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14. ABSTRACT In 2001, the US military launched the largest prospective study of service personnel in its history, the Millennium Cohort Study (N > 200,000), in order to evaluate the effects of military service on the long-term health and well-being of US service members. Based on military and civilian recommendations for comprehensive research on military families, the study was expanded in 2011 to include the Millennium Cohort Family Study (Family Study). The Family Study was designed by a multidisciplinary team of investigators at the Naval Health Research Center (NHRC), Abt Associates, Duke University, and New York University to understand the interrelated health and well-being effects of military service on families – including the service member, spouse, and children. The baseline Family Study survey cycle concluded in 2013, after successfully enrolling 9,930 spouses married to Service Member participants in the probability sample of the Millennium Cohort Study. The Family Study includes both male and female spouses of active duty, Reserve, and National Guard personnel from all five service branches of the US military – with 75% married to service members that have deployed in support of OEF/OIF/OND at least once. Because the Family Study is nested within the Millennium Cohort Study of service members, it provides unique data on a large cohort of service member-spouse dyads, utilizing both self-report and military records.					
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**NWHSS Implement
Family Member
Assessment
Component in the
Millennium Cohort
Study**

**Contract #W81XWH-09-C-
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NWHSS Family Member Assessment Component in the Millennium Cohort Study: Final Report

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1. Introduction

The Millennium Cohort Family Study's (Family Study) primary objective is to examine empirically the impact of deployment to OEF/OIF/OND on the families of US service members. The study is being conducted by a multidisciplinary consortium of research organizations, including the Naval Health Research Center (NHRC), Abt Associates (Abt), Duke University (Duke), and New York University (NYU), as a new component of the Millennium Cohort Study (MilCo), initiated along with the enrollment of MilCo's 4th panel of service personnel.

MilCo's Panel 4 was launched near the end of year two of the Family Study (7 June 2011), and by the close of enrollment on 4 April 2013, successfully enrolled 50,052 Service Members from all branches of the military, including Reserve and National Guard. The Family Study began inviting the spouses of married MilCo panel 4 participants to join the Family Study, approximately a month after the launch of MilCo's survey cycle. The Family Study survey cycle concluded in 1 August 2013, after successfully enrolling 9,930 spouses married to Service Member participants in the probability sample of the Millennium Cohort Study's panel 4. The Family Study includes both male and female spouses of active duty, Reserve, and National Guard personnel from all five service branches of the US military – with 75% married to service members that have deployed in support of OEF/OIF/OND at least once. Because the Family Study is nested within the Millennium Cohort Study of service members, it provides unique data on a large cohort of service member-spouse dyads, utilizing both self-report and military records.

The Family Study baseline survey included 100 numbered questions and was divided into fourteen specific areas: spouse demographics, physical health, mental health, coping skills, life experiences, modifiable behaviors, military service (for dual military families), marital relationship, deployment, return and reunion experiences after deployment, service member spouse's behavior, military life, family functioning, and children's health and well-being.

In order to determine how military families and family relationships change over time, the research team will reassess the spouses every three years. As such, the Family Study is uniquely poised to address critical scientific, operational and policy questions that can contribute to the development of interventions that increase resilience among service members and their families, and minimize the negative consequences for both.

2. Project Administration & Technical Implementation

2.1 Overview

The Family Study was purposefully implemented as a collaborative effort of the MilCo team at NHRC and a consortium of investigators at Abt Associates, Duke University School of Medicine, and New York University School of Medicine. The project was described in a single application submitted by Abt, but funded via two separate funding streams—one for NHRC, focused on data collection, and another for Abt, Duke, and NYU, focused on data analysis and interpretation.

All of the tasks necessary to implement the study were conducted collaboratively, but leadership varied across the tasks. Tasks that involved the logistics of the survey (e.g., sample selection, survey construction, survey implementation, survey data management) were led by NHRC with input and support from the Abt team, and tasks that included the analysis and interpretation of Family Study data, were to be led by the Abt team, with input and support from NHRC.

Communication between the teams was facilitated by regularly scheduled conference calls of the two teams, in which we discussed progress and issues from the current work and plans for upcoming tasks. In addition, Abt and NHRC held several planning meetings at NHRC, conducted yearly Scientific Review Panel (SRP) meetings, and presented Family Study progress yearly at In Progress Review (IPR) meetings in Ft. Detrick, MD at the request of MOMRP.

Brief Chronology

Year 1 (Sept 2009- Aug 2010). The study began in earnest on 14 September 2009, with the fund awards to NHRC and Abt. In Year 1, the Family Study team prepared for implementation by coming to agreement on study protocols and the baseline survey instrument and sending them for OMB and IRB review. Although regulations indicated that OMB review should be completed in 60 days, review of the package for the Family Study took more than a year, putting the study far behind schedule. Year 1 came and went without a ruling from OMB, however we did receive positive feedback during our first Scientific Review Panel (SRP) meeting held at NHRC and during our first *In Progress Review* (IPR; See Appendix A).

Year 2 (Sept 2010 – Aug 2011). In Year 2, OMB finally approved the Family Study protocol on 21 March 2011, 18 months after it was submitted and 6 months into Year 2 of the Family study. This delay caused the MilCo team to make some changes in the Panel 4 protocol, without informing the Family Study investigators. One week later, NHRC's Commanding Officer changed the leadership of both the Milco Study and the Family Study from a 15-year veteran epidemiologist of the Milco Study to an infectious disease physician with no survey methodology experience. This change was made without informing the co-PIs of the Family Study. Nevertheless, three months after receiving OMB clearance, on 7 June 2011, the MilCo

team launched Panel 4, a year later than intended. Fifteen days later, on 22 June 2011, invitations were e-mailed to the spouses of the first group of service members that enrolled in Panel 4 of Milco and gave permission to contact their spouse, marking the beginning of Family Study data collection. The original plan for launching the Family survey was May 2010, marking the first of many delays to come (See Appendix B).

As Year 2 was merging into Year 3, early returns suggested that the recruiting protocol for the Family Study would not produce the 10,000 participants expected by design. Because MilCo survey implementation procedures were described as “Modified Dillman” designs, and due to some of the senior Abt/Duke/NYU investigators having long-term connections to Professor Dillman, we suggested to the NHRC team that we could arrange for Don Dillman to review our protocol and suggest ways to raise response rates (Milco and Family). NHRC agreed, and the initial meeting with Dillman was held in August 2011.

Year 3 (Sept 2011 – Aug 2012). By plan, Year 3 was for finishing data collection, cleaning the collected data, establishing data sharing agreements, determining work assignments, and solidifying research aims and objectives. Working together each week, the Family Study team participated in the creation of the protocols we needed to analyze the data and report the findings accurately and safely. Halfway through Year 3, the Family Study response rate was 50% (our goal response rate), but referral rates were still lower than estimated (35% vs 65%) and Milco response rates were still below predicted levels (15% vs 25%). Dillman continued working with the Milco and Family Study teams to improve Milco Panel 4 response rates and, consequently, the sample of Family Study spouses that we could contact and enroll.

Although there were notable strengths of the original Family Study protocol (obtaining spousal contact information from the service member and secondary consent for their participation), referral rates remained below expected, hindering us from reaching our goal of enrolling 10,000 spouses. Therefore, the Family Study survey protocol was updated to allow for 1) recruitment via referral of spouses by Panel 4 respondents, as well as by contacting directly the spouses of Panel 4 respondents without referral, and 2) survey completion via the web (as planned) or by a paper survey that was developed mid-survey cycle (with the help of Dr. Dillman). In addition to the development of a paper survey, the study team also established new recruitment procedures that included a 6-step mail approach spanning an approximate 12-week period. Referred spouses were also contacted via email (address supplied by referring spouse), which included a link to the Family Study web survey (See Appendix C).

During Year 3, NHRC told us that they were dangerously low in funds and would run out soon, and to make matters worse the possibility of sequestration was looming. Because our primary role in the study was analysis, interpretation, and manuscript preparation, the Abt/Duke/NYU group had carryover funds from years 1-3, saved to be used when the data became available for analysis. We recognized, however, that if we did not meet our recruitment goals that we

would not have the power to conduct planned analyses. In multiple discussions with our Contracting Officer, MOMRP, and NHRC, we came to consensus that the only viable short-term solution to the problem was for Abt to use some of our carry-over funds to support completion of the data collection. Our contract was therefore modified on 19 September 2012 and for years 3 and 4, the total amount transferred for data collection was \$1.2M.

Year 4 (Sept 2012- Aug 2013). The beginning of year 4 was spent finalizing the follow-up survey (See Appendix D). Because the follow-up survey needed to be tailored to spouses that changed marital status (i.e., separated, divorced, widowed), and to families that separated from the military; there was considerable work done in Year 3. Based on our experience with the 2011 baseline survey, it was imperative that we submit the 2014 follow-up survey and protocol to OMB at least 18 months in advance of our desired launch date. In order to facilitate this process, several members of the Abt team flew to NHRC for a 2-day planning meeting in Feb 2012, where each item of the baseline survey was reviewed for inclusion/exclusion in the follow-up survey and additional items were debated for addition to the follow-up. In addition, the 2012 Scientific Review Panel meeting held at NHRC was used to present the suggested changes to the baseline survey and to seek the recommendations of the panel and invited guests. Upon conclusion of the meeting, and after several more exhaustive team meetings, the Family Study team submitted a finalized version of the follow-up survey for review by the OMB and the NHRC IRB in November 2012.

During Years 3 and 4, it became apparent that something was wrong within the NHRC team. The only Family Study co-investigator on the NHRC team (Dr. Hope McMaster) resigned in February 2013, and over the rest of the year approximately 80% of Milco's analysts resigned, while other key individuals were reassigned to tasks far below their skill levels and job descriptions. Late in Year 4, the motive for the exodus became clear when NHRC's newly appointed Commanding Officer ordered an investigation of the Milco and Family Study PI and subsequently fired her, along with her long-time assistant, on 13 September 2013 for cause. Our understanding was that the NHRC portion of the Family Study team lost substantial organizational memory and analytic talent, and that recovering from the loss of staff would impede the progression of the study and our ability to begin data analysis and interpretation.

Year 5 (Sept 2013 – July 2014). The Family Study survey cycle closed on August 1, 2013, just prior to the dismissal of the NHRC Family Study PI. We believe that an absence of leadership after the dismissal of the PI, as well as a significant loss of staff, led to delays in data entry, verification, and cleaning. We were initially led to believe that the survey data would be ready by September 2013, however after the dismissal of the PI, we were told to expect the data in December 2013, then January 2014, then March 2014, then July 2014. During this time we became aware of several barriers that led to significant delays in the preparation of the data. For instance, because the survey was initially designed as web-only and then subsequently, a paper survey was created mid-cycle, survey items were given multiple names for each mode of

entry (e.g., web surveys, paper surveys processed by NHRC, paper surveys processed by Data Recognition Corporation) rather than one unique name for each item, with mode of entry as a separate variable. In addition, the lack of leadership during this time at NHRC, as well as an 80% reduction in analytic staff, caused significant delays in survey verification and validation, and data cleaning. It is our understanding that at this time, survey cleaning measures are still ongoing. We feel that NHRC worked very hard to 1) clean the data with limited staff, 2) hire new personnel, and 3) train new employees to participate in the cleaning effort, but unfortunately, there was really no way around the devastation caused by the previous PI's leadership of the NHRC team.

In February of 2014, Dr. Hope McMaster was hired by Abt Associates to bring back at least some portion of the talent that was lost when so many individuals resigned from NHRC. In addition to adding Dr. McMaster to the team, we flew the Abt team to NHRC to participate in a planning meeting on 5 February 2014 that was initiated by Abt to provide a forum to reconnect with the NHRC team and to enhance communication and collaboration. The meeting culminated in renewed optimism and a formalized plan for collaboration (see Appendix E). Dr. McMaster immediately began participating in on-site meetings at NHRC, facilitating communication, collaboration, and the data transfer process. In addition, Dr. McMaster and Cynthia LeardMann (NHRC) presented Family Study progress at the IPR held in March 2014, after being delayed due to travel restrictions the previous year (see Appendix F).

Significant strides were being made toward beginning data analysis and manuscript preparation during this time, such as 1) the signing and approval of the DUA on 23 April 2014 (see Appendix G), 2) a high profile symposium at the American Psychiatric Association (see Appendix H) 2) the submission and approval of study proposals that aligned with the revised collaboration protocol (see "Technical Progress & Activities), 3) the finalization of the Family Study and Milco Study data dictionaries, 4) completion of Panel 4 Milco and Baseline Family data cleaning, and 5) the transfer of data from NHRC to Abt on 23 July 2014. In addition, NHRC conducted a nationwide search for a new PI for the Milco and Family Studies, which resulted in Dr. David Luxton coming on board with NHRC on 7 July 2014. Dr. Luxton has been very supportive of our continued collaboration and is appreciative of the subject matter expertise provided by the Abt team.

Unfortunately, just when the team was making significant progress and immediately after data was finally transferred to Abt, we received notice that we would not be granted another no-cost extension to complete our work and that all work must stop by 31 July 2014. We are poised to contribute significantly to our understanding of how military families are impacted by military life and deployment (see "Technical Progress & Activities"), but we need continued funding to conduct analyses of the Family Study data and complete substantive manuscripts. In addition, we have contributed significant time and effort into creating the 2014 follow-up survey (See Appendix C) and anticipate that the strength our team and of the Family Study will become even more apparent in the analysis of the longitudinal data.

2.2 Project Team & Work Modifications

Abt Team

As part of the Family Study team, the Abt team—comprised of Principal Investigators and technical staff from Abt Associates, Duke University School of Medicine, and New York University School of Medicine - led the data analysis component of the Family Study. This team, led by Drs. Schlenger (Abt), Fairbank (Duke), and Marmar (NYU), brought together broad technical expertise, including:

- Child development and child and adult behavioral health;
- Spousal and family psychosocial functioning;
- Survey research and methodology; and,
- Service member behavioral health, PTSD, and physical health.

These areas of expertise are critical to the Family Study team's ability to implement a robust analysis plan and central to understanding the dynamic impact of military deployment on the psychological and physical well-being of families.

To further support the study effort during the fourth year of work, the Abt team provided substantive methodological expertise and financial support to improve the implementation of the Family Study survey and address issues with overall response. Through routine monitoring and financial support of the study, weekly team meetings, and other ongoing communications with the data collection team (NHRC), the Abt team provided:

- Timely responses and solutions to improving efforts to engage the survey target population (e.g., continued funding of Dr. Dillman to provide technical expertise to improve survey response, proposing and securing the services of Dr. Dillman);
- Strategies and access to resources to improve survey response;
- Updates, in collaboration with team member NHRC, to USAMRMC (e.g. scientific review panels, product line reviews) on the progress of the Family Study; and,
- Provision of funding that supported the provision of incentives to survey respondents, provided three key staff members to the NHRC team, and supported the 2013 Scientific Review Panel in San Diego.

During the fifth year of the study, the Abt team hired Dr. Hope McMaster, former Co-PI of the Family Study at NHRC, to bring back at least some portion of the talent that was lost when so many individuals resigned from NHRC during the third and fourth years of the study. As a social psychologist, Dr. McMaster brings considerable knowledge and experience of survey methodology and persuasion techniques, as well as her in depth knowledge of Family Study survey operations, to the study team. As a military spouse with two young children and

experience with multiple deployments and reunions, Dr. McMaster represents the population we are investigating and, as such, is an asset to the Family Study team.

Consultants

To provide additional methodological support for the survey implementation, the Abt team secured the services of Drs. Don Dillman and Richard Kulka during the fourth year of the study. Experts in the field of survey research and methodology, Drs. Dillman and Kulka reviewed survey implementation procedures and provided recommendations to improve survey response rates for the service member study, thus increasing the sample of spouses available to the Family Study. While Kulka's services were used intermittently (e.g, preparation for the 2012 Scientific Review Panel), Dillman's services were used throughout the project year (see "Technical Progress & Activities").

The Family Study team continued to use Dillman throughout the fourth and fifth year of the project.

His scope of work included:

- Continued close monitoring of survey implementation procedures and service member and spouse response rates;
- Feedback to improve survey response and communication with the survey population; and,
- Attendance at key meetings with USAMRMC personnel to discuss survey updates and planning for data analysis.
- Review of the 2014 follow-up survey implementation plan

Scope of Work: Modifications

At the request of USAMRMC, the Abt team provided additional funding to support the data collection effort led by NHRC. The additional funding targeted improving response rates among Milco Panel 4 survey participants, which prior to year three had not met the survey response goals for this project (see "Technical Progress & Activities). After discussions with USAMRMC and NHRC in May 2012, resources from the Abt-Duke-NYU stream was reallocated to address the following:

- Enhancing communications with the Panel 4 service member sample to improve survey response and, consequently, increase Family Study sample size;
- Increasing the sample size of eligible respondents;
- Adding additional technical staff to the NHRC team to assist with the timely completion of work associated with survey implementation; and,

- Providing NHRC with ongoing consultation with Dr. Don Dillman to improve survey implementation strategy and monitoring participant response to the family assessment survey.

Specifically, \$917,923 was reallocated to the data collection effort during year three, and an additional \$144,726 was reallocated for work in year four.

2.3 Technical Progress & Activities

Implementation of the Spouse Survey in MilCo Panel 4

When the third year of the Family Study began, the MilCo Panel 4 and Family Study surveys had been launched (in June and July 2011, respectively), but early participation results were not encouraging in either. In response, the Family Study team moved quickly to intervene as the second year was coming to a close, by bringing Drs. Don Dillman and Richard Kulka in as consultants.

Dr. Dillman continued his work on the Family Study in year four, working with the NHRC team that was implementing the Family Study data collection to make changes that would improve spouse participation. The “new” design incorporated a wide variety of the elements that have been shown in the many randomized field trials that Dillman has conducted across his career to enhance survey participation, including more incentives, revising the messages in communication with potential participants, and the offer of a pencil-and-paper option for those who wanted it.

Additionally, as the implementation of the “Dillmanization” of the Family Study survey protocol unfolded, Drs. Nancy Crum (Co-PI) and Hope McMaster (Co-I) began a dialog with the Chair of the NHRC IRB concerning barriers to participation in Family Study. When the IRB reviewed the protocol prior to OMB clearance, it insisted that the Family Study only approach spouses of service members who approved of spouse participation and provided contact information. The a priori assumption of the Family Study team was that 65% of married Panel 4 participants would give permission to contact their spouse, and 50% of those spouses would participate in Family Study, resulting in 10,000 spouses participating in the Family Study.

Unfortunately, four months into the data collection, even though our response rates met the goals of the study, service member referral of spouses was languishing at about 32%. Based on discussions with Drs. Crum and McMaster, the NHRC IRB agreed to allow the Family Study to approach the spouses of Panel 4 participants without their secondary consent, as long as questions regarding the service member’s behavior were removed from the survey. By removing the referral requirement, the study team was immediately able to contact more than 10,000 spouses of Panel 4 participants and could continue to contact more as Panel 4 response continued over the next year. Because contact information was not provided by the service member, spouses were contacted by mail only using the physical addresses of the service

members. This change in protocol necessitated the development of a paper survey, because previous research indicates that it is advantageous to provide a paper survey when email augmentation that includes a link to the web survey cannot be utilized.

Changing recruitment procedures and developing a paper survey after a survey has been launched is extremely challenging. With guidance from Dillman, however, the NHRC Family Study team did a terrific job on both. Although doing so took time, energy, and resources, over several months of the fourth year, spouse response rose steadily as the various changes were implemented - allowing us to reach our goal of enrolling almost 10,000 spouses.

Conceptual Models That Will Guide the Family Study Analysis

The Family Study team has developed conceptual models that operationalize our hypotheses about processes underlying the phenomena that we will be studying. As an example, Appendix I contains two slides showing the hypothesized associations among the variables that are included in the Spouse Survey.

Those models are useful in many ways, but are best understood as generic models of community epidemiologic studies focused on health and mental health outcomes. In our application, we described a conceptual model of how military families respond to war zone deployment of a service member parent, which will guide many of our substantive analyses. In what follows, we describe briefly some examples of other kinds of conceptual models that will structure our analyses of the Family Study baseline data, focusing on methodological issues.

(1) Establishment of external validity. Although the Family Study sample is a probability sample drawn from military records, the external validity (generalizability) of the study's findings can be heavily influenced by response rate if the non-response is not random. We plan to use propensity models to examine and adjust for potential non-response bias. To do so, we will first fit logistic regression models of "propensity to participate" in the Spouse Survey, using predictors that are available for both those who did participate and those who did not (e.g., demographic and other variables available in military records). Then we will use the logistic model to create for each person in the sample a "predicted probability of participating in the Survey," and compute the correlations of the predicted probability and the baseline values of the primary outcomes. For any outcome, if there is a statistically significant correlation with predicted probability of participating, there is non-response bias.

When bias is identified, it must be adjusted for. Fortunately, the bias can be adjusted for easily, by creating nonresponse weights for use in the analysis—for each person who participated in the study, their non-response adjustment weight is the inverse of their predicted probability of participating in the Survey.

The procedure described above produces a gold-standard correction for the non-response of spouses for whom their sponsor provided the spouse's contact information. The other source

of spouse non-response, however, is spouses of married Panel 4 sample members who didn't participate in Panel 4. We are currently seeking advice from experienced sampling statisticians on how to take account of this form of non-response.

(2) *Establishment of internal validity of comparisons.* Although the analysis of these data will involve many types of comparisons, the primary comparisons involve war zone deployment versus no war zone deployment. These comparisons will constitute a non-equivalent comparison group (quasi-experimental) design. Assessing the internal validity of such designs involves examining the overlap of the distributions of demographic and other important variables in the two groups. Groups are said to be non-equivalent to the extent that the distributions of independent variables overlap.

We will examine overlap using propensity analyses. We will begin again with a logistic regression model of being in the deployed group, and use that model to produce a predicted probability of being in the deployed group. Following procedures developed by Rubin and his colleagues, we will then organize the two groups (deployed vs non-deployed) into quintiles on the basis of their predicted probability scores. Examination of the balance of the quintiles within and across groups provides important information about the comparability of the groups. If the quintiles are balanced within and across, the two groups can be considered "equivalent," and if not the patterns of the quintiles can point to which quintiles are equivalent and which are not.

Aims and Objectives Defined

The Family Study team has clearly defined the study's aims and objectives in an effort to guide data analysis and the production of manuscripts, consequently serving as a benchmark of our progress. In addition, the team recently assigned responsibility for conducting specific studies to each collaborating institution.

Aim 1: Explore the association between service member deployment (e.g. combat, duration, dwell time, and frequency) and the health and well-being of spouses and children		
Objective	Specific Study Question	Project Lead/Analyst
Compare emotional, behavioral, and medical issues of spouses of service members deployed with and without combat to service members who have not yet deployed	Is there an association between service member deployment and spouse mental health (e.g., anxiety, panic, depression, PTSD)?	NYU and Abt
	Is there an association between service member deployment and spouse distress (e.g., somatization, alcohol misuse/abuse, tobacco use, aggression)?	NYU and Abt
	Is there an association between service member deployment and the functional and general health of spouses (e.g., sleep, # of dx conditions, PCS, body weight, fatigue, exercise)?	NYU and Abt

Compare emotional, behavioral, and medical issues of children of service members deployed with and without combat to service members who have not yet deployed	Is there an association between service member deployment and child behavior (e.g., strengths and difficulties)?	Duke and Abt
Examine number and length of service member deployments in relation to spouse mental health outcomes	Is there an association between the length of service member deployment and spouse emotional, behavioral, and physical health outcomes?	NYU and Abt
Examine number and length of service member deployments in relation to child behavioral outcomes	Is there an association between the length of service member deployment and child behavioral outcomes?	Duke and Abt
Aim 2: Explore the association between service member readjustment issues (e.g., PTSD, anxiety, depression, alcohol misuse/abuse) and the health and well-being of spouses and children		
Objective	Specific Study Question	Project Lead/Analyst
Assess association of service member readjustment issues with spouse health and well-being	Is there an association between service member depression and spouse mental health and distress?	NHRC
	Is there evidence of secondary traumatic stress among the spouses of service members self-reporting PTSD symptoms? (note: look at PTSD behaviors separately – specifically, avoidant behavior seems most problematic for families.)	NYU and Abt
	Is there an association between service member alcohol misuse/abuse and spouse mental health and distress (e.g., somatization, alcohol misuse/abuse, tobacco use, aggression)?	NYU and Abt
	Is there an association between service member readjustment and somatic symptoms (includes sleep items)?	NYU and Abt
Assess association of service member readjustment issues with child health and well-being	Is there an association between service member readjustment and child behavioral, and health and well-being outcomes?	Duke and Abt
Aim 3: Examine factors related to resiliency and vulnerability that moderate the association between deployment experiences and service member readjustment issues, and the health and well-being of spouses and children		
Objective	Specific Study Question	Project Lead/Analyst
Determine the relationship between social support (e.g., friends, family, co-workers, neighbors) and the health and well-being of spouses and children	Does social support moderate the relationship between deployment experiences and the health and well-being of spouses and children?	
	Does social support moderate the relationship between service member readjustment and the health and well-being of spouses and children?	
Investigate the relationship between support services (e.g., return and reunion programs,	Do support services moderate the relationship between deployment experiences and the health and well-being of spouses and children?	

mental health and primary care providers, clergy) and the health and well-being of spouses and children	Do support services moderate the relationship between service member readjustment and the health and well-being of spouses and children?	
Investigate the relationship between the stress of military life (e.g., multiple PCS moves) and the health and well-being of spouses and children	Does the stress of military life moderate the association between deployment experiences and the health and well-being of spouses and children?	
	Does the stress of military life moderate the association between service member readjustment issues and the health and well-being of spouses and children?	
Investigate the association between family characteristics (e.g., number and age of children in the household, children with special physical or mental health needs) and the health and well-being of spouses	Do family characteristics moderate the relationship between deployment experiences and the health and well-being of spouses?	
	Do family characteristics moderate the relationship between service member readjustment and the health and well-being of spouses?	
Examine the relationship between spousal adverse life events (e.g., adverse child events, major life events) and the health and well-being of spouses	Do adverse life events moderate the association between deployment experiences and the health and well-being of spouses?	
	Do adverse life events moderate the association between service member readjustment and the health and well-being of spouses?	
Explore the relationship between employment factors and the health and well-being of spouses and children	Does employment moderate the association between deployment experiences and the well-being of spouses and children?	
	Does employment moderate the association between service member readjustment and the well-being of spouses and children?	
	Does dual service moderate the association between deployment experiences and the well-being of spouses and children?	
	Does dual service moderate the association between service member readjustment and the well-being of spouses and children?	
Investigate the relationship between proximity to military services and the health and well-being of spouses and children (GIS Studies)	Does proximity to military services moderate the relationship between deployment experiences and the health and well-being of spouses and children and does this relationship differ by service component?	
	Does proximity to military services moderate the relationship between service member readjustment and the health and well-being of spouses and children and does this relationship differ by service component?	
Explore the role of self-mastery in the health and well-being of spouses and children	Does self-mastery moderate the relationship between deployment experiences and the well-being of spouses and children?	
	Does self-mastery moderate the relationship between service member readjustment and the well-being of spouses and children?	

Aim 4: Examine factors related to marital quality and family functioning		
Objective	Specific Study Question	Project Lead/Analyst
Determine service member factors that are associated with spouse reports of marital satisfaction and family functioning	Is there an association between deployment experiences (e.g. combat, duration, dwell time, and frequency) and spouse reports of marital satisfaction and family functioning (e.g., communication and cohesion)?	Abt and NHRC
	Is there an association between service member readjustment (e.g., issues and growth) and spouse reports of marital satisfaction and family functioning?	Abt and NHRC
	Is there an association between service member injury, PCS score, and number of doctor diagnosed conditions and spouse reports of marital satisfaction and family functioning?	Abt and NHRC
	Is there an association between service member alcohol misuse/abuse or tobacco use and spouse reports of marital satisfaction and family functioning?	Abt and NHRC
Determine support factors that are associated with spouse reports of marital satisfaction and family functioning	Is social support (e.g., friends, family, co-workers) associated with spouse reports of marital satisfaction and family functioning?	Abt and NHRC
	Is the use of support services (e.g., return and reunion programs, mental health and primary care providers, clergy) associated with spouse reports of marital satisfaction and family functioning?	Abt and NHRC
Determine employment related factors that are associated with spouse reports of marital satisfaction and family functioning	Is there an association between employment factors (e.g., service member occupational codes, spouse full/part time/seeking) and spouse reports of marital satisfaction and family functioning?	Abt and NHRC
	Is there an association between service member work-family conflict and spouse reports of marital satisfaction and family functioning?	Abt and NHRC
	Is there a relationship between the gender of the service member and spouse reports of marital satisfaction and family functioning?	Abt and NHRC
	Is there a relationship between dual service employment and spouse reports of marital satisfaction and family functioning?	Abt and NHRC
Aim 5: Evaluate methodological approaches to ensure adequate representation of spouses from all service branches, Reserve, and National Guard; and assess validity of assessment measures and instruments		
Objective	Specific Study Question	Project Lead/Analyst
Examine methodology and target enrollment population	What was the Family Study design, its objectives, its target population, and how was data collected?	Complete
	Did recruitment method impact overall response or data quality?	Abt and NHRC
	Were there differences in dyad recruitment with and without referral?	Abt and NHRC
Conduct non-response analyses to ensure adequate representation of spouses	Did Millennium Cohort Panel 4 survey response propensities and Family Study survey response propensities combine to impact the representation of spouses in the Family Study?	Abt and NHRC

Examine baseline characteristics of Family Study enrolled sample	What are the baseline characteristics of Family Study participants and do they compare to other spouse study populations?	NHRC and Abt
Aim 6: Contribute data to the service member cohort study on spouse and child factors that are associated with service member health and well-being, as well as length of service		
Objective	Specific Study Question	Project Lead/Analyst
Describe spouse related factors that are associated with service member health and well-being outcomes	Is there an association between the health and well-being of the spouse (e.g., physical health, mental health, stress, functional health) and the service member's mental and physical health?	NHRC and Abt
	Is there a relationship between healthcare and support service utilization (e.g., return and reunion programs, mental health and primary care providers, clergy) by the spouse and the well-being of the service member?	NHRC and Abt
	Is there an association between the self-mastery of the spouse and the service member's mental and physical health?	NHRC and Abt
	Is there an association between spouse modifiable behaviors (e.g., alcohol use, smoking, sleep, exercise) and the service member's mental and physical health?	NHRC and Abt
Describe spouse and family functioning factors that are associated with service member length of service and separation	What health and well-being factors of the spouse are associated with the military members' length of service and separation?	NHRC
	Is there a relationship between child health and well-being and the military members' length of service and separation?	NHRC and Duke
	Is work-family conflict associated with the military members' length of service and separation?	NHRC
Explore the relationship between family functioning and service member health and well-being	Is there an association between family communication and functioning and service member health and well-being?	NHRC
Describe factors associated with the health and well-being of service members in dual military families	Are female service members with children that deploy at greater risk for developing mental health problems than male service members or non-deploying females?	NHRC and Duke

Baseline Study Proposals

The Family Study team identified several high priority papers that were slotted for production over the next year before our untimely work stop. In order to meet this goal, the NHRC team and the Abt team had planned to collaboratively work on each of the following papers:

Non-response Analysis and Adjustment in a Survey of Military Families

Lead Author: Bill Schlenger (Abt team)

Secondary Authors: Hope McMaster, Carrie Donoho, Doug Fuller, Nida Corry, Mike Battaglia, Chia-Lin Ho, Richard Kulka

Status: Proposal Approved, Survey Data Transferred, DMDC data delayed

Objective: To conduct non-response analysis and adjustment in order to ensure our sample adequately represents the military family population intended

Background: Conducting surveys that accurately reflect the views and experiences of a given population depend on maximizing participation. The Family Study utilized multiple techniques informed by one of the most successful survey approaches to motivate our sample of invited service members and their spouses to enroll in the study in order to maximize participation and reduce the potential for non-response bias. However, as is the case with every probability sample survey, it is important to understand the potential impact of non-response on the ability of surveys to describe large populations. Because the Family Study is the largest study of its kind and offers information critically important for the DoD, VA, and society, it is essential to conduct non-response analysis and post survey adjustment in order to ensure that the Family Study adequately represents the military families intended.

Analysis Plan: We will begin by creating design weights for the invited sample of spouses (22,520) based on Millennium Cohort Study Panel 4 married military personnel (125,000) available sociodemographic data. We will also model Family Study participation statistically by using the information that military records (DMDC/DEERS) provide us on responders and non-responders (service members and spouses), and by using the survey data from the married Millennium Cohort Study (2011 – 2013) service member enrollees. Specifically, response propensities will be estimated for the invited Family Study sample using logistic regression that includes the previously mentioned sociodemographic variables and the “spouse-paired” service member survey data. The response propensity for each respondent will then be estimated based on the model, and adjustments will be set to the inverses of the response propensities. The Family Study survey data will then be weighted by multiplying the design weights and the inverse non-response propensity weights for the Family Study participants.

Recruiting Military Spouse Dyads: Does Requesting Service Member Permission Before Recruiting Spouses Introduce Bias in Survey Respondents

Lead Authors: Hope McMaster (Abt team)/Valerie Stander (NHRC)

Secondary Authors: Evelyn Davila, Bill Schlenger, Lauren Bauer, Hector Lemus

Status: Proposal Approved, Survey Data and DMDC Data Available

Objective: To describe two recruitment strategies used to enroll the spouses of Service Members that recently enrolled in the Millennium Cohort Study, in order to assess their impact on the sample of spouses in the Millennium Cohort Family Study.

Background: The interaction between two people is the most common interaction to study (Bakeman & Beck, 1974), yet dyadic research designs present a multitude of methodological

complexities (Quinn, Dunbar, Clark, & Strickland, 2010) that often begin with challenges in recruiting a representative sample of couples. Additionally, researchers often fail to provide valuable details concerning initial contact with couples and rates of non-response (Karney et al., 1995; Preloran, Browner, & Lieber, 2001), information that is useful for determining the generalizability of the sample. By utilizing a probability sample of married Service Members for recruitment, we can utilize sociodemographic information found in military records for each Service Member-spouse dyad, as well as the survey data of Millennium Cohort participants. Consequently, we can 1) compare spouse response rates based on recruitment strategy, 2) determine spouse and Service Member characteristics associated with recruitment strategy, and 3) assess the effect of recruitment strategy on the Family Study's internal validity by examining differences in military specific exposure-disease relationships, in an effort to explore the impact of recruitment strategy on our sample.

Analysis Plan: Descriptive analyses including frequencies and chi square tests will be performed to describe each recruitment group. To assess characteristics significantly associated with recruitment group, univariable logistic regression analyses will be performed, with referral status as the dependent variable. Adjusted logistic regressions to include the independent variables of age, sex, race/ethnicity, education, and all variables significant at the alpha 0.05 level in the univariable models will also be performed.

Recruiting Military Spouses through Postal Mail: An Experimental Comparison of Web versus Paper Survey Response Strategies

Lead Author: Hope McMaster (Abt team)

Secondary Authors: Don Dillman, Cynthia LeardMann, Steven Speigle

Status: Proposal Approved, Survey Data and DMDC Data Available

Objective: To compare a web-push (initially withholding a paper survey option) recruitment strategy to a paper-push (withholding a web option) recruitment strategy in order to determine the most effective strategy for obtaining responses for a group of military spouses for whom only postal addresses were available.

Background: When conducting sample surveys it is often seen as advantageous to collect survey responses over the web, rather than mail or telephone, in order to reduce the time and costs associated with data collection and processing, and for the ability to implement complex skip patterns and reduce erroneous responses. Unfortunately, a significant barrier to collecting survey data via the web is when email addresses are unavailable and another means of contact, such as postal mail addresses, are the only means by which potential respondents may be contacted. Our purpose in this paper is to report an experiment conducted with US military

spouses in which a web-push (initially withholding a paper survey option) strategy was compared to a paper-push (withholding a web option) strategy in order to determine the most effective strategy for obtaining responses for a group of military spouses for whom only postal addresses were available. In addition, the representativeness of respondents was compared by using selected sociodemographic records and survey data that were available for the participants' service member spouse.

Analysis Plan: Response rates will be compared using chi square analyses. Descriptive analyses including frequencies and chi square tests will be performed to describe each recruitment group. To assess characteristics significantly associated with recruitment group, web vs. paper, and responders vs non-responders, univariable logistic regression analyses will be performed. Adjusted logistic regressions to include the independent variables of age, sex, race/ethnicity, education, and all variables significant at the alpha 0.05 level in the univariable models will also be performed.

An Examination of Military Life Stressors among Families of Combat Deployed, Deployed, and Non-Deployed Service Members on Child Psychosocial Outcomes

Lead Author: John Fairbank (Abt team)

Secondary Authors: Ernestine Briggs, Ellen Gerrity, Lisa Amaya-Jackson, Robert Murphy, Robert Lee, Bill Schlenger, Charles Marmar, Hope McMaster, NHRC team member

Status: Proposal Approved, Survey Data Transferred, DMDC data delayed

Objective: To examine how the potential stresses of military life (deployments, reunions, and service member injury) affect children of different ages, stages of development and psychological profiles.

Background: In 2011, the military included over 1.4 million Active Duty personnel. Fifty four percent of them were married and of these, 44 percent had children. Just under half of the 855,867 Reserve and Guard members were married and 43 percent of them had children (U.S. Department of Defense, 2011). Many of these families experienced repeated deployments, some have experienced injuries, and small proportions have experienced the death of a deployed service member. The effects of long and repeated deployment on service members and their families have been discussed extensively in the research and clinical literatures. While some of these studies have examined factors that promote the resiliency of military families and children (Lester et. al. 2011; Neubert, 2010; Palmer, 2008; Park, 2011; Weber & Weber, 2005), most of the extant studies have focused on risk factors associated with deployment (e.g., Mmari, Roche, Sudhinaraset, & Blum, 2009), thus underscoring the need for research examining the specific effects of parental deployment, reunion, and combat-related injury on military children.

Analysis Plan: The proposed study will include Millennium Cohort Family Study service member/spouse dyads from the first enrollment cycle (2011-2013) baseline survey. This study would include all participants with a child/ren at least 3-17 years of age in the home. Univariate and multivariate analyses will be conducted to investigate the associations among deployment variables (length, duration, dwell time), post-deployment adjustment, and service member injury, with child emotional and behavioral functioning.

An Examination of Stressful Environmental Conditions among Military Families on Child Psychosocial Outcomes.

Lead Author: John Fairbank (Abt team)

Secondary Authors: Ernestine Briggs, Ellen Gerrity, Lisa Amaya-Jackson, Robert Murphy, Robert Lee, Bill Schlenger, Charles Marmar, Hope McMaster, NHRC team member

Status: Proposal Approved, Survey Data Transferred, DMDC data delayed

Objective: Explore how stressful environmental conditions (e.g., parental mental health, alcohol abuse/misuse, marital relationship, parental life experiences, coping, family functioning) affect important child psychosocial outcomes.

Background: The research literature about the effects of deployment and its aftermath on military connected children is relatively small, yet a growing list of indicators of the potential strain of deployment on families has been identified. To date, several studies have documented increased risks of: marital conflict and domestic violence (Ruscio et al. 2002); parental maltreatment or neglect of children (Gibbs et al. 2007; Rentz et al. 2007); spousal depression, anxiety and “secondary traumatization” that interferes with effective parenting (Galovski & Lyons 2004; Mansfield et al. 2010); and emotional and behavioral problems among military children (Chandra et al. 2011; Flake et al. 2009; Lester et al. 2011b). Reviews of the literature (Johnson et al. 2007; Park, 2011; U.S. Department of Defense, 2010) reveal that there are opportunities to expand research on military children by drawing on theory and empirical findings from research on civilian children and families. One approach that carries considerable promise is to understand and examine the specific mechanisms by which family processes mediate the links between risk factors and adverse outcomes. This strategy in turn can be used to explore factors that promote and/or undermine resilience. To this end, the primary objective of this study is to investigate familial factors (parental life experiences, coping, parental well-being, family functioning) that may influence the psychosocial functioning of military children. The Millennium Cohort Family Study presents a unique opportunity to explore this constellation of risk and protective factors from the perspective of the service members’ spouse in a large cohort of families with variable deployment experiences.

Analysis Plan: The proposed study will include Millennium Cohort Family Study service member/spouse dyads from the first enrollment cycle (2011-2013) baseline survey. This study

would include all participants with a child/ren at least 3-17 years of age in the home. Univariate and multivariate analyses will be conducted to investigate the associations among parental life experiences, coping, well-being, and family functioning, with child emotional and behavioral functioning in families whose service member has or has not deployed.

The Impact of Military Deployment and Readjustment on Spousal Outcomes

Lead Author: Charles Marmar (Abt)

Secondary Authors: Maria Steenkamp, Bill Schlenger, John Fairbank, Hope McMaster, NHRC team member

Status: Approval Pending

Objectives: To compare emotional, behavioral, and medical issues of spouses of service members deployed with and without combat to service members who have not deployed, to examine the number and length of service member deployment in relation to spouse mental health outcomes, and to assess the association of service member readjustment problems (e.g., PTSD, alcohol problems) with spouse health and well-being.

Background: The adverse psychosocial impact of deployment on military spouses has been documented across eras and countries, including World War II (e.g., Bramsen et al. 2002), the Vietnam war (e.g., Westerink & Giarrantano 1992), the 1982 Lebanon War (e.g., Solomon et al., 1992), and the recent wars in Iraq and Afghanistan (Mansfield et al., 2010). These studies have shown that longer deployments, pregnancy while deployed, and having a spouse with PTSD increase the risk of spousal stress and depression (De Burgh et al 2011). The impact of veterans' PTSD on their spouses has received particular attention. Partners of veterans with PTSD endorse greater anxiety, depression, somatic complaints, sleep problems, loneliness, and lower self-esteem (see Galovski & Lyons, 2004 for review), and the extent of spousal distress is associated with the extent of the veteran's impairment (Beckham, Lytle, & Feldman, 1996; Riggs, Byrne, Weathers, & Litz, 1998). Spousal distress is especially heightened when the spouse perceives high levels of PTSD in veterans but veterans themselves report low levels of symptoms (Renshaw et al., 2010).

As such, the psychological cost of warfare extends to veterans' spouses as well. The primary aim of this study is to examine the psychosocial burden of military spouses of deployed and non-deployed service members. The Millennium Cohort Family Study presents a unique opportunity to investigate the psychological sequelae of deployment on members' spouse in a large cohort of families with variable deployment experiences.

Analysis Plan: Univariate and multivariate analyses will be conducted to investigate the associations between deployment-related variables (e.g., number and length of service) and veteran psychosocial functioning with spousal psychosocial outcomes, comparing spouses of

service members deployed with and without combat to service members who have not deployed.

Factors Associated with Depression among Military Spouses of Combat Deployed, Deployed, and Non-Deployed Service Members

Lead Author: Carrie Donoho (NHRC)

Secondary Authors: Hope McMaster (Abt), Toni Rush, Cynthia LeardMann

Status: Proposal Approved, Survey Data and DMDC Data Available

Objective: To determine environmental and psychosocial factors associated with depression in the military spouse population

Background: Military spouses experience unique situations that create cyclical periods of increased stress and strain that are unique to the military family and may negatively impact the well-being of the family. For example, Eaton and colleagues (2008) reported that 12% of military spouses screened positive for a major depressive episode, which is double the prevalence estimation in the general population. Comprehending the factors associated with depression within the military spouse population is increasingly critical, as family readiness can impede the readiness of the Service member. When the Service member returns home from deployment, re-acclimatization into the family unit can be difficult. The presence of mental disorders among the spouse of Service member, such as depression, can create obstacles that could impede a positive reunion and acclimatization. In addition, chronic mental health conditions may continue to disrupt the relationships within the family. The results for this study will help to identify how factors such as deployment, service member mental health, gender, and military status of the spouse are related to depression in the military spouse. Given the higher rate of depression rates among military spouses compared with their civilian counterparts, it is critical that we understand the specific factors that contribute to their well-being, in order to develop interventions that can reduce the risk of depression in this population.

Analysis Plan: Univariate analyses including frequencies and chi-square tests will be used to assess associations of factors with depression among military spouses. Using logistic regression, adjusted analyses will be conducted to examine which factors are associated with depression in the military spouse. Factors to be investigated will include demographics, behavioral characteristics, physical health, and military experiences of the spouse, family characteristics, mental health status of the military Service members, and military characteristics of the Service member including deployment and combat experience.

Baseline Enrollment in a Longitudinal Study of Military Service and Deployment on Family Health and Wellbeing

Lead Author: David Luxton (NHRC)

Secondary Authors: Hope McMaster (Abt), Chris O'Malley, Cynthia LeardMann, Carrie Donoho

Status: Proposal Approved, Survey Data and DMDC Data Available

Objective: To describe participants of the Family Study using self-report from the service member and Family Study spouse, as well as military records.

Background: The Millennium Cohort Family Study is a landmark study of United States military families, serving throughout the world, with planned follow-up for over 20 years to evaluate the impact of military experiences on families both during and after time in service (Crum-Cianflone, Fairbank, Marmar, & Schlenger, 2014). The Family Study is made up of both male and female spouses of active duty, Reserve and National Guard personnel from all service branches (Army, Navy, Air Force, Marine Corps and Coast Guard) of the U.S. military (Crum-Cianflone et al., 2014). Approximately 10,000 spouses completed a web or paper survey containing over 500 questions related to demographics, physical health, mental health, coping skills, life experiences, deployment of military spouse, post-deployment return and reunion experiences, personal military service (for dual military relationships), marital adjustment, military spouse's behavior and adjustment, military life, family functioning, and children's health and well-being. Demographic and military characteristics (e.g., age, gender, military spouses' length of service) extracted from the Defense Manpower Data Center DEERS database are matched to survey response. The primary objective of the Family Study is to prospectively evaluate the associations between military experiences and service member readjustment on military family health and well-being.

Analysis Plan: Univariate analyses will be conducted to describe the study sample. The following indicators will be included in analyses: Military factors, chronic health conditions, SF-36V, PHQ (depression, anxiety, panic, somatoform); PCL-C (PTSD), Cage (history of alcohol abuse), ISI (insomnia), ACE (adverse childhood experiences), QMI (marital quality), FACES (family cohesion), and child outcomes.

Family Study Publication

Crum-Cianflone, N.F., Fairbank, J.A., Marmar, C.R., Schlenger, W.E. (2014). The Millennium Cohort Family Study: A prospective evaluation of the health and well-being of military service members and their families. *International Journal of Methods in Psychiatric Research*, Published Online 10 June 2014. (see Appendix J).

Family Study Presentations

Schlenger W, Marmar C, for the Millennium Cohort Family Study Team. **Millennium Cohort Family Study**. American Psychiatric Association (APA), 3-7; May 2014, New York, NY.

Schlenger W, McMaster H, for the Millennium Cohort Family Study Team. Millennium Cohort Family Study. **Military Family Research In Progress Review (IPR)**, 1-2 August 2012, Frederick, MD.

Fairbank J, for the Millennium Cohort Family Study Team. Millennium Cohort Family Study. **North Carolina Governor's Focus on Service Members, Veterans, and Their Families**, 16 May 2012, Morrisville, NC.

McMaster, H, for the Millennium Cohort Study Team, **Millennium Cohort Family Study Scientific Review Panel Meeting**, 10 April 2012, San Diego, CA.

McMaster, H, for the Millennium Cohort Family Study Team. **Defense Health Board Review**, 23 January 2012, San Diego, CA.

Fairbank J, for the Millennium Cohort Family Study Team. Millennium Cohort Family Study. **Briefed Deanie Dempsey, wife of General Martin E. Dempsey, Chairman of the Joint Chiefs of Staff**, 13 January 2012, Durham, NC.

McMaster, H, for the Millennium Cohort Study Team, **Millennium Cohort Family Study Scientific Review Panel Meeting**, 12 October 2011, San Diego, CA.

Schlenger W, McMaster H, for the Millennium Cohort Family Study Team. Millennium Cohort Family Study. **Military Family Research In Progress Review (IPR)**, 21-22 July 2011, Frederick, MD.

McMaster, H, for the Millennium Cohort Study Team, **Millennium Cohort Family Study Scientific Review Panel Meeting**, 21 September 2010, San Diego, CA.

Briggs-King E, for the Millennium Cohort Family Study Team. Responding to the needs of military children and families: Collaboration, research, services, and policies. **The Congressional Black Caucus Foundation**, 17 September 2010, Washington, DC.

Smith T, McMaster H, Jacobson I, Smith B for the Millennium Cohort Study Team. Understanding deployment related stressors and long-term health in military service members and veterans: the Millennium Cohort Study. **National Child Traumatic Stress Network**, 17 August 2010, Webinar.

McMaster H, Sausedo K, LeardMann C, Jacobson I, Granado N, Smith B, Sheppard B, Fairbank J, Marmar C, Schlenger W, Smith T, for the Millennium Cohort Family Study Team. Voice of the

military family: Using survey methodology to understand the impact of military service on family health and well-being. **13th Annual Force Health Protection Conference**, 7-13 August 2010, Phoenix, AZ.

Schlenger W, McMaster H, for the Millennium Cohort Family Study Team. Millennium Cohort Family Study. **Military Family Research In Progress Review (IPR)**, 21 July 2010, Frederick, MD.

Smith T, for the Millennium Cohort Study Team. The Millennium Cohort Study and Deployment Health. **Military Family Research Institute**, 7-8 April 2010, West Lafayette, IN.

Fairbank J, Marmar C, Schlenger W, Smith T, for the Millennium Cohort Study Team. Millennium Cohort Family Study. **137th American Public Health Association Annual Meeting & Exposition**, 7-11 November 2009, Philadelphia, PA.

Farnell L, Welch K, LeardMann C, Jacobson I, Granado N, Jones K, Smith B, Fairbank J, Marmar C, Schlenger W, Smith T, for the Millennium Cohort Study Team. The Millennium Cohort Family Study: Understanding the relationship between military service and family functioning. **12th Annual Force Health Protection Conference**, 14-21 August 2009, Albuquerque, NM.

Schlenger W, for the Millennium Cohort Family Study Team. Deployment and Military Families: Brain at War. **Briefed Director, Resilience and Prevention Defense Centers of Excellence (DCoE) for Psychological Health & Traumatic Brain Injury**, 27 May 2009, San Diego, CA.

2.4 Barriers to Progress & Solutions

The following highlights key barriers to progress encountered during the study and solutions to the encountered barriers. Details concerning the barriers and solutions are provided in the preceding sections.

Barriers to Progress:

- Low response rates for service members in the Panel 4 sample;
- Low referral rate for Panel 4 respondents;
- Lack of availability of centralized database of email addresses for military spouses;
- Complexity of developing a paper survey mid-survey cycle;
- Complexity associated with “rolling” enrollment (i.e., sample becomes available over the course of 2 years of enrolling service members);
 - Cost and complexity associated with 6-contact 12-week recruitment effort for a rolling survey cycle;

- Additional funding for NHRC data collection effort to improve staffing ability, survey implementation, and response rates with Panel 4 respondents;
- Budget revisions and modifications to the Abt team's analytic scope of work to accommodate additional data collection effort.
- Multiple changes in leadership of the NHRC study team for the Milco Study and the Family Study over the 5 year study period, specifically there were 5 different study PIs that we worked with causing multiple changes in survey implantation, survey development, staffing, and support;
- Loss of staff during years 3 and 4 at NHRC, resulting in loss of 80% of analytic support and unmeasurable institutional knowledge; and,
- Data processing and cleaning delays associated with significant loss of staff at NHRC and multiple modes of response that were not planned.

Solutions:

- Addition of Dr. Dillman to the team and development of an ongoing consulting agreement for services to improve Panel four response rates;
- Modification of recruitment approach to include both referred and non-referred spouses;
- Modification to the scope of work to support additional data collection effort through: additional staff for NHRC; and, increased funding for survey implementation communication strategies and respondent incentives;
 - NHRC hiring and training qualified personnel to support the data cleaning effort; and,
- Conducting a nationwide search and finding a new NHRC study PI, Dr. David Luxton, that has the knowledge and experience to conduct survey operations and manage two large epidemiological studies for the military;

3. Key Research Accomplishments

- Enrolled ~10,000 spouses;
- Recruitment of experienced survey experts (Dillman, Kulka) to review the survey design and suggest changes;
- Developed and implemented marketing and survey strategies that improved response rates;
- Changed study design mid-cycle by inviting spouses with and without referral, to address bias concerns associated with low referral rate
- Implemented a highly effective 6-step mail approach utilizing the most effective recruitment techniques currently available;
 - Developed a paper survey (second mode to respond) mid-cycle
 - Tailored messages to spouses
 - Obtained endorsement from Deanie Dempsey
 - Utilized pre-incentives (magnet, \$5 gift card)
- Created a new recruitment technique (sample survey) that resulted in increased enrollment and encouraged web survey response
- Scanned and verified all paper surveys
- Cleaned and verified all survey data
- Linked Family data with married Service Member
- Improved Family Study Website by including guidelines for researchers interested in collaborating and using data
- Completed survey revisions of the 2014-2015 follow up cycle
- Received IRB and OMB approval for 2014-2015 survey
- Developed and approved a streamlined collaboration protocol
- Finalized DUA between NHRC and Abt Associates to share data
- Transferred data from NHRC to Abt
- Published paper describing the Family Study design and methodology
- Wrote 8 proposals that were in various states of production prior to work stop;

4. Reportable Outcomes

N/A

5. Conclusions

N/A

6. Appendices

- 1. Appendix A: IPR Presentation 2010**
- 2. Appendix B: IPR Presentation 2011**
- 3. Appendix C: IPR Presentation 2012**
- 4. Appendix D: 2014 Family Study Panel 1 Wave 2 Survey**
- 5. Appendix E: Collaboration Protocol**
- 6. Appendix F: IPR Presentation 2013/2014**
- 7. Appendix G: Data Use Agreement**
- 8. Appendix H: APA symposium**
- 9. Appendix I: Conceptual Models**
- 10. Appendix J: Family Study Overview Manuscript**

Appendix A: IPR Presentation 2010

MOMRP

Science to Soldier

Millennium Cohort Family Study

PI: William Schlenger, PhD, Abt Associates and Duke University

Co-PI: John Fairbank, PhD, Duke University

Co-PI: Charles Marmar, MD, New York University

Co-PI: Tyler Smith, MS, PhD, Naval Health Research Center

Co-I: Hope McMaster (presenter), PhD, Naval Health Research Center



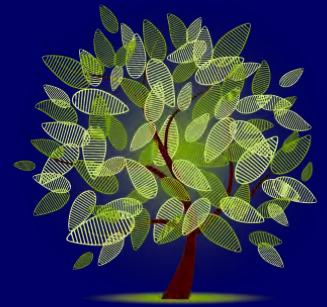
Administrative Information



Millennium Cohort
Family Study

- Award Number: W81XWH-09-C-0101
- Award Date: 28 Sep 2009
- Award Amount: \$9,850,873
- COR: MAJ Pedro Bonilla-Vazquez
- Project Officer: Ms. Buffy Burdette
- Portfolio Mgrs: COL Carl Castro, PhD, & Kate Nassauer, PhD.

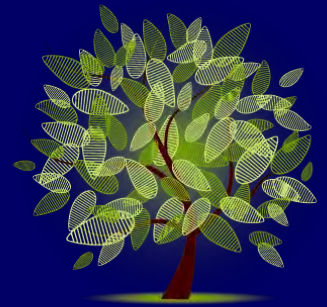
Study Background and Rationale



Millennium Cohort
Family Study

- **Substantial empirical documentation of mental health and related outcomes for US service members deployed to war-zones**
- **Less is known about deployment-related outcomes for spouses and other family members of US service personnel**
- **War-zone deployment can be understood as representing an extreme case of work-family conflict resulting in degraded individual and family functioning:**
 - * **extended geographic separation**
 - * **constant threat of bodily harm**
 - * **anxiety and mood changes**
 - * **substance abuse and related problems**
 - * **service member concern over events at home**

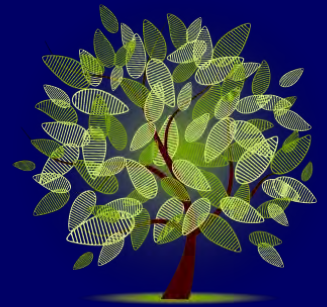
Study Background and Rationale



Millennium Cohort
Family Study

- **DoD's Mental Health Task Force recommendations:**
 - **Research on the processes of post-deployment adjustment for family members**
 - **Research on children who have been separated from their parents by deployment, including their access to support for psychological health issues**
- **A recent gap analysis by the Military Operational Medicine Research Program (MOMRP) identified studies of military families as a high priority issue**

OEF/OIF Family Impact Study: *Leveraging Existing Efforts*



Millennium Cohort
Family Study

- **So, we are conducting a community epidemiologic study of the impact of OEF/OIF deployment on family members**

- **For practical reasons, the study is:**
 - **being implemented in the context of the **Millennium Cohort Study****
 - **focused primarily on spouses and secondarily on co-resident children**
 - **funded only for the baseline assessment, but designed and intended to be longitudinal**

What is the Millennium Cohort Study?



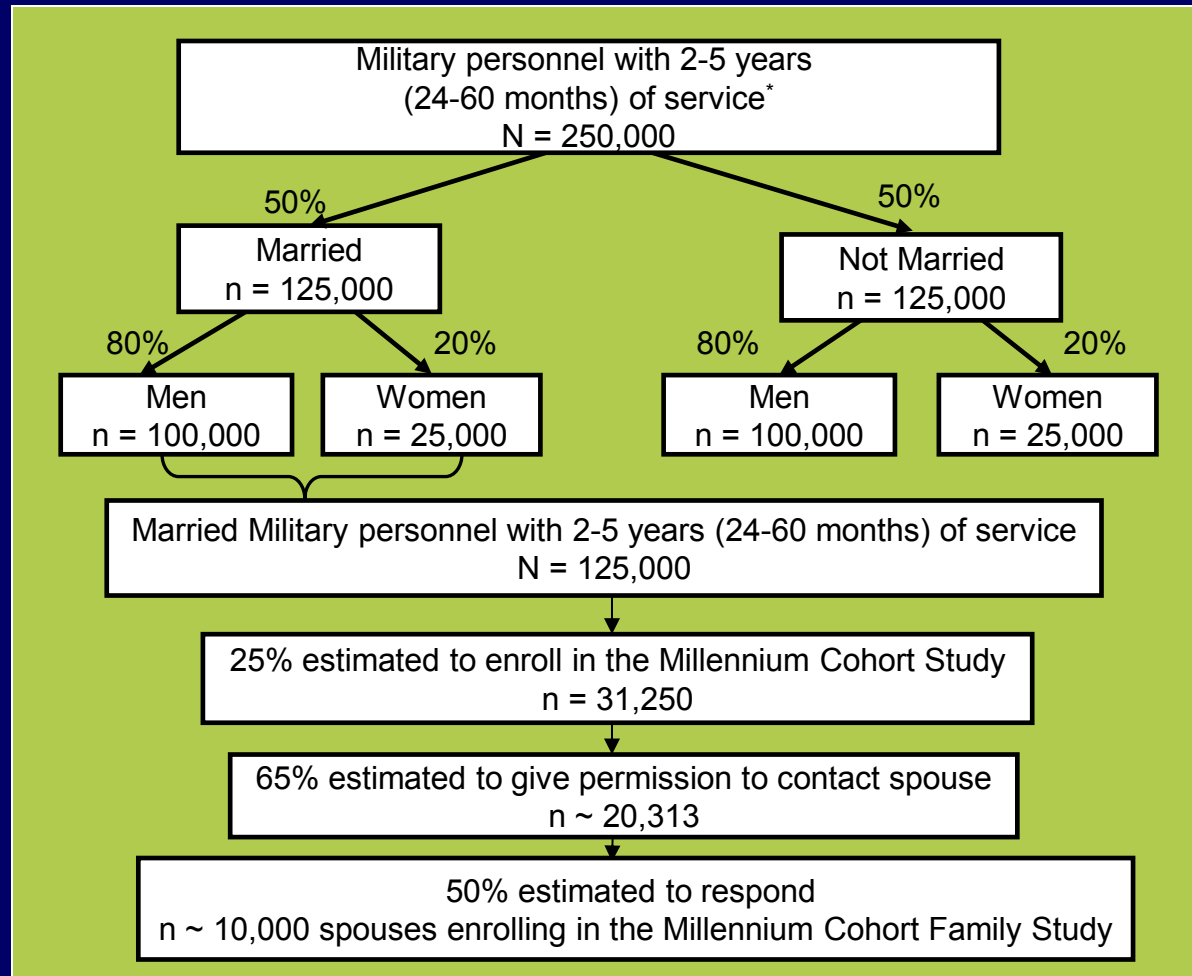
- The **Millennium Cohort Study** was launched in 2001 in collaboration with all US military services and the Department of Veterans Affairs, prior to the conflicts in Iraq and Afghanistan
 - The **Millennium Cohort Study** has now enrolled more than 151,000 service members that are surveyed every 3 years to examine how deployment and other military occupational exposures affect the long-term physical and mental health of military members and veterans
 - 50% deployed in support of OIF/OEF
 - 50% Reserve Guard
 - 25% separated from the military
-
- ✓ Panel 1: 77,000
 - ✓ Panel 2: 31,100
 - ✓ Panel 3: 43,000

Family Study Design Overview



Millennium Cohort
Family Study

- Family member assessment added to new enrollees (Panel 4) in the **Millennium Cohort Study**, which will be launched in 2010 and enroll about 62,000 new service member participants



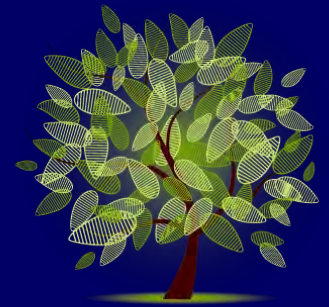
*Active-duty, Reserve, and National Guard, oversampling for female and married personnel

Methodology

- Panel 4 of the **Millennium Cohort Study** includes a probability sample of military service members, oversampling for female and married service members
- Approximately half married to service members who have deployed to OEF/OIF at least once
- Married service members will be asked to grant permission to contact their spouse
- Participants respond via secure website:
www.familycohort.org
- Link to other military data to complement self-report measures with objective measures of exposure, service use, and health-related outcomes

The screenshot displays the "RELATIONSHIP WITH YOUR SPOUSE" survey page. On the left, there is a vertical menu with various topics: Background Information, Education & Employment, Physical Health, Well-Being, Smoking Cares, Relationship with Your Spouse, Your Spouse's Deployment, Your Spouse's Behavior, Military Life, Life Experiences, Your Alcohol Use, Your Tobacco Use, Your Sleep Quality, Your Family, Your Military Service, and Open Response. The main content area is titled "RELATIONSHIP WITH YOUR SPOUSE" and contains the following text: "Including your current relationship, how many times have YOU been married? For example, if you have been married one time only, please mark 1 for your response." Below this is a text input field labeled "# of times married". The next question is "How many years have you been married to your SPOUSE?" with radio button options: "Not married", "less than 2 years", "2-5 years", "6-10 years", "11-15 years", and "15 or more years". The final question is "How long have you and your spouse been in a committed relationship?" with radio button options: "Not in a committed relationship", "less than 2 years", "2-5 years", "6-10 years", "11-15 years", and "15 or more years".

Family Study Design Overview

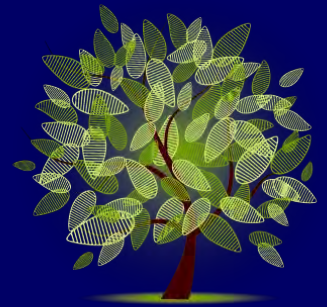


Millennium Cohort
Family Study

- **Primary Aim 1: To assess the impact of OIF/OEF deployment on:**
 - mental health and related outcomes of spouses and co-resident children of service member
 - the quality of the relationships between service members, spouses and their children
 - the associations between family member outcomes and service member outcomes

- **Primary Aim 2: To identify vulnerability and resilience factors for deployment stress-related outcomes for spouses and children of deployed service members**

Family Study Design Overview (continued)



Millennium Cohort
Family Study

Specific outcomes assessed include:

- **Spouse's report of deployment-related stressors**
- **Spouse's mental health symptoms (including substance abuse) and mental health service use**
- **Spouse's health status and health service use**
- **Spouse's sleep and sleep quality**
- **Spouse's report of the service member's health and mental health status and service use**
- **Family relationships**
- **Child health and mental health symptoms and service use**

2010/2011 Survey Cycle Timeline

August 2010

August 2011

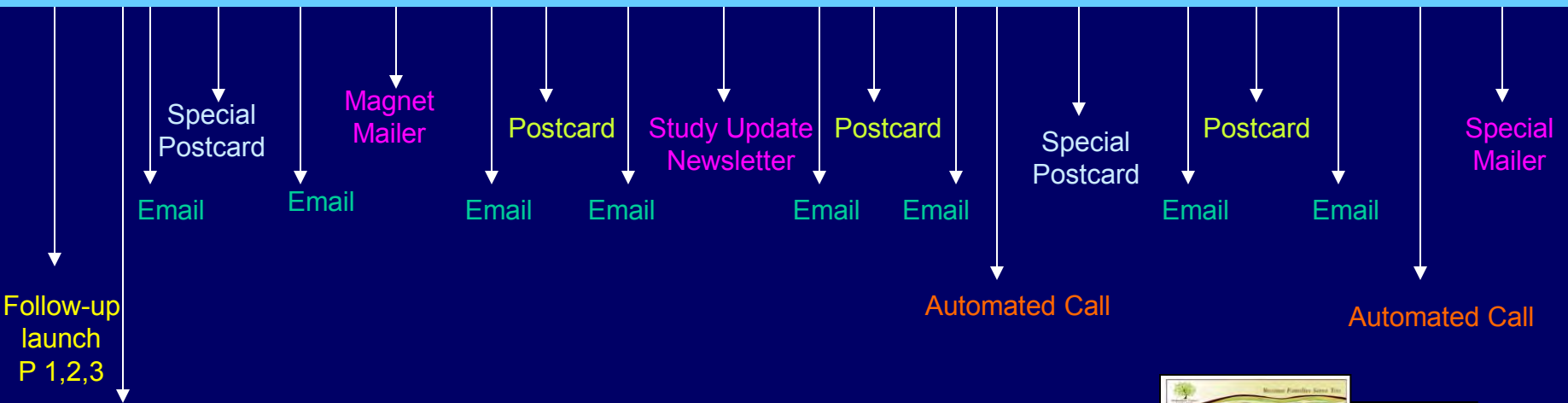
AUG

NOV

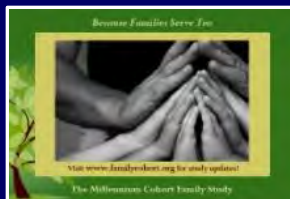
FEB

MAY

AUG



New Enrollee
P4 launch
with Family
invitation



Measured Health Outcomes and Impact

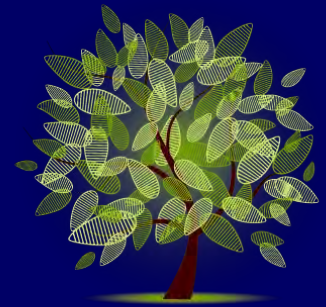
Main Survey Topics:

- Demographic information
- General health (including sleep)
- Spouse, family, child, and service member stress
- Impact of deployment and military service
- Family cohesion, expressiveness, and conflict
- Child behavioral, developmental and general health
- Health services
- Alcohol and tobacco use
- Military specific questions for active-duty spouses

Research will inform policy makers and guide intervention and prevention strategies related to:

- Family member resilience
- Deployment-related stress
- Family support dynamics
- Service member and family well-being
- Force readiness
- Military separation
- Barriers to care

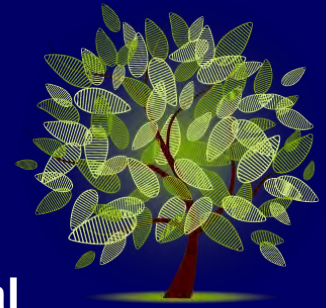
Selected Family Study Hypotheses



Millennium Cohort
Family Study

- **Military families will demonstrate resilience during deployment and other periods of significant stress**
- **Increased stress on the family system as a result of deployment to a war-zone is associated with greater levels of psychological distress**
- **Spouses of deployed service members will report higher levels of psychological distress than spouses of non-deployed**
- **Level of spousal distress will be associated with number of deployments to war zones, duration of the deployments, and the level of warfighters' exposure to combat and other war zone stressors**
- **Children of deployed services members will have higher levels of internalizing and externalizing behavioral problems, in a dose-response relationship**

Preliminary Deliverable and Dissemination Plan



Millennium Cohort
Family Study

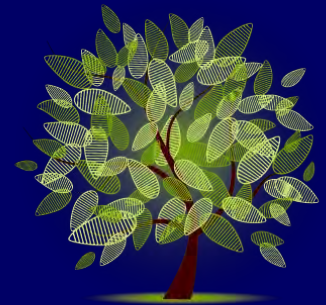
- **All years:**
 - **Quarterly and Annual Reports, IPRs, comprehensive final report**

- **Years 1/2:**
 - **Standard methodological studies, e.g.:**
 - * nonresponse analyses
 - * comparability at baseline of deployed vs non-deployed groups
 - * internal consistency reliability and dimensionality of multi-item scales.

- **Years 2/3:**
 - **“Main findings” manuscripts, e.g.:**
 - * spouse stressors, health, mental health, and functioning (deployed vs non-deployed, service member vs spouse);
 - * relationship quality;
 - * health, mental health, and functioning of children (spouse report of Sx, record based Dx and service use information).

- **Years 4/5:**
 - **Conceptually-driven manuscripts, e.g.:**
 - * mediators and moderators of relationships of exposures and outcomes
 - * SEM models of hypothesized causal factors

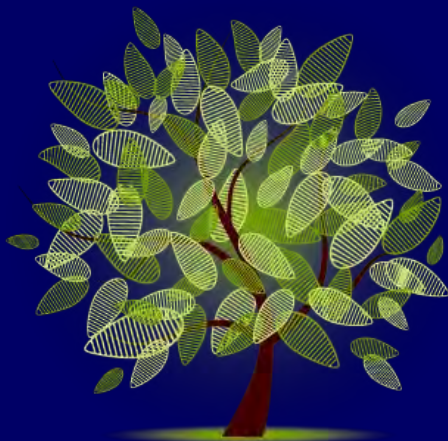
Study Progress to Date



Millennium Cohort
Family Study

- **NHRC IRB approved study protocol**
- **Family questionnaire developed and submitted to OMB for review and approval**
- **Family study secure website developed and tested**
- **Web-based questionnaire developed and being tested**
- **Scientific Review Panel recruited and initial meeting scheduled for September 21, 2010**
- **Study aims and design presented and critically discussed at multiple professional meetings**
- **Study analysis and dissemination plans under development**

Appendix B: IPR Presentation 2011



Millennium Cohort
Family Study

Award Number (Abt): W81XWH-09-C-0101
Award Amount: \$5,041,373
Award Date: 28 Sep 2009
Award Number (NHRC): W911QY-09-D-0040 0006
Award Amount: \$5,017,930
Award Date: 29 Sept 2009 – 30 Sept 2013
COR: MAJ Pedro Bonilla-Vazquez
Project Officer: Ms. Sherri Pearson
Portfolio Mgrs: COL Carl Castro, PhD
Kate Nassauer, PhD

Co-PI: Nancy F. Crum-Cianflone, MD, MPH
Naval Health Research Center

Co-PI: John Fairbank, PhD
Duke University

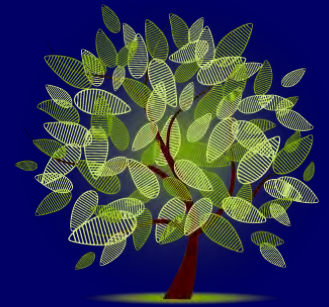
Co-PI: Charles Marmar, MD
New York University

Co-PI: William Schlenger, PhD
Abt Associates and Duke University

Co-I: Hope McMaster, PhD (Presenter)
Naval Health Research Center



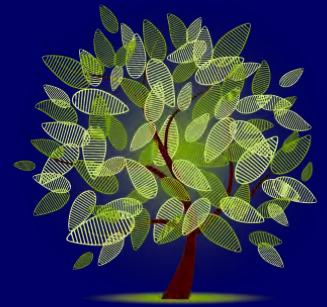
Study Background and Rationale



Millennium Cohort
Family Study

- Substantial empirical documentation of mental health and related outcomes for US service members deployed to war-zones
- Less is known about deployment-related outcomes for spouses and other family members
- War-zone deployment can be understood as representing an extreme case of work-family conflict resulting in degraded individual and family functioning:
 - Extended geographic separation
 - Constant threat of bodily harm
 - Anxiety and mood changes
 - Substance abuse and related problems
 - Service member concern over events at home

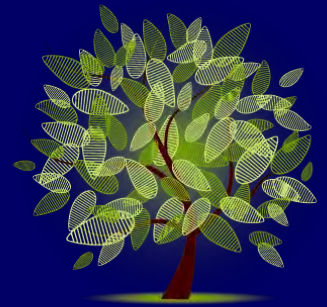
Study Background and Rationale



Millennium Cohort
Family Study

- DoD's Mental Health Task Force recommendations:
 - Research on the processes of post-deployment adjustment for family members
 - Research on children who have been separated from their parents by deployment, including their access to support for psychological health issues
- A recent gap analysis by the Military Operational Medicine Research Program (MOMRP) identified studies of military families as a high priority issue

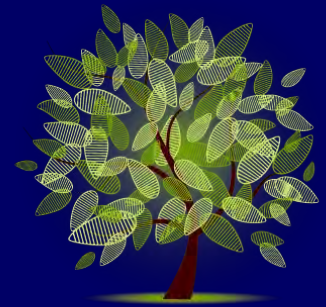
Research Questions



Millennium Cohort
Family Study

- What is the impact of deployment on the mental health and well-being of spouses and co-resident children of service members?
- Does deployment impact the quality of the relationships between service members, spouses, and their children?
- What is the impact of deployment on the association between family member outcomes and service member outcomes?
- What are the vulnerability and resilience factors for stress-related deployment outcomes for spouses and children of deployed service members?

Hypotheses



Millennium Cohort
Family Study

- Military families will demonstrate resilience during deployment and other periods of significant stress
- Increased stress on the family system as a result of deployment to a war-zone is associated with greater levels of psychological distress
- Spouses of deployed service members will report higher levels of psychological distress than spouses of non-deployed
- Level of spousal distress will be associated with number of deployments to war zones, duration of the deployments, dwell time, the level of combat experienced by the service member, and other war-zone stressors
- Children of deployed services members will have higher levels of internalizing and externalizing behavioral problems, in a dose-response relationship

Design and Methodology: Leveraging Existing Efforts



- The **Millennium Cohort Study** was launched in 2001 in collaboration with all US military services and the Department of Veterans Affairs, prior to the conflicts in Iraq and Afghanistan
- The **Millennium Cohort Study** has enrolled more than 150,000 service members and is currently enrolling new participants
- Cohort members are surveyed every ~3 years to examine how deployment and other military occupational exposures affect the long-term physical and mental health of military members and veterans

50% deployed in support of the operations in Iraq and Afghanistan

50% Reserve Guard

30% separated from the military

Panel 1: 77,000

Panel 2: 31,100

Panel 3: 43,000

Panel 4: Enrolling
(est. 62,000)

Design and Methodology: Sample

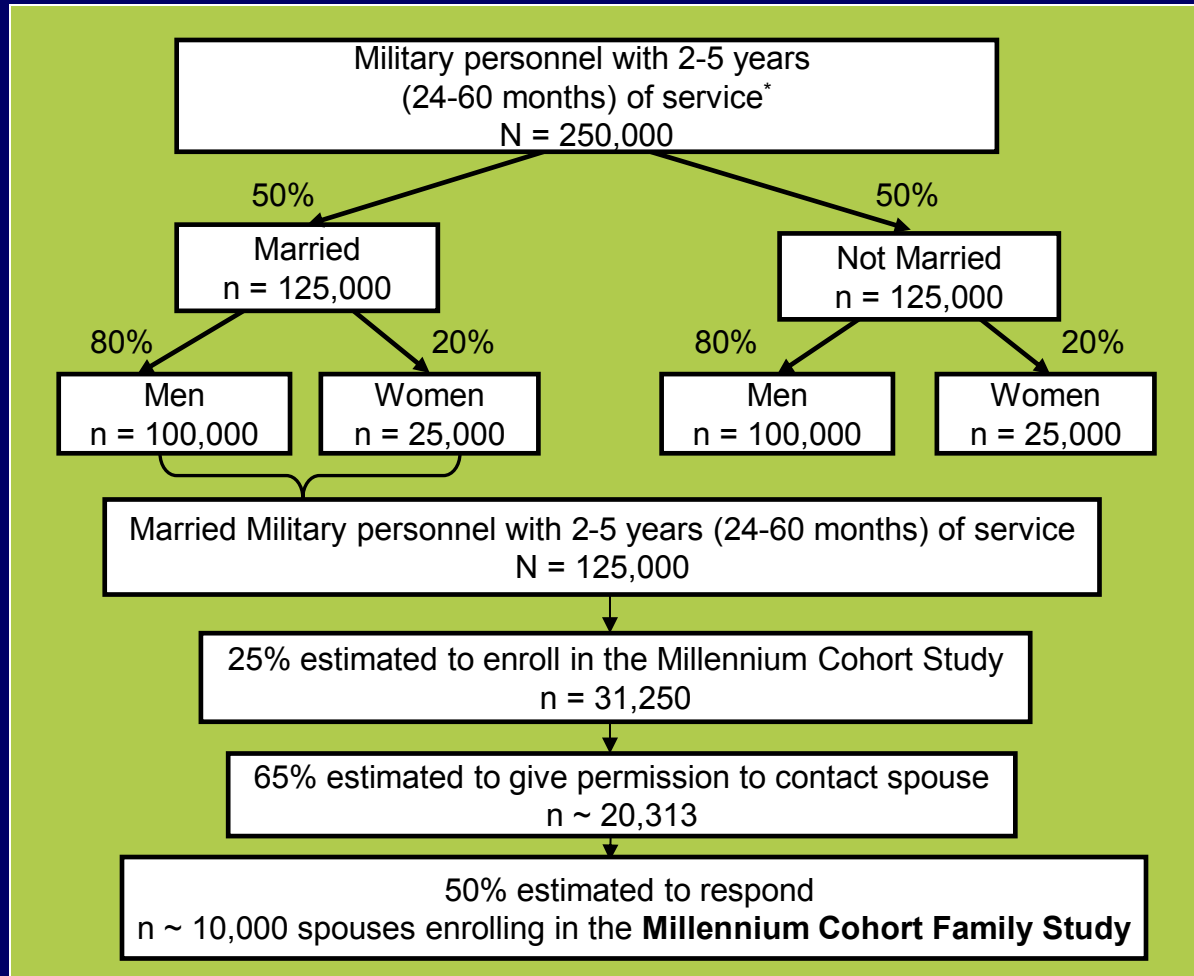


Millennium Cohort
Family Study

Panel 4 of the **Millennium Cohort Study** includes a probability sample of military service members (Active-duty, Reserve, and National Guard)

~ 50% deployed in support of the operations in Iraq and Afghanistan

Married service members will be asked to grant permission to contact their spouse.



*Oversampling for female and married service members

Design and Methodology



Millennium Cohort
Family Study

Because families serve too...

1. We would like to invite your spouse to participate in the Millennium Cohort Family Study.
2. Your spouse is one of a select few chosen to represent the experiences of military families.
3. We need your permission before we can invite your spouse.
4. Your spouse is NOT obligated to participate.
5. On the next page, please enter your choice regarding contacting your spouse.

Select your **FREE GIFT** after completing the referral!

[Next Page](#)

Service Member Pre-referral Page



Millennium Cohort
Family Study

Because Families Serve Too

[HOME](#) [SURVEY](#) [ABOUT THE STUDY](#) [F.A.Q.](#) [ABOUT US](#) [UPDATE YOUR ADDRESS](#)



**Millennium Cohort
Family Study**

a substudy
of the  **MILLENNIUM COHORT STUDY**

[ABOUT THE STUDY](#) [RESEARCH](#) [START SURVEY](#)

[FREE GIFT](#) [STUDY UPDATE](#)

Website

Survey Login Page



Millennium Cohort Family Survey

Please login to your survey with your Subject ID (provided by the study) and the last four digits of your **SPONSOR'S** Social Security Number.

Subject ID:

SPONSOR'S Social Security Number: (just the last 4 digits)

[Login](#)



Millennium Cohort
Family Study
[Learn more...](#)

The Millennium Cohort Family Study is a Department of Defense research project at the DoD Center for Employment Health Research, located in San Diego, California. Note: DMDC Reference Number: 00-0019, RCS Number D0-HA4612105, OMB Approval Number 0720-0029, ASD/HA/TMA Protocol Number CDD-06-026, and Primary IRB Protocol Number WAFRC-2000-0007. © 2010, Millennium Cohort Family Study, all rights reserved.

Design and Methodology

June 2011

June 2012

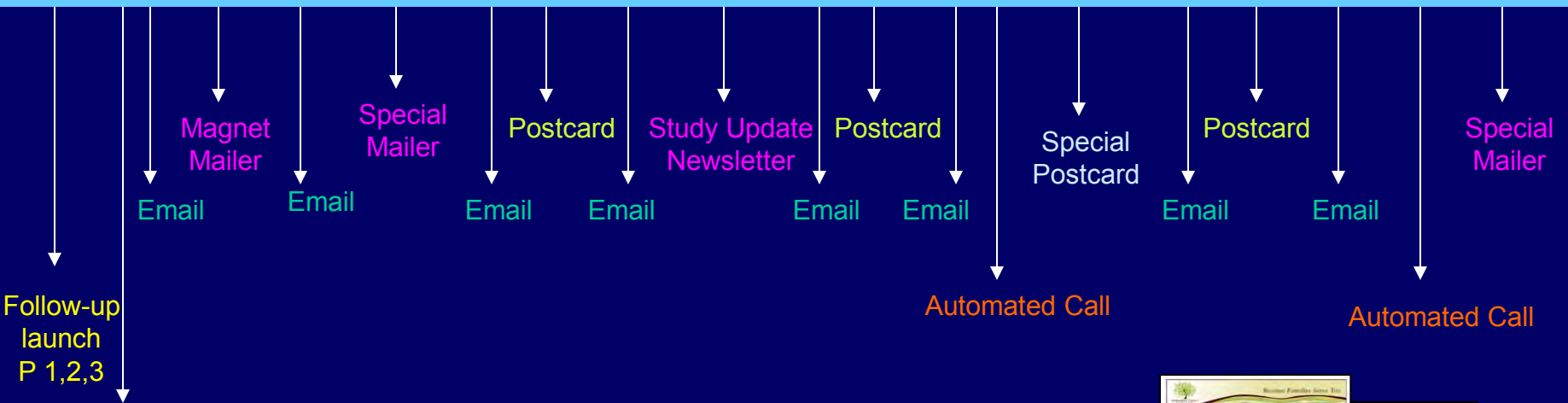
JUNE

SEPT

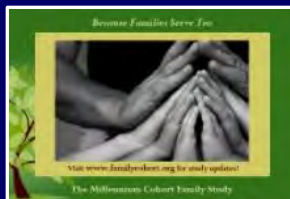
DEC

MARCH

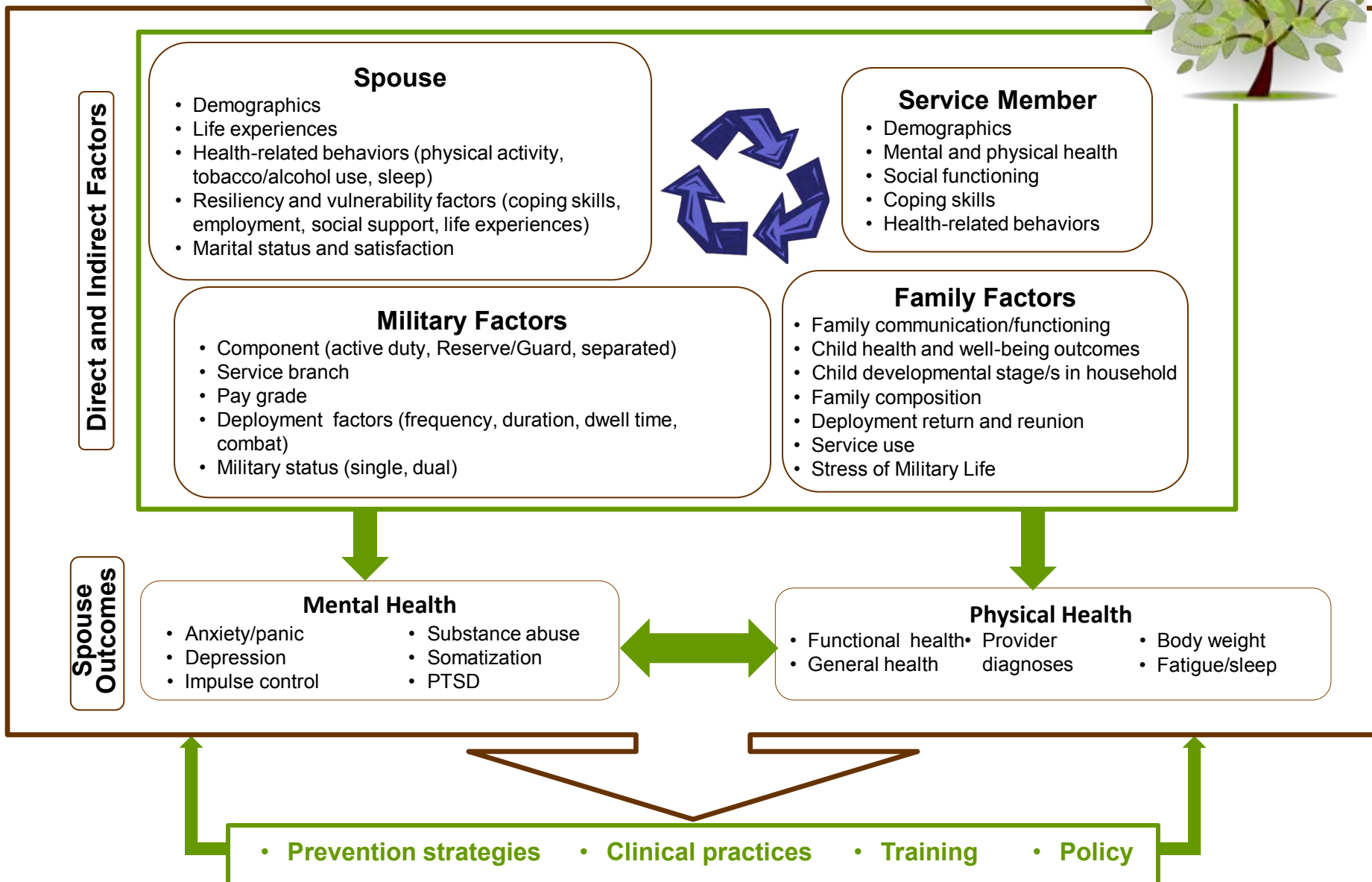
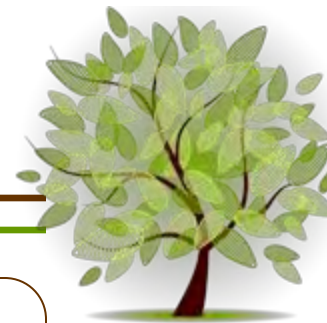
JUNE



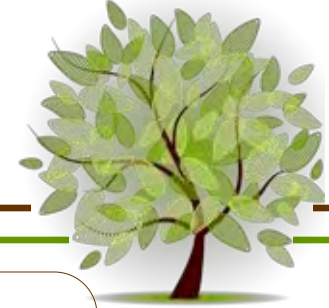
New Enrollee
P4 launch
with Family
invitation



Millennium Cohort Family Study: Spouse Model



Millennium Cohort Family Study: Child Model



Direct and Indirect Factors

Parental Factors

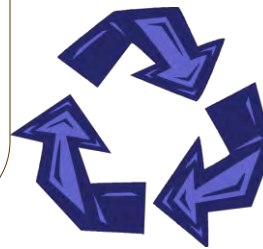
- Demographics
- Marital status (married, divorced, separated, widowed)
- Marital satisfaction
- Mental health
- Physical health
- Social functioning
- Health-related behaviors (physical activity, tobacco/alcohol use, sleep)
- Resiliency and vulnerability (coping skills, employment, social support, life experiences)

Military Factors

- Component (active duty, Reserve/Guard, separated)
- Service branch
- Rank/pay grade
- Deployment (frequency, duration, dwell time, combat)
- Military status (single, dual)

Family Factors

- Family communication/functioning
- Family composition
- Proximity to a base
- Service use
- Stress of military life
- Deployment return and reunion
- Child developmental stage/s in household



Child Outcomes

Behavioral

- Parent observations (close friends, TV consumption, stealing, attention, temper, lying, fighting, fears)
- Parent reported provider diagnoses (conduct disorder, oppositional defiant disorder)

Parent Reported Service Use

- Inpatient/outpatient counseling (self-help groups, day treatment, residential, individual therapy)
- State services (welfare, foster care, case-management, incarceration)
- School services (counseling, special education)

Health and Well-being

- Parent reported provider diagnosed psychological and physical conditions

- 
- 
- Prevention strategies
 - Clinical practices
 - Training
 - Policy

Complementary Data Sources

Civilian Spouse*

Civilian Inpatient /
Outpatient Care &
Behavioral Health



Military Inpatient and
Outpatient Care

Pharmacologic
Data



Medical History



Mortality Data

*Spouses of Active Duty service members

Service Member



Survey Data



Demographic Data



Recruit Assessment Program



Military Inpatient and Outpatient Care



Civilian Inpatient and
Outpatient Care



Pharmacologic Data



Medical History



Deployment Data



Environmental Exposure Data



Mortality Data



Immunization Data



Department of Veterans Affairs

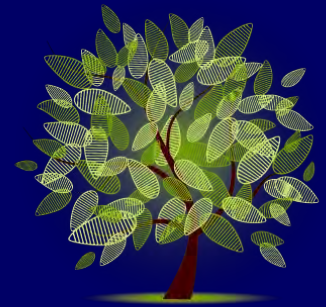
Preliminary Deliverable and Dissemination Plan



Millennium Cohort
Family Study

- Years 1/2: Standard methodological studies
 - * Non-response analyses
 - Panel 4, Spouse Referral, Spouse
 - Early vs. Late
 - * Comparability at baseline of deployed vs. non-deployed groups
 - * Internal consistency reliability and dimensionality of multi-item scales
 - * Validation of self-reported medical diagnoses with medical records
- Years 2/3: “Main findings” manuscripts
 - * Spouse stressors, health, mental health, and functioning (non-deployed vs. non-combat vs. combat, readjustment issues vs. absence of readjustment issues, service member vs. spouse)
 - * Relationship quality (non-deployed vs. non-combat vs. combat, readjustment issues vs. absence of readjustment issues)
 - * Health, mental health, and functioning of children (spouse report of Sx and Dx and service use information) by deployment group (non-deployed vs. non-combat vs. combat) and adjustment (readjustment issues vs. absence of readjustment issues)
- Years 4/5: Conceptually-driven manuscripts
 - * Mediators and moderators of relationships of exposures and outcomes
 - * SEM models of hypothesized causal factors
 - * Data visualization (GIS)

Current Challenges and Solutions



Millennium Cohort
Family Study

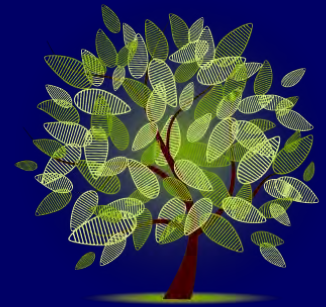
➤ Challenges

- Response Rates
 - * Panel 4 completions
 - * Service member referrals
 - * Spouse completion

➤ Solutions

- New print marketing campaigns that focus on the couple (vs. spouse or service member only)
- Getting better email addresses for Panel 4 sample
- Playing on the “norm of reciprocity” by including a free gift with invitation for Panel 4
- Press releases
- Using QR codes on print mail to link to videos/websites
- Automated phone calls
- Accelerated email schedule
- Contact services to convey legitimacy of studies

Study Progress to Date



Millennium Cohort
Family Study

- OMB approval
- Survey launched
 - Panel 4 Married Response Rate
 - Invited
 - Completed
- Marketing materials being developed and tested
- HTML emails generated
- New incentives tested
- Family study secure website developed and tested
- Web-based questionnaire developed, tested, and implemented
- Study aims and design presented and critically discussed at multiple professional meetings
- Study analysis and dissemination plans under development
- Data dictionary created
- Collaboration protocol developed
- Scientific Review Panel met and follow-up planned for October 2011
- Cognitive interviews completed and report under way
- Stakeholder interviews underway
- Focus groups HRPO approved

Important Subpopulations

- Reserve and National Guard
 - Proximity to and use of available services associated with marital satisfaction, family dynamics, parent perception of child distress
- Dual military families
 - Deployment lengths, frequency of relocation
- Single parent families
 - Change in family dynamics, impact on psychological well-being, parent perception of child distress, use of services
- Service utilization among male spouses

Population Projections for 20-50 Year Study

Figure 1. Family Study Population Projections

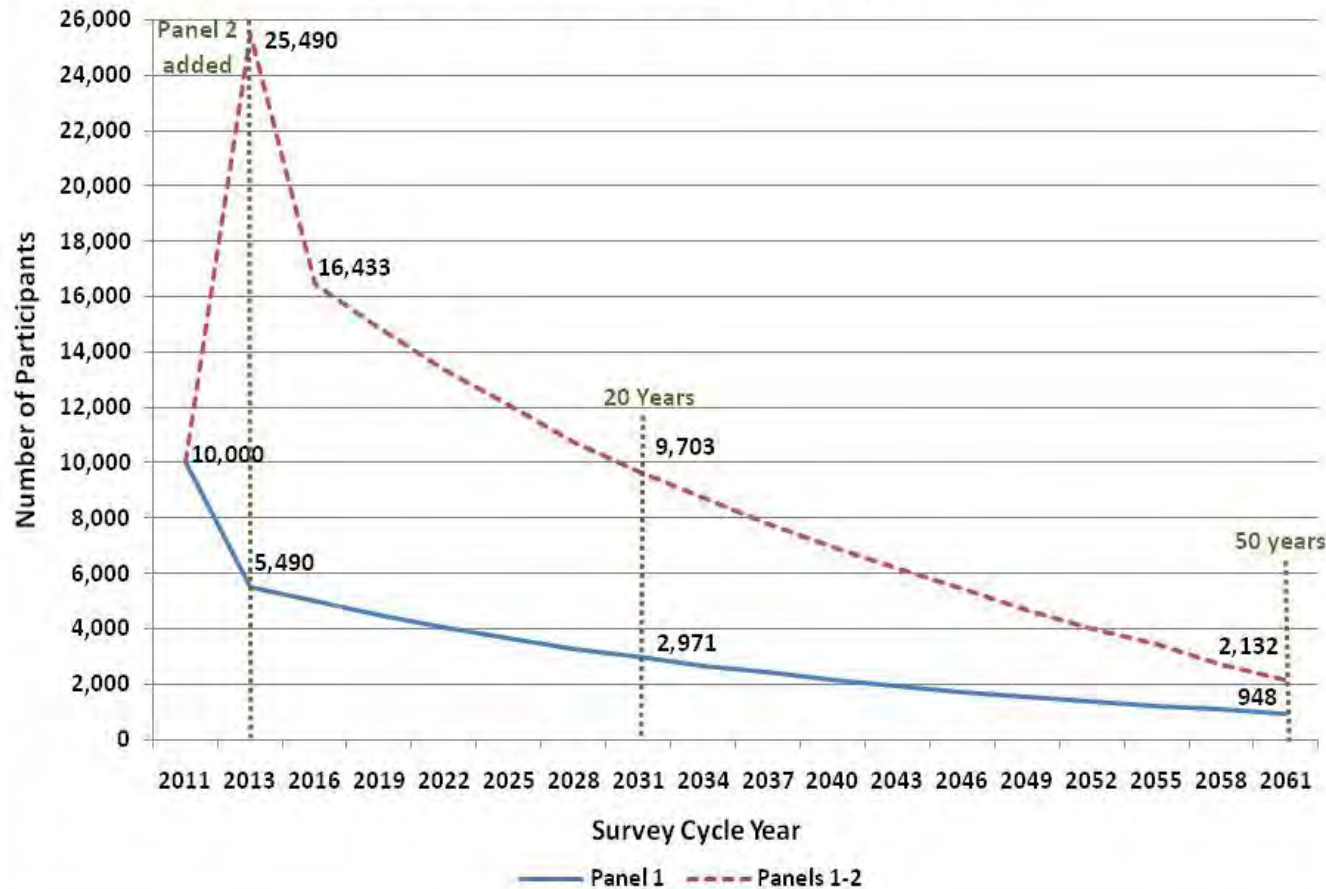
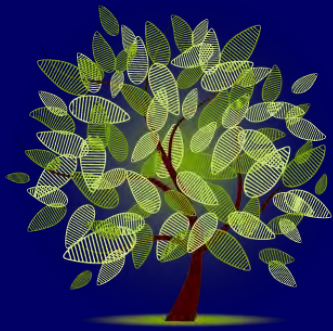


Figure 1 illustrates two population projections: (1) follow Panel 1 (spouses of MilCohort Panel 4) until 2031 or 2061; (2) follow Panel 1 in addition to a larger population-based Panel 2 launched in 2013 (spouses of MilCohort Panel 5) until 2031 or 2061



Millennium Cohort
Family Study

Scientific Review Panel

Sanela Dursun, PhD
Canadian Department of National Defense

Shirley Glynn, PhD
US Department of Veterans Affairs, Greater Los Angeles

Michael Hurlburt, PhD
University of Southern California

Christine Johnson, MD, FAAP, CDR, MC, USN
Naval Medical Center San Diego

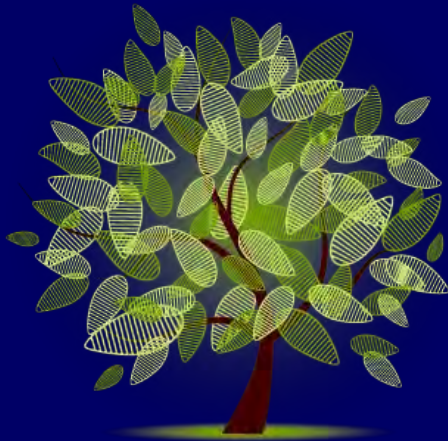
Patricia Lester, PhD
University of California, Los Angeles

Larry Palinkas, PhD
University of Southern California

Penelope Trickett, PhD
University of Southern California

Jennifer Vasterling, PhD
US Department of Veterans Affairs, Boston

Appendix C: IPR Presentation 2012



Millennium Cohort
Family Study

Award Number (Abt): W81XWH-09-C-0101
Award Date: 28 Sep 2009
Award Number (NHRC): W911QY-09-D-0040 0006
Award Date: 29 Sept 2009 – 30 Sept 2013
COR: MAJ Pedro Bonilla-Vazquez
Project Officer: Ms. Sherri Pearson
Portfolio Mgrs: COL Carl Castro
Kate Nassauer, PhD

Co-PI: Nancy F. Crum-Cianflone, MD, MPH
Naval Health Research Center

Co-PI: John Fairbank, PhD
Duke University

Co-PI: Charles Marmar, MD
New York University

Co-PI: William Schlenger, PhD
Abt Associates and Duke University

Co-I: Hope McMaster, PhD (Presenter)
Naval Health Research Center



NHRC

Nancy Crum-Cianflone, MD, MPH, Co-PI

Hope McMaster, PhD, Psychologist, Co-I

Cynthia LeardMann, MPH, Statistician

Isabel Jacobson, MPH, Statistician

Lt Col Nisara Granado, Epidemiologist

Kelly Jones, MPH, Data Analyst

Amber Seelig, MPH, Data Analyst

Kari Sausedo, MA, Study Coordinator

Beverly Sheppard, Assistant Coordinator

William Lee, IT Specialist

Gordon Lynch, Web Developer

Steven Speigle, Data Manager

Jim Whitmer, Data Manager

Roy Nesbitt, MFA, Marketing Specialist

Michelle Linfesty, Director of Operations

Toni Rush, MPH, Data Analyst*

Raechel Del Rosario, MPH, Study Coordinator*



Abt

William Schlenger, PhD, Co-PI

Doug Fuller, PhD, Sociologist

Duke

John Fairbank, PhD, Co-PI

Ellen Gerrity, PhD

Lisa Amaya-Jackson, MD, MPH

Ernestine Briggs-King, PhD

Robert Lee, MA, MS, Data Analyst

NYU

Charles Marmar, MD, Co-PI

Survey Consultant

Donald Dillman, PhD

Washington State University

*Abt employees located at NHRC

Family Study Background and Rationale

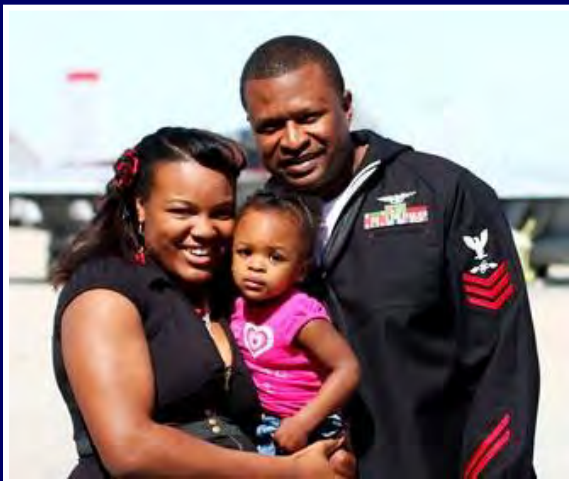


- **Little is known about deployment-related outcomes for spouses and other family members**
- **DoD's Mental Health Task Force recommendations:**
 - **Research on the processes of post-deployment adjustment for family members**
 - **Research on children who have been separated from their parents by deployment, including their access to support for psychological health issues**
- **A gap analysis by the Military Operational Medicine Research Program (MOMRP) identified studies of military families as a high priority issue**

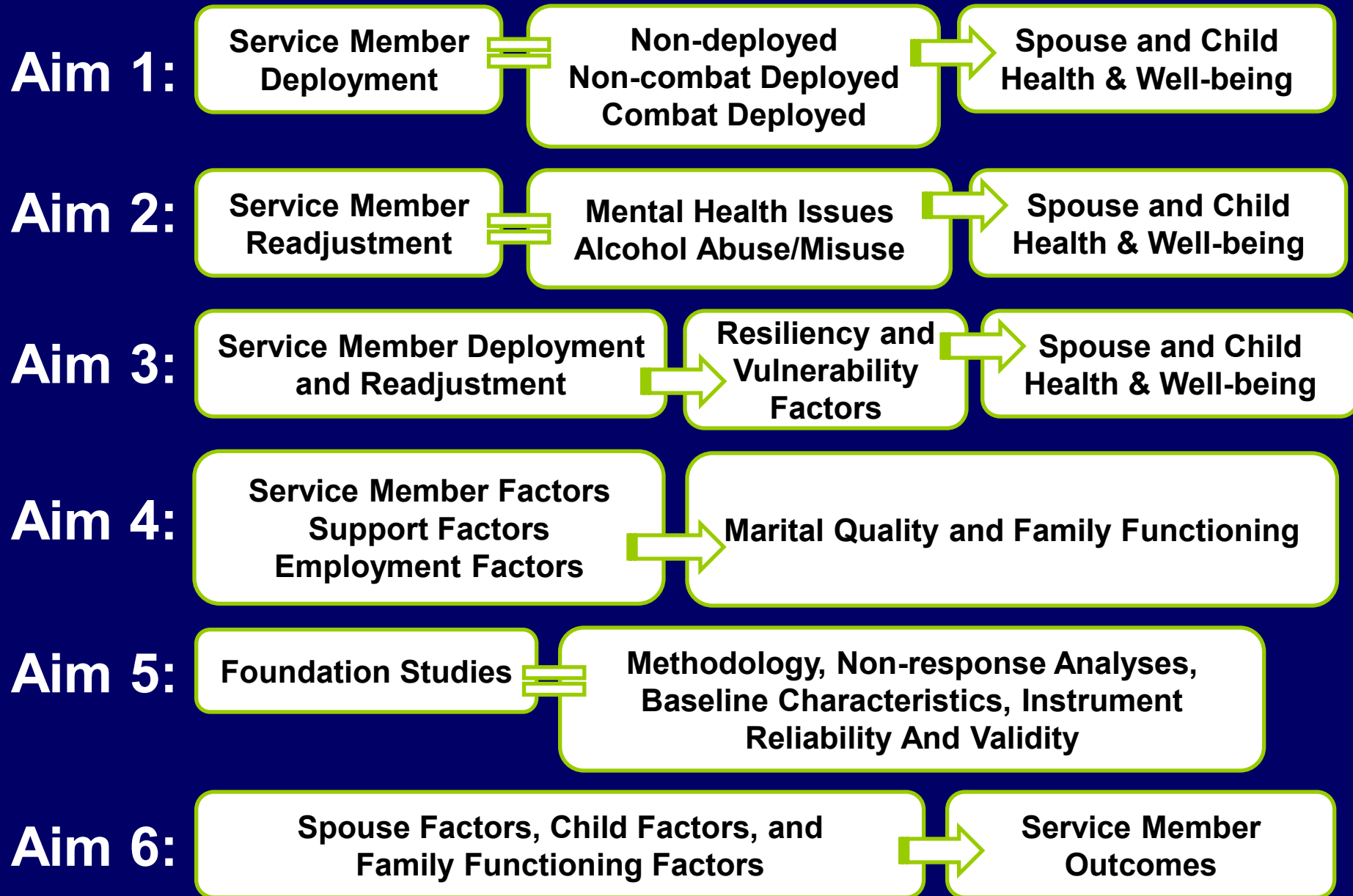


Overall Study Objective

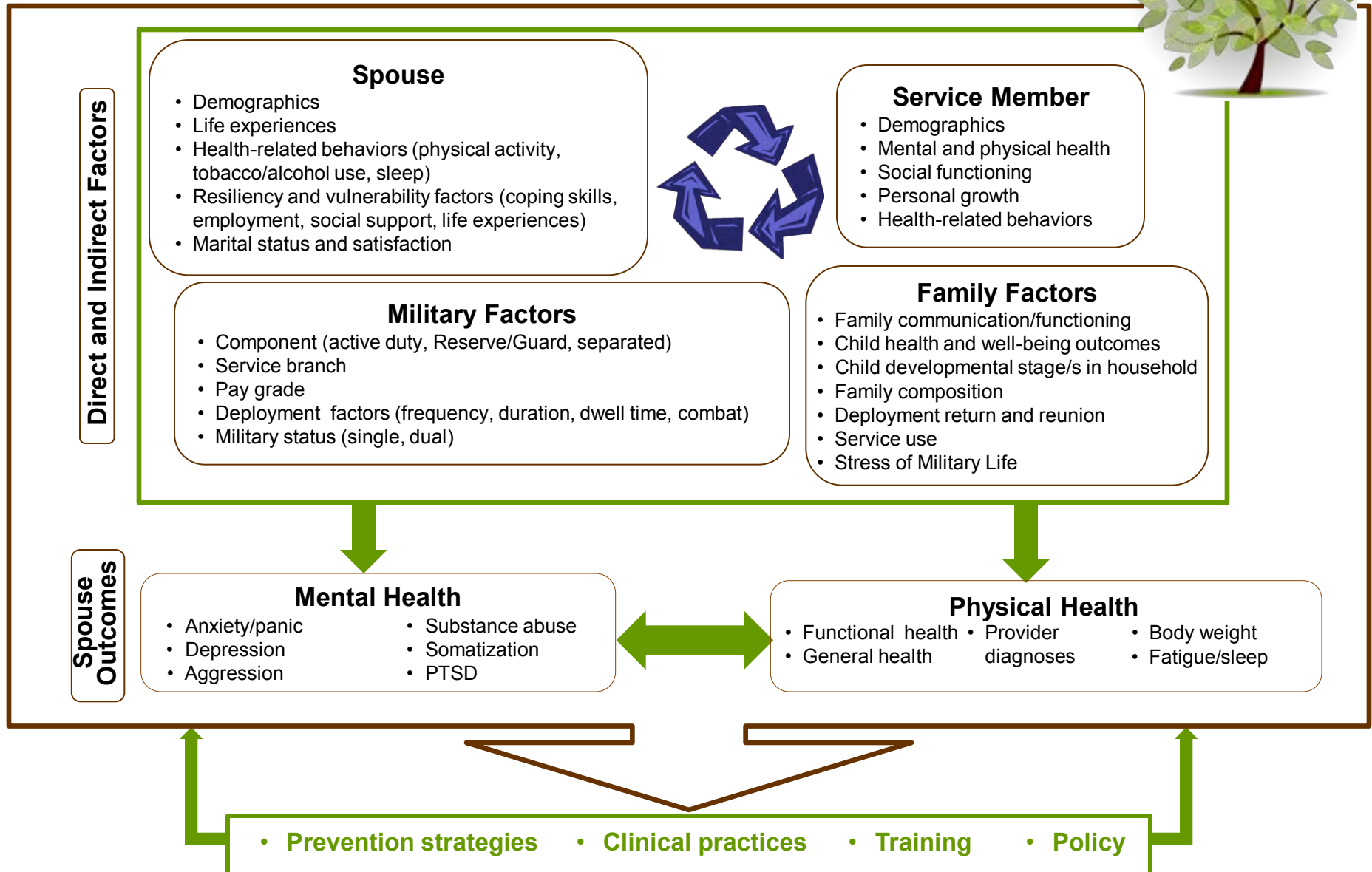
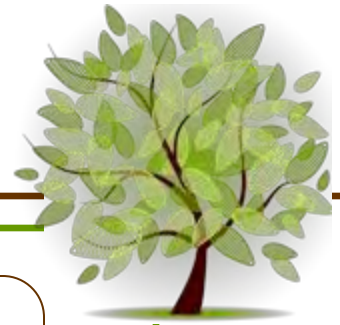
- **To determine if, and how, deployment experiences and service member readjustment issues impact family health and well-being**
 - **To provide strategic evidence based policy recommendations that inform leadership and guide interventions**



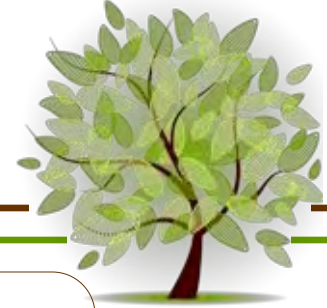
Research Aims



2011-12 Family Survey: Spouse Model



2011-12 Family Study: Child Model



Direct and Indirect Factors

Parental Factors

- Demographics
- Marital status (married, divorced, separated, widowed)
- Marital satisfaction
- Mental health
- Physical health
- Social functioning
- Health-related behaviors (physical activity, tobacco/alcohol use, sleep)
- Resiliency and vulnerability (coping skills, employment, social support, life experiences)

Military Factors

- Component (active duty, Reserve/Guard, separated)
- Service branch
- Rank/pay grade
- Deployment (frequency, duration, dwell time, combat)
- Military status (single, dual)

Family Factors

- Family communication/functioning
- Family composition
- Proximity to a base
- Service use
- Stress of military life
- Deployment return and reunion
- Child developmental stage/s in household



Child Outcomes

Behavioral

- Parent observations (close friends, TV consumption, stealing, attention, temper, lying, fighting, fears)
- Parent reported provider diagnoses (conduct disorder, oppositional defiant disorder)

Parent Reported Service Use

- Inpatient/outpatient counseling (self-help groups, day treatment, residential, individual therapy)
- State services (welfare, foster care, case-management, incarceration)
- School services (counseling, special education)

Health and Well-being

- Parent reported provider diagnosed psychological and physical conditions

- 
- 
- Prevention strategies
 - Clinical practices
 - Training
 - Policy

Complementary Data Sources

Civilian Spouse*

Civilian Inpatient /
Outpatient Care &
Behavioral Health



Military Inpatient and
Outpatient Care

Pharmacologic
Data



Medical History



Mortality Data

Service Member



Survey Data



Demographic Data



Recruit Assessment Program



Military Inpatient and Outpatient Care



Civilian Inpatient and
Outpatient Care



Pharmacologic Data



Medical History



Deployment Data



Environmental Exposure Data



Mortality Data



Immunization Data



Department of Veterans Affairs

*Spouses of Active Duty service members

Design and Methodology: Leveraging Existing Efforts



- The **Millennium Cohort Study** was launched in 2001 in collaboration with all US military services and the Department of Veterans Affairs, prior to the conflicts in Iraq and Afghanistan
- The **Millennium Cohort Study** has enrolled more than 150,000 service members and is currently enrolling a 4th panel of new participants
- Cohort members are surveyed every ~3 years to examine how deployment and other military occupational experiences affect the long-term physical and mental health of military members and veterans

- ✦ 57% deployed in support of the operations in Iraq and Afghanistan
- ✦ 47% Reserve Guard
- ✦ 36% have separated from the military but continue to participate

Panel 1: 77,000

Panel 2: 31,100

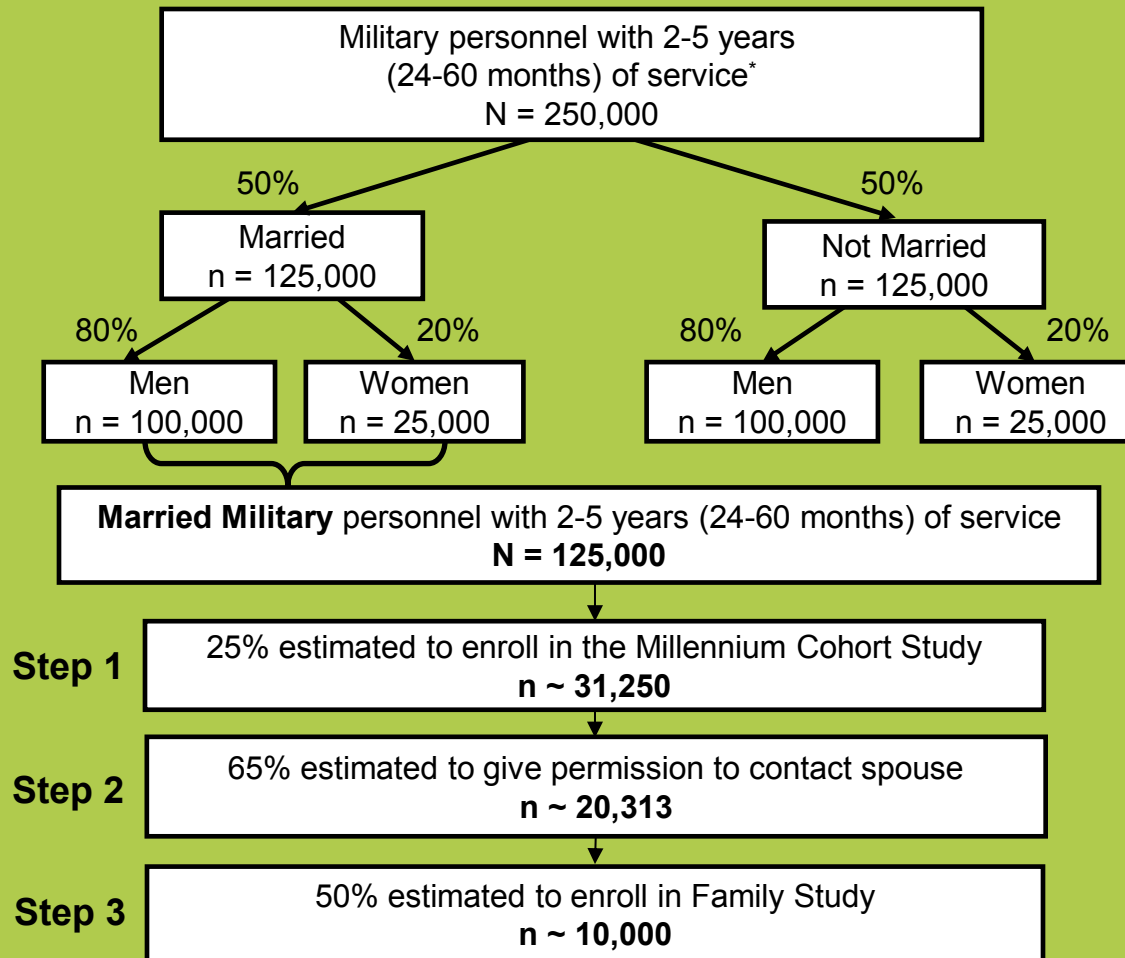
Panel 3: 43,000

Panel 4: Enrolling
(~62,000)

Design and Methodology: Sample



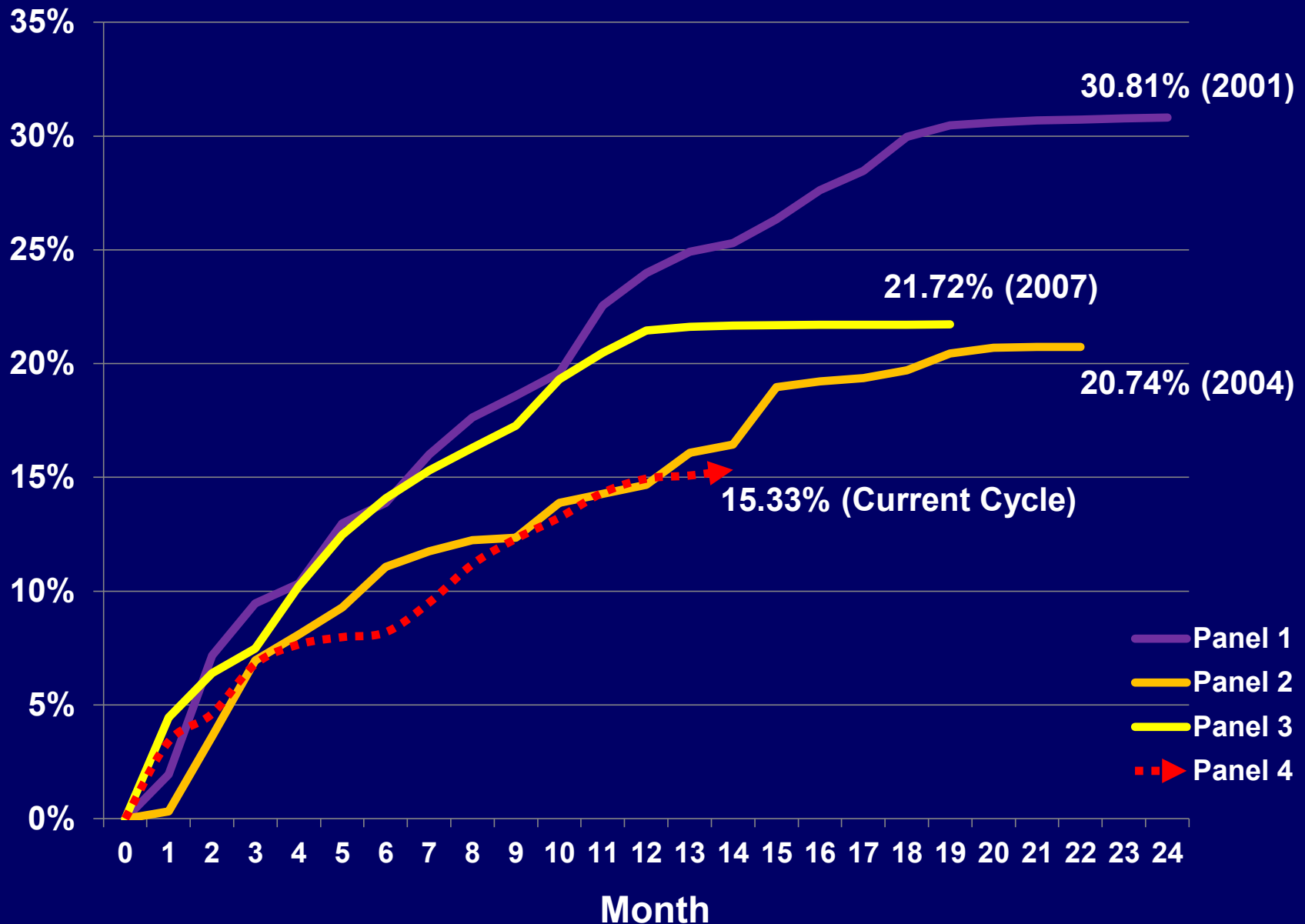
Millennium Cohort
Family Study



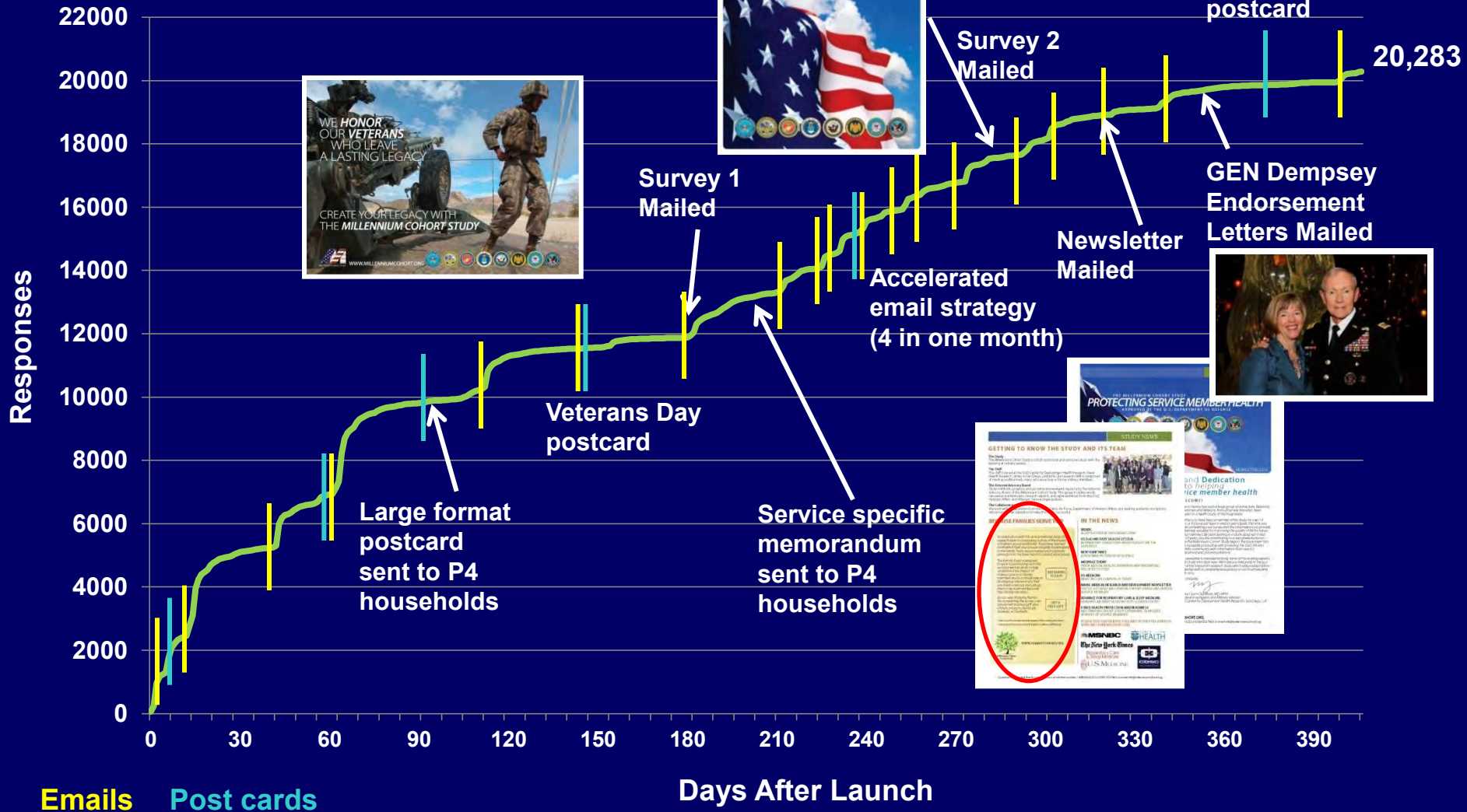
Panel 4 of the
**Millennium Cohort
Study** includes a
probability sample
of military service
members (active
duty, reserve, and
National Guard)

*Oversampling for women and married service members

Millennium Cohort: Baseline Response by Month (2001, 2004, 2007, & Current Cycle)



Married Panel 4 Response

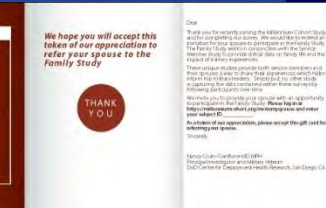
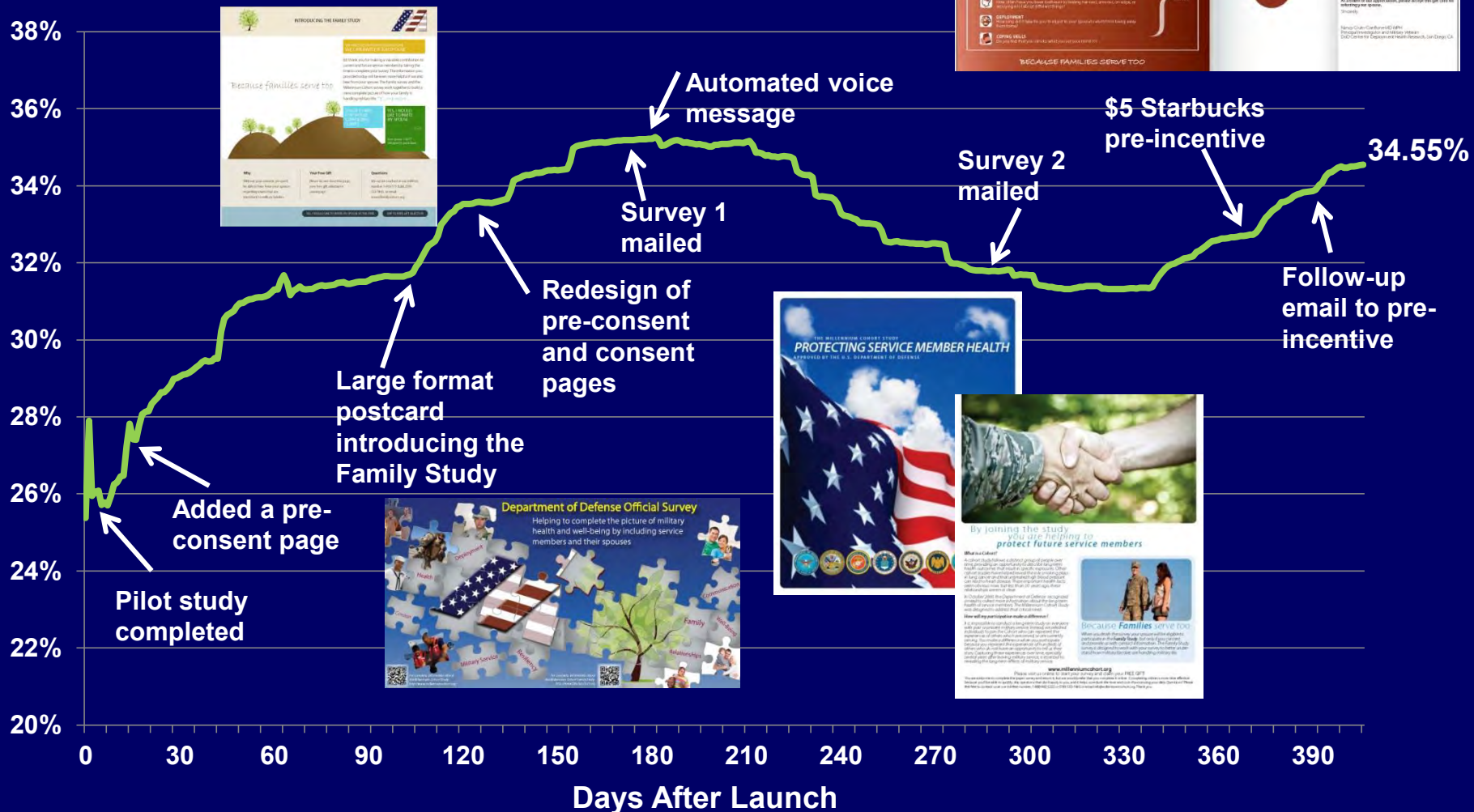


Step 2

Service Member Referral Rate

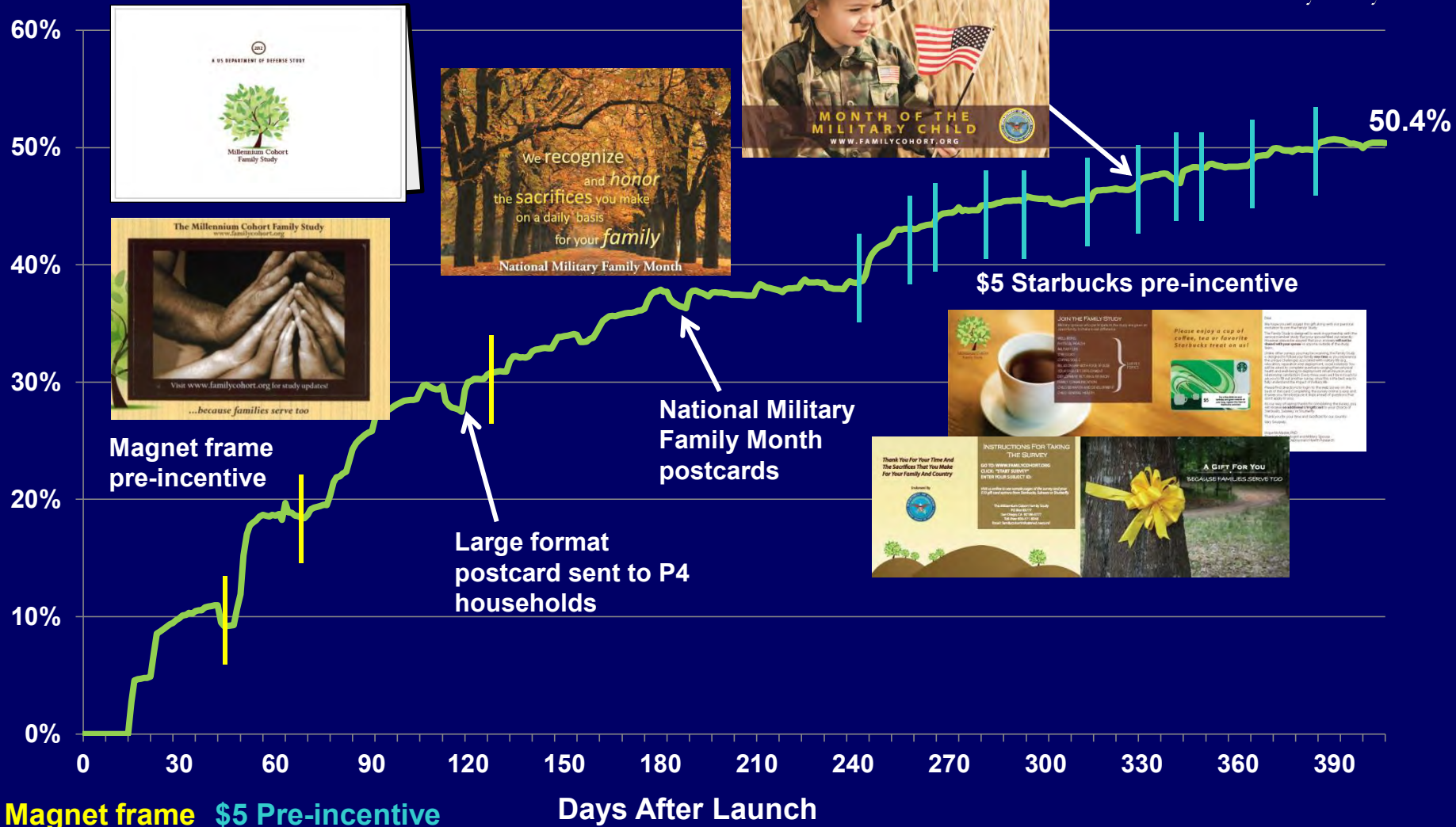
– 65% estimated to refer spouse

» 7,063 referrals



Step 3 Spouse Response Rates

- 50% estimated to respond
- » 3,581 spouses enrolled



New Approach: Reducing Bias by Inviting Spouses Without Referral

➤ Eligibility:

Spouses of Panel 4 married
responders that “skip” the referral
page OR complete a paper survey

□ ~10,000 spouses and increasing

➤ Modified Survey:

Spouses that are not referred by
the service member will not view
items that require secondary
consent

□ “Your spouse’s behavior”

➤ No Email Address:

□ Mail only marketing campaign

Your perception of your spouse's behavior is very important to the study.

Please be assured that your answers will NEVER be shared with your spouse or your spouse's supervisors.

How often have you observed these behaviors **IN YOUR SPOUSE** within the **PAST MONTH** (or the most recent month your spouse was home) ?

	Never	Seldom	Sometimes	Often	Very often
Sudden bad memories/flashbacks	☐	☐	☐	☐	☐
Spaces out	☐	☐	☐	☐	☐
Lack of interest in sex/intimacy	☐	☐	☐	☐	☐
Difficulty sharing thoughts and feelings	☐	☐	☐	☐	☐
Avoids former interests/activities	☐	☐	☐	☐	☐
Hyper-alert/startles easily	☐	☐	☐	☐	☐
Anxious/nervous	☐	☐	☐	☐	☐
Fearful	☐	☐	☐	☐	☐
Withdrawn/detached	☐	☐	☐	☐	☐
Irritable	☐	☐	☐	☐	☐
Quick temper	☐	☐	☐	☐	☐
Secretive	☐	☐	☐	☐	☐
Difficulty falling or staying asleep	☐	☐	☐	☐	☐
Nightmares or bad dreams	☐	☐	☐	☐	☐
Taking more risks with his/her safety	☐	☐	☐	☐	☐
Lack of interest in parenting/children (skip to the next question if you don't have children)	☐	☐	☐	☐	☐

Within the **PAST MONTH** (or the most recent month your spouse was home) how **DIFFICULT** has it been for **YOUR SPOUSE** to do the following:

	Not at all	Somewhat	Very	Extremely
Do his/her work	☐	☐	☐	☐
Take care of things at home	☐	☐	☐	☐
Get along with other people	☐	☐	☐	☐
Fulfill supporting role as spouse/parent	☐	☐	☐	☐

In your opinion, does **YOUR SPOUSE** consume too much alcohol in a typical week when he/she is at home?

☐ No
☐ Yes

Revised Participant Contact: Spouses With and Without Referral



- **Provide paper survey option**
- **Randomize spouses without referrals (known sample of ~10,000) to Mail Approach A or B**
- **Use Mail Approach A with email augmentation for referred spouses (rolling sample)**

Group A: Push to Web

1. **Magnet picture frame and card mailer**
2. **Postcard reminder**
3. **Sample survey with \$5 card**
4. **Letter reminder**
5. **Paper survey sent FedEx or USPS priority**
6. **Postcard reminder**

Group B: Push to Paper

1. **Paper survey with magnet picture frame included**
2. **Postcard reminder**
3. **Paper survey with \$5 card**
4. **Letter reminder**
5. **Paper survey sent FedEx or USPS priority**
6. **Postcard reminder**

First Glance at the Data: Background (N = 3527)

	n*	%†
Sex		
Male	445	13%
Female	3077	87%
Race/ethnicity		
White, non-Hispanic	2863	82%
Black, non-Hispanic	129	4%
Asian/Pacific Islander	146	4%
Hispanic	269	8%
Native American	30	1%
Other	72	2%
Age (years); mean = 28, sd = 6		
17-24	765	22%
25-34	2295	66%
35-44	344	10%
>44	94	3%

Note: Data presented have not been cleaned, pulled July 24, 2012

*Total population may vary by variable due to missing data

†Percentages may not sum to 100 due to rounding

	n*	%†
Education		
High school or less	443	13%
Some college, no degree	1178	33%
Associates degree	454	13%
Bachelor's degree	1025	29%
Master's or higher degree	420	12%
Employment		
Full-time or part-time job	1542	44%
Not employed (inc retired, disabled)	504	14%
Homemaker	1207	34%
Other	261	7%
Spouse ever served in US military		
No	2932	83%
Yes	588	17%
Sponsor deployed since 2001		
No	967	27%
Yes	2551	73%

Spouse = Family Study participant

Sponsor = Millennium Cohort Panel 4 participant

First Glance at the Data: Family Background (N = 3527)



Millennium Cohort
Family Study

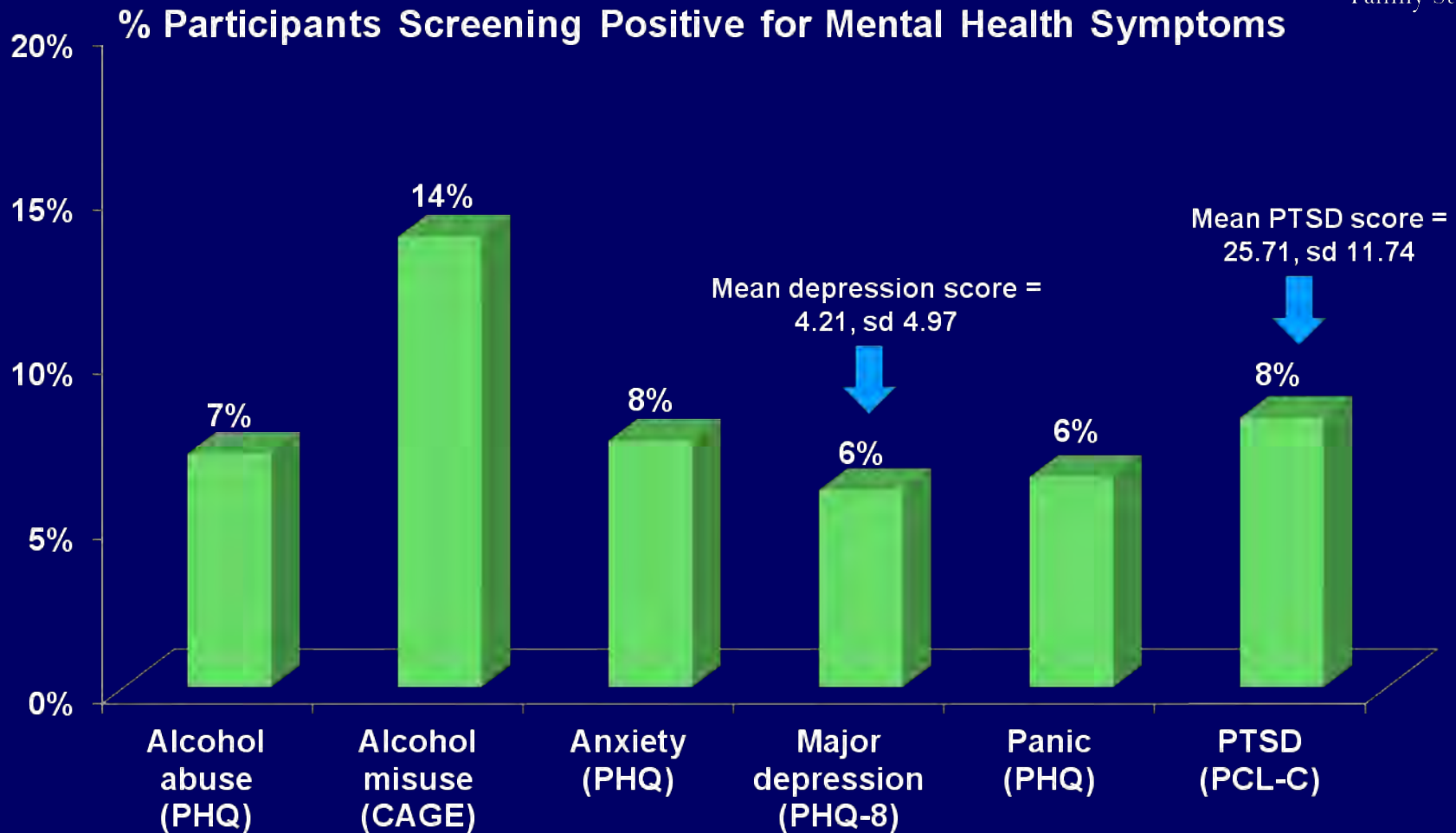
	n*	%†
Years married		
0	2	0.1%
<2	590	17%
2-5	1970	57%
6-10	663	19%
11-15	132	4%
>15	94	3%
# Children with prior/current relationship; mean = 2, sd = 1		
No	1360	39%
Yes	2160	63%
Child age (years); mean = 5, sd = 4		
≤2	1699	45%
3-5	928	25%
6-11	759	20%
12-14	173	5%
≥15	192	5%

Note: Data presented have not
been fully cleaned -
pulled July 24, 2012

*Total population may vary by
variable due to missing data

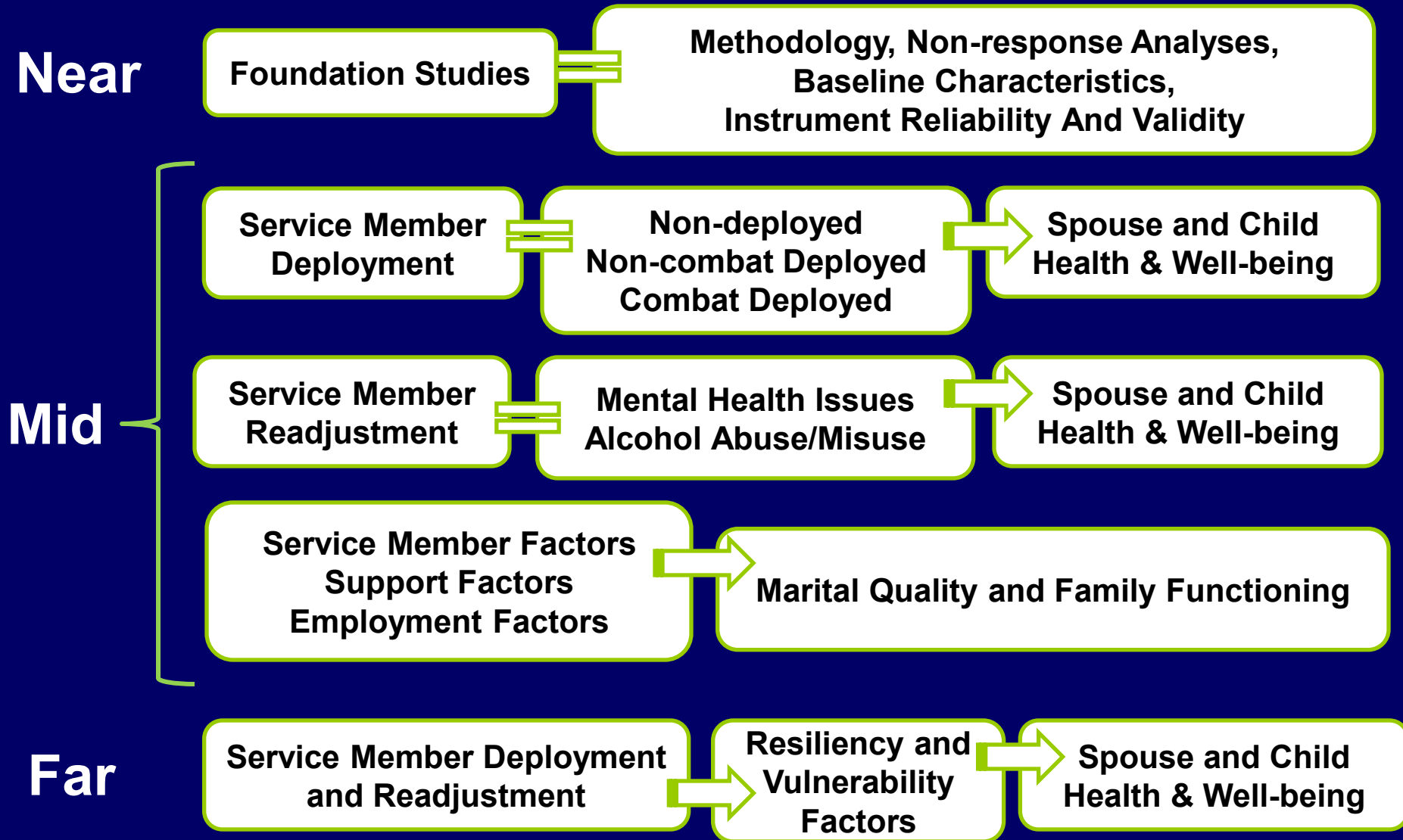
†Percentages may not sum to
100 due to rounding

First Glance at the Data: Mental Health (N = 1157*)

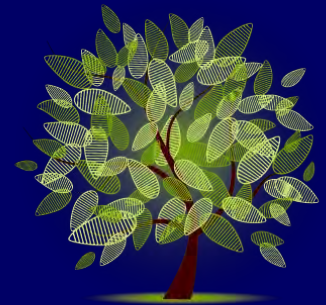


Note: Preliminary data pulled December 2011

Deliverables and Dissemination Plan



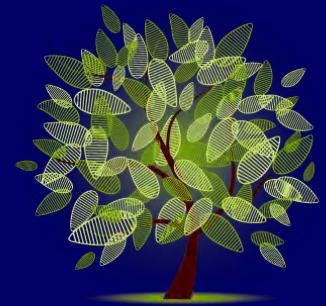
Study Progress to Date



Millennium Cohort
Family Study

1. **OMB approval**
2. **Survey launched**
3. **Ongoing marketing material development**
4. **Ongoing pre- and post-incentive implementation**
5. **Family study secure website developed and updated**
6. **Web-based questionnaire developed, tested, and implemented**
7. **Study aims and design presented and critically discussed at multiple professional meetings**
8. **Conceptual models created**
9. **Data dictionary created**
10. **Collaboration protocol developed**

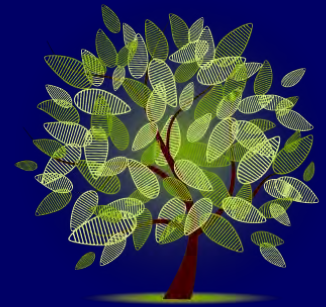
Study Progress to Date



Millennium Cohort
Family Study

- 11. Scientific Review Panel meetings in 2010, 2011, and 2012**
- 12. Cognitive interviews, stakeholder interviews, and focus groups completed**
- 13. Study Aims and Objectives outlined and approved**
- 14. Preliminary data examined**
- 15. Marketing specialist and survey methodologist hired**
- 16. Additional study staff hired (study coordinator and data analyst)**
- 17. 2014 follow-up survey developed and IRB approved**
- 18. Paper survey being developed**
- 19. New participant contact procedures developed and experimental design implemented**

Current Challenges and Solutions: Response and Referral Rates



Millennium Cohort
Family Study

➤ Panel 4 married completions - 20,283

☐ Solutions

- ✓ \$5 pre-incentive for P4 incompletes
- ✓ General Dempsey and Deanie Dempsey endorsement letters
- ✓ Work with service branches to reduce blocking
- ✓ Accelerated email schedule
- ✓ Automated phone calls

➤ Service member referrals – 7,063

☐ Solutions

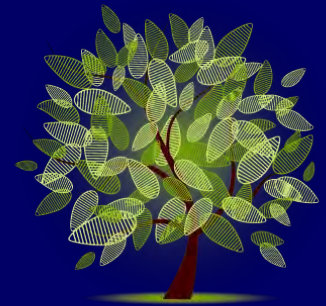
- ✓ \$5 pre-incentive for referral from P4 member
- ✓ Pre-notification of Family Study
- ✓ Email request for referral following survey completion

➤ Spouse completion – 3,581

☐ Solutions

- ✓ Contact spouses without referral from service member
- ✓ \$5 pre-incentives to spouses
- ✓ Offer paper mode of response in addition to web response
- ✓ Press releases

Current Challenges and Solutions: Possible Non-Response Bias



Millennium Cohort
Family Study

➤ Detecting Non-response Bias

- Response rate is not a good predictor of non-response bias in probability sample surveys
- The correlation between response propensity and a study's outcome variables is a good measure of response bias

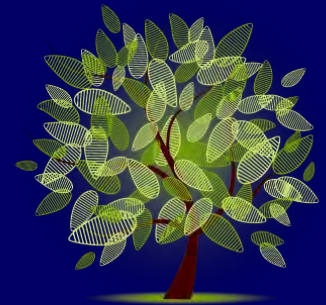
➤ Bias is not necessarily study wide

- Because bias is identified in the covariance matrix, it is outcome specific

➤ Statistical Approaches

- There are multiple approaches to adjusting statistically for bias when it is detected
- The most comprehensive approach is weighting the data by the inverse of each participant's response propensity

Current Challenges and Solutions: Non-Response Bias – Paradigm Shift



Millennium Cohort
Family Study

➤ **Solution:**

❑ **Data Analyses in Support of Adjusting for Bias**

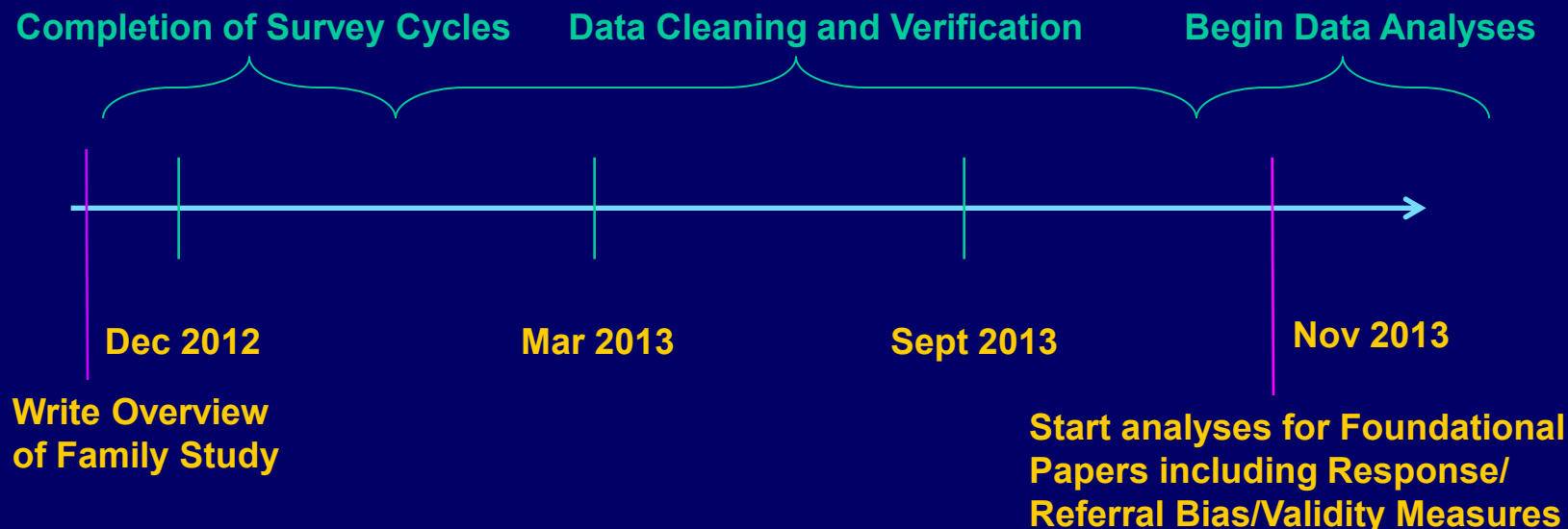
Step 1: Identify bias by correlating propensity scores with important outcomes

Step 2: When bias is detected, outcome-specific weights adjusting for the bias are required

Step 3: The weights for each participant are calculated as the inverse of that participant's propensity score

Future Plans*

- **Completion of Survey Cycle – Early 2013**
- **Data Cleaning – Spring-Summer 2013**
- **Begin Analyses**
 - Foundational Studies
 - Family Study Objectives
 - Millennium Cohort Study Linkage

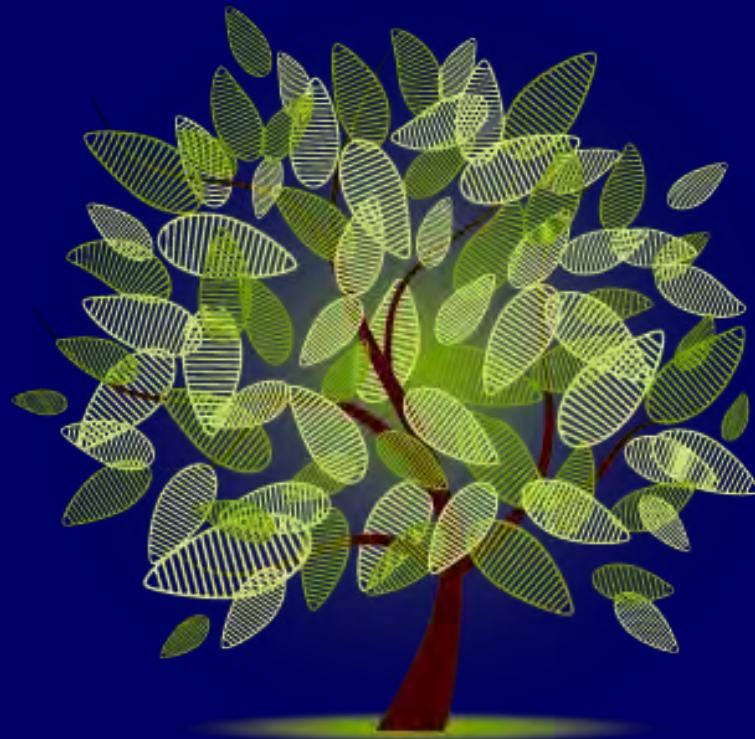


*Approximate timeline for next steps

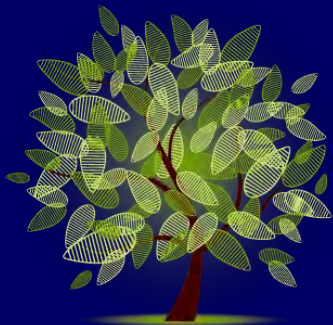
Future Plans*



- **Continue longitudinal follow-up**
 - **Survey spouses every 3 years with cycle corresponding to the Millennium Cohort Study**
- **Consider enrollment of new Panel in 2014-2015**
 - **Use potential Panel #5 for Millennium Cohort to enroll additional spouses**
 - **Enroll spouses of Panels 1-3**
- **Consider long-term follow-up of spouses similar to service members (20-60 years)**
 - **Investigate lifelong health outcomes of the family**
 - **Study long-lasting effects of military life**
 - **Evaluate impact on families from future conflicts**



Millennium Cohort
Family Study



Millennium Cohort
Family Study

Scientific Review Panel

Sanela Dursun, PhD

Canadian Department of National Defense

Shirley Glynn, PhD

US Department of Veterans Affairs, Greater Los Angeles

Michael Hurlburt, PhD

University of Southern California

Christine Johnson, MD, CDR, MC, USN

Naval Medical Center San Diego

Patricia Lester, MD

University of California, Los Angeles

Larry Palinkas, PhD

University of Southern California

Penelope Trickett, PhD

University of Southern California

Jennifer Vasterling, PhD

US Department of Veterans Affairs, Boston

Appendix D: 2014 Family Study Panel 1 Wave 2 Survey



FAMILY STUDY FOLLOW-UP SURVEY 2014-15

The web-survey uses numerous skip patterns and allows for personalization of questions. By tailoring the survey to each participant's particular situation, we hope to increase the quality of the data collected and to enhance the user experience.

This paper survey was designed to provide the study team with an operational document, and is not intended to be completed by participants or to serve as a substitute for the experience of completing the web-survey.

BACKGROUND

Before we begin, we would like to ask you some background questions. These questions help to determine what sections of the survey are most appropriate for your situation.

Our records indicate that your name is **<family spouse name>**. Is this correct?

- ☐ No → Please contact the Family Study team, (link to toll free phone #, contact page)
☐ Yes Option to update last name only and continue with survey.

Q1. What is your date of birth?

	-		-	
MM		DD		YY

If incorrect match for DOB, then Study Team link is provided
"Please contact the study team to correct your DOB after you finish the survey". We don't want to stop them from completing the survey, but we will need to determine if the correct person took the survey. Perhaps add another alert at the end of the survey as well.

Q2. What is your current marital status with **<spouse name>**?

- ☐ Currently married

a. How many years have you been married to your spouse?

		years
----------------------	----------------------	-------

- ☐ Separated

a. In what month and year did you and your spouse separate?

MM		YY	

Force selection of month & year

Skip Military Life if separated more than a year & participant is NOT Active Duty

b. How many years have you been married to your spouse?

		years
----------------------	----------------------	-------

- ☐ Divorced

a. In what month and year did you and **<spouse name>** separate?

MM		YY	

Force selection of month & year

Skip Military Life if separated more than a year & participant is NOT Active Duty

O Not Applicable

b. In what month and year did you divorce? (Skip Military Life if divorced more than a year & participant is NOT Active Duty).

MM		YY	

Force selection of month & year

c. How many years were you married?

		years
----------------------	----------------------	-------

d. Are you remarried? If so, date remarried.

- ☐ No

- ☐ Yes →

MM		YY	

Prior to starting YOUR SPOUSE'S DEPLOYMENT and DEPLOYMENT RETURN AND REUNION, spouses separated/divorced will see a paragraph cautioning them that some of the questions in these sections may be difficult to answer because of their marital status and that they may skip questions that do not apply to their situation.

☐ Widowed (Skip question regarding spouse's employment, relationship with your spouse section, spouse's deployment section, deployment return and reunion section, and military life section.)

a. How many years were you married to your spouse?

--	--

 years

b. In what month and year did your spouse die?

--	--

 MM

--	--

 YY

c. Are you remarried? If so, date remarried:

☐ No

☐ Yes →

--	--

 MM

--	--

 YY

Q3. What is <spouse name>'s current military status?

- ☐ Active Duty
- ☐ Reserve
- ☐ National Guard
- ☐ Separated from Military service
(If selected: Did <spouse name> separate from the military in the past year?)
 - ☐ No **---Skip Military Life(except if Family participant is in military)**
 - ☐ Yes
- ☐ Retired
(If selected: Did <spouse name> retire from the military in the past year?)
 - ☐ No **---Skip Military Life(except if Family participant is in military)**
 - ☐ Yes
- ☐ Do not know **---Skip Military Life (except if Family participant is in military)**

Q4. In the last 3 years have you served in the US military?

- ☐ Yes, Active Duty
- ☐ Yes, Reserve or National Guard
- ☐ Yes, Both
- ☐ No **-----Skip Your Military Service**

If Family Spouse is Active Duty or Reserve/Guard, then have family spouse answer Military Life section, starting at Q115 regardless of SM spouse military status.

Q5. How many children do you have from your current relationship or prior relationship(s)?

(Please include biological, adopted, foster, and stepchildren of all ages)

If 0 then do NOT see next question and SKIP YOUR CHILDREN section

Dropdown range: 0-10

Q6. Please record the ages of your children oldest to youngest. [Question populated with # of children selected from previous question] **If all children are older than 17, SKIP YOUR CHILDREN section**

Child
1

.....

Child
10

Dropdown range: <1 year,

1 - 99

Q7. Including yourself, how many people currently reside in your household?

(Please include <spouse name> even if currently deployed, on temporary duty, or in training, if he/she lives and sleeps in your household the majority of the time. Please do not include anyone that does not live and sleep in your household the majority of the time, such as visiting relatives.)

adults

children (17 and younger)

Q8. Is English your primary language?

- ☐ No
- ☐ Yes

PHYSICAL HEALTH

We would like to begin by asking you some questions about your physical health, how you feel, and how well you are able to do your usual activities. These items allow us to assess changes in your general health over time and if those changes may be related to other information you provide.

Q9. How tall are you?

feet inches

Q10. What is your current weight?

(If you are currently pregnant, please provide your weight prior to your pregnancy.)

pounds

Q11. How much did you weigh a year ago?

(If you were pregnant a year ago, please indicate your weight before pregnancy.)

pounds

Q12. In general, would you say your health is:

- ☐ Excellent
- ☐ Very good
- ☐ Good
- ☐ Fair
- ☐ Poor

Q13. The following questions are about activities you might do during a typical day. Does your health now limit you in these activities? If so, how much?

	No, not limited at all	Yes, limited a little	Yes, limited a lot
Vigorous activities , such as running, lifting heavy objects, or participating in strenuous sports?	☐	☐	☐
Moderate activities , such as moving a table, pushing a vacuum cleaner, bowling, or playing golf?	☐	☐	☐
Lifting or carrying groceries?	☐	☐	☐
Climbing several flights of stairs?	☐	☐	☐
Climbing one flight of stairs?	☐	☐	☐
Bending, kneeling, or stooping?	☐	☐	☐
Walking more than a mile?	☐	☐	☐
Walking several blocks?	☐	☐	☐
Walking one block?	☐	☐	☐
Bathing or dressing yourself?	☐	☐	☐

Q14. During the past 4 weeks, have you had any of the following problems with your work or other regular daily activities as a result of your physical health?

	No, none of the time	Yes, a little of the time	Yes, some of the time	Yes, most of the time	Yes, all of the time
Cut down the amount of time you spent on work or other activities	☐	☐	☐	☐	☐
Accomplished less than you would like	☐	☐	☐	☐	☐
Were limited in the kind of work or other activities	☐	☐	☐	☐	☐
Had difficulty performing the work or other activities (for example, it took extra effort)	☐	☐	☐	☐	☐

Q15. During the past 4 weeks, how much bodily pain have you had?

- ☐ None
- ☐ Very mild
- ☐ Mild
- ☐ Moderate
- ☐ Severe
- ☐ Very severe

Q16. During the past 4 weeks, how much did pain interfere with your normal work (including both work outside the home and housework)?

- ☐ Not at all
- ☐ A little bit
- ☐ Moderately
- ☐ Quite a bit
- ☐ Extremely

Q17. In the last 12 months, did you use prescription only pain relievers (including any narcotics or medications such as Codeine, OxyContin, Percocet)?

- ☐ Never
- ☐ Less than 1 week
- ☐ 1-2 weeks
- ☐ 3-4 weeks
- ☐ More than 4 weeks

Q18. Are you currently taking any medicine for anxiety, depression, or stress?

- ☐ No
- ☐ Yes

Q19. During the past 4 weeks, how much have you been bothered by any of the following problems?

	Not Bothered	Bothered a little	Bothered a lot
Stomach pain	☐	☐	☐
Back pain	☐	☐	☐
Pain in your arms, legs, or joints (knees, hips, etc)	☐	☐	☐
Pain or problems during sexual intercourse	☐	☐	☐
Headaches	☐	☐	☐
Chest pain	☐	☐	☐
Dizziness	☐	☐	☐
Fainting spells	☐	☐	☐
Feeling your heart pound or race	☐	☐	☐
Shortness of breath	☐	☐	☐
Constipation, loose bowels, or diarrhea	☐	☐	☐
Nausea, gas, or indigestion	☐	☐	☐
Feeling tired or having low energy	☐	☐	☐
Trouble sleeping	☐	☐	☐
<u>Women only</u> : menstrual cramps or other problems with your periods	☐	☐	☐

Q20. In the last 3 years, has your doctor or other health professional told you that you have any of the following conditions?

				If yes, in what year were you first diagnosed?	Mark here if ever hospitalized for the condition *
a) Hypertension (high blood pressure)	☐ No	☐ Yes	→		☐ Hospitalized
b) High cholesterol requiring medication	☐ No	☐ Yes	→		☐ Hospitalized
c) Coronary heart disease	☐ No	☐ Yes	→		☐ Hospitalized
d) Heart attack	☐ No	☐ Yes	→		☐ Hospitalized
e) Angina (chest pain)	☐ No	☐ Yes	→		☐ Hospitalized
f) Any other heart condition (please specify)	☐ No	☐ Yes	→		☐ Hospitalized
g) Asthma	☐ No	☐ Yes	→		☐ Hospitalized
h) Diabetes or sugar diabetes	☐ No	☐ Yes	→		☐ Hospitalized
i) Fibromyalgia	☐ No	☐ Yes	→		☐ Hospitalized
j) Rheumatoid arthritis	☐ No	☐ Yes	→		☐ Hospitalized
k) Lupus	☐ No	☐ Yes	→		☐ Hospitalized
l) Stomach, duodenal, or peptic ulcer	☐ No	☐ Yes	→		☐ Hospitalized
m) Acid reflux / gastroesophageal reflux disease requiring medication	☐ No	☐ Yes	→		☐ Hospitalized

* Hospitalized means that you were admitted to the hospital for treatment. Please do not check if you went to the ER, but were not admitted to the hospital.

Q20 (continued). In the last 3 years, has your doctor or other health professional told you that you have any of the following conditions?

				If yes, in what year were you first diagnosed?	Mark here if ever hospitalized for the condition *
n) Migraine headaches	☐ No	☐ Yes	→		☐ Hospitalized
o) Stroke	☐ No	☐ Yes	→		☐ Hospitalized
p) Sleep apnea	☐ No	☐ Yes	→		☐ Hospitalized
q) Thyroid condition other than cancer	☐ No	☐ Yes	→		☐ Hospitalized
r) Cancer (please specify) 	☐ No	☐ Yes	→		☐ Hospitalized
s) Chronic fatigue syndrome	☐ No	☐ Yes	→		☐ Hospitalized
t) Depression	☐ No	☐ Yes	→		☐ Hospitalized
u) Posttraumatic stress disorder	☐ No	☐ Yes	→		☐ Hospitalized
v) Infertility	☐ No	☐ Yes	→		☐ Hospitalized
w) Anxiety	☐ No	☐ Yes	→		☐ Hospitalized
x) Memory loss or memory impairment	☐ No	☐ Yes	→		☐ Hospitalized
y) Eating disorder	☐ No	☐ Yes	→		☐ Hospitalized
z) Irritable bowel syndrome	☐ No	☐ Yes	→		☐ Hospitalized
aa) Other (please specify below)	☐ No	☐ Yes			
			→		☐ Hospitalized
			→		☐ Hospitalized
			→		☐ Hospitalized

* Hospitalized means that you were admitted to the hospital for treatment. Please do not check if you went to the ER, but were not admitted to the hospital.

Q21. Please choose the answer that best describes how true or false each of the following statements is for you.

	Definitely true	Mostly true	Not sure	Mostly false	Definitely false
I seem to get sick a little easier than other people	☐	☐	☐	☐	☐
I am as healthy as anybody I know	☐	☐	☐	☐	☐
I expect my health to get worse	☐	☐	☐	☐	☐
My health is excellent	☐	☐	☐	☐	☐

Q22. Over the past 3 years, approximately how much time were you hospitalized because of illness or injury (exclude hospitalization for pregnancy and childbirth)?

days

Q23. Over the past 3 years, approximately how many days were you unable to work or perform your usual activities because of illness or injury (exclude lost time for pregnancy and childbirth)?

--	--	--

days

Q24. In the past 3 years, where have you gone for medical care? Mark all that apply.

- ☐ Military Treatment Facility (MTF)
- ☐ VA facility
- ☐ Civilian Provider - TRICARE
- ☐ Civilian Provider – Other
- ☐ Public health centers (free or reduced cost care)
- ☐ I did not use healthcare facilities/providers (If selected, clear out previous selections)

Q25. Compared to 3 years ago, how would you rate your physical health in general now?

- ☐ Much better
- ☐ Somewhat better
- ☐ About the same
- ☐ Somewhat worse
- ☐ Much worse

Q26. Compared to one year ago, how would you rate your emotional health or well-being (such as feeling anxious, depressed, or irritable) now?

- ☐ Much better
- ☐ Somewhat better
- ☐ About the same
- ☐ Somewhat worse
- ☐ Much worse

We would like to end this section by asking about pregnancy and fertility.

Q27. In the **last 3 years**, have you and your *<spouse name>* tried to get pregnant?

- ☐ No → Skip to Q28
- ☐ Not applicable → Skip to Q28
- ☐ Yes

(If YES) In the **last 3 years**, have you and your spouse been unsuccessful getting pregnant for **a year or more** (not including time spent apart, such as deployment)?

- ☐ No
- ☐ Yes

Q28. In the **last 3 years**, if you and your spouse got pregnant, did you have a miscarriage?

- ☐ Does not apply (no pregnancy)
- ☐ No miscarriage
- ☐ Yes, 1 miscarriage → Year
- ☐ Yes, 2 miscarriages → Years
- ☐ Yes, 3 **or more** miscarriage → Years

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FOR WOMEN ONLY:

Q29. Are you currently pregnant?

- ☐ No
- ☐ Yes

Q30. Have you given birth within the **last 3 years**?

- ☐ No
- ☐ Yes

Q31. In the **last 3 years**, have you been diagnosed with gestational diabetes by a glucose tolerance test during pregnancy?

- ☐ No
- ☐ Yes

WELL-BEING

Now, we would like to ask you about your mental well-being. These questions are about how you feel and how things have been going over the last 4 weeks. Some of these questions will seem slightly repetitive, but we assure you that they are actually different and each has a specific purpose.

Remember, there are no right or wrong answers.

Q32. In the last 4 weeks, have you had an anxiety attack – suddenly feeling fear or panic?

☐ No → Skip to Q33

☐ Yes

(If YES)

a) Has this ever happened to you before? ☐ No ☐ Yes

b) Do some of these attacks come suddenly out of the blue – that is, in situations where you don't expect to be nervous or uncomfortable? ☐ No ☐ Yes

c) Do these attacks bother you a lot, or are you worried about having another attack? ☐ No ☐ Yes

d) Think about your last bad anxiety attack.

Were you short of breath?	☐ No	☐ Yes
Did your heart race, pound, or skip?	☐ No	☐ Yes
Did you have chest pain or pressure?	☐ No	☐ Yes
Did you sweat?	☐ No	☐ Yes
Did you feel as if you were choking?	☐ No	☐ Yes
Did you have hot flashes or chills?	☐ No	☐ Yes
Did you have nausea or an upset stomach, or the feeling that you were going to have diarrhea?	☐ No	☐ Yes
Did you feel dizzy, unsteady, or faint?	☐ No	☐ Yes
Did you have tingling or numbness in parts of your body?	☐ No	☐ Yes
Did you tremble or shake?	☐ No	☐ Yes
Were you afraid you were dying?	☐ No	☐ Yes

Q33. Over the last 4 weeks, how often have you been bothered by any of the following problems?

	Not at all	Several days	More than half the days
Feeling nervous, anxious, on edge, or worrying a lot about different things	☐	☐	☐
↓		↓	
Skip to Q34		Continue below	
Feeling restless so that it is hard to sit still	☐	☐	☐
Getting tired very easily	☐	☐	☐
Muscle tension, aches, or soreness	☐	☐	☐
Trouble falling asleep or staying asleep	☐	☐	☐
Trouble concentrating on things, such as reading a book or watching TV	☐	☐	☐
Becoming easily annoyed or irritable	☐	☐	☐

Q34. During the past 4 weeks, how much of the time have you had any of the following problems with your work or other regular daily activities as a result of any emotional problems (such as feeling depressed or anxious)?

	No, none of the time	Yes, a little of the time	Yes, some of the time	Yes, most of the time	Yes, all of the time
Cut down the <u>amount of time</u> you spent on work or other activities	☐	☐	☐	☐	☐
<u>Accomplished less</u> than you would like	☐	☐	☐	☐	☐
Didn't do work or other activities as <u>carefully</u> as usual	☐	☐	☐	☐	☐

Q35. During the past 4 weeks, how much of the time...

	None of the time	A little of the time	Some of the time	A good bit of the time	Most of the time	All of the time
Did you feel <u>full of pep</u> ?	☐	☐	☐	☐	☐	☐
Have you been a <u>very nervous person</u> ?	☐	☐	☐	☐	☐	☐
Have you felt so down in the dumps that <u>nothing could cheer you up</u> ?	☐	☐	☐	☐	☐	☐
Have you felt <u>calm and peaceful</u> ?	☐	☐	☐	☐	☐	☐
Did you have a <u>lot of energy</u> ?	☐	☐	☐	☐	☐	☐
Have you felt <u>downhearted and blue</u> ?	☐	☐	☐	☐	☐	☐
Did you feel <u>worn out</u> ?	☐	☐	☐	☐	☐	☐
Have you been a <u>happy person</u> ?	☐	☐	☐	☐	☐	☐
Did you feel <u>tired</u> ?	☐	☐	☐	☐	☐	☐

Q36. How often in the past month did you...

	Never	One Time	Two Times	Three or four times	Five or more times
Get angry at someone and yell or shout at them	☐	☐	☐	☐	☐
Get angry with someone and kick/smash something, slam the door, punch the wall, etc.	☐	☐	☐	☐	☐
Get into a fight with someone and hit the person	☐	☐	☐	☐	☐
Threaten someone with physical violence	☐	☐	☐	☐	☐
Cry persistently or uncontrollably	☐	☐	☐	☐	☐
Sulk or refuse to talk about an issue	☐	☐	☐	☐	☐

Q37. In the last month, how often have you...

	Never	Almost Never	Sometimes	Fairly Often	Very Often
Felt that you were unable to control the important things in your life	☐	☐	☐	☐	☐
Felt confident about your ability to handle personal problems	☐	☐	☐	☐	☐
Felt that things were going your way	☐	☐	☐	☐	☐
Felt difficulties were piling up so high that you could not overcome them	☐	☐	☐	☐	☐

Q38. During the past 4 weeks, to what extent has your physical health or emotional problems interfered with your normal social activities with family, friends, neighbors, or groups?

- ☐ Not at all
- ☐ Slightly
- ☐ Moderately
- ☐ Quite a bit
- ☐ Extremely

Q39. During the past 4 weeks, how much of the time has your physical health or emotional problems interfered with your social activities (like visiting with friends, relatives)?

- ☐ None of the time
- ☐ A little of the time
- ☐ Some of the time
- ☐ Most of the time
- ☐ All of the time

Q40. Below is a list of problems and complaints that people sometimes have in response to stressful life experiences. Some of these may not apply to you, however, please read each one carefully and mark the answer that best reflects how much you have been bothered by each problem in the last month.

In the past month have you experienced...?

	Not at all	A little bit	Moderately	Quite a bit	Extremely
Repeated, disturbing <u>memories</u> of stressful experiences from the past	☐	☐	☐	☐	☐
Repeated, disturbing <u>dreams</u> of stressful experiences from the past	☐	☐	☐	☐	☐
Suddenly acting or feeling as if stressful experiences were happening again	☐	☐	☐	☐	☐
Feeling very upset when something happened that reminds you of stressful experiences from the past	☐	☐	☐	☐	☐
Trouble remembering important parts of stressful experiences from the past	☐	☐	☐	☐	☐
Loss of interest in activities that you used to enjoy	☐	☐	☐	☐	☐
Feeling distant or cut off from other people	☐	☐	☐	☐	☐
Feeling emotionally numb, or being unable to have loving feelings for those close to you	☐	☐	☐	☐	☐
Feeling as if your future will somehow be cut short	☐	☐	☐	☐	☐
Trouble falling asleep or staying asleep	☐	☐	☐	☐	☐
Feeling irritable or having angry outbursts	☐	☐	☐	☐	☐
Difficulty concentrating	☐	☐	☐	☐	☐
Feeling "super-alert" or watchful or on guard	☐	☐	☐	☐	☐
Feeling jumpy or easily startled	☐	☐	☐	☐	☐
Physical reactions when something reminds you of stressful experiences from the past	☐	☐	☐	☐	☐
Efforts to avoid thinking about your stressful experiences from the past or avoid having feelings about them	☐	☐	☐	☐	☐
Efforts to avoid activities or situations because they remind you of stressful experiences from the past	☐	☐	☐	☐	☐

Now we would like to ask you how you've been feeling in the last 2 weeks.

Q41. Over the last 2 weeks, how often have you been bothered by any of the following problems?

	Not at all	Several days	More than half the days	Nearly every day
Little interest or pleasure in doing things	☐	☐	☐	☐
Feeling down, depressed, or hopeless	☐	☐	☐	☐
Trouble falling or staying asleep, or sleeping too much	☐	☐	☐	☐
Feeling tired or having little energy	☐	☐	☐	☐
Poor appetite or overeating	☐	☐	☐	☐
Feeling bad about yourself - or that you are a failure or have let yourself or your family down	☐	☐	☐	☐
Trouble concentrating on things, such as reading the newspaper or watching television	☐	☐	☐	☐
Moving or speaking so slowly that other people could have noticed, or the opposite - being so fidgety or restless that you have been moving around a lot more than usual	☐	☐	☐	☐

Q42. Over the last 2 weeks, how often have you been bothered by the following problems?

	Not at all	Several days	More than half the days	Nearly every day
Feeling nervous, anxious or on edge	☐	☐	☐	☐
Not being able to stop or control worrying	☐	☐	☐	☐
Worrying too much about different things	☐	☐	☐	☐
Trouble relaxing	☐	☐	☐	☐
Being so restless that it is hard to sit still	☐	☐	☐	☐
Becoming easily annoyed or irritable	☐	☐	☐	☐
Feeling afraid as if something awful might happen	☐	☐	☐	☐

Q43. Indicate the degree to which each statement describes your feelings or behavior:

	Not at all	A little bit	Moderately	A lot	Very much
I often find myself getting angry at people or situations	☐	☐	☐	☐	☐
When I get angry, I get really mad	☐	☐	☐	☐	☐
When I get angry, I stay angry	☐	☐	☐	☐	☐
When I get angry at someone, I want to clobber the person	☐	☐	☐	☐	☐
My anger prevents me from getting along with people as well as I'd like to	☐	☐	☐	☐	☐

Q44. Do you often feel that you can't control what or how much you eat?

- ☐ No
- ☐ Yes

Q45. Do you often eat, within any 2 hour period, what most people would regard as an unusually large amount of food?

- ☐ No
- ☐ Yes

Q46. Has this been as often, on average, as twice a week for the last 3 months?

- ☐ No
- ☐ Yes

(Q46 only seen if participant responds 'Yes' to either Q44 or Q45)

Q49. Please indicate your level of agreement with these statements:

	Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
I have little control over the things that happen to me	☐	☐	☐	☐	☐
There is really no way I can solve some of the problems I have	☐	☐	☐	☐	☐
There is little I can do to change many of the important things in my life	☐	☐	☐	☐	☐
I often feel helpless in dealing with the problems of life	☐	☐	☐	☐	☐
Sometimes I feel that I am being pushed around in life	☐	☐	☐	☐	☐
What happens to me in the future mostly depends on me	☐	☐	☐	☐	☐
I can do just about anything I really set my mind to do	☐	☐	☐	☐	☐

Q50. Have you ever received counseling/mental health services?

Options should always remain visible

- ☐ No -----Auto populate with all "Never" selected
☐ Yes



Please specify... (will appear once 'Yes' is selected)

	Never	Once	Twice	Three or more times
Mental health professional at a military facility	☐	☐	☐	☐
General medical doctor at a military facility	☐	☐	☐	☐
Military chaplain	☐	☐	☐	☐
Mental health professional at a civilian facility	☐	☐	☐	☐
General medical doctor at a civilian facility	☐	☐	☐	☐
Civilian clergy	☐	☐	☐	☐

Q51. Were any of these visits in the past 12 months?

(Only seen if at least one 'please specify' bubbles above is positively endorsed)

- ☐ No
☐ Yes

Q52. In the last 4 weeks, how much has your family or friends supported you?

- ☐ Not at all
☐ A little bit
☐ Moderately
☐ Quite a bit
☐ Extremely

LIFE EXPERIENCES

We are aware that many of these questions are quite personal, but we would appreciate your candid response. We want to assure you that all your answers are strictly confidential.

Q53. Have you had any of the following life events happen to you in the last 3 years?

If YES, did this event occur
in the last 12 months

	In the last 12 months		In the last 12 months	
You changed job, assignment, or career path involuntarily (for example, you lost a job, or you had to take a job you did not like)	☐ No	☐ Yes →	☐ No	☐ Yes
You or your partner had an unplanned pregnancy	☐ No	☐ Yes →	☐ No	☐ Yes
You were divorced or separated	☐ No	☐ Yes →	☐ No	☐ Yes
Suffered major financial problems (such as bankruptcy)	☐ No	☐ Yes →	☐ No	☐ Yes
Suffered forced sexual relations or sexual assault	☐ No	☐ Yes →	☐ No	☐ Yes
Experienced sexual harassment	☐ No	☐ Yes →	☐ No	☐ Yes
Suffered a violent assault	☐ No	☐ Yes →	☐ No	☐ Yes
Had a family member or loved one who became severely ill	☐ No	☐ Yes →	☐ No	☐ Yes
Had a family member or loved one who died	☐ No	☐ Yes →	☐ No	☐ Yes
Suffered a disabling illness or injury	☐ No	☐ Yes →	☐ No	☐ Yes

Q54. In the last year, have you been hit, slapped, kicked, or otherwise physically hurt by someone?

- ☐ Never
- ☐ Rarely
- ☐ Monthly
- ☐ Weekly
- ☐ Daily

Q55. How much of your childhood was spent growing up in a military family (in other words, your Parent(s) or guardian(s) served in the U.S. military)?

- ☐ None
- ☐ Less than 4 years
- ☐ 4-8 years
- ☐ 9-13 years
- ☐ 14 or more years

Q56. Please indicate your level of agreement with each item.

[illegible]

YOUR ALCOHOL USE

Now we would like to ask you some questions about drinking.

Alcoholic beverages include beer, wine, and liquor (such as whiskey, gin, etc.). For the purpose of this questionnaire:

One drink = one 12-ounce beer, one 4-ounce glass of wine, or one 1.5-ounce shot of liquor

Q58. In the past year, how often did you typically drink any type of alcoholic beverage?

- ☐ Never → Skip to Q61
- ☐ Rarely
- ☐ Monthly
- ☐ Weekly
- ☐ Daily

a) In the past year, on those days that you drank alcoholic beverages, on average, how many drinks did you have?

drinks

b) In a typical week, how many drinks of each type of alcoholic beverage do you have?

beer(s) wine liquor

c) Last week, how many drinks of alcoholic beverages did you have? (# of drinks)

Monday Tuesday Wednesday Thursday Friday Saturday Sunday

d) In the past year, how often did you typically get drunk (intoxicated)?

- ☐ Never
- ☐ Monthly or less
- ☐ 2-4 times per month
- ☐ >4 times per month

FOR MEN ONLY

Q59. In the past year, how often did you typically have 5 or more drinks of alcoholic beverages within a 2-hour period?

- ☐ Never
- ☐ Monthly or less
- ☐ 2-4 times per month
- ☐ >4 times per month

FOR WOMEN ONLY

Q60. In the past year, how often did you typically have 4 or more drinks of alcoholic beverages within a 2-hour period?

- ☐ Never
- ☐ Monthly or less
- ☐ 2-4 times per month
- ☐ >4 times per month

YOUR ALCOHOL USE (continued)

Q60. In the last 12 months, have any of the following happened to you more than once?

You drank alcohol even though a doctor suggested that you stop drinking because of a problem with your health ☐ No ☐ Yes

You drank alcohol, were high from alcohol, or hung over while you were working, going to school, or taking care of children or other responsibilities ☐ No ☐ Yes

You missed or were late for work, school, or other activities because you were drinking or hung over ☐ No ☐ Yes

You had a problem getting along with people while you were drinking ☐ No ☐ Yes

You drove a car after having several drinks or after drinking too much ☐ No ☐ Yes

Q61. Have you ever felt any of the following?

Felt you needed to cut back on your drinking ☐ No ☐ Yes

Felt annoyed at anyone who suggested you cut back on your drinking ☐ No ☐ Yes

Felt you needed an "eye-opener" or early morning drink ☐ No ☐ Yes

Felt guilty about your drinking ☐ No ☐ Yes

YOUR TOBACCO USE

Now we would like to ask you some questions about smoking.

Q62. In the past year, have you used any of the following products?

Cigarettes (smoke) ☐ No ☐ Yes

Electronic Cigarettes (vape) ☐ No ☐ Yes

Cigars ☐ No ☐ Yes

Pipes ☐ No ☐ Yes

Smokeless tobacco (chew, dip, snuff) ☐ No ☐ Yes

Q63. In your lifetime, have you smoked at least 100 cigarettes (5 packs)?

☐ No → Skip to Q64

☐ Yes

(If YES)

a) At what age did you start smoking?

years old

b) How many years have or did you smoke an average of at least 3 cigarettes per day (or one pack per week)?

years

c) When smoking, how many packs per day did you or do you smoke?

- ☐ Less than half a day per day
- ☐ Half to 1 pack per day
- ☐ 1 to 2 packs per day
- ☐ More than 2 packs per day

d) Have you ever tried to quit smoking?

- ☐ Yes, and succeeded
- ☐ Yes, but not successfully
- ☐ No

YOUR SLEEP QUALITY

Now, we would like to ask you some questions about how you are sleeping. Even if you are pregnant or have a newborn that is disturbing your sleep, please answer the questions by reflecting on your current sleep pattern.

Q64. Over the past month, how many hours of sleep did you get in an average 24-hour period?

hours

Q65. Please rate your sleep pattern for the past 2 weeks.

	None	Mild	Moderate	Severe	Very Severe
Difficulty falling asleep	☐	☐	☐	☐	☐
Difficulty staying asleep	☐	☐	☐	☐	☐
Problem waking up too early	☐	☐	☐	☐	☐
Snoring	☐	☐	☐	☐	☐

Q66. How satisfied/dissatisfied are you with your current sleep pattern?

- ☐ Very satisfied
- ☐ Generally satisfied
- ☐ Somewhat dissatisfied
- ☐ Very dissatisfied

Q67. To what extent do you consider your sleep pattern to interfere with your daily functioning (e.g. daytime fatigue, ability to function at work/daily chores, concentration, memory, mood, etc.)?

- ☐ Not at all interfering
- ☐ A little
- ☐ Somewhat
- ☐ Much
- ☐ Very much interfering

Q68. How noticeable to others do you think your sleep pattern is in terms of impairing the quality of your life?

- ☐ Not at all noticeable
- ☐ A little
- ☐ Somewhat
- ☐ Much
- ☐ Very much noticeable

Q69. How worried/distressed are you about your current sleep problem?

- ☐ Not at all
- ☐ A little
- ☐ Somewhat
- ☐ Much
- ☐ Very much

Q70. During the past month, how often have you taken medicine (prescribed or "over the counter") to help you sleep?

- ☐ Not during the past month
- ☐ Less than once a week
- ☐ Once or twice a week
- ☐ Three or more times a week

EXERCISE

Now we're going to ask you some questions about your exercise habits.
We realize that some participants may be pregnant, injured, or suffering from an illness when they take the survey, so please think about your exercise habits in a typical week.

Q71. In a typical week, how much time do you spend participating in ...

(Please mark both your typical "days per week" and "minutes per day" doing these activities)

			# of Days per week you exercise	On those days, how many minutes per day on average do you exercise
Vigorous exercise or work that causes heavy sweating or large increases in breathing or heart rate (such as running, active sports, biking)?	☐ None ☐ Cannot physically do	OR →	 days	 minutes
Moderate or Light exercise or work that causes light sweating or slight increases in breathing or heart rate (such as walking, cleaning, slow jogging)?	☐ None ☐ Cannot physically do	OR →	 days	 minutes

YOUR MILITARY SERVICE

Q72. Are you currently serving in the US military?

- ☐ Yes, Active Duty
☐ Yes, Reserve or National Guard
☐ No (Skip to Q73. If Service Member is also not Active Duty, then skip Military Life.)

(If YES)

c) What is your overall feeling about your military service?

- ☐ Negative
☐ Somewhat negative
☐ Neither negative or positive
☐ Somewhat positive
☐ Positive

Q73. Have you deployed for more than 30 days in the last 3 years?

- ☐ No → Skip to Q74
☐ Yes

(If YES)

In the last 3 years, how often have you experienced the following during deployment?

	Never	Yes, 1 time	Yes, more than 1 time		If Yes, list most recent year of exposure
Feeling that you were in great danger of being killed	☐	☐	☐	→	2 0
Being attacked or ambushed	☐	☐	☐	→	2 0
Receiving small arms fire	☐	☐	☐	→	2 0
Clearing/searching homes or buildings	☐	☐	☐	→	2 0
Having an improvised explosive device (IED) or booby trap explode near you	☐	☐	☐	→	2 0
Being wounded or injured	☐	☐	☐	→	2 0
Seeing dead bodies or human remains	☐	☐	☐	→	2 0
Handling or uncovering human remains	☐	☐	☐	→	2 0
Knowing someone seriously injured or killed	☐	☐	☐	→	2 0
Seeing Americans who were seriously injured or killed	☐	☐	☐	→	2 0
Having a member of your unit be seriously injured or killed	☐	☐	☐	→	2 0
Being directly responsible for the death of enemy combatant	☐	☐	☐	→	2 0
Being directly responsible for the death of a non-combatant	☐	☐	☐	→	2 0
Being exposed to smoke from burning trash and/or feces	☐	☐	☐	→	2 0

EDUCATION AND EMPLOYMENT

Q74. What is the highest level of education that you have completed? (Choose the single best answer.)

- ☐ Less than high school completion/diploma
- ☐ High school degree/GED/or equivalent
- ☐ Some college, no degree
- ☐ Associate's degree
- ☐ Bachelor's degree
- ☐ Master's, doctorate, or professional degree

Q75. Are you currently a student?

- ☐ No
- ☐ Yes, full-time
- ☐ Yes, part-time

Q76. Which of the following best describes your employment status? (Choose the single best answer.)

- ☐ Full-time work (greater than or equal to 30 hours per week)
- ☐ Part-time work (less than 30 hours per week)
- ☐ Homemaker
- ☐ Not employed, looking for work
- ☐ Not employed, not looking for work
- ☐ Not employed, retired
- ☐ Not employed, disabled
- ☐ Other (please specify):

(IF FULL-TIME WORK, PART-TIME WORK, OR HOMEMAKER)

a) How satisfying is your current employment?

Not satisfying							Extremely satisfying
1	2	3	4	5	6	7	
☐	☐	☐	☐	☐	☐	☐	

(IF FULL-TIME OR PART-TIME WORK)

b) How long did it take you to find employment after your last permanent change of station (PCS)?

- ☐ Less than 1 month
- ☐ 1 to 4 months
- ☐ 5 to 8 months
- ☐ 9 months to 1 year
- ☐ More than 1 year
- ☐ Not Applicable

Q77. Do you feel that being a military spouse has hindered your career development (In other words, that you have not achieved in your career as much as you would have if you were not a military spouse)?

Not at all hindered							Extremely hindered
1	2	3	4	5	6	7	
☐	☐	☐	☐	☐	☐	☐	

Q78. What is your annual household income? (Please include Basic Allowance for Housing (BAH), even if you live in base housing, and any other regular income that your family receives.)

- ☐ less than \$25,000
- ☐ \$25,000-\$49,999
- ☐ \$50,000-\$74,999
- ☐ \$75,000-\$99,999
- ☐ \$100,000-\$124,999
- ☐ \$125,000-\$149,999
- ☐ \$150,000 or more

(Married or Separated)

In order to better understand how military life affects families, this next section asks you questions about your relationship with your spouse. Once again, we'd like to remind you that all your answers are strictly confidential.

Q79. Taking all things together, how would you describe your marriage?

Very Unhappy ← 1 2 3 4 5 6 7 → Very Happy

Q80. Please rate the following statements about your relationship with your spouse:

	Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly Agree
I have a good marriage	☐	☐	☐	☐	☐
I really feel like part of a team with my spouse	☐	☐	☐	☐	☐

Q81. How happy are you with each of the following aspects of your marriage?

[illegible]

Q86. Please rate the following statements in regard to your family, including you, <spouse's name>, and your children (if applicable).

	Strongly disagree	Generally disagree	Undecided	Generally agree	Strongly agree
Family members are satisfied with how they communicate with each other	☐	☐	☐	☐	☐
Family members are very good listeners	☐	☐	☐	☐	☐
Family members express affection to each other	☐	☐	☐	☐	☐
Family members are able to ask each other for what they want	☐	☐	☐	☐	☐
Family members can calmly discuss problems with each other	☐	☐	☐	☐	☐
Family members discuss their ideas and beliefs with each other	☐	☐	☐	☐	☐
When family members ask questions of each other, they get honest answers	☐	☐	☐	☐	☐
Family members try to understand each other's feelings	☐	☐	☐	☐	☐
When angry, family members seldom say negative things about each other	☐	☐	☐	☐	☐
Family members express their true feelings to each other	☐	☐	☐	☐	☐

Q87. How satisfied are you with:

	Very dissatisfied	Somewhat dissatisfied	Generally satisfied	Very satisfied	Extremely satisfied
The degree of closeness between family members	☐	☐	☐	☐	☐
Your family's ability to cope with stress	☐	☐	☐	☐	☐
Your family's ability to be flexible	☐	☐	☐	☐	☐
Your family's ability to share positive experiences	☐	☐	☐	☐	☐
The quality of communication between family members	☐	☐	☐	☐	☐
Your family's ability to resolve conflicts	☐	☐	☐	☐	☐
The amount of time you spend together as a family	☐	☐	☐	☐	☐
The way problems are discussed	☐	☐	☐	☐	☐
The fairness of criticism in your family	☐	☐	☐	☐	☐
Family members' concern for each other	☐	☐	☐	☐	☐

YOUR SPOUSE'S BEHAVIOR

Only for spouses with secondary consent at baseline and still married

Your perception of your spouse's behavior is very important to the study. Please be assured that your answers will NEVER be shared with your spouse or your spouse's supervisors.

Q88. How often have you observed these behaviors in <spouse name> within the past month (or if your spouse is currently deployed, please refer to the most recent month your spouse was home)?

	Never	Seldom	Sometimes	Often	Very often
Sudden bad memories/flashbacks	☐	☐	☐	☐	☐
Spaces out	☐	☐	☐	☐	☐
Lack of interest in sex/intimacy	☐	☐	☐	☐	☐
Difficulty sharing thoughts and feelings	☐	☐	☐	☐	☐
Avoids former interests/activities	☐	☐	☐	☐	☐
Hyper-alert/startles easily	☐	☐	☐	☐	☐
Anxious/nervous	☐	☐	☐	☐	☐
Fearful	☐	☐	☐	☐	☐
Withdrawn/detached	☐	☐	☐	☐	☐
Irritable	☐	☐	☐	☐	☐
Quick temper	☐	☐	☐	☐	☐
Secretive	☐	☐	☐	☐	☐
Difficulty falling or staying asleep	☐	☐	☐	☐	☐
Nightmares or bad dreams	☐	☐	☐	☐	☐
Taking more risks with his/her safety	☐	☐	☐	☐	☐
Lack of interest in parenting/children (skip to the next question if you don't have children)	☐	☐	☐	☐	☐

Q89. Within the past month (or if your spouse is currently deployed, please refer to the most recent month your spouse was home) how difficult has it been for your spouse to do the following:

	Not at all	Somewhat	Very	Extremely
Do his/her work	☐	☐	☐	☐
Take care of things at home	☐	☐	☐	☐
Get along with other people	☐	☐	☐	☐
Fulfill supporting role as spouse/parent	☐	☐	☐	☐

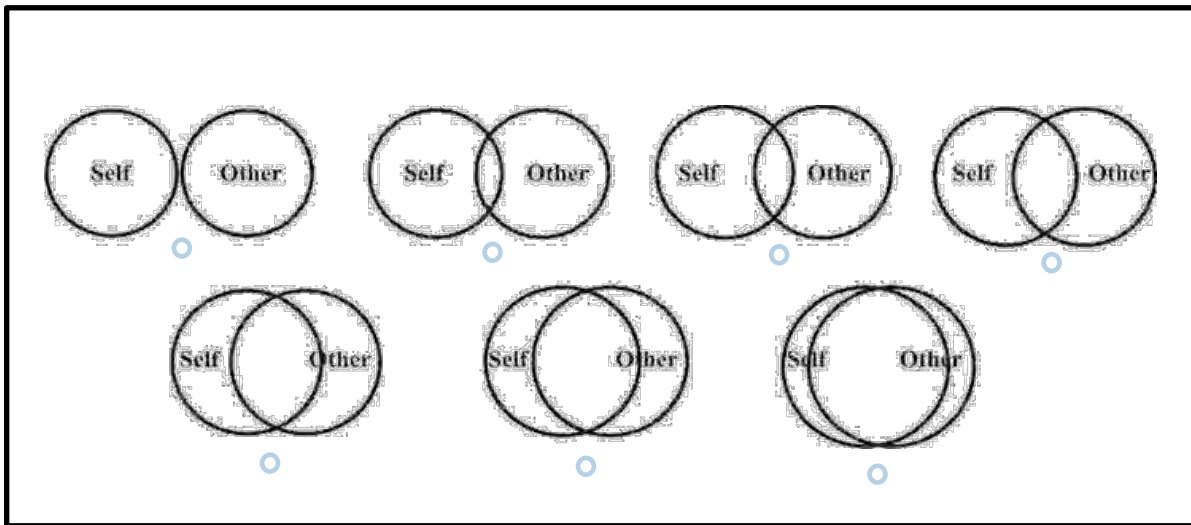
Q90. In your opinion, does your spouse consume too much alcohol in a typical week when he/she is at home (or if your spouse is currently deployed, please refer to the most recent time your spouse was home)?

- ☐ No
- ☐ Yes

RELATIONSHIP WITH SPOUSE AFTER DIVORCE

In order to better understand how military life affects families, this next section asks you questions about your relationship with your spouse after your divorce. Once again, we'd like to remind you that all your answers are strictly confidential.

Q91. Please select the picture that best illustrates your current relationship with **<Spouse Name>**.



Q92. Did you and **<Spouse Name>** ever receive marital counseling?

- ☐ Never
- ☐ Once
- ☐ Twice
- ☐ Three or more times

PARENTING

All Married, Divorced, or Separated spouses will see if screened for having biological or adopted children.

Q93. The questions listed below concern what happens between you and <Spouse Name>. While you may not find an answer which exactly describes what you think, please mark the answer that comes closest to what you think. Your first reaction should be your first answer.

	Strongly agree	Agree	Not sure	Disagree	Strongly disagree
My child's other parent enjoys being alone with our child(ren)	☐	☐	☐	☐	☐
During pregnancy, my child's other parent expressed confidence in my ability to be a good parent	☐	☐	☐	☐	☐
When there is a problem with our child, we work out a good solution together	☐	☐	☐	☐	☐
My child's other parent and I communicate well about our child	☐	☐	☐	☐	☐
My child's other parent is willing to make personal sacrifices to help take care of our child	☐	☐	☐	☐	☐
Talking to my child's other parent about our child is something I look forward to	☐	☐	☐	☐	☐
My child's other parent pays a great deal of attention to our child	☐	☐	☐	☐	☐
My child's other parent and I agree on what our child should and should not be permitted to do	☐	☐	☐	☐	☐
I feel close to my child's other parent when I see him/her play with our child	☐	☐	☐	☐	☐
My child's other parent knows how to handle children well	☐	☐	☐	☐	☐
My child's other parent and I are a good team	☐	☐	☐	☐	☐
My child's other parent believes I am a good parent	☐	☐	☐	☐	☐
I believe my child's other parent is a good parent	☐	☐	☐	☐	☐
My child's other parent makes my job of being a parent easier	☐	☐	☐	☐	☐
My child's other parent sees our child in the same way I do	☐	☐	☐	☐	☐
My child's other parent and I would basically describe our child in the same way	☐	☐	☐	☐	☐
If our child needs to be punished, my child's other parent and I usually agree on the type of punishment	☐	☐	☐	☐	☐
I feel good about my child's other parent's judgment about what is right for our child	☐	☐	☐	☐	☐
My child's other parent tells me I am a good parent	☐	☐	☐	☐	☐
My child's other parent and I have the same goals for our child	☐	☐	☐	☐	☐

DEPLOYMENT

Now, we would like to ask you some questions regarding the deployment experience.

If spouse indicates that they are Separated or Divorced, then they will receive the following caution before completing SPOUSE'S DEPLOYMENT, RETURN AND REUNION, and MILITARY LIFE sections.

"It is very important to understand the health and well-being of spouses and children after a change in marital status. We have attempted to make the questions in this survey apply to everyone, but if you feel that a question doesn't apply to your situation, please feel free to skip that question."

Q94. In the last 3 years, has <spouse name> been deployed for more than 30 days?

- ☐ No → Skip to Q111
- ☐ Yes → Continue with Q95
- ☐ I don't know → Skip to Q111

Q95. Is <spouse name> currently deployed?

- ☐ No / I don't know → Skip to Q95c
- ☐ Yes

(If YES)

a) When did <spouse name> leave for deployment?

- 2 0
MM YYYY

b) Has <spouse name> deployed previously?

- ☐ Yes → Continue to 95c
- ☐ No → Skip to Q111

(If NO / I don't know)

c) When did <spouse name> return from his/her last completed deployment?

- 2 0
MM YYYY

Q96. How much has <spouse name> shared his/her deployment experiences with you from his/her last completed deployment?

- ☐ None
- ☐ A little
- ☐ Somewhat
- ☐ A lot

Q97. To what degree were/are you bothered by the deployment experiences <spouse name> shared with you? Choose the single best answer.

- ☐ Not at all
- ☐ A little bit
- ☐ Moderately
- ☐ Quite a bit
- ☐ Extremely

Q98. How often did you communicate with <spouse name> during their last completed deployment?

- ☐ Almost daily
- ☐ Every few days
- ☐ About once a week
- ☐ About once or twice a month
- ☐ Less than once a month

Q99. If there was no limit to how often you could communicate with <spouse name> while deployed, how often would you have chosen?

- ☐ Almost daily
- ☐ Every few days
- ☐ About once a week
- ☐ About once or twice a month
- ☐ Less than once a month

Q100. During <spouse name>'s last completed deployment, how satisfied were you with his/her access to communication?

Very Dissatisfied					Very Satisfied
1	2	3	4	5	
☐	☐	☐	☐	☐	

Q101. Overall, when you communicated with <spouse name> during their last completed deployment, how satisfied were you with your ability to support each other (connect emotionally and/or spiritually)?

Very Dissatisfied					Very Satisfied
1	2	3	4	5	
☐	☐	☐	☐	☐	

Q102. Please estimate how much advance notification you had before <spouse name> left for their last completed deployment.

- ☐ More than 6 months
- ☐ 3-6 months
- ☐ Less than 3 months
- ☐ Less than 1 month
- ☐ Less than 1 week
- ☐ 24 hours or less

Q103. In your opinion, what was the level of danger to <spouse name> during their last completed deployment?

Very Little Danger					Extreme Danger
1	2	3	4	5	
☐	☐	☐	☐	☐	

Q104. Was <spouse name>'s last completed deployment extended beyond what you originally expected?

- ☐ Yes, by less than 2 weeks
- ☐ Yes, by 2 weeks to 2 months
- ☐ Yes, by more than 2 months
- ☐ No, not extended

Q105. During the last completed deployment or active duty assignment, how much support did you feel you received from the following?

	A lot	Moderate amount	Only a little	None at all	Does not apply
Your extended family	☐	☐	☐	☐	☐
Your friends	☐	☐	☐	☐	☐
Your co-workers	☐	☐	☐	☐	☐
Your neighbors	☐	☐	☐	☐	☐
Your clergyman or chaplain	☐	☐	☐	☐	☐
Support group of those in a situation similar to yours	☐	☐	☐	☐	☐
Family and community support services	☐	☐	☐	☐	☐
Your mental health provider (e.g. psychiatrist or psychologist)	☐	☐	☐	☐	☐
Your primary care provider (e.g. family practice doctor or nurse practitioner)	☐	☐	☐	☐	☐
Other military resources	☐	☐	☐	☐	☐

Q106. Which best describes your living situation during <spouse name>'s last completed deployment?

- ☐ Military housing, on base
- ☐ Military house, off base
- ☐ Civilian housing

Q107. During <spouse name>'s last completed deployment, did you live with extended family (for example, your parents, your in-laws, your siblings)?

- ☐ Yes, in my home → Skip to Q108
- ☐ Yes, in their home → Skip to Q108
- ☐ No



(If NO) During <spouse name>'s last completed deployment, did you live near family (for example, you moved to your hometown)?

- ☐ Yes
- ☐ No

DEPLOYMENT RETURN AND REUNION

The deployment return and reunion process can often be challenging, so our next questions are about that experience.

Q108. Following <spouse name's> last completed deployment, please rate the following statement.
The process of reunion/reintegration was stressful.

- ☐ Strongly disagree
- ☐ Disagree
- ☐ Neither agree nor disagree
- ☐ Agree
- ☐ Strongly agree
- ☒ Does not apply

Q109. Following <spouse name's> last completed deployment, did you personally participate in any deployment transition programs such as Return and Reunion? (For instance, programs on how to prevent or manage the stress related to your spouse returning from a deployment or active duty assignment.)

- ☐ No
- ☐ Yes → **Skip to Q110**

(If NO) Indicate which of the following are reasons why you did not participate in a deployment transition program.

Was this a reason for you?

- | | | |
|---|--------------------------|---------------------------|
| No such program was available to me | ☐ No | ☐ Yes |
| I was not able to take the time to participate in the program | ☐ No | ☐ Yes |
| I had no child care available | ☐ No | ☐ Yes |
| I was unable to get off work to attend the program | ☐ No | ☐ Yes |
| I had previously received this training and did not need it again | ☐ No | ☐ Yes |
| I did not think such training would help me | ☐ No | ☐ Yes |
| I was not aware these programs were available | ☐ No | ☐ Yes |
| My spouse was not supportive of the program | ☐ No | ☐ Yes |

Q110. Please choose the best answer regarding <spouse name's> last completed deployment.

[illegible]

MILITARY LIFE

If Service Member has separated or retired from the military more than a year ago, but the Family participant is Active Duty, send to Q114

If Service Member is Reserve or National Guard, send to Q114.

ONLY SPOUSES OF ACTIVE DUTY SERVICE MEMBERS SHOULD SEE Q111-Q113

1

Now, we'd like to ask you some questions about the stress of military life and the military's efforts to help you and your family deal with those stressors.

Q111. On average, during the past month, or the most recent month **<spouse name>** was not deployed, how many hours did he/she work per week (including weekends)?

hours per week

☐ I don't know

Q112. On average, during the past year, how many days of leave from work did **<spouse name>** take? Please round to nearest whole number and do not use dashes or decimals.

days in the past year

☐ I don't know

Q113. How many total months was **<spouse name>** away from home in the past year (including deployments, training, temporary duty-TDY/TAD)?

months in the past year

☐ I don't know

Q114. Many situations experienced by military families can be stressful for them. For each of the following possible stressful situations you and your family personally experienced in the past 12 months, please indicate how stressful you felt it was for you and your family.

	In the past 12 months				Have not experienced in past 12 months
	Very stressful	Moderately stressful	Slightly stressful	Not at all stressful	
A combat-related deployment or duty assignment for your spouse	☐	☐	☐	☐	☐
A non-combat-related deployment or duty assignment requiring your spouse to be away from home	☐	☐	☐	☐	☐
Uncertainty about future deployments or duty assignments	☐	☐	☐	☐	☐
Combat-related injury to your spouse	☐	☐	☐	☐	☐
A non-combat injury to your spouse from carrying out his/her military duties	☐	☐	☐	☐	☐
Caring for your ill, injured, or disabled spouse	☐	☐	☐	☐	☐
Intensified training schedule for your spouse	☐	☐	☐	☐	☐
Increased time spouse spent away from family, or missed family celebrations, while performing military duties	☐	☐	☐	☐	☐
Family conflict over whether spouse should remain in the military or reserves	☐	☐	☐	☐	☐
Difficulty balancing demands of family life and your spouse's military duties	☐	☐	☐	☐	☐
A permanent change of station (PCS)	☐	☐	☐	☐	☐
For reserve families only:					
Unpredictability of when reservists will be activated for duty	☐	☐	☐	☐	☐
Changes in your family's financial situation due to your spouse's active duty	☐	☐	☐	☐	☐
Concern over your spouse's employment when de-activated	☐	☐	☐	☐	☐
Concern over continuity of access to healthcare for your family	☐	☐	☐	☐	☐

Q115. Overall, how would you rate the military's efforts to help <spouse name>, you, and your family deal with the stresses of military life?

- ↓

Help <spouse name>

 - ☐ Excellent
 - ☐ Very Good
 - ☐ Good
 - ☐ Fair
 - ☐ Poor

↓

Help you and your family

 - ☐ Excellent
 - ☐ Very Good
 - ☐ Good
 - ☐ Fair
 - ☐ Poor

Q116. Please indicate how you feel about this statement:

Skip if P4 is no longer Active Duty AND Family spouse is Active Duty

- | | Very
strongly
disagree | Strongly
disagree | Mildly
disagree | Neutral | Mildly
agree | Strongly
agree | Very
strongly
agree |
|--|------------------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|---------------------------|
| Generally, on a day-to-day basis, I am proud to be a military spouse | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |

Q117. What is your overall feeling about military life?

- ☐ Negative
- ☐ Somewhat negative
- ☐ Neither negative nor positive
- ☐ Somewhat positive
- ☐ Positive

Q118. In the last 3 years, how many times have you experienced a permanent change of station (PCS) move?

 times

Q119. How long have you lived at your current location?

- ☐ Less than a year
- ☐ 1 to 2 years
- ☐ 3 to 5 years
- ☐ 6 or more years

Q120. Which best describes where you currently live?

- ☐ Military housing, on base
- ☐ Military house, off base
- ☐ Civilian housing

Q121. Do you currently live with extended family (for example, your parents, your in-laws, your siblings)?

- ☐ Yes, in my home → Skip to Q122
- ☐ Yes, in their home → Skip to Q122
- ☐ No

(If NO) Are you currently living near family (for example, you moved to your hometown)?

- ☐ Yes
- ☐ No

YOUR CHILDREN

Now we would like to ask you about your children. We realize that these questions are sensitive, but it is important to answer them as accurately as you can. Your answers will provide insight into how families and children are coping with military life and deployment. We want to remind you that this is a population-based study and data collected will not be used to make decisions about treatment. If you feel your child needs medical care or counseling, you should make contact with the appropriate medical personnel.

Q122. How many children do you have with <spouse-name> or from prior relationship(s)?

DELETE

~~(Please include any biological or adopted children.)~~

Children ~~(This answer will be used to build the next question asking for DOB)~~

Made revisions to Q123: please see below

Q123. Please answer the following questions for each of your children who are 17 years old or younger.

Child 1 (Display age from newly added Q5)

Child 2

continue on...

Relationship
to you:

DROPDOWN
Biological
Adopted
Stepchild
Foster

Has this child
ever shared
a household
with <spouse>?

DROPDOWN
Yes
No

How many years has this child
lived in the same household as
<spouse> for the majority of the
year?

DROPDOWN
Less than 1
1
2
3
.
.
.
17

As discussed earlier, we will only ask about children who the participant indicates that the child has shared a household with the P4 Service member (based on the question above "Has this child ever shared a household with<spouse>?")

If the participant indicates that none of their children ever shared a home with the P4 Service member then they will skip the remaining questions in this section and go straight to the 'Contact Information' section. UNLESS the Family participant responded to original Q4 at the beginning of the survey: Yes, Active Duty OR Yes, Reserve or National Guard, OR Yes, Both. We will ask these participants all child questions for all of their children under 17 years old.

Q124. For each of your children 3 to 17 years of age living at home, mark whether you have observed the following behaviors in the past month. Mark all that apply.

[illegible]

Q129. In the last 3 years, have any of your children 17 or younger, received any of these services or been placed in any of the following: (If you have more than one child, please mark all that apply for any of your children.)

	No	Yes
Inpatient psychiatric unit or a hospital for mental health problems	☐	☐
<u>Residential treatment center</u> (A self-contained treatment facility where the child lives and goes to school)	☐	☐
Detention center, training school, jail, or prison	☐	☐
<u>Group home</u> (A group residence in a community setting)	☐	☐
Treatment foster care (Placement with foster parents who receive special training and supervision to help children with problems)	☐	☐
<u>Probation officer or court counselor</u>	☐	☐
Day treatment program (A day program that includes a focus on therapy and may also provide education while the child is there)	☐	☐
<u>Case management or care coordination</u> (Someone who helps the child get the kinds of services he/she needs)	☐	☐
In-home counseling (Services, therapy, or treatment provided in the child's home)	☐	☐
<u>Outpatient counseling/therapy</u> (From psychologist, social worker, therapist, or other counselor)	☐	☐
Outpatient treatment from a psychiatrist	☐	☐
<u>Primary care physician/pediatrician for symptoms related to trauma or emotional/behavioral problems.</u> (Excluding emergency room)	☐	☐
School counselor, school psychologist, or school social worker (For behavioral or emotional problems.)	☐	☐
<u>Special class or special school</u> (For all or part of the day)	☐	☐
Child Welfare or Department of Social Services (Include any type of contact)	☐	☐
<u>Foster care</u> (Placement in kinship or non-relative foster care)	☐	☐
Therapeutic recreation services or mentor	☐	☐
<u>Hospital emergency room</u> (For problems related to trauma or emotional or behavioral problems)	☐	☐
Self-help groups (such as Alcoholics Anonymous, Narcotics Anonymous)	☐	☐

Q130. In the last 3 years, has a doctor or health professional told you that any of your children 17 or younger, has any of the following conditions? (If you have more than one child, and more than one child has the condition, please mark the severity level for the child that is most affected by the condition.)

	No	Yes	If Yes		
Food allergies	☐	☐ →	☐ Mild	☐ Moderate	☐ Severe
Non-food allergies	☐	☐ →	☐ Mild	☐ Moderate	☐ Severe
Obesity	☐	☐ →	☐ Mild	☐ Moderate	☐ Severe
Asthma	☐	☐ →	☐ Mild	☐ Moderate	☐ Severe
Any developmental delay that affects (his/her) ability to learn	☐	☐ →	☐ Mild	☐ Moderate	☐ Severe
Stuttering, stammering, or other speech problems	☐	☐ →	☐ Mild	☐ Moderate	☐ Severe
Attention Deficit Disorder (ADD) or Attention Deficit Hyperactive Disorder (ADHD)	☐	☐ →	☐ Mild	☐ Moderate	☐ Severe
Depression	☐	☐ →	☐ Mild	☐ Moderate	☐ Severe
Anxiety problems or other emotional problems	☐	☐ →	☐ Mild	☐ Moderate	☐ Severe
Eating disorder	☐	☐ →	☐ Mild	☐ Moderate	☐ Severe
Behavioral or conduct problems, such as oppositional defiant disorder or conduct disorder	☐	☐ →	☐ Mild	☐ Moderate	☐ Severe
Autism or Autism Spectrum Disorder (ASD)	☐	☐ →	☐ Mild	☐ Moderate	☐ Severe
Tourette Syndrome	☐	☐ →	☐ Mild	☐ Moderate	☐ Severe
Diabetes	☐	☐ →	☐ Mild	☐ Moderate	☐ Severe
Cystic Fibrosis	☐	☐ →	☐ Mild	☐ Moderate	☐ Severe
Cerebral Palsy	☐	☐ →	☐ Mild	☐ Moderate	☐ Severe
Muscular Dystrophy	☐	☐ →	☐ Mild	☐ Moderate	☐ Severe
Epilepsy or other seizure disorder	☐	☐ →	☐ Mild	☐ Moderate	☐ Severe
Migraine or frequent headaches	☐	☐ →	☐ Mild	☐ Moderate	☐ Severe
Arthritis or other joint problems	☐	☐ →	☐ Mild	☐ Moderate	☐ Severe
Hearing problem	☐	☐ →	☐ Mild	☐ Moderate	☐ Severe
Vision problems that cannot be corrected with glasses or contact lenses	☐	☐ →	☐ Mild	☐ Moderate	☐ Severe
A brain injury or concussion	☐	☐ →	☐ Mild	☐ Moderate	☐ Severe
Blood problems such as anemia or sickle cell disease	☐	☐ →	☐ Mild	☐ Moderate	☐ Severe

Q131. In the past 3 years, where has your child(ren) 17 or younger, gone for care? Mark all that apply.

- ☐ Military Treatment Facility (MTF)
- ☐ Civilian Provider - TRICARE
- ☐ Civilian Provider – Other
- ☐ Public health centers (free or reduced cost care)
- ☐ My child(ren) did not use healthcare facilities/providers

Q132. To best understand the dynamics of health care utilization and the needs of service members and their families, are you willing to allow us to link your survey data to DoD medical records of any children you may have that are 17 or younger?

- ☐ No
- ☐ Yes

CONTACT INFORMATION

Q133. Have you been receiving the Family Study mailings?

- ☐ No
☐ Yes

Q134. Have you moved since 2011?

- ☐ No
☐ Yes

Q135. Please provide your current mailing address below: Only see Q135 if answered Yes to Q134

Address Line 1:		
Address Line 2 (optional):		
City (or FPO/APO):		
State/Province/Region (or AA/AE/AP):		ZIP/Postal Code: -
Country:		

Q136. Have you been receiving the Family Study emails?

- ☐ No
☐ Yes

Q137. Please provide your current email address(es): Only see Q137 if answered No to Q136

Primary:	
Secondary:	

Q138. What is your full Social Security Number? Only see if we do NOT have an SSN for their SID

--	---	--

(The reason for asking you your SSN is to assist us in maintaining contact with you and to be included in all analyses. Your SSN will not be stored with your survey responses and will be confidentially maintained.)

To help us contact you in the future, please provide the name and contact information for two people who are likely to know where you can be reached. Please do not include individuals that live in your household. We will **NOT** share your questionnaire responses with these individuals and they will **ONLY** be contacted if we have difficulty contacting you.

139. First Alternate Contact

Name:

[illegible]**Phone:**[illegible]**Email:**

140. Second Alternate Contact

Name:

[illegible]**Phone:**[illegible]**Email:**

141. Finally, do you have any concerns about your health that are not covered in this questionnaire that you would like to share?

THANK YOU FOR COMPLETING THE FAMILY STUDY SURVEY!

If you have any questions or concerns, you can contact the Millennium Family Study team toll free at (800) 571-9248. You can also email us at familycohortinfo@med.navy.mil.

Appendix E: Collaboration Protocol

Family Study Collaboration Protocol



Family Study Team

Step 1: Family Study Leadership Meeting

The Family Study has outlined six primary aims that include objectives and specific study questions. Utilizing this framework, the Principal Investigators and Co-Investigators from Abt, NHRC, Duke, and NYU will meet to discuss and determine the priority of studies to be conducted based on their scientific merit and potential to impact force health protection (to prepare, protect, and treat the families of Service members). They will also suggest potential study team members based on expertise, experience, and availability.

Step 2: Proposal Submission

Once a specific study question has been prioritized and a study team established, the team will develop a proposal for review by the NHRC Department Head and approval by the Principal Investigators.

Proposals will include the following elements:

- A. General Information
 - 1. Project title
 - 2. Aim/objective
 - 3. Initiating author(s), including at least one NHRC team member
 - 4. Lead analyst
- B. Background and Analysis Plan
 - 1. Brief background and significance, including military relevance
 - 2. Proposed analytic approaches
 - 3. Applicable data sets and variables
- C. References

Step 3: Presentation/Publication

All forms of presentation and publication require clearance through approval channels (e.g., NHRC, NMRC, & BUMED). Final authorship for publications will be decided in accord with journal authorship guidelines.

External Collaborators

Step 1: Proposal Submission

Proposals will include the following elements:

- A. General Information
 - 1. Project title
 - 2. Initiating author(s) and qualifications
- B. Background and Analysis Plan
 - 1. Brief background and significance, including military relevance
 - 2. Proposed analytic approaches
 - 3. Applicable data sets and variables
- C. References

Step 2: Initial Review

The Family Study has outlined six primary aims that include objectives and specific study questions. Utilizing this framework, the Principal Investigators and Co-Investigators from Abt, NHRC, Duke, and NYU will conduct an initial review of each proposal. Initial review will be scored on the following elements: (1) scientific merit, (2) relevance to force health protection (to prepare, protect, and treat the families of Service members), (3) relevance to the aims and objectives of the Family Study, and (4) experience of potential authors. The initial review of the proposal may result in recommendations to enhance scientific merit and/or relevance, as well as to add potential authors.

If the proposal is approved: (1) a scientific aim and objective will be identified and assigned to the manuscript by the PIs, (2) a lead analyst will be identified, (3) at least one PI and one NHRC team member will be included in the study team, and (4) a time-line that includes interim products, as well as completion date(s) will be submitted and approved by the PIs.

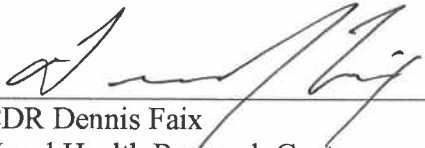
Step 3: Completion of Data Use Agreements and Data Security Plans (when applicable)

Once a proposal has been approved, and it has been determined that analyses need to be conducted off-site, then the initiating author(s) will develop a data transfer request.

In order to protect participants' privacy and within rules governing human subjects research, the Naval Health Research Center (NHRC) does not share identifiable data. However, NHRC will share de-identified data with collaborating external institutions after data use agreements and data security plans have been developed and approved. For archival purposes, a copy of the final data set and programs will be sent to NHRC when a study closes.

Step 4: Presentation/Publication

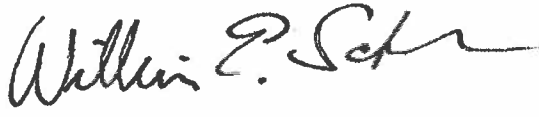
All forms of presentation and publication require clearance through approval channels (e.g., NHRC, NMRC, & BUMED). Final authorship for publications will be decided in accord with journal authorship guidelines.



CDR Dennis Faix
Naval Health Research Center

16 APR 2014

Date



Dr. William Schlenger
Abt Associates Inc.

4/15/2014

Date

Appendix F: IPR Presentation 2013/2014



Millennium Cohort
Family Study

Co-PI: William Schlenger, PhD
Abt Associates

Co-PI: John Fairbank, PhD
Duke University

Co-PI: Charles Marmar, MD
New York University

Abt Associates Award Number: W81XWH-09-C-0101

Award Date: 28 Sep 2009 – 27 Oct 2014

NHRC Award Number: W911QY-09-D-0040-0006

Award Date: 29 Sep 2009 – 30 Sep 2013

COR: Ashley Fisher

Project Officer: Michelle Lane

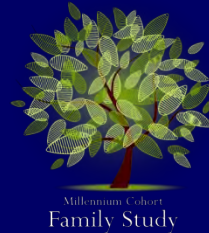
Portfolio Mgrs: CAPT Doug Forcino
Kate Nassauer, PhD

Presenters:

Hope McMaster, PhD
Research Psychologist
Abt Associates

Cynthia LeardMann, MPH
Senior Epidemiologist
Naval Health Research Center





Family Study Team

Naval Health Research Center

CDR Dennis Faix, MD, MPH, Dept. Head

Cynthia LeardMann, MPH, Senior Epidemiologist

Evelyn Davila, PhD, MPH, Senior Epidemiologist

Isabel Jacobson, MPH, Senior Epidemiologist

CPT Carrie Donoho, PhD, Research Psychologist

Valerie Stander, PhD, Research Psychologist

Toni Rush, MPH, Data Analyst

Lauren Bauer, MPH, Study Coordinator

William Lee, IT Specialist

Gordon Lynch, Web Developer

Steven Speigle, Data Manager

Abt Associates

William Schlenger, PhD, Co-PI

Nida Corry, PhD

Doug Fuller, PhD

Hope McMaster, PhD

Duke University

John Fairbank, PhD, Co-PI

Lisa Amaya-Jackson, MD, MPH

Ernestine Briggs-King, PhD

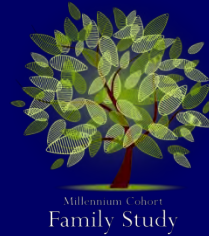
Ellen Gerrity, PhD

Robert Lee, MA, MS

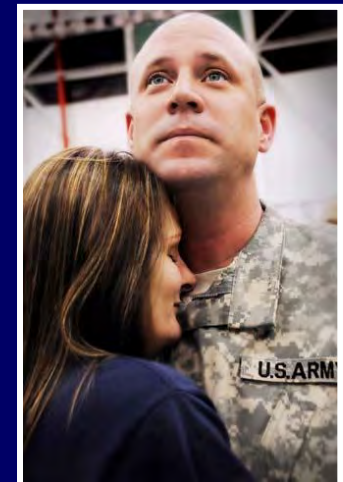
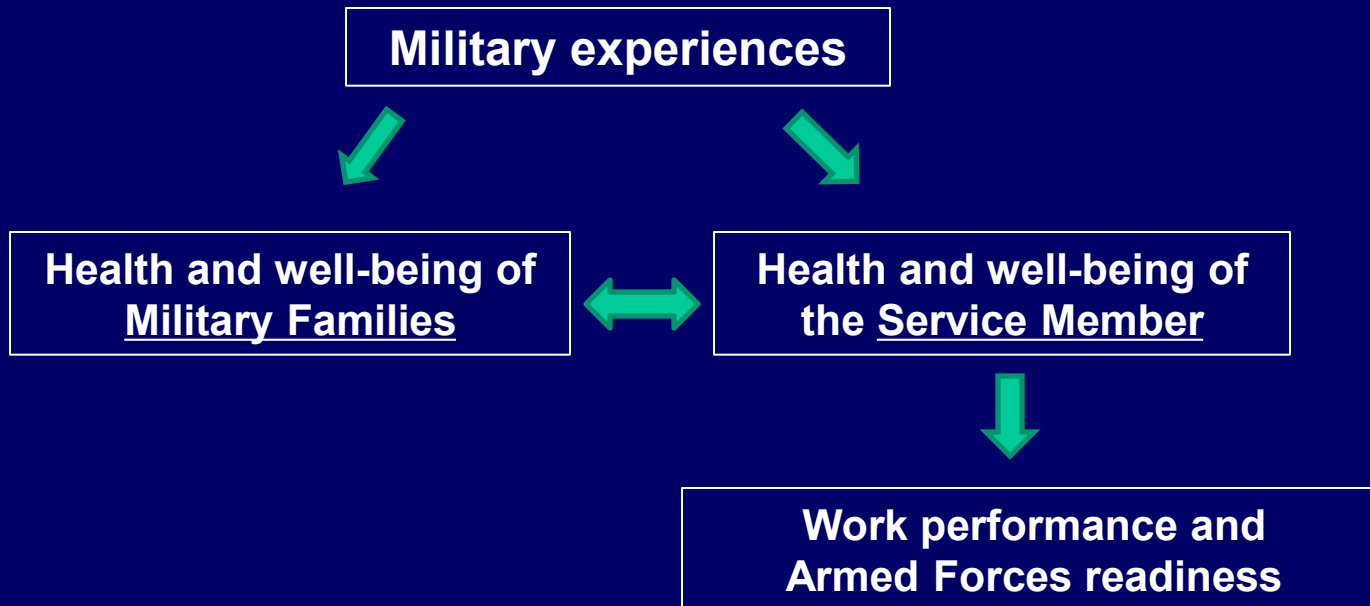
New York University

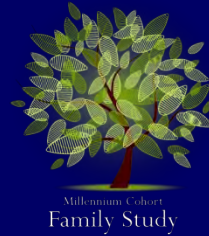
Charles Marmar, MD, Co-PI

Background and Rationale



- **Estimated 3 million military dependents**
 - 2 million are children
- **Military families face unique challenges**
 - Deployments, extended separation, relocations
- **Despite challenges, many show resilience**





Rationale and Objectives

- **Research is needed to better understand:**
 - **Short-term and long-term effects of deployment and service member readjustment issues related to:**
 - the mental and physical health of military spouses and children*
 - marriage quality
 - family relationships
 - **Effects on children separated from their parents by deployment and their access to support for psychological health issues***
 - **Role of social support and services on the health and well-being of families after they separate from the military**
 - **Factors associated with resilience and vulnerability among military families**
- **The Family Study addresses this need and seeks to provide strategic evidence based policy recommendations that inform leadership and guide interventions**

* 2007 DoD Mental Health Task Force Recommendation

Design and Methodology: Leveraging Existing Efforts



- The **Millennium Cohort Study** was launched in 2001 in collaboration with all US military services and the Department of Veterans Affairs, prior to the conflicts in Iraq and Afghanistan
- Cohort members are surveyed every ~3 years to examine how deployment and other military occupational experiences affect the long-term physical and mental health of military members and veterans
- The **Millennium Cohort Study** has completed 4 cycles and enrolled more than 200,000 Service Members

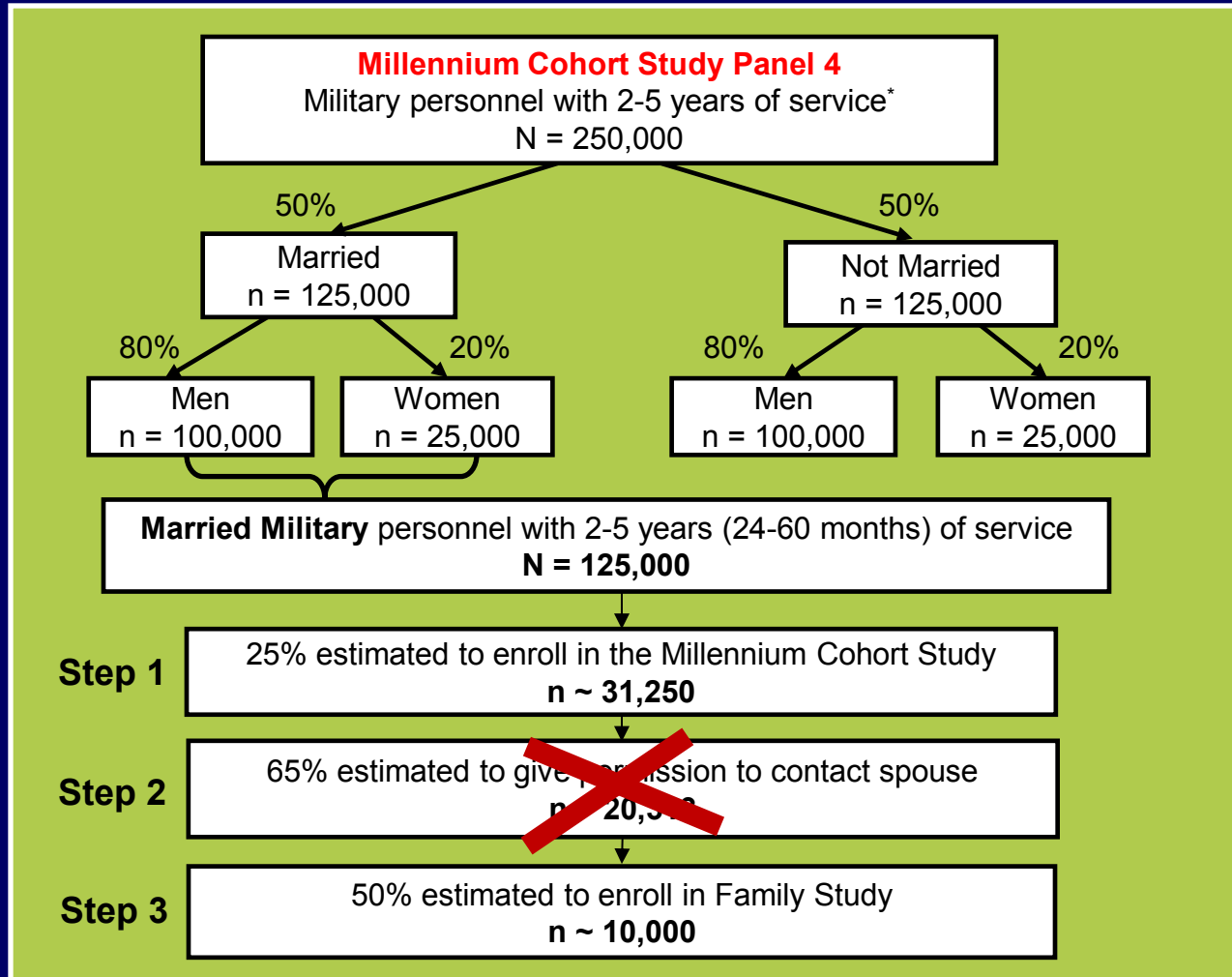
Panel 1: 77,047

Panel 2: 31,110

Panel 3: 43,439

Panel 4: 50,052

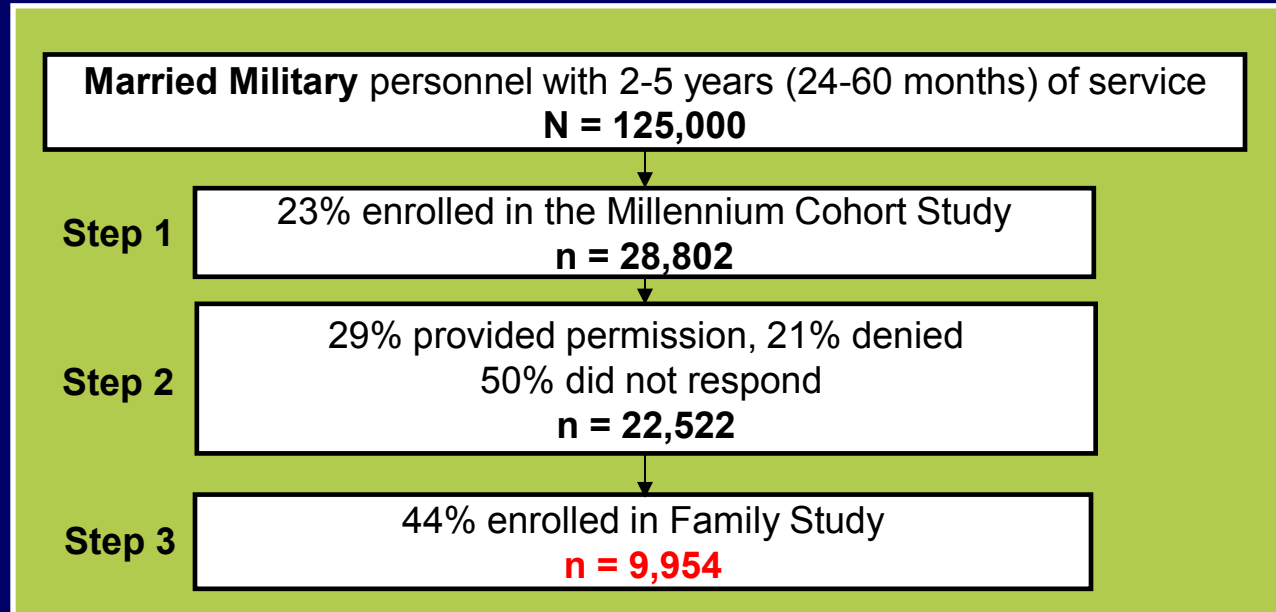
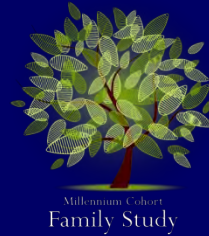
Design and Methodology: Sample



Panel 4 of the **Millennium Cohort Study** includes a probability sample of military service members (active duty, Reserve, and National Guard)

*Oversampling for women and married service members

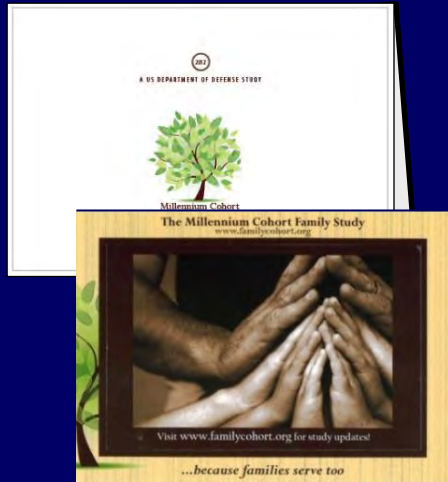
Design and Methodology: Recruitment and Study Population



- **63% response rate for referred spouses**
 - Email augmentation for bi-modal recruitment
 - Rapid invitation after Service Member enrollment
- **25% response rate for non-referred spouses**
 - Mailed paper requests without email augmentation
 - Time delay between Service Member enrollment and spouse invitation
- **84.6% completed survey via web (N=8,421)**

Recruitment Methodology

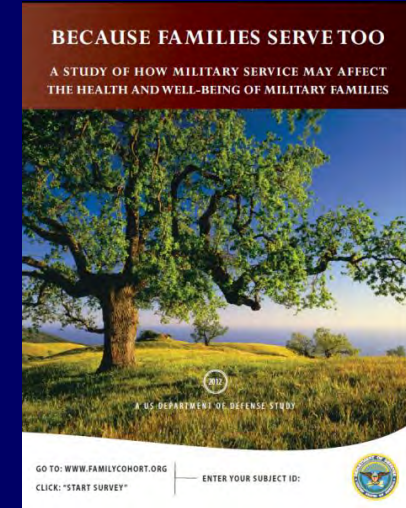
Week 1 Card and Magnet Picture Frame



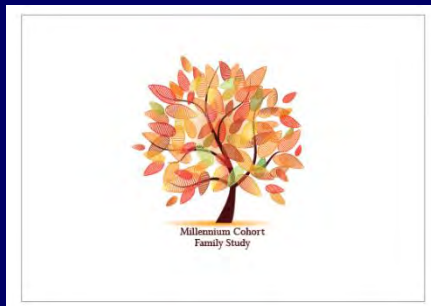
Week 2 Postcard reminder



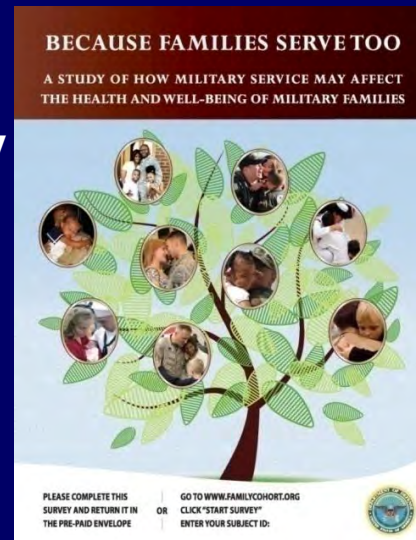
Week 5 Sample survey with \$5 card



Week 6 Letter Reminder



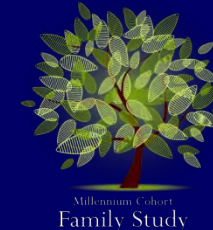
Week 9 Paper survey (FedEx or Priority)



Week 10 Postcard Reminder



Measures



Standardized instrument used	Topics covered
Medical Outcomes Study Short Form 36-Item Survey for Veterans (SF-36V)	Physical, mental, and functional health
Patient Health Questionnaire (PHQ)	Depression, anxiety, panic syndrome, binge-eating, bulimia nervosa, and alcohol abuse
Posttraumatic Stress Disorder (PTSD) Checklist-Civilian Version (PCL-C)	Post-traumatic stress disorder
CAGE questionnaire	Alcohol problems
Insomnia Severity Index (ISI)	Sleep
Family Adaptability and Cohesion Evaluation Scale (FACES IV)	Family communication and satisfaction
Quality of Marriage Index (QMI)*	Relationship with Service Member
Adverse Childhood Experiences (ACE)*	Childhood experiences of spouse
Strengths & Difficulties Questionnaire (SDQ)*	•Behavioral screening for children

Other topics:

*Adapted versions of these instruments were used.

- **Socio-demographics**
- **Health conditions/diseases and health behaviors**
- **Deployment experiences of spouse and Service Member**
- **Opinions about military life**
- **Utilization of health-related services (e.g. medical, mental-health, social support), including Return and Reunion Transition Program, Military OneSource**

Complementary Data Sources

Civilian Spouse*

Civilian Inpatient /
Outpatient Care &
Behavioral Health



 Military Inpatient and
Outpatient Care

Pharmacologic
Data



Medical History



Mortality Data

Service Member



Survey Data



Demographic Data



Recruit Assessment Program



Military Inpatient and Outpatient Care



Civilian Inpatient and
Outpatient Care

Pharmacologic Data



Medical History



Deployment Data



Environmental Exposure Data



Mortality Data



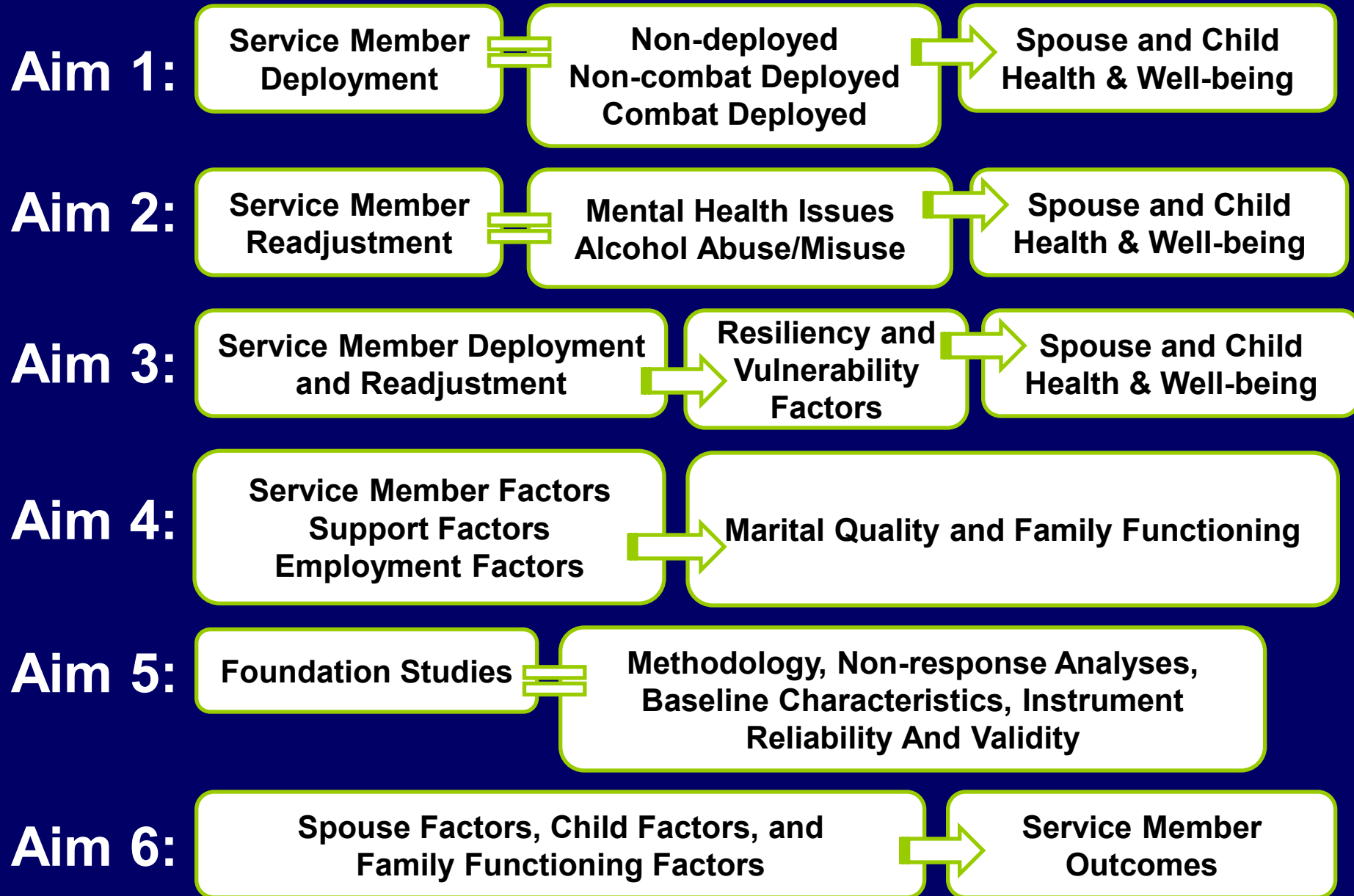
Immunization Data



Department of Veterans Affairs

*Spouses of Active Duty service members

Research Aims



Demographics of MilCo Family Study (N=9,954*)

Characteristic	n*	%
Female	8,629	87%
Race/ethnicity		
White, non-Hispanic	7,738	78%
Black, non-Hispanic	417	4%
Hispanic	908	9%
Mean age in years of spouse = 29 (SD 5.8)		
Currently married	9,785	99%
Have children	6,271	63%
Mean # of children = 1.7 (SD 1.0)		
Age of children (of 11,055 children reported)		
<= 2 years	4,863	44%
3-5 years	2,868	26%
6-11 years	2,162	20%
12-17 years	857	7%
18 and older	305	3%

Characteristic	n*	%
Education		
High school or less	1,287	13%
Some college/Associate degree	4,608	46%
Bachelor's degree or higher	4,036	41%
Employment		
Full-time or part-time job	4,576	52%
Not employed	907	10%
Homemaker	3,270	37%
Spouse [†] deployed since 2001, of 1,761 spouses who ever served in military	886	50%
Sponsor [‡] deployed since 2001	7,399	75%

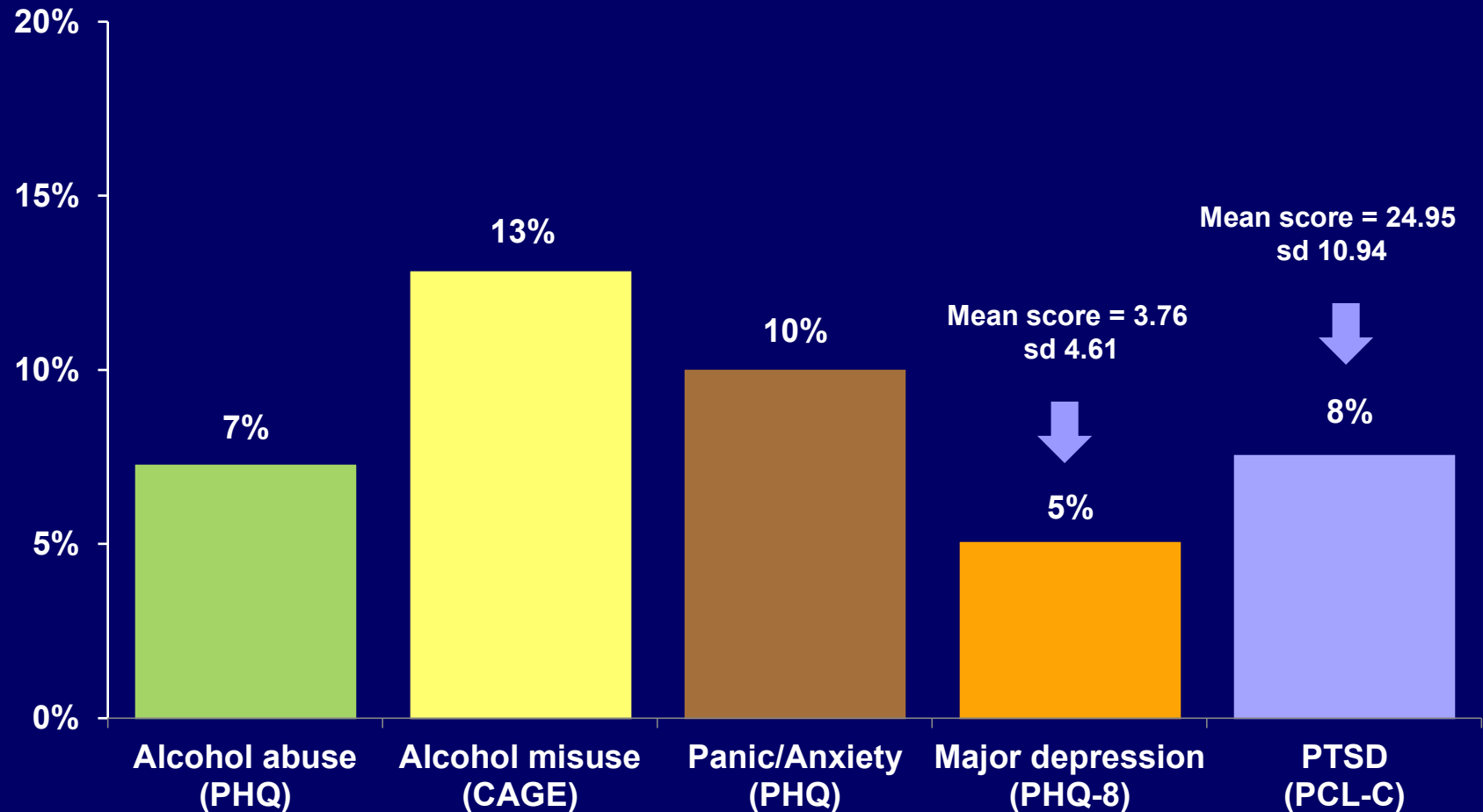
*Total population may vary by variable due to missing data;

[†] Spouse = Family Study participant

[‡] Sponsor = Millennium Cohort Panel 4 participant

First Glance at the Data:

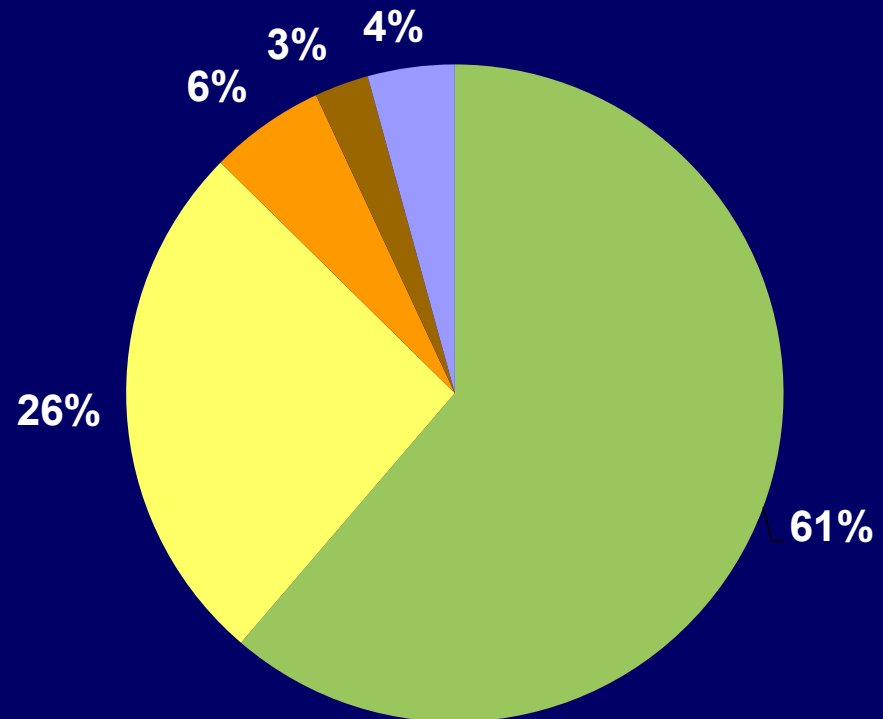
Spouse Mental Health Screening (n=9,954)



Quality of Marriage Index

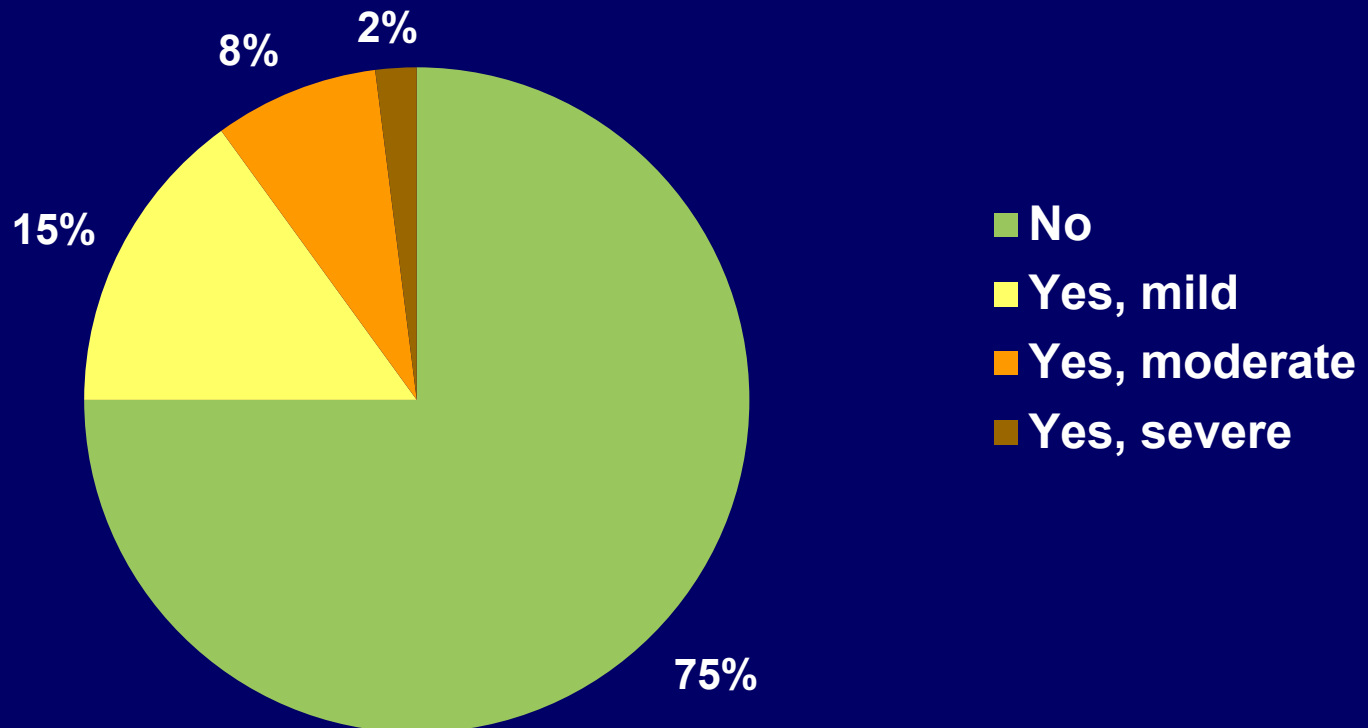
Have a good marriage (n=9,954)

- Strongly agree
- Agree
- Neither agree or disagree
- Disagree
- Strongly disagree



Children

Families with a Child(ren) Currently Experiencing a Behavioral, Emotional, or Learning Problem (n=3,710*)



*Families with only children 2 years old or younger were excluded



Service Member Characteristics		Family Study Responders* n (%) n =9,930†		Married Military Population with 2-5 Years of Service‡ n (%) N = 347,481	
Sex					
	Male	8,627	(87)	290,468	(84)
	Female	1,303	(13)	57,012	(16)
Race/ethnicity					
	White, non-Hispanic	7,997	(81)	↔	228,623 (66)
	Black, non-Hispanic	519	(5)		41,167 (12)
	Asian/Pacific Islander	398	(4)		14,524 (4)
	Hispanic	745	(7)		43,873 (13)
	Native American	153	(2)		6,885 (2)
	Other	118	(1)		12,409 (4)
Age (years)					
	17-24	1,793	(18)		107,124 (31)
	25-34	7,062	(71)		213,148 (62)
	35-44	923	(9)		22,574 (6)
	>44	152	(2)		2,340 (1)

Total population may vary by variable due to missing data.

*Responders include those that responder to either the paper or the web version of the survey.

†Total sample size includes only Family Study responders whose service member completed the P4 Millennium Cohort survey.

‡Married military population data from 31 Oct 2010.

Service Member Characteristics	Family Study Responders*		Married Military Population with 2-5 Years of Service‡			
	n (%)		n (%)			
	n =9,930†		N = 347,481			
Education						
Some college or less			6,932	(70)	300,312	(87)
Bachelor’s or higher degree			2,997	(30)	44,875	(13)
Service Branch						
Air Force			2,722	(27)	59,329	(17)
Army			4,581	(46)	164,201	(47)
Coast Guard			278	(3)	6,325	(2)
Marine Corps			937	(9)	58,201	(17)
Navy			1,412	(14)	59,425	(17)

Total population may vary by variable due to missing data.

*Responders include those that responder to either the paper or the web version of the survey.

†Total sample size includes only Family Study responders whose service member completed the P4 Millennium Cohort survey.

‡Married military population data from 31 Oct 2010.

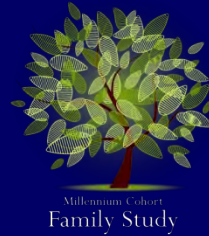
Service Member Characteristics		Family Study Responders*	Married Military Population with 2-5 Years of Service‡
		n (%) n =9,930†	n (%) N = 347,481
Military Component			
Active Duty		7,140 (72)	254,291 (73)
Reserve/Guard		2,790 (28)	93,190 (27)
Military Pay Grade			
Enlisted		7,423 (75)	316,432 (91)
Officer		2,507 (25) ↔	31,049 (9)

Total population may vary by variable due to missing data.

*Responders include those that responder to either the paper or the web version of the survey.

†Total sample size includes only Family Study responders whose service member completed the P4 Millennium Cohort survey.

‡Married military population data from 31 Oct 2010.



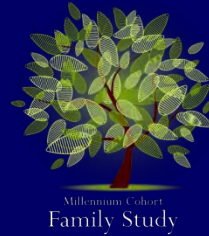
Proposed FY14 Analyses/Papers: Foundation Studies (Aim 5)

- **Description and overview of the methods, study population, response rate, representativeness of the Family Study**
- **Conduct non-response analysis**
 - **Family Study participants compared to non-responding invited spouses**
 - **Family Study participants compared to married military population with 2-5 years of service**
 - **Web responders vs. paper responders (Family Study participants)**
 - **Referred vs. non-referred (Family Study participants)**
 - **Service Members whose spouses enrolled in the Family Study compared to those whose spouses did not enroll**

Deliverables and Successes

- **Enrolled ~10,000 spouses**
- **Developed and implemented marketing and survey strategies to improve response rates**
 - Invited spouses with and without referral
 - Implemented a highly effective 6-step mail approach
 - Used a sample survey to encourage web survey response
 - Introduced a paper survey (second mode to respond)
 - Tailored messages to spouses
 - Obtained endorsement from Deanie Dempsey
 - Utilized pre-incentives (magnet, \$5 gift card)
- **Scanned and verified all paper surveys**
- **Cleaned and verified all survey data**
- **Created final dataset**
- **Linked Family data with married Service Member**

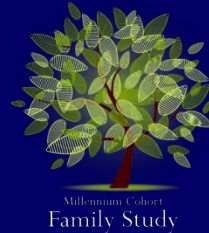




Deliverables and Successes

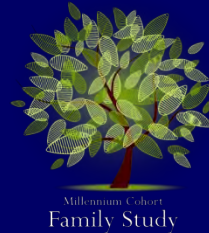
- **Improved Family Study Website**
 - **Now includes guidelines for researchers interested in collaborating and using data**
- **Paper in press describing the overall study design**
- **Completed first draft of paper comparing two methods for enrolling participants**
- **Developed cognitive interview protocols to improve FY14-15 study materials**
- **Completed survey revisions of the 2014-2015 follow up cycle**
- **Received IRB approval for 2014-2015 survey**
- **OMB approval pending**
- **Developed and approved a streamlined collaboration protocol**
- **Finalized DUA between NHRC and Abt Associates to share data**
- **Established study priorities for FY14**

Challenges and Solutions



- **Funding is unclear for future follow-ups and additional cohorts/panels of spouses**
 - **Solution**: disseminate findings, collaborate with other researchers, seek other funds, optimize communication and marketing methods for following Panel 1 (to off-set need of Panel 2)
- **Engagement of spouses after their Service Member separates from the military or after they separate from the military member (divorce, widowed)**
 - **Solution**: include language in marketing/communication about need for importance of their data, show participants preliminary findings and potential uses of data
- **Surveying children directly**
 - **Solution**: proposal written, working with IRB to find acceptable methods to survey children

Challenges and Solutions

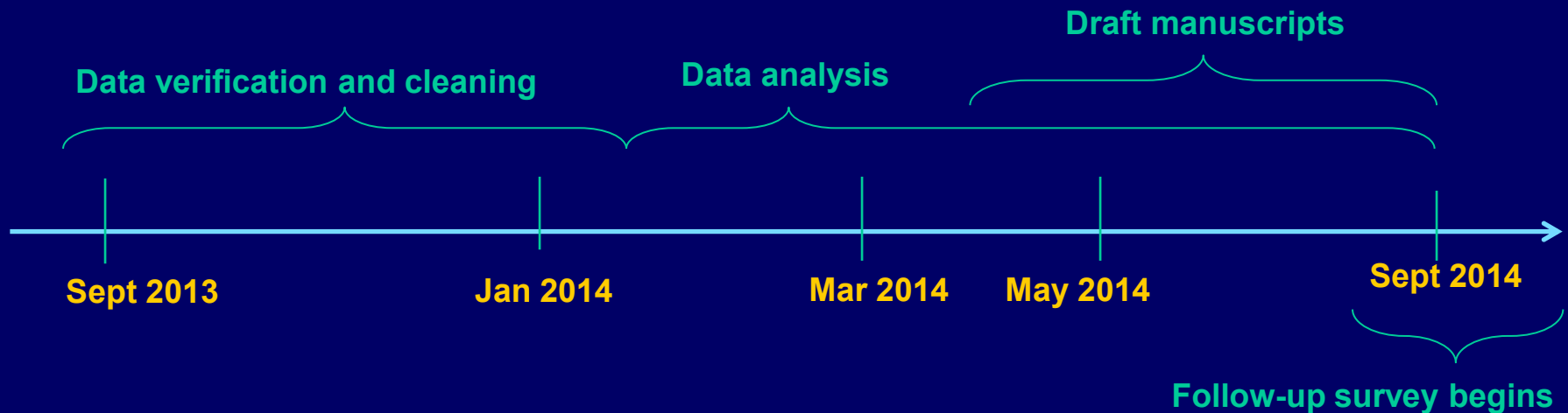


- **Loss to follow-up and low response rates**
 - **Solution:** marketing specialist and survey methodologist consulted, paper/email recruitment, emails enhanced, seek avenues for increasing awareness/credibility of study (military community events, groups, media)

- **Translating research into practice and informing policy**
 - **Solution:** publish studies of high relevance to military families in journals with high readership, collaborate with military family and health policy researchers, participate in military research interest groups/organizations events/meetings

Next Steps and Dissemination Plan

- Data analysis and manuscript preparation
- Continue development of methodology to survey children
- Update Wikipedia and develop usable Facebook application
- Present findings at military and scientific meetings/conferences
- Initiate collaborations with external researchers
- Start follow-up survey cycle (~Jul/Aug 2014)



Appendix G: Data Use Agreement



DEPARTMENT OF THE NAVY
NAVAL HEALTH RESEARCH CENTER
POST OFFICE BOX 85122
SAN DIEGO, CA 92186-5122

IN REPLY REFER TO:

3900

Ser 08RB/304

APR 23 2014

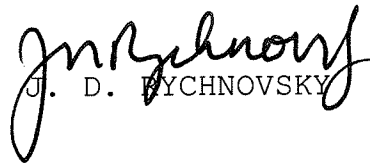
From: Commanding Officer, Naval Health Research Center
To: Chief, Bureau of Medicine and Surgery (M8)
Via: Commanding Officer, Naval Medical Research Center

Subj: DATA USE AGREEMENT (DUA) BETWEEN NAVAL HEALTH RESEARCH
CENTER AND ABT ASSOCIATES

Ref: (a) BUMED INSTRUCTION 7050.1B

Encl: (1) DATA USE AGREEMENT

1. Per reference (a), enclosure (1) is forwarded for review and approval.
2. For further assistance, my point of contact is Ms. Liliana Sanchez who may be reached at commercial: (619) 553-8948, DSN: 553-8948, or email: liliana.sanchez@med.navy.mil.


J. D. PYCHNOVSKY

**DATA USE AGREEMENT
BETWEEN
THE NAVAL HEALTH RESEARCH CENTER
AND
ABT ASSOCIATES INC.
FOR
USE OF DEPARTMENT OF DEFENSE (DoD) DATA**

The Naval Health Research Center (NHRC) working under Contract # (W911QY-11-D-0053-0001) is conducting the Family Study, a substudy of the Millennium Cohort Study for the USA Medical Research ACQ Activity. Abt Associates Inc. (Abt Associates) is working under Contract W81XWH-090C-001 also for the USA Medical Research ACO Activity to conduct analysis of the Family Survey Data. This Data Use Agreement lays out the conditions of transfer of the survey data from NHRC to Abt Associates for data analyses.

1. In order to comply with U.S., Department of Defense (DoD) and other regulations, the users of the data agree with the following requirements. These requirements apply to the use of the data files released and any data derived from such files.
2. Abt Associates will appoint a custodian to receive and oversee use of the data. This person is: Dr. William Schlenger, Principal Investigator, at Abt Associates who will be receiving the de-identified data.
3. The purpose of the data transfer is to share de-identified data from the Millennium Cohort Family Study located at the Naval Health Research Center (NHRC) with collaborators of this study at Abt Associates, and in turn, their subcontractors described below. Information will be transmitted through secure means from NHRC to Abt Associates to complete analyses as part of the defined research objectives and aims of the Millennium Cohort Family Study. Data, which will be collected from spouses of service members, may include demographics, health conditions and symptoms, functional health, habits (e.g., smoking, alcohol use, exercise, and diet), family relationships and children-related data, and select information from the main study (the Millennium Cohort Study) including military-related data, such as deployment information. Additionally, dates of events may be shared with Abt Associates for specific substudies of the Family Study. Survey data may be linked by NHRC to electronic health and administrative data from other sources as outlined in research project NHRC.2000.0007, and shared with Abt Associates for substudies requiring this information. NHRC will not transfer any data involving names, dates of birth, social security numbers, or any contact information to Abt Associates. Proposals will be written for each proposed substudy using the Family Study data (and contain a list of required data elements and a list of investigators) and will be reviewed by the Millennium Cohort Study Principal Investigator, the Abt Associates investigator, and appropriate Institutional Review Board(s). Approval will follow guidelines in the Family Study's Collaboration Protocol.

With regard to the research to be conducted herein, Abt Associates investigators will conduct the specific substudies that are associated with the approved proposals. These substudies may cover a range of collaborative projects between the Abt team and NHRC. Data shared with Abt will not be utilized for any substudies without first having a proposal approved utilizing the aforementioned processes. In addition to Abt Associates, Abt may share the data with their subcontractors under the Family Study, specifically Duke University and New York University so long as they, too, agree to the terms and conditions and requirements of this Data Use Agreement. Together, Abt Associates, Duke University, and New York University may be referred to as the "Abt Team."

4. The data provided by NHRC to the Abt Team is restricted to the minimum necessary to complete the approved Family sub-studies.
5. The data will only be used for the purpose of the specified substudy. Abt Associates confirms they will obtain any required IRB approval necessary to conduct the research with the data provided by NHRC prior to data receipt or analyses. Likewise, NHRC confirms that it will secure IRB approval prior to the release of data. The parties agree that they will each follow the requirements of the cognizant IRB. Copies of relevant documentation, including IRB approvals and continuing reviews, will be maintained and shared between institutions. The data use must follow all restrictions within the protocol, as well as this Data Use Agreement (DUA).
6. The data provided will be limited to the minimum amount necessary to perform the analysis. Data elements will be delineated in the substudy proposals.
7. Disclosure of the data from Abt Associates to two secondary parties, specifically approved collaborators at Duke University and New York University, is allowable. Abt Associates, Duke University and New York University will not disclose, release, reveal, show, sell, rent, lease, loan or otherwise grant access to the detailed data to anyone not covered by this Agreement. Access to these data will be limited to a minimum number of individuals necessary at each institution to achieve the purpose. Data cannot be used for marketing purposes.
8. Data will be stored in a manner consistent with Federal and DoD regulations and data security best practices. Abt Associates agrees to use administrative, physical, and technical safeguards that reasonably and appropriately protect the confidentiality, integrity, and availability of the data that it receives in the execution of this Agreement. Abt Associates agrees to ensure that these requirements will also be followed for Family Study data at Duke University and New York University. Data may not be stored on laptops, flash drives, or thumb drives; stored on desktops in unsecure areas; sent through email; or transported in unencrypted format. Mobile computing devices (such as CDs and DVDs) should only contain encrypted files and must be stored in a secure manner, such as locked in a filing cabinet with limited access.
9. Data transfers will only occur through secure means using password-protected encrypted files. If the specific purpose for which the data was obtained ends prior to the substudy, then the data will be returned at that time. Use of the data past this period can only occur if this Data Use Agreement is modified or another one is signed before the date to extend the end date. These requirements also pertain to Duke University and New York University.

10. Upon completion of each substudy all analytic data sets and any data in statistical analysis code (e.g., SAS program files) will be returned to NHRC within a year of the conclusion of the substudy. and/or expiration of the DUA, or the data will be destroyed at the regulator's expense, in accordance with the current DoD regulation 5220.22-M, National Industrial Security Program. The data destruction document in Appendix A will be completed and forwarded to NHRC at the time data destruction is complete.

11. NHRC and Abt Associates, Duke University and New York University will be given the opportunity to share authorship for presentations and publications derived from the data shared from NHRC to the Abt Team for specific sub-studies of this collaborative research as also delineated in the Study's Collaboration Protocol, Procedures for clearance of any work will be obtained in accordance with each institutions' policies prior to public release. Prior to the release of any reports, presentations, or publications based on the data, approval from the NHRC Scientific Director and any additionally required approvals (e.g., Bureau of Medicine and Surgery - BUMED) will be obtained.

12. In the event of an unauthorized disclosure of these data, NHRC will be immediately notified. NHRC may impose any or all of the following measures: (1) request a formal response to an allegation of an unauthorized disclosure, (2) require the submission of a corrective action plan formulated to implement steps to be taken to alleviate the possibility of any future unauthorized disclosure; (3) require the return of the data; and/or (4) sanction against further release of data to the organization.

13. The requesting organization acknowledges that criminal penalties under the Privacy Act (5 USC 552a (1) (3)) may apply if it is determined that any individual employed or affiliated with the organization knowingly and willfully obtained the file(s) under false pretense.

14. Resources Execution of this support agreement is contingent upon funding availability. Therefore, approval of this support agreement does not constitute approval of additional resources. Any funding or billet requirements that cannot be accommodated within the existing budget must be separately addressed through normal budget processes or other special programs.

15. Health Insurance Portability and Accountability Act (HIPAA) All parties understand and will adhere to the privacy and security requirements of protected health information and personally identifiable information under the HIPAA and the Privacy Act of 1974 in accordance with the following higher authority guidance as applicable: DoD 6025.18-R, DoD Health Information Privacy Regulation of January 2003, section C3.4; DoD 8580.02 Health Information Security of July 2007, section C2.10; and DoN 5211.5E, Department of Navy Privacy Program Regulation.

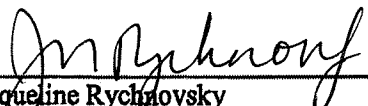
16. Effective Period The effective period of this Agreement is five years from the date of the last signature. It may be continued without change during that period, but must be reviewed annually by both parties.

17. Modification, Change or Amendment. Any modifications, changes or amendments to this Agreement must be in writing and are contingent upon the Bureau of Medicine and Surgery (BUMED) (M3) approval. Subsequent to BUMED approval, the modification, change, or amendments must be signed by all parties.

18. Termination. The Agreement may be cancelled at any time by mutual consent of the parties concerned. The Agreement may also be terminated by either party upon giving 30 days written notice to the other party. In case of mobilization or other emergency, the Agreement may be terminated immediately upon written notice by any party.

19. Concurrence. This written statement embodies the entire agreement between parties regarding this affiliation and no other agreements exist between the parties for this support except as stated herein. All parties to this Agreement below concur with the level of support and resource commitments that are documented herein.

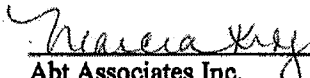
20. On behalf of the Naval Health Research Center and Abt Associates, the undersigned individuals hereby attests that he or she is authorized to enter into this Agreement and agrees to all the terms specified herein.



Jacqueline Rychkovsky
CAPT, NC, USN, PhD, RN, CPNP
Commanding Officer, Naval Health Research Center

4/23/14

Date



Abt Associates Inc.
Marcia King
Associate Director, Contracts

April 11, 2014

Date

BUSINESS ASSOCIATE AGREEMENT

PRIVACY AND SECURITY OF PROTECTED HEALTH INFORMATION

Introduction

In accordance with DoD 6025.18-R "Department of Defense Health Information Privacy Regulation," January 24, 2003, the Business Associate meets the definition of Business Associate. Therefore, a Business Associate Agreement is required to comply with both the Health Insurance Portability and Accountability Act (HIPAA) Privacy and Security regulations. This clause serves as that agreement whereby the Business Associate agrees to abide by all applicable HIPAA Privacy and Security requirements regarding health information as defined in this clause, and in DoD 6025.18-R and DoD 8580.02-R, as amended. Additional requirements will be addressed when implemented.

(a) **Definitions.** As used in this clause generally refer to the Code of Federal Regulations (CFR) definition unless a more specific provision exists in DoD 6025.18-R or DoD 8580.02-R.

HITECH Act shall mean the Health Information Technology for Economic and Clinical Health Act included in the American Recovery and Reinvestment Act of 2009.

Individual has the same meaning as the term "individual" in 45 CFR 160.103 and shall include a person who qualifies as a personal representative in accordance with 45 CFR 164.502(g).

Privacy Rule means the Standards for Privacy of Individually Identifiable Health Information at 45 CFR part 160 and part 164, subparts A and E.

Protected Health Information has the same meaning as the term "protected health information" in 45 CFR 160.103, limited to the information created or received by the Business Associate from or on behalf of the Government pursuant to the Contract.

Electronic Protected Health Information has the same meaning as the term "electronic protected health information" in 45 CFR 160.103.

Required by Law has the same meaning as the term "required by law" in 45 CFR 164.103.

Secretary means the Secretary of the Department of Health and Human Services or his/her designee.

Security Incident will have the same meaning as the term "security incident" in 45 CFR 164.304, limited to the information created or received by Business Associate from or on behalf of Covered Entity.

Security Rule means the Health Insurance Reform: Security Standards at 45 CFR part 160, 162 and part 164, subpart C.

Terms used, but not otherwise defined, in this Clause shall have the same meaning as those terms in 45 CFR 160.103, 160.502, 164.103, 164.304, and 164.501.

(b) The Business Associate shall not use or further disclose Protected Health Information other than as permitted or required by the Contract or as Required by Law.

(c) The Business Associate shall use appropriate safeguards to maintain the privacy of the Protected Health Information and to prevent use or disclosure of the Protected Health Information other than as provided for by this Contract.

(d) The HIPAA Security administrative, physical, and technical safeguards in 45 CFR 164.308, 164.310, and 164.312, and the requirements for policies and procedures and documentation in 45 CFR 164.316 shall apply to Business Associate. The additional requirements of Title XIII of the HITECH Act that relate to the security and that are made applicable with respect to covered entities shall also be applicable to Business Associate.

The Business Associate agrees to use administrative, physical, and technical safeguards that reasonably and appropriately protect the confidentiality, integrity, and availability of the electronic protected health information that it creates, receives, maintains, or transmits in the execution of this Contract.

(e) The Business Associate shall, at their own expense, take action to mitigate, to the extent practicable, any harmful effect that is known to the Business Associate of a use or disclosure of Protected Health Information by the Business Associate in violation of the requirements of this Clause. These mitigation actions will include as a minimum those listed in the TMA Breach Notification Standard Operating Procedure (SOP), which is available at:
<http://www.tricare.mil/tmaprivacy/breach.cfm>.

(f) The Business Associate shall report to the Government any security incident involving protected health information of which it becomes aware.

(g) The Business Associate shall report to the Government any use or disclosure of the Protected Health Information not provided for by this Contract of which the Business Associate becomes aware.

(h) The Business Associate shall ensure that any agent, including a subBusiness Associate, to whom it provides Protected Health Information received from, or created or received by the Business Associate, on behalf of the Government, agrees to the same restrictions and conditions that apply through this Contract to the Business Associate with respect to such information.

(i) The Business Associate shall ensure that any agent, including a subBusiness Associate, to whom it provides electronic Protected Health Information, agrees to implement reasonable and appropriate safeguards to protect it.

(j) The Business Associate shall provide access, at the request of the Government, and in the time and manner reasonably designated by the Government to Protected Health Information in a Designated Record Set, to the Government or, as directed by the Government, to an Individual in order to meet the requirements under 45 CFR 164.524.

(k) The Business Associate shall make any amendment(s) to Protected Health Information in a Designated Record Set that the Government directs or agrees to pursuant to 45 CFR 164.526 at the request of the Government, and in the time and manner reasonably designated by the Government.

(l) The Business Associate shall make internal practices, books, and records relating to the use and disclosure of Protected Health Information received from, or created or received by the Business Associate, on behalf of the Government, available to the Government, or at the request of the Government to the Secretary, in a time and manner reasonably designated by the Government or the Secretary, for purposes of the Secretary determining the Government's compliance with the Privacy Rule.

(m) The Business Associate shall document such disclosures of Protected Health Information and information related to such disclosures as would be required for the Government to respond to a request by an Individual for an accounting of disclosures of Protected Health Information in accordance with 45 CFR 164.528.

(n) The Business Associate shall provide to the Government or an Individual, in time and manner reasonably designated by the Government, information collected in accordance with this Clause of the Contract, to permit the Government to respond to a request by an Individual for an accounting of disclosures of Protected Health Information in accordance with 45 CFR 164.528.

General Use and Disclosure Provisions

Except as otherwise limited in this Clause, the Business Associate may use or disclose Protected Health Information on behalf of, or to provide services to, the Government for treatment, payment, or healthcare operations purposes, in accordance with the specific use and disclosure provisions below, if such use or disclosure of Protected Health Information would not violate the HIPAA Privacy Rule, the HIPAA Security Rule, DoD 6025.18-R or DoD 8580.02-R if done by the Government. The additional requirements of Title XIII of the HITECH Act that relate to privacy and that are made applicable with respect to covered entities shall also be applicable to Business Associate.

Specific Use and Disclosure Provisions

(a) Except as otherwise limited in this Clause, the Business Associate may use Protected Health Information for the proper management and administration of the Business Associate or to carry out the legal responsibilities of the Business Associate.

(b) Except as otherwise limited in this Clause, the Business Associate may disclose Protected Health Information for the proper management and administration of the Business Associate, provided that disclosures are required by law, or the Business Associate obtains reasonable assurances from the person to whom the information is disclosed that it will remain confidential and used or further disclosed only as required by law or for the purpose for which it was disclosed to the person, and the person notifies the Business Associate of any instances of which it is aware in which the confidentiality of the information has been breached.

(c) Except as otherwise limited in this Clause, the Business Associate may use Protected Health Information to provide Data Aggregation services to the Government as permitted by 45 CFR 164.504(e)(2)(i)(B).

(d) Business Associate may use Protected Health Information to report violations of law to appropriate Federal and State authorities, consistent with 45 CFR 164.502(j)(1).

Obligations of the Government

Provisions for the Government to Inform the Business Associate of Privacy Practices and Restrictions

(a) The Government shall provide the Business Associate with the notice of privacy practices that the Government produces in accordance with 45 CFR 164.520.

(b) The Government shall provide the Business Associate with any changes in, or revocation of, permission by Individual to use or disclose Protected Health Information, if such changes affect the Business Associate's permitted or required uses and disclosures.

(c) The Government shall notify the Business Associate of any restriction to the use or disclosure of Protected Health Information that the Government has agreed to in accordance with 45 CFR 164.522.

Permissible Requests by the Government

The Government shall not request the Business Associate to use or disclose Protected Health Information in any manner that would not be permissible under the HIPAA Privacy Rule, the HIPAA Security Rule, or any applicable Government regulations (including without limitation, DoD 6025.18-R and DoD 8580.02-R) if done by the Government, except for providing Data Aggregation services to the Government and for management and administrative activities of the Business Associate as otherwise permitted by this clause.

Termination

(a) Termination. A breach by the Business Associate of this clause, may subject the Business Associate to termination under any applicable default or termination provision of this Contract.

(b) Effect of Termination.

(1) If this contract has records management requirements, the records subject to the Clause should be handled in accordance with the records management requirements. If this contract does not have records management requirements, the records should be handled in accordance with paragraphs (2) and (3) below.

(2) If this contract does not have records management requirements, except as provided in paragraph (3) of this section, upon termination of this Contract, for any reason, the Business Associate shall return or destroy all Protected Health Information received from the Government, or created or received by the Business Associate on behalf of the Government. This provision shall apply to Protected Health Information that agents of the Business Associate may come in contact. The Business Associate shall retain no copies of the Protected Health Information.

(3) If this contract does not have records management provisions and the Business Associate determines that returning or destroying the Protected Health Information is infeasible, the Business Associate shall provide to the Government notification of the conditions that make return or destruction infeasible. Upon mutual agreement of the Government and the Business Associate that return or destruction of Protected Health Information is infeasible, the Business Associate shall extend the protections of this Contract to such Protected Health Information and limit further uses and disclosures of such Protected Health Information to those purposes that make the return or destruction infeasible, for so long as the Business Associate maintains such Protected Health Information.

Miscellaneous

(a) Regulatory References. A reference in this Clause to a section in DoD 6025.18-R, DoD 8580.02-R, Privacy Rule or Security Rule means the section is currently in effect or as amended, and for which compliance is required.

(b) Survival. The respective rights and obligations of Business Associate - under the "Effect of Termination" provision of this Clause shall survive the termination of this Contract.

(c) Interpretation. Any ambiguity in this Clause shall be resolved in favor of a meaning that permits the Government to comply with DoD 6025.18-R, DoD 8580.02-R, the HIPAA Privacy Rule or the HIPAA Security Rule.



Jacqueline Rychnovsky
CAPT, NC, USN, PhD, RN, CPNP
Commanding Officer, Naval Health Research Center

24 APR 14
Date



Abt Associates Inc.
Marcia King
Associate Director, Contracts

April 11, 2014
Date

Appendix H: APA symposium



Millennium Cohort
Family Study

Co-PI: William Schlenger, PhD
Abt Associates Inc.

Co-PI: John Fairbank, PhD
Duke University Medical School

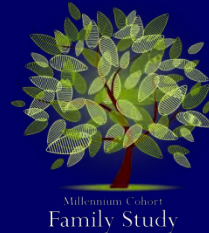
Co-PI: CDR Dennis Faix
Naval Health Research Center

Co-PI: Charles Marmar, MD
New York University Medical School



Duke
UNIVERSITY





Family Study Team

Naval Health Research Center

CDR Dennis Faix, MD, MPH, Dept. Head

Cynthia LeardMann, MPH, Senior Epidemiologist

Evelyn Davila, PhD, MPH, Senior Epidemiologist

Isabel Jacobson, MPH, Senior Epidemiologist

CPT Carrie Donoho, PhD, Research Psychologist

Valerie Stander, PhD, Research Psychologist

Toni Rush, MPH, Data Analyst

Lauren Bauer, MPH, Study Coordinator

William Lee, IT Specialist

Gordon Lynch, Web Developer

Steven Speigle, Data Manager

Abt Associates

William Schlenger, PhD, Co-PI

Nida Corry, PhD

Doug Fuller, PhD

Hope McMaster, PhD

Duke University

John Fairbank, PhD, Co-PI

Lisa Amaya-Jackson, MD, MPH

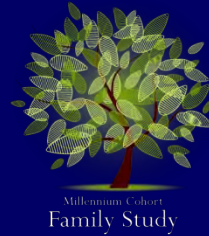
Ernestine Briggs-King, PhD

Ellen Gerrity, PhD

Robert Lee, MA, MS

New York University

Charles Marmar, MD, Co-PI



Scientific Review Panel

- ❖ **Sanela Dursun, PhD**
Canadian Department of National Defense
- ❖ **Cathy Flynn, PhD**
Office of the Undersecretary of Defense
- ❖ **Shirley Glynn, PhD**
*US Department of Veterans Affairs,
Greater Los Angeles*
- ❖ **Michael Hurlburt, PhD**
University of Southern California
- ❖ **Christine Johnson, MD, CAPT, USN**
Naval Medical Center San Diego
- ❖ **Patricia Lester, MD**
*University of California,
Los Angeles*
- ❖ **Larry Palinkas, PhD**
University of Southern California
- ❖ **Penelope Trickett, PhD**
University of Southern California
- ❖ **Jennifer Vasterling, PhD**
*US Department of Veterans Affairs,
Boston*

Outline

- **Study Origins**
 - **Background and Rationale**
- **Preliminary Studies**
 - **Stakeholder Interviews**
 - **Focus Groups**
- **Survey Methodology and Enrollment**
 - **Millennium Cohort**
 - **Family Study**
 - **Response Rates**
 - **Survey Measures**
- **Conceptual Models and Research Aims**
- **Preliminary Findings**
- **Proposed FY14 Analyses/Papers**
- **Deliverables and Successes**
- **Summary**

Study Origins: Millennium Cohort Study



- Study conceived in 1999 after IOM recommendation for a coordinated prospective cohort study of service members
 - Capitalized on new DoD surveillance and health care data
- Objective: To prospectively evaluate the impact of military experiences, including deployment, on long-term health outcomes of US service members
 - To provide strategic policy recommendations that inform leadership and guide interventions

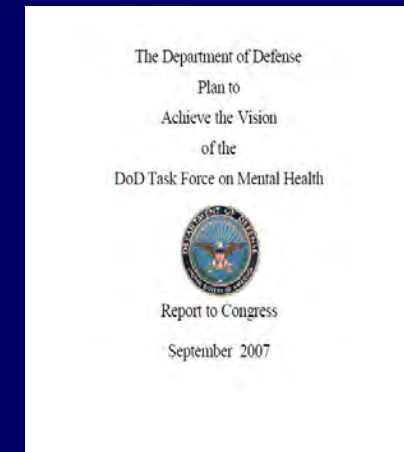
Section 743 of the FY1999 Strom Thurmond Act authorized the Secretary of Defense to establish a... ***longitudinal study*** to evaluate data on the health conditions of members of the Armed Forces upon their return from deployment.



Study Origins: Family Study

- DoD recommended to conduct research on post-deployment adjustment for family members, and on children who have been separated from their parents by deployment
- Gap analysis by MOMRP noted that studies of military families are a high priority issue, and identified family well-being as part of the “threats” to a fit force

“Our ultimate goal is, as it has always been, to ensure that the health and well-being of our military personnel and their families is at the top of our list of priorities. Apart from the war itself, we have no higher priority!”



Study Origins: Family Study

- **Multidisciplinary team of investigators at NHRC, Abt Associates, Duke University, and New York University**
- **Survey operations conducted at NHRC in San Diego**
- **Study enrollment began in 2011 in conjunction with the enrollment of Panel 4 of the Millennium Cohort Study**

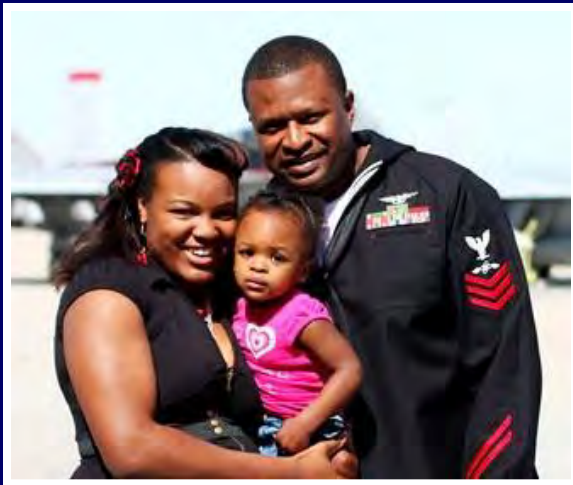


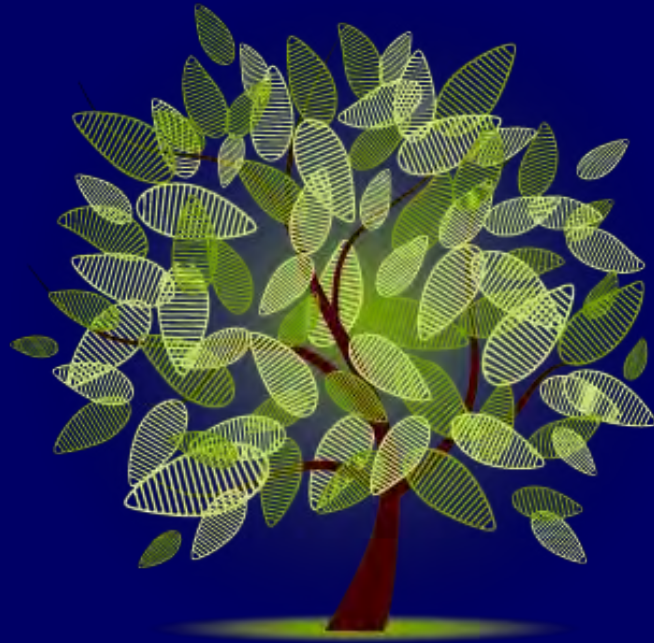
Importance of the Family Study

- **~2.5 million service members have been deployed in support of operations in Iraq and Afghanistan**
 - **>3 million dependents and >2 million children affected by the deployment of a parent**
- **Military families play an important role in the health and well-being of service members, and therefore a vital role in the Armed Forces' ability to maintain readiness**
 - **Critical need to understand and ameliorate the short- and long-term impacts of the current conflicts on families**
- **The Family Study is uniquely positioned to provide critical data on the health and well-being of families**

Overall Family Study Objective

- **To prospectively determine the association between military experiences, including deployments, and the health and well-being of military families**
 - **To provide strategic evidence-based policy recommendations that inform leadership and guide interventions**





Millennium Cohort
Family Study

Preliminary Study: Stakeholder Interviews

Stakeholder Study: Purpose

- **Fill a gap in the research on the process of post-deployment adjustment for military families**
- **Understand the impact of separation and deployment on children, as it relates to access and support for psychological health**

Stakeholder Study: Goals

- 1. Conduct a comprehensive search of the relevant literature**
- 2. Conduct key informant interviews with service members, spouses, and other professionals working with military families**
- 3. Develop an enhanced conceptual model of the functioning of military families to identify key factors that explain positive and negative outcomes & integrates the effects of war zone related PTSD among returning service members with current stressors and resources in post-deployment environment**

Stakeholder Study: Method

- **9 key informant/stakeholder interviews with military leaders and service providers to enhance our understanding of military families**
 - **Informants with both personal and professional roles involving the military were selected to participate**
 - **The individuals were nominated by key stakeholders in the fields of child traumatic stress and military behavioral health and included responses from individuals located in regions across the United States**
 - **Recruitment of participants was conducted via telephone, during which time the study was explained and initial verbal consent was obtained**
 - **Verbal consent was digitally-recorded for each stakeholder**
 - **Written informed consent was obtained in person or via fax on the day of the interview**

Stakeholder Study: Method

➤ Interview Procedure

- Interviews were conducted in person or by telephone at a location convenient for the stakeholder
- Interviews lasted approximately 1-2 hours
- A semi-structured, open-ended topic guide was used to allow participants to expound on topics of particular interest or relevance to them related to how deployment of U.S. service members to the conflicts in Afghanistan and/or Iraq is affecting wellbeing and functioning of the service members' spouses and children
- The topic guide was developed by the research team and evolved from a review of the pertinent literature on military families
- Stakeholders did not receive any incentives for participating in the study

Stakeholder Study: Analysis

- **All interviews were transcribed and cross-checked with recordings**
- **Analysis was guided by the grounded theory approach**
- **Stage 1: “open coding” or the naming and locating of “data bits” line by line while noting ideas, potential themes, and generating possible concepts**
- **Stage 2: “axial coding” in which the “open codes” were categorized and grouped around conceptual commonalities or specific “axes”**
- **Stage 3: “selective/thematic coding” involved determining how code clusters related to each other and discovering what stories the codes told**
- **Stage 4: analysis of themes to determine interrelationships and theories regarding the wellbeing and functioning of service members’ spouses and children**

Stakeholder Study: Findings

Central Themes

- **Deployment**
- **Physical Health, Mental Health, and Substance Abuse**
- **Risks and Vulnerability**
- **Reintegration**
- **Services & Resources**

Stakeholder Study: Findings

Deployment

➤ **Disequilibrium**

- **Can lead to resilience when the family is able to restore balance by reducing demands, increasing capabilities, and accommodating the stressors**
- **Or families can engage in processes that lead to poor adaptation and distress**

➤ **Numerous small and large scale deployments have a cumulative effect on families equilibrium**

- **Parental, fiscal, and logistical challenges of the 'one parent' family**

Stakeholder Study: Findings

Physical Health, Mental Health, Substance Abuse

- **Impact on everyone:**
 - *Everyone is injured, and whether you can see it or not...I'd say that that's the one great awareness that I have had is that everyone is impacted, and we need to be aware of that because it does touch everything that we do whether it's the relationship with their family, the relationship with their children...*
- **Negative impact on resources: communication, negotiation, and coping skills**
- **Potential for self-harm, neglect, violence**
- **Physical and mental wounds: impact on children**

Stakeholder Study: Findings

Risks and Vulnerability

- **How pre-existing stressors or strengths can potentiate or diminish disruption and distress upon a parent's combat deployment**
 - *...the metaphor in the Navy or Marine Corps is sea bag...you've got your emotional sea bag that you carry with you, and every new loss and trauma, betrayal, you just throw it in the sea bag, and it just gets heavier and heavier and heavier, and then whenever you start to think about unpacking that sea bag, it's terrifying*
 - *I would say a lot of it is related to the health of their parents for risk factors or protective factors....So, the health of the parents, the capacity of the parents, the lack of mental disorder in the parents, the lack of preexisting developmental learning or emotional problems in the children and/or the parents, available resources*

Stakeholder Study: Findings

Reintegration

- **Adaptation and accommodation over time**
- **Acknowledging the demands placed on the family system**
- **Using capabilities and resources to respond accordingly**
- **Shifting roles and boundaries in the family system**
 - **For some families this may increase levels of distress, and for others it provides an opportunity for adaptation and accommodation**

Stakeholder Study: Findings

Services & Resources

- **Family- and community-based resources, as well as individual interventions**
 - *Making sure we're providing a really good support system on community college campuses is absolutely critical for success*
- **Need uniform distribution of resources, across types of families, and with Guard and Reserve families**
 - *If you're at all involved in the field, there's relatively nothing by clinicians for parents on how to deal with deployment, how do you help your kid with deployment?Tons of stuff for spouses, tons of stuff on kids, but parents are completely invisible to the DoD, to the VA, and really to society. I don't think people get what it's really like to make that sacrifice and have your child go off into harm's way.*

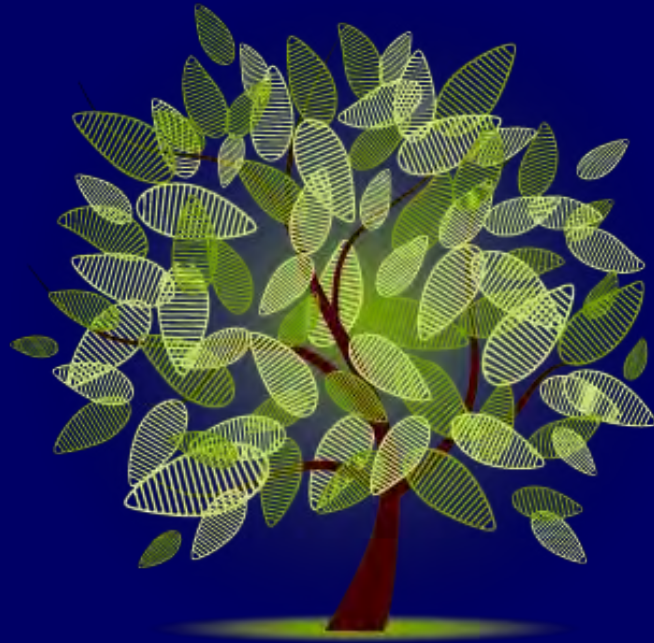
Stakeholder Study: Future Family Study Research Directions

8 recommendations related to data analysis and future research directions:

- 1. Explore differences in outcomes based on years of experience of service members and age/developmental status of children**
- 2. Explore deployment conditions that mediate or moderate outcomes, including number, duration, and tempo of deployment; extent of combat exposure, experienced or observed injury, and observed death**
- 3. Utilize complementary military data sources (e.g., medical records) in order to contextualize what families report with respect to stress, coping, communication, and well-being**

Stakeholder Study: Future Research Directions

- 4. Evaluate differential outcomes of deployment and reintegration across service branches, including active duty, National Guard, and Reserve Component**
- 5. Examine how prior traumatic experiences affect outcomes for service members and their families**
- 6. Investigate reasons for increases in child maltreatment and family violence during reintegration**
- 7. Examine the unique stressors related to deployment to understand potential similarities or differences compared to the stressors of single parent families with limited resources**
- 8. Explore the impact of outreach programs to veterans and family members where they are (e.g., schools, workplace, college campuses) during deployment and reintegration to provide supports**



Millennium Cohort
Family Study

Preliminary Study: Focus Groups

Focus Groups: Goals

- **Explore risk and protective factors associated with the process of post-deployment adjustment for family members**
- **Develop an enhanced conceptual framework that identifies the primary pathways through which service member deployment can influence both family and service member outcomes following deployment**

Focus Groups: Methodology

- **4 focus groups:**
 - 2 with spouses/partners (n=24)
 - 2 with parents (n=18)
- **Each group ~ 90 minutes**
- **Participants: parents and spouses/partners of deployed and non-deployed OIF/OEF service members**
- ***Inclusion criteria:* Adults ages 18 and up; Adequate proficiency in English to be able to participate in a group discussion**
- ***Exclusion criteria:* Participants with psychotic symptoms**

Focus Groups: Recruitment

- **Vet Centers in the four boroughs (Manhattan, Bronx, Queens, and Brooklyn), Mental Health Service of the Manhattan, Bronx and Brooklyn Veterans Affairs Medical Centers, affiliated satellite clinics and other regional VA medical centers, Veterans Service Organizations, military, national guard, and reservist agencies and organizations**
- **Active recruitment also took place at social service agencies, community mental health clinics, community organizations, local professional organizations, etc**
- **Recruitment methods included: flyers, in-person presentations, website advertisements, informational letters, newspaper advertisements, internet postings, contact with and referral from relevant clinicians, and informational sessions about the research**

Focus Groups: Recruitment

- Interested participants contacted our recruitment coordinator who obtained initial information from the potential participants to assess eligibility
 - Those who were eligible were invited to the focus group sessions
- We screened a total of 62 people
- 47 met the eligibility criteria and were invited to a focus group session
 - A total of 42 people came and participated in the focus groups
- Compensation: \$75 gift cards

Focus Groups: Methodology

- **Verbal Consents**
- **Brief Demographic Questionnaire (age, gender, ethnicity, level of education, marital status, number of children, and information about the military service of their family member)**
- **Group discussion**
- *The note taker observed the sessions in order to record the order in which participants spoke and note any gestures or other behaviors*
 - *In addition, the focus groups were audio taped to assist with notes*

Focus Groups: Methodology

- **Group discussion focused on three main domains:
1) pre-deployment phase; 2) deployment phase; and
3) post-deployment phase**

Facilitating questions on the topics of stress and resilience factors in military families:

1. What are the main challenges that a military family faces?
2. Could you give example of a challenge or a conflict in your family in the past two weeks?
3. When you are faced with that challenge, where do you go for help?
4. What kind of things would make it easier for your family to deal with the problems?

Focus Groups: Data Analysis

- **We conducted qualitative data analyses using the transcribed audio tapes and notes taken during the focus groups**
- **We identified common themes that emerged during the group discussion and grouped them by categories**

Focus Groups: Results

Spouses/Partners

Family Member's Demographic Characteristics	
Characteristics	M(SD) / Range or N(%)
<u>Age</u>	31.1(8.0)/(22-49)
<u>Gender</u>	
Female	21(87.5%)
Male	3 (12.5%)
<u>Marital Status</u>	
Married	23(95.8%)
Widowed	1(4.2%)
Divorced/Separated	0
<u>Race/Ethnicity</u>	
Caucasian	10(41.7%)
Hispanic	6(25.0%)
African American	6(25.0%)
Asian	1(4.2%)
<u>Any Children (Yes)</u>	11 (45.8%)
<u>Number of Children</u>	1.9 (.9)/(1-4)
<u>Number of people you live with</u>	2.5 (1.5)/(0-6)

Focus Groups: Results

Spouses/Partners

Family Member's Demographic Characteristics	
Characteristics	M(SD) / Range or N(%)
<u>Education</u>	
High School/GED	4(16.7%)
Some College/Tech School	7(29.2%)
College Grad/Professional Training	7(29.2%)
<u>Years in Service</u>	6.8(3.6)/(2-16)
<u>Military Service</u>	
Army	12(50%)
Marine	4(16.7%)
National Guard	4(16.7%)
<u>Service Location</u>	
Iraq	18(75%)
Afghanistan	2(8.3%)
Both Iraq and Afghanistan	2(8.3%)
Non-War Zone	2(8.3%)
<u>Deployment Status</u>	
Active Duty	13(54.2%)
Reserves	4(16.7%)
Discharged	5(20.8%)
Retired	1(4.2%)

Focus Groups: Results

Spouses/Partners Themes

Pre-deployment Stressors:

- **Time demands of the military service**
“They are respectful and everything but there is no family time. When they want you there, they want you there. And, you know, it doesn’t matter if it’s your honeymoon, your baby just got born, it doesn’t matter. You are there, so, that was always a big issue.”
- **Mood fluctuations of the spouse related to the anticipation of deployment**
- **Instability and feeling uprooted because of frequent relocations**

Focus Groups: Results

Spouses/Partners Themes

Deployment Stressors:

- Concerns about physical safety of the service member
- Communication difficulties
- Isolation, and loneliness
 - “Like a joke between me and my friends are, ‘if you get pregnant, expect to go through your pregnancy alone.’ And it is not funny, but that is how we put it.... That is how our little motto goes. ‘Plan to go through everything by yourself. Plan to go through your anniversary by yourself.’”*
- Effects of parenting and children
 - “You know, I got so used to being and doing everything on my own that it’s like, you know, we’re women, this is what we have to do, we have to multitask .”*

Focus Groups: Results

Spouses/Partners Themes

Post-deployment Stressors:

➤ Mental health and adjustment problems

“And when he came back from Iraq, he was a zombie, and I couldn’t get anything out of him at all until he would get drunk until the point of not knowing where he was or who he was talking to and then he would tell me everything. .. I was really worried that he was just not going to come back from the fog that he was in and it took a really long time before I felt like he was himself again.”

➤ Change in intimacy and emotional climate

“I twisted my ankle yesterday, and he’s like: “Oh, I saw worse things in Iraq.... I did shots, I did bullet wounds, and this is nothing, it’s a level 2 sprain... just walk it off!”

➤ Readjustment Problems: Transition from the structured military life to collaborative family life and civilian life

“He has been out for a year and a half and he hasn’t taken on a single commitment that has lasted more than 2 weeks. ...everybody else is working nine to five and he seems to be kind of terrified of the concept of committing to anything serious because what he knows is being on call and working 18-hour days. He doesn’t have a sense of what a normal day-to-day life is like...”

➤ Differences in goals and aspirations for the future

➤ Lack of information about or access to resources

Focus Groups: Results

Spouses/Partners Themes

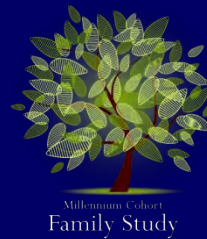
Resources/Coping:

- Mental health services (e.g., individual and family therapy and counseling)
- Group forums for spouses
- Friends
- Religious community and church
- Self-help books and journaling
- Several spouses stated that they used the services provided at Fort Hamilton and utilized services provided by the VA

Level of knowledge about available services and the level of initiative about obtaining those services varied greatly among the participants

Focus Groups: Results

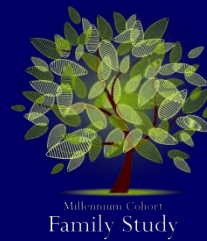
Parents



Family Member's Demographic Characteristics	
Characteristics	M(SD) / Range or N(%)
<u>Age</u>	51.3(6.4)/(43-68)
<u>Gender</u>	
Female	14(77.8%)
Male	4(22.2%)
<u>Marital Status</u>	
Married	10(55.6%)
Widowed	0
Divorced/Separated	7(38.9%)
<u>Race/Ethnicity</u>	
Caucasian	10(55.6%)
Hispanic	4(22.2%)
African American	2(22.2%)
<u>Any Children (Yes)</u>	18(100%)
<u>Number of Children</u>	1.9 (.8)/(1-3)
<u>Number of people you live with</u>	2.1 (1.8)/(0-5)

Focus Groups: Results

Parents



Family Member's Demographic Characteristics	
Characteristics	M(SD) / Range or N(%)
<u>Education</u>	
High School/GED	1(5.6%)
Some College/Tech School	8(44.4%)
College Grad/Professional Training	9(50%)
<u>Years in Service</u>	3.9(1.8)/(1-3)
<u>Military Service</u>	
Army	8(44.4%)
Air Force	3(16.7%)
Marine	6(33.3%)
<u>Service Location</u>	
Iraq	14(77.8%)
Afghanistan	3(16.7%)
Both Iraq and Afghanistan	0
Non-War Zone	1(5.5%)
<u>Deployment Status</u>	
Active Duty	7(38.9%)
Reserves	5(27.8%)
Discharged	6(33.3%)
Retired	0

Focus Groups: Results

Parent Themes

Deployment Stressors:

- **Service Member's safety**

“You know, they are men over there. Men and women. But to us, they are children. They are our children and it is so hard because we want to protect them and we don't want them to go through these horrible things... But we also know that it is necessary.”

- **Lack of control**

“Angry at the military for taking my son! “

“It's because they belong to the government.”

Focus Groups: Results

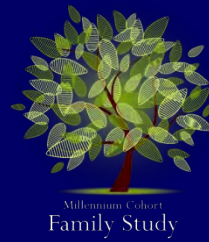
Parent Themes

Post-deployment Stressors:

- **Mental health and adjustment problems**
“Our kids are coming back damaged.”
“You have to be more like a Psychiatrist than a parent”
- **Developmental and personality changes**
“He doesn’t really hang out with the family anymore. It’s almost like he is not as sociable anymore .”
- **Unemployment and underemployment**
“I have been going around saying that he’s just being lazy ever since he came back from the military... I am starting to think that it is something more than that because I am starting to worry that he has problems being around people, crowds, and... things of that nature...”
- **Perceived lack of resources or difficulty accessing resources**

Focus Groups: Results

Parent Themes



Resources/Coping:

- **Peer support groups (formal and informal; live and online)**
- **Therapy and counseling**
- **Family and friends**
- **Self-care**
- **Church, religion and spirituality**
- **Several parents reported that they obtained information about available resources through the New York National Guard, the Yellow Ribbon, and the Family Readiness Group**

Level of knowledge about the available resources and the ability to access the services varied greatly among the parents

Focus Groups: Summary of Findings

- **Mental health and physical health problems of service members**
- **The effects of the adjustment problems on family climate and marital relationships**
- **The effects of military service on children**
- **Service members' difficulty finding employment post-deployment and its affect on the family**
- **Family members' limited knowledge about how to provide service members with support during their readjustment despite their desire to do so**
- **Inadequate resources available for the families**

Focus Groups: Summary of Findings

- **Family members listed several coping strategies (peer support groups; individual and family therapy and counseling; family and friends; self-care and self-help books; church, religion and spirituality)**
- **The level of knowledge about the available resources and the ability to access the services varied greatly among the participants**
- **Some participants obtained information about available resources through the New York National Guard, the Yellow Ribbon, the Family Readiness Group, and other organizations, and received VA services**
- **Others were much less informed and expressed their frustration with the lack of resources**

Focus Groups:

Recommendations for Interventions

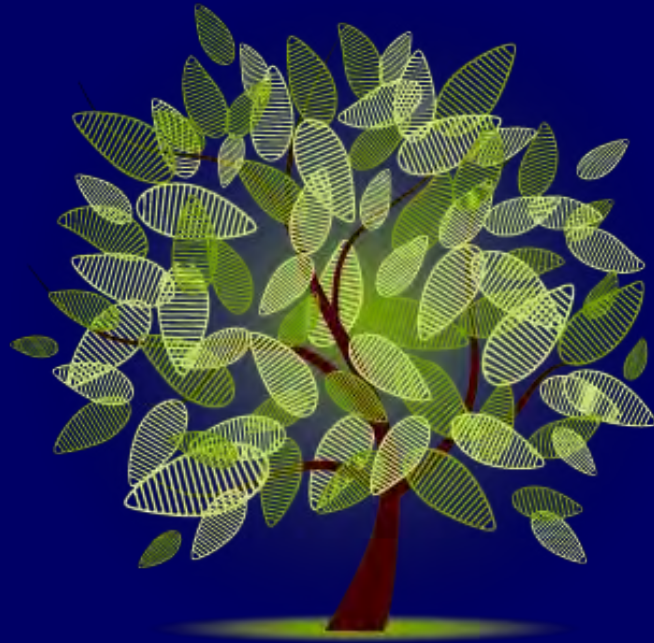
- 1. Increase the connection of the families to social organizations and other community resources**
- 2. Make individual and family therapy and counseling readily available for the family members**
- 3. Provide psychoeducation about the common mental health problems faced by the service members in relation to the deployment and their potential impact on family members**
 - Educate the families about ways to cope with those symptoms and disseminate information about services available**
- 4. Improve the dissemination of information resources, including benefits and public assistance programs available to service members, veterans, and their families**

Focus Groups: Recommendations for Interventions

- 5. Provide individualized resources to parents and spouse/partner's through identification of needs pre-deployment, during deployment, and post-deployment**
- 6. As a preventive strategy, provide education prior to deployment on ways to open communication, avoid isolation, anxiety reduction skills, and healthy coping skills**
- 7. Streamline and shorten the packets given to the families; facilitate the distribution of information through formal and informal presentations (e.g., through schools, churches, etc.); send out pamphlets to the families; and utilize other strategies to improve outreach**

Focus Groups: Recommendations for Family Study Survey

- **The goal: Explore risk and protective factors associated with the process of post-deployment adjustment for family members to inform the Family Study survey**
- **The results suggested several important areas of investigation:**
 - **Deployment-related stressors related to spouses/partners' mental health and medical problems**
 - **Impact of deployment on family climate**
 - **Impact of deployment on marital relationships and symptoms**
 - **Impact of deployment on children's functioning**
 - **Mental health problems of service members observed by the spouses (e.g., PTSD, anxiety, substance abuse, sleep disturbance, etc.)**
 - **Sources of support for family members during deployment**
 - **Utilization of resources in the process of adjustment to deployment**



Millennium Cohort
Family Study

Survey Design and Methodology

Integration with Millennium Cohort



- The Millennium Cohort Study was launched in 2001 in collaboration with all US military services and the Department of Veterans Affairs, prior to the conflicts in Iraq and Afghanistan
- Cohort members are surveyed every ~3 years to examine how deployment and other military occupational experiences affect the long-term physical and mental health of military members and veterans
- The Millennium Cohort Study has completed 4 cycles and enrolled more than 200,000 Service Members

Panel 1: 77,047

Panel 2: 31,110

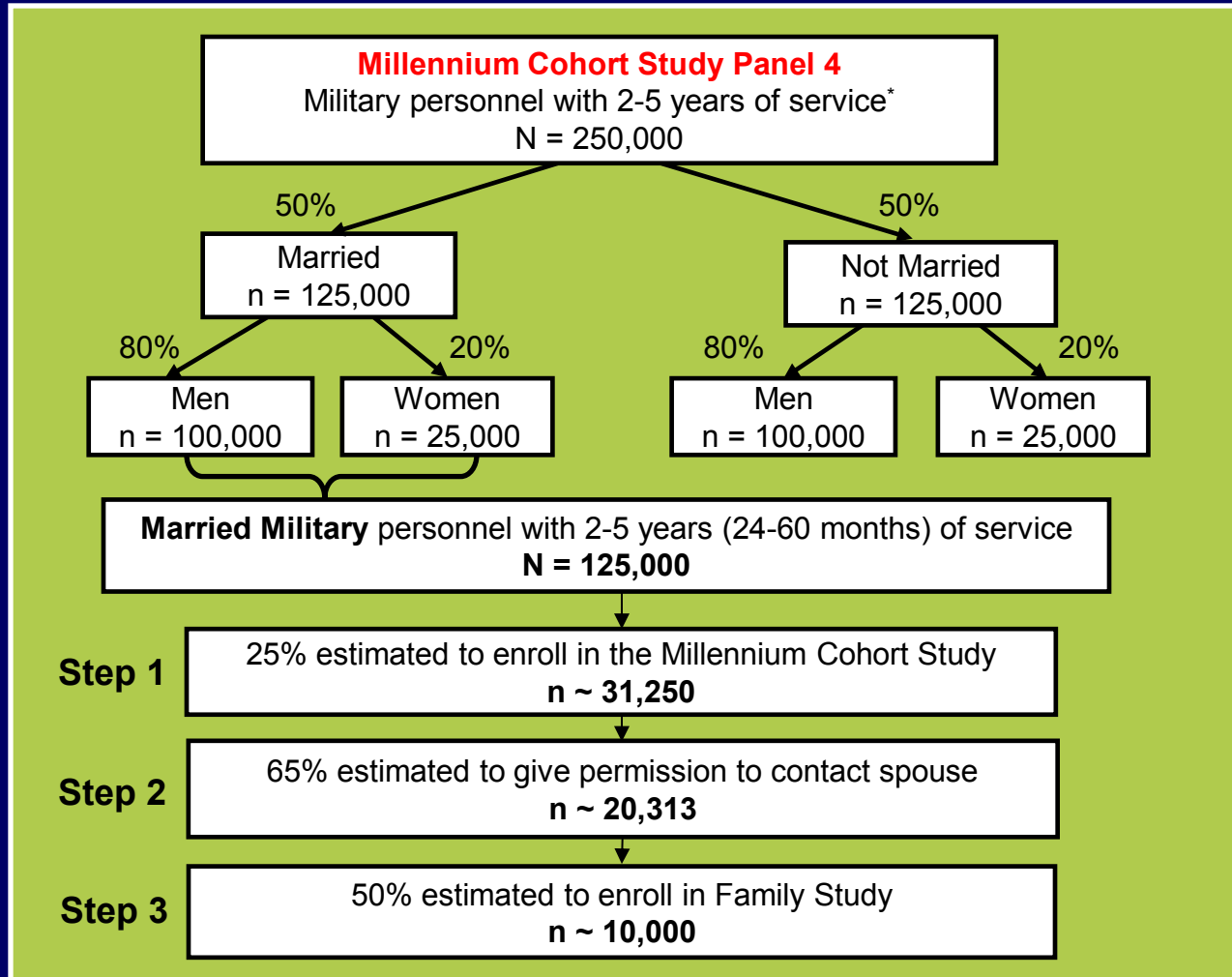
Panel 3: 43,439

Panel 4: 50,052

Of those enrolled:

- ✿ 58% deployed in support of the operations in Iraq and Afghanistan
- ✿ 47% Reserve Guard
- ✿ 43% have separated from the military

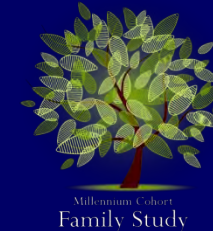
Design and Methodology: Sample



Panel 4 of the Millennium Cohort Study includes a probability sample of military service members (active duty, Reserve, and National Guard)

***Oversampling for women and married service members**

Design and Methodology



Web Survey



RELATIONSHIP WITH YOUR SPOUSE

Including your current relationship, how many times have **YOU** been married? For example, if you have been married one time only, please mark 1 for your response.

of times married

How many years have you been married to your **SPOUSE**?

- ☐ Not married
- ☐ less than 2 years
- ☐ 2-5 years
- ☐ 6-10 years
- ☐ 11-15 years
- ☐ 15 or more years

How long have you and your spouse been in a committed relationship?

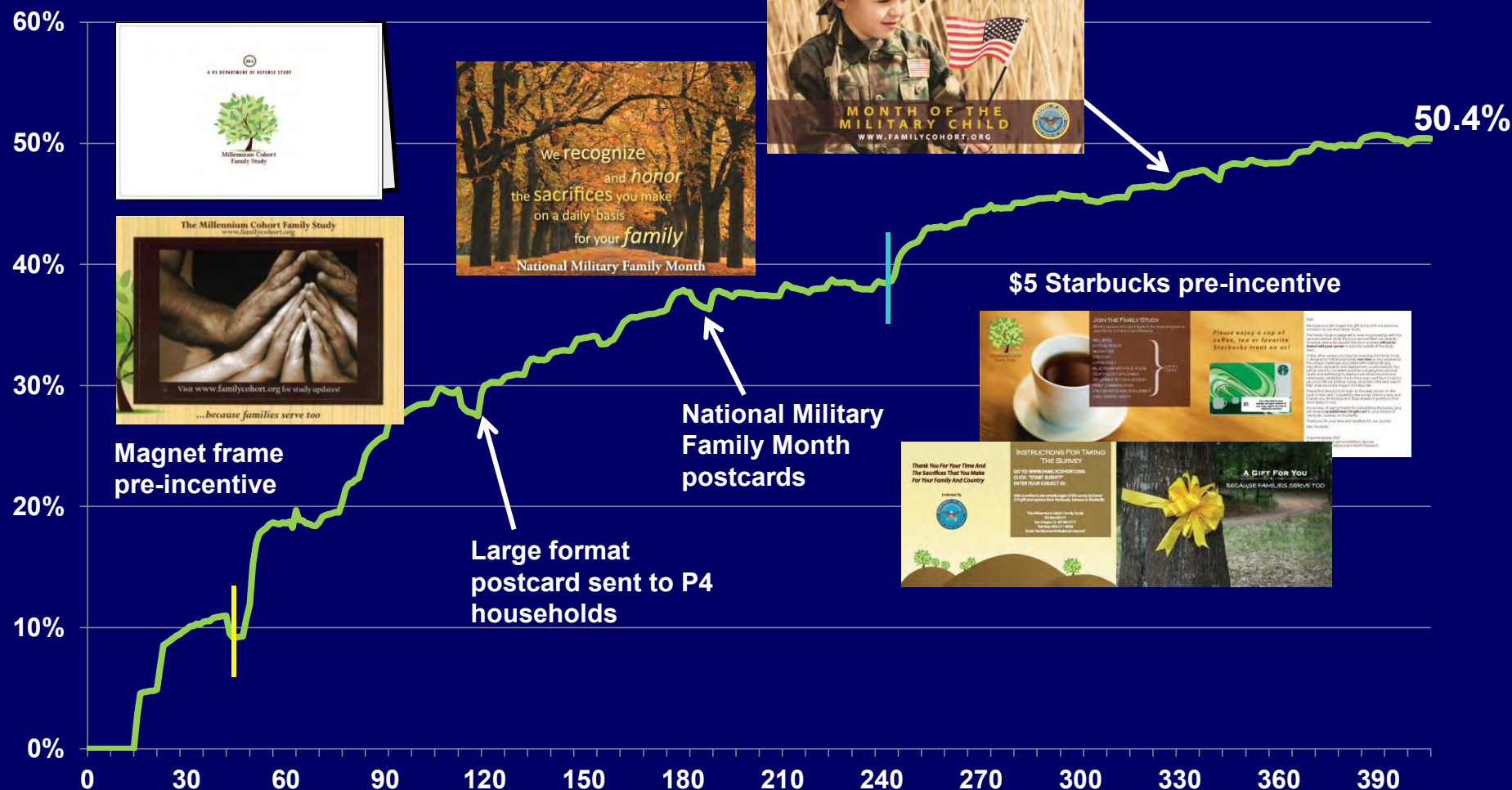
- ☐ Not in a committed relationship
- ☐ less than 2 years
- ☐ 2-5 years
- ☐ 6-10 years
- ☐ 11-15 years
- ☐ 15 or more years

Study Website
www.familycohort.org

Referred Spouse Contact: Rolling Sample June 2011 - July 2012



- 50% response rate
- 3,581 spouses enrolled



Magnet frame \$5 Pre-incentive

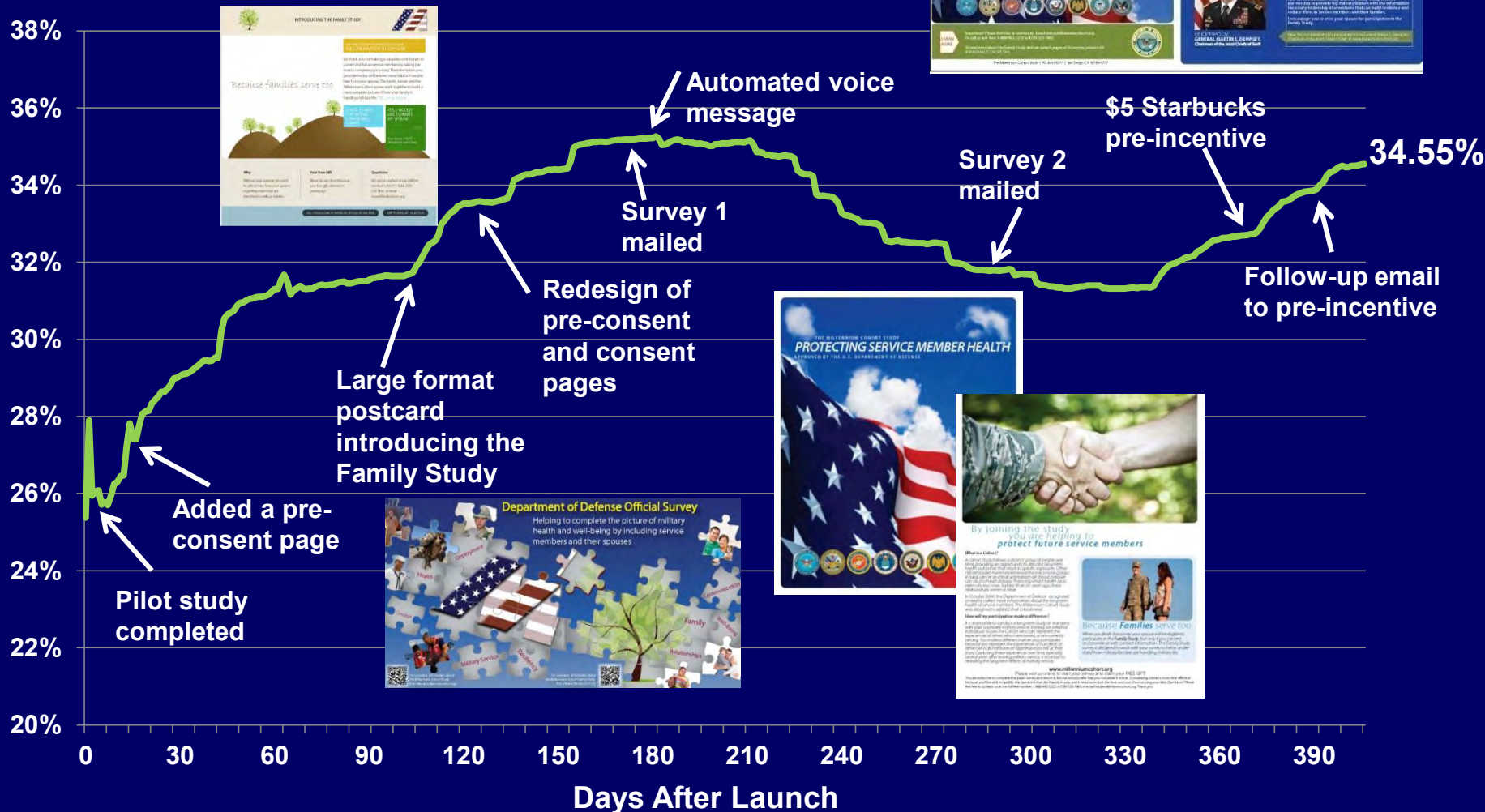
Days After Launch

Emails were sent biweekly.

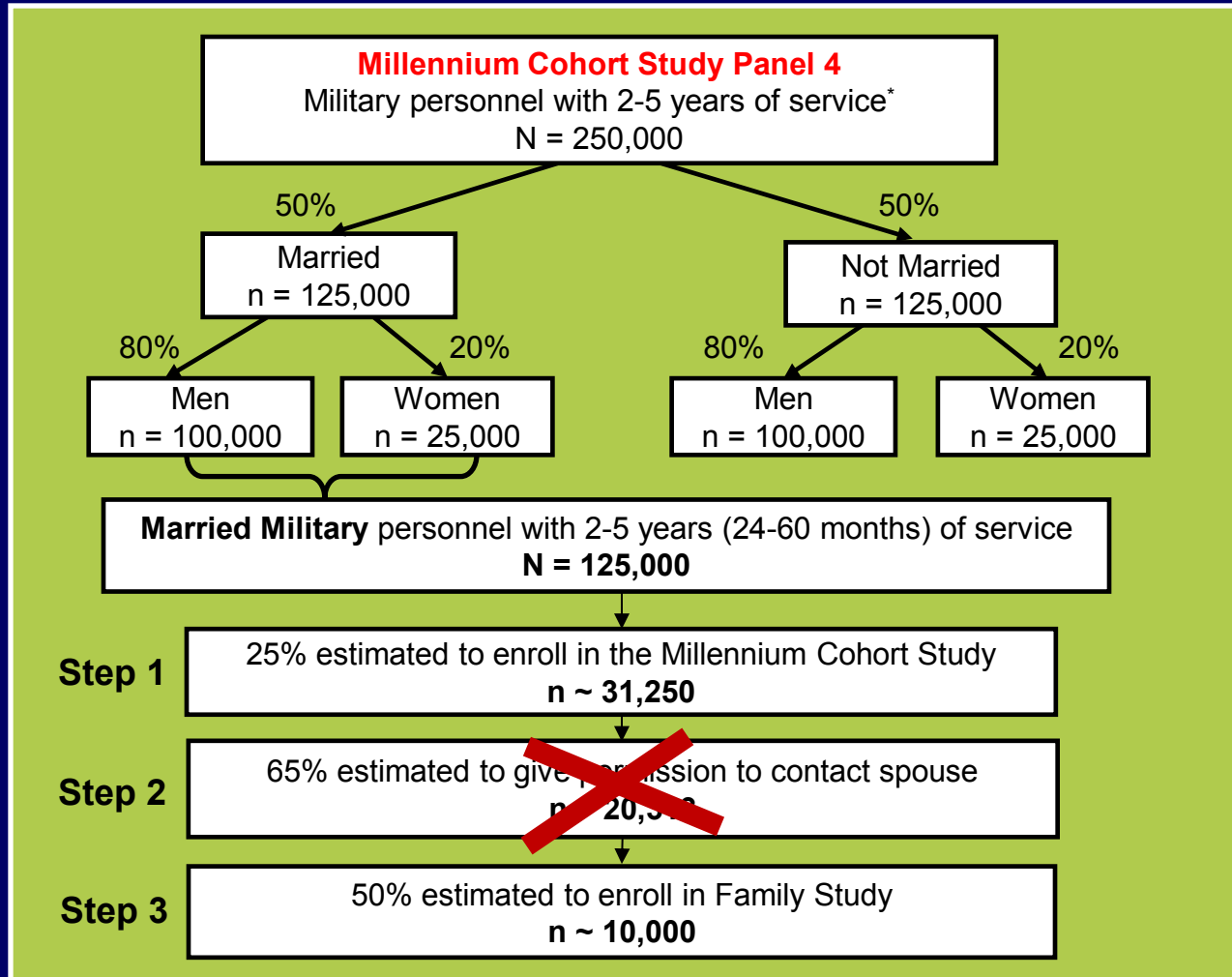
Service Member Referral Rate June 2011 - July 2012



- 35% referral rate
- 7,063 referrals



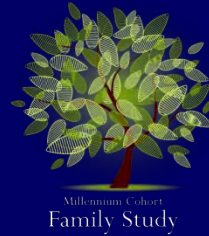
Design and Methodology: Sample



Panel 4 of the Millennium Cohort Study includes a probability sample of military service members (active duty, Reserve, and National Guard)

***Oversampling for women and married service members**

Enrollment of Non-Referred Spouses Begins July 2012



➤ Eligibility:

- Spouses of Panel 4 married responders that “skip” the referral page or completed a paper survey

➤ Developed modified survey:

- Paper Family survey developed
- Items requiring secondary consent (Your Spouse’s Behavior) were removed



➤ No Email Address:

- Mail only marketing campaign

Your perception of your spouse's behavior
Please be assured that your answers will
spouse's supervisors.

How often have you observed these behaviors in
most recent month your spouse was home?

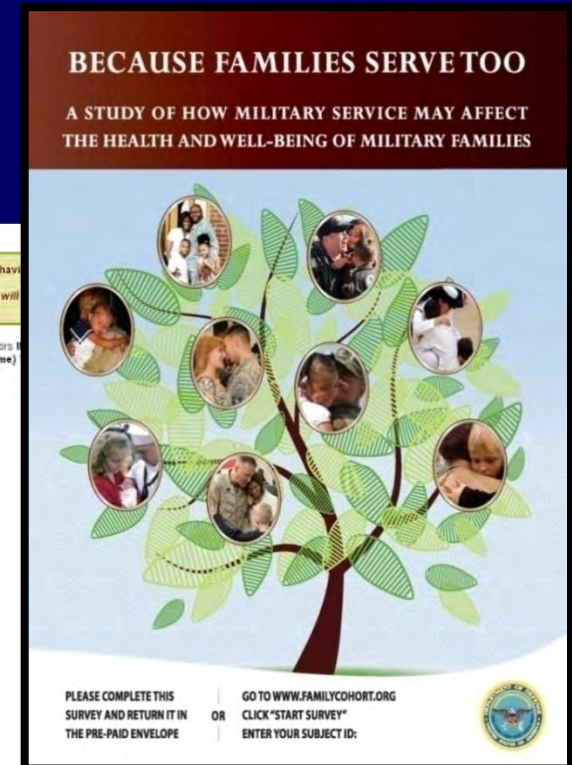
Sudden bad memories/flashbacks
Spaces out
Lack of interest in sex/intimacy
Difficulty sharing thoughts and feelings
Avoids former interests/activities
Hyper-alert/startles easily
Anxious/nervous
Fearful
Withdrawn/detached
Irritable
Quick temper
Secretive
Difficulty falling or staying asleep
Nightmares or bad dreams
Taking more risks with his/her safety
Lack of interest in parenting/children
(skip to the next question if you don't
have children)

Within the PAST MONTH (or the most recent month your spouse was home) how DIFFICULT
has it been for YOUR SPOUSE to do the following:

	Not at all	Somewhat	Very	Extremely
Do his/her work:	☐	☐	☐	☐
Take care of things at home	☐	☐	☐	☐
Get along with other people	☐	☐	☐	☐
Fulfill supporting role as spouse/parent	☐	☐	☐	☐

In your opinion, does YOUR SPOUSE consume too much alcohol in a typical week when he/she is
at home?

☐ No
☐ Yes



Spouse Categories

➤ With referral

- Email available
- Rolling enrollment



➤ Without referral

- Three random groups created from “newly” eligible spouses (July 17, 2012)
 - Group A (n=2,478)
 - Group B (n=2,477)
 - Group C (n=4,954)
- Rolling enrollment
 - After July 17, 2012



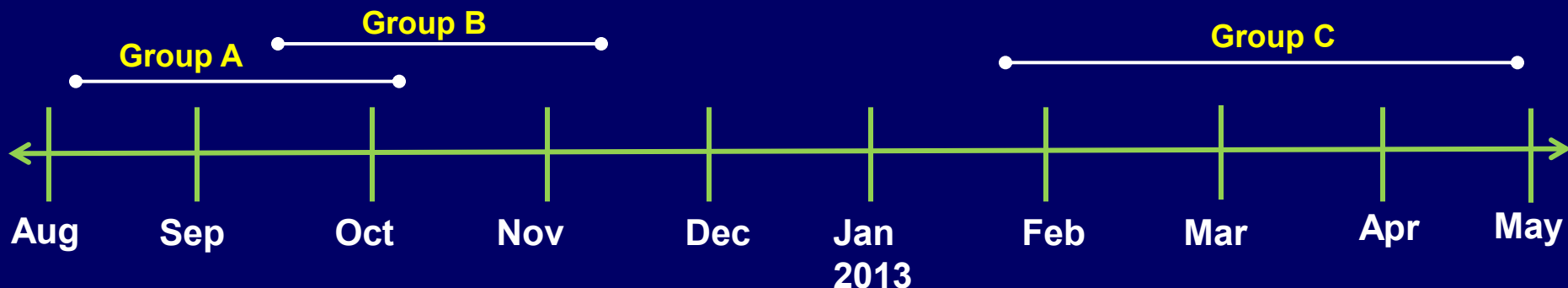
Survey Methodological Approaches

Group A: Push to Web

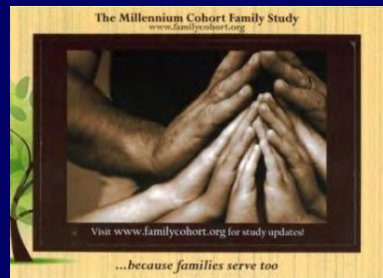
1. Magnet picture frame and card mailer (week 1)
2. Postcard reminder (week 2)
3. Sample survey with \$5 card (week 5)
4. Letter reminder (week 6)
5. Paper survey sent FedEx or USPS priority (week 9)
6. Postcard reminder (week 10)

Group B: Push to Paper

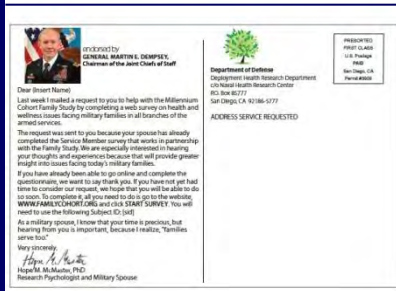
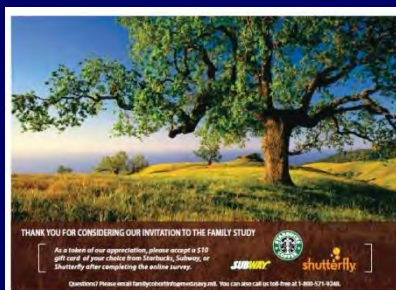
1. Paper survey with magnet picture frame included (week 1)
2. Postcard reminder (week 2)
3. Paper survey with \$5 card (week 5)
4. Letter reminder (week 6)
5. Paper survey sent FedEx or USPS priority (week 9)
6. Postcard reminder (week 10)



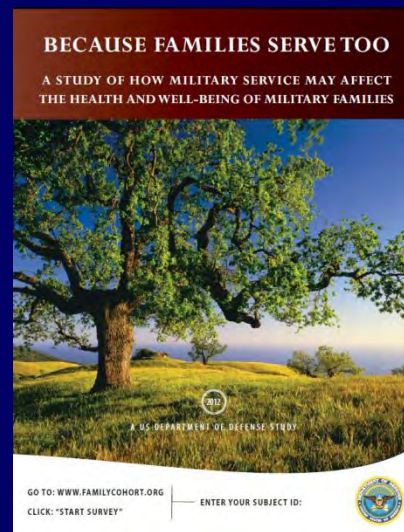
A1



A2



A3



WELL-BEING

How, we would like to ask you about your mental well-being. These questions are about how you feel and how things have been going over the last 4 weeks.

Over the last 4 weeks, how often have you been bothered by any of the following problems?

	Not at all	Several days	More than half the days
Feeling nervous, anxious, or on edge, or worrying a lot about different things	☐	☐	☐
Feeling restless so that it is hard to sit still	☐	☐	☐
Feeling tired very easily	☐	☐	☐
Having trouble sleeping, or sometimes	☐	☐	☐
Feeling things are worse or about things	☐	☐	☐
Feeling everything is on top of you, such as making a	☐	☐	☐
Feeling easily annoyed or irritated	☐	☐	☐

During the last 4 weeks, how much of the time...

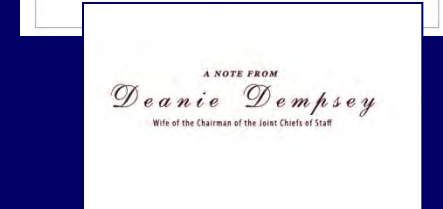
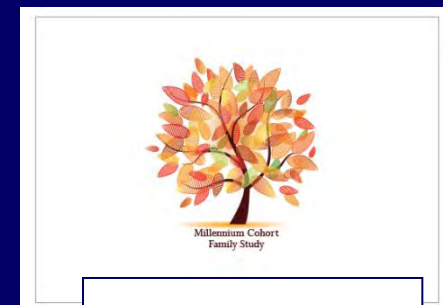
	None at all	A little bit	Some of the time	A good bit	Most of the time	All of the time
Did you feel full of pep?	☐	☐	☐	☐	☐	☐
Have you been a very nervous person?	☐	☐	☐	☐	☐	☐
Have you felt so down in the spirits that nothing could cheer you up?	☐	☐	☐	☐	☐	☐

How often in the last 4 weeks did you...

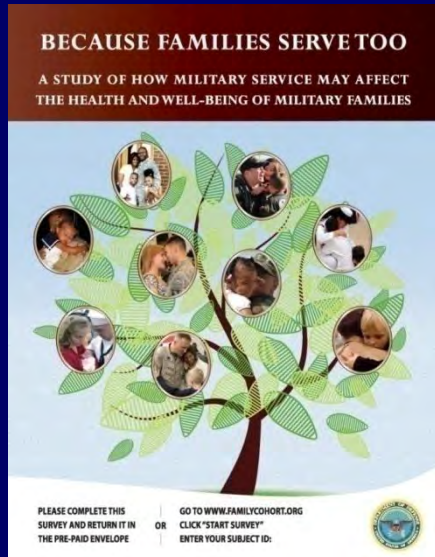
	Never	One Time	Two Times	Three or four times	Five or more times
Get angry at someone and yell or shout at them	☐	☐	☐	☐	☐
Get angry with someone and kick/scream something, slam the door, smash the wall, etc.	☐	☐	☐	☐	☐
Treat someone with physical violence	☐	☐	☐	☐	☐
Get physically or uncomprehending	☐	☐	☐	☐	☐

SURVEY QUESTION EXAMPLARS
VISIT WWW.FAMILYCOHORT.ORG TO COMPLETE YOUR SURVEY
Page 2

A4



A5



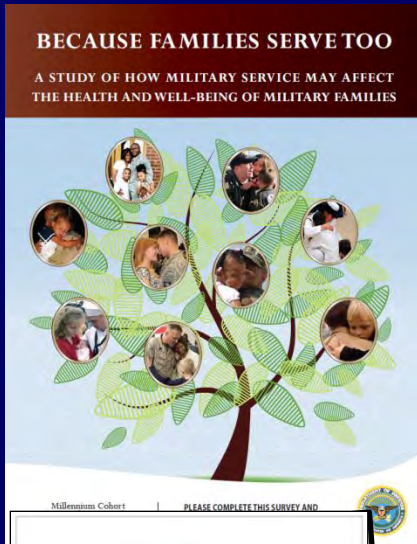
Via FedEx or Priority Mail

A6



\$5

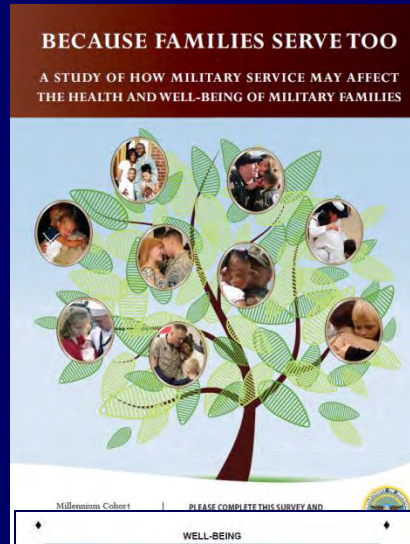
B1



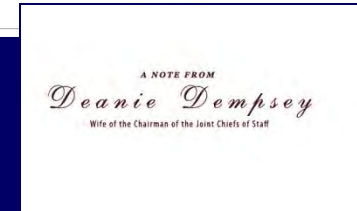
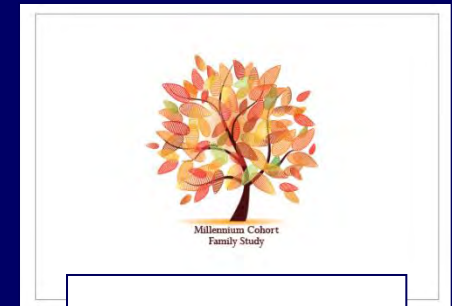
B2



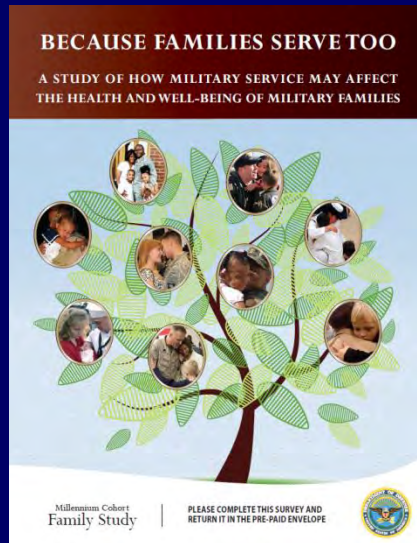
B3



B4



B5



B6

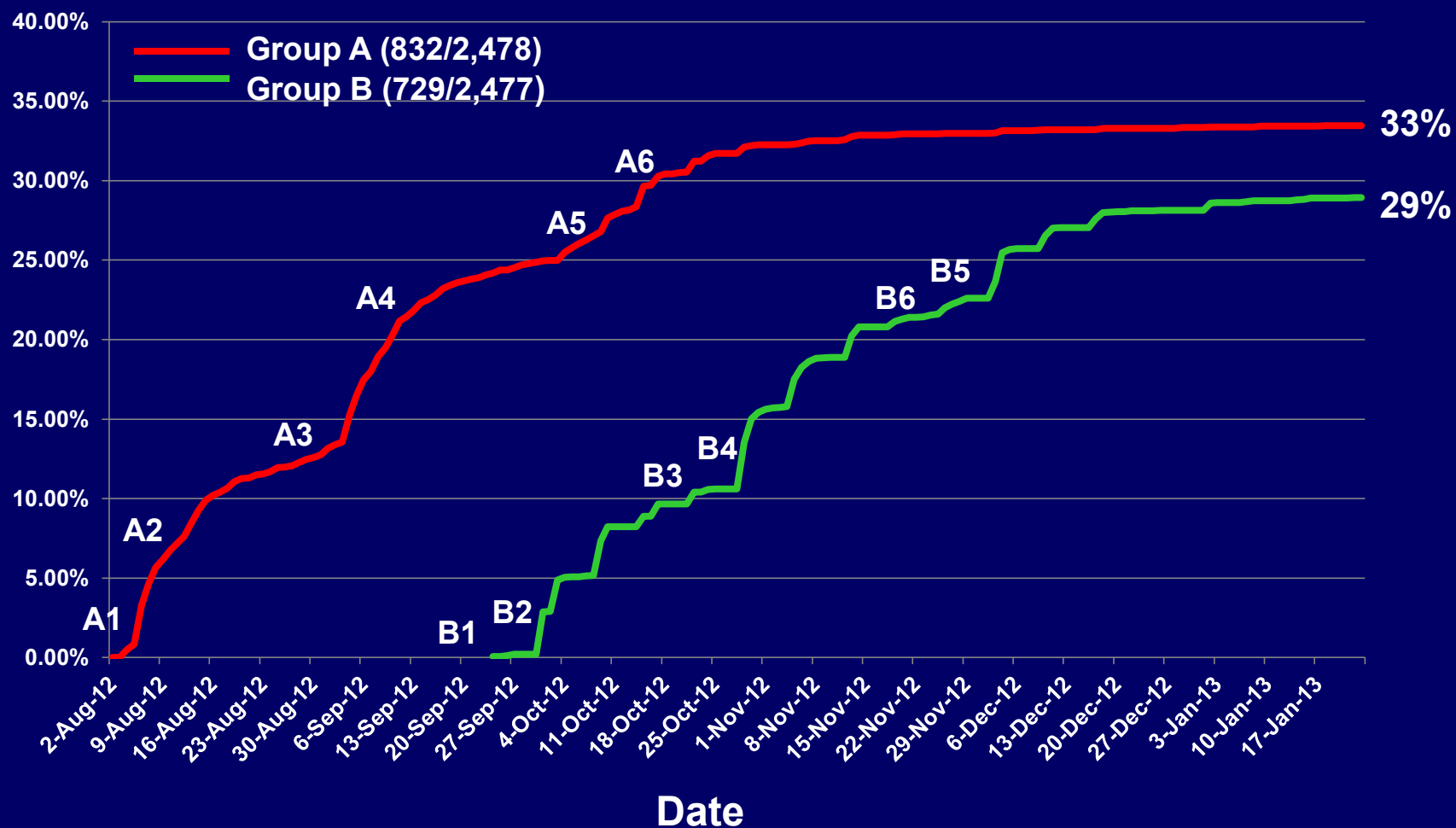


Via Fedex or
Priority Mail

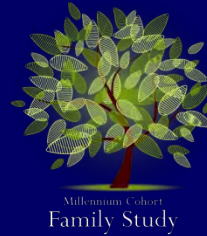


\$5

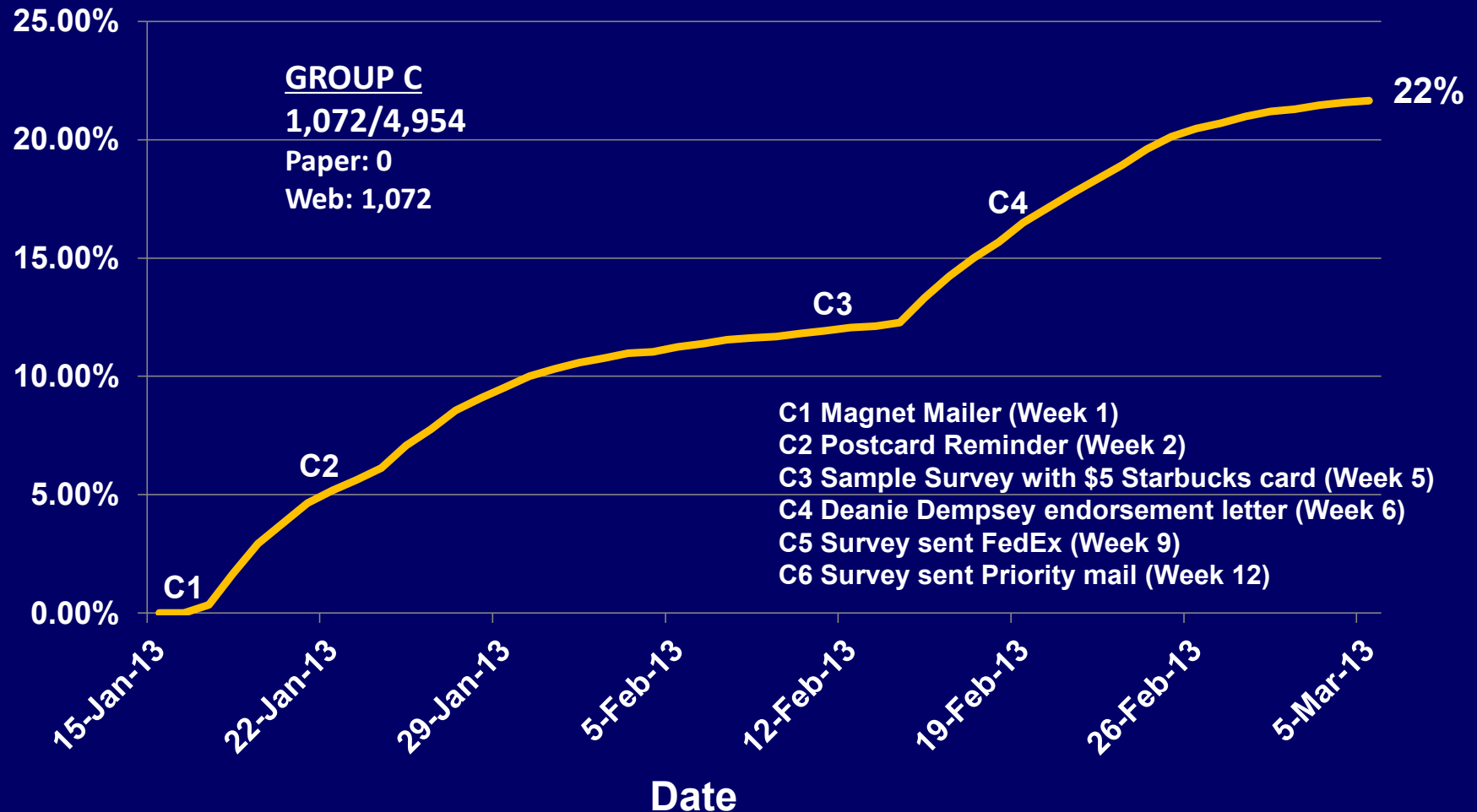
Spouses without Referral (no email): Experimental Groups A & B



Spouses without Referral (no email): Group C

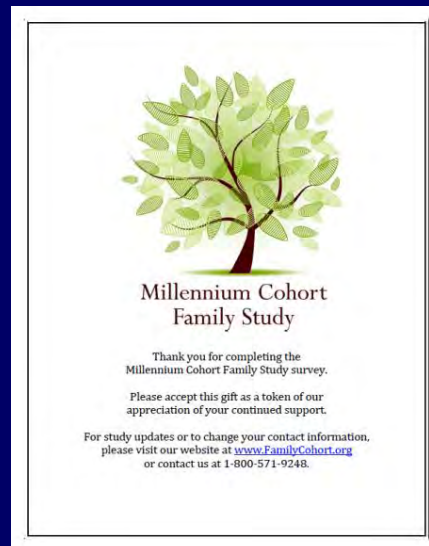


Same as 'A' with last mailing a paper survey vs. postcard

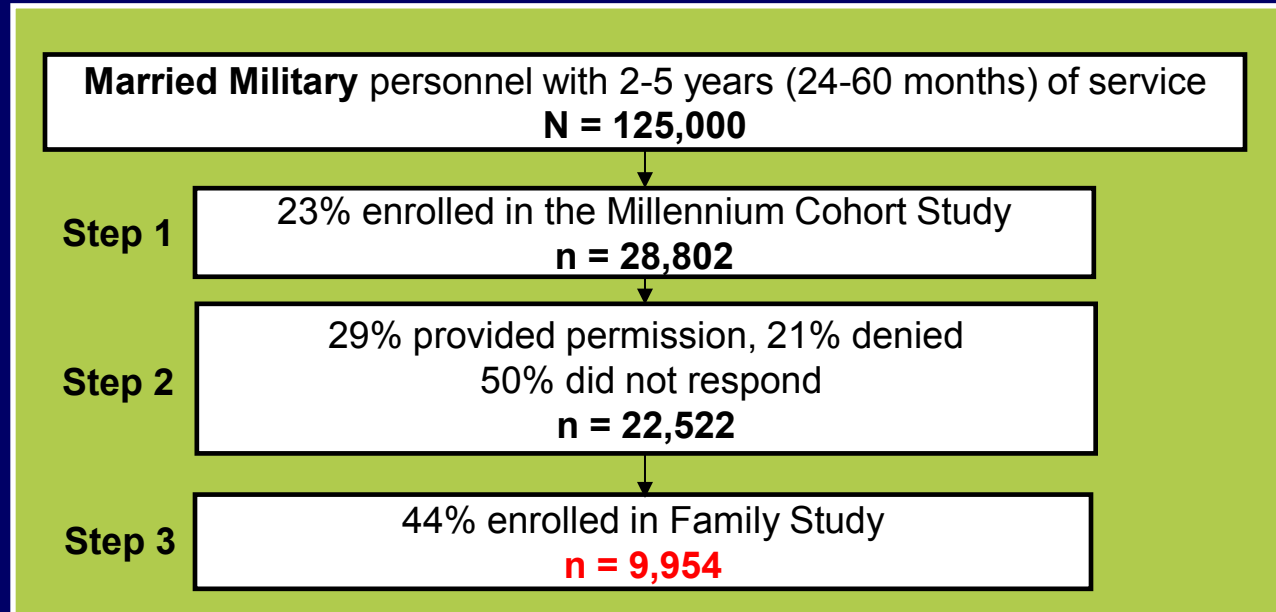


Additional Participant Contacts

- Holiday Greeting card
- Welcome to the Family Study card
- \$10 post-survey incentive gift card
 - Choice of Subway, Starbucks, or Shutterfly
- Postcards for:
 - National Military Family Month (November)
 - Month of the Military Child (April)



Final Study Population



- **63% response rate for referred spouses**
 - Email augmentation for bi-modal recruitment
 - Rapid invitation after Service Member enrollment
- **25% response rate for non-referred spouses**
 - Mailed paper requests without email augmentation
 - Time delay between Service Member enrollment and spouse invitation
- **84.6% completed survey via web (N=8,421)**

Survey Sections

- **Physical Health**
- **Mental Health**
- **Coping Skills**
- **Life Experiences**
- **Modifiable Behaviors**
- **Military Service (Dual Military)**
- **Marital Relationship**

PHYSICAL HEALTH

Over the **past 12 months**, approximately how many days were you hospitalized because of illness or injury? (exclude hospitalization for pregnancy and childbirth)

☐ None
☐ 1 day
☐ 2-5 days
☐ 6-10 days
☐ 11-15 days
☐ 16-20 days
☐ 21 days or more

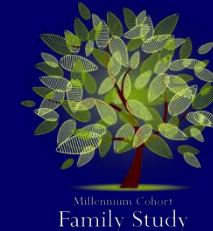
Over the **past 12 months**, approximately how many days were you unable to work or perform your usual activities because of illness or injury? (exclude lost time for pregnancy and childbirth)

☐ None
☐ 1 day
☐ 2-5 days
☐ 6-10 days
☐ 11-15 days
☐ 16-20 days
☐ 21 days or more



- **Spouse's Deployment**
- **Return and Reunion**
- **Spouse's Behavior**
- **Military Life**
- **Family Functioning**
- **Children**
- **Demographics**

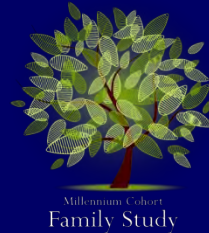
Measures



Standardized instrument used	Topics covered
Medical Outcomes Study Short Form 36-Item Survey for Veterans (SF-36V)	Physical, mental, and functional health
Patient Health Questionnaire (PHQ)	Depression, anxiety, panic syndrome, binge-eating, bulimia nervosa, and alcohol abuse
Posttraumatic Stress Disorder (PTSD) Checklist-Civilian Version (PCL-C)	Post-traumatic stress disorder
CAGE questionnaire	Alcohol problems
Insomnia Severity Index (ISI)	Sleep
Family Adaptability and Cohesion Evaluation Scale (FACES IV)	Family communication and satisfaction
Quality of Marriage Index (QMI)*	Relationship with Service Member
Adverse Childhood Experiences (ACE)*	Childhood experiences of spouse
Strengths & Difficulties Questionnaire (SDQ)*	•Behavioral screening for children

*Adapted versions of these instruments were used.

Complementary Data Sources



Civilian Spouse*

Civilian Inpatient /
Outpatient Care &
Behavioral Health



Military Inpatient and
Outpatient Care

Pharmacologic
Data



Medical History



Mortality Data

Service Member



Survey Data



Demographic Data



Recruit Assessment Program



Military Inpatient and Outpatient Care



Civilian Inpatient and
Outpatient Care



Pharmacologic Data



Medical History



Deployment Data



Environmental Exposure Data



Mortality Data



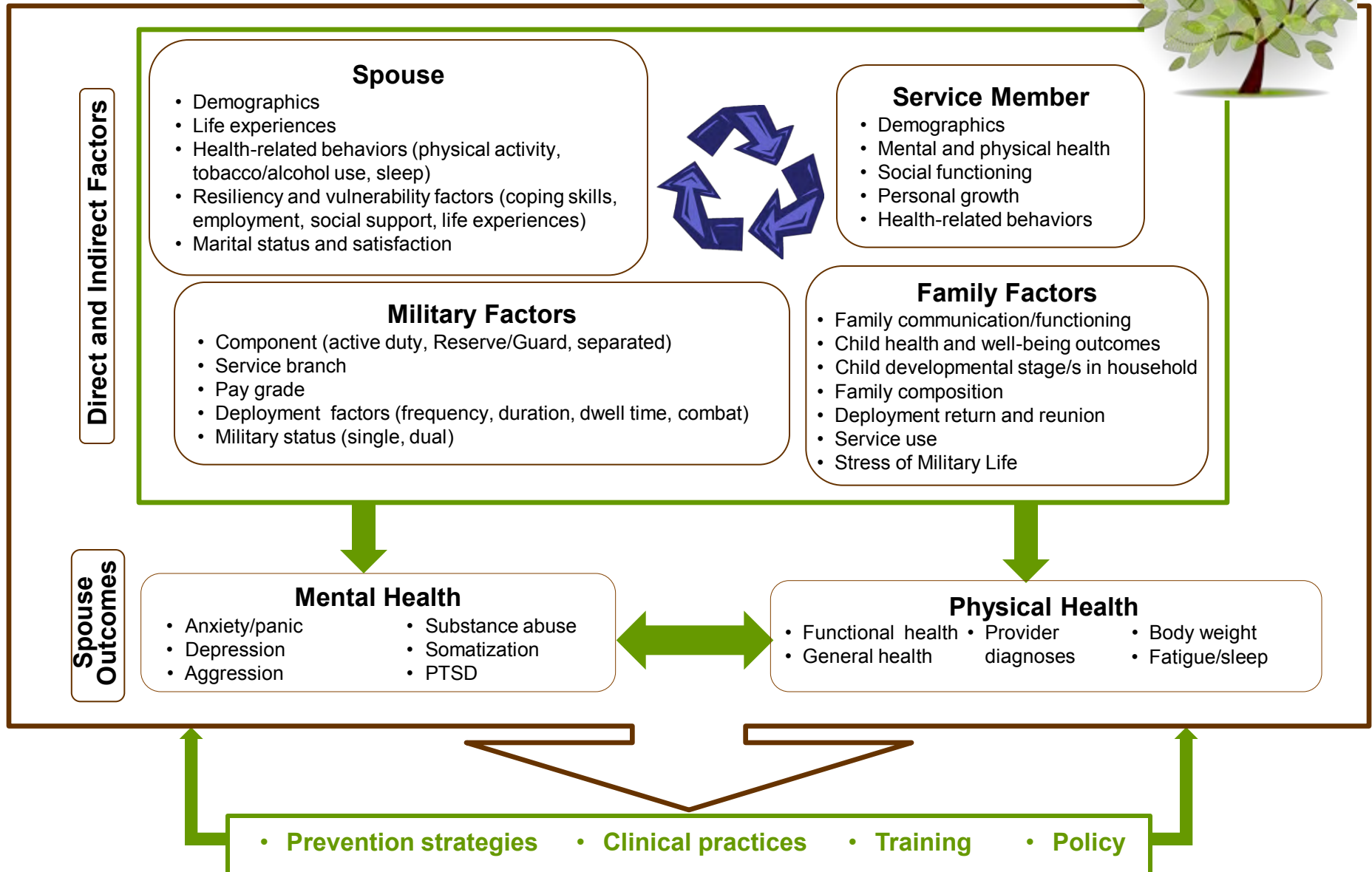
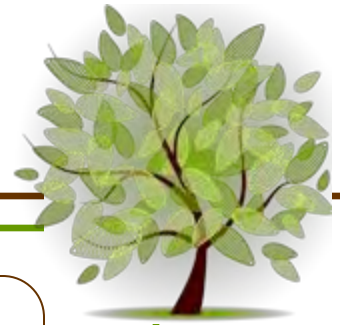
Immunization Data



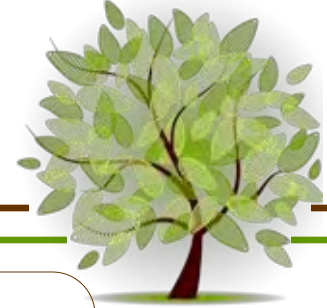
Department of Veterans Affairs

*Spouses of Active Duty service members

2011-12 Family Survey: Spouse Model



2011-12 Family Study: Child Model



Direct and Indirect Factors

Parental Factors

- Demographics
- Marital status (married, divorced, separated, widowed)
- Marital satisfaction
- Mental health
- Physical health
- Social functioning
- Health-related behaviors (physical activity, tobacco/alcohol use, sleep)
- Resiliency and vulnerability (coping skills, employment, social support, life experiences)

Military Factors

- Component (active duty, Reserve/Guard, separated)
- Service branch
- Rank/pay grade
- Deployment (frequency, duration, dwell time, combat)
- Military status (single, dual)

Family Factors

- Family communication/functioning
- Family composition
- Proximity to a base
- Service use
- Stress of military life
- Deployment return and reunion
- Child developmental stage/s in household



Child Outcomes

Behavioral

- Parent observations (close friends, TV consumption, stealing, attention, temper, lying, fighting, fears)
- Parent reported provider diagnoses (conduct disorder, oppositional defiant disorder)

Parent Reported Service Use

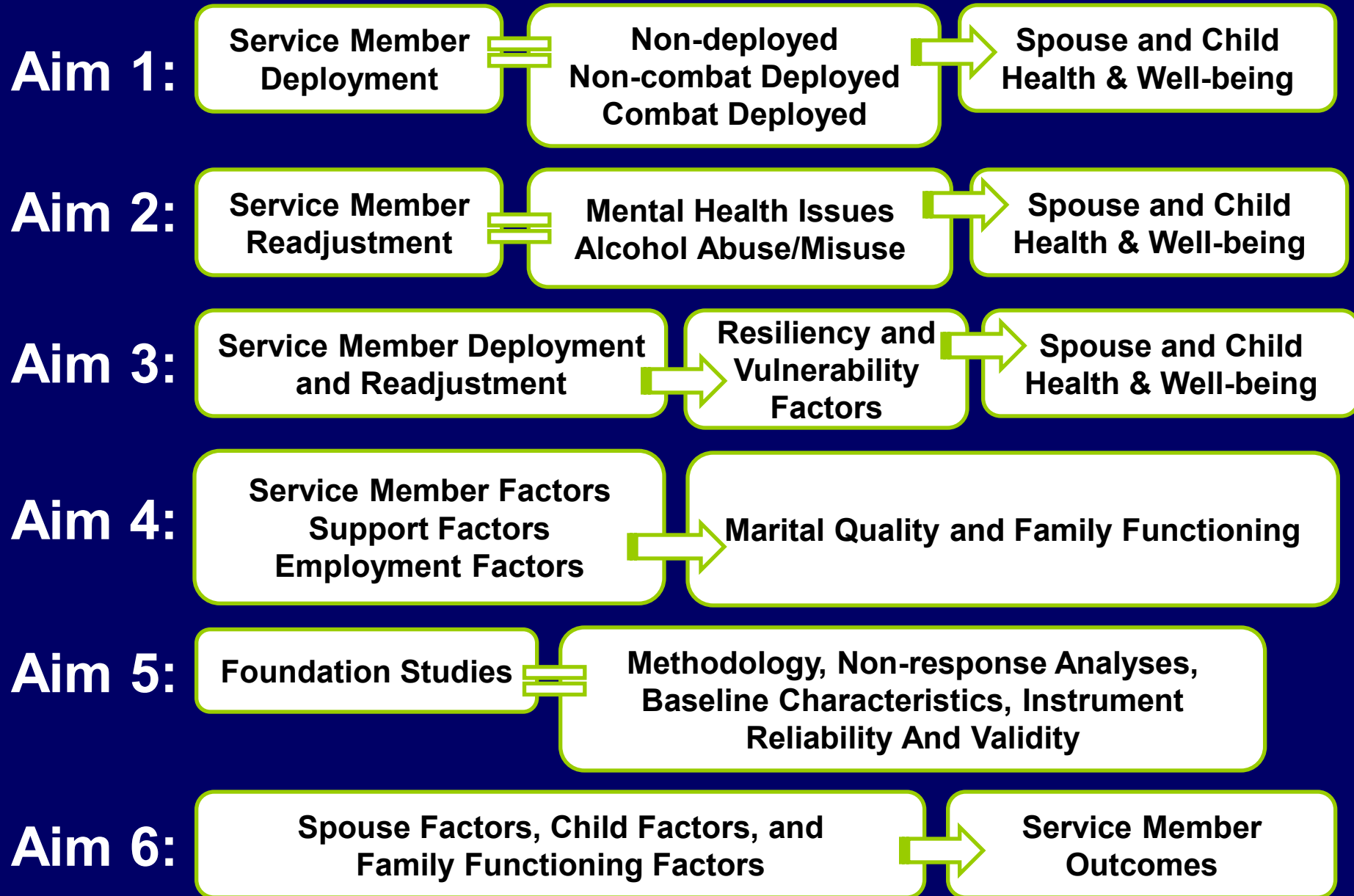
- Inpatient/outpatient counseling (self-help groups, day treatment, residential, individual therapy)
- State services (welfare, foster care, case-management, incarceration)
- School services (counseling, special education)

Health and Well-being

- Parent reported provider diagnosed psychological and physical conditions

-
- Prevention strategies
 - Clinical practices
 - Training
 - Policy

Research Aims



Aim 1:



Objectives

- 1. Compare emotional, behavioral, and medical issues of spouses of service members deployed with and without combat to spouses of service members who have not yet deployed**
- 2. Compare behavioral issues of children of service members deployed with and without combat to children of service members who have not yet deployed**
- 3. Examine number and length of service member deployments in relation to spouse mental health outcomes**
- 4. Examine number and length of service member deployments in relation to child behavioral outcomes**

Aim 2:

**Service Member
Readjustment**



**Mental Health Issues
Alcohol Abuse/Misuse**



**Spouse and Child
Health & Well-being**

Objectives

- 1. Explore the association between service member mental health and spouse mental health and distress (alcohol misuse/abuse, tobacco use, aggression)**
- 2. Investigate association between service member alcohol misuse/abuse and spouse mental health and distress**
- 3. Determine relationship between service member readjustment issues and spouse somatic symptoms (body pain, headaches, dizziness, sleep issues)**
- 4. Assess association of service member readjustment issues with child behavioral outcomes**

Aim 3:

**Service Member Deployment
and Readjustment**

**Resiliency and
Vulnerability
Factors**

**Spouse and Child
Health & Well-being**

Objectives

- 1. Explore social support (friends, family, neighbors, co-workers)**
- 2. Investigate support services (return and reunion programs, mental health and primary care providers, clergy)**
- 3. Investigate the stress of military life (multiple PCS moves)**
- 4. Explore family characteristics (number and age of children in the household, children with special physical or mental health needs)**
- 5. Investigate spouse adverse life events (child and adult)**
- 6. Assess employment factors (rank, job codes, work status, dual service)**
- 7. Investigate proximity to military services (GIS residency data)**
- 8. Explore self-mastery (personal power over life's outcomes)**

Aim 4:

**Service Member Factors
Support Factors
Employment Factors**



Marital Quality And Family Functioning

Objectives

- 1. Assess deployment experiences and service member readjustment (issues and growth)**
- 2. Explore service member injury, physical component score, and number doctor diagnosed conditions**
- 3. Assess service member alcohol misuse/abuse or tobacco use**
- 4. Examine social support (friends, family, co-workers) and support services (return and reunion programs, mental health and primary care providers, clergy)**
- 5. Explore employment factors (service member gender, rank, and occupational code; work/family conflict; work status; dual service)**

Aim 5:

Foundation Studies

**Methodology, Non-response Analyses,
Baseline Characteristics, Instrument
Reliability And Validity**

Objectives

- 1. Examine methodology and target enrollment population**
- 2. Conduct non-response analyses to ensure adequate representation of spouses**
- 3. Examine baseline characteristics of Family Study enrolled sample**
- 4. Assess validity of assessment measures and instruments**

Aim 6:

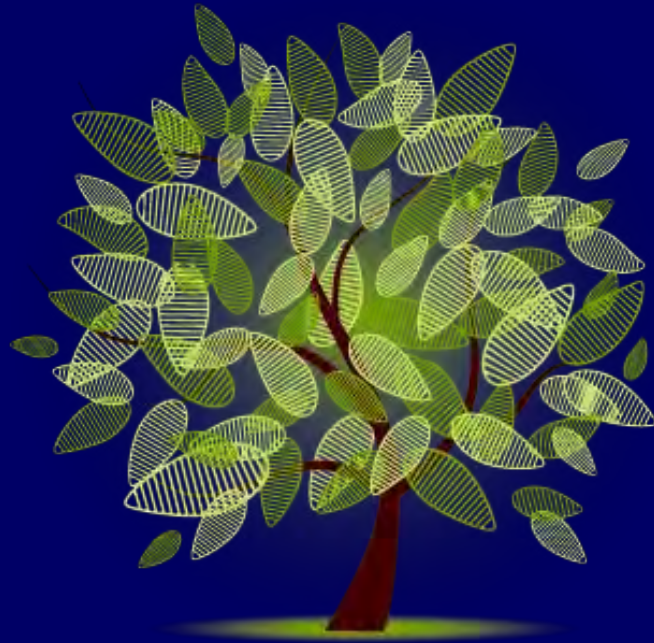
**Spouse Factors, Child Factors, and
Family Functioning Factors**



**Service Member
Outcomes**

Objectives

- 1. Describe spouse related factors (health and well-being, support service use, modifiable behaviors) that are associated with service member health and well-being outcomes**
- 2. Explore spouse related factors (health and well-being, support service use, modifiable behaviors) that are associated with the military members' length of service and separation**
- 3. Determine child related factors (health, behavior, well-being, number in household) that are associated with the military members' length of service and separation**
- 4. Explore the association between family communication and satisfaction and service member health and well-being**
- 5. Describe factors associated with the health and well-being of service members in dual military families**



Millennium Cohort
Family Study

Preliminary Findings

Demographics of MilCo Family Study (N=9,954*)

Characteristic	n*	%
Female	8,629	87%
Race/ethnicity		
White, non-Hispanic	7,738	78%
Black, non-Hispanic	417	4%
Hispanic	908	9%
Mean age in years of spouse = 29 (SD 5.8)		
Currently married	9,785	99%
Have children	6,271	63%
Mean # of children = 1.7 (SD 1.0)		
Age of children (of 11,055 children reported)		
<= 2 years	4,863	44%
3-5 years	2,868	26%
6-11 years	2,162	20%
12-17 years	857	7%
18 and older	305	3%

Characteristic	n*	%
Education		
High school or less	1,287	13%
Some college/Associate degree	4,608	46%
Bachelor's degree or higher	4,036	41%
Employment		
Full-time or part-time job	4,576	52%
Not employed	907	10%
Homemaker	3,270	37%
Spouse [†] deployed since 2001, of 1,761 spouses who ever served in military	886	50%
Sponsor [‡] deployed since 2001	7,399	75%

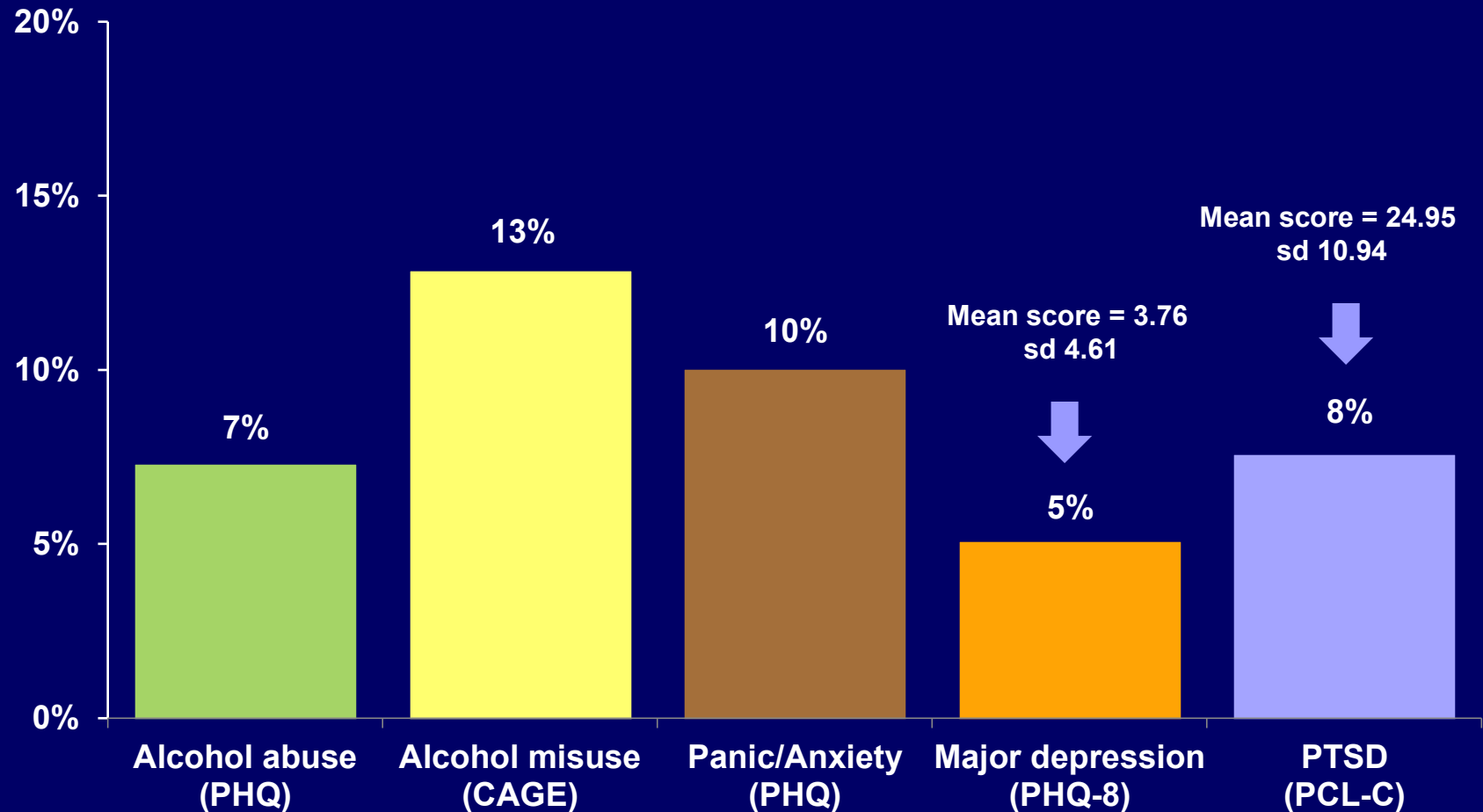
*Total population may vary by variable due to missing data;

[†] Spouse = Family Study participant

[‡] Sponsor = Millennium Cohort Panel 4 participant

First Glance at the Data:

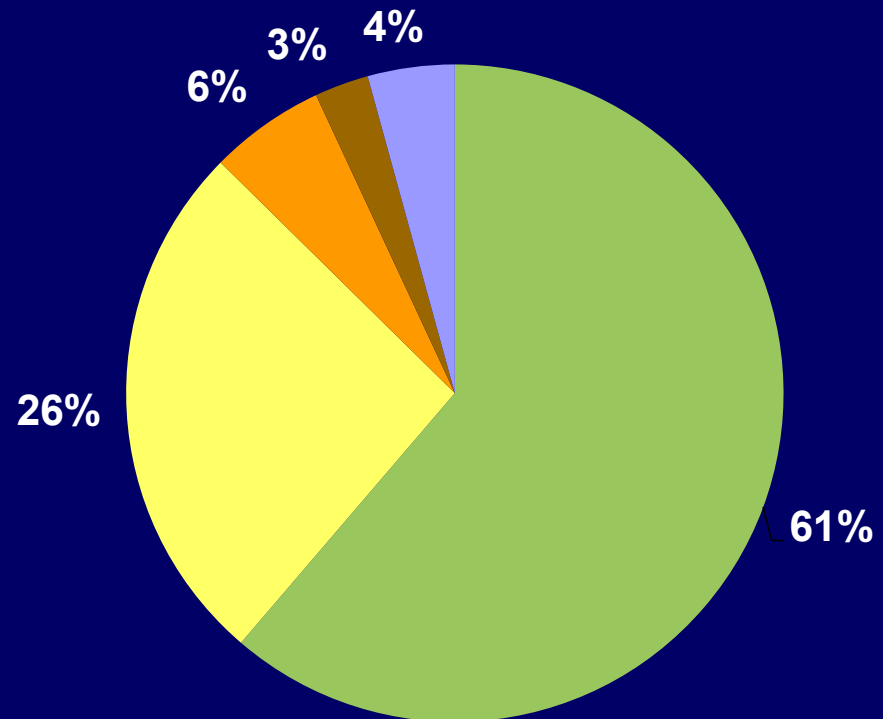
Spouse Mental Health Screening (n=9,954)



Quality of Marriage Index

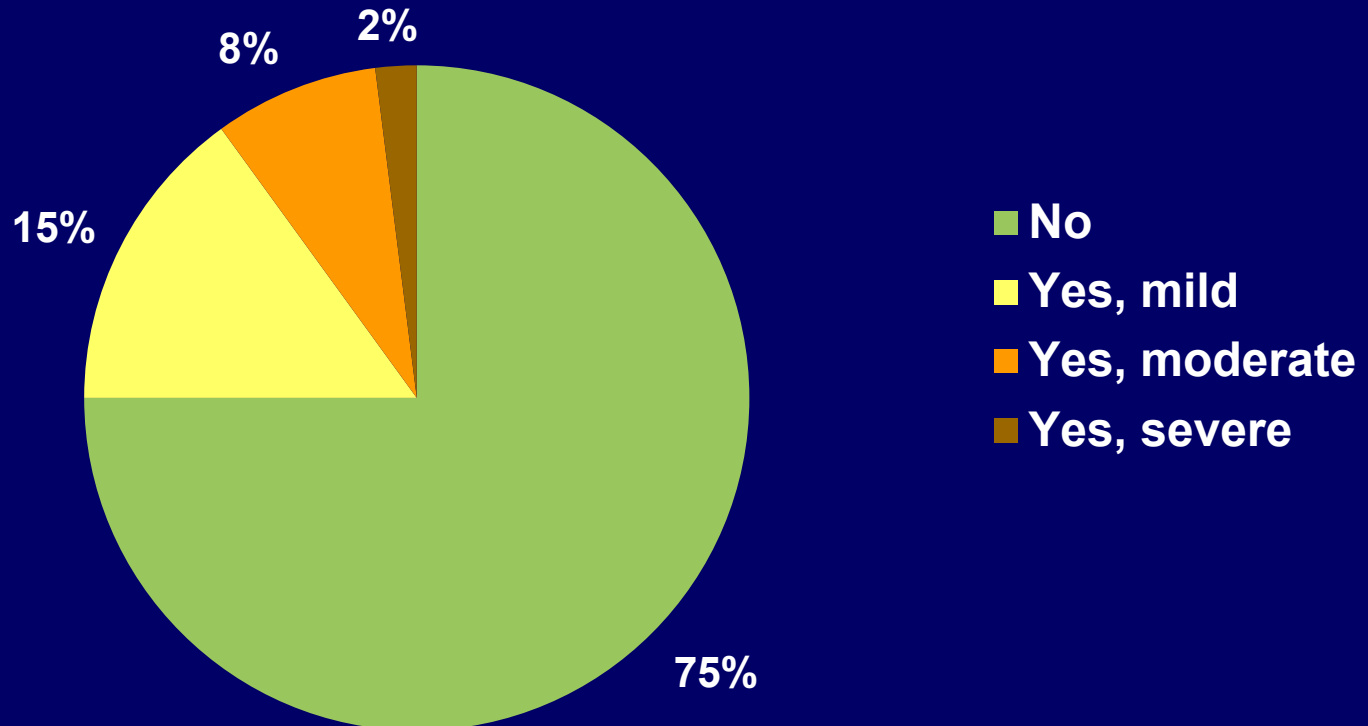
Have a good marriage (n=9,954)

- Strongly agree
- Agree
- Neither agree or disagree
- Disagree
- Strongly disagree



Children

Families with a Child(ren) Currently Experiencing a Behavioral, Emotional, or Learning Problem (n=3,710*)



*Families with only children 2 years old or younger were excluded



Service Member Characteristics		Family Study Responders* n (%) n =9,930†	Married Military Population with 2-5 Years of Service‡ n (%) N = 347,481
Sex			
	Male	8,627 (87)	290,468 (84)
	Female	1,303 (13)	57,012 (16)
Race/ethnicity			
	White, non-Hispanic	7,997 (81)	↔ 228,623 (66)
	Black, non-Hispanic	519 (5)	41,167 (12)
	Asian/Pacific Islander	398 (4)	14,524 (4)
	Hispanic	745 (7)	43,873 (13)
	Native American	153 (2)	6,885 (2)
	Other	118 (1)	12,409 (4)
Age (years)			
	17-24	1,793 (18)	107,124 (31)
	25-34	7,062 (71)	213,148 (62)
	35-44	923 (9)	22,574 (6)
	>44	152 (2)	2,340 (1)

Total population may vary by variable due to missing data.

*Responders include those that responded to either the paper or the web version of the survey.

†Total sample size includes only Family Study responders whose service member completed the P4 Millennium Cohort survey.

‡Married military population data from 31 Oct 2010.

Service Member Characteristics	Family Study Responders*		Married Military Population with 2-5 Years of Service‡	
	n (%)		n (%)	
	n = 9,930†		N = 347,481	
Education				
Some college or less	6,932	(70)	300,312	(87)
Bachelor’s or higher degree	2,997	(30)	44,875	(13)
Service Branch				
Air Force	2,722	(27)	59,329	(17)
Army	4,581	(46)	164,201	(47)
Coast Guard	278	(3)	6,325	(2)
Marine Corps	937	(9)	58,201	(17)
Navy	1,412	(14)	59,425	(17)

Total population may vary by variable due to missing data.

*Responders include those that responder to either the paper or the web version of the survey.

†Total sample size includes only Family Study responders whose service member completed the P4 Millennium Cohort survey.

‡Married military population data from 31 Oct 2010.

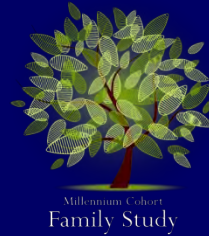
Service Member Characteristics		Family Study Responders*	Married Military Population with 2-5 Years of Service‡
		n (%) n =9,930†	n (%) N = 347,481
Military Component			
Active Duty		7,140 (72)	254,291 (73)
Reserve/Guard		2,790 (28)	93,190 (27)
Military Pay Grade			
Enlisted		7,423 (75)	316,432 (91)
Officer		2,507 (25) ↔	31,049 (9)

Total population may vary by variable due to missing data.

*Responders include those that responder to either the paper or the web version of the survey.

†Total sample size includes only Family Study responders whose service member completed the P4 Millennium Cohort survey.

‡Married military population data from 31 Oct 2010.

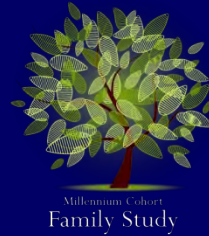


Proposed FY14 Analyses/Papers: Foundation Studies (Aim 5)

- **Nonresponse analyses using Panel 4 members**
 - Detailed electronic demographic data available for invited Panel 4 military personnel
 - * Use logistic regression to estimate propensity model for providing spouse referral
 - * Use logistic regression to estimate propensity model for spouse participating in the Family Study
- **Identify potential bias within Family Study**
 - Only limited information can be obtained on military spouses (e.g. age, gender, race/ethnicity)
 - * Compare characteristics of Family Cohort participants to all other spouses in the military
 - * Compare Family Study participants to non-responding invited spouses
 - * Compare referred spouses to non-referred spouses
 - * Compare web responders to paper responders

Proposed FY14 Analyses/Papers: Foundation Studies (Aim 5)

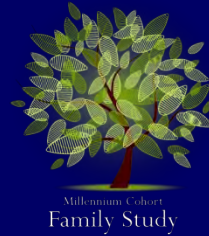
- Perform analyses to compare baseline characteristics of Family Study participants whose Panel 4 spouses did deploy with those whose spouses did not deploy
 - Understanding these differences would be useful for future substudies where stratified analyses might be performed



Proposed FY14 Analyses/Papers:

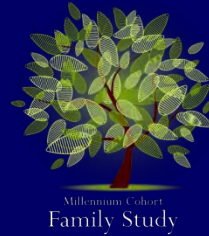
Primary Analyses

- **Aim 1, 2, & 3: Explore the association between service member readjustment and/or deployment and the health and well-being of spouses and children**
 - **An Examination of Parental Stress, Coping, and Child Psychosocial Functioning Among Families of Deployed and Non-Deployed Service Members**
 - **Determine the factors associated with depression among military spouses**
- **Aim 6: Contribute data to the service member cohort study on spouse and child factors that are associated with service member health and well-being, as well as length of service**
 - **Association of Marital Quality/Satisfaction with Service Member Well-Being**



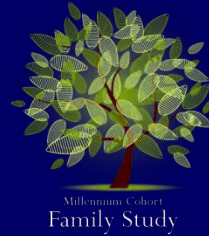
Deliverables and Successes

- **Enrolled ~10,000 spouses**
- **Developed and implemented marketing and survey strategies to improve response rates**
 - **Invited spouses with and without referral**
 - **Implemented a highly effective 6-step mail approach**
 - **Used a sample survey to encourage web survey response**
 - **Introduced a paper survey (second mode to respond)**
 - **Tailored messages to spouses**
 - **Obtained endorsement from Deanie Dempsey**
 - **Utilized pre-incentives (magnet, \$5 gift card)**
- **Scanned and verified all paper surveys**
- **Cleaned and verified all survey data**
- **Created final dataset**
- **Linked Family data with married Service Member**



Deliverables and Successes

- **Improved Family Study Website**
 - **Now includes guidelines for researchers interested in collaborating and using data**
- **Paper in press describing the overall study design**
- **Completed first draft of paper comparing two methods for enrolling participants**
- **Developed cognitive interview protocols to improve FY14-15 study materials**
- **Completed survey revisions of the 2014-2015 follow up cycle**
- **Received IRB approval for 2014-2015 survey**
- **OMB approval pending**
- **Developed and approved a streamlined collaboration protocol**
- **Executed DUA between NHRC and Abt Associates to share data**



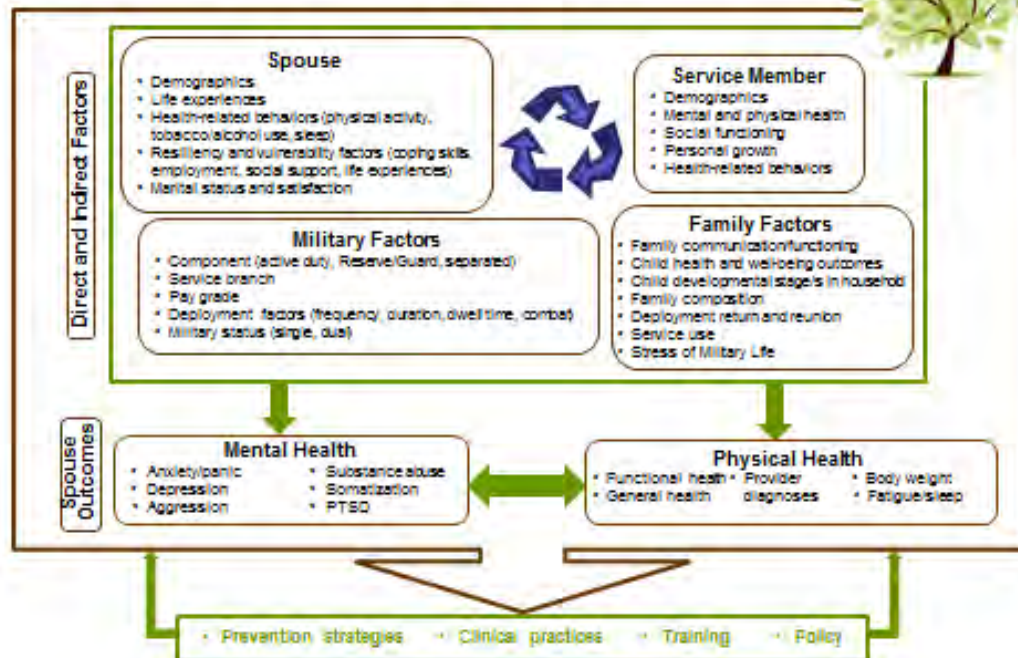
Summary

- **The Family Study is the only prospective service-wide military study that collects information on the service member-spouse dyad**
 - **Determines the impact of service member's military experiences on family outcomes**
- **Ability to explore important subpopulations**
 - **Reserve and National Guard families, dual military families, and male military spouses**
- **Upcoming analyses will provide critical data for DoD leaders and policymakers to more fully understand the impact of military service on families, and provide information for the development of preventive and interventional programs**

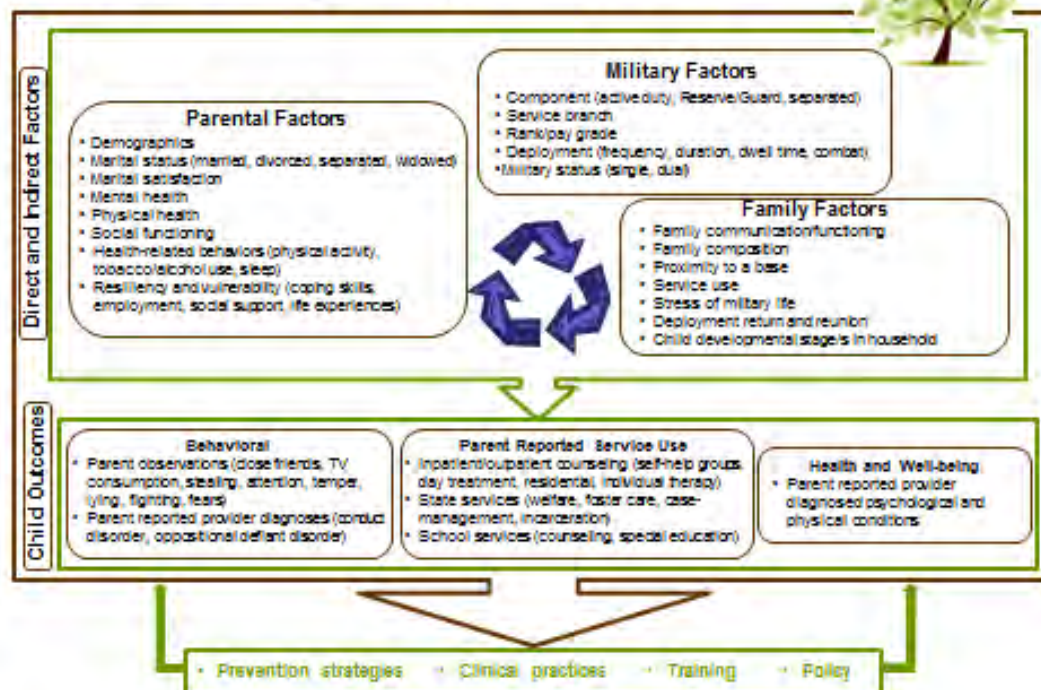
Appendix I: Conceptual Models

Family Study Conceptual Models

2011-12 Family Study: Spouse Model



2011-12 Family Study: Child Model



Appendix J: Family Study Overview Manuscript

The Millennium Cohort Family Study: a prospective evaluation of the health and well-being of military service members and their families

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5 Abt Associates, Durham, NC, USA

Key words

psychology, family, military, epidemiology, mental health, deployments

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accepted 15 October 2013

Abstract

The need to understand the impact of war on military families has never been greater than during the past decade, with more than three million military spouses and children affected by deployments to Operations Iraqi Freedom and Enduring Freedom. Understanding the impact of the recent conflicts on families is a national priority, however, most studies have examined spouses and children individually, rather than concurrently as families. The Department of Defense (DoD) has recently initiated the largest study of military families in US military history (the Millennium Cohort Family Study), which includes dyads of military service members and their spouses ($n > 10,000$). This study includes US military families across the globe with planned follow-up for 21+ years to evaluate the impact of military experiences on families, including both during and after military service time. This review provides a comprehensive description of this landmark study including details on the research objectives, methodology, survey instrument, ancillary data sets, and analytic plans. The Millennium Cohort Family Study offers a unique opportunity to define the challenges that military families experience, and to advance the understanding of protective and vulnerability factors for designing training and treatment programs that will benefit military families today and into the future. Copyright © 2014 John Wiley & Sons, Ltd.

Introduction

At the turn of the century, the US military launched the largest study of service personnel in its history, the Millennium Cohort

Study (Gray *et al.*, 2002). This prospective epidemiologic study was serendipitously begun before the terrorist attacks that occurred on September 11, 2001, and designed to evaluate the effects of military service on the long-term health and

well-being of US service members (Crum-Cianflone, 2013). Shortly thereafter, the conflicts in Iraq and Afghanistan began, and over the past decade more than 2.5 million service members have deployed in support of these operations, with over one million experiencing multiple deployments (data from the Defense Manpower Data Center [DMDC], 2012). The impact of the long and repeated deployments on service members' health and well-being has been the subject of multiple studies (Hoge *et al.*, 2004; Hoge *et al.*, 2006; Milliken *et al.*, 2007; Grieger *et al.*, 2006; MHAT-V, 2008), including within the Millennium Cohort Study, which has prospectively evaluated the impact of these military experiences on long-term mental and physical health outcomes of service personnel (Crum-Cianflone, 2013; Smith *et al.*, 2011; Smith *et al.*, 2008; Smith *et al.*, 2009; Jacobson *et al.*, 2008; Wells *et al.*, 2010).

During the past two decades, military service members have been more likely than ever to be married and have children (Department of Defense, 2010). As such, military families have also been touched by the recent conflicts, with an estimated three million dependents and two million children affected by the deployments to Operations Iraqi Freedom and Enduring Freedom (Department of Defense, 2010; Office of Secretary of Defense, 2012). Although families do not directly experience the combat or environmental exposures during deployments, they are at high risk for experiencing the impact of combat-related injuries, including post-traumatic stress disorder (PTSD), traumatic brain injury, and other behavioral conditions among returning service members (Calhoun *et al.*, 2002; Griffin *et al.*, 2012; Manguno-Mire *et al.*, 2007; US Military Casualty Statistics, 2013; Ben *et al.*, 2000). In turn, the support or distress with which families respond directly impacts the service members' health and well-being (Tarrier *et al.*, 1999; Solomon *et al.*, 1988), and ultimately the fitness and readiness of the military force (Department of Defense, 2012).

Although much of the existing research suggests that exposure to deployments and war zone stressors are associated with negative sequelae including high rates of concurrent mental health problems (de Burgh *et al.*, 2011; Mansfield *et al.*, 2011; Mansfield *et al.*, 2010; Lester *et al.*, 2010; Eaton *et al.*, 2008; White *et al.*, 2011; Chandra *et al.*, 2010; Flake *et al.*, 2009), other research has also shown that many service members and their families are resilient (Wiens and Boss, 2006; Bonanno *et al.*, 2012; Cozza *et al.*, 2005). Hence, systematic documentation of both negative and positive outcomes associated with military experiences, along with detailed analyses of vulnerability and resilience factors will provide a foundation for informing the development of prevention strategies and

documenting programmatic needs of current and future US military families.

Despite the fact that the impact of the recent wars on military families has been defined as a national priority, significant gaps in knowledge remain. In 2007, the Department of Defense (DoD) recommended the conduct of research studies on post-deployment adjustments of family members, including children who were separated from their parent(s) due to deployment (Secretary of Defense, 2007; p. 11). The report declares, "Our ultimate goal is, as it has always been, to ensure that the health and well-being of our military personnel and their families" This declaration is supported by other academic, professional, and military organizations identifying research on military families as a high-priority issue (American Psychological Association, 2007; Siegel *et al.*, 2013; US Army Medical Research and Materiel Command, 2013). Although studies on military families have been conducted, most have examined spouses and children individually, rather than concurrently as families (Mansfield *et al.*, 2011).

Overview of the Millennium Cohort Family Study

Based on recommendations for comprehensive, systemwide research on military families and with the success of the Millennium Cohort Study ($n > 200,000$ participants in the first four panels), the Family Study was designed to evaluate the interrelated health and well-being effects of military service on families, including the service member, spouse, and children. The Family Study is a DoD-sponsored study designed by a multidisciplinary team of investigators at the Naval Health Research Center (NHRC), Abt Associates, Duke University, and New York University, with survey operations conducted at NHRC. The initial study protocol was extensively peer reviewed by experts in the fields of military family research, longitudinal survey design and implementation, health outcomes research, and military organizational structure and functioning. An independent scientific review panel composed of academic researchers, DoD researchers and military service members, and Department of Veterans Affairs (DVA) representatives provides advisement on the design and conduct of the study.

The Family Study includes both male and female spouses of active duty, Reserve, and National Guard personnel from all five service branches (Army, Navy, Air Force, Marine Corps, and Coast Guard) of the US military. Because the Family Study is nested within the Millennium Cohort Study, it provides exclusive data on a large cohort of service member-spouse dyads, providing the most comprehensive study of military families to date. As such, the Family Study is uniquely poised to provide strategic data to inform leadership and guide interventions to improve the lives of military families.

Family study objective

The Millennium Cohort Family Study's primary objective is to evaluate prospectively the associations between military experiences (including deployments) and service member readjustment on families' health and well-being. Studying the health of military families in a large sample of service members surveyed pre- and post-deployment allows for temporal sequence of associations that can be utilized to answer critical scientific, operational, and policy questions. These data can also be utilized in the development of training and clinical interventions that protect against and/or treat adverse health outcomes among both military spouses and children.

Study participants

During its first decade, the Millennium Cohort Study enrolled three large panels of service members (cumulative $n > 150,000$) using a complex probability sample design with the US military roster as the sampling frame. The three samples were designed to represent collectively all who served in the US military from 2000 moving forward. Enrollees are assessed at baseline and approximately every three years for a planned 67-year period (Crum-Cianflone, 2013).

Enrollment of military spouses for the Family Study was initiated within the most recent Millennium Cohort survey cycle (fourth panel, 2011–2013), in which a fourth panel representing military members with 2–5 years of service were invited to join the study, with the goal of enrolling approximately 60,000 new service members. Military service members were randomly selected from all service branches and components from the military roster in October 2010 provided by the DMDC. The cohort was oversampled for married and female service members to ensure adequate numbers of spouses, including male spouses, for enrollment into the Family Study. We estimated that more than half of the newly enrolled Millennium Cohort participants would be married, and that approximately 10,000 spouses of these service members would enroll in the Family Study.

Among the enrolled military spouses, we estimated that 50% would be married to a service member who had deployed to the conflicts in Iraq and Afghanistan at least once, and the other half would be without deployment experiences. Because a subset of service members were assessed prior to deployment, this design will support between-subjects comparisons (outcomes for spouses of deployed versus non-deployed service members). We also anticipated that a sizeable proportion of the service members will deploy at some time *after* their baseline assessment, creating the opportunity for a prospective study of the

impact of deployment on military families that supports within-subjects comparisons (outcomes for spouses before versus after service member deployment). A sampling strategy supporting both kinds of comparisons substantially strengthens the ability to identify causal factors for both positive and adverse family outcomes.

Study methodology

Enrollment in the Family Study initially utilized a four-step enrollment process: (1) invitation of a probability sample of military service members to participate in the Millennium Cohort Study, (2) referral of spouses to the Family Study among married new enrollees of the Millennium Cohort, (3) invitation of referred spouses to complete the Family Study survey online, and (4) enrollment of the spouse in the Family Study. Although there were notable strengths of this referral process (obtaining spousal contact information from the service member and secondary consent for his or her participation), there were limitations. The service member was offered a single opportunity to refer his or her spouse at the end of the Millennium Cohort survey, which may have resulted in lower than expected referral rates. In addition, because participation in the Family Study initially required agreement from the service member, there were concerns regarding potential referral biases. Thus, the study's survey methodologies were modified early in the data collection period to include spouses both referred by their service members as well as by direct invitation to join the study. Those invited directly to join must also have been married to a service member who enrolled in the Millennium Cohort study, but referral by the service member was not required for these spouses. In addition, the Family Study, which initially began as a web-based survey, was expanded to include a paper version of the survey. Prior research documents that survey respondents may prefer one data collection mode over another, and that offering a second mode (e.g. paper survey) may reach different types of respondents and therefore may reduce response bias (Groves, 2006; Millar and Dillman, 2011; Dillman *et al.*, 2009). A similar approach has been utilized in the Millennium Cohort Study.

The survey methods for the Family Study were modeled after the work of Dillman (Dillman *et al.*, 2009) and designed to encourage all invited spouses to complete the survey to ensure a broad range of experiences were captured. Referred spouses received both postal mailings and e-mails to encourage participation. Since e-mail addresses for the sample of spouses invited directly to join the study were not available, an implementation method consisting of a mail-only campaign was designed. This

sequential postal approach involved six separate mailings conducted over a 10-week period and consisted of (1) a card inviting the spouse to participate through a website link along with a pre-incentive (picture frame magnet); (2) a follow-up postcard reminder; (3) a sample of the survey, which highlighted questions from various sections of the survey and a pre-incentive \$5 gift card; (4) a letter encouraging participation endorsed by Deanie Dempsey, the wife of the Chairman of the Joint Chiefs of Staff; (5) a paper questionnaire with a postage-paid return envelope delivered via express mail (e.g. Federal Express, US Postal Service Priority Mail); and (6) a postcard reminder. The first four mailings encouraged participation on the internet, while the fifth mailing introduced the option of completing a paper survey. In addition to the six postal mailing approach, when an e-mail address was available (i.e. a service member referred his or her spouse and provided an e-mail address), reminder e-mails were sent that included a convenient link directly to the web survey. This strategy, referred to as “e-mail augmentation” was designed to reduce participant burden associated with responding (Millar and Dillman, 2011). Mailings were discontinued when the participant enrolled in the study or declined to participate, or at the end of the survey period.

This sequential mailing approach was utilized for several reasons. First, we wanted to clearly communicate the value of the Family Study (e.g. follows families over time as they experience the unique challenges associated with military life) and its relevance to military spouses. Each mailing was designed to carry a unique message and was intended to reach different groups of spouses. Second, we communicated via e-mail messages when possible and provided the option of a web-based survey to reach a population that may be highly mobile due to frequent military relocations. Further, web-based technology is associated with the advantages of reduced time and costs associated with processing paper surveys, and for implementing complex skip patterns and reducing erroneous responses. Third, instead of offering a simultaneous choice of survey response modes in our initial communications, which has been shown to have potential negative consequences on survey response rates (Dillman *et al.*, 2008; Griffin *et al.*, 2001), we offered a single choice at a time and utilized a carefully sequenced series of communications. Prior research has shown that using a paper response option late in the contact sequence may not only increase paper response, but also increase web response rates (Dillman *et al.*, 2008; Messner and Dillman, 2011). We also tested during the study survey period an alternate six-item postal mailing approach that offered only one mode for completion (paper); however, this approach was more costly and did not yield higher response rates.

Several additional strategic approaches were utilized during the study to enhance participation rates. The Family Study uses a logo, the “Family Tree,” on all e-mails and postal mailings to make study communications easily recognizable. The oak tree was chosen to serve as a symbol of courage and strength, and to prime thoughts of family lineage. In order to mitigate concerns regarding the legitimacy of the research, approvals from the NHRC Institutional Review Board (NHRC 2000.0007), Office of Management and Budget (OMB Approval Number 0720-0029), and a Report Control Symbol number (RCS Number DD-HA (AR)2106) were provided on study materials and the study website. Finally, because of the sensitive nature of some of the questions on the survey, communications assured spouses of the confidentiality and security of the information provided. Particular emphasis was placed on assuring both participants of the Millennium Cohort and Family Studies that their spouses would not have access to their survey responses.

Because military families’ experience changes over time and to maintain methodological consistency with the Millennium Cohort Study, spouses will be followed longitudinally (for 21+ years) and requested to complete a follow-up survey approximately every three years. Follow-up will continue even if their spouse separates from the service or their relationship status changes (i.e. separated, divorced, or widowed).

Study data: survey instrument and ancillary databases

The Family Study Baseline Questionnaire comprises approximately 100 questions, some with multiple components and associated skip patterns. The specific questions within the survey are based on a conceptual model created with four main domains: (1) spouse physical health; (2) spouse mental health and adjustment; (3) spouses’ reports of their children’s mental/physical health and functioning; and (4) family functioning, and protective and vulnerability factors (Figures 1 and 2).

The questionnaire is divided into 14 specific areas, allowing for the grouping of similar questions and time frames. The areas include the spouses’ demographics, physical health, mental health, coping skills, life experiences, modifiable behaviors, military service (for dual military families), marital relationship, their service members’ deployment, return and reunion experiences after deployment, their service members’ behavior, military life, family functioning, and their children’s’ health and well-being. Information on the children is reported by the spouse and includes data on behavioral and emotional development at

Family Study: Spouse Model

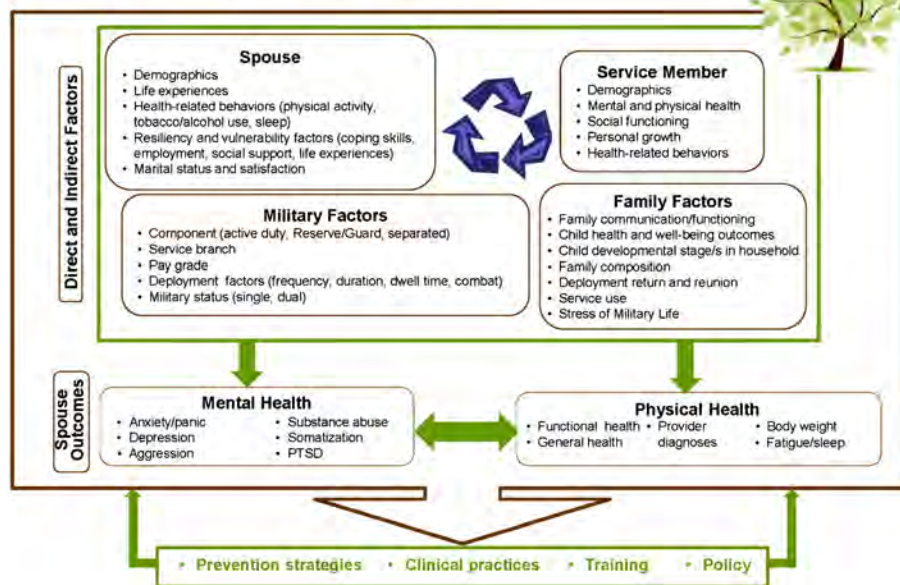


Figure 1. Conceptual model for the Millennium Cohort Family Study: spouse model.

Family Study: Child Model

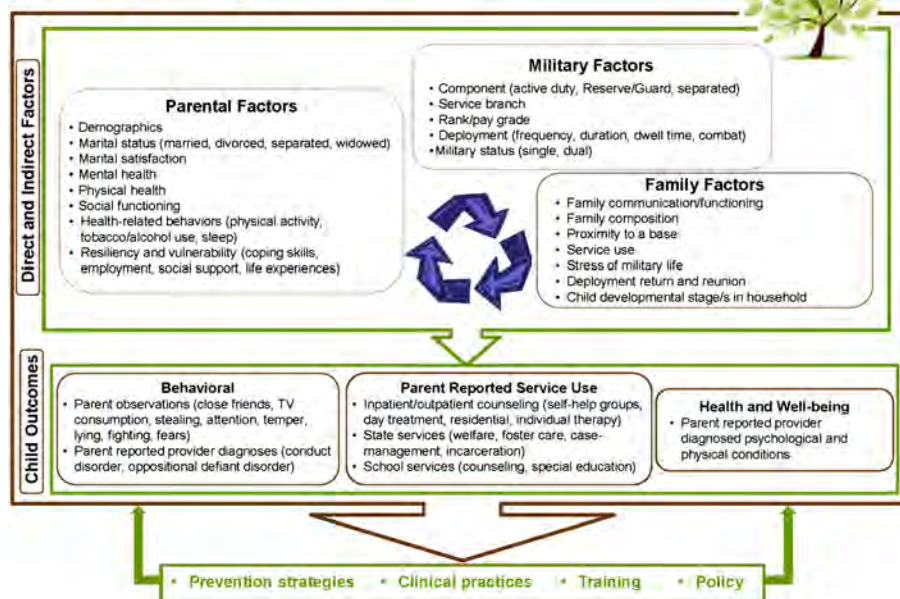


Figure 2. Conceptual model for the Millennium Cohort Family Study: child model.

the level of the individual child as well as aggregate data of children's mental health and service use. Open text fields are also included in the survey to allow participants to share

health and other concerns not covered by the survey. Follow-up surveys will allow for longitudinal capture and temporal sequencing of the changing nature of the spouses'

experiences (e.g. relocation, separation, deployment, parenthood) and health symptoms, and their trajectories over time. Similar to the Millennium Cohort Study, the Family Study survey instrument allows for modification over the years to address emerging concerns.

Standardized, scientifically validated instruments are incorporated into the survey because of their reliability and validity, and to enable future comparisons with other populations. Many of these instruments also mirror those contained within the Millennium Cohort Study to allow for direct comparability of measures between the service member and spouse. Examples of standardized instruments include the Medical Outcomes Study Short Form 36-Item Health Survey for Veterans (SF-36V), from which mental and physical component scores are calculated as a measure of functional health. The PTSD Checklist – Civilian Version (PCL-C) and the Patient Health Questionnaire-8 (PHQ-8) are utilized to screen for PTSD and depressive disorder, respectively. Additional validated measures of alcohol use, sleep, eating disorders, childhood experiences, marital relationship, and family communication and satisfaction are included. Assessments of the children include components of the Strengths and Difficulties Questionnaire (Table 1).

In addition to the Family Study survey data, spouse responses can be linked to the service member's information, including physical, mental, and behavioral health as well as military-related experiences collected as part of the Millennium Cohort Study survey. In addition to the subjective survey

responses, the data can be linked to numerous official DoD data files including military and medical records (Table 2). These include medical care (medical diagnostic codes, vaccinations, and pharmaceutical prescriptions) used by the service member and spouse through the military treatment facilities or the military insurance program (TRICARE). Additionally, data on service members' deployments, occupations, injuries, environmental exposures, and other military events (e.g. disciplinary actions, promotion, and separation) can be investigated. For dual military families, spouses have the same data sets available as members in the Millennium Cohort Study (Table 2). Together, these data create the most robust research data set in existence to address the impact of military service experiences on the health of both service members and their families.

Data analyses

Data analyses of the Family Study will focus on six main research objectives that provide the framework for utilizing the data to provide substantive findings to the DoD. These objectives include (1) evaluate the associations between service member deployment (e.g. combat exposure, deployment duration and frequency) and the health and well-being of spouses and children; (2) determine the associations between service member readjustment issues (e.g. PTSD, anxiety, depression, alcohol misuse/abuse) and the health and well-being of spouses and children; (3) examine factors

Table 1. Standardized instruments embedded within the Millennium Cohort and Family Studies Baseline Survey

Construct	Inventory
Physical, mental, and functional health	Medical Outcomes Study Short Form 36-Item Health Survey for Veterans ¹
Modules on common types of mental disorders: depression, anxiety, panic syndrome, somatoform symptoms, alcohol abuse, bulimia nervosa, and binge eating	Patient Health Questionnaire ²
Posttraumatic stress disorder	PTSD Checklist – Civilian Version ¹
Alcohol problems	CAGE questionnaire ¹
Sleep	Insomnia Severity Index ¹
Adverse childhood experiences	Adverse Childhood Experiences ^{2,3}
Marital satisfaction	Quality of Marriage Index ^{2,3}
Family communication and satisfaction	Family Adaptability and Cohesion Evaluation Scale ²
Behavioral screening questionnaire for ages 3- to 17-year	Strengths and Difficulties Questionnaire ^{2,3}

¹Survey instrument present in both the Millennium Cohort Survey and the Family Study Survey.

²Survey instrument currently present in the Family Study Survey.

³Adapted version of the instrument was utilized.

Table 2. Complementary data sources

Type of data	Source
<i>Service member</i>	
Service member physical, mental and behavioral health; military-related experiences	The Millennium Cohort Study
Medical record data from military medical facilities worldwide and civilian facilities covered by the Department of Defense (DoD) insurance system (TRICARE)	Standard Ambulatory Data Record (SADR) Standard Inpatient Data Record (SIDR) TRICARE Encounter Data (TED)
Immunization, deployment (location and dates), and contact data	Defense Manpower Data Center (DMDC)
Pharmaceutical data from military medical facilities and civilian pharmacies for medications paid for by TRICARE ¹	Pharmacy Data Transaction System (PDTs)
Service and medical data from time of enlistment to separation	Career History Archival Medical and Personnel System (CHAMPS)
Injury data from in theater	Joint Theater Trauma Registry (JTTR) and the Navy-Marine Corps Combat Trauma Registry Expeditionary Medical Encounter Database Total Army Injury and Health Outcomes Database (TAIHOD)
Environmental Exposures	US Army Public Health Command
Links occupational codes between the military services and civilian counterparts	Master Crosswalk File from the DoD Occupational Conversion Index Manual
Health symptoms and perception, as well as exposure data	Pre- and Post-Deployment Health Assessments (DD2795 and DD2796)
Medical status and resource utilization	Health Enrollment Assessment Review (HEAR)
Mortality data	Armed Forces Medical Examiner System (AFMES) mortality files, and National Death Index
Medical benefit eligibility and insurance, dates of service, military occupation and locations, centralized immunization data	Defense Enrollment Eligibility Reporting System (DEERS)
<i>Spouse</i>	
Medical record data from military medical facilities worldwide and civilian facilities covered by the DoD insurance system (TRICARE)	Standard Ambulatory Data Record (SADR) Standard Inpatient Data Record (SIDR) TRICARE Encounter Data (TED)
Pharmaceutical data from military medical facilities and civilian pharmacies which medications are paid for by TRICARE	Pharmacy Data Transaction System (PDTs)
Mortality data	Social Security Administration Death Master File
<i>Children</i>	
Data on pregnancies and birth outcomes (e.g. birth defects) ¹	Birth and Infant Health Registry
Medical record data from military medical facilities worldwide and civilian facilities covered by the DoD insurance system (TRICARE) ²	Standard Ambulatory Data Record (SADR) Standard Inpatient Data Record (SIDR) TRICARE Encounter Data (TED)
Pharmaceutical data from military medical facilities and civilian pharmacies which medications are paid for by TRICARE ²	Pharmacy Data Transaction System (PDTs)

¹If child born during active duty service time.²Based on if consent for medical record review is provided.

related to resiliency (e.g. communication, psychological growth, social support, service use) and vulnerability (e.g. stress, adverse life events) that moderate the association

between deployment experiences and service member readjustment issues, and the health and well-being of spouses and children; (4) identify factors that are important for marital

quality and family functioning (e.g. work/family balance, modifiable behaviors, communication); (5) examine trajectories of study outcomes over time and conduct methodological studies (as described later); and (6) evaluate the associations between spouse and child health and well-being with service member health and military-related outcomes. Analyses will involve a mix of univariate and multivariate statistics, including modern methods that take account of the complex sample design and the statistical dependence (clustering) inherent in longitudinal (repeated measures) data.

Methodological studies are planned to ensure that spouses enrolled in the Family Study are representative of the overall spouse population among military personnel with 2–5 years of service. As previously mentioned, survey methodologies were utilized to maximize participation and reduce response biases. Similar to the Millennium Cohort Study (Smith *et al.*, 2007a, 2007b, 2007c; Littman *et al.*, 2010), a series of methodological analyses will be conducted. These will include assessments of service member responders compared with non-responders of the fourth panel of the Millennium Cohort Study; characteristics of spouses (and their service members) among enrollees in the Family Study compared with non-enrollees; referred versus non-referred spouses; and enrolled spouses compared with all spouses of military members with 2–5 years of service. Because the study sample consists of military service personnel and their families, data on demographics (age, sex, race/ethnicity), education level, occupation, and military service characteristics (e.g. rate/rank, branch, component), and number of children are available for comparison. Additional methodological studies will emulate those conducted by the Millennium Cohort Study to include assessments of paper versus web responders and early versus late responders during the survey cycle. In addition, the internal consistency of measures, and the reliability and validity of self-reported data will be determined, including comparison of self-reports with objective measures in official DoD records.

Dissemination of study findings

Study findings from the Family Study will be provided to the DoD and DVA, and can be utilized for the development of interventions and policies to improve the lives of military families. This study will provide critical information on the relationship between service members' military experiences and readjustment issues on the health and well-being of military spouses and children. Additionally, study results will be communicated to the broader clinical and research communities as well as to our study participants through submission of manuscripts to peer-reviewed publications, newsletters, and other study-related

communications. In addition, the Study's website (www.FamilyCohort.org) provides a list of presentations and aggregate data of the characteristics of the study participants to date, and will be updated periodically to include publications and new study findings. Social media (e.g. Facebook and Wikipedia) may also be utilized for future communications.

Significance of the Millennium Cohort Family Study

The Millennium Cohort Family Study represents the first study of its kind by providing critical data on the service member–spouse dyad over a 21+ year time period. Given the extended follow-up of spouses over time, this study presents a distinct opportunity to evaluate both the long-term effects of military life on families and the impact of future conflicts. Unlike most studies on military families, the Family Study longitudinally evaluates military spouses, service members (via the Millennium Cohort Study), and their children both during and after service time. Because many of the challenges of military service may only occur after separation, this study is poised to provide critical data regarding the ongoing needs of military families.

The Family Study is also unique in its ability to explore the impact of military service on important subpopulations, including Reserve and National Guard families, dual military families, and female deployers along with their male military spouses. Previous studies of spouses have largely been limited to a single military branch and/or the female spouses of male service members. Further, Reserve/National Guard families may experience unique challenges, including short notification prior to deployments, loss of civilian jobs, changes in medical coverage, and a relative lack of support resources compared with active duty families. Because of these differences, Reserve/National Guard families may be impacted by deployment and service member readjustment in ways that active-duty families are not. Similarly, approximately 48% of married military women and 7% of married military men are in dual military marriages, which may present with challenges including prolonged separation and overlapping deployments (Department of Defense, 2010). Finally, as an increasing number of women serve in the military, it is important to evaluate the effects of maternal deployments on children, and examine male spouses in studies of family functioning in order to elucidate potential sex differences.

Conclusion

The past decade of conflicts highlights the importance of understanding the impact of war on military service members and their families. The Millennium Cohort Family Study represents the only comprehensive epidemiologic study of the health of military families that longitudinally evaluates

>10,000 service member–spouse pairs over a 21+ year period. This study includes US military families across the globe from all service branches and components. Understanding the associations between service members' deployments and other military experiences on the health and well-being of their families is critically important for the DoD, DVA, and society. Advances in the understanding of the challenges that military families experience along with protective and vulnerability factors will benefit military families today and into the future.

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This study was been approved by the appropriate ethics committee /institutional review board and has been performed in accordance with the ethical standards laid down in the 1964 Declaration of Helsinki and its later amendments.

Declaration of interest statement

All authors report no conflicts of interest and no financial relationships with commercial interests.

References

- American Psychological Association (2007) *Presidential Task Force on Military Deployment Services for Youth, Families, and Service Members: The Psychological Needs of U.S. Military Service Members and Their Families: A Preliminary Report*, Washington, DC, American Psychological Association.
- Ben A.N., Solomon Z., Dekel R. (2000) Secondary traumatization among wives of PTSD and post-concussion casualties: distress, caregiver burden and psychological separation. *Brain Injury*, **14**(8), 725–736.
- Bonanno G.A., Mancini A.D., Horton J.L., Powell T.M., LeardMann C.A., Boyko E.J., Wells T. S., Hooper T.I., Gackstetter G.D., Smith T.C. (2012) Trajectories of trauma symptoms and resilience in deployed US military service members: prospective cohort study. *British Journal of Psychiatry*, **200**(4), 317–323.
- Calhoun P.S., Beckham J.C., Bosworth H.B. (2002) Caregiver burden and psychological distress in partners of veterans with chronic posttraumatic stress disorder. *Journal of Traumatic Stress*, **15**(3), 205–212.
- Chandra A., Lara-Cinisomo S., Jaycox L.H., Tanielian T., Burns R.M., Ruder T., Han B. (2010) Children on the homefront: the experience of children from military families. *Pediatrics*, **125**(1), 16–25.
- Cozza S.J., Chun R.S., Polo J.A. (2005) Military families and children during Operation Iraqi Freedom. *Psychiatric Quarterly*, **76**(4), 371–378.
- Crum-Cianflone N.F. (2013) The Millennium Cohort Study: answering long-term health concerns of US military service members by integrating longitudinal survey data with Military Health System records. In Amara J., Hendricks A. (eds) *Military Medical Care: From Pre-deployment to Post-separation*, Abingdon, Routledge.
- de Burgh H.T., Fear N.T., Iversen A.C., White C.J. (2011) The impact of deployment to Iraq or Afghanistan on partners and wives of military personnel. *International Review of Psychiatry*, **23**(2), 192–200.
- Department of Defense (2010) Report on the Impact of Deployment of Members of the Armed Forces on Their Dependent Children, October 2010. http://www.militaryonesource.mil/12038/MOS/Reports/Report_to_Congress_on_Impact_of_Deployment_on_Military_Children.pdf [26 June 2013].
- Department of Defense (2012) Annual Report to the Congressional Defense Committees on Plans for the Department of Defense for the Support of Military Family Readiness, Fiscal Year 2012. <http://www.militaryonesource.mil/12038/MOS/Reports/>
- FY2012_Report_MilitaryFamilyReadinessPrograms.pdf [26 June 2013].
- Dillman D.A., Smyth J.D., Christian L.M. (2009) *Internet, Mail, and Mixed-mode Surveys: The Tailored Design Method*, 3rd edition, Hoboken, NJ, John Wiley & Sons.
- Dillman D.A., Smyth J.D., Christian L.M., O'Neill A. (2008) Will a mixed-mode (mail/Internet) procedure work for random household surveys of the general public? Paper presented at the annual conference of the American Association for Public Opinion Research, New Orleans, LA.
- Eaton K.M., Hoge C.W., Messer S.C., Whitt A.A., Cabrera O.A., McGurk D., Cox A., Castro C. A. (2008) Prevalence of mental health problems, treatment need, and barriers to care among primary care-seeking spouses of military service members involved in Iraq and Afghanistan deployments. *Military Medicine*, **173**(11), 1051–1056.
- Flake E.M., Davis B.E., Johnson P.L., Middleton L. S. (2009) The psychosocial effects of deployment on military children. *Journal of Developmental & Behavioral Pediatrics*, **30**(4), 271–278.
- Gray G.C., Chesbrough K.B., Ryan M.A.K., Amoroso P., Boyko E.J., Gackstetter G.D., Hooper T.I., Riddle J.R. (2002) The

- Millennium Cohort Study: a 21-year prospective cohort study of 140,000 military personnel. *Military Medicine*, **167**(6), 483–488.
- Grieger T.A., Cozza S.J., Ursano R.J., Hoge C., Martinez P.E., Engel C.C., Wain H.J. (2006) Posttraumatic stress disorder and depression in battle-injured soldiers. *American Journal of Psychiatry*, **163**(10), 1777–1783.
- Griffin D.H., Fischer D.P., Morgan M.T. (2001) Testing an Internet response option for the American Community Survey. Paper presented at the American Association for Public Opinion Research, Montreal, Quebec, Canada.
- Griffin J.M., Friedemann-Sánchez G., Jensen A.C., Taylor B.C., Gravely A., Clothier B., Simon A. B., Bangerter A., Pickett T., Thors C., Ceperich S., Poole J., van Ryn M. (2012) The invisible side of war: families caring for US service members with traumatic brain injuries and polytrauma. *Journal of Head Trauma Rehabilitation*, **27**(1), 3–13.
- Groves R.M. (2006) Nonresponse rates and nonresponse bias in household surveys. *Public Opinion Quarterly*, **70**, 646–675.
- Hoge C.W., Auchterlonie J.L., Milliken C.S. (2006) Mental health problems, use of mental health services, and attrition from military service after returning from deployment to Iraq or Afghanistan. *JAMA*, **295**(9), 1023–1032.
- Hoge C.W., Castro C.A., Messer S.C., McGurk D., Cotting D.I., Koffman R.L. (2004) Combat duty in Iraq and Afghanistan, mental health problems, and barriers to care. *New England Journal of Medicine*, **351**(1), 13–22.
- Jacobson I.G., Ryan M.A., Hooper T.I., Smith T.C., Amoroso P.J., Boyko E.J., Gackstetter G.D., Wells T.S., Bell N.S. (2008) Alcohol use and alcohol-related problems before and after military combat deployment. *JAMA*, **300**(6), 663–675.
- Lester P., Peterson K., Reeves J., Knauss L., Glover D., Mogil C., Duan N., Saltzman W., Pynoos R., Wilt K., Beardslee W. (2010) The long war and parental combat deployment: effects on military children and at-home spouses. *Journal of the American Academy of Child and Adolescent Psychiatry*, **49**(4), 310–320.
- Littman A.J., Boyko E.J., Jacobson I.G., Horton J., Gackstetter G.D., Smith B., Hooper T., Wells T.S., Amoroso P.J., Smith T.C., Millennium Cohort Study Team. (2010) Assessing nonresponse bias at follow-up in a large prospective cohort of relatively young and mobile military service members. *BMC Medical Research Methodology*, **10**(1), 99.
- Manguno-Mire G., Sautter F., Lyons J., Myers L., Perry D., Sherman M., Glynn S., Sullivan G. (2007) Psychological distress and burden among female partners of combat veterans with PTSD. *Journal of Nervous and Mental Disease*, **195**(2), 144–151.
- Mansfield A.J., Kaufman J.S., Marshall S.W., Gaynes B.N., Morrissey J.P., Engel C.C. (2010) Deployment and the use of mental health services among U.S. Army wives. *New England Journal of Medicine*, **362**(2), 101–119.
- Mansfield A.J., Kaufman J.S., Engel C.C., Gaynes B. N. (2011) Deployment and mental health diagnoses among children of US Army personnel. *Archives of Pediatrics & Adolescent Medicine*, **165**(11), 999–1005.
- Mental Health Advisory Team (MHAT-V) (2008) Operation Iraqi Freedom 06-08: Iraq Operation Enduring Freedom: Afghanistan. http://www.armymedicine.army.mil/reports/mhat/mhat_v/MHAT_V_OIFandOEF-redacted.pdf [26 June 2013].
- Messner B.L., Dillman D.A. (2011) Surveying the general public over the Internet using address-based sampling and mail contact procedures. *Public Opinion Quarterly*, **75**(3), 449–452.
- Millar M.M., Dillman D.A. (2011) Improving response to web and mixed mode surveys. *Public Opinion Quarterly*, **75**(2), 249–269.
- Milliken C.S.M., Auchterlonie J.L.M., Hoge C.W. (2007) Longitudinal assessment of mental health problems among active and reserve component soldiers returning from the Iraq War. *JAMA*, **298**(18), 2141–2148.
- Office of the Secretary of Defense (2012) *Demographics 2011: Profile of the Military Community*, Washington, DC, Office of the Under Secretary of Defense for Military Community and Family Policy.
- Secretary of the Defense (2007) *Report to Congress: The Department of Defense Plan to Achieve the Vision of the DoD Task Force on Mental Health*, Washington, DC, Department of Defense.
- Siegel B.S., Davis B.E., and the Committee on Psychosocial Aspects of Child and Family Health and Section on Uniformed Services. (2013) Health and mental health needs of children in US military families. *Pediatrics*, **131**, e2002–e2015.
- Smith B., Smith T.C., Gray G.C., Ryan M.A.K., Millennium Cohort Study Team. (2007a) When epidemiology meets the Internet: Web-based surveys in the Millennium Cohort Study. *American Journal of Epidemiology*, **166**(11), 1345–1354.
- Smith B., Wingard D.L., Ryan M.A., Macera C.A., Patterson T.L., Slymen D.J. (2007b) U.S. military deployment during 2001–2006: comparison of subjective and objective data sources in a large prospective health study. *Annals of Epidemiology*, **17**(12), 976–982.
- Smith B., Wong C.A., Smith T.C., Boyko E.J., Gackstetter G.D., Ryan M.A.K.; for the Millennium Cohort Study Team. (2009) Newly reported respiratory symptoms and conditions among military personnel deployed to Iraq and Afghanistan: a prospective population-based study. *American Journal of Epidemiology*, **170**(11), 1433–1442.
- Smith T.C., Jacobson I.G., Hooper T.I., Leardmann C.A., Boyko E.J., Smith B., Gackstetter G.D., Wells T.S., Amoroso P.J., Gray G.C., Riddle J. R., Ryan M.A., Millennium Cohort Study Team. (2011) Health impact of US military service in a large population-based military cohort: findings of the Millennium Cohort Study, 2001–2008. *BMC Public Health*, **11**, 69.
- Smith T.C., Ryan M.A.K., Wingard D.L., Slymen D.J., Sallis J.F., Kritz-Silverstein D. (2008) New onset and persistent symptoms of posttraumatic stress disorder self reported after deployment and combat exposures: prospective population based US military cohort study. *BMJ*, **336**(7640), 366–371.
- Smith T.C., Smith B., Jacobson I.G., Corbeil T.E., Ryan M.A., Millennium Cohort Study Team. (2007c) Reliability of standard health assessment instruments in a large, population-based cohort study. *Annals of Epidemiology*, **17**(7), 525–532.
- Solomon Z., Mikulincer M., Avitzur E. (1988) Coping, locus of control, social support, and combat-related posttraumatic stress disorder: a prospective study. *Journal of Personality and Social Psychology*, **55**(2), 279–285.
- Tarrier N., Sommerfield C., Pilgrim H. (1999) Relatives' expressed emotion (EE) and PTSD treatment outcome. *Psychological Medicine*, **29**(4), 801–811.
- US Army Medical Research and Materiel Command (2013) Strategic Communication Plan. Military Operational Medicine Research Program. <https://momrp.amedd.army.mil/publications/MOMRP2.pdf> [1 June 2013].
- US Military Casualty Statistics (2013) Operation New Dawn, Operation Iraqi Freedom, and Operation Enduring Freedom. Congressional Research Service, CRS Report for Congress,

- February 5, 2013. <http://www.fas.org/sgp/crs/natsec/RS22452.pdf> [26 June 2013].
- Wells T.S., LeardMann C.A., Fortuna S.O., Smith B., Smith T.C., Ryan M.A., Boyko E.J., Blazer D., Millennium Cohort Study Team. (2010) A prospective study of depression following combat deployment in support of the wars in Iraq and Afghanistan. *American Journal of Public Health*, **100**(1), 90–99.
- White C.J., de Burgh H.T., Fear N.T., Iversen A.C. (2011) The impact of deployment to Iraq or Afghanistan on military children: a review of the literature. *International Review of Psychiatry*, **23**(2), 210–217.
- Wiens T.W., Boss P. (2006) Maintaining family resiliency before, during, and after military separation. In Castro C.A., Adler A.B., Britt T.W. (eds) *Military Life: The Psychology of Serving in Peace and Combat, Volume 3: The Military Family. The Military Life*, pp. 13–38, Westport, CT, Praeger Security International.