59th Medical Wing Science and Technology
En Route Care Research Center
JBSA-Lackland

UT Health Science Center
Office of Clinical Research
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Research Administration Building

SCIENTIFIC AND TECHNICAL REPORT

Operation Iraqi Freedom (OIF)/Operation Enduring Freedom (OEF) Psychiatric MEDEVACS

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June 2019

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14. ABSTRACT- One of the most important missions of the U.S. Air Force Medical Service during times of military conflict is the safe aeromedical evacuation of military casualties from the combat theater. Approximately 10% of all patients aeromedically evacuated over the past 10 years from Operation Enduring Freedom (OEF) and Operation Iraqi Freedom (OIF) have been psychiatric patients. Research evaluating the population of military personnel psychiatrically evacuated from theater operations is in its infancy, with only four published studies presenting demographic and descriptive information of such patients from OIF/OEF.[5, 13, 15-16] Methods: We conducted a comprehensive retrospective database review to analyze OIF/OEF psychiatric aeromedical evacuations from 2001 to 2013 and determine the medical and military career consequences of psychiatric aeromedical evacuation. Primary study objectives included a description of pre-deployment, during deployment, and post-deployment medical and mental health treatment history of service members who returned from deployment for psychiatric reasons. A secondary objective was to assess the relationship between diagnoses at the time of evacuation and service members' assigned classification in the aeromedical patient classification system. Results: All research subjects were active duty U.S. military personnel who were evacuated from the OIF/OEF combat theater for psychiatric reasons between 2001 and 2013. Psychiatric reasons were defined by use of 1A, 1B, or 1C movement classification codes for air evacuation. Results: A total of 7,023 of the 1,485,605 active duty military service members who had deployed to Iraq or Afghanistan from 2001 to 2013 received a Psych-AIREVAC (a rate of 4.7 per thousand across the entire study period). The average yearly rate for Psych-AIREVACs was 5.8 per 1000 deployers. The annual rate ranged from a low of 1.9 per 1000 in 2004 to a high of 12.9 per 1000 in 2002. With respect to the various movement classification codes, 47.1% were given a movement classification code of Moderate, 30.1% were Intermediate, 20.2% were Outpatient, and 2.6% were Severe. In terms of aeromedical evacuation patient movement precedent codes, 96.8% of all evacuations were classified as Routine, 3.1% were considered Priority, and 0.1% were considered Urgent. All cases categorized as Urgent were classified as either Severe or Intermediate according to the movement classification code. Conclusions: Psychiatric conditions are one of the leading reasons for the aeromedical evacuation of active duty military personnel from the military combat theater. A psychiatric aeromedical evacuation from the combat zone may result in subsequent discharge or separation from active duty. This finding has important clinical and operational implications for the evaluation and treatment of psychiatric conditions during military deployments. Whenever possible, deployed military behavioral health providers should attempt to treat psychiatric patients in theater to help them remain in theater to complete their operational deployments. An improved understanding of the factors related to psychiatric aeromedical evacuations will provide important clinical and policy implications for future conflicts.

15. SUBJECT TERMS					
Psychiatric aeromedical evacuation, Operation Enduring Freedom (OEF), Operation Iraqi Freedom, movement classification code					
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1.0 EXECUTIVE SUMMARY

The safe aeromedical evacuation of military casualties from combat theater is one of the most important missions of the U.S. Air Force Medical Service during times of military conflict. Approximately 10% of all patients aeromedically evacuated over the past 10 years from Operation Enduring Freedom (OEF) and Operation Iraqi Freedom (OIF) have been psychiatric patients. The purpose of this study was to conduct a retrospective database review and analysis of OIF/OEF psychiatric aeromedical evacuations from 2001 to 2013 to determine the medical and military career consequences of psychiatric aeromedical evacuation. The primary study objectives were to describe the pre-deployment, during deployment, and post-deployment medical and mental health treatment history of service members returned from deployment for psychiatric reasons. A secondary objective was to assess the relationship between diagnoses at the time of evacuation and service members' assigned classification in the aeromedical patient classification system. All research subjects were active duty U.S. military personnel who were evacuated from the OIF/OEF combat theater for psychiatric-related events between 2001 and 2013. Psychiatric-related events were defined by using 1A, 1B, or 1C movement classification codes for air evacuation.

Data were obtained from the TRAC2ES (TRANSCOM Regulating Command & Control Evaluation System) aeromedical evacuation database and electronic medical records from the Defense Health Agency (DHA). Researchers also obtained military attrition data from the Defense Manpower Data Center military personnel database. Data was analyzed to include descriptive analyses of all variables (either the number and percentages or the means and standard deviations for the total sample) for each of the four movement classification codes. To determine whether individuals who received a Psych-AIREVAC were different from the broader active duty population, comparisons were made of the full sample of individuals in the Psych-AIREVAC group as compared to the entire 2013 active duty force on all variables for which information was available. Chi-square tests of independence were used for most of the analyses, and standardized residuals less than -1.96 and greater than 1.96 were used to identify cells with observed frequencies or proportions significantly different than expected by chance. Additionally, odds ratios (OR) were calculated to provide context about the nature of the significant relationships, when necessary. Next, movement classification codes were analyzed related to demographic, clinical, and attrition variables within the Psych-AIREVAC sample. Standardized residuals and odds ratios were used to probe significant relationships across levels of diagnostic severity. For all analyses, non-specific categories (e.g. unknown/other race) were removed from the cross-tabulation and the data was re-analyzed if the non-specific categories revealed them to be the only category causing the relationships to be significant.

Overall, a total of 7,023 of the 1,485,605 active duty military service members who had deployed to Iraq or Afghanistan from 2001 to 2013 received a Psych-AIREVAC. This corresponds to a rate of about 5 per thousand across the entire study period. The annual rate ranged from a low of about 2 per 1000 in 2004 to a high of about 13 per 1000 in 2002. In terms of movement classification codes, about 47% were given a movement classification code of Moderate, 30% were Intermediate, 20% were Outpatient, and 3% were Severe. In terms of aeromedical evacuation patient movement precedent codes, about 97% of all evacuations were

classified as Routine, 3% were considered Priority, and 0.1% were considered Urgent. All cases categorized as Urgent were classified as either Severe or Intermediate according to the movement classification code.

The results of the study indicate that psychiatric conditions are one of the leading reasons for the aeromedical evacuation of active duty military personnel from military combat theater. In addition, a psychiatric aeromedical evacuation from the combat zone may result in subsequent discharge or separation from active duty. This finding has important clinical and operational implications for the evaluation and treatment of psychiatric conditions during military deployments. Whenever possible, deployed military behavioral health providers should attempt to treat psychiatric patients in theater to help them remain in theater to complete their operational deployments. An improved understanding of the factors related to psychiatric aeromedical evacuations will provide important clinical and policy implications for future conflicts.

2.0 INTRODUCTION

One of the most important missions of the U.S. Air Force Medical Service during times of military conflict is the safe aeromedical evacuation of military casualties from a combat theater environment. Approximately 10% of all patients aeromedically evacuated over the past 10 years from Operation Enduring Freedom (OEF) and Operation Iraqi Freedom (OIF) have been psychiatric patients. Research evaluating the population of military personnel psychiatrically evacuated from theater operations is in its infancy, with only four published studies presenting demographic and descriptive information of such patients from OIF/OEF (Harman et al., 2005; Rundell, 2006; Stetz et al., 2005; Turner et al., 2005). Rundell (2006) conducted the most comprehensive retrospective study to date of records for OIF/OEF psychiatric and general medical aeromedical evacuations at Landstuhl Army Medical Center, Germany. Approximately half of the patients psychiatrically evacuated from theater were evacuated during the first 3 months of deployment, and more than 80% were evacuated during the first 6 months (Rundell, 2006). In terms of clinical diagnoses, the most frequent diagnostic categories among OIF/OEF psychiatric evacuees were adjustment disorders (37.6%), mood disorders (22.1%), personality disorders (15.7%), and anxiety disorders (15%). Rundell (2006) reported that less than 5% of psychiatric evacuees to Landstuhl were returned to OIF/OEF duty.

Recent research has showed that an inpatient psychiatric hospitalization is one of the strongest predictors of future medical discharge from active duty military service due to mental health reasons. Hoge et al. (2005) evaluated a sample of 1,763 active duty U.S. Army soldiers hospitalized for a mental disorder in 1998 and then followed them for 2 years after this hospitalization. The results indicated that 67% of soldiers had been medically discharged from active duty within 2 years of their psychiatric hospitalization.

The potential long-term impact of psychiatric aeromedical evacuation from a combat theater on future medical discharges has not been evaluated. The investigators for the current proposed study hypothesize that the majority of service members returned from deployment for psychiatric reasons end up being medically discharged or involuntarily separated. If this hypothesis is supported, these findings could argue for providing more effective treatment prior

to aeromedical evacuation. For example, the current concept of operations for the treatment of combat and operational stress reactions is based on the PIEs model of proximity, immediacy, and expectancy (Flannery & Everly, 2000; Kardiner & Spiegel, 1947; Salmon, 1919). The PIE model recommends that intervention be immediately, conducted close to the event site, and by instilling a sense of recovery expectancy (Everly, Flannery, & Mitchell, 2000; Flannery & Everly, 2000). However, there is no evidence that these passive interventions have any significant impact on disorders such as deployment-related post-traumatic stress disorder (PTSD).

Anecdotal evidence suggests that service members returned from deployment for psychiatric reasons often have a history of pre-deployment mental health diagnoses and treatment. To our knowledge, there are no data currently published to support or refute this presumption. The current study serves to provide descriptive analyses of the pre-deployment prevalence of mental health disorders and type of mental health treatments in this population and examine relationship of mental health history and risk of subsequent post-deployment MEB. The findings will help guide improvements to future pre-deployment mental health screening.

In practice, the aeromedical assignment is based on diagnosis, classification and response to treatment course. Classification implies decisions regarding the mental, physical and behavioral status of patients that contribute to the safety concerns inherent with these complex operations such as the amount of personnel needed, use of medications or physical restraint, and if the patient is transported by litter or is ambulatory. Inaccurate patient classification of a psychiatric aeromedical evacuation case may have unintended consequences that can potentially compromise the safety of patients, aircrew, and the aircraft. This study evaluated the relationship between diagnoses at point of patient origin, presence of other risk factors (e.g., suicidal or homicidal ideation), and aeromedical evacuation patient classification throughout the return flight. The results from this study clarify current guidelines, inform training for those involved in aeromedical evacuations, and suggest improved screening tools and standards of care for psychiatric aeromedical evacuations.

3.0 OBJECTIVES AND HYPOTHESES
The overall objective of this study was to conduct a comprehensive retrospective review analyzing OIF/OEF psychiatric aeromedical evacuations from 2001 to 2013 to determine the medical and military career consequences of psychiatric aeromedical evacuation. Data were obtained from an aeromedical evacuation database called TRAC2ES (TRANSCOM Regulating Command & Control Evaluation System) and the electronic medical records from the Defense Health Agency (DHA). Researchers also obtained military attrition data from the Defense Manpower Data Center (DMDC) military personnel database.

3.1 Study Objectives
Study objectives were as follows:
1. To describe the pre-deployment, during deployment, and post-deployment medical and mental health treatment history of service members returned from deployment for psychiatric reasons.

2. To assess the relationship between diagnoses at the time of evacuation and service members' assigned classification in the aeromedical patient classification system.

3. To determine the prevalence and outcome of medical evaluation boards (MEBs) for the population of service members returned early from OIF/OEF deployment for psychiatric reasons.

4. To determine if mental health treatment history is predictive of the occurrence of MEBs and their outcome.

3.2 Hypotheses

Hypothesis 1: There will be a significant relationship between diagnoses at the time of evacuation and service members' assigned classification in the aeromedical patient classification system.

Hypothesis 2: Chi-square tests of independence and standardized residuals for service demographics, aeromedical evacuation information, and reasons for military separation, will identify cells with observed frequencies or proportions significantly different than expected by chance.

Hypothesis 3: The observed frequencies of medical evaluation boards (MEBs) for the population of service members returned early from OIF/OEF deployments for psychiatric reasons will be significantly greater than expected by chance.

4.0 RESEARCH METHODS, MONITORING, OUTCOMES and DATA ANALYSES

4.1 Research Methodology

The study was a retrospective database review.

4.1.1 Research Subject Criteria

Subjects: Research data were obtained for all active duty U.S. military personnel who were evacuated from the Operation Iraqi Freedom and Operation Enduring Freedom (OIF/OEF) combat theater for psychiatric reasons between 2001 and 2013. Psychiatric reasons were defined using the 1A, 1B, or 1C movement classification codes for air evacuation.

4.1.2 Database Access

TRAC2ES: Eligible study participants were identified utilizing TRAC2ES (TRANSCOM Regulating and Command & Control Evaluation System). TRAC2ES is a web-based system that facilitates the management and tracking of military casualties evacuated from the theater of operations (Erwin, 2003). Using the established agreement between the US Transportation Command (US TRANSCOM) Chief Surgeon and the USAF School of Aerospace Medicine at Wright-Patterson Air Force Base (WPAFB), study access to the TRAC2ES database was granted to the designated research associates working directly for the Principal and Associate Investigators at Wright-Patterson AFB and Lackland AFB and with appropriate WPAFB Air Force Research Laboratory (AFRL) Institutional Review Board (IRB) approval. US TRANSCOM provided access to the TRAC2ES database upon receipt of a Letter of Support

from the USAF School of Aerospace Medicine along with a copy of the Protocol Approval memorandum from the WPAFB AFRL IRB. Table 1 provides overall categorization from TRAC2ES related to the number of patients assigned to each of the four psychiatric movement classifications during the years 2001 to 2013. The number of potential study participants was 10,319. The specific data (variables) that were extracted from TRAC2ES for each participant are listed in attachment A (MEDEVAC Data Collection Form).

Table 1. Psychiatric aeromedical evacuation movement classification codes, descriptions, and sample sizes (N = 10,319) during the years 2001 to 2013

Movement Classification Code	Movement Classification Description	N = 10,319	Percentage
1A	Severe psychiatric litter patient needing sedation, restraints, and close supervision	269	3%
1B	Psychiatric litter patient of intermediate severity	2936	28%
1C	Psychiatric walking patient of moderate severity	5129	50%
5C	Psychiatric outpatient going for treatment or evaluation	1985	19%

DHA. Medical record data catalogued and maintained by the Defense Health Agency (DHA) were requested. The MHS Data Repository (MDR) is the centralized data repository that validates, integrates, and distributes DHA health care data. Medical record data included health informatics data on current participants from 2001 through year 2014/2015 where available, in order to follow outcomes of disease process. Requested data elements are specified in Attachment B (DRT MDR) and Attachment C (General DRT).

DMDC. The Defense Manpower Data Center (DMDC) is a component of the Defense Human Resources Activity (DHRA), a field activity of the Under Secretary of Defense (Personnel and Readiness). A primary DMDC function is the maintenance of the central repository of the Department of Defense (DoD) Human Resource Information, both current and historic. DMDC maintains personnel data for all service branches and reserves. The available data extends across the full military service cycle including accession, separation, and retirement.

4.1.3 Data Collection Procedures
The TRAC2ES variables, listed in Attachment A, were requested from the Office of the Command Surgeon US TRANSCOM by the research associate located at Wright-Patterson AFB. An account with a unique key was created for the designated research associate in order to securely access the electronically generated TRAC2ES data file. The research associate entered the data into a specifically-created database. The military applicant/recipient (Lt Col Cigrang) completed the required DMDC System Authorization Access Request (SAAR). Military separation codes were requested from the DMDC for each

identified case number through the secure online DMDC Reporting System. Specific data variables corresponding to the DMDC variables described per Attachment B were extracted and added to the established database. The merged database was encrypted and securely transferred by authorized study personnel via encrypted storage media to the designated research associates at Lackland AFB. The data was securely maintained on a Common Access Card (CAC) - enabled government computer dedicated for this study. Authorized access was granted only to persons listed on the study Access Control Roster (ACR) which included only the military applicant/recipient and study-approved research associates with specifically-assigned password/PIN codes for accessing databases. Medical record data were collected retrospectively from existing MDR, TMDS, TED, PDTS, and ACG databases maintained by MHS Data Repository (MDR). Once data extraction was complete, the file was encrypted and securely transferred using a government server to the military applicant/recipient, in accordance with the Data Sharing Agreement (DSA). The military applicant/recipient merged TRAC2ES, DMDC, and MDR datasets by social security number (SSN) in order to create a full master database. Once created, the military applicant/recipient removed PHI/PII identifiers from the full master database according to Safe Harbor Method guidelines to create a coded master database.

The coded master database was securely transmitted to the University of Texas Health San Antonio (UT Health San Antonio) for data analysis. The code to PHI was maintained by the military PI in the event other databases need to be queried, with IRB review and approval, to collect additional information.

Coded data were also securely shared with Lt Col Jeffrey Cigrang, Associate Investigator, to conduct project-relevant analyses. The government research associates created the specific datasets as Excel and SPSS files from the allowed variables requested. Dr. Cigrang maintained the coded dataset received in accordance with the Educational Partnership Agreement between Wright State University and USAF School of Aerospace Medicine Aeromedical Research Department on his University computer in his office at the Ellis Institute, 9 N. Edwin C. Moses Blvd., Dayton Ohio, 45402, in room 221. Only Dr. Cigrang and his research graduate assistant had access to the dataset on his computer. The dataset was not transferred to any other computer beyond his official University computer.

4.2 Monitoring and Confidentiality
4.2.1 Safety Monitoring
Because this study was solely a retrospective study using archival data, there was no direct interaction with human subjects. The safeguards put in place for confidentiality protection of the data are discussed in the next section.

4.2.2 Confidentiality Protection
All identifiable data were kept on the government computers assigned to the PI. The computers were password-protected and CAC-enabled, and the system was firewall-protected. All research data, including patient demographics, were kept in an electronic database that was encrypted and password-protected. No work on these identifiable

databases was completed on any portable computers outside of secure facilities. Only study-approved research associates located at WPAFB and at Lackland AFB working under the direction of the PIs had access to the PHI. The associate investigators and research associates completed CITI training and possessed active security clearances. To create a coded master database, random numbers were assigned to each individual in the dataset. Event dates (e.g., birth, departure, arrival, MEB) were described by year only. The key for the codes linking the random numbers to the Personally Identifiable Information (PII) and Protected Health Information (PHI) and the full master database was securely maintained at WPAFB only. The coded database (without any PII/PHI) was shared with Dr. Jim Mintz and the Biostatistics Core at the University of Texas Health Science Center at San Antonio (UTHSCSA) and Lt Col Jeffrey Cigrang at Wright State University for analysis. The encrypted, coded master database was received by Dr. Jim Mintz via the Secure Send (SSL) 128-bit encrypted connection website at the UTHSCSA Division of Behavioral Medicine and securely housed within the STRONG STAR (South Texas Research Organizational Network Guiding Studies on Trauma and Resilience) data repository. The servers were maintained behind a locked door with a combination lock. Access was restricted to authorized key personnel in the Data & Statistics Core. The University network was secured by a series of firewalls and switched routers and the network and was subdivided by Virtual Local Area Networks (VLANS). Any authorized user had to be physically mapped into the specific VLAN to access a database server thereby limiting access to specific users. Likewise, only coded data was shared with Dr. Jeffrey Cigrang, Associate Professor at the School of Professional Psychology, and investigator as defined by the Educational Partnership Agreement between Wright State University and USAF School of Aerospace Medicine Aeromedical Research Department. The data did not include any of the defined eighteen identifiers per the Safe Harbor Method guidelines. Dates were described as year only. The government research associates created the specific dataset(s) as an Excel or SPSS file from the allowed variables requested. This sub-dataset(s) were anonymized and no link was retained to the original, full master database. No data contained within the created sub-dataset could be used alone or in combination with other data to potentially identify a subject or other sensitive information. The encrypted, coded database file was password-protected and scanned through the Digital Signature Enforcement Tool (DSET) as a final precaution, then sent by email on a secure government server to the secure email assigned to Dr. Cigrang on the Wright State University firewall-protected server. The encrypted, coded database file was stored on a university-issued password-protected computer to which only Dr. Cigrang had access. Wright State University utilizes a layered security architecture approach, employing firewall perimeter controls and authentication in conjunction with controls on internal devices. Data encryption and virtual private network technologies are used to prevent unauthorized access to critical data in transit. Dr. Cigrang maintained the coded dataset on his University computer in his office at the Ellis Institute, 9 N. Edwin C. Moses Blvd., Dayton Ohio, 45402, in room 221. Dr. Cigrang directly supervised student access to the data. Only Dr. Cigrang and his research graduate assistant had access to the dataset on his computer. No transfer of the data to other devices including portable devices was allowed. The research data was not used for further research activity beyond the approved protocol stipulations.

4.3. Outcome Measures

4.3.1 Personal and Military Demographics

Personal demographics included age, gender, race/ethnicity, marital status, and education. Race/ethnicity was classified as White, African American, Hispanic, Asian, American Indian/Alaska Native, Pacific Islander, and "Other Race" based onTRAC3S records. Military service demographics included service branch, military grade, and occupation category (Combat Arms, Combat Support, and Combat Service Support).

4.3.2 Psych-AIREVAC Demographics

Aeromedical evacuation information included movement classification code (an indicator of diagnosis severity), precedence of evacuation, evacuation year, and necessitating psychiatric diagnosis. Service members' diagnoses were characterized using International Classification of Diseases, 9th revision (ICD-9) codes and covered a wide range of psychiatric conditions. To examine the trends of psychiatric aeromedical evacuation throughout the course of OEF/OIF/OND, the number of raw and normalized (relative to each category's respective total number of Psych-AIREVACs) evacuations per month by movement classification code were examined and are shown relative to key operational events from both conflicts. Given the goal of describing this population as broadly as possible, individual diagnoses are reported if they were prevalent in at least 0.5% of the population.

4.3.3 Patient Movement Precedence Codes and Patient Classification Codes

Air Force Instruction 41-307 outlines aeromedical evacuation Patient Movement Precedent Codes and Patient Classification Codes for the U.S. military.[10] There are three Patient Movement Precedent Codes: Urgent, Priority, and Routine. The Urgent precedence code is used when immediate evacuation is needed to save life, limb, or eyesight or to prevent the complications of a serious illness. The Priority precedence code is used when prompt medical care is needed that is not available in the combat theater. The Routine precedence code is used for all other evacuations.

There are three primary psychiatric aeromedical evacuation classification codes: Severe (category 1A), Intermediate (category 1B), and Moderate (category 1C). The Severe category is for severely ill psychiatric patients who require close supervision during the entire aeromedical evacuation process. They are usually sedated with medications, restrained, and transported on a litter. They are required to have a medical attendant with a minimum grade of E-5 and not a grade lower than the patient. The Intermediate category is for moderately to severely ill psychiatric patients. They are also often sedated and transported on a litter, but restraints are not routinely applied. The Moderate category is for cooperative, stable, and moderately severe psychiatric patients traveling in an ambulatory status.

In addition, there are three other classification codes for psychiatric patients: 3C, ambulatory drug or substance abuse patients going for treatment; 5B, outpatient ambulatory psychiatric or substance abuse patients going for treatment; and 5C, psychiatric outpatients going for treatment and/or evaluation. For the purposes of the present study, patients were categorized as Severe (1A), Intermediate (1B), Moderate (1C), and Outpatient (3C, 5B, and 5C). We were particularly interested in whether these movement classification codes, which serve as a proxy for severity of the underlying necessitating psychiatric condition, were related

to any of the demographic, diagnostic, or attrition variables. As such, we also examined relationships between all aforementioned variables and movement classification codes.

4.3.4 Military Separation Characteristics

Interservice Separation Codes indicating the reason for service members' military separation were collected, where appropriate. There were a myriad of reasons for military separation in this cohort, but given that particular separation codes could be meaningfully related to the main study variables and/or Psych-AIREVAC severity, individual codes were not aggregated for the main analysis unless they constituted at least 2% of the total number of codes. Additionally, given the desire to find differences between those separated from the military and those not separated, all categories were collapsed into a single category and the two groups were compared on all prior variables.

4.4 Data Analyses

Analyses were conducted using SPSS version 23. For all variables, either the number and percentages or the means and standard deviations are included for the total sample and for each of the four movement classification codes. For most variables, we conducted two sets of tests, both of which are displayed within a single table in the Results section. Because we wanted to determine whether individuals who received a Psych-AIREVAC were different from the broader active duty population, we first compared the full sample of individuals in the Psych-AIREVAC group to the entire 2013 active duty force on all variables for which we could obtain information.

Chi-square tests of independence were used for most of these analyses, and standardized residuals less than -1.96 and greater than 1.96 were used to identify cells with observed frequencies or proportions significantly different than expected by chance. Additionally, odds ratios (OR) were calculated to provide context about the nature of the significant relationships, when necessary. Next, we tested whether movement classification code was related to any of the demographic, clinical, and attrition variables within the Psych-AIREVAC sample. Again, standardized residuals and odds ratios were used to probe significant relationships across levels of diagnostic severity. For all analyses, we removed non-specific categories (e.g. unknown/other race) from the cross tabulation and re-analyzed the data if the non-specific categories were revealed to be the only category causing the relationships to be significant.

5.0 MAJOR MILESTONES

Date	Milestone
27 November 2012	Completion of Project Kick-Off Meeting
21 September 2012: Phase I IRB Approval (59 MDW IRB)	Exempt determination received
October 2012	Began data analysis of Phase I data
November 2013-November 2018	Presented preliminary findings: See detailed listing in Deliverables section of final report.

3 February 2014: Phase II IRB Approval (AFRL IRB)	IRB Approval Received
12 February 2014: Phase I IRB Approval (UTHSCSA IRB)	Not human subject's research determination received.
18 December 2014: Phase II IRB Approval (UTHSCSA IRB)	Not human subject's research determination received.
February 2015: Initial DHA Data Sharing Agreement and HRPO approval for AHLTA data inclusion.	Obtained access to OIF/OEF Psychiatric AE data
September 2016: DHA approval of renewal and DSA modification to include health informatics data sources.	Obtained access to OIF/OEF Psychiatric AE data
2017-2018	Findings published: Baker, M. T., Anderson, S. R., Arant-Daigle, D., Cigrang, J. A., Young-McCaughan, S., Johnson, L., & Peterson, A. L. (2017). Psychiatric aeromedical evacuations: Clinical characteristics of deployed U.S. military personnel during Operation Iraqi Freedom. *Military Behavioral Health, 5*, 178-188. Published online January 27, 2017. Peterson, A. L., Hale, W. J., Baker, M. T., Cigrang, J. A., Moore, B., Straud, C. L., Dukes, S. F., Young-McCaughan, S., Gardner, C. L., Arant-Daigle, D., Pugh, M., Williams Christians, I., & Mintz, J.; for the STRONG STAR Consortium. (2018). Psychiatric aeromedical evacuations of deployed active duty U.S. Military Personnel during Operations Enduring Freedom, Iraqi Freedom, and New Dawn. *Military Medicine, 188,* 1-10.
13 February 2018: Phase II IRB Approval (transferred to and approved by 59 MDW IRB).	IRB Approval Received
2019	Provide AE Enroute Safety Recommendations: Peterson, A. L., Shah, D. V., Lara-Ruiz, J. M., & Ritchie, E. C. (2019). Aeromedical Evacuation: Management of Acute and Stabilized Patients. W.W. Hurd & W. Beninati (Eds.), *Aeromedical evacuation of psychiatric casualties (2nd Ed)*. New York: Springer.

6.0 PROJECT RISK ASSESSMENT

The most significant potential risk of the study was the inadvertent breach of confidentiality associated with clinical data extraction and review. There were no instances of inadvertent breach of confidentiality associated with clinical data extraction and review during any portion of the study. Data were coded and all PHI/PII was removed prior to sharing the database with the UT Health San Antonio collaborators and Wright State University, which minimized the risk of a breach.

Challenges encountered during the conduct of this study included: a.) changes in the military principal investigator across the duration of the project and, b.) termination of the primary project coordinator at the 59th Medical Wing due to grant fund expiration prior to the completion of the project. These challenges led to some administrative oversights including a delay in the completion in the Final Report for the project.

7.0 TRANSITION PLAN

7.1 Military Relevance

The results of the study demonstrated that the peak in Psych-AIREVACs occurred after major operational events. In particular, those patients categorized with a "Severe" movement classification code reflected the psychiatric causalities of the combat operation. Understanding when spikes in Psych-AIREVACs occur is vital, as such knowledge may inform military leadership on how and when to best position mental health professionals in deployed settings to mitigate risk.

7.2 Transition Strategy

Additional research is needed to evaluate the findings from the current study compared to (1) service members who were deployed and then aeromedically evacuated for reasons other than psychiatric disorders, (2) service members who were deployed and were able to complete their deployment without the need for an aeromedical evacuation, and (3) service members who did not deploy during the same time period. In addition, it is anticipated that the majority of the patients from this study will, at some point, be medically discharged from active duty because of a service-connected psychiatric diagnosis.

8.0 RESULTS

A total of 7,023 of the 1,485,605 active duty military service members who had deployed to Iraq or Afghanistan from 2001 to 2013 received a Psych-AIREVAC (a rate of 4.7 per thousand across the entire study period). The average yearly rate for Psych-AIREVACs was 5.8 per 1000 deployers. The annual rate ranged from a low of 1.9 per 1000 in 2004 to a high of 12.9 per 1000 in 2002. With respect to the various movement classification codes, 47.1% were given a movement classification code of Moderate, 30.1% were Intermediate, 20.2% were Outpatient, and 2.6% were Severe. In terms of aeromedical evacuation patient movement precedent codes, 96.8% of all evacuations were classified as Routine, 3.1% were considered Priority, and 0.1% were considered Urgent. All cases categorized as Urgent were classified as either Severe or Intermediate according to the movement classification code.

8.1 Personal Demographic Characteristics of Psychiatric Evacuees
Table 2 provides a summary of the personal demographic characteristics for the entire 2013 active duty force, the total Psych-AIREVAC sample, and the Psych-AIREVAC sample stratified by their respective movement classification codes. Age was significantly related to sample ($p < 0.001$); standardized residuals indicated that service members 25 and under were overrepresented in the Psych-AIREVAC sample compared to the active duty sample. Individuals were anywhere from 1.4 to 3.6 times more likely to be in the Psych-AIREVAC group if they were 25 or younger than if they were in any other age group. Gender was related to sample ($p < 0.01$), with females being slightly overrepresented in the Psych-AIREVAC group (OR = 1.1). Race/ethnicity was also related to sample ($p < 0.001$), with the Psych-AIREVAC group being composed of a higher proportion of white service members than expected by chance. Specifically, individuals were 1.1 to 4.6 times more likely to be in the Psych-AIREVAC group if they were white. Marital status and Education were related to sample as well (both $p's < 0.001$). Those who were divorced (OR's = 0.69 to 1.2) and those who were widowed (OR's = 1.5 to 1.8) were overrepresented in the Psych-AIREVAC group, as were individuals whom only possessed a high school degree (OR's = 2.6 to 5.9).

When cross-tabulating the demographic variables with Movement Classification Code (MCC), relationships with age, race/ethnicity, and marital status were all significant at the $p < 0.001$ level. With respect to age, those 25 and under were more likely to have an Intermediate MCC and less likely to have an Outpatient MCC than expected, whereas the converse was true for those 41 and older. With respect to race/ethnicity, more white service members were given an Outpatient MCC than expected by chance, whereas more Asians were given a Severe MCC. Finally, with respect to marital status, more married and divorced individuals and fewer never married individuals received an Outpatient MCC than expected by chance and more never married individuals than expected received an Intermediate MCC.

8.2 Service Demographic Characteristics of Psychiatric Evacuees
Table 3 characterizes the service-related information for the active duty sample, the total Psych-AIREVAC sample, and for each of the severity groups. Both branch and grade/rank were related to sample (both $p's < 0.001$). With respect to branch, members of the Army were 3.0 to 8.4 times more likely to be in the Psych-AIREVAC group compared to the other branches of the military. Those with ranks of E-1 to E-4 were vastly overrepresented in the Psych-AIREVAC sample, and the other rank categories were significantly underrepresented. Individuals were 2.1 to 7.4 times more likely to be in the Psych-AIREVAC group if they were Junior Enlisted as opposed to some other rank category.

Movement Classification Code was also related to military branch and grade/rank (both $p's < 0.001$) and occupation category ($p < 0.019$). Marines were overrepresented within the Outpatient MCC and underrepresented in the Intermediate MCC. With respect to rank, more Junior Enlisted service members than expected received an Intermediate MCC, whereas both other groups of enlisted service members were more likely to receive an Outpatient MCC. With respect to the relationship with occupation category, there was an overrepresentation of individuals designated as Combat Arms with the Outpatient MCC.

8.3 Psychiatric Aeromedical Evacuations over Time

Table 3 also lists the number of individuals deployed from 2001 to 2013, the total number of Psych-AIREVACs per year, and the number of Psych-AIREVACs for each MCC by year. Evacuation year was related to sample ($p < 0.001$) and MCC ($p < 0.001$). For the full Psych-AIREVAC sample, the number of evacuations peaked in 2010, though no individual MCC category peaked in that year. More Psych-AIREVACs than were expected by chance occurred in 2002 and 2003, fewer or as many as expected occurred between 2004 and 2009, and more than expected occurred from 2010 to 2013. With respect to each MCC, Severe and Moderate MCC's appear to have been more prevalent than expected during the first half of the study period. Intermediate MCC's were more prevalent than expected during the middle third of the study and Outpatient MCC's were more prevalent during the final third.

To get a better understanding of how Psych-AIREVACs unfolded over the course of the various conflicts, we graphed the percentage of each MCC's total number of evacuations for each quarter in Figure 1. This figure depicts the nature and cadence of evacuations by plotting the relative rates per quarter and by group, overlaid upon key operational events from OEF and OIF. Although this approach does not account for quarterly variability in the number of deployed service members, these normalized rates put the groups on the same metric and indicate when and where the spikes in evacuations occurred for each of the severity groups. A visual inspection of the figure indicates that the spikes in Psych-AIREVACs for all groups almost always immediately precede or follow a significant operational event.

8.4 Psychiatric Diagnoses for Aeromedical Evacuation

The psychiatric diagnoses associated with the aeromedical evacuations are presented in Table 4. Overall, the top five disorders necessitating Psych-AIREVAC were depressive disorders, adjustment disorders, posttraumatic stress disorder (PTSD), bipolar disorders, and delusional disorders. Together, these diagnoses constituted 64.2% of all Psych-AIREVACs. Additionally, most presentations were unidimensional; approximately 84% of Psych-AIREVACs were given a single necessitating diagnosis.

Necessitating diagnosis was related to MCC ($p < 0.001$). Diagnoses that were over or underrepresented are designated in Table 4. With respect to the clusters of necessitating diagnoses by MCC, depressive disorder was the most prevalent in all groups except the Outpatient group, in which adjustment disorder was the most prevalent. The severe group received more diagnoses of bipolar disorder, suicide attempts, and schizoid disorders than expected by chance, whereas depressive disorders, anxiety disorders, suicide attempts, and poisonings were overrepresented for the Intermediate MCC. The Moderate MCC saw an overabundance of cases in which the necessitating reason for Psych-AIREVAC was depression and pre-senile conditions. Finally, the Outpatient MCC contained more cases of adjustment disorder, PTSD, anxiety disorder, traumatic brain injury (TBI), sleep disorders, and eating disorders than expected by chance.

8.5 Reasons for Military Separation for Psychiatric Evacuees

Table 5 lists the top reasons for separation from active duty service for individuals who received Psych-AIREVAC. Thirteen different codes were identified related to discharge or separation from active duty. Of the 7,023 active duty service members who were evacuated for psychiatric reasons between 2001 and 2013, 3,741 (53%) had separated from active duty, were discharged from the military, or were on temporary disability retirement status. Reason for discharge was related to sample when collapsing across comparable categories ($p < 0.001$). Individuals separated for being considered "Unqualified for Active Duty" as opposed to any other code were 4.9 to 57.4 times more likely to be in the Psych-AIREVAC sample compared to the 2013 active duty sample. Additionally, those separated for having some "Other Interservice Separation Code" were 2.0 to 11.7 times more likely to be in the Psych-AIREVAC sample than any other code except for "Unqualified for Active Duty". For the Psych-AIREVAC sample, significantly more disability-related, general unfitness, and disciplinary-related separations than expected by chance were observed. Reason for separation was not related to MCC ($p = .79$).

Given the broader interest in determining factors that were related to separation, all of the separation categories were collapsed into a single category, and those individuals who were separated from the military for any reason were compared to those still in the military on all prior personal and service related demographics and key aeromedical evacuation related variables in the Psych-AIREVAC sample only. Of all the variables, only necessitating diagnosis was related to separation status ($p < 0.001$). That is, individuals with some particular diagnoses were more likely to be separated than those with others. As can be seen by the subscripts in Table 5, more individuals evacuated with diagnoses of depressive disorder, PTSD, and delusional disorders than expected by chance, and fewer individuals with adjustment disorder, bipolar disorder, and acute stress disorder than expected by chance were separated.

9.0 DISCUSSION AND CONCLUSION

9.1 Discussion

This study evaluated the relationships between demographic-, clinical-, and attrition-related variables in active duty U.S. military personnel who had a psychiatric aeromedical evacuation from the Afghanistan or Iraq combat theater between 2001 and 2013. Compared to the active duty comparison sample, those with a Psych-AIREVAC tended to be younger, female, white, divorced or widowed, and less educated. They were also more likely to be junior enlisted service members in the Army serving in a Combat Arms military occupational specialty. These findings are consistent with previous studies noting that deployed service members who had been Psych-AIREVACed were younger, junior-enlisted, and never married (Rundell, 2006; Wilmoth et al., 2015). The results were also consistent with a recent publication indicating that the risk of suicide attempts was significantly higher in younger service members who deployed within the first 12 months of service (Ursano et al., 2018).

The current study also found that peaks in the number of aeromedical evacuations coincided with significant combat operational events. These peaks almost always preceded or followed a

significant operational event. Although these results are purely descriptive, they suggest that some psychiatric patients may have been evacuated prior to a significant operational event to potentially strengthen the remaining deployed forces in anticipation of an impending combat operation. The peak in Psych-AIREVACs after operational events, particularly those categorized with a "Severe" movement classification code, may reflect the psychiatric causalities of the combat operation. Understanding when spikes in Psych-AIREVACs occur is vital, as such knowledge may inform military leadership on how and when to best position mental health professionals in deployed settings to mitigate risk.

This study also provides a comprehensive examination of the relationships between psychiatric aeromedical evacuation, diagnoses, and military attrition. Individuals who received a Psych-AIREVAC were almost four times as likely (53%) to have been subsequently separated from active duty at the time of the data analysis compared to other active duty service members with non-psychiatric diagnosis (14%). In addition, Psych-AIREVAC patients were significantly more likely to have been separated for disability-related, general unfitness, and disciplinary-related reasons.

The chief psychiatric conditions necessitating Psych-AIREVAC were depressive disorder, adjustment disorder, PTSD, bipolar disorder, and delusional disorders. Separation from military service was more strongly associated with psychiatric diagnoses of greater severity (e.g., depression and PTSD versus adjustment disorders and acute stress disorder), with the exception that service members diagnosed with bipolar disorder were more likely to still be in the military. Factors contributing to this finding remain unclear. Notably, Rundell (2006) also observed that patient symptomatology often lessened considerably after arrival at Landstuhl Army Medical Center, Germany. This might help explain the higher likelihood of remaining on active duty after a Psych-AIREVAC for patients diagnosed with adjustment disorders. The reduced likelihood of discharge for patients diagnosed with bipolar disorder is surprising. However, previous reports have indicated a tendency for the over-diagnosis of bipolar disorder (Ghouse, Sanches, Zunta-Soares G, Swann, & Soares, 2013) which may have influenced the diagnoses given the stressful context of a war zone. Additional research is needed to evaluate changes in psychiatric diagnoses that might occur between those given in the combat theater as compared to diagnoses made at a later time after Psych-AIREVAC. For example, the relatively low prevalence of the diagnosis of PTSD is surprising; it may be that a significant proportion of individuals initially diagnosed with adjustment disorders are eventually diagnosed with PTSD.

This study was also the first to examine the relationship between movement classification code, a proxy for severity of the underlying necessitating diagnosis, and the other study variables. This was motivated by a desire to identify predictors and consequences of having a more high profile psychiatric aeromedical evacuation. Older, married service members tended to receive the Outpatient classification. Given that the most common diagnosis in the Outpatient group was adjustment disorder, these findings suggest that higher-raking, married service members may be more likely to be evacuated for significant marital or family problems than for more serious psychiatric conditions. Although speculative, this interpretation is consistent with reports that home-front stressors exceeded combat exposure and peer or unit stressors as the most

common factor leading to mental health visits during deployment (Jenkins & Barry, 2007; Warner, Breitbach, Appenzeller, Yates, Grieger, & Webster 2007).

An unexpected finding of the present study was that a movement classification code was not predictive of subsequent reasons for separation from the military. Thus, the degree of clinical supervision and restraint a service member was judged to require during psychiatric aeromedical evacuation from deployment proved to be unrelated to subsequent service outcome. Patient gender was also unrelated to military separation versus retention. While female gender has been shown to me more prevalent in Psych-AIREVACs relative to other returned from deployment samples (Rundell, 2006), gender in the present analyses was neither a risk nor a protective factor for long-term service outcome.

9.2 Conclusion

Psychiatric conditions are one of the leading reasons for the aeromedical evacuation of active duty military personnel from the military combat theater. Still, the aforementioned significant relationship found suggests that a psychiatric aeromedical evacuation from the combat zone may result in subsequent discharge or separation from active duty. Stated differently, for many active duty military personnel, a psychiatric aeromedical evacuation from a combat theater is a military career-ending event. This finding has important clinical and operational implications for the evaluation and treatment of psychiatric conditions during military deployments. Whenever possible, deployed military behavioral health providers should attempt to treat psychiatric patients in theater to help them remain in theater to complete their operational deployments (Cigrang, Peterson, & Schobitz, 2005; Potter, Baker, Sanders, & Peterson, 2009). An improved understanding of the factors related to psychiatric aeromedical evacuations will provide important clinical and policy implications for future conflicts.

10.0 DELIVERABLES

10.1 Presentations

Hale, W., Straud, C., Moore, B., Lara-Ruiz, J., Baker, M., Gardner, C., Young-McCaughan, S., Mintz, J., Cigrang, J., & Peterson, A. (November, 2018). *Gender-based Differential Predictors of Suicide Ideation and Suicide Attempts in Psychiatric Aeromedical Evacuations from OEF and OIF.* Poster presented at the 34th annual meeting of the International Society for Traumatic Stress Studies, Washington, DC.

Lara-Ruiz, J., Hale, W., Straud, C., Baker, M., Gardner, C., Young-McCaughan, S., Hancock, A., Mintz, J., Cigrang, J., & Peterson, A. (November, 2018). *Characteristics of Military Personnel during Psychiatric Aeromedical Evacuations from Iraq and Afghanistan.* Poster presented at the 34th annual meeting of the International Society for Traumatic Stress Studies, Washington, DC.

Lara-Ruiz, J., Hale, W., Straud, C., Baker, M., Gardner, C., Young-McCaughan, S., & Peterson, A. (2018, June). *Differences in Psychiatric Aeromedical Evacuations of Deployed Military Personnel during Operation Iraqi Freedom (OIF) and Operation Enduring Freedom (OEF).* Paper presented at annual San Antonio Military Health System & Universities Research Forum, San Antonio, TX.

Lara-Ruiz, J., Hale, W., Straud, C., Baker, M. T., Gardner, C. L., Young-McCaughan, S., Hancock, A., Mintz, J., Cigrang, J. A., & Peterson, A. L.; for the STRONG STAR Consortium. (2018, November). *Differences in psychiatric aeromedical evacuations of deployed military personnel during Operation Iraqi Freedom and Operation Enduring Freedom.* Poster presented at the annual meeting of the International Society for Traumatic Stress Studies, Washington, DC.

Moore, B., Straud, C., Hale, W., Gardner, C. L., Baker, M. T., Lara-Ruiz, J., Cigrang, J. A., Hancock, A., Mintz, J., Young-McCaughan, S., & Peterson, A. L.; for the STRONG STAR Consortium. (2018, November). *An evaluation of relationship status and gender as factors associated with psychiatric aeromedical evacuations from combat zones among OEF/OIF service members.* Poster to be presented at the annual meeting of the International Society for Traumatic Stress Studies, Washington, DC.

Peterson, A. L., Hale, W., Baker, M. T., Cigrang, J. A., Pugh, M.J., Gardner, C.L., Arant-Daigle, D., Williams Christians, I., Young-McCaughan, S., Mintz, J., & Dukes, S.F.; for the STRONG STAR Consortium. (2016, August). *Psychiatric aeromedical evacuations of deployed U.S. military personnel during Operation Iraqi Freedom and Operation Enduring Freedom 2001-2013.* Poster session presented at the 2016 Military Health System Research Symposium, Kissimmee, FL.

Hale, W., Peterson, A. L., Baker, M. T., Cigrang, J. A., Pugh, M.J., Gardner, C.L., Arant-Daigle, D., Williams Christians, I., Young-McCaughan, S., Mintz, J., & Dukes, S.F.(2016, May). *Psychiatric aeromedical evacuations of deployed U.S. military personnel during Operation Iraqi Freedom and Operation Enduring Freedom 2001-2013.* Poster session presented at the San Antonio Military Health System (SAMHS) and Universities Research Forum (SURF), San Antonio, TX

Dukes, S. F., Baker, M. T., Cigrang, J. A., Young-McCaughan, S., Arant-Daigle, D., Hale, W., & Peterson, A. L. (April, 2016). Psychiatric aeromedical evacuations of deployed U.S. military personnel during Operation Iraqi Freedom and Operation Enduring Freedom 2001-2013. Paper presented at the 87th Aerospace Medicine Association Annual Scientific Meeting, Atlantic City, NJ.

Hale, W., & Peterson, A. L., Baker, M. T., Cigrang, J. A., Pugh, M.J., Gardner, C., Arant-Daigle, D., Williams-Christians, I., Young-McCaughan, S., Mintz, J., & Dukes, S. F. (March, 2016). Psychiatric aeromedical evacuations of deployed U.S. military personnel during Operation Iraqi Freedom and Operation Enduring Freedom 2001-2013. Poster presented at the Texas Fresh AIR 2016 Big Data & Data Analytics Conference, San Antonio, TX

Baker, M. T., Anderson, S., Arant-Daigle, D., Young-McCaughan, S., Cigrang, J. A., Johnson, L., & Peterson, A. L. (2015, July). Psychiatric aeromedical evacuations: Clinical characteristics of deployed U.S. military personnel during Operation Iraqi Freedom. Poster presented at the San Antonio Military Health System (SAMHS) and Universities Research Forum, SURF 2015, San Antonio, TX.

Ford, H. L., Baker, M. T., Mintz, J., Young-McCaughan, S., Cigrang, J. A., Stamets, S. E., & Peterson, A. L. (2013, November). *Clinical and demographic characteristics of U.S. military psychiatric aeromedical evacuations from Iraq.* Poster presented at the annual convention of the Association for Behavioral and Cognitive Therapies, Nashville, TN.

Ford, H. L., Baker, M. T., Mintz, J., Young-McCaughan, S., Cigrang, J. A., Stamets, S. E., & Peterson, A. L. (2013, November). *Clinical and demographic characteristics of U.S. military psychiatric aeromedical evacuations from Iraq.* Poster presented at the annual meeting of the International Society for Traumatic Stress Studies, Philadelphia, PA.

10.2 Publications

Peterson, A. L., Hale, W. J., Baker, M. T., Cigrang, J. A., Moore, B., Straud, C. L., Dukes, S. F., Young-McCaughan, S., Gardner, C. L., Arant-Daigle, D., Pugh, M., Williams Christians, I., & Mintz, J.; for the STRONG STAR Consortium. (2018). Psychiatric aeromedical evacuations of deployed active duty U.S. Military Personnel during Operations Enduring Freedom, Iraqi Freedom, and New Dawn. *Military Medicine, 188,* 1-10. doi: 10.1093/milmed/usy188

Peterson, A. L., Shah, D. V., Lara-Ruiz, J. M., & Ritchie, E. C. (in press), Aeromedical Evacuation: Management of Acute and Stabilized Patients. W.W. Hurd & W. Beninati (Eds.), *Aeromedical evacuation of psychiatric casualties (2nd Ed).* New York: Springer.

Baker, M. T., Anderson, S. R., Arant-Daigle, D., Cigrang, J. A., Young-McCaughan, S., Johnson, L., & Peterson, A. L. (2017). Psychiatric aeromedical evacuations: Clinical characteristics of deployed U.S. military personnel during Operation Iraqi Freedom. *Military Behavioral Health, 5,* 178-188. Published online January 27, 2017. http://dx.doi.org/10.1080/21635781.2016.1272021

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13.0 TABLES AND FIGURES

Table 1. Psychiatric aeromedical evacuation movement classification codes, descriptions, and sample sizes (N = 10,319).

Movement Classification Code	Movement Classification Description	N = 10,319	Percentage
1A	Severe psychiatric litter patient needing sedation, restraints, and close supervision	269	3%
1B	Psychiatric litter patient of intermediate severity	2936	28%
1C	Psychiatric walking patient of moderate severity	5129	50%
5C	Psychiatric outpatient going for treatment or evaluation	1985	19%

Table 2. Personal Demographic Characteristics of Psychiatric Evacuees, OEF/OIF/OND; October 2001 through October 2013

	Sample				Movement Classification Code (Severity)							
	2013 Active Duty Force (N = 1,370,329)		Psych-AIREVAC Total (N = 7,023)		Severe (n = 182)		Intermediate (n = 2,117)		Moderate (n = 3,304)		Outpatient (n = 1,420)	
	N	%	N	%	n	%	n	%	n	%	n	%
Age*/+												
25 and younger	590,953	42.1	4,086	58.2 a	108	59.3	1,312	62.0 a	1,918	58.1	748	52.7 b
26-30	308,543	22.5	1,520	21.6	36	19.8	402	19.0 b	742	22.5	340	23.9
31-35	203,771	14.9	769	11.0 b	21	11.5	231	10.9	345	10.4	172	12.1
36-40	142,784	10.4	410	5.8 b	10	5.5	121	5.7	189	5.7	90	6.3
41 and older	124,278	9.1	236	3.4 b	7	3.8	50	2.4 b	109	3.3	70	4.9 a
Gender**												
Male	1,166,434	85.1	5,895	83.9 b	158	86.8	1,784	84.3	2,760	83.5	1,193	84.0
Female	203,895	14.9	1,128	16.1 a	24	13.2	333	15.7	544	16.5	227	16.0
Race/ Ethnicity*/+												
White	845,945	61.7	4,636	66.0 a	108	59.3	1,349	63.7	2,171	65.7	1,008	71.0 a
African American	223,378	16.3	1,101	15.7	32	17.6	352	16.6	508	15.4	209	14.7
Hispanic	158,955	11.6	679	9.7 b	15	8.2	227	10.7	309	9.4	128	9.0
Asian	50,737	3.7	179	2.5 b	11	6.0 a	62	2.9	74	2.2	32	2.3
Am. Indian/ Alaska Native	16,267	1.2	80	1.1	4	2.2	27	1.3	35	1.1	14	1.0
Other Race	25,382	1.8	332	5.0	11	6.0	95	4.5	200	6.1	26	1.8
Pacific Islander	13,364	1.0	16	<1.0 b	1	<1.0	5	<1.0	7	<1	3	<1.0
Marital Status*/ +												
Married	756,740	55.2	3,850	54.8	85	46.7	1,109	52.4	1,827	55.3	829	58.4 a
Never married	552,576	40.3	2,797	39.8	89	48.9	908	42.9 a	1,307	39.6	493	34.7 b
Divorced	58,982	4.3	358	5.1 a	8	4.4	97	4.6	159	4.8 b	94	6.6 a
Widowed/ Other	2,031	<1.0	18	<1.0 a	0	<1.0	3	<1.0	11	<1.0	4	<1.0
Education*												
High School Diploma	1,065,545	77.8	6,452	91.9 a	167	91.8	1,963	92.7	3,012	91.2	1,310	92.3
Bachelor's Degree	166,679	12.2	383	5.5 b	10	5.5	101	4.8	200	6.1	72	5.1
Advanced Degree	105,516	7.7	109	1.6 b	3	1.6	31	1.5	48	1.5	27	1.9

Note: Source for Active Duty Sample http://download.militaryonesource.mil/12038/MOS/Reports/2013-Demographics-Report.pdf.

*,** Indicates that the relationship between sample and marked variable was significant at the $p < .001$ and $p < .01$ level, respectively.

+,++ Indicates that the relationship between movement classification code and marked variable was significant at the $p < .001$ and $p < .01$ level, respectively.

a,b Indicates that the marked percentage was higher (a) or lower (b) than expected by chance according to standardized residuals. Unmarked percentages were not significantly different from that expected by chance.

Table 3. Service Demographic Characteristics of Psychiatric Evacuees, OEF/OIF/OND; October 2001 through October 2013

	Sample				Movement Classification Code (Severity)							
	2013 Active Duty Force (N = 1,370,329)		Psych-AIREVAC Total (N = 7,023)		Severe (n = 182)		Intermediate (n = 2,117)		Moderate (n = 3,304)		Outpatient (n = 1,420)	
	#	%	#	%	#	%	#	%	#	%	#	%
Branch*/+												
Army	528,070	38.5[b]	5,418	77.1[a]	142	78.0	1,698	80.2	2,526	76.5	1,052	74.1
Marine Corps	195,848	14.3	671	9.6[b]	13	7.1	164	7.7[b]	306	9.3	188	13.2[a]
Air Force	326,573	23.8[a]	542	7.7[b]	17	9.3	149	7.0	266	8.1	110	7.7
Navy	319,838	23.3[a]	392	5.6[b]	10	5.5	106	5.0	206	6.2	70	4.9
Military Grade*/+												
Junior Enlisted (E-1 to E-4)	598,282	43.6[b]	4,670	66.9[a]	126	69.6	1,499	71.1[a]	2,167	66.1	878	62.0[b]
NCO (E-5 to E-7)	504,152	36.8	1,906	27.3[b]	46	25.4	512	24.3[b]	910	27.8	438	30.9[a]
Senior NCO (E-8 to E-9)	38,031	2.8	40	<1.0[b]	0	0.0	8	<1.0	16	<1.0	16	1.1[a]
Junior Officer (O-1 to O-3)	131,313	9.6	212	3.0[b]	5	2.8	53	2.5	112	3.4	42	3.0
Senior Officer (O-4 to O-7)	87,654	6.4	110	1.6[b]	2	1.1	25	1.2	55	1.7	28	2.0
Warrant Officer	19,387	1.4	44	<1.0[b]	2	1.1	10	<1.0	17	<1.0	15	1.1[a]
Occupation Category++												
Combat Arms	Unavailable		1,779	25.3	44	24.2	516	24.4	805	24.4	414	29.2[a]
Combat Support	Unavailable		1,560	22.2	46	25.3	473	22.3	751	22.7	290	20.4
Combat Service Support	Unavailable		3,684	52.5	92	50.5	1,128	53.3	1,748	52.9	716	50.4
Evacuation Year*/+												
2001	Unavailable		15	<1.0	0	0.0	1	<1.0	7	<1.0	7	<1.0
2002	5,200	<1.0	67	1.0[a]	7	3.8[a]	26	1.2	29	<1.0	5	<1.0[b]
2003	78,100	<1.0	418	6.0[a]	11	6.0	90	4.3[b]	303	9.2[a]	14	1.0[b]
2004	145,180	11.0	275	3.9[b]	4	2.2	27	1.3[b]	242	7.3[a]	2	<1.0[b]
2005	162,900	12.0	365	5.2[b]	16	8.8[a]	45	2.1[b]	297	9.0[a]	7	<1.0[b]
2006	161,500	12.0	550	7.8[b]	41	22.5[a]	245	11.6[a]	229	6.9	35	2.5[b]
2007	172,000	13.0	830	11.8	38	20.9[a]	410	19.4[a]	324	9.8[b]	58	4.1[b]
2008	187,900	14.0	818	11.7[b]	17	9.3	355	16.8[a]	344	10.4[b]	102	7.2[b]
2009	186,300	14.0	859	12.3	15	8.2	155	7.3[b]	493	14.9[a]	196	13.8[a]
2010	151,800	11.0	964	13.7[a]	17	9.3	225	10.6[b]	456	13.8	266	18.7[a]
2011	106,200	8.0	795	11.3[a]	7	3.8[b]	368	17.4[a]	221	6.7[b]	199	14.0[a]
2012	67,500	5.0	636	9.1[a]	6	3.3[b]	118	5.6[b]	182	5.5[b]	330	23.2[a]
2013	61,025	5.0	431	6.1[a]	3	1.6[b]	52	2.5[b]	177	5.4[b]	199	14.0[a]

Table 3 Notes

Note: NCO, noncommissioned officer. A value of "Unknown" was coded for Component, Military Grade, Occupation Category, and Evacuation Year such that all *n*s add up to their respective totals and all %s add up to 100%. Evacuation year numbers under 2013 Active Duty Force represents the total number of individuals deployed to Iraq and Afghanistan in each respective year; numbers were obtained from https://fas.org/sgp/crs/natsec/R40682.pdf. Retrieved 4.18.2018. Numbers for all other variables were obtained from http://download.militaryonesource.mil/12038/MOS/Reports/2013-Demographics-Report.pdf. Retrieved 4.18.18.

[*,**] Indicates that the relationship between sample and marked variable was significant at the $p < .001$ and $p < .01$ level, respectively.

[+,++] Indicates that the relationship between movement classification code and marked variable was significant at the $p < .001$ and $p < .01$ level, respectively.

[a,b] Indicates that the marked percentage was higher (a) or lower (b) than expected by chance according to standardized residuals. Unmarked percentages were not significantly different from that expected by chance.

Table 4. Primary Psychiatric Diagnoses for Aeromedical Evacuation, OEF/OIF/OND; October 2001 through October 2013

				Movement Classification Code (Severity)							
	Total (N = 7,023)			Severe (n = 182)		Intermediate (n = 2,117)		Moderate (n = 3,304)		Outpatient (n = 1,420)	
	#	%		#	%	#	%	#	%	#	%
Depressive Disorders[x]	1,759	25.0		42	23.1	577	27.3[a]	867	26.2	273	19.2[b]
Adjustment Disorders[y]	1,238	17.6		14	7.7[b]	325	15.4[b]	587	17.8	312	22.0[a]
PTSD[x]	682	9.7		6	3.3[b]	112	5.3[b]	296	9.0	268	18.9[a]
Bipolar Disorder[y]	418	6.0		20	11.0[a]	133	6.3	191	5.8	74	5.2
Delusional Disorders[x]	416	5.9		37	20.3[a]	196	9.3[a]	140	4.2[b]	43	3.0[b]
Anxiety Disorders	401	5.7		4	2.2[b]	91	4.3[b]	177	5.4	129	9.1[a]
Screening for Depression[x]	322	4.6		6	3.3	106	5.0	182	5.5[a]	28	2.0[b]
Personality Disorders	296	4.2		10	5.5	94	4.4	147	4.4	45	3.2
Acute Stress Disorder[y]	203	2.9		5	2.7	46	2.2	109	3.3	43	3.0
Suicide Attempts	137	2.0		9	4.9[a]	68	3.2[a]	57	1.7	3	<1.0[b]
Pre-senile Conditions	106	1.5		1	<1.0	27	1.3	70	2.1[a]	8	<1.0[b]
Suicidal Ideation	105	1.5		0	0.0	31	1.5	49	1.5	25	1.8
Schizoid Disorders	76	1.1		5	2.7[a]	32	1.5	35	1.1	4	<1.0[b]
Drug Abuse Disorders	68	1.0		0	0.0	20	<1.0	36	1.1	12	<1.0
Alcohol Abuse Disorders	31	<1.0		1	<1	10	<1.0	15	<1.0	5	<1.0
Traumatic Brain Injury (TBI)	47	<1.0		0	0.0	9	<1.0	17	<1.0	21	1.5[a]
Sleep Disorders	38	<1.0		0	0.0	3	<1.0[b]	15	<1.0	20	1.4[a]
Poisoning	37	<1.0		0	0.0	21	1.0[a]	16	<1.0	0	0.0[b]
Conversion Disorders	29	<1.0		1	<1.0	4	<1.0	18	<1.0	6	<1.0
Conduct Disorders	32	<1.0		2	1.1	7	<1.0	17	<1.0	6	<1.0
Eating Disorders	27	<1.0		0	0.0	1	<1.0[b]	15	<1.0	11	<1.0[a]
Other	537	7.6		18	9.9	198	9.4	237	7.2	84	5.9
Unknown	18	<1.0		1	<1.0	6	<1.0	11	<1.0	0	0.0
At least 2 of the above	924	13.2		29	15.9	271	12.8	408	12.3	202	15.1
At least 3 of the above	202	2.9		5	2.7	49	2.3	104	3.1	44	3.1

Table 4 Notes

PTSD, posttraumatic stress disorder; TBI, traumatic brain injury.

[a,b] Indicates that the marked percentage under "Movement Classification Code (Severity) was higher (a) or lower (b) than expected by chance according to standardized residuals in the movement classification code by diagnosis crosstabulation. Unmarked percentages were not significantly different from that expected by chance

[x,y] Indicates that the number of individuals separated with the marked diagnosis was higher (x) or lower (y) than expected by chance according to standardized residuals in the separation status by diagnosis crosstabulation. Non-specific categories were not included in the crosstabulation. Unmarked diagnoses did not differ from chance.

Table 5 Reasons for Military Separation for Psychiatric Evacuees, OEF/OIF/OND, October 2001 through October 2013

	Sample					Movement Classification Code (Severity)							
	Comparable Active Duty Separations Total (N=200,392)*		Psych-AIREVAC Total Separations (N = 3,741)			Severe (n = 96)		Intermediate (n = 1,125)		Moderate (n = 1,785)		Outpatient (n = 735)	
	#	%	#	%		#	%	#	%	#	%	#	%
[1]Temporary disability retirement	25,835	12.9[b]	819	21.9[a]		19	19.8	229	20.4	406	22.7	165	22.4
[1]Disability, severance pay			208	5.6[a]		4	4.2	76	6.8	93	5.2	35	4.8
Expiration of term of service	85,029	42.4[a]	734	19.6[b]		24	25.0	228	20.3	351	19.7	131	17.8
[2]Failure to meet weight or body fat standards	35,067	17.5	351	9.4		11	11.5	95	8.4	165	9.2	80	10.9
[2]Character or behavior disorder			270	7.2		7	7.3	84	7.5	121	6.8	58	7.9
Unqualified for active duty	818	<1.0[b]	212	5.7[a]		4	4.2	57	5.1	109	6.1	42	5.7
Permanent disability retirement	Unknown		179	4.8		5	2.7	5.2	2.9	5.4	2.4	4.4	2.4
Retirement, 20 to 30 years of service	30,555	15.2[a]	138	3.7[b]		2	2.1	42	3.7	65	3.6	29	3.9
[3]Commission of a serious offense	14,967	7.5	122	3.3[a]		2	2.1	38	3.4	52	2.9	30	4.1
[3]Discreditable incidents, civilian or military			94	2.5[a]		3	3.1	32	2.8	43	2.4	16	2.2
[3]Drugs			99	2.6[a]		3	3.1	32	2.8	44	2.5	20	2.7
[3]Other Involuntary Separations (e.g., Court-martial)			85	2.3[a]		4	4.2	30	2.7	33	1.8	18	2.4
Other ISC code	8,121	4.1[b]	430	11.4[a]		8.3	51.6	10.8	52.6	12.5	52.8	10.5	53.7

Note: ISC, Inter-service separation codes. Source for Active Duty separations is http://download.militaryonesource.mil/12038/MOS/Reports/2013-Demographics-Report.pdf. Categories with identical numerical superscripts were combined for the Psych-AIREVAC sample in the analysis crosstabulating reason for separation and sample. As such, each numerical subscripted reason for separation is marked based on the over or under representation of the combined category.
[a,b] Indicates that the marked percentage was higher (a) or lower (b) than expected by chance according to standardized residuals. All unmarked percentages were not significantly different from that expected by chance. *Comparable separations represent 97% of all 2013 separations.

Figure 1 Relative Rates of Quarterly Psychiatric Aeromedical Evacuations from OEF, OIF, and OND by Movement Classification Code, October 2001 through October 2013
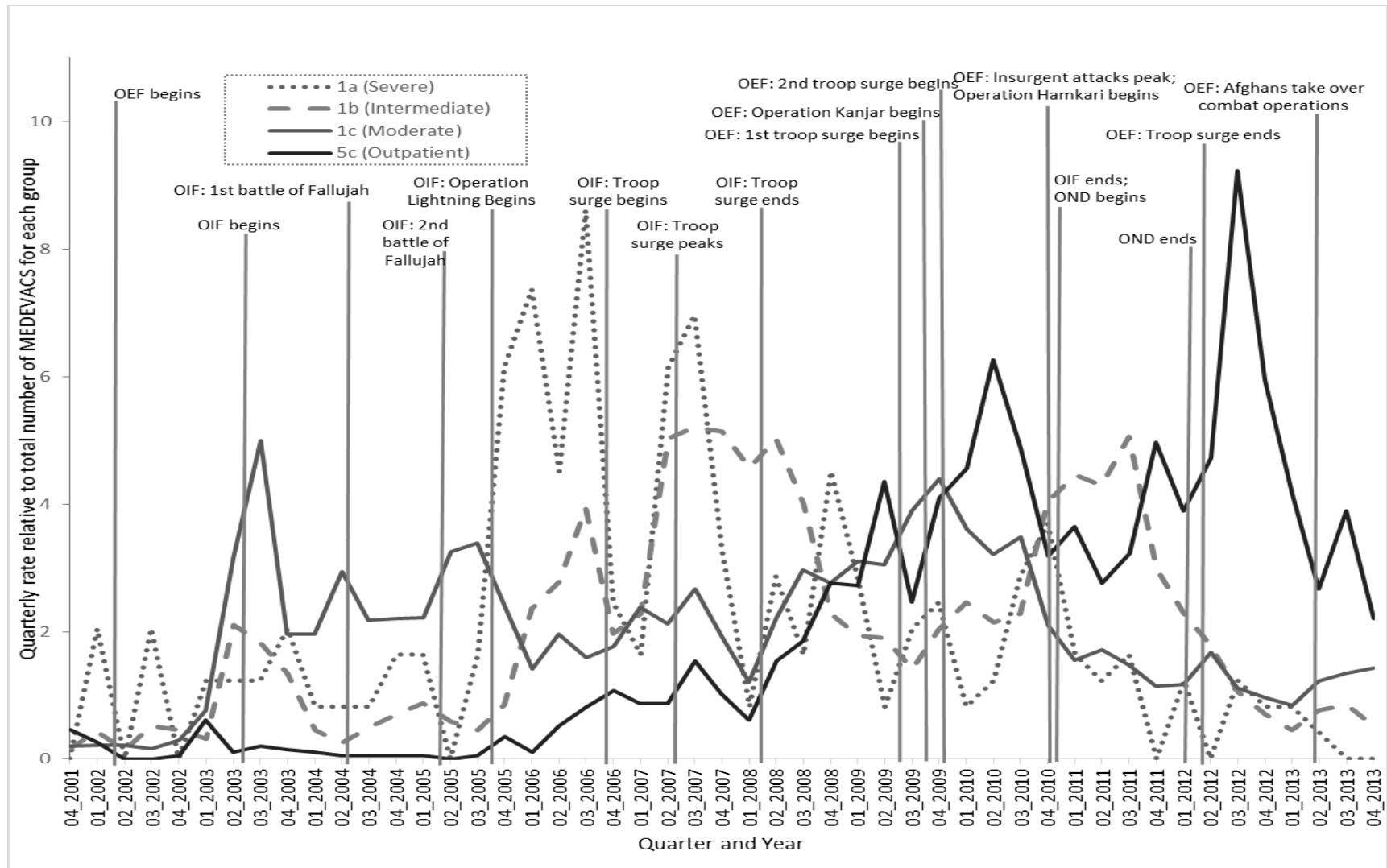
MEDEVACS, medical evacuations; OEF, Operation Enduring Freedom; OIF, Operation Iraqi Freedom; OND, Operation New Dawn.

14.0 STUDY ATTACHMENTS

14.1 Attachment A: MEDEVAC Data Collection Form
Data Field Request

Attachment A
Operations Iraqi Freedom (OIF) and Operations Enduring Freedom (OEF) Psychiatric MEDEVAC

Data Field Request
Gender
Date of Birth
Branch of Military
Rank
Unit
Facility of Origin
Origin
Destination Facility
Destination
ICD-9 CODES
Diagnosis 1°,2°, 3°
Movement Classification (1a, 1b, 1c)
Movement Classification Name
Precedence
Actual Departure
Actual Arrival
Number of Deployments
Deployment Intervals
Predeployment Total # Mental Health Encounters - past 2 years
Predeployment Total # All Health Encounters; any type - past 2 years
Predeployment Any Psych Diagnosis? - past 2 years (yes/no)
Predeployment Any Medications? Past 2 years (yes/no)
Predeployment Any suicidal ideation - past 2 years
Predeployment Any self-harm behaviors - past 2 years
Predeployment Any homicidal ideation-past 2 years
Predeployment Any homicidal behavior-past 2 years
Deployment Total # Mental Health Encounters
Deployment Total # All Health Encounters; any type
Deployment Any Psych Diagnosis? (yes/no)
Deployment Any Medications? (yes/no)
Deployment Any suicidal ideation
Deployment Any self-harm behaviors

vs. 24March 2014

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Attachment A

Operations Iraqi Freedom (OIF) and Operations Enduring Freedom (OEF) Psychiatric MEDEVAC

Deployment Any homicidal ideation
Deployment Any homicidal behavior
Post deployment Total # All Health Encounters; any type
Post-deployment Any Psych Diagnosis? (yes/no)
Post-Deployment Any Medications? (yes/no)
Post deployment Any suicidal ideation
Post deployment Any self-harm behaviors
Post-deployment Any homicidal ideation
Post-deployment Any homicidal behavior
Post deployment MEB conducted? (yes/no)
If "yes", date of MEB?
If "yes" MEB outcome? Select one category below
1. Return the member to duty without assignment limitations
2. Return the member to duty WITH assignment limitations
3. Place the member on the temporary disabled/retired list (TDRL)
4. Separate the member from active duty
5. Medically retire the member

Source	
TRAC2ES	
TRAC2ES	
TRAC2ES	
TRAC2ES	
TRAC2ES	
TRAC2ES	
TRAC2ES	
TRAC2ES	
TRAC2ES	
TRAC2ES	
TRAC2ES	
TRAC2ES	
TRAC2ES	
TRAC2ES	
TRAC2ES	
TRAC2ES	
	AHLTA Module
AHLTA	PE,HH
AHLTA	PE,HH
AHLTA	PE,HH
AHLTA	PE,HH
AHLTA	PE,HH
AHLTA	HH,MEDS
AHLTA	PE,HH
AHLTA	PE,HH
AHLTA	PE,HH
AHLTA	PE,HH
AHLTA	PE,HH
AHLTA	PE,HH
AHLTA	PE,HH
AHLTA	HH,MEDS
AHLTA	PE,HH
AHLTA	PE,HH

Attachment A

Operations Iraqi Freedom (OIF) and Operations Enduring Freedom (OEF) Psychiatric MEDEVAC

AHLTA	PE,HH
AHLTA	PE,HH
AHLTA	PE,HH
AHLTA	PE,HH
AHLTA	HH,MEDS
AHLTA	PE,HH
AHLTA	PE,HH
AHLTA	PE,HH
AHLTA	PE,HH
AHLTA	PE,HH
AHLTA	PE,HH
AHLTA	PE,HH
AHLTA	
AHLTA	
AHLTA	
AHLTA	
AHLTA	

HH-Health History
PE-Patient Encounter
MEDS-Medications

14.2 Attachment B: DRT MDR

CAPER (Basic&Enhanced)

	CAPER Basic/Enhanced (Comprehensive Ambulatory/Provider Encounter Record)					
	Common File Name: fyXX.sas7bdat, where XX=03+					
	Dataset Location: For Basic: /mdr/pub/caper/fyXX.sas7bdat, where XX=03+; For Enhanced: /mdr/pub/caper/enhanced/fyXX.sas7bdat, where XX=04+					
	Update Frequency: Current FY weekly, Prior FY weekly for one quarter (Oct-Dec), April, and October; Previous years annually or as needed.				**Source System:** CHCS / ADS	
	Description: Patient-Level Comprehensive Ambulatory/Professional Encounter Record					

Request	Data Element	Definition	Format	SAS Variable Name	Values	Notes
X	Appointment Status Type	Appointment type status.	Char(1)	APPTSTAT	2, 5, 6, 7	2 = Kept 5 = Walk-in 6 = Sick call 7 = Telephone consult
X	Appointment Type Raw		Char(6)	APPTTYPE	ACUT, ACUT$, APV, EROOM, EST, EST$, GRP, GRP$, N-MTF, OPAC, OPAC$, PCM, PCM$, PROC, PROC$, RNDS⁺, ROUT, ROUT$, SPEC, SPEC$, T-CON, WELL, WELL$	ACUT = Acute appointment ACUT$ = Acute appointment APV = Ambulatory Procedure Visit EROOM = Emergency Room EST = Established/follow up EST$ = Established/follow up GRP = Group/class appointment GRP$ = Group/class appointment N-MTF = Non-MTF appointment OPAC = Open Access Appointment OPAC$ = Open Access Appointment PCM = Initial Primary Care appointment PCM$ = Initial Primary Care appointment PROC = Procedure appointment PROC$ = Procedure appointment RNDS⁺ = Inpatient ward appointment ROUT = Routine appointment ROUT$ = Routine appointment SPEC = Initial Specialty Care appointment SPEC$ = Initial Specialty Care appointment T-CON⁺ = Telephone consult T-CON = Telephone consult WELL = Wellness/Health Promotion Appointment WELL$ = Wellness/Health Promotion Appointment
X	Administrative Disposition	The administrative disposition code as marked on the encounter.	Char(5)	ADMDISP	1, 2, 3, 4, 5	1 = Consultation requested 2 = Referred to another provider 3 = Convalescent leave 4 = Medical board 5 = Medical hold
X	Appointment Provider Specialty Code	A code that identifies the health service provider's medical specialty. Codes and meanings come from CHCS (938 values).	Char(3)	PROVSPEC1	CHCS codes.	See *Provider Specialty Codes for DC* for codes and descriptions.
X	Calendar Month	Calendar Month of Encounter Date	Char(2)	CM	1-12	
X	Calendar Year	Calendar Year of Encounter Date	Char(4)	CY	2002 + (Basic) 2003+ (Enhanced)	
X	CPT/HCPCS Code 1-Diagnosis Pointer - CPT/HCPCS Code 10-Diagnosis Pointer	Associates a procedure with at least one diagnosis. A maximum number of pointers for up to 4 confirmed diagnoses. Whole number between 1 and 9876 (each position points to a diagnosis).	Char(4)	CPTDX_J	1-9876	J=4 to 13 represents procedure positions.
X	Date of Injury, CCYYMMDD	The approximate date the injury occurred.	Char(8)	INJDATE	yyyymmdd	

Request	Data Element	Definition	Format	SAS Variable Name	Values	Notes
X	Disposition Code	The disposition code as marked on the outpatient and rounds encounters. Note: The numeric codes are only for outpatient and the alpha codes are for inpatient encounters. Values of A - G only apply to encounters when the Inpatient Indicator = 1. Disposition Code types H, M, O, R, S, and U will only apply to non-privileged provider T-Con encounters and are currently used by only a small number of sites.	Char(1)	DISPCODE	1-8, A, B, C, D, E, F, G, H, M, O, R, S, U	1 = Released without limitations 2 = Released with work duty limitations 3 = Sick at home/quarters 4 = Immediate referral 5 = Left without being seen 6 = Left against medical advice 7 = Admitted 8 = Expired A = Transferred to another hospital B = Transferred to skilled nursing facility (SNF) C = Transferred to another clinical service D = Continued stay E = Left against medical advice F = Discharged home G = Expired H = Advice Assessment M = Medication Refill Forwarded O = Other Not Elsewhere Classified R = Referred for Appointment S = Released to Self Care U = Referred to ER
X	DX (ICD-9-CM) Code #1 - DX (ICD-9-CM) Code #10	International Classification of Diseases, 9th edition (ICD-9) entered diagnosis code.	Char(7)	DX*J* where *J*=1 to 10		Left aligned. Decimals are included in the code. Decimals removed from code and DX Extenders added following blank immediately after code. Effective ~June 2011.
X	DX (ICD-9-CM) Code #1-Priority - DX (ICD-9-CM) Code #10-Priority	The level of priority of the diagnosis for the visit.	Char(1)	DXPRI*J* where *J*=1 to 10	1, 2, 3, 4, U	1, 2, 3, 4, or U (unconfirmed).
X	DX(ICD-9-CM) Code, Encounter Chief Complaint	The ICD-9 code identifying the patient's main reason for seeking medical care.	Char(5)	COMPLAINT		Left aligned. Decimal place is assumed after the third position.
X	E&M Code 1-Diagnosis Pointer - E&M Code 3-Diagonsis Pointer	Associates the E&M Code with at least one diagnosis. Whole number between 1 and 4321 (each position points to the priority of a diagnosis).	Char(4)	CPTDX_*J*	1-4321	*J*=1 to 3 represents the E&M positions
X	Ethnic Background	The language or cultural group that patient claims.	Char(1)	ETHNICGR	1, 2, 3, 4, 9, Z	1 = Hispanic 2 = SE Asian 3 = Filipino 4 = Other Asian Pacific Islander 9 = Other Z = Unknown
X	Injury Geographic Location	Geographic location of accident available when Injury Cause Code is "AA".	Char(5)	INJGEOGLOC		
X	Injury Related	Injury related indicator for the encounter.	Char(1)	INJREL	0, 1	0 = No injury 1 = Yes - injury
X	Patient Gender	A code used to denote a patient's gender.	Char(1)	PATSEX	F, M	F = female M = male
X	Patient Race Code	Attribute describing a person's racial category.	Char(1)	PATRACE	C, M, N, R, X, Z	C = Caucasoid (White) M = Mongoloid (Yellow) N = Negroid (Black) R = Western Hemisphere Indians (Red) X = Other Z = Unknown
E	Patient Social Security Number	SSN for the patient.	Char(9)	PATSSN		
X	Raw Appointment (Encounter) Date	The date of the appointment.	Char(8)	ENCDATE_R	yyyymmdd	
X	Reason for Appointment	A free text field to describe the reason the patient has for seeking care.	Char(78)	REASON		

Request	Data Element	Definition	Format	SAS Variable Name	Values	Notes
X	Special Operations Code (Raw)	Indicates the contingency operation for which a Guard or Reserve member is activated or receiving TAMP benefits through at the time of care. Populated on both sponsor and family member records. This data element does not indicate that the guard or reserve member went to theater, rather, that the orders that activated the member indicated a contingency operation. Use with Reservist Status Code to indicate the status of the Guard/Reserve member.	Char(2)	SOC_R	00 - 10, 98, 99	00= Not Applicable 01= Operation Desert Storm 02= Los Angeles Riots 03=Haiti 04=Somalia 05=Bosnia 06=Kosovo 07=Southern Watch 08=Noble Eagle 09=Enduring Freedom 10=Iraqi Freedom 98=Not a special operation 99=Other (Take caution with these values. It is often evident that Iraqi Freedom records are miscoded as 08 or 09.)
X	Appointment Status Type with Appointment Data Walk-In	Appointment type status, modified for Appointment Data Walk-ins.	Char(1)	APPTSTAT	2, 5, 6, 7	2 = Kept 5 = Walk-in 6 =Sick call 7 = Telephone consult
X	Appointment Type from Appointment Data	From the appointment data merge.	Char(6)	APPTTYPE	ACUT, ACUT$, APV, EROOM, EST, EST$, GRP, GRP$, N-MTF, OPAC, OPAC$, PCM, PCM$, PROC, PROC$, RNDS*, ROUT, ROUTS, SPEC, SPEC$, T-CON, WELL, WELL$	ACUT = Acute appointment ACUT$ = Acute appointment APV = Ambulatory Procedure Visit EROOM = Emergency Room EST = Established/follow up EST$ = Established/follow up GRP = Group/class appointment GRP$ = Group/class appointment N-MTF = Non-MTF appointment OPAC = Open Access Appointment OPAC$ = Open Access Appointment PCM = Initial Primary Care appointment PCM$ = Initial Primary Care appointment PROC = Procedure appointment PROC$ = Procedure appointment RNDS* = Inpatient ward appointment ROUT = Routine appointment ROUTS = Routine appointment ROUT$ = Routine appointment SPEC = Initial Specialty Care appointment SPEC$ = Initial Specialty Care appointment T-CON* = Telephone consult T-CON = Telephone consult WELL = Wellness/Health Promotion Appointment WELL$ = Wellness/Health Promotion Appointment

Request	Data Element	Definition	Format	SAS Variable Name	Values	Notes
X	Diagnosis Group	Use first three characters of Diagnosis 1 (DX1).	Char(2)	DXGRP	1-19	1 = Infections & Parasites 2 = Neoplasms 3 = Endocrine & Metabolism 4 = Blood 5 = Mental 6 = Nerves and Senses 7 = Circulatory System 8 = Respiratory System 9 = Digestive System 10 = Genitourinary 11 = Pregnancy and Childbirth 12 = Skin 13 = Musculoskeletal 14 = Congenital Anomalies 15 = Perinatal 16 = Ill-Defined 17 = Injury & Poisoning 18 = Supplementary Classifications 19 = Unknown
X	MEPRS3 Code	First three characters of the MEPRS code for the clinic performing the patient care.	Char(3)	MEPR3		See *MEPRS Codes 3* for information

	PDTS (Pharmacy Detail Transaction Service)					
	Common File Name: sum.sas7bdat					
	Dataset Location: /mdr/pub/pdts/summary/fyXX/pdts.summary.fyXX/, , where 'XX' is the two digit fiscal year - ranging from '02+					
	Update Frequency: Updated weekly				**Source System:** Pharmacy Data Transaction Service	
	Description: Pharmacy Data Transaction Service Summary file					
Request	**Data Element**	**Definition**	**Format**	**Position or SAS Variable**	**Values**	**Notes**
X	Calendar Month	Calendar month based on dispense date.	Char (2)	cm	1 - 12	1 = January 7 = July 2 = February 8 = August 3 = March 9 = September 4 = April 10 = October 5 = May 11 = November 6 = June 12 = December
X	Calendar Year	Calendar year based on dispense date.	Char (4)	cy	2001 to current year	

	PDTS (Pharmacy Detail Transaction Service)				
	Common File Name: pdts.detail.fyXX.txt.Z, where 'XX' is the two digit fiscal year - ranging from '02+				
	Dataset Location: /mdr/pub/pdts/detail/fyXX/				
	Update Frequency: Updated weekly			**Source System:** Pharmacy Data Transaction Service	
	Description: Pharmacy Data Transaction Service Master file				
Request	Data Element	Definition	Format	Position or SAS Variable	Values	Notes
X	Date Dispensed Key	The date that the pharmaceutical was dispensed to the patient.	YYYYMMDD	1-8		
X	Product Name	The name of the prescription drug.	Char (27)	214-240	e.g., MOTRIN, AMOXICILLIN	
X	Therapeutic Class	A code that represents the American Hospital Formulary Service (AHFS) classification system for grouping pharmaceuticals with similar therapeutic uses.	Char (6)	259-264	e.g., 280804	See AHFS Therapeutic Class.
X	Maintenance Drug		Char (1)	265	Y, N	Y = Yes, N = No

TED Non-Institutional DHP and TED Non-Institutional MERHCF						
Common File Name: champus.sas7bdat, tdefic.sas7bdat						
Object Class Location: /mdr/pub/tedni/						
Update Frequency: Monthly				**Data Source System:** TED database		
Description: TRICARE Encounter Data; each record is a non-denied line item claim for services (other than hospital or institutional care for inpatients) provided in the private sector. The DHP file contains claims for active duty, as well as all CHAMPUS eligible care. The MERHCF table contains claims for TFL patients, and under 65 Medicare eligible's who are not AD or AD family members. There is one category of beneficiary (MERHCF Flag="U") that is reported in both the DHP and the MERHCF file. Take caution not to double count should you need system-wide totals.						

Request	Data Element	Definition	Format	SAS Name	Values	Notes
x	Patient SSN	Code indicating SSN of patient.	$9	patssn	999999999	
X	Principle Diagnosis	After study, the ICD-9 CM diagnosis code which represents the diagnosis which led to the admission.	$6	dx1		
X	Secondary Diagnosis 1	Secondary ICD-9 CM diagnosis code.	$6	dx2		
X	Secondary Diagnosis 2	Secondary ICD-9 CM diagnosis code.	$6	dx3		
X	Secondary Diagnosis 3	Secondary ICD-9 CM diagnosis code.	$6	dx4		
X	Secondary Diagnosis 4	Secondary ICD-9 CM diagnosis code.	$6	dx5		
X	Secondary Diagnosis 5	Secondary ICD-9 CM diagnosis code.	$6	dx6		
X	Secondary Diagnosis 6	Secondary ICD-9 CM diagnosis code.	$6	dx7		
X	Secondary Diagnosis 7	Secondary ICD-9 CM diagnosis code.	$6	dx8		
X	Type of Service 1	Code representing the setting of the service.	$1	typsvc1	A, I, K, M, N, O, P	A=Ambulatory surgery cost-share as inpatient (Active Duty Only) I=Inpatient K=Emergency Room Admission cost shared as inpatient M=Outpatient maternity cost-share as inpatient N=Outpatient cost-shared as inpatient O=Outpatient-excluding M, P, or N P=Outpatient partial psychiatric hospitalization

Request	Data Element	Definition	Format	SAS Name	Values	Notes
X	Type of Service 2	Code representing type of service.	$1	typsvc2	1-9, A-M	1=Medical Care 2=Surgery 3=Consultation 4=Diagnostic/Therapeutic X-Ray 5=Diagnostic Laboratory 6=Radiation Therapy 7=Anesthesia 8=Assistance at Surgery 9=Other Medical Service A=DME Rental/Purchase B=Retail Rx C=Ambulatory Surgery D=Hospice E=Second Opinion on Elective Surgery F=Maternity G=Dental H=Mental Health Care I=Ambulance J=Program for Persons with Disabilities K=Physical/occupational therapy L=Speech Therapy M=Mail Order Rx
X	Calendar Year	Calendar year of end date of care.	$4	cy	2006	
X	Calendar Month	Calendar month of end date of care.	$2	cm	12	
X	Number of Visits	This field was intended to measure the number of visits but does not work well for that purpose. The contractor is not required to report a visit count and visits are not generally derivable from information on the claim. This field may be used as a general measure of workload, but should not be represented as the number of face to face encounters between a patient and a provider.	2	visits		Take extreme caution with this field. It can be extremely misleading when mistaken for "face to face encounters".
X	Number of Encounters	Estimated number of encounters. Will not include pre or post op visits, but is generally a better measure to use than "number of visits".	3	enc		

14.3 Attachment C: General DRT

Data Request Template for Extractions (other than MDR)

Source Systems Examples:
AHLTA, CHCS, DMHRSi, EAS

Request	Source System	Data Element
E	ACG	patient_id
X	ACG	pharmacy_cost
X	ACG	inpatient_hospitalization_count
X	ACG	emergency_visit_count
X	ACG	outpatient_visit_count
X	ACG	pharmacy_cost_band
X	ACG	total_cost_band
X	ACG	resource_utilization_band
X	ACG	reference_rescaled_concurrent_weight
X	ACG	edc_codes
X	ACG	rxmg_codes
X	ACG	medical_rxmg_codes
X	ACG	pharmacy_rxmg_codes
X	ACG	chronic_condition_count
X	ACG	diagnoses_used
X	ACG	bipolar_disorder_condition
X	ACG	bipolar_disorder_rx_gaps
X	ACG	bipolar_disorder_mpr
X	ACG	bipolar_disorder_csa
X	ACG	bipolar_disorder_untreated_rx
X	ACG	depression_condition
X	ACG	depression_rx_gaps
X	ACG	depression_mpr
X	ACG	depression_csa
X	ACG	depression_untreated_rx
X	ACG	diabetes_condition
X	ACG	diabetes_rx_gaps
X	ACG	diabetes_mpr

X	ACG	diabetes_csa
X	ACG	diabetes_untreated_rx
X	ACG	disorders_of_lipid_metabolism_condition
X	ACG	disorders_of_lipid_metabolism_rx_gaps
X	ACG	disorders_of_lipid_metabolism_mpr
X	ACG	disorders_of_lipid_metabolism_csa
X	ACG	disorders_of_lipid_metabolism_untreated_rx
X	ACG	hypertension_condition
X	ACG	hypertension_rx_gaps
X	ACG	hypertension_mpr
X	ACG	hypertension_csa
X	ACG	hypertension_untreated_rx
X	ACG	schizophrenia_condition
X	ACG	schizophrenia_rx_gaps
X	ACG	schizophrenia_mpr
X	ACG	schizophrenia_csa
X	ACG	schizophrenia_untreated_rx
X	ACG	seizure_disorders_condition
X	ACG	seizure_disorders_rx_gaps
X	ACG	seizure_disorders_mpr
X	ACG	seizure_disorders_csa
X	ACG	seizure_disorders_untreated_rx
X	ACG	chronic_obstructive_pulmonary_disease_condition
X	ACG	chronic_renal_failure_condition
X	ACG	low_back_pain_condition
X	ACG	total_rx_gaps
X	ACG	unscaled_total_cost_resource_index
X	ACG	rescaled_total_cost_resource_index
X	ACG	predicted_total_cost_range
X	ACG	predicted_pharmacy_cost_range
X	ACG	probability_high_total_cost
X	ACG	unscaled_pharmacy_cost_resource_index
X	ACG	rescaled_pharmacy_cost_resource_index
X	ACG	predicted_pharmacy_cost_range
X	ACG	probability_high_pharmacy_cost
X	ACG	high_risk_unexpected_pharmacy_cost
X	ACG	probability_unexpected_pharmacy_cost

X	ACG	majority_source_of_care_percent
X	ACG	majority_source_of_care_providers
X	ACG	unique_provider_count
X	ACG	specialty_count
X	ACG	generalist_seen
X	ACG	management_visit_count
X	ACG	coordination_risk
X	ACG	psychotherapy_service
X	ACG	rescaled_ACG_concurrent_risk
X	ACG	unscaled_pharmacy_cost_predicted_risk
X	ACG	rescaled_pharmacy_cost_predicted_risk
X	ACG	rank_probability_high_pharmacy_cost
X	ACG	reference_probability_high_pharmacy_cost
X	ACG	probability_persistent_high_user
X	TMDS	PATSSN
X	TMDS	DOB
X	TMDS	GENDER
X	TMDS	MTF_DESCR
X	TMDS	MTF_BRANCH
X	TMDS	MTF_TYPE
X	TMDS	MTF_THEATER
X	TMDS	MTF_DMISID
X	TMDS	IS_CASF
X	TMDS	IS_VA
X	TMDS	SERVICE_NAME
X	TMDS	SERVICE_DESCR
X	TMDS	MTFID
X	TMDS	RECORD_TYPE
X	TMDS	DNBI_ID
X	TMDS	DISPOSITION_DESCR
X	TMDS	SUBJECTIVE
X	TMDS	OBJECTIVE
X	TMDS	ASSESSMENT
X	TMDS	ENCOUNTER_DATE
X	TMDS	INITIAL_VISIT_IND
X	TMDS	DISP_DUTY_LIMITATIONS

X	TMDS	MEPRS_CODE
X	TMDS	LOSS_DAYS
X	TMDS	LITE_DAYS
X	TMDS	REF_LOC
X	TMDS	CHIEF_COMPLAINT
X	TMDS	ADMISSION_TYPE
X	TMDS	ADMIT_DATE
X	TMDS	DISCHARGE_DATE
X	TMDS	DX
X	TMDS	DXMOD
X	TMDS	PRIM_DX_FLAG
X	TMDS	CPT
X	TMDS	MEDCIN
X	TMDS	MAJOR
X	TMDS	MEDICATION_NAME
X	TMDS	DOSAGE
X	TMDS	QUANTITY
X	TMDS	ORDER_DATE
X	TMDS	STOP_DATE

15.0 SYMBOLS AND ABBREVIATIONS

ACR	Access Control Roster
AFRL	Air Force Research Laboratory
CAC	Common Access Card
CITI	Collaborative Institutional Training Initiative
CITI	Collaborative Institutional Training Initiative
DAF	Department of the Air Force
DHA	Defense Health Agency
DHA	Defense Health Agency
DHRA	Defense Human Resources Activity
DMDC	Defense Manpower Data Center
DOD	Department of Defense
DRT	Data Request Template
DSA	Data Sharing Agreement
DSET	Digital Signature Enforcement Tool
DTIC	Defense Technical Information Center
ICD-9	InternationalClassificationofDiseases,9threvision
IRB	Institutional Review Board
MCC	Movement Classification Code
MDR	Military Health System Data Repository
MDW	Medical Wing
MEB	Medical Evaluation Board
MEDEVACS	Medical Evacuations - (emergency evacuation of the sick or wounded from combat area)
OEF	Operation Enduring Freedom
OIF	Operation Iraqi Freedom
OND	Operation New Dawn
OR	Odds Ratios
PAO	Public Affairs office
PhD	Doctorate of Philosophy
PHI	Protected Health Information

PII	Personally Identifiable Information
Psych-AIREVAC	Psychiatric Aeromedical Evacuations
PTSD	Post-Tramatic Stress Disorder
SAAR	System Authorization Access Request
SPSS	Statistical Package for the Social Sciences
SSL	Secure Sockets Layer
STRONG STAR	South Texas Research Organizationa Network Guiding Studies on Trauma and Resilience
TRAC2ES	TRANSCOM Regulating and Command & Control Evaluation System
TRANSCOM	Transportation Command
UTHSCSA	University of Texas Health Science Center at San Antonio
VLANS	Virtual Local Area Networks
WPAFB AFRL	Wright Patterson Air Force Base - Air Force Research Laboratory