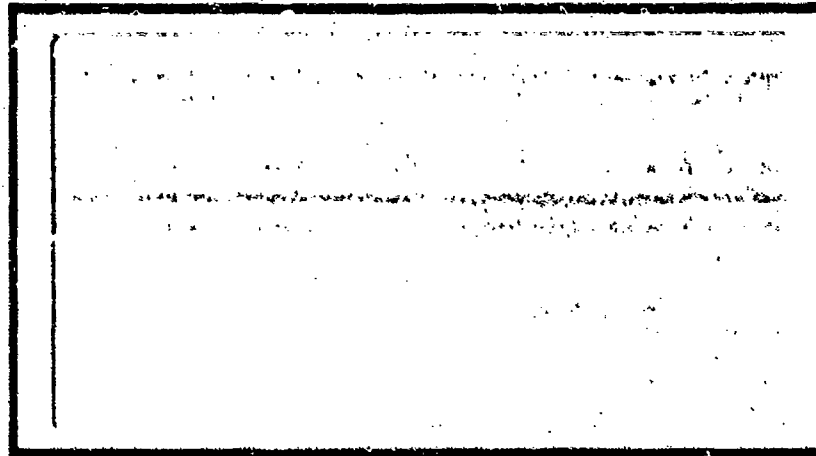


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CONTINUING MEDICAL READINESS
TRAINING:
AN EVALUATION
AT A LOCAL SITE

THESIS

Dennis R. Sanders
Captain, USAF, MSC

AFIT/GLM/LSMA/87S-64

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CONTINUING MEDICAL READINESS TRAINING:
AN EVALUATION AT A LOCAL SITE

THESIS

Presented to the Faculty of the School of Systems and
Logistics of the Air Force Institute of Technology
Air University
In Partial Fulfillment of the
Requirements for the Degree of
Master of Science in Logistics Management

Dennis R. Sanders, M.P.H.

Captain, USAF, MSC

September 1987

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Dennis R. Sanders

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Abstract

This investigation evaluated Continuing Medical Readiness Training (CMRT) skills among medical personnel assigned to the USAF Medical Center at Wright-Patterson AFB Ohio. Measurable CMRT objectives and an associated didactic test instrument were developed and validated with aid from the USAF School of Health Care Sciences. This test was administered to a sample of 116 medical personnel at the close of their CMRT encampments in May 1987. Test results were scored and averaged to compare skill levels across the different learning objectives. Test results of various population subgroups were also compared to determine if there was a relationship between an individual's subgroup and their skill level. Personal observations and recommendations for improving the CMRT program were also solicited from this study's participants.

Results of the study indicate that personnel tended to score higher in the area of disaster medical skills than in general field and wartime specific skill categories. In comparing population subgroups, it was found that officers scored higher than enlisted personnel across all major skill categories.

Individuals whose primary duties involved direct patient care scored higher in disaster medical and wartime specific

skill categories than those involved primarily in indirect patient care, while no significant difference was observed in the general field skill category. No significant difference in test scores was observed when personnel who had attended one or two CMRT sessions were compared to those who had attended more than two. In comparing medical personnel by their years of active duty experience, no significant difference between those with seven or less years of experience and those with more than seven years experience was found in the disaster medical and wartime specific skill categories. Those with more than seven years experience did however, score significantly higher in general field skills.

Keywords: medical training; medical services; theses;
military medicine; combat readiness; combat support

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CONTINUING MEDICAL READINESS TRAINING:

AN EVALUATION AT A LOCAL SITE

I. Introduction

General Issue

Combat readiness is the bottom line of the military profession to which the medical service makes a vital contribution. Accordingly, medical readiness has been the number one command priority of the Air Force Surgeon General for the past several years (25:122). This was largely in response to a condition alluded to by Lt General Murphy A. Chesney, the U.S. Air Force Surgeon General, in his statement to the Senate Armed Services Committee on September 24, 1985:

 Ten years ago the Air Force was secure in the feeling that we had the medical capability to take care of our Air Force personnel in wartime. Our bases were far back, were considered secure, and we thought we had a fighter force to protect them.

 In the late seventies intelligence estimates showed that this was no longer true. In a short period of time our number of expected casualties jumped more than 10 times. In 1980, we estimated that we could only care for 1 out of 10 casualties on Air Force bases in a war [21:32].

Of particular interest in the above statement is the fact that not only have the casualty predictions taken a staggering jump over previous predictions, but also that medical personnel will very probably find themselves in the heart of a very hostile battlefield environment in any future conflict. This type of situation requires a unique blend of

patient care and personal survival skills not encountered in routine peacetime medical operations.

Medical readiness training is one of several important ingredients which comprise an effective combat posture. This contention is supported by readiness training's significant contribution to a medical unit's combat rating as reflected in Air Force Regulation (AFR) 55-15 which governs unit combat readiness reporting procedures (10:71). Continuing Medical Readiness Training (CMRT) is designed to be the "common ground" course of basic skills designed to prepare medical personnel to survive and function in a wartime environment. CMRT comprises the core training of individual and field medical skills which are generic to all members of the medical unit regardless of AFSC, position, or grade. It is an annual requirement taught with local resources using guidelines and lesson plans originally developed by the Air Force School of Health Care Sciences (SHCS) in 1984. While several other specialty training programs have been developed to address specific subjects and/or medical unit personnel subgroups, CMRT is attended by all members.

Few would debate the merits of effective readiness training, however, such programs often require that medical personnel spend time away from their normal duty of serving the Air Force community. A concern sometimes encountered among the Air Force medical community is whether or not this training is as productive as it should be considering the potential loss of patient care productivity (17). Questions

have also been raised as to whether or not CMRT needs to be an annual unit requirement considering the increased readiness training now being given to all new members entering the Air Force Medical Service (18). Finally, some questions exist as to the degree of standardization of CMRT programs Air Force wide. Their success depends considerably on local unit level teaching resources which may vary greatly. A movement towards increasing training standardization, by providing medical units with new and more comprehensive CMRT lesson plan guides, is currently underway at the SHCS to address this concern (13).

Specific Problem Statement

This research will trace the CMRT program's evolution and perform a local evaluation of medical personnel readiness skills. The successful implementation of a CMRT program requires considerable local (i.e. base medical facility) interpretation and expertise as it must be accomplished almost exclusively with local resources. This research will determine to what degree the active duty medical personnel assigned to the Wright-Patterson Air Force Base (WPAFB) Medical Center possess the skills which are outlined in the CMRT program lesson plans.

Research Questions

This study will address seven major research questions concerning Air Force medical readiness policies and programs.

These are:

1. How did the CMRT program evolve into its present state?
2. What is the current level of CMRT skills among medical personnel assigned to the WPAFB Medical Center?
3. In which areas of the training are medical personnel more knowledgeable?
4. Is the skill level related to a member's grade status (officer versus enlisted)?
5. Is the skill level related to a member's patient care status (direct versus indirect)?
6. Is there a relationship between an individual's number of previous CMRT experiences and his/her current skill level?
7. Is there a relationship between an individual's length of Air Force Medical Service experience and his/her current skill level?

Scope/Limitations

As a result of this study, a valid measurement tool with which to assess the comprehension of didactic CMRT knowledge levels will be developed. The study will not attempt to measure practical application skill levels and, according to Fraenkel, it would be dangerous to infer that a high score on a written test is an automatic reflection of an individual's ability to make practical applications since "application is

a different form of intellectual process than comprehension" (14:313). Every attempt will be made to measure readiness knowledge at the most basic proficiency skill level.

This research should be viewed as having only limited external validity to Air Force medical personnel as a whole since its primary focus is on personnel assigned to one local site. It should be noted however, that WPAFB is a relatively large sized local site (i.e. currently the third biggest USAF medical center) and any significant findings at this level may at least provide some limited information concerning inferences toward the larger population of USAF medical personnel as a whole.

The reader must not consider the results of this study to reflect any success or failure on the part of the WPAFB Medical Center's CMRT program or the program as a whole. Ideally, there would have been a readiness skills evaluation performed prior to the inception of the CMRT program against which this current (post CMRT) evaluation would be compared. However, no such pre-evaluation exists. Hence, measured skill levels cannot necessarily be attributed to the success or failure of the program. If for example, a relatively low correct response of only 40% is discovered it could very well be that the same test would have yielded a correct response of only 20% before the CMRT program's implementation, pointing to a 100% improvement in readiness skills. It may also be discovered that both a pre and post test would result in the same 40% correct response rate, meaning that CMRT

probably had little or no effect on readiness skills. What this study will provide is a current skill level assessment against which further investigations and program improvement decisions can be made.

Finally, it must be remembered that although this research is primarily concerned with measuring CMRT skills, there are a considerable number of other related readiness training programs, some of which are mentioned later in this research, which have some overlap in content. Hence, the findings may in part also be a reflection of other training efforts which were duplicated or reinforced by CMRT. No attempt will be made to control for these variables, but this does not negate the value of the study for anyone interested in a current evaluation of medical readiness skills. Those areas of training (if any) requiring additional emphasis will also be identified by this research regardless of which training program should be modified to address the identified shortcomings.

II. Literature Review

Overview

A comprehensive review of literature concerning CMRT and other medical readiness training courses describes the program's evolution, and where it fits into the current picture of medical service training. This is followed by an examination of previous research addressing medical readiness topics which are related to this study. Finally, recommendations from other studies which are pertinent to this current evaluation of CMRT are presented.

History

The lack of preparation for the U.S. military to enter into war has traditionally been offset by the fact that sufficient time was available to recruit and train a sufficient number of personnel. Force mobilization for the United States began two years before the nation entered World War II (15:1). This situation applies to the Medical Corps as well as other members of the armed forces and even some allied nations. The British, for example, had time during their two-week boat trip to the Falklands in which their physicians reviewed military medical procedures. This review was delivered ad lib by physicians in the available specialties, but it is not known how timely, accurate, or complete these lectures were (23:321).

The post-Vietnam era saw an increased concern by some medical commanders as to the preparation of the large variety of medical specialists, many of whom lacked training and experience in emergency medicine, to function effectively in combat casualty care. This situation was further aggravated by the increasingly pessimistic scenarios developed by war planners. It was predicted by the Assistant Secretary of Defense (Health Affairs) for example, that only one out of ten casualties during the initial stages of a conflict could be adequately cared for by the Armed Forces (25:119). The Air Force also recognized for the first time that its bases would probably not provide a "safe haven" at which casualties could be cared for in a modern, stable hospital environment (25:119).

It was out of these sobering realizations that the USAF Surgeon General directed that medical wartime readiness training be assigned a high priority within the Air Force medical community (20:21). In 1978, for example, there were only two courses in medical readiness training. There are now 17 formal and unit level training courses. Table 1 displays this evolution of readiness training programs (8:296). As can be seen in Table 1, CMRT was instituted in 1984. The program was originally known as Medical Red Flag II (MRFII) until the name was changed to CMRT in January 1986.

TABLE 1
Readiness Training Programs (8:296)

	YEAR INSTITUTED								
	78	79	80	81	82	83	84	85	86
<u>FORMAL COURSES</u>									
NBC MEDICAL DEFENSE/OPERATIONS	x	x	x	x	x	x	x	x	x
MEDICAL RED FLAG		x	x	x	x	x(D)			
COMBAT CASUALTY CARE COURSE (C-4)			x(P)	x(P)	x	x	x	x	x
BATTLEFIELD MEDICINE COURSE				x	x	x	x	x	x
BATTLEFIELD NURSING COURSE				x	x	x	x	x	x
BATTLEFIELD MEDICAL OPERATIONS PLANNING					x	x	x	x	x
MED READINESS INDOCTRINATION CRS (OFFICER)							x	x	x
BASIC MEDICAL READINESS COURSE (ENLISTED)							x	x	x
MEDICAL RED FLAG II							x(D)		
COMBAT CASUALTY MANAGEMENT COURSE (C4A)								x(P)	x
<u>UNIT LEVEL TRAINING</u>									
CARDIOPULMONARY RESUSCITATION	x	x	x	x	x	x	x	x	x
CHEMICAL DEFENSE TRAINING			x	x	x	x	x	x	x
MOBILITY TRAINING				x	x	x	x	x	x
COMBAT MEDICINE TRAINING				x	x	x	x	x	x
CONTINGENCY SUPPORT PLAN TRAINING				x	x	x	x	x	x
MOBILITY PROCESS TRAINING				x	x	x	x	x	x
FIRST AID TRAINING (AIR RESERVE FORCES)				x	x	x	x	x	x
COMBAT ARMS TRAINING					x	x	x	x	x
CONTINUING MEDICAL READINESS TRAINING (MRPFI)							x	x	x

(D) = DISCONTINUED
(P) = PROTOTYPE

Medical personnel are considered adequately trained in individual readiness skills if they complete training in the CMRT topics on an annual basis. A list of these training topics, taken from AFR 160-25, is presented in Appendix A (7:48). CMRT must be conducted primarily in a field environment and must include a minimum of one night which is spent sleeping in the field. AFR 160-25 also provides a suggested unit CMRT schedule. A copy of this sample schedule may be found in Appendix B. All aspects of CMRT must be

completed before an individual may be considered adequately trained for unit combat readiness reporting purposes (7:32).

CMRT has its roots in the original Medical Red Flag series of courses which ran from 1979 to 1983. These were conducted primarily for physicians and were the Air Force's first attempt at providing a broad exposure for all of its doctors to wartime skills. The SHCS conducted this series of nine courses at various USAF medical centers throughout the United States, the Pacific, and West Germany. One significant outgrowth from this series was an identification of the need for all medical personnel to receive training in individual wartime skills (18).

MRFII evolved in response to this concern, and was taught at Sheppard AFB, Texas by the SHCS in 1984. Medical personnel attending this course were to return to their home unit and provide a similar training program for their co-workers on an annual basis. Four such courses were taught with approximately 150 students attending each one. It is the lesson plans from the MRFII courses that are utilized in this research. No plans currently exist for another MRFII series to be taught by the SHCS as it is felt that the original series of courses and the current development of standardized lesson plans will be adequate for all future CMRT requirements at the unit level (13).

Related Research Efforts

In 1970, the U.S. Army developed and evaluated an integrated basic combat and advanced individual training program for its medical corpsmen. The study had as one of its objectives the development and testing of training methods for Army medical corpsmen by comparing an experimental program to the existing one with the curriculum emphasizing the field skills of medical corpsmen. This experimental research involved an attempt to maximize practical training techniques with most lecture material being condensed and integrated into the practice work (22:12). Two classes of eighty students each were assigned to the experimental training program and two classes to the conventional method (22:17).

A large variety of written and performance tests were administered to both groups to measure any significant differences. Performance tests indicated that the experimental program did produce trainees who were superior to conventionally trained personnel in the performance of practical medical skills. Many of the written knowledge tests failed to show a significant difference between the two groups, however, the differences that were significant pointed towards superior nursing skills in the experimental group. The bottom line was that the experimental program "resulted in substantial gains in Medical Corpsmen trainee effectiveness" (22:vii).

A 1981 Comptroller General report had as one of its

major objectives to determine how well medical personnel were being trained to support wartime missions. It focused primarily on the U.S. Army in view of their heavy involvement in field combat operating conditions. The report concluded that "many Army medical personnel are not adequately trained for wartime roles" (15:35).

The researchers obtained specialty skill qualification test data on medical and field-related knowledge from the commands to which most enlisted medical personnel were assigned. They analyzed results that had been tested at the two most basic skill levels. Many of the tests had not been passed by Army medical specialists. The following examples illustrate tested skills in which 50 percent or more of the personnel surveyed across all commands had not passed:

Medical Specialists did not know required procedures for applying a dressing to a head wound, making heat applications to patients, or sorting medical patients for care (triage).

Clinical Specialists did not know required procedures for emergency treatment of a chemical agent casualty; bandaging a knee amputation, or triage.

Operating Room Specialists did not know required procedures for preparing patients for anesthesia, fabricating splints, sterilizing equipment, or administering emergency care to a chemical agent casualty [15:36].

The study also disclosed the fact that in-hospital personnel generally did not receive the 3 days of annual field training required by Army regulations, and that what training did occur had no specific structure (15:48).

In February 1984, a U.S. Central Command Joint Services Infectious Disease Workshop addressed major infectious disease risks confronting the command. This group identified a need for greater emphasis on individual and unit training in basic field sanitation and personal protection as a number one priority.

The workshop reported that fundamental requirements such as proper latrine construction and maintenance, handwashing facilities, quality control of field water supplies, regular inspections, and solid waste disposal were generally given little attention during joint field exercises. Field sanitation teams in some cases were neither identified or employed.

Personal protective measures against communicable diseases were also not sufficiently stressed. The workshop contended that it cannot be assumed that personnel in the field will automatically comprehend the critical need for malaria prophylaxis and for avoiding sources of food and water which have not been authorized as safe for consumption. It was believed that such deficiencies reflect an inadequate amount of field sanitation and preventive medicine at the individual and unit level (1:VI-9).

The workshop also noted that field sanitation and training in human waste disposal were found to be deficient during the recent Lebanon and Grenada deployments as well as joint field exercises such as Bright Star and Reforger. It was felt that the use of self contained latrine facilities

and "TV-style" meals do not adequately test field sanitation capabilities (1:VI-10).

Colonel Charles R. Terry, in his 1981 Air War College (AWC) report, "Medical Wartime Training Programs For Physicians of the Armed Forces: 1979-1981", compared and evaluated three medical wartime training programs for physicians of all branches of the service. These programs were the USAF Medical Red Flag Exercises, the USAF Battlefield Medicine Course, and the Army Combat Casualty Care Course. Course effectiveness was evaluated by using testing results and available course evaluations. Terry's study also compared each training program in an extensive table format from which the reader could select a reference item he would deem to be of interest and then draw a personal conclusion based upon a comparison of the referenced item across the three training programs (20:80).

Terry concluded that "on the basis of the high rating (satisfactory or above) by the graduates" (20:79) of the various training programs that students' needs, as well as an understanding of medical readiness concepts, were being realized. He felt that this was confirmed by the respective course administrators' personal evaluations of their programs, and noted that their primary goal for future efforts was to make the already excellent courses better (20:79).

Recommendations By Other Researchers

The 1981 Comptroller General's report made several

recommendations designed to address the shortcomings in training uncovered during the course of its investigation.

These included:

1. The adoption of uniform criteria for the frequency and duration of combat skill training given in hospitals.
2. Providing guidance to hospital commanders giving increased priority to medical readiness training.
3. Developing a system for monitoring combat related training to ensure it is being effectively accomplished.
4. Structuring in-hospital training programs to provide exposure to the full range of needed readiness skills (15:48-50).

Although the report was based upon an examination of the Army Medical Corps, it also recommended that the Secretary of Defense evaluate the applicability of its findings to the medical readiness training programs of the other services and, where appropriate, assure steps are taken for implementation (15:45). One recommendation missing from their report was the extent to which periodic refresher training could, and should, include hands-on medical readiness training. It was observed however, that the various service requirements presently differ in this regard.

A research report entitled "Planning For The Mobilization Of The Nation's Medical Resources," published by the National Defense University in 1985, made several

recommendations in the area of basic field sanitation training. Specifically, it concluded that "training programs on basic field sanitation and personal protection measures for forces at large need to be reviewed and upgraded" (1:VI-22).

The report called for increased command emphasis insuring that field sanitation and preventive medicine topics currently being taught in the Army be placed on a high priority insuring their survival if courses were to be cut due to future funding constraints or during a mobilization. Finally, the report recommended that only physicians who have successfully completed basic preventive medicine training be assigned to units which could be deployed for combat (1:VI-23).

Terry's evaluation of physician wartime training programs noted one major weakness which he believed could compromise each course. This involved the lack of a permanently assigned staff unit which had a primary (rather than additional) duty of conducting the courses. He recommended that each course be provided with a permanent administrative staff unit to counter this shortcoming (20:94).

Terry's report also called for an involvement of the Tri-Service General Officer Steering Committee recommending that this committee:

...review all the medical wartime training programs for physicians to determine the effectiveness and advisability of the development and implementation of a major medical wartime training course model for all physicians and other officer corps and

enlisted members. It is recommended that the model include the standardization of subjects, course length, staffing, class size, methodology, cost determinates and its ability to meet the training requirements for all officers. It should consider its ability to be expanded or duplicated at other training locations in the event of wartime mobilization [20:95].

Terry recommended that this course be under the auspices of the Uniformed Services University of the Health Sciences with the designation of expanding further sites in the future.

In the area of student evaluation, Terry called for an improvement in the present process. Specifically he recommended that "A strong standardized course evaluation instrument should be developed" and that "Testing should produce positive evidence that students have learned from the instructions"(20:79-80). This would at the very least provide a quantitatively expressed training outcome which would justify the expenditure of training dollars and survive a General Services Administration (GSA) audit.

Colonel Stanley L. Wiener, in his 1986 article, "Medical Corps Readiness for Major Conflict," also analyzed physician wartime training programs. One shortfall he noted is the lack of periodic written or practical testing of essential military medicine skills. Wiener contended that:

"Since the didactic components of C-4 (Combat Casualty Care Course), Red Flag, and Battlefield Medicine are delivered in a lecture format, it is important to know how well this information is retained a year or more after completion of the training" [23:323-324].

Wiener called for continuous review and refresher training which could be given at the unit level. He

recommended that a standardized curriculum approach be used across all service branches of the Armed Forces so that a physician could effectively work with any service in the event of a national wartime emergency. Finally, Wiener proposed that physicians should be tested on didactic medical readiness knowledge, the results of which would influence promotion and/or retention in their respective Medical Corps (23:324).

Conclusion

The literature reviewed illustrates a genuine concern over the nation's medical readiness posture from a variety of different perspectives. Inadequate levels of combat casualty care experience, combined with the relatively recent realization that Air Force bases would probably not provide a "safe haven" environment for casualty care in a future conflict, provided the impetus for assigning a high priority to medical readiness. Many new formal and unit level training courses evolved as a result of these concerns. The literature presented has pointed to some of the shortfalls researchers believe are present in the arena of medical readiness training and also made recommendations for several program improvements. No data was found however, which specifically addresses or evaluates the CMRT program which is now in its third year as the USAF medical community's major unit level combat readiness training program. Keeping in mind the specific problems identified in the literature review, an

evaluation of one regional medical center site was performed in order to provide a cursory view of how the present training supports the curriculum objectives of the original program goals.

III. Research Design and Methodology

Overview

A study design was developed to provide a clear and reproducible research effort which would sufficiently answer the questions stated in Chapter I. Pertinent literature was reviewed and key personnel were interviewed to provide background material for the local investigative effort. Next, the target population was identified and described and an appropriate sampling plan was developed. Finally, the data collection instrument was designed and an analysis plan outlined which would effectively collect the primary data and convert it into information easily understood by the reader.

Justification

To answer research questions two through seven, primary data was gathered which would accurately gauge medical readiness knowledge from a representative sample of the population. The test format was selected as it would provide a more accurate gauge of skill levels rather than using a questionnaire. A questionnaire design was eliminated because it would have asked respondents to self-evaluate their skill levels. A similar rationale is recognized and employed in most educational institutions wherein students are tested, not surveyed, to determine if the educational objectives are being met. This decision was supported by Fraenkel wherein

questionnaires are noted to be primarily of value for measuring attitudes, feelings, interests, and beliefs. They are not the method of choice for evaluating cognitive learning objectives (14:371). The test instrument was distributed in a controlled environment at the CMRT encampment site and was proctored by the researcher. Participation was voluntary. In an effort to provide a threat free environment and to elicit honest suggestions for program shortcomings and improvement areas, respondents were guaranteed complete anonymity during the test instructions.

Literature

A comprehensive review of pertinent background information concerning the CMRT program provided necessary data for answering the first research question, and also set the stage for identifying key individuals involved with the program in its current state. An extensive library and government publication literature review also uncovered several related medical readiness research efforts, but no research was found that specifically addressed the same type and scope of information solicited in research questions two through seven.

Key Personnel Interviews

AFR 160-25 governs medical readiness planning and training. In light of this, the first contact was made with Major William McHail, HQ USAF Surgeon General's Office, whose office is responsible for this regulation. In his capacity as

the USAF Medical Readiness Training Officer, his experience and expertise were solicited via personal and telephone interviews in designing a relevant and valid research effort. Major McHail also provided additional contacts of key personnel with positions and expertise which were of relevance to this study.

Other key personnel interviewed in recognition of their position and the study's geographic location included:

1. Colonel Bruce D. Wilhelm, Administrator, USAF Medical Center WPAFB
2. Major Kenneth J. Kurowski, Chief of Readiness, AFLC Surgeon's Office, WPAFB
3. Major Thomas F. Tedford, Medical Readiness Officer, USAF Medical Center, WPAFB

In an effort to determine which organization was tasked with the development of medical readiness training programs, AFR 160-25 was consulted. This regulation clearly delegates the following responsibility to the USAF SHCS:

(The SHCS) Develops training programs that reflect and support the overall medical service role in existing operations plans. Ensures programs prepare personnel with the skills required to accomplish both peacetime and wartime missions [7:9].

In consideration of the above, a telephone interview was conducted with First Lieutenant John Fields, Medical Readiness Curriculum Development Officer at the SHCS. Lt Fields provided copies of the MRFII lesson plans which are intended to be used in the current unit CMRT programs taught at all Air Force medical facilities.

Lt Fields and his office were also instrumental in validating the test instrument developed for this study. This was of critical importance as the lesson plans, from which the test questions were derived, came from the original MRFII training program conducted at the SHCS. This program was limited in its duration and the associated lesson plans contained only very generalized training objectives. Hence, considerable effort was expended determining the specific CMRT objectives and their corresponding samples of behavior. An initial review of the lesson plans was made to outline what seemed to be the original program objectives and samples of behavior. This data was documented and coordinated with Lt Fields' office for their review/recommendation. Test questions were then developed from the validated objectives and samples of behavior and these were also reviewed, amended, and validated to the greatest extent possible by the SHCS (the final iteration of objectives and samples of behavior appear in Appendix C). Appendix D contains copies of correspondence from the SHCS used in the review and coordination process.

Target Population

A single Air Force medical organization was selected as the research study's target population. It included only Air Force active duty members as they are also the target population of the CMRT program. Convenience of this population was a principal selection factor. Since this

research is primarily exploratory in nature, the local population was deemed more than adequate for an initial study of this type. The WPAFB Medical Center is a very substantial organization in terms of size, and although external validity is constrained, the results of this study may provide some limited information about the Air Force Medical Service overall although it is not statistically inferred.

Sampling Plan

A simple random test sample was selected from the 853 medical personnel scheduled for CMRT by using a consecutively numbered training roster and a random number table. A statistical confidence level of 90% was deemed adequate for this type of exploratory research with the following formula used to determine the sample size (6:11-14):

$$n = [N(z^2) * P(1-P)] / [(N-1) d^2 + z^2 * P(1-P)]$$

where: n= sample size

N= population size (853)

P= maximum sample size factor (.50)

d= desired tolerance (.10)

z= factor of assurance (1.645)
for 90% confidence interval

The above formula yielded a sample size of 63 individuals. Assuming a pessimistic participation rate of only 50%, 126 tests were printed to be distributed to the randomly selected sample of the target population at the close of each CMRT encampment during May 1987.

Data Collection Instrument

In order to design the test instrument, it was first necessary to identify the specific CMRT objectives and to develop corresponding samples of behavior. This is a multi-step process explained in great detail by AFM 50-62, Training Handbook for Air Force Instructors. Training objectives which were generally stated and nonbehavioral in nature were gleaned from the lesson plans as the first step of the process. After identifying the above objectives, a decision was made in determining what student behaviors would be accepted as evidence that the training objectives had been met. AFM 50-62 refers to these as samples of behavior. Once the objectives and samples of behavior had been validated by the SHCS, via the process described earlier, the test questions were designed (9:3-6).

The final test instrument was designed to answer research questions two through seven. After reviewing Robert Ebel's book, Essentials of Educational Measurement as well as pertinent sections of AFM 50-62 it was determined that multiple choice and true/false questions would best suit the objectives and constraints of this research. While essay/short answer (supply) type questions do afford the respondent more freedom to express knowledge and individuality, as opposed to multiple choice (selection) type questions, there are more significant disadvantages which would have adversely impacted this study's design objectives. These include the fact that essay questions would require a

greater expenditure of the respondent's time and effort to cover the same breadth of material making the test less "taker friendly", as well as the limited statistical analysis which can be performed on essay test results (9:21-2).

The validation process involved coordination with the SHCS, as described earlier, and yielded a test consisting of 100 questions designed to be answered in less than one hour. Test questions were developed to measure the skill levels present in the three major sub areas of the CMRT program. These included:

1. General Field Skills
2. Disaster Medical Skills
3. Wartime Specific Skills

Included on the test instrument were demographic survey questions such as grade, AFSC, amount of previous CMRT exposure, and years of medical experience needed to compare the previously identified subgroups of the sample against each other. Finally, one open ended question was included in an attempt to solicit personal opinions and recommendations concerning the CMRT program. The rationale behind this was to further expand the exploratory information gained by this study, and to uncover other potential areas for additional research efforts. The final test instrument appears in Appendix E.

Analysis Plan

The data was analyzed and presented with the aid of the Interactive Statistical Programs (ISP) package marketed by Lincoln Systems Corporation of Westford MA. Subprograms generating descriptive statistics and hypothesis tests were utilized. The goal was to present global averages of correct answers across the three major sub areas of the training objectives, in an effort to answer research questions two and three. Questions four through seven were addressed by analyzing the summary statistics and comparing the percentages of correct answers between the subgroups as identified by the demographic data. Hypothesis tests were then performed to determine if any observed differences between the subgroups were statistically significant. Personal opinions and recommendations solicited in the open-ended question were manually examined and grouped for ease of discussion and analysis. The research findings with a corresponding analysis are presented in Chapter IV.

IV. Findings and Analysis

Overview

This chapter presents the CMRT skill survey results and a corresponding analysis in terms of the research methodology formulated in Chapter III. The survey response rate is first discussed followed by a demographic profile of the respondents. The final section will address the research questions which were intended to be answered by the skill survey.

Survey Response

Of the 126 members in the randomly selected sample, 116 were successfully contacted and tested. This resulted in a participation rate of 92 percent. Much of the success of this high response rate can be attributed to the fact that participant cooperation was solicited during their CMRT encampment and did not infringe on their normal or off-duty time. The test was proctored in a controlled environment with one hour allowed for its completion. All respondents finished within the allotted time. The 10 members who did not participate in the skill survey were lost due to last minute schedule changes or due to their being unable, or unwilling, to respond to the page requesting their presence at the test site.

Demographic Characteristics

Tables 2 through 5 summarize four demographic characteristics of the sample which are germane to the research questions posed by this study. Respondents were asked to provide this data on the cover page of the skill survey, a copy of which is illustrated in Appendix E.

As can be seen in Table 2 all grade levels from E-2 through O-6 were represented. E-4s represented the largest percentage of participants followed by E-1s through E-3s, O-4s, and O-3s. Enlisted personnel made up the majority of respondents at 56% with officers representing the remaining 44%. Such an unusually high proportion (as compared to many other Air Force organizations) of officers is not inconsistent considering the relatively large professional staff employed in Air Force health care organizations.

Table 2 also compares the sample's grade stratification to the current funded medical authorizations allocated to the Air Force Logistics Command (AFLC). These percentages were calculated from data obtained from the AFLC Command Surgeon Human Resources Division and include total authorizations both in, and outside of, medical treatment facilities (3). A comparison of these percentages shows 61% of AFLC's medical authorizations to be enlisted (compared to 56% in the sample), and 39% of the authorizations to be officer as compared to 44% in the sample. This indicates a 5% shift in proportion between the population sample and total AFLC authorizations and may simply reflect a higher proportion of

officers being assigned to the medical center versus other command medical organizations.

TABLE 2
Rank of Survey Participants

Rank	Frequency				
	Sample Count	Sample %	Sample Cum.	AFLC %	AFLC Cum.
E-1 to 3	19	17	17	20	20
E-4	23	19	36	16	36
E-5	11	9	45	14	50
E-6	7	6	51	6	56
E-7	2	2	53	4	60
E-8	2	2	55	1	61
E-9	1	1	56	*	61
O-1 & O-2	18	15	71	6	67
O-3	14	12	83	20	87
O-4	15	13	96	8	95
O-5	1	1	97	3	98
O-6	3	3	100	2	100
>O-6	0	0	100	*	100
TOTAL	116	100.0		100.0	

* less than .5%
cum. = cumulative

Table 3 shows that the largest percentage (39%) of sample members had attended three CMRT sessions. A majority of 60% had participated in three or more CMRTs. All participants had attended at least training one session as dictated by the sample selection procedure and the fact that the test was administered at the close of the respondent's CMRT participation.

TABLE 3
Number of CMRTs Attended

Category	Frequency		
	Count	Percentage	Cumulative
1	15	13	13
2	31	27	40
3	45	39	79
4	14	12	91
>4	11	9	100
TOTAL	116	100.0	

As Table 4 illustrates, the largest percentage of respondents (41%) had three or less years of active duty service in a medical AFSC. This was followed by 23% having four to seven years of experience meaning that 64% of the total sample had seven or less years of experience. The remaining 36% had served with more than seven years of active Air Force medical experience.

TABLE 4

Years of Air Force Medical Experience

Category	Frequency		
	Count	Percentage	Cumulative
0-3 years	48	41	41
4-7 years	27	23	64
8-11 years	15	13	77
12-15 years	8	7	84
16-19 years	16	14	98
20-23 years	1	1	99
24-27 years	1	1	100
TOTAL	116	100.0	

Table 5 shows that approximately two-thirds (63%) of the respondents had duties which primarily involved direct patient care responsibilities. The remaining 37% were involved predominately with indirect or support patient care functions.

TABLE 5

Patient Care Status

Category	Frequency	
	Count	Percentage
Direct Patient Care	73	63
Indirect Patient Care	43	37
TOTAL	116	100.0

Findings and Analysis of Research Questions

In order to assess and compare current skill levels among the members of the target population, it was necessary to score and compare the test questions on the skill survey. The reader is once again cautioned however, that these are not to be viewed as exam scores in the traditional pass/fail conceptualization of test results as this survey instrument was not designed for such a purpose. The reader is also reminded that there was never any CMRT skills assessment made prior to the program's inception against which this study can be compared. Hence, these research findings are intended only to provide a current assessment of strengths and weaknesses and more importantly, to suggest areas for future program improvement. They must not be construed as a reflection of the success or failure of the WPAFB Medical Center's CMRT program or the program as a whole.

Skill Level by Major CMRT Categories. Table 6 shows the average percentage of all survey questions answered correctly by the total sample of respondents to be 68%. The disaster medical skills category had the largest percent of correct answers at 81% with the general field skill and wartime specific skill categories sharing a lower average of 64%. These percentages support the notion that personnel were more familiar with the material addressed by the disaster medical skill test questions than with the material covered in the other two categories.

TABLE 6

Average Percent Scored Correct by Major Skill Category

Category	Percent Correct
Disaster Medical Skills	81
General Field Skills	64
Wartime Specific Skills	64
Overall	68

Skill Level by Learning Objectives. Table 7 illustrates the average percentage of questions respondents answered correctly, by learning objective, in the general field skill category. Site selection had the highest score at 86%, followed by tent erection and field sanitation each at 61%, and finally by map and compass reading skills at 58%. Thus, site selection skills appear to be strongest with map and compass being the weakest area.

TABLE 7

Average Percent Scored Correct in General Field Skill Category

Learning Objective	Percent Correct
Site Selection	86
Field Sanitation	61
Tent Erection/Striking	61
Map and Compass Reading	58

Learning objectives in the disaster medical skill category are presented in Table 8. Respondents scored highest (92%) in the area of burn management and lowest (74%) in patient decontamination and splinting and bandaging skills. Patient transportation skills were scored at 87% with triage skills showing an 80% correct score rate. This data suggests that the personnel surveyed were more knowledgeable in burn management skills than in the other learning objectives and less knowledgeable in patient decontamination and splinting and bandaging skills.

TABLE 8

Average Percent Scored Correct
in Disaster Medical Skill Category

Learning Objectives	Percent Correct
Burn Management	92
Patient Transportation	87
Triage	80
Patient Decontamination	74
Splinting and Bandaging	74

Table 9 shows the learning objectives which were addressed in the wartime specific skill category. Respondents scored highest in wartime psychiatry (93%) and Geneva Conventions (82%) and lowest in communications (55%) and chemical warfare defense (39%) skills. As can readily be seen, all other learning objectives were scored in the 61% to 77% range. Thus, wartime psychiatry and Geneva Conventions

skills appear to be stronger than those skills relating to communications and chemical warfare defense.

TABLE 9

Average Percent Scored Correct
in Wartime Specific Skill Category

Learning Objective	Percent Correct
Wartime Psychiatry	93
Geneva Conventions	82
Threats and Concepts	77
Conventional Warfare Wounds	66
Principles of Area Defense	64
Battlefield Injury Management	62
Battlefield Patient Retrieval	62
Mobility Planning	61
Small Arms Discipline	61
Communications	55
Chemical Warfare Defense	39

Skill Level Related to Grade. Research questions four through seven involved a comparison of the mean test scores between various subgroups of the total sample. This was accomplished by performing hypothesis tests. The null hypothesis was that the difference in the mean scores between the two populations would be zero, and the alternative hypothesis was that the difference would not be equal to zero. An alpha level (which is the probability of erroneously rejecting a correct null hypothesis) of .05 was used in determining if any observed differences were significant. The .05 alpha level was selected by virtue of its general acceptance among researchers as stated by Dominowski in his book, Research Methods (11:235).

Table 10 illustrates a comparison of correct test score percentages between officer and enlisted personnel. An analysis of the data indicates a statistically significant difference in scores across all major categories of CMRT skills. Specifically, officer personnel appear to possess a higher skill level than the enlisted population. This difference may simply be a reflection of better test taking skills assuming that officers generally have had more years of formal education than enlisted personnel. It may also be due to the increased availability to officers of other related medical readiness education courses.

TABLE 10

Comparison of Participant Grade Status

Category (Skills)	Percent Correct		
	Officer	Enlisted	Significant at .05 alpha level?
General Field	68.3	60.7	yes
Disaster Medical	85.9	77.6	yes
Wartime Specific	66.9	61.1	yes
Overall	72.0	65.1	yes

Skill Level by Patient Care Status. Personnel involved primarily in direct versus indirect patient care duties are compared in Table 11. When comparing scores in the general field skills category the null hypothesis cannot be rejected, and the skill levels appear to be almost identical. All other categories do show a statistically significant difference

however, and point to an increased skill level among those involved in direct patient care responsibilities. This difference may be attributed to the fact that the disaster medical and wartime specific skill categories are heavily weighted with medical knowledge which is more familiar to those hospital personnel who directly interface with patients on a routine basis. However, those individuals involved primarily in indirect patient care do not routinely reinforce such medical skills. In the general field skill category however, which is virtually void of any medical skills knowledge, no group appeared to enjoy any significantly higher skill level.

TABLE 11

Comparison of Direct and Indirect
Patient Care Personnel

Category (Skills)	Percent Correct		Significant at .05 alpha level
	Direct	Indirect	
General Field	64.1	64.0	no
Disaster Medical	83.6	77.0	yes
Wartime Specific	64.9	61.6	yes
Overall	69.5	66.1	yes

Skill Level Related to Number of CMRTs. Table 12 shows a comparison of those personnel exposed to one or two CMRT sessions with those who had experienced more than two sessions. The decision to stratify the sample at the point of two CMRTs was arbitrary. The null hypothesis across all CMRT categories cannot be rejected. Hence, the difference in skill level scores are not statistically significant. It would appear therefore, that individuals who have attended a greater number of CMRT sessions do not necessarily reflect a greater skill level.

TABLE 12

Comparison of Amount of Previous CMRT Exposure

Category (Skills)	Percent Correct		Significant at .05 alpha level?
	1-2 Sessions	>2 Sessions	
General Field	63.2	64.9	no
Disaster Medical	81.4	81.1	no
Wartime Specific	63.9	63.5	no
Overall	68.1	68.3	no

Skill Level Related to Experience. In relating skill level to experience, the sample was stratified by comparing personnel with seven or less years of active duty experience to those with greater than seven years. The significance of the seven year point was identified after researching military retention behavior. Daubert, in her 1985 Rand Corporation report entitled Retention of Volunteer Physicians

in the U.S. Air Force, predicted the attrition of physician accessions. Her study showed a loss of physicians every year until the seventh year of service after which attrition ceased (5:61). A different Rand Corporation study, entitled Analysis of Second-Term Reenlistment Behavior, was performed by Hiller in 1982. This report, which examined reenlistment incentives, concluded that the "response behavior of second-termers with 6 or 7 years of service is much closer to that of first-termers, while those with 8, 9, or 10 years of service behave more like careerists (16:41). The above suggests that the seventh year of service marks a significant career decision point for many and this may influence an individual's receptiveness or commitment to readiness training.

Medical personnel with seven or less years of active duty experience in a medical AFSC are compared to those with greater than seven years experience in Table 13. The findings point to a statistically significant difference in the general field skills category with the more experienced personnel enjoying a higher skill level. Disaster medical and wartime specific categories however, do not show a statistically significant difference and the null hypothesis cannot be rejected in these cases. Hence, it appears that although more experienced (and career committed) personnel do possess a higher level of general field skill knowledge, they do not show a significant difference in disaster medical or wartime specific skills.

TABLE 13

Comparison of Years Experience
in a Medical AFSC

Category (Skills)	Percent Correct		
	0-7 Years	>7 Years	Significant at .05 alpha level?
General Field	61.6	68.7	yes
Disaster Medical	80.5	82.6	no
Wartime Specific	63.5	64.2	no
Overall	67.1	70.2	yes

Open Ended Question

In an effort to further expand the exploratory information gained by this study and to uncover other potential areas of research, an open ended question was included at the end of the skill survey. This question solicited personal opinions and recommendations for improving the CMRT program. Of the 116 participants, 65 provided a written response.

In analyzing these comments it became apparent that they fell into six broad categories of concern. These are as follows:

1. More hands on versus classroom training
2. A better physical learning environment
3. More realistic training and exercises

4. Modifications of CMRT to meet different subgroup needs
5. Favorable comments
6. Miscellaneous comments

Appendix F contains the participant comments which have been sorted into the above categories.

V. Conclusions and Recommendations

Overview

This study addressed seven major research questions involving the Air Force CMRT program. Conclusions drawn from the answers to these questions will first be presented, followed by recommendations for future improvements. Finally, some suggestions for areas of further research which grew out of this study will be outlined for those wishing to contribute to this field of knowledge.

Conclusions

1. CMRT, as well as a host of other medical readiness training programs, evolved in a relatively short period of time largely in response to radical changes in the intelligence estimates of future conflicts. Training objectives from the original CMRT program were very generalized leaving room for considerable interpretation and potential variation at the local level. This situation was further compounded by the fact that the original "train the trainer" program taught by the SHCS was very limited in duration, and has not been taught since 1984. Hence, as of this writing it has been three years since local facilities could directly interface their cadre of CMRT trainers with the SHCS.

2. A readiness skills evaluation was never performed among Air Force medical personnel prior to the program's

inception, making it difficult to determine the impact of CMRT on mission capability. This study attempted to provide such an evaluation at one local site. This evaluation makes no claim in determining any minimally acceptable test score, but it does compare skill levels, in relative terms, to program strengths and weaknesses and also suggests areas of training which may require more or less emphasis.

3. Although a unit's combat rating may report that its personnel are 100% trained in all areas, this does not necessarily mean that personnel are equally proficient in all areas. This study has indicated that skill levels may, in fact, differ considerably across the different training objectives. As an example, medical personnel appeared to be more proficient in disaster medical skills than in the general field or wartime specific skill categories.

4. Proficiency levels seem to vary, at least in part, by certain attributes or demographic characteristics of the individuals receiving the CMRT. As an example, officer personnel (for whatever the reason) appear to reflect a higher skill level across all major categories of training.

5. Personnel appear to be more proficient in those CMRT skills which parallel their normal duties. Individuals involved primarily with direct patient care responsibilities for example, tended to score higher in CMRT categories weighted heavily with medical questions than those individuals whose duties were primarily indirect or support in nature. In the general field skill category (which is

virtually void of medical questions) no statistically significant difference was found.

6. This study did not support the notion that exposure to a greater number of CMRT sessions will result in a higher level of skill. When personnel who had attended one to two sessions were compared to those having attended more than two sessions, no statistically significant difference in test scores across any of the skill categories was uncovered. This does not imply however, that subsequent CMRT sessions are of no value as they may be required to maintain the desired level of skill.

7. Individuals with more years of active medical service experience do not necessarily enjoy a correspondingly higher level of CMRT skill proficiency. In the general field skills category, the more experienced participants did score higher, but no statistically significant difference could be found when comparing the disaster medical and wartime specific skill categories.

It is important for the reader to note at this point that an increased number of years experience in a medical AFSC is not necessarily followed by an increase in the number of CMRT sessions attended. Many members of the medical service community, such as those at command levels and those attending AFIT, are exempt from CMRT by virtue of their present duty assignment.

Recommendations

If research such as this is to have any practical value for the future direction of the CMRT program, it must offer soundly reasoned recommendations which may be of use to the Air Force medical community. In view of the findings and conclusions reached by this study the following recommendations are offered:

1. Lesson plans with more narrowly focused learning objectives would aid CMRT cadre trainers and help insure a more standardized level of training Air Force wide. The commander of a wartime medical unit absorbing mobility assets would thus have a greater assurance and understanding of the readiness posture he could expect of his personnel regardless of where they received their CMRT experience.

2. Some manner of local evaluation (which goes beyond a participant survey) would be beneficial in determining the effectiveness of the training. A standardized evaluation tool such as a didactic and/or practical test protocol could be developed in concert with the standardized learning objectives called for in the above recommendation and this could be distributed for Air Force wide use. Such evaluation tools are used for cardiopulmonary resuscitation certification; why not for something so important that it is the number one medical command priority?

3. If all medical personnel are required to function at the same skill level, then certain sub groups may require more (or less) emphasis on certain types of skills. For

example, once a baseline level of skill for the management of fractures is determined, an orthopedic surgeon would very probably not require the same intensity of CMRT instruction that an administrative specialist would. To the greatest extent possible, training should be tailored to meet sub group needs. In the above case, the orthopedic surgeon could be called upon to teach the class!

4. If personnel are required to possess the same level of skill in all areas of CMRT, certain areas of training may require more emphasis. This study suggests that medical personnel are (predictably) more knowledgeable in medical skills than with certain wartime survival skills. In the area of burn management for example, study participants scored 92% correct whereas chemical warfare defense skills came in at 39%. Medical personnel will not be available to treat burns if their ranks have been decimated by a chemical attack. While the score of 39% does not imply that this would necessarily happen, it does show an area of training which may require more emphasis than burn management.

5. The study's respondents were asked to relay their personal observations and recommendations for making the CMRT program a more useful learning experience. Their comments are condensed into the following recommendations:

- There should be more hands on and less classroom training.

- More attention should be payed to the physical environment in which CMRT takes place.

- The training and exercises should be more realistic and involve less simulation.

- CMRT should be tailored to meet the varying needs of medical personnel in terms of their expected wartime roles and their differing experience levels.

A comprehensive listing of participant observations and recommendations may be found in Appendix F.

Further Research Suggestions

One basic assumption underlying this entire research effort was that the training as outlined in the CMRT program truly equates to a combat ready state. If however, these areas of training have significant shortfalls in terms of the threat the medical service will actually face in the next conflict, a false sense of security is all that this readiness training program will have generated. Any research which attempts to link a current and valid threat assessment to the CMRT objectives would prove beneficial.

One shortcoming of this research was that it concentrated on a didactic CMRT skills evaluation. It cannot be expected that the winner of the next war will be decided upon by which army scores a statistically significantly higher percentage correct on a written war skills test. How people perform in terms of their practical skills application will be of paramount importance. Any research effort which could accurately capture and evaluate such practical skills would be revealing.

As the preparation and execution of CMRT is very costly in terms of medical personnel productivity, an investigation into the most desirable interval between training sessions would be of benefit. Perhaps the military's fixation on annual training requirements does not best serve the needs of CMRT. An adequate proficiency level may require more or less frequent training.

Finally, as this study was limited to a local site evaluation, a research effort which takes a more global view of Air Force medical personnel may be more revealing and would certainly enjoy more external validity. It might also be interesting to compare Air Force CMRT to that of other branches of the service, or even to other nations. Such a comparison may uncover new areas for program improvements.

Closure

The best way to ensure peace in the world of today is to be prepared (and have the enemy know one is prepared) for war. This preparation is both dynamic and costly in nature. The relatively rapid evolution of the CMRT program is a testimony to the speed with which the Air Force medical community can respond to counter any potential change in threat. The program must however, be continually evaluated and adapted to ensure it does not merely become another "square to fill", and that it continues to adequately serve the needs of the personnel it trains. This training may be costly both in terms of man hours and material funding

requirements. However, the alternative of having an inadequately trained medical facility on the Czechoslovakian border under attack by a nerve gas agent would be even more costly.

Appendix A: CMRT Topics (7:48)

SAMPLE AF FORM 1098, SPECIAL TASK CERTIFICATION AND RECURRING TRAINING

SPECIAL TASK CERTIFICATION AND RECURRING TRAINING							
TASK OR RECURRING TRAINING AND TECHNICAL REFERENCES A.	DATE COMPLETED B.	SIGNATURE OF CERTIFYING OFFICIAL C.	INITIAL OF TRAINEE D.	EVALUATION OR TRAINING			
				SCORE OR HOURS E.	TYPE F.	FRE- QUENCY G.	DUE DATE H.
Concept of Operations				1.0	L		
Tent Pitching/Striking				2.5	L/P		
Field Sanitation and Hygiene				1.0	L		
Principles of Area Defense				1.0	L		
Wartime Psychiatry				1.0	L		
Map and Compass Lectures				1.0	L		
Map and Compass Practical				2.0	P		
Triage Decision Model				2.0	L		
Triage Practical Exercise				2.0	P		
Chemical Warfare Defense				1.0	C/T		
Chemical Warfare Ensemble and Confidence Chamber				2.0	L/P		
Patient Decontamination				2.0	L/P		
Bandaging and Splinting				3.0	L/P		
Field Command Post and Field Communications				1.0	L		
Litter Obstacle Course (Patient Retrieval)				2.0	L/P		
Patient Evacuation (Vehicle Loading)				1.5	L/P		
Mass Casualty Exercise				1.5	P		
Field Sanitation Devices				1.0	L/P		
Site Selection				.5	L		
Use of Medical Intel				.5	L		
Mobility Processing				1.0	L		
Nuclear Warfare				1.0	C/T		
Biological Warfare				1.0	C/T		
Geneva Conventions and Laws of Armed Conflict				1.0	L		
Name of Trainee (Last, First, Middle Initial)		Grade		Unit and Office Symbol			

AF FORM 1098

PREVIOUS EDITION WILL BE USED

L: Lecture P: Performance C: Cassette T: Tape

Appendix B: CMRT Sample Schedule(7:47)

SAMPLE UNIT CMR TRAINING SCHEDULE

FIRST DAY

0530-0630 Assemble and distribute field gear
0630-0730 Concept of Operations
0730-0830 Geneva Conventions and Law of Armed Conflict
0830-0900 Using Medical Intelligence
0900-0930 Site Selection
0930-1015 Tent Pitching Demonstration
1015-1200 Erect Tents
1200-1300 Lunch
1300-1400 Field Sanitation and Hygiene
1400-1500 Field Sanitation Devices
1500-1600 Principles of Area Defense
1600-1700 Map and Compass Lecture
1700-1900 Map and Compass Course (Practical)
1900-2000 Dinner
2000-2200 Triage Decision Model

SECOND DAY

0530 Wake up
0600-0700 Breakfast
0700-0900 Triage Practical Exercises
0900-1000 Chemical Warfare Defense
1000-1200 Chemical Warfare Ensemble and Confidence Chamber
1200-1300 Lunch
1300-1400 Nuclear Warfare
1400-1500 Biological Warfare
1500-1700 Patient Decontamination
1700-1800 Dinner
1800-2000 Bandaging and Splinting
2000-2100 Wartime Psychiatry

THIRD DAY

0530 Wake up
0600-0700 Breakfast
0700-0800 Field Command Post and Communications
0800-1000 Litter Obstacle Course (Patient Retrieval)
1000-1200 Patient Evacuation (Vehicle Loading)
1200-1300 Lunch
1300-1400 Mobility Processing
1400-1500 Prepare for Mass Casualty Exercise
1500-1630 Mass Casualty Exercise
1630-1700 Mass Casualty Exercise Critique
1700-1800 Strike Tents and Turn In Field Gear

Appendix C: CMRT Objectives and Samples of Behavior

NOTE: SB= SAMPLE OF BEHAVIOR

I. PROGRAM GOALS: A MEDICAL READINESS TRAINING PROGRAM THAT REFLECTS AND SUPPORTS THE EXISTING OPERATIONS PLANS OF THE AIR FORCE.

PROGRAM OBJECTIVES:

A. (GENERAL FIELD SKILLS) MEDICAL PERSONNEL WILL DEMONSTRATE A KNOWLEDGE AND UNDERSTANDING OF THE SKILLS REQUIRED TO INSURE PERSONAL SURVIVAL IN THE FIELD.

B. (DISASTER MEDICAL SKILLS) MEDICAL PERSONNEL WILL DEMONSTRATE A KNOWLEDGE AND UNDERSTANDING OF GENERAL MEDICAL SKILLS NEEDED TO FUNCTION EFFECTIVELY IN A DISASTER ENVIRONMENT.

C. (WARTIME SPECIFIC SKILLS) MEDICAL PERSONNEL WILL DEMONSTRATE A KNOWLEDGE AND UNDERSTANDING OF UNIQUE WARTIME FIELD CONDITIONS AND THEIR ABILITY TO FUNCTION EFFECTIVELY IN SUCH AN ENVIRONMENT.

A. LEARNING OBJECTIVES: (GENERAL FIELD SKILLS)

SITE SELECTION-A1. THE OBJECTIVE IS FOR EACH STUDENT TO LEARN TACTICAL AND ENVIRONMENTAL FACTORS TO BE CONSIDERED WHEN SELECTING A SITE FOR THE FIELD MEDICAL FACILITY.

- SB=
- a. LIST TACTICAL CONSIDERATIONS
 - b. IDENTIFY PATIENT DRIFT AREAS
 - c. LIST ENVIRONMENTAL FACTORS
 - d. DETERMINE REQUIREMENTS FOR SMOOTH PATIENT AND MATERIEL FLOW

TENT ERECTION/STRIKING-A2. THE OBJECTIVE IS FOR EACH STUDENT TO LEARN THE REQUIREMENTS AND SAFETY PRECAUTIONS INHERENT IN PITCHING, STRIKING, AND PACKING A GP MEDIUM TENT.

- SB=
- a. LIST TENT PITCHING TEAM REQUIREMENTS
 - b. IDENTIFY MATERIAL COORDINATION REQUIREMENTS PRIOR TO ASSEMBLY
 - c. LIST STEPS REQUIRED TO ERECT TENT
 - d. LIST STEPS IN TENT DISASSEMBLY
 - e. IDENTIFY SAFETY PRECAUTIONS
 - f. PROPERLY ERECT/STRIKE GP MEDIUM TENT

MAP AND COMPASS READING-A3 THE OBJECTIVE IS FOR EACH STUDENT TO LEARN THE MATERIALS AND BASIC CONCEPTS REQUIRED TO NAVIGATE ON LAND WITH A COMPASS AND MAP.

- SB= a. IDENTIFY TYPES OF MAPS AND THEIR FEATURES
b. DETERMINE PRACTICAL APPLICATIONS OF AZIMUTH USE
c. DISPLAY BASIC MAP READING CONCEPTS
d. DIFFERENTIATE BETWEEN INTERSECTION AND RESECTION METHODS OF LAND NAVIGATION

FIELD SANITATION AND HYGIENE-A4 THE OBJECTIVE IS FOR EACH STUDENT TO LEARN APPROPRIATE SANITATION HYGIENE PROCEDURES FOR SETTING UP AND MONITORING A MEDICAL FACILITY IN A FIELD ENVIRONMENT.

- SB= a. RECOGNIZE DISEASES ASSOCIATED WITH IMPROPER SANITATION PRACTICES
b. IDENTIFY FIELD WATER SUPPLY SOURCES AND REQUIREMENTS
c. IDENTIFY STEPS REQUIRED FOR EFFECTIVE FOOD SANITATION
d. IDENTIFY THE CORRECT LOCATIONS FOR PERSONAL HYGIENE FACILITIES
e. LIST WASTE DISPOSAL CONSIDERATIONS
f. IDENTIFY PERTINENT ENVIRONMENTAL FACTORS

B. LEARNING OBJECTIVES: (DISASTER MEDICAL SKILLS)

TRIAGE-B1 THE OBJECTIVE IS FOR EACH STUDENT TO LEARN THE PRINCIPLES OF TRIAGE AND TO DEMONSTRATE A BASIC FAMILIARITY WITH THE METHOD OF SORTING THE GREATEST NUMBER OF PATIENTS WITH CONSTRAINED PERSONNEL AND SUPPLIES.

- SB= a. DEFINE TRIAGE
b. IDENTIFY PRINCIPLES OF TRIAGE
c. RECOGNIZE TRIAGE CONCEPTS
d. DETERMINE TRIAGE MANAGER
e. IDENTIFY TRIAGE TECHNIQUES
f. RECOGNIZE TRIAGE CATEGORIES

PATIENT DECONTAMINATION-B2 THE OBJECTIVE IS FOR EACH STUDENT TO LEARN DECONTAMINATION TECHNIQUES AND RELATED METHODS OF CASUALTY MANAGEMENT.

- SB= a. IDENTIFY STANDARD PATIENT DECONTAMINATION TECHNIQUES
b. IDENTIFY ALTERNATIVE DECONTAMINATION TECHNIQUES
c. RECOGNIZE CASUALTY MANAGEMENT TECHNIQUES

PATIENT TRANSPORTATION-B3 THE OBJECTIVE IS FOR EACH STUDENT TO LEARN TECHNIQUES USED IN TRANSPORTING PATIENTS SO AS TO MINIMIZE INJURY AND AVOID STRAIN.

- SB= a. IDENTIFY BODY MECHANICS
b. RECOGNIZE APPROPRIATE MANUAL CARRIES
c. RECOGNIZE APPROPRIATE LITTER CARRIES

SPLINTING AND BANDAGING--B4 THE OBJECTIVE IS FOR EACH STUDENT TO LEARN PRINCIPLES ASSOCIATED WITH THE FIRST AID OF TRAUMATIC INJURIES.

- SB=
- a. LIST GENERAL PRINCIPLES OF EMERGENCY TREATMENT
 - b. IDENTIFY TYPES OF WOUNDS AND THEIR CORRESPONDING TREATMENT
 - c. IDENTIFY SKELETAL INJURY TREATMENT TECHNIQUES
 - d. RECOGNIZE TYPES AND PURPOSE OF SPLINTS
 - e. RECOGNIZE TYPES AND PURPOSE OF DRESSINGS.

BURN MANAGEMENT-B5 THE OBJECTIVE IS FOR EACH STUDENT TO LEARN TYPES OF BURNS AND THEIR APPROPRIATE MANAGEMENT.

- SB=
- a. RECOGNIZE BURN CAUSING AGENTS
 - b. IDENTIFY BURN SEVERITY CATEGORIES
 - c. IDENTIFY COMPLICATIONS ASSOCIATED WITH BURNS
 - d. DETERMINE BURN FIELD CARE PROCEDURES
 - e. IDENTIFY BURN DRESSING TECHNIQUES

C. LEARNING OBJECTIVES: (WARTIME SPECIFIC SKILLS)

GENEVA CONVENTIONS-C1 THE OBJECTIVE IS FOR EACH STUDENT TO LEARN THE SPECIAL PROVISIONS OF THE GENEVA CONVENTIONS OF 1949 AS THEY PERTAIN TO MEDICAL PERSONNEL.

- SB=
- a. IDENTIFY PURPOSE OF GENEVA CONVENTIONS TREATIES
 - b. DETERMINE MEDICAL PERSONNEL RESPONSIBILITIES
 - c. IDENTIFY REQUIREMENTS FOR THE PROTECTION OF MEDICAL RESOURCES
 - d. IDENTIFY RIGHTS AND RESPONSIBILITIES IF CAPTURED

THREATS AND CONCEPTS-C2 THE OBJECTIVE IS FOR EACH STUDENT TO LEARN THE CONCEPT OF OPERATIONS UNDER WHICH THE MEDICAL SERVICE WILL FUNCTION IN A WARTIME SITUATION.

- SB=
- a. IDENTIFY AREAS OF SHORTFALL RECOGNIZED AFTER 1976
 - b. DIFFERENTIATE BETWEEN EUROPEAN AND PACIFIC THEATER CONCERNS
 - c. IDENTIFY SITUATIONS UNIQUE TO MIDDLE EASTERN THEATER OPERATIONS
 - d. RECOGNIZE THE FOUR ECHELONS OF CARE (4E)

COMMUNICATIONS-C3 THE OBJECTIVE IS FOR EACH STUDENT TO LEARN CORRECT MILITARY RADIO PROCEDURES.

- SB=
- a. EXPLAIN MILITARY COMMUNICATION PROCEDURES
 - b. RECOGNIZE EQUIPMENT TYPES
 - c. IDENTIFY APPROPRIATE WARTIME RADIO SECURITY STEPS AND TECHNIQUES

PRINCIPLES OF AREA DEFENSE-C4 THE OBJECTIVE IS FOR EACH STUDENT TO LEARN BASIC ASPECTS OF AIR BASE GROUND DEFENSE

- SB= a. RECOGNIZE TERMINOLOGY/ABBREVIATIONS COMMONLY USED DURING DEFENSE OPERATIONS
b. IDENTIFY THE CONCEPT OF "KEY TERRAIN"
c. IDENTIFY THREATS TO USAF AIR BASES

CONVENTIONAL WARFARE-C5 THE OBJECTIVE IS FOR EACH STUDENT TO LEARN ASPECTS OF WOUNDS UNIQUE TO WARTIME BALLISTICS AND THE TREATMENT OF ASSOCIATED CASUALTIES.

- SB= a. DEFINE WOUND BALLISTICS
b. IDENTIFY THREE COMPONENTS OF KINETIC ENERGY
c. IDENTIFY THE ROLE OF VELOCITY IN WOUND BALLISTICS
d. DIFFERENTIATE BETWEEN PRIMARY AND SECONDARY MISSILES
e. RECOGNIZE MISSILE FLIGHT CHARACTERISTICS
f. RECOGNIZE WOUND RELATIONSHIP TO BALLISTICS

SMALL ARMS-C6 THE OBJECTIVE IS FOR EACH STUDENT TO LEARN SMALL ARMS DISCIPLINE.

- SB= a. IDENTIFY FIREARM SAFETY RULES
b. IDENTIFY IMPORTANT DISARMING PARTS OF M-16
c. IDENTIFY IMPORTANT DISARMING PARTS OF .38 CAL PISTOL

PATIENT RETRIEVAL-C7 THE OBJECTIVE IS FOR EACH STUDENT TO LEARN TASKS REQUIRED FOR PATIENT RETRIEVAL IN THE BATTLEFIELD ENVIRONMENT.

- SB= a. IDENTIFY SIZE AND MAKEUP OF PATIENT RETRIEVAL UNITS
b. DETERMINE PATIENT RETRIEVAL UNIT COMMUNICATION REQUIREMENTS
c. RECOGNIZE PROCEDURE FOR PENETRATING AREA GROUND DEFENSE SAFELY
d. IDENTIFY MEDICAL EVACUATION VEHICLES
e. RECOGNIZE STEPS IN DEALING WITH WOUNDED POW'S

CHEMICAL WARFARE-C8 THE OBJECTIVE IS FOR EACH STUDENT TO LEARN THE PROCEDURES INVOLVED IN MAINTAINING THE GROUND CREW CHEMICAL DEFENSE ENSEMBLE

- SB= a. LIST COMPONENTS CRITICAL TO ENSEMBLE
b. RECOGNIZE MASK CLEANING PROCEDURES
c. IDENTIFY M6A2 HOOD ATTACHMENT PROCEDURES
d. IDENTIFY STEPS INVOLVED IN DONNING GROUND CREW ENSEMBLE
e. IDENTIFY STEPS INVOLVED IN REMOVING GROUND CREW ENSEMBLE

WARTIME PSYCHIATRY-C9 THE OBJECTIVE IS FOR EACH STUDENT TO LEARN THE CRITICAL ELEMENTS OF WARTIME PSYCHIATRY.

- SB= a. RECOGNIZE SYMPTOMS OF COMBAT FATIGUE
b. IDENTIFY THE SIX ELEMENTS OF SUCCESSFUL COMBAT FATIGUE RECOVERY.

MOBILITY PLANNING-C10 THE OBJECTIVE IS FOR EACH STUDENT TO LEARN MOBILITY RESPONSIBILITIES AND REQUIREMENTS.

- SB= a. RECOGNIZE INDIVIDUAL RESPONSIBILITIES UPON NOTIFICATION OF MOBILITY SELECTION
b. IDENTIFY MINIMAL CLOTHING REQUIREMENTS
c. IDENTIFY MINIMAL IMMUNIZATION REQUIREMENTS
d. RECOGNIZE PERSONAL LIABILITIES AS THEY PERTAIN TO MOBILIZATION

BATTLEFIELD INJURY MANAGEMENT-311 THE OBJECTIVE IS FOR EACH STUDENT TO LEARN THE MAJOR WOUND MANAGEMENT PRINCIPLES INVOLVED WITH TRAUMA PATIENTS IN A COMBAT ENVIRONMENT.

- SB= a. IDENTIFY INITIAL PATIENT ASSESSMENT STEPS (ABCDE APPROACH)
b. DIFFERENTIATE BETWEEN INITIAL AND SECONDARY ASSESSMENT
c. MATCH TREATMENT WITH ASSOCIATED WOUND TYPES
d. RECOGNIZE WOUND MANAGEMENT PRINCIPLES COMMON TO MOST COMBAT WOUNDS AT THE 2E LEVEL

Appendix D: SHCS Correspondence



DEPARTMENT OF THE AIR FORCE
USAF SCHOOL OF HEALTH CARE SCIENCES (ATC)
SHEPPARD AIR FORCE BASE TX 76311-5465

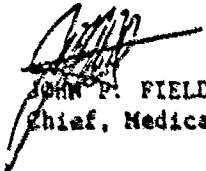
REPLY TO
ATTN OF MSR

25 Feb 87

SUBJECT CMRT Objectives

TO Capt Dennis R. Sanders
AFIT/LSG
Wright-Patterson AFB OH 45433-6583

1. The attached draft has been reviewed. Your objectives are valid and I have added notes where appropriate.
2. Good luck with your project!


JOHN P. FIELDS, 1Lt, USAF, BSC
Chief, Medical Readiness Tag Br

FROM: MSR (MSGT Leaton, 6603/6663)

SUBJECT: CMRT Test Analysis

TO: Capt Dennis R. Sanders
AFIT/LSG
Wright-Patterson AFB, Ohio 45433-6583

12 Apr 87

Dear Capt Sanders,

I have reviewed the test you wrote and I was very happy to find that it is an exceptionally well written test. We will be most interested in seeing the results.

You have several questions in which you offer more than one of the choices as the correct response. Although there is nothing wrong with questions of this sort, they must be carefully worded. For instance, in question #3, answers a, c, and e are all correct responses. Questions of this sort should be worded in such a way that the individual being tested is tasked to select the best of the available choices. The way you worded the stem simply asks them which of the choices describe a good field hospital site. I would encourage you to reword the question as follows:

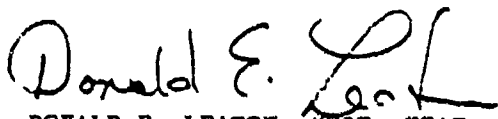
"Which of the following best describe suitable characteristics for a potential field hospital site?"

Questions 3, 74, and 76 are the questions in which more than one response is correct.

In the section you entitled "Vartime Specific Skills," you refer to the Geneva Conventions as the "Geneva Convention." The Geneva Conventions are a series of 4 separate treaties and should be referred to in the plural.

You also have a few typographical errors such as question 45 (bandaids - bandages) and 56 (treat - threat).

With the exception of the items identified above, the test is well written and probably valid. If you have the opportunity to run the test on more than one group of students, I encourage you to do a test analysis (high miss/low miss questions, student critique) between test administrations and revise the test based upon the analysis. We are often surprised by the validity of student comments.



DONALD E. LEATON, MSGT, USAF
Supt Med Read Plans and Ops Branch

Appendix E: CMRT Skill Survey

CMRT SKILL SURVEY

1. AFSC: _____
2. RANK: _____
3. YEARS OF ACTIVE DUTY SERVICE IN A MEDICAL AFSC: _____
4. NUMBER OF TIMES YOU HAVE PREVIOUSLY ATTENDED CMRT
(NOT INCLUDING THIS TIME): _____
5. DOES THE MAJORITY OF YOUR DUTIES INVOLVE DIRECT (HANDS
ON) OR INDIRECT (SUPPORT) PATIENT CARE? CHECK ONE:
DIRECT: _____
INDIRECT: _____



NOTE: ITEMS MARKED * REPRESENT THE CORRECT ANSWER

1. When selecting a potential field hospital site, one must consider:

- A. proximity to combat zone
- B. closeness to key crossroads and bridges
- C. location of ammunition dumps
- * D. all of the above

2. Ambulatory patients tend to move away from the battlefield in search of medical care along physical avenues of least resistance.

- * A. true
- B. false

3. Which of the following best describe suitable characteristics for a potential field hospital site?

- A. accessibility by patient evacuation vehicles
- B. location in a natural wash for protection
- C. protection by natural terrain from enemy fire
- D. a and b
- * E. a and c

4. The casualty receiving area should be located with a primary consideration of its closeness to the triage and treatment area.

- * A. true
- B. false

5. When pitching a tent the team leader should be:

- A. the senior NCO
- B. the senior officer
- C. the most convenient 2nd Lieutenant
- * D. the individual with the most experience

6. The team should assemble the material for pitching a tent:

- A. directly centered on the selected site
- B. in a central location
- * C. in the common area on the side of the selected site

7. Prior to positioning the tent the team must first stretch the tent.

- A. true
- * B. false

8. The tent pitching team should assemble and measure the center beam by comparing it against:

- A. vent positions
- * B. grommets in the top of the tent
- C. center pole locations

9. When disassembling the tent the first step is to remove the pegs.
A. true
* B. false
10. Disassembled tents should be sorted and stored by corresponding components in a central location when not in use.
A. true
* B. false
11. Prior to erecting the tent the team leader should walk over the unfolded tent to check for damage in the fabric.
A. true
* B. false
12. A planimetric map is:
* A. two dimensional
B. three dimensional
C. an aerial photograph
13. A topographic map
A. is an aerial photo
B. shows elevations
C. is a three dimensional representation
* D. b and c
14. Contour lines represent an imaginary line on the ground along which points are at the same elevation.
* A. true
B. false
15. An azimuth determines the direction from one point to another either on a map or on the ground.
* A. true
B. false
16. Given a scale of 1 inch:500 miles a distance of 2 1/2 inches on your map is equivalent to:
A. 250 miles
B. 2500 miles
* C. 1250 miles
D. 1500 miles
17. The standard scale of a military map is 1:25,000.
* A. true
B. false
18. To find an unknown point from two known points on a map you would use:
* A. the intersection method
B. the resection method
C. none of the above

19. Which of the following diseases is not transmitted by contaminated water:

- A. cholera
- B. amebiasis
- C. typhoid fever
- * D. malaria

20. Acceptable sources for your field water supply include:

- A. rainwater
- B. existing wells and springs
- C. distilled sea water
- * D. all of the above

21. Water treated with iodine tablets should be allowed to stand for ____ before drinking.

- A. 10 minutes
- * B. 20 minutes
- C. 1 hour

22. Grease waste products should be disposed of by

- A. using it for fuel in the immersion heater
- B. dumping in soakage pits
- * C. placing it in a baffle-type trap

23. Handwashing devices need only be located at patient care areas.

- A. true
- * B. false

24. Solid waste must not be buried closer than ____ from the mess area.

- A. 10 feet
- * B. 30 yards
- C. 100 yards

25. Environmental factors that must be considered when deploying to a foreign war zone are:

- A. temperature
- B. arthropods
- C. indigenous diseases
- * D. all of the above

26. Triage means sorting casualties to provide quality care for all wounded.

- A. true
- * B. false

27. Which of the following is not a principle of mass casualty triage:

- A. achieving the greatest good for the greatest number of casualties
- B. assessing casualties in terms of severity of injury and potential to survive
- * C. treating the most severely wounded first

28. Triage only occurs at the initial patient sorting area.
A. true
* B. false
29. A patient's triage category may be changed only by the original triage officer.
A. true
* B. false
30. At any Air Force medical facility only a physician is authorized to triage injured patients.
A. true
* B. false
31. The initial triage round begins with:
* A. surveying all victims in a rapid fashion
B. moving all victims to collection areas
C. marking each victim with a triage category tag.
32. A patient with an obvious single site arterial hemorrhage would most likely be classified as:
A. minimal (green tag)
B. minimal (yellow tag)
* C. immediate (red tag)
D. delayed (red tag)
33. A patient with 3rd degree burns over 60% of their body surface area would most likely be classified as:
* A. expectant (blue tag)
B. immediate (blue tag)
C. delayed (yellow tag)
D. delayed (red tag)
34. The patient decontamination method which best neutralizes chemical agents on the skin is:
A. supertropical bleach
B. decontamination solution #2
C. love potion # 9
* D. the M258A1 skin decontamination kit
35. Water used to wash away a biological contaminant adequately dilutes the contaminant so that the water may be allowed to run off naturally.
A. true
* B. false
36. Dirty dump sites should be located at least:
A. 100 meters up wind from the facility
* B. 100 meters down wind from facility
C. 30 meters up wind from the facility
D. 50 meters down wind from the facility

37. The principle not associated with proper body mechanics while lifting a patient is:

- A. get close to the person being lifted
- * B. stand with your back slightly bent
- C. avoid sudden pulls or jerks

38. The manual carry best suited for transporting an unconscious or disabled patient is the:

- A. saddleback carry
- B. four hand seat carry
- C. one man support
- * D. fireman's carry

39. A litter patient being transported up a sloping incline should be carried head first if at all possible.

- * A. true
- B. false

40. Which principle of emergency treatment is the most urgent:

- A. bandaging wounds
- * B. maintaining open airways
- C. immobilizing fractures

41. Protruding organs should be pushed back and bandaged to prevent further injury.

- A. true
- * B. false

42. Impaled objects should not be removed but rather packed with as much bulk as possible.

- * A. true
- B. false

43. Which of the following is not a basic principle in the treatment of fractures?

- A. control hemorrhage
- B. immobilize injury area
- C. treat for pain
- * D. all of the above are basic principles

44. Both the joint above and below the fracture site must be immobilized for a splint to be effective.

- * A. true
- B. false

45. Which of the following is not a purpose of dressings and bandages:

- A. apply pressure
- * B. immobilize wounds
- C. maintain temperature
- D. protect from infection

46. Burns can only be caused by contact with hot objects or electrical sources.

- A. true
- * B. false

47. A third degree burn is characterized by:

- A. redness and swelling
- B. wet appearance and blisters
- * C. waxy white or charred appearance

48. A major complication resulting from a burn injury involves dehydration.

- * A. true
- B. false

49. In the field it is best to immediately apply a soothing cream to the burn area in an effort to relieve pain.

- A. true
- * B. false

50. When wrapping burn wounds on the head and neck area one should:

- A. cover the eyes to avoid infection
- B. cover only those areas most severely burned
- * C. insure that the airway is maintained
- D. wrap the wound tightly

51. Which of the following is not an assurance addressed by the Geneva Conventions:

- A. assured humane treatment of war victims
- B. guaranteed protection of wounded prisoners
- * C. guaranteed treatment commensurate with rank
- D. assured protection of medical treatment facilities

52. Medical personnel are responsible for protecting both friendly and enemy wounded from pillage and ill treatment.

- * A. true
- B. false

53. Medical personnel may bear small arms for the purpose of:

- A. personal protection
- B. patient's protection
- * C. a and b
- D. medical personnel may never bear arms

54. Medical personnel are not considered prisoners of war according to the Geneva Conventions.

- * A. true
- B. false

55. To be protected by the Geneva Conventions, medical personnel must carry which of the following:

- A. a distinctive arm band
- B. official orders assigning them to a medical unit
- C. an identity card
- * D. a and c

56. Recent intelligence estimates predict that there are sufficient beds, but inadequate numbers of medical personnel, to meet the current threat from potential aggressors.

- A. true
- * B. false

Identify each of the following as being a more critical problem in either the Pacific or European theater of operations planning:

57. Medical personnel and resources must survive attack.

- * A. European
- B. Pacific

58. Casualty management relies more heavily on aeromedical evacuation.

- A. European
- * B. Pacific

59. Which of the following is unique to the Middle Eastern Theater of Operations:

- A. communications facilities are not available
- B. the Middle East is not part of a formal alliance
- C. there are no U.S. forward-based land forces
- * D. all of the above are unique

60. The self aid/buddy care concept belongs in which echelon of care:

- A. 4E
- * B. 1E
- C. 3E
- D. all of the above

61. The phonetic alphabet for the word NO is as follows:

- A. Never Ostrich
- * B. November Oscar
- C. Nelly Oscar
- D. Nerd Only

62. A base station radio will provide a more secure radio transmission than a hand-held portable.

- A. true
- * B. false

63. The first line of a MEDEVAC request transmission should address the:
- A. number of patients to be transported
 - B. marking of the pick up site
 - C. call sign for the individual making the request
 - * D. location of the pick up site.
64. A locality from which operations are projected or supported is referred to as a (an):
- A. battle position
 - * B. base
 - C. active defense
 - D. key point
65. A large hill in the immediate vicinity of a medical unit would be considered key terrain, as it could be used for observation by an enemy force.
- * A. true
 - B. false
66. Long range reconnaissance is considered a lower level threat to a USAF Air Base than terrorist organizations.
- A. true
 - * B. false
67. Wound ballistics must take into account:
- A. the motion of the missile
 - B. the relative speed of the missile
 - * C. a and b
68. Which of the following is not a component of kinetic energy?
- A. mass
 - * B. weight
 - C. distance
 - D. velocity
69. A 38-cal. revolver fires missiles of a faster velocity than an M-16A1 rifle.
- A. true
 - * B. false
70. A fragment which results from the original missile is called a secondary missile.
- * A. true
 - B. false
71. Missile rotation is a circular pattern during forward flight known as:
- * A. nutation
 - B. tumble
 - C. yawing

72. A small missile striking the body at high velocity will produce a wound with the following characteristics:

- * A. small entry, large exit
- B. small entry, small exit
- C. large entry, small exit
- D. large entry, large exit

73. Firearms and ammunition should be stored together to insure rapid access if they are needed.

- A. true
- * B. false

74. Which of the following best describes the key part (parts) used to disarm an M-16 rifle?

- A. safety
- B. magazine
- C. magazine catch button
- * D. b and c

75. The extractor and extractor rod are used to clean the barrel of the .38-cal. pistol.

- A. true
- * B. false

76. Which of the following best describe the makeup of a patient retrieval unit?

- A. med Techs, ambulance drivers and litter bearers
- B. medical administrator
- C. a physician
- * D. a and b

77. A patient retrieval unit's communication requirements could include the use of commercial telephones.

- * A. true
- B. false

78. It is the sole responsibility of the security police to determine what method will be used to signal friendly forces penetrating the camp perimeter.

- A. true
- * B. false

79. A standard 1 1/4 ton 4 X 4 truck ambulance (cracker box) is designed to carry the following combinations of patients.

- A. 4 litter patients
- B. 8 ambulatory patients
- C. 2 litter and 4 ambulatory patients
- * D. all of the above are possible combinations

80. Patients are generally loaded into the ambulance feet first unless the nature of the injury makes this inadvisable.

- A. true
- * B. false

89. In an individual suffering from combat fatigue, the predominant emotion is fear, and the predominant physical factor is bodily exhaustion.

- * A. true
- B. false

90. Six elements are used in helping an individual recover from combat fatigue. These include:

- A. brevity
- B. expectancy
- C. simplicity
- * D. all of the above

91. Individuals assigned to a mobility position must possess a passport.

- * A. true
- B. false

92. Which of the following is not an accepted mobility clothing item.

- A. field jacket
- B. white towel
- * C. baseball cap with unit emblem
- D. all of the above are acceptable

93. Immunization requirements are the same for all mobility personnel no matter to which destination they are deployed.

- A. true
- * B. false

94. The Air Force will assume responsibility for your dependents only if you are deployed for mobility on short notice.

- A. true
- * B. false

95. Which of the following primary patient survey steps would be performed last on an injured patient?

- A. check for open airway
- * B. check for neurological damage
- C. check for pulse

96. Initial patient assessment must involve a comprehensive head to toe examination of the victim.

- A. true
- * B. false

97. Wound closure is generally not performed at a 2E facility.

- * A. true
- B. false

81. Wounded POW's may be allowed to talk among themselves only after they have been triaged.

- A. true
- * B. false

82. The M17 protective mask should contain the following color of filter elements for chemical, biological, and riot control agent protection:

- A. black
- * B. green
- C. gold
- D. none of the above

83. Alcohol prep pads should be used whenever possible to clean a mask designated for use with toxic agents.

- A. true
- * B. false

84. No variation in the M6A2 protective hood attachment is allowed regardless of ambient weather conditions.

- A. true
- * B. false

85. Given adequate time before entering a toxic environment which of the following components of the chemical defense ensemble should be put on first?

- A. mask
- B. hood
- C. gloves
- * D. trousers

86. The chemical defense ensemble overgarment will provide at least ____ hours of protection.

- * A. 6
- B. 12
- C. 18
- D. 24

87. The chemical defense ensemble may be washed only with cool water.

- A. true
- * B. false

88. When removing the chemical defense ensemble, which component should be removed first?

- A. mask
- * B. gloves
- C. trousers

98. Which of the following should not be performed on an open head wound?

- A. gently wash with sterile saline
- * B. cover with sterile pressure dressing
- C. cover with sterile non-pressure dressing

99. Impaled objects are usually not removed at the 2E facility level.

- * A. true
- B. false

100. Wound debridement should be performed at the 2E facility level only if evacuation is expected to be delayed beyond _____.

- * A. 12 hours
- B. 24 hours
- C. 48 hours
- D. debridement should never be done at the 2E level.

** IN THE SPACE BELOW PLEASE RELAY ANY PERSONAL OBSERVATIONS OR RECOMMENDATIONS YOU HAVE CONCERNING THE CMRT PROGRAM WHICH WOULD HELP MAKE IT A MORE USEFUL LEARNING EXPERIENCE.

** AND WE THANK YOU FOR YOUR SUPPORT! ***

Appendix F: Participant Comments

I. More Hands on Versus Classroom Training:

"We need less lectures and more hands on training."

"The practical experiences are what made it most valuable ie. actually doing "wartime" activities such as triage exercise and receiving feedback on our performance. Lengthy lecture sessions in class were too much."

"Increase the amount of actual "hands on" work. Get away from the "planned" mass casualty exercises and have smaller exercises of incoming wounded throughout the session such as would happen in a 2E hospital."

"Too much time spent in classroom with too little time devoted to practical field activities. Not enough equipment such as gas masks with too much unrealistic situations."

"Need more practical experience, you forget the lectures."

"More hands on experience needed with less videotape/slide presentations. More lecturers who have had real combat experience and there should be air evacuation practice."

"Provide CMRT booklets prior to attending so we can review and learn from them. Alternate lectures with hands on training. Supplies such as gas masks should be more available to do practice."

"Overall I think its a pretty good system but it would be nice if the students could do more hands on and less classroom."

"The training should be more hands on experience. The Air Force is more concerned with filling in the squares and not real training."

"The classroom gets boring- need more hands on involvement by all students."

"Try to keep it more patient oriented with less video films and more time spent on practical applications."

II. A Better Physical Learning Environment:

"CMRT should be broken up to include a better spacing out of physical activities as it is very hot and boring to sit in that tent and listen to lectures and tapes all day. Also, I think the instructors got very burned out after teaching 10 sessions and seemed to hurry through as fast as possible."

"Should be taught in a better environment (when it's not too hot or cold) it can then be adapted later to adverse conditions after the basics are taught."

"Classroom lectures in a hot tent is poor."

"Need a happy medium of class time vs. physical activity. Sitting in class for 12 hours, even with breaks is too much."

"Better mix of physical activity with classroom time. Movies and slides shows can get boring after 8 hours."

"The environment should be more conducive to learning without so much noise and heat."

"Physical activities should be spread out better, not all loaded into one day."

"Materials designed to be presented in a classroom should not be presented in a hot noisy tent."

III. More Realistic Physical Learning Environment:

"I would like to hear more talks from actual veterans of wars with real field experience. Why not issue all mobility personnel an army manual or whatever you use to teach this stuff-that way the information would be at our disposal any time?"

"Recommend having unscheduled exercises during daily activities."

"Erect surgical tents, chow tents, play it 24 hours through. Get people up in the middle of the night for incoming wounded, have choppers land or jeeps drive in with wounded. Gas attacks without notice for chemical warfare readiness. Use POW's. Stage CMRT overseas (or Central America), once the camp is set up its just a matter of transporting personnel."

"Include small arms training, simulate enemy fire during obstacle course, and teach the use of the gas mask in real conditions using smoke or riot gas."

"Needs to be more realistic. Funds should be appropriated to cover the cost of adequate training materials."

"During the exercise in particular have people do jobs they do not encounter in their routine job and/or AFSC."

"Since the mask is the most important part of the chemical warfare suit it should be taught in real conditions using smoke or riot gas."

"Exercise in futility, how realistic? Everybody will go through the same initial mistakes if we have another war even with CMRT."

"More terrorist and guerrilla force activities should be included."

"Map and compass training should use marked locations with codes and put more emphasis on reading a map for real."

"Since we are assigned to a 4E facility for deployment, we should go to one and see what its like."

"Some of these techniques look good on paper but have not been proven to work in combat. More emphasis should be placed on instructors with past combat experience. In 5 to 10 years all the experience will be gone, then what?"

"In war you don't have a set time for the enemy to show up. He will use the element of surprise and we should train the same way."

"Provide adequate equipment- no "half" ensembles without enough masks for everyone. Don't incorporate unrelated training requirements which detract from the primary mission."

Make use of unanticipated "surprise" exercises. Consider a more advanced/challenging exercise for those previously trained."

IV. Modification of CMRT to Meet Different Subgroup Needs:

"It seems we learn the same things over and over. More patient treatment of war casualties is needed for health care providers and less litter carrying."

"I would like to see more specific training on treatment topics particularly for physicians and nurses."

"It would be better if people received training according to their previous CMRT experience. Many classes are too advanced for first attendees and boring for those that have attended more times."

"I have had it 3 times and its too repetitive. It would be nice to have a more advanced session with more in depth triage etc."

"I think the professional staff should be split from the technical staff for many of the lectures so there could be more intensive training. Also, the use of reservists or consultants with actual combat experience would be useful."

"Advanced sessions should be considered for those with more experience. As it stands, many classes were boring."

V. Favorable Comments:

"I enjoyed the set up of the program."

"A good program."

"The overall idea of CMRT is very well. It provides a new and well organized plan of learning for someone new to it such as myself."

"The program is good in my mind, more realistic than last years."

"CMRT is really good this year. Keep it the same way!"

"While there could be some improvement in time management, the instruction overall is top shelf."

"I felt I learned a lot about field treatment in particular."

"I think its good the way it has been set up this year compared to last year."

"This CMRT was a lot better than last years because the number of people attending each session is smaller."

"Much less time was wasted this year than last year."

"I believe the CMRT training is conducted in a very professional manner and the material is vital to all Medics."

"Overall this CMRT was a lot better organized than my past experiences."

VI. Miscellaneous Comments:

"Breakdown into smaller groups when working so all must become involved instead of just watching all the time."

"Patient care is important but so is field training. If there aren't enough people to carry out both jobs then more people are needed. Field activities shouldn't be put on the back burner- we are supposed to be prepared for war!"

"I don't feel fully trained. CMRT should be longer or perhaps done every six months."

"Too much information taught in a very short amount of time. We need more emphasis on medical concepts and less in areas such as site selection and gun cleaning."

"I think we should do exercises such as this more often to ensure that we could perform well in a real battlefield environment."

"There should be more involvement with other base organizations."

"Some of the lectures and materials used are the same as last year. This makes for a boring time."

"I feel that more small arms and chemical warfare training would save a lot of lives."

"Leadership pays lip service to readiness being the number one priority however, readiness exercises are always squeezed in to minimize disruption of patient care. This is not civilian healthcare, it is the military!"

"More time and energy should be spent on the logistical side of the exercise in terms of necessary training supplies and equipment (such as generators) that work."

"CMRT should be taught more often if our actions are to be 'automatic' in the event of war."

"Why should we have to pay for our meals? The consensus among those I've talked to think we should be fed without charge. We also need more comfortable chairs."

"The weather was the only factor inhibiting the attitudes and morals of some of the students."

"CMRT should be longer and taught more often."

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VITA

Captain Dennis R. Sanders was born on 19 August 1952 in Lawrenceville, Illinois. He graduated from Bitburg American High School, West Germany, in 1970. Enlisting in the Air Force in 1971, he served first as a medical service specialist and later as a cardiopulmonary laboratory technician until 1979. Upon discharge from active duty he entered into a reserve status with the 414th Medical Service Squadron at March AFB, California, while attending college. After graduating magna cum laude from the University of California, Riverside, with a B.A. in Sociology and History in 1982, he attended graduate school at Loma Linda University completing a Masters in Public Health Administration in 1984. Capt. Sanders was promoted from Master Sergeant to Second Lieutenant on 7 July 1983 and served his unit as director of personnel and administrative services until reentering the active duty ranks in January 1984. He then attended the USAF Health Services Administration course at Sheppard AFB Texas and was subsequently transferred to Plattsburgh AFB, New York. He served the USAF Hospital Plattsburgh as commander of the medical squadron section, director of personnel and administrative services, and the medical readiness officer until entering the School of Systems and Logistics, Air Force Institute of Technology, in May 1986.

Permanent Address: 13661 E. Marina Dr. #203

Aurora, Colo. 80014

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This investigation evaluated Continuing Medical Readiness Training (CMRT) skills among medical personnel assigned to the USAF Medical Center at Wright-Patterson AFB Ohio. Measurable CMRT objectives and an associated didactic test instrument were developed and validated with aid from the USAF School of Health Care Sciences. This test was administered to a sample of 116 medical personnel at the close of their CMRT encampments in May 1987. Test results were scored and averaged to compare skill levels across the different learning objectives. Test results of various population subgroups were also compared to determine if there was a relationship between an individual's subgroup and their skill level. Personal observations and recommendations for improving the CMRT program were also solicited from this study's participants.

Results of the study indicate that personnel tended to score higher in the area of disaster medical skills than in general field and wartime specific skill categories. In comparing population subgroups, it was found that officers scored higher than enlisted personnel across all major skill categories.

Individuals whose primary duties involved direct patient care scored higher in disaster medical and wartime specific skill categories than those involved primarily in indirect patient care, while no significant difference was observed in the general field skill category. No significant difference in test scores was observed when personnel who had attended one or two CMRT sessions were compared to those who had attended more than two. In comparing medical personnel by their years of active duty experience, no significant difference between those with seven or less years of experience and those with more than seven years experience was found in the disaster medical and wartime specific skill categories. Those with more than seven years experience did however, score significantly higher in general field skills.