.7)	59 (10.4)
	>1 & <2 yrs ago	129 (19.4)	123 (14.5)	113 (13.7)	83 (14.7)
	In past year	469 (70.4)	669 (78.7)	664 (80.6)	424 (74.9)
Pregnant on active duty **	Yes	189 (27.6)	241 (27.9)	253 (30.4)	205 (35.6)
	No	280 (40.8)	401 (46.4)	376 (45.2)	228 (39.6)
	Uncertain	217 (31.6)	222 (25.7)	202 (24.3)	143 (24.8)

* = p<.05, ** = p<.01 (based on chi-square analyses)

Sample Characteristics (N=2,957)

Health History	Categories	Enlisted N (%)	Officer N (%)
Prior STD**	Yes	623 (27.1)	105 (17.4)
	No	1677 (72.9)	498 (82.6)
Pap Test History	Not in past 2 yrs	171 (7.5)	58 (6.8)
	>1 & <2 yrs ago	352 (15.3)	123 (14.5)
	In past year	1772 (77.2)	669 (78.7)
Pregnant on active duty **	Yes	764 (32.6)	124 (20.1)
	No	953 (40.7)	332 (53.9)
	Uncertain	624 (26.7)	160 (26.0)

* = p<.05, ** = p<.01 (based on chi-square analyses)

Variables not entered in any discriminant analysis

- Service
- Pay grade (E1-O10)
- Officer or enlisted
- Education level
- Race
- Spouse w. you
- Military job
- Whether currently deployed
- Last time deployed 24+ hours
- Had illness that kept me from duty for 1+ weeks
- Had health problems
- Describe your health
- Number days poor health
- Amt. of beer drank on typical drinking day
- Amt. of wine drank on typical drinking day
- # days drank wine
- Amt. of liquor drank on typical drinking day
- # days drank liquor
- How often drank 8+ glasses of wine/day
- How often drank 8+ liquor drinks/day
- Last time smoked a cigarette

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Variables not entered in any discriminant analysis (con.)

- Amount of work related stress
- Amount of stress as military woman
- Ease of getting medical care in military
- Ease of getting medical care at installation
- Ease of getting OB-GYN care at installation
- Satisfaction with health care at installation
- Last time had sex
- How often use condom
- Frequency of sex
- Helpfulness of STD education
- Knowledge about most effective type of condom
- Score on AIDS knowledge quiz

Factors most related to lifetime STD history

- Number of lifetime sex partners
- Amount of stress caused by health problems
- How often in past year respondent drank 8+ beers

Ability to Discriminate by STD History

	Predicted Group Membership	
Ever had an STD?	Yes	No
Yes	**67 (9.3%)**	650 (90.7%)
No	51 (2.4%)	**2064 (97.6%)**
Ungrouped	2 (25%)	6 (75%)

75.2 % Correctly Classified ($F = 107.11$, $p = .000$)

Factors most related to Pap Test Screening History

- Satisfaction with OB-GYN care at installation
- Ease of getting OB-GYN care in military
- Number of months at present post
- Number of days deployed in past month
- Age began smoking regularly
- Drinking more, same or less in military
- Do you have any children living with you?
- Number of years smoked daily
- Satisfaction with work assignment
- Use of condom at last intercourse

Ability to Discriminate by Pap Test Screening History

	Predicted Group Membership		
Time since respondent's last Pap screening	Not in past 2 years (incl. "don't recall)	More than 1 year ago but in past 2 years	Within past year
Not in past 2 years (incl. "don't recall)	**30 (39%)**	6 (7.8%)	41 (53.2%)
More than 1 year ago but in past 2 years	13 (7.2)	**16 (8.8%)**	152 (84%)
Within past year	16 (2%)	16 (2%)	**762 (96%)**

76.8 % Correctly Classified ($F = 14.46$, $p = .000$)

Factors Most Related to Pregnancy While on Active Duty

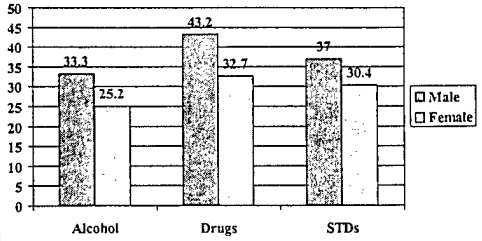
- Do you have children living with you?
- Age
- Number of months on active duty
- Satisfaction with OB-GYN care at installation
- Number of cigarettes smoked per day
- Number of days drank beer in past month
- Number of lifetime sex partners
- Number of sex partners in past year
- Amount of stress caused by health problems
- Marital status

Ability to Discriminate by Pregnancy on Active Duty

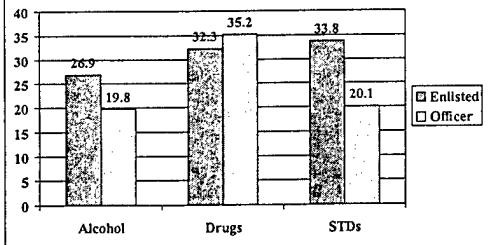
		Predicted Group Membership		
Pregnant on active duty?		Yes	No	Uncertain
Yes	N (%)	573 (67.5%)	163 (19.2%)	113 (13.3%)
No	N (%)	112 (9.6%)	1010 (86.3%)	49 (4.2%)
Uncertain	N (%)	173 (26.9%)	139 (21.6%)	332 (51.6%)

71.9 % Correctly Classified (F = 138.57, p = .000)

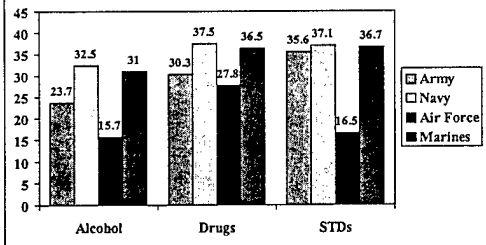
Perceived Helpfulness of Military Health Education Programs by Sex (N = 16,193)



Perceived Helpfulness of Military Health Education Programs for Females by Level (N = 2,957)



Perceived Helpfulness of Military Health Education Programs for Females by Service (N = 2,957)



Conclusions

- Reproductive health problems do exist among active duty women.
- Reproductive health problems differentially affect different groups of women in the military.
- Although several risk factors were similar to those of civilian women, active duty women experienced additional factors related to their occupation.
- Military health education programs were not perceived positively by majority of respondents, indicating a need for improved health education for military personnel, particularly women.

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Reproductive Health Education Needs of Enlisted Army and Navy Women

Nancy L. Atkinson,
Kathryn Brown-Huamani
Letitia N. English
Evelyn L. Lewis
Robert S. Gold

Funded by USAMRMC through the Defense Women's Health Initiative

Background

- Defense Women's Health Initiative project
- Reproductive health priority areas
  - Sexually transmitted diseases (STDs)
  - Unintentional pregnancy
  - Vaginal infections and urinary tract infections
- Objectives
  - To assess the most pressing reproductive and gynecological self-care education needs of enlisted women on base and in the field.
  - To assess the current health education efforts for enlisted women.

Overview

- Primary study population:
  - Enlisted women in the Army and Navy
- Secondary study populations
  - Military clinicians
  - Military chiefs of service
- Methodology
  - Secondary Analysis
  - Focus Groups
  - Needs Assessment Surveys

Methods: Secondary Analysis

- Primary Data Collection
  - Active duty military personnel
  - *1995 DoD Survey of Health Related Behaviors among Military Personnel*
  - Two-stage cluster sampling design (N=16,193)
- Secondary Data Collection
  - Enlisted females in the Army and Navy (N=1,222)
  - Data Analysis on STDs, pregnancy on active duty, Pap test screening adherence, perceived helpfulness of military health education

Methods: Focus Groups

- 4 installations
  - 2 Army and 2 Navy
  - 2 on East Coast, 2 on West Coast
  - Deployment centers
- 4 groups at each installation
  1. Single enlisted women
  2. Married enlisted women
  3. Military physicians
  4. Physician assistants and nurse practitioners
- Topics covered
  - General health
  - Military health care
  - STDs
  - Pregnancy
  - Condoms
  - Contraception
  - Communication (patient/provider; partner/partner)
  - Military health education

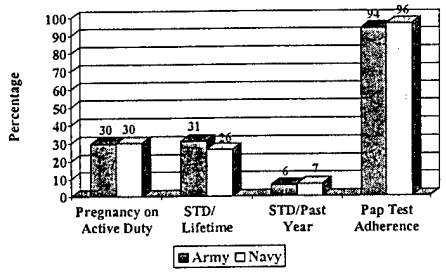
Methods: Surveys

- Military Clinicians
  - Family Practice
  - OB/GYN
  - Proportional representation by physicians & NPs
- Chiefs of Service
  - Family Practice
  - OB/GYN
  - TMC/BMC/Sick Call

Instruments
- Health problems among enlisted women
- Health care practices
- Military health education
- Perceived quality and quantity of military health education

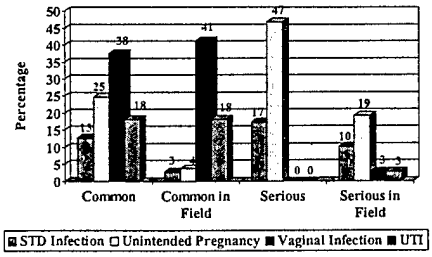
Appendix Q: Presentation at 1999 American Public Health Association Annual Meeting

Reproductive Health Concerns: Self-Reported Health History



Enlisted Women (N=1,222)

Reproductive Health Concerns: Perceptions of Clinicians



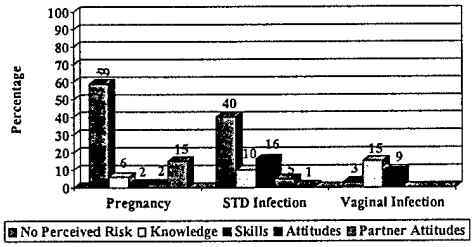
Military Clinicians (N=110)

Factors Related to Reproductive Health Concerns

Lifetime STD	Pregnancy on Active Duty	Pap Test Adherence
Lifetime # sex partners	# Months on active duty	Satisfaction with post OB/GYN care
Lower overall health rating	Lower overall health rating	# Months at present post
Post STD education perceived as helpful	Reduction in alcohol consumption since enlisting	Stress experienced as woman in military
Eating frequently to relieve stress	Lifetime # sex partners	Service branch: Navy
	Current Pap test	

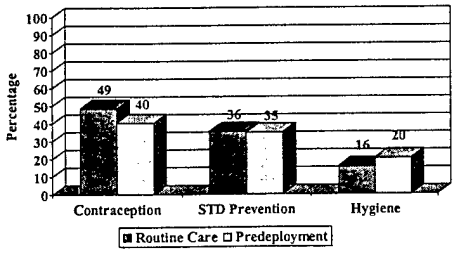
Enlisted Women (N=1,222)

Factors Related to Reproductive Health Concerns



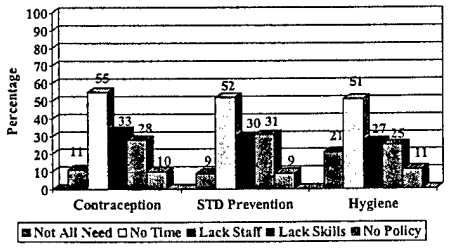
Military Clinicians (N=110) and Chiefs of Service (N=105)

Patient Education: Reported by Clinicians



Military Clinicians (N=110) and Chiefs of Service (N=105)

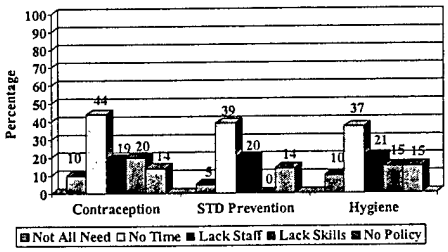
Patient Education: Barriers to Routine Education



Chiefs of Service (N=105)

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Patient Education: Barriers to Predeployment Education

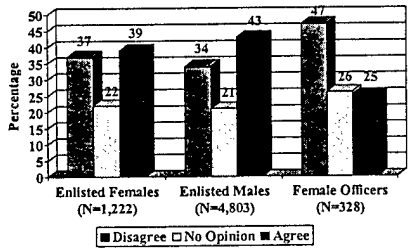


Chiefs of Service (N=105)

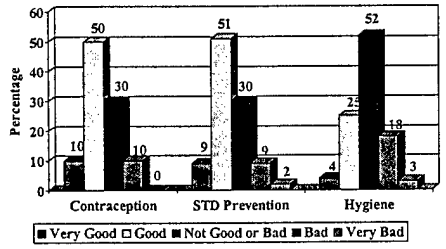
Military Health Care: Issues

- Enlisted Women
  - Lack of confidentiality
  - Quality of care concerns
  - Lack of continuity of care
  - Inconvenient hours
  - Stigma
  - Lack of awareness
- Clinicians
  - Lack of time
  - Quality of care concerns
  - Limited risk assessment
  - Poor follow up, especially during deployment
  - Lack of supplies during deployment
  - Lack of command support

Military Health Education: STD Education is Helpful

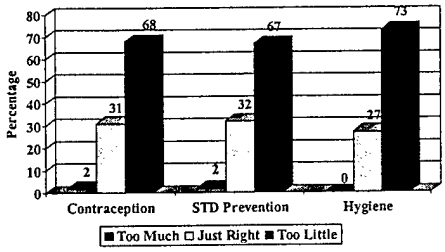


Military Health Education: Perceived Quality



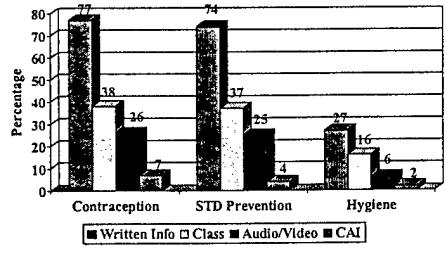
Military Clinicians (N=110) and Chiefs of Service (N=105)

Military Health Education: Perceived Quantity



Military Clinicians (N=110) and Chiefs of Service (N=105)

Military Health Education: Reported Methods



Military Clinicians (N=110) and Chiefs of Service (N=105)

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Military Health Education: Issues

- Education needs to be
  - Increased
  - Engaging
  - Interactive
  - Accessible
  - Confidential
  - Mandatory
  - Ongoing
- Provide complementary education to:
  - Enlisted males
  - Female officers
  - Clinicians with little experience
  - Commanders

Implications for an Intervention

- Individualized, context-sensitive health education program for enlisted army and navy women that:
  - Provides assessment, diagnostic information, and education.
  - Targets environmental situations and conditions (behaviors, related attitudes, & knowledge).
  - Facilitates access and utilization of necessary resources for preventive care.
  - Uses experienced peers as role models.
  - Models positive health behavior and skills.

For Further Information

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Appendix R: Presentation at the Fifth Biennial Conference on Women in Uniform

Educating Rita:

Assessing the Knowledge, Attitudes, and Practices Related to the Reproductive Health of the Enlisted Female Population

Evelyn L. Lewis, MD, MA, CAPT (sel) MC USN
Nancy L. Atkinson, PhD

Funded by USAMRMC through the Defense Women's Health Initiative

Background

- Defense Women's Health Initiative project
- Reproductive health priority areas
  - Sexually transmitted diseases (STDs)
  - Unintentional pregnancy
  - Vaginal infections and urinary tract infections
- Objectives
  - To assess the most pressing reproductive and gynecological self-care education needs of enlisted women on base and in the field.
  - To assess the current health education efforts for enlisted women.

Overview

- Needs Assessment
- Findings
- Implications

Methods: Needs Assessment

- Secondary Analysis
  - *1995 DoD Survey of Health Related Behaviors among Military Personnel*
  - Examined STDs, pregnancy, Pap test screening, helpfulness of military health education
- Focus Groups
  - 2 Navy and 2 Army Medical Centers
  - Married and single enlisted women, military physicians, military nurse practitioners & physician assistants.
- Surveys
  - Military clinicians & chiefs of service

Health Concerns: Vaginal Infections

- Vaginal infections caused most sick call visits.
- Women were most concerned about how to prevent getting vaginal infections in the field.
- Lack of knowledge and skills were related to vaginal infections.
- Women often had problems getting hygiene supplies in the field.
- Both clinicians and women said there was a lack of command support for hygiene care in the field.

Health Concerns: Sexually Transmitted Diseases

- Lack of perceived risk and concern about partners were related to STDs & condom use.
- Some women may think military men have fewer STDs than civilian men.
- Clinicians and military women thought STDs were more common than surveys show.
- Many women believed that STD screening was a routine part of their annual exam.
- STDs may result from lack of access to condoms in the field.

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Health Concerns: Pregnancy

- Unintentional pregnancy was a problem at all levels.
- Unintentional pregnancy was *often* to avoid duty or deployment.
- Lack of perceived risk and concerns about partners were related to pregnancy.
- Contraceptives were readily available, in general.
- Deployed women often had problems using contraception.
- Pregnancy testing has not been routinely done for women who are deploying.

Health Concerns: Military Health Care

- Enlisted Women
  - Lack of confidentiality
  - Quality of care concerns
  - Lack of continuity of care
  - Inconvenient hours
  - Stigma
  - Lack of command support
  - Lack of awareness
- Clinicians
  - Lack of time
  - Quality of care concerns
  - Limited risk assessment
  - Poor follow up, especially during deployment
  - Lack of supplies during deployment
  - Lack of command support

Military Health Education

- Women liked *small group discussions* with *knowledgeable peers.*
- Most health education was provided in written materials.
- Neither women nor clinicians thought women received *enough* health education.
- Enlisted women were *not positive* about most of their health education.
- Education about contraception and STD prevention was *more common* than hygiene education.

Military Health Education: Barriers

- Chiefs of service thought lack of time, lack of staff, and lack of skills were barriers.
- Clinicians thought some education was just not needed by all patients.
- Clinicians knew of many innovative programs, but these were not widely available.
- Lack of a policy may also hinder health education at predeployment.

Military Health Education: Issues

- Education needs to be:
  - Increased
  - Engaging
  - Interactive
  - Accessible
  - Confidential
  - Mandatory
  - Ongoing
- Provide complementary education to:
  - Enlisted males
  - Female officers
  - Male officers
  - Clinicians with little experience
  - Commanders

Implications for an Intervention

- Individualized, context-sensitive health education program for enlisted women that:
  - Provides assessment, background information, and education.
  - Targets environmental situations and conditions (behaviors, related attitudes, & knowledge).
  - Facilitates access and utilization of necessary resources for preventive care.
  - Uses experienced peers as role models.
  - Models positive health behavior and skills.

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Intervention Design & Development

- Overall goal
  - *To promote military readiness by enhancing enlisted women's self-care and care-seeking behavior for their reproductive health.*
- 4 key goals
  - To increase understanding of reproductive health,
  - To increase enlisted women's ability to be assertive and responsible for their health and well-being
  - To increase communication skills, and
  - To increase appropriate reproductive health care seeking.

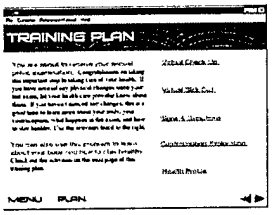
Intervention Design & Development



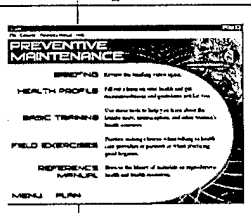
- Multimedia CD-ROM
- Clinic based
- Key messages:
  - *Taking responsibility for maintaining your health and physical fitness is an important key to being an effective, productive member of your unit and serving your country.*
  - *Take action now to protect and maintain your reproductive health.*

Intervention Design & Development

- Video "briefing"
- Tailored feedback based on:
  - *Sex*
  - *Branch of service*
  - *Reason for using program (at exam or seeking information)*
- Linkage to relevant activities.



Intervention Design & Development



- Content-related activities
  - Anatomy & physiology
  - Contraception
  - Vaginal infections
  - Hygiene supplies
  - Costs of pregnancy
- Skill-based activities
  - Communicating with partners
  - Communicating with health care providers
- Resource library

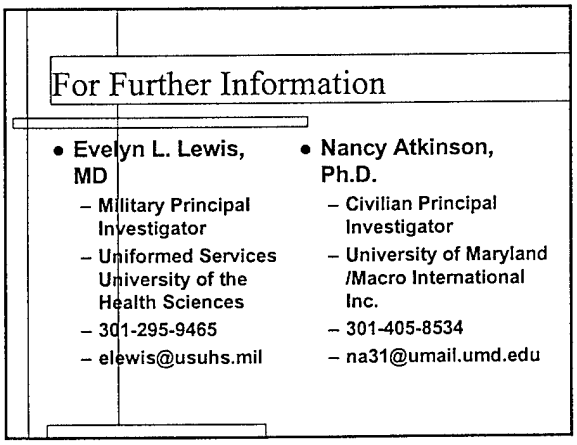
Implications for Research: Lessons Learned

- Preparation time is longer than expected to get the necessary approvals.
- Getting contact information is more difficult.
  - Few centralized lists
  - Any list quickly out of date
- Several efforts are underway but are independent.
- Gate keepers are concerned that needs assessments will uncover other potential problems.
- Interventions must address multiple audiences and use multiple channels if they are to survive.

Implications for Policy

- Women are still not entirely welcome.
- "Physical maintenance" needs to be as important as "vehicular maintenance."
  - Predeployment assessments should include pregnancy testing, STD screening, and Pap tests.
  - Females should be given guidance on a standard "female pack" for deployment supplies.
  - Birth control and other medication for women's health needs should be considered during predeployment medication reviews.
- Health education should be better integrated into the command structure and operating procedures.

Appendix R: Presentation at the Fifth Biennial Conference on Women in Uniform



APPENDIX S:

Female Pocket Guide for Military Women

1

PREVENTIVE MAINTENANCE
FOR YOUR HEALTH

A POCKET FIELD GUIDE
FOR ACTIVE DUTY FEMALES

~ Prepared By ~

Public Health Informatics Research Laboratory
Department of Public and Community Health
University of Maryland, College Park

~ Funded By ~

U.S. Army Medical Research & Materiel Command
Through the
Defense Women's Health Initiative of the
Department of Defense

recent years the U.S. Armed Services has seen an increase in the ımber of active duty women. While these women are generally healthier an women in the general population, they present unique health ɔncerns because of the duties they perform. This pocket field guide has ɐen produced in an effort to educate active duty women on those unique sues that may impact health, performance, and soldier readiness during ɐployment. More information on health issues for active duty women, cluding reproductive health, personal hygiene, intimate relationships, ɐrenting, and preparing for deployment can be found online at:

Insert URL for web page here

2

HEALTH CONCERNS AND CONDITIONS THAT IMPACT READINESS

Women face certain health problems that affect their reproductive system. These health concerns can also impair readiness and performance.

Vaginal Infections: Two of the most common reproductive health problems for all women are yeast infections and urinary tract infections (UTIs). These are also two of the main reasons military women in the field get sick. Common symptoms of yeast infections include a thick vaginal discharge with a foul odor, and vaginal itchiness. Common symptoms of UTIs include frequent and burning urination.

Sexually Transmitted Diseases (STDs): Infections that are passed during sex can be silent, or without symptoms, for women. Unlike a man, a woman cannot see much of their reproductive system. If the infection happens inside the vagina where she cannot see it, she also may not have any pain. When some of these infections are not treated, they can lead to infertility and cancer. (Regular and pre-deployment exams to screen for problems and using latex condoms are important.)

Pregnancy (Intended or Unintended): Many women, including active duty females, can be pregnant without knowing it. Active duty females should find out if they are pregnant prior to deployment, and they should take necessary measures to prevent pregnancy during deployment.

- Vaccinations or medications required to prevent disease during deployment may harm the fetus.
- Operational settings are often environmentally challenging for pregnant women, and the stress of military operations may harm the fetus.

regnant military women do not have access to appropriate health are during deployment.
pproximately 1 in 100 pregnancies is an *ectopic* pregnancy. If ndetected, it can rupture, causing infertility or life-threatening nergencies.
in 5 pregnancies end in miscarriage in the first 12 weeks.
ppropriate care in such cases is not available in the field.
regnant military women must be evacuated from deployment sites at eat expense and harm to unit readiness.

rual Problems: Many women have irregular menstrual cycles, periods are unpredictable in terms of frequency and duration. In n, the many stresses associated with deployment may disrupt even st regular and predictable cycles, including jet lag, decreased food increased energy expenditure, and psychological stress. Oral ceptives, or birth control pills, can help regulate periods, as well as and shorten flow, lessen cramps, and lessen symptoms of PMS.

mal Pap Tests: Pap tests, or Pap smears, are screening tests for nal changes in the cervix that could be precursors to cervical cancer. outine, yearly Pap tests, any abnormality would likely be caught while tremely treatable. Neglecting this exam can result in the need for complicated procedures later on. Some untreated STDs can cause nal Pap tests, and in some cases lead to cervical cancer. Consistent condoms and regular Pap tests are key to prevention.

PREPARING FOR DEPLOYMENT

- All soldiers are required to have a pre-deployment health assessment (*define types of deployment*)
- If it is not included in the pre-deployment health assessment, a woman should schedule this prior to deploying to:
  - Have a Pap test if you are due for one
  - Check for pregnancy
  - Get information on how to prevent pregnancy and STDs during deployment
  - Discuss any medications you are using, and be sure to get enough to pack for deployment (including birth control pills)
  - Review information regarding personal hygiene practices in field or shipboard conditions
- Before your pre-deployment exam, consider what conditions you are likely to encounter in deployment and what personal care concerns you may have. Write down any questions you have and take them to your appointment to discuss with you health care provider.
- When packing for deployment, be sure to include plenty of personal hygiene materials and medications to last the duration of deployment. You can also arrange for more supplies to be sent to you if it is a long deployment.
- It is important that all men and women understand risks associated with unwanted sex and unwanted sexual contact. You should understand risk factors for potentially risky situations and be careful to avoid them if at all possible.

PACKING FOR DEPLOYMENT

duty women face unique health concerns, especially when ved. Below are recommended additional items to prescribed packing

Cotton underwear
Female urinary director (to minimize the need to get undressed in order to urinate, and make the process quicker, simpler, and more discreet in the field)
Personal hygiene items:
- Unscented tampons or pads (personal preference), in waterproof packages
- Unscented panty liners (to extend the use of underwear)
- Unscented soap, shampoo, and lip balm
- One-piece nylon bathing suit (for showering when privacy is limited)
- Unscented wet wipes / baby wipes (for hand and face washing, or "wash cloth baths", or as a substitute for toilet paper when necessary; plan on 5-6 / day)

Medications / Medical devices:
- Condoms
- Birth control pills
- Over-the-counter medicines for menstrual cramping
- Yeast infection medication

ire to pack enough of all supplies to last the duration of deployment. supplies may be washed and reused; others are limited to one use. ome supplies, you may want to pack extras, such as personal hygiene

PREVENTING HEALTH PROBLEMS WHEN DEPLOYED

- Avoid all sexual contact during deployment. Abstinence from sexual activity is the best choice for preventing pregnancy and STDs.
- If sexually active, use birth control:
  - Norplant implants (99% effective)
  - Birth control pills (97% effective)
  - Latex condoms (88% effective)
- If sexually active, avoid contact with or the exchange of bodily fluids with a sexual partner. Latex condoms, when properly used, offer protection against pregnancy and some STDs. (Regardless of other birth control protection, use condoms to prevent STDs.
- If you choose to use tampons, change them at least every 8 hours.
- Wear cotton underwear to help prevent vaginal infections.
- During your period, bathe daily if possible, or as frequently as possible.
- Despite the hassles of urinating in the field, be sure to drink plenty of water to avoid dehydration. Dehydration causes decreased physical performance, decreased mental alertness, and increased UTIs.

You should seek medical care if you experience any vaginal discomfort, sores (painful or painless), unusual swelling or lumps, unusual vaginal discharge, painful or burning urination, or lower abdominal pain.