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1. REPORT DATE (DD-MM-YYYY) 30-March-2015		2. REPORT TYPE Annual Report		3. DATES COVERED (From - To) October 2008- September 2013	
4. TITLE AND SUBTITLE Disability Evaluation Systems Analysis and Research Annual Report 2014				5a. CONTRACT NUMBER W81XWH-12-F-0115	
				5b. GRANT NUMBER	
				5c. PROGRAM ELEMENT NUMBER 847714	
6. AUTHOR(S) Boivin, Michael R, Cowan, David N, Packnett, Elizabeth R, Piccirillo, Amanda L, Elmasry, Hoda, Connor, Ricardford R.				5d. PROJECT NUMBER 2	
				5e. TASK NUMBER	
				5f. WORK UNIT NUMBER	
7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES) AMSARA Department of Epidemiology, Preventive Medicine Branch, Walter Reed Army Institute of Research, 503 Robert Grant Road, Silver Spring, MD 20910				8. PERFORMING ORGANIZATION REPORT NUMBER XA-WRAIR/MD	
9. SPONSORING/MONITORING AGENCY NAME(S) AND ADDRESS(ES) Walter Reed Army Institute of Research 503 Robert Grant Road Silver Spring, MD 20910				10. SPONSOR/MONITOR'S ACRONYM(S) WRAIR	
				11. SPONSOR/MONITOR'S REPORT NUMBER(S)	
12. DISTRIBUTION/AVAILABILITY STATEMENT Approved for public release; distribution is unlimited.					
13. SUPPLEMENTARY NOTES The original document contains color photos.					
14. ABSTRACT AMSARA has provided the Department of Defense with evidence-based evaluations of accession medical standards since 1996. As part of this ongoing research activity, data are collected from each service's Disability Evaluation System (DES). AMSARA's mission was expanded in fiscal year (FY) 2009 to include audits and studies of existing DES by the request of the Office of Assistant Secretary of Defense, Health Affairs. The Disability Evaluation System Analysis and Research Annual Report includes descriptive statistics on the population presenting for disability evaluation by service and describes pre-accession morbidity in this population. Brief descriptions of ongoing special studies and publications, as well as recommendations for disability evaluation and database management, are also given. This report describes analyses conducted in fiscal year 2014 of existing DES data collected for accessions and disability research through the end of FY 2013.					
15. SUBJECT TERMS Military medical standards, disability discharges, risk factors, enlisted personnel, retirement, active duty, retention, attrition, medical waiver, and epidemiology of disability.					
16. SECURITY CLASSIFICATION OF:			17. LIMITATION OF ABSTRACT	18. NUMBER OF PAGES	19a. NAME OF RESPONSIBLE PERSON
a. REPORT	b. ABSTRACT	c. THIS PAGE			Michael Boivin, MAJ, MC, USA
U	U	U	SAR	82	19b. TELEPHONE NUMBER (Include area code) 301-319-3094

# Disability Evaluation Systems Analysis and Research

## Annual Report 2014

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# Disability Evaluation Systems Analysis and Research

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**Disclaimer: The views expressed are those of the authors and should not be construed to represent the positions of the Department of the Army or the Department of Defense. This effort was funded by the Department of the Army.**

## Contents

Executive Summary .....	7
Introduction to the Disability Evaluation System .....	9
Methods .....	14
Study Population .....	14
Variables .....	14
Demographic Characteristics .....	15
MEB variables .....	16
PEB variables .....	16
Combat Variables .....	17
Other Data Sources .....	18
Applications for Military Service.....	18
Accession Medical Waivers.....	18
Accession and Discharge Records.....	18
Hospitalizations .....	18
Descriptive Statistics for All Disability Evaluations .....	19
History of Medical Disqualification, Pre-existing Conditions, Accession Medical Waiver, and Hospitalization among Service Members Evaluated for Disability .....	37
Medical disqualification and pre-existing conditions among enlisted service members evaluated for disability .....	38
History of accession medical waiver among enlisted service members evaluated for disability .....	46
History of hospitalization among active duty service members evaluated for disability .....	52
Database Limitations.....	58
Data Quality and Standardization Recommendations.....	59
References.....	60
Special Studies .....	61
Epidemiology of Major Depressive Disorder Disability in the U.S. Military: FY 2007-2012 .....	61
Variations in Deployment History, Frequency and Total Time Deployed among Navy and Air Force Service Members with a Musculoskeletal Disability: FY 2003-2012 .....	67
Descriptive Epidemiology of TBI-Related Disability by Etiology in the U.S. Army, Navy and Marine Corps: FY 2007-2012.....	73
Temporal Trends in Disability Discharge Rates among Soldiers by Physical Demand Rating: Fiscal Year 2008-2013.....	78

## Tables and Figures

### Figures

<b>Figure 1:</b> Key Variables Collected at Each Stage of Disability Evaluation .....	11
<b>Figure 1a:</b> Example of Disability Evaluation Process in the Army .....	11
<b>Figure 2:</b> Disability Evaluation Process in the Army.....	12
<b>Figure 3:</b> Disability Evaluation Process in the Navy and Marine Corps*.....	12
<b>Figure 4:</b> Disability Evaluation in the Air Force .....	13

### Tables

<b>Table 1:</b> Characteristics of DES databases by service.....	14
<b>Table 2:</b> Key variables included by DES database.....	15
<b>Table 3:</b> Characteristics of DES evaluations: FY 2008-2013.....	19
<b>Table 4:</b> Total DES evaluations by service and fiscal year FY 2008-2013.....	20
<b>Table 5:</b> Rate of DES evaluation per 1,000 service members by demographic characteristics and service: FY 2008-2012 vs. FY 2013 <sup>1</sup> .....	21
<b>Table 6:</b> Demographic characteristics of individuals evaluated for disability at time of first disability evaluation: FY 2008-2012 vs. FY 2013.....	23
<b>Table 7A:</b> Distribution of unfitting conditions by body system category in individuals with a disability discharge: <b>Army</b> , FY 2008-2012 vs. FY 2013.....	25
<b>Table 7B:</b> Distribution of unfitting conditions by body system category in individuals with a disability discharge: <b>Navy</b> , FY 2008-2012 vs. FY 2013 .....	25
<b>Table 7C:</b> Distribution of unfitting conditions by body system category in individuals with a disability discharge: <b>Marine Corps</b> , FY 2008-2012 vs. FY 2013 .....	26
<b>Table 7D:</b> Distribution of unfitting conditions by body system category in individuals with a disability discharge: <b>Air Force</b> , FY 2008-2012 vs. FY 2013 .....	26
<b>Table 8A:</b> Most prevalent conditions within leading body system categories among individuals with a disability discharge: <b>Army</b> , FY 2008-2012 vs. FY 2013.....	28
<b>Table 8B:</b> Most prevalent conditions within leading body system categories among individuals with a disability discharge: <b>Navy</b> , FY 2008-2012 vs. FY 2013 .....	28
<b>Table 8C:</b> Most prevalent conditions within leading body system categories among individuals with a disability discharge: <b>Marine Corps</b> , FY 2008-2012 vs. FY 2013 .....	29
<b>Table 8D:</b> Most prevalent conditions within leading body system categories among individuals with a disability discharge: <b>Air Force</b> , FY 2008-2012 vs. FY 2013 .....	29
<b>Table 9A:</b> Ten most common VASRD categories in individuals with a disability discharge: <b>Army</b> , FY 2008-2012 vs. FY 2013.....	31
<b>Table 9B:</b> Ten most common VASRD categories in individuals with a disability discharge: <b>Navy</b> , FY 2008-2012 vs. FY 2013 .....	31
<b>Table 9C:</b> Ten most common VASRD categories in individuals with a disability discharge: <b>Marine Corps</b> , FY 2008-2012 vs. FY 2013.....	32
<b>Table 9D:</b> Ten most common VASRD categories in individuals with a disability discharge: <b>Air Force</b> , FY 2008-2012 vs. FY 2013.....	32

## DES Analysis and Research Annual Report 2014

<b>Table 10:</b> Most recent disposition by service for all individuals evaluated for disability discharge: FY 2008-2012 vs FY 2013 <sup>1</sup> .....	34
<b>Table 11:</b> Latest percent rating by service for all individuals evaluated for disability discharge: FY 2008-2012 vs FY 2013 <sup>1</sup> .....	36
<b>Table 12:</b> Individuals evaluated for disability with records in other AMSARA data sources: FY 2008-FY 2013 .....	37
<b>Table 13:</b> Record of medical examination at MEPS among enlisted service members evaluated for disability by year of disability evaluation: FY 2008-FY 2013 .....	38
<b>Table 14A:</b> Medical qualification status among enlisted individuals who were evaluated for disability with MEPS examination record: <b>Army</b> , FY 2008-2012 vs. FY 2013.....	39
<b>Table 14B:</b> Medical qualification status among enlisted individuals who were evaluated for disability with MEPS examination record: <b>Navy</b> , FY 2008-2012 vs. FY 2013 .....	39
<b>Table 14C:</b> Medical qualification status among enlisted individuals who were evaluated for disability with MEPS examination record: <b>Marine Corps</b> , FY 2008-2012 vs. FY 2013 .....	39
<b>Table 14D:</b> Medical qualification status among enlisted individuals who were evaluated for disability with MEPS examination record: <b>Air Force</b> , FY 2008-2012 vs. FY 2013 .....	40
<b>Table 15A:</b> Five most common ICD-9 diagnosis codes appearing in MEPS medical examination records of service members evaluated for disability: <b>Army</b> , FY 2008-2012 vs. FY 2013.....	41
<b>Table 15B:</b> Five most common ICD-9 diagnosis codes appearing in MEPS medical examination records of service members evaluated for disability: <b>Navy</b> , FY 2008-2012 vs. FY 2013.....	41
<b>Table 15C:</b> Five most common ICD-9 diagnosis codes appearing in MEPS medical examination records of service members evaluated for disability: <b>Marine Corps</b> , FY 2008-2012 vs. FY 2013.....	42
<b>Table 15D:</b> Five most common ICD-9 diagnosis codes appearing in MEPS medical examination records of service members evaluated for disability: <b>Air Force</b> , FY 2008-2011 vs. FY 2013.....	42
<b>Table 16A:</b> Most prevalent disqualification types at MEPS medical examination within leading disability body system categories: <b>Army</b> , FY 2008-2012 vs. FY 2013.....	44
<b>Table 16B:</b> Most prevalent disqualification types at MEPS medical examination within leading disability body system categories: <b>Navy</b> , FY 2008-2012 vs. FY 2013.....	44
<b>Table 16C:</b> Most prevalent disqualification types at MEPS medical examination within leading disability body system categories: <b>Marine Corps</b> , FY 2008-2012 vs. FY 2013 .....	45
<b>Table 16D:</b> Most prevalent disqualification types at MEPS medical examination within leading disability body system categories: <b>Air Force</b> , FY 2008-2012 vs. FY 2013.....	45
<b>Table 17:</b> History of accession medical waiver Applications among enlisted service members evaluated for disability by year of disability evaluation: FY 2008-2013 .....	46
<b>Table 18A:</b> Five most common ICD-9 diagnosis codes for accession medical waivers considered among enlisted individuals evaluated for disability: <b>Army</b> , FY 2008-2012 vs. FY 2013.....	47
<b>Table 18B:</b> Five most common ICD-9 diagnosis codes for accession medical waivers considered among enlisted individuals evaluated for disability: <b>Navy</b> , FY 2008-2012 vs. FY 2013.....	47
<b>Table 18C:</b> Five most common ICD-9 diagnosis codes for accession medical waivers considered among enlisted individuals evaluated for disability: <b>Marine Corps</b> , FY 2008-2012 vs. FY 2013 .....	48

## DES Analysis and Research Annual Report 2014

<b>Table 18D:</b> Five most common ICD-9 diagnosis codes for accession medical waivers considered among enlisted individuals evaluated for disability: <b>Air Force</b> , FY 2008-2012 vs. FY 2013.....	48
<b>Table 19A:</b> Most prevalent accession medical waiver types within leading disability body system categories: <b>Army</b> , FY 2008-2012 vs. FY 2013 .....	50
<b>Table 19B:</b> Most prevalent accession medical waiver types within leading disability body system categories: <b>Navy</b> , FY 2008-2012 vs. FY 2013.....	50
<b>Table 19C:</b> Most prevalent accession medical waiver types within leading disability body system categories: <b>Marine Corps</b> , FY 2008-2012 vs. FY 2013.....	51
<b>Table 19D:</b> Most prevalent accession medical waiver types within leading disability body system categories: <b>Air Force</b> , FY 2008-2012 vs. FY 2013.....	51
<b>Table 20:</b> History of hospitalization by Year of disability evaluation: FY 2008-2013 .....	52
<b>Table 21A:</b> Five most common ICD-9 primary diagnosis codes for hospitalizations among active duty disability evaluations: <b>Army</b> , FY 2008-2012 vs. FY 2013 .....	53
<b>Table 21B:</b> Five most common ICD-9 primary diagnosis codes for hospitalizations among active duty disability evaluations: <b>Navy</b> , FY 2008-2012 vs. FY 2013.....	53
<b>Table 21C:</b> Five most common ICD-9 primary diagnosis codes for hospitalizations among active duty disability evaluations: <b>Marine Corps</b> , FY 2008-2012 vs. FY 2013.....	54
<b>Table 21D:</b> Five most common ICD-9 primary diagnosis codes for hospitalizations among active duty disability evaluations: <b>Air Force</b> , FY 2008-2011 vs. FY 2013.....	54
<b>Table 22A:</b> Most prevalent hospitalization ICD-9 categories within leading disability body system categories: <b>Army</b> , FY 2008-2012 vs. FY 2013 .....	56
<b>Table 22B:</b> Most prevalent hospitalization ICD-9 categories within leading disability body system categories: <b>Navy</b> , FY 2008-2012 vs. FY 2013.....	56
<b>Table 22C:</b> Most prevalent hospitalization ICD-9 categories within leading disability body system categories: <b>Marine Corps</b> , FY 2008-2012 vs. FY 2013.....	57
<b>Table 22D:</b> Most prevalent hospitalization ICD-9 categories within leading disability body system categories: <b>Air Force</b> , FY 2008-2012 vs. FY 2013.....	57
<b>Table 23:</b> Rate of MDD related disability retirement per 100,000 service member by FY of disability disposition and service .....	62
<b>Table 24:</b> Demographic and service characteristics of MDD disability cases by service .....	63
<b>Table 25:</b> Most common comorbid disability conditions in MDD disability cases by service .....	64
<b>Table 26:</b> Characteristics of musculoskeletal disability cases at disability evaluation by sex.....	68
<b>Table 27:</b> Adjusted odds ratios for disability retirement by deployment history, frequency, and total time deployed stratified by presence of comorbid disability and sex .....	70
<b>Table 28:</b> Rate of disability evaluation by fiscal year of first disposition date by service and TBI type (rate per 100,000 active duty enlisted service members) .....	74
<b>Table 29:</b> Demographic, Disability and Deployment Characteristics of the Study Population by Service and TBI Type.....	75
<b>Table 30:</b> Most Common Comorbid Conditions by TBI Type and Service.....	76
<b>Table 31:</b> Rate of disability discharge by physical demand rating, fiscal year and leading disability body systems per 100 evaluations.....	79
<b>Table 32:</b> Rate of disability discharge among Males by physical demand rating, fiscal year and leading disability body systems per 100 evaluations .....	80

**Table 33:** Rate of disability discharge among Males by physical demand rating, fiscal year and leading disability body systems per 100 evaluations .....81

## Executive Summary

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The Accession Medical Standards Analysis and Research Activity (AMSARA) has provided the Department of Defense with evidence-based evaluations of accession medical standards since 1996. As part of this ongoing research activity, data are collected from each service's Disability Evaluation System (DES). Disability evaluation is administered at the service level, with each branch of service responsible for the evaluation of disability in its members. Variability in the type of disability data available in existing AMSARA databases for each service is present as the result of service level collection of data on disability evaluations. AMSARA's mission was expanded in fiscal year (FY) 2009 to include audits and studies of existing DES by the request of the Office of Assistant Secretary of Defense, Health Affairs. This report describes analyses conducted in fiscal year 2014 of existing DES data collected for accessions and disability research through the end of FY 2013.

In the period from FY 2008 to FY 2013, data were collected on over 160,000 disability evaluations of approximately 140,000 service members. Over half of service members evaluated for disability are evaluated for discharge from the Army. Regardless of service, the vast majority of disability evaluations were completed on active duty, enlisted personnel. Most personnel who undergo disability evaluation are male, aged 20-29 at the time of disability evaluation, and white.

The prevalence of musculoskeletal conditions, the most common medical condition associated with disability, ranged from 44% of individuals disability discharged from the Navy to 71% of individuals disability discharged from the Army. Neurological and psychiatric conditions were the next most common disability conditions. The particular conditions associated with each body system category vary by service. Dorsopathies, arthritis, and limitation of motion were the most common musculoskeletal conditions in all services. Posttraumatic stress disorder was the most common condition associated with psychiatric disability in the Army and Marine Corps, while mood disorders were the most common psychiatric conditions in the Navy and Air Force. Traumatic brain injury is the most common neurological condition among Army and Marine Corps service members; paralysis and epilepsy were the most common type of neurological conditions in the Navy; migraines and paralysis were most common in the Air Force.

The most common dispositions following disability evaluation in FY 2013 varied by service. In the Army and Air Force, permanent disability retirement was the most common disposition as compared to being placed on the temporary disability retirement list in the Navy and Marine Corps. This is in contrast to the previous five year period when the most commonly assigned disposition in all services was separated with severance pay followed by placed on the temporary disability retirement list. In FY 2013, 10% was the most commonly assigned rating to disability in all services. The proportion of evaluations resulting in a disability rating of 30% or higher, and resulting in disability retirement in FY 2013 varied from 60% in the Marine Corps to

71% in the Air Force.

This report also describes the history of accession medical disqualification, presence of pre-existing medical conditions at accession, history of accession medical waiver, and hospitalization among individuals evaluated for disability. History of permanent medical disqualification prior to accession in service members evaluated for disability ranged from 7% in the Air Force to 11% in the Army. Similarly, temporary disqualifications were rarest in Air Force personnel evaluated for disability as compared to the other services and highest among Army disability evaluations. The distribution of ICD-9 diagnoses at MEPS accession examination among the disability population were similar to that of the military population as a whole with exceeding weight and body fat standards the most common conditions listed in MEPS accession medical examination records. Conditions listed in accession medical waiver applications among those evaluated for disability were also similar to those observed in the general applicant population. Hospitalization among service members evaluated for disability was most commonly associated with a mental health diagnosis, which is in contrast to hospitalizations among the general active duty population where injuries and fractures are more commonly associated with hospitalization.

Based on the data presented in this report and the variability observed in service disability evaluation system data, we present the following programmatic recommendations:

1. Include Medical Evaluation Board (MEB) International Classification of Disease 9<sup>th</sup> Revision (ICD-9) diagnoses in all disability evaluation records, allowing for more in depth analyses of the specific medical conditions that result in disability evaluation, separation, and retirement.
2. Record each service member's Military Occupational Specialty (MOS) at the time of disability evaluation.
3. Include variables to indicate date of initial diagnosis and date of onset of symptoms or injury in service members evaluated for disability.
4. Expand the VASRD codes, particularly musculoskeletal codes, to reduce the utilization of analogous codes and provide more complete information on the disability condition.

# Introduction to the Disability Evaluation System

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The Disability Evaluation System (DES) process follows guidelines laid out by the Department of Defense (DoD) and public law. Disability evaluation is administered at the service level, with each branch of service responsible for the evaluation of disability in its members. While inter-service differences exist, the disability evaluation process for all services includes two main components: an evaluation by the Medical Evaluation Board (MEB), and a determination by the Physical Evaluation Board (PEB) of a service member's ability to perform his/her military duties [1,2].

The disability evaluation process is described in Department of Defense Instruction 1332.38 and serves as the basis for each service's disability evaluation [3]. The process of disability evaluation begins when a service member is diagnosed with a condition or injury at a Military Treatment Facility (MTF). If the condition or injury is considered potentially disqualifying or significantly interferes with the service member's ability to carry out the duties of his/her office, grade, or rank, the case is referred to the MEB. Service members who meet medical standards or deemed capable of carrying out their duties are returned to duty [1-2,4-6]. Those unable to perform assigned duties are forwarded to an Informal Physical Evaluation Board (IPEB) for a medical record review, where a determination regarding a service member's fitness for continued military service is made. Members deemed fit are returned to duty, while those deemed unfit are discharged or placed on limited duty. In the event a service member is dissatisfied with the determination made by the IPEB, he/she can appeal to the formal PEB (FPEB) and eventually to the final review authority (which varies by service, as detailed below) if the case is not resolved to the service member's satisfaction.

Key variables collected at each stage of disability evaluation are shown in Figure 1. At the MEB, each case is diagnosed and it is determined whether the service member is able to perform assigned duties [4-6]. Cases are forwarded to the IPEB if it is determined that the member cannot perform his/her assigned duties or that the member does not meet medical retention standards [4-6]. The IPEB panel must determine the member's fitness, disability rating using the appropriate Veterans Affairs Schedule for Rating Disabilities (VASRD) code for the disabling condition, the appropriate disposition for the case and whether the condition is combat related [1]. If a service member does not agree with the determination of the IPEB, the decision can be appealed to the FPEB, and eventually to the final reviewing authority (Service Secretary), where the determination of the FPEB is reviewed. The FPEB is an independent board from the IPEB and the decision may be different from that of the IPEB. The final reviewing authority can either concur with the FPEB or revise the determination.

Figure 2 and Figure 3 describe the Army and Navy/Marine Corps disability evaluation processes, respectively. Those who meet medical retention standards at the MEB or are able to continue military duties are returned to duty, while cases that do not meet medical retention

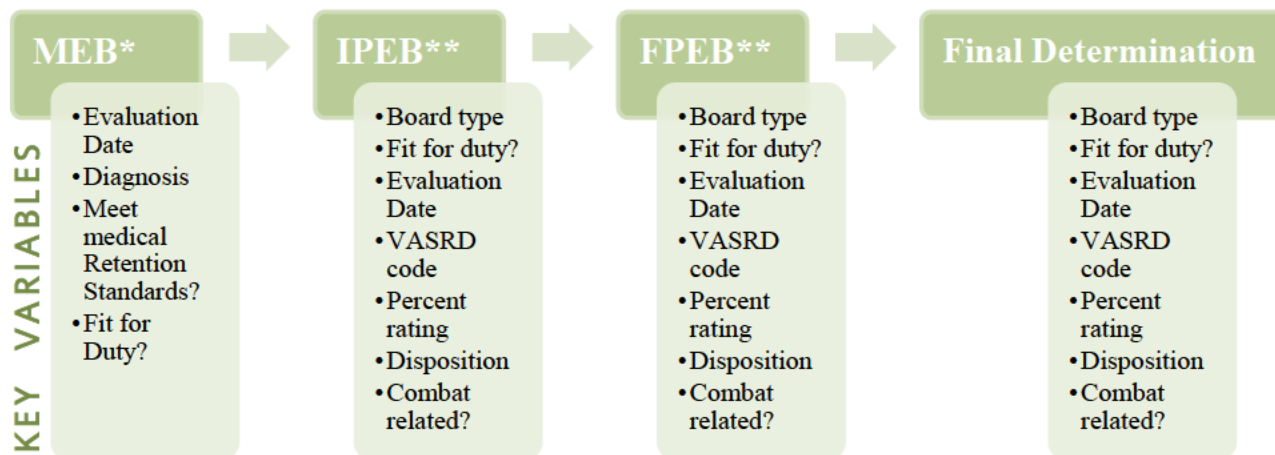
standards, in the Army, or are not able to perform military duties, in the Navy and Marine Corps, are forwarded to the IPEB for further review. The IPEB makes a fit/unfit determination and the service member is either returned to duty (deemed fit) or medically discharged (deemed unfit) and assigned a disposition and rating. Dispositions assigned include fit, separated without benefit, separated with severance pay, permanent disability retirement list (PDRL), or temporary disability retirement list (TDRL). Ratings vary from 0-100% disability. Those assigned a disposition of separated without benefits are either unrated or rated 0%. Separated with severance pay carries a rating varying from 0% to 20%; while permanent and temporary disability retirement carry ratings of 30% or higher.

The member can appeal the IPEB determinations of disposition and rating, though appeals to the FPEB may be denied if a member is deemed fit by the IPEB. Following service member appeal of the IPEB, the case is reviewed by the FPEB or reconsidered by the IPEB, again determining the fitness of the service member. An Army service member can appeal the FPEB determination to the United States Army Physical Disability Authority (USAPDA); the USAPDA is the final appeal authority before separation or retirement. A Navy or Marine Corps service member can appeal an FPEB determination to the Secretary of the Navy; the Secretary of the Navy is also a final appeal authority before separation or retirement from service. In the Navy and Marine Corps, all discharge recommendations are forwarded to the Service Headquarters where the recommendation for discharge can be accepted or denied (Figure 3). Both Services (Department of the Army and Navy) have a Board for Correction of Military Records which can be petitioned once a service member has left military service.

The Air Force disability evaluation process is described in Figure 4. This process is generally similar to that of the other services; disability evaluation begins with the MEB where cases are evaluated against medical retention standards and those not meeting retention standards are referred to the IPEB [4]. If a service member disagrees with the decision of the IPEB, it can be appealed to the FPEB, and eventually to the Secretary of the Air Force. However, in contrast to other services, MEB cases not forwarded to the IPEB can be appealed through the Air Force Surgeon General to determine if a case should be forwarded to the FPEB.

The objective of this report is to summarize the content of existing databases, to provide a basis for studies of the prevalence of disability in the U.S. military as well as risk factors for disability evaluation, separation, and retirement overall and for specific disability condition types. Though the general process for evaluating service members for disability discharge is similar across services, each service completes disability evaluations and collects and maintains disability evaluation data independent of one another. Small variations are present in the disability evaluation process across services and in the types of data collected across services.

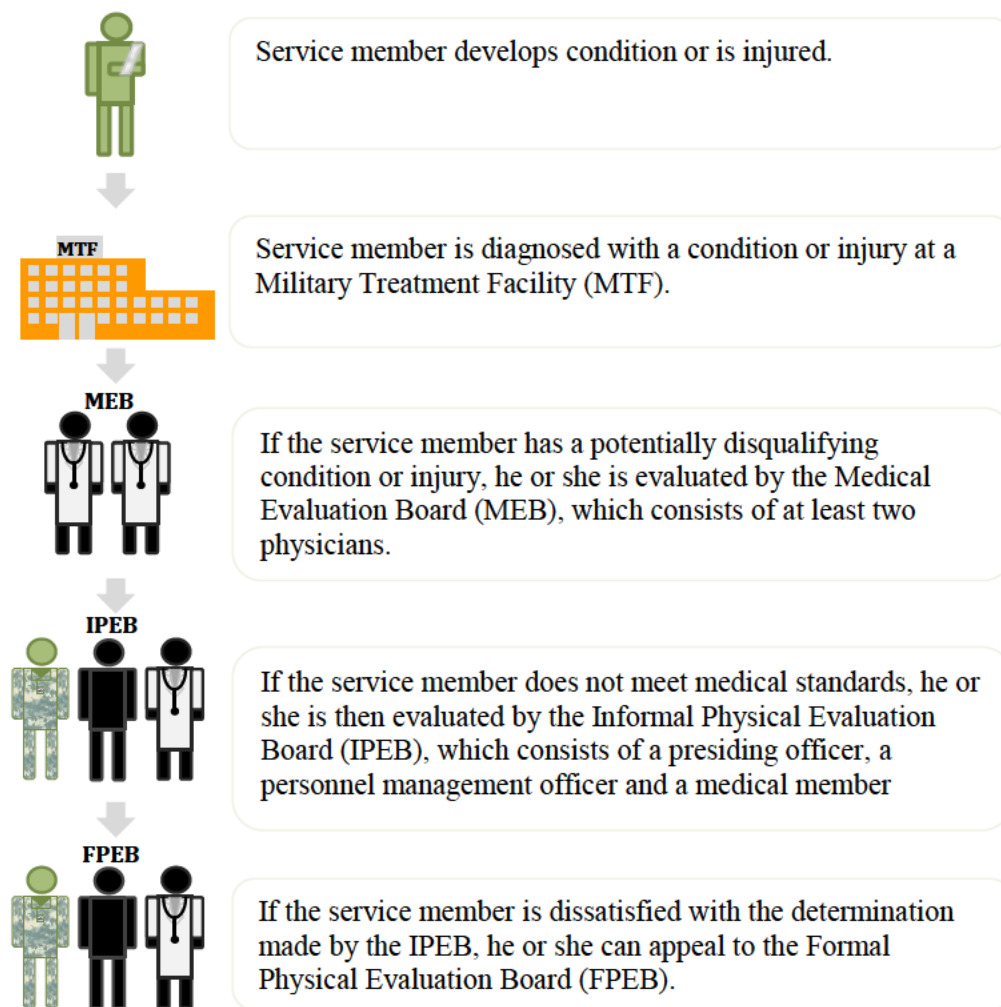
**Figure 1:** Key Variables Collected at Each Stage of Disability Evaluation



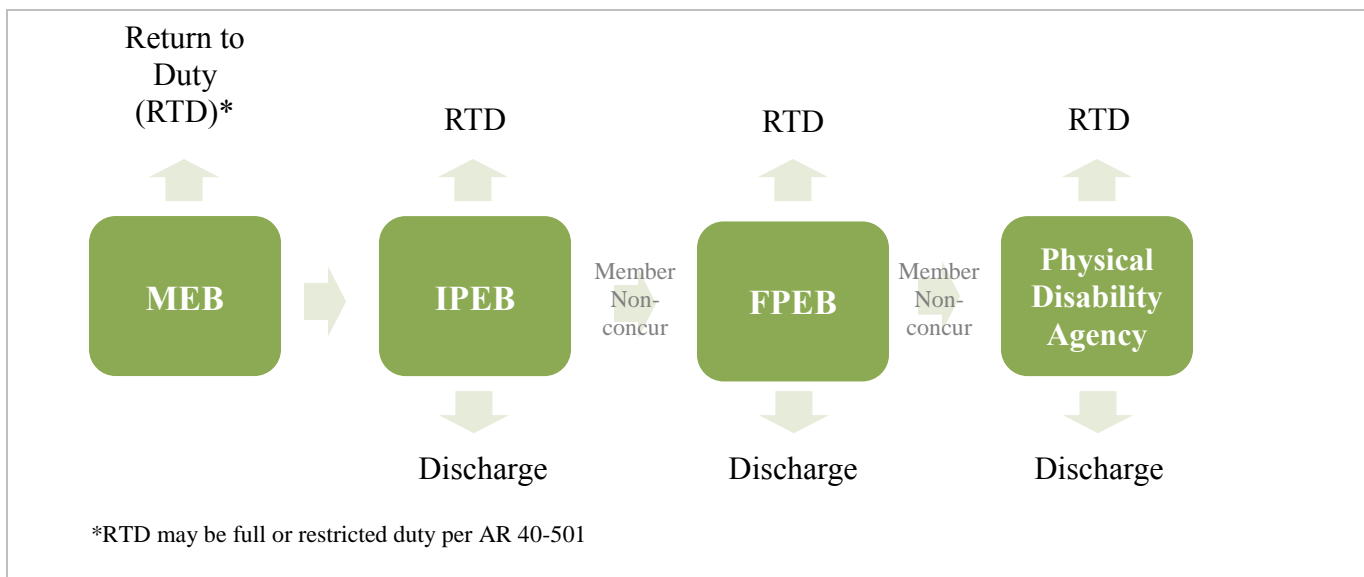
\* Medical Evaluation Board (MEB): An informal board of no less than two military physicians.

\*\*Informal Physical Evaluation Board (IPEB)/ Formal Physical Evaluation Board (FPEB): A three person administrative panel consisting of a presiding officer, personnel management officer and a medical member.

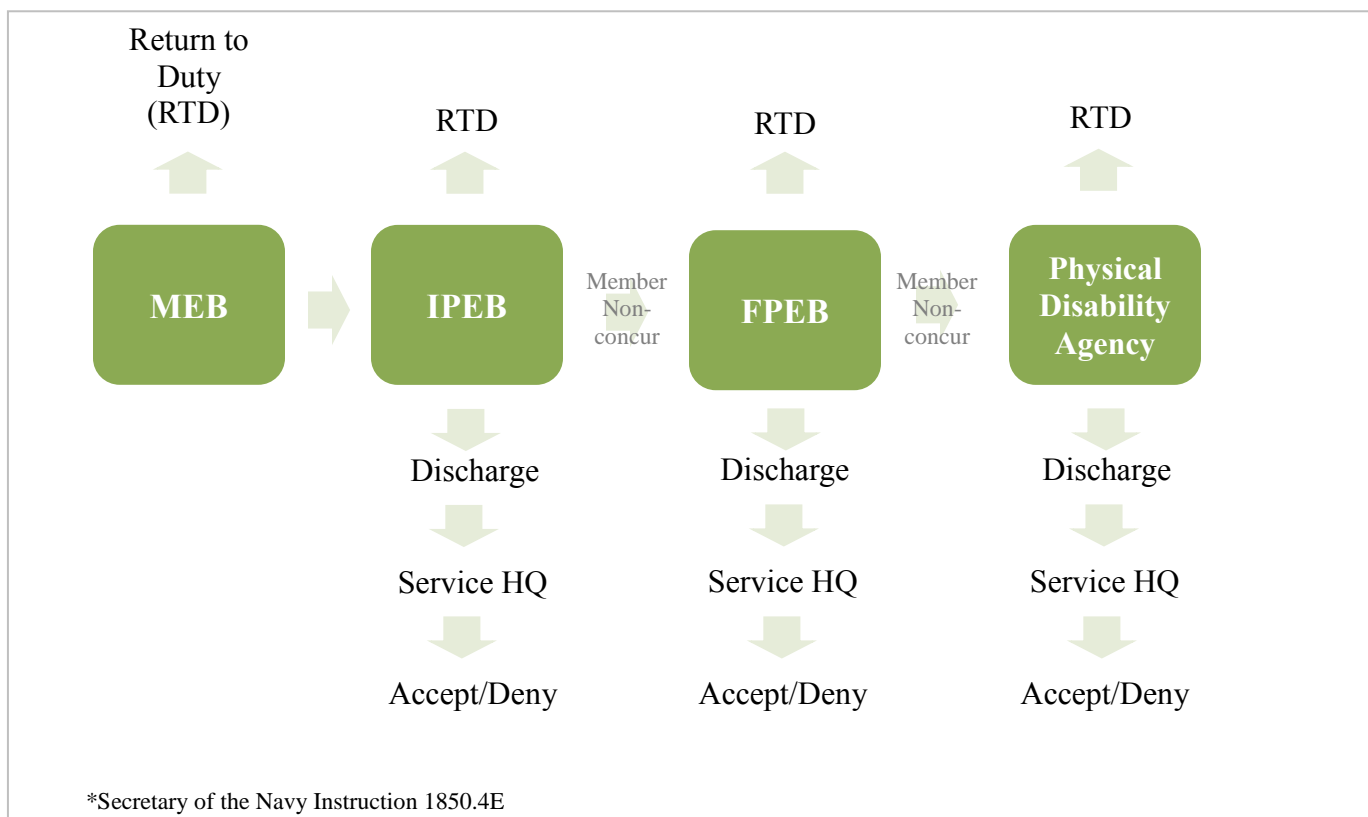
**Figure 1a:** Example of Disability Evaluation Process in the Army



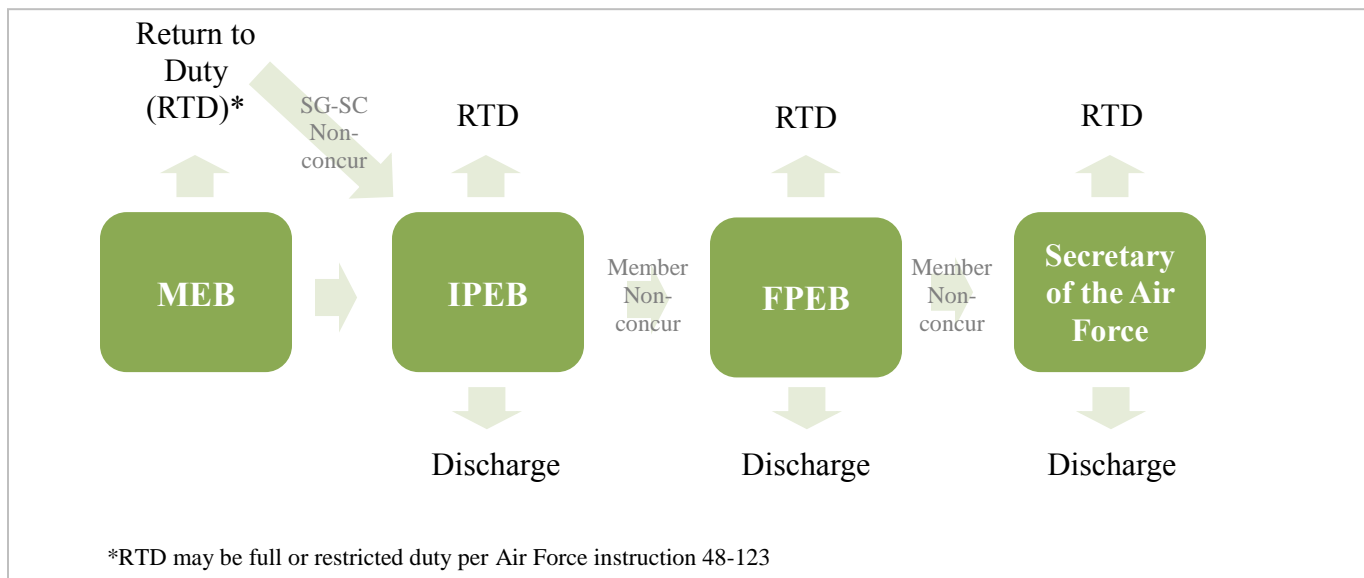
**Figure 2:** Disability Evaluation Process in the Army



**Figure 3:** Disability Evaluation Process in the Navy and Marine Corps\*



**Figure 4:** Disability Evaluation in the Air Force



# Methods

## Study Population

Table 1 shows the characteristics of the Disability Evaluation System (DES) datasets by service. Databases maintained by the services may contain information not sent to AMSARA. Disability evaluation data were available for all services for enlisted and officers as well as active duty and reserve components. However, the types of records received from each service varied. All Physical Evaluation Board (PEB) evaluations for separately unfitting conditions in the Army, Navy and Marine Corps were transmitted to AMSARA for all years in which data are available. Air Force disability data only includes disability retirements and separations in years prior to FY 2007. In addition, while Army and Navy/Marine Corps send AMSARA multiple disability evaluations for individuals for all years in which data are available, multiple disability evaluations for the Air Force are not available.

METHODS

**TABLE 1: CHARACTERISTICS OF DES DATABASES BY SERVICE**

	Army	Navy/Marine Corps	Air Force
<b>Years received</b>	1990-2013	2001-2013	2007-2013
<b>Type of evaluations included</b>	All PEB	All PEB	All but TDRL Re-evaluations
<b>Ranks included</b>	Enlisted, Officer	Enlisted, Officer	Enlisted, Officer
<b>Components included</b>	Active Duty, Reserve	Active Duty, Reserve	Active Duty, Reserve
<b>Multiple evaluations per individual?</b>	Yes	Yes	One evaluation per year

To create analytic files for this report, service-specific databases were restricted to unique records with a final disposition date between October 1, 2008 and September 30, 2013. All ranks and components were included in these analyses. Multiple records were available at the individual level, defined using Social Security Number (SSN), for all services. When *individuals* were the unit of analysis, the last record per SSN was retained; when *evaluations* were the unit of analysis, multiple records were used per SSN. Unique evaluations were defined by SSN and date of final disposition. Therefore, an individual may appear more than once in the source population when evaluations are the unit of analysis.

## Variables

Table 2 shows the key variables included in each DES dataset received by AMSARA. Additional variables are included in each service’s database, but not presented in this report.

**TABLE 2: KEY VARIABLES INCLUDED BY DES DATABASE**

	Army	Navy/Marine Corps	Air Force
<b>Demographic Characteristics<sup>1</sup></b>			
Age/Date of Birth	Y	Y	N
Sex	Y	Y	N
Race	Y	Y	N
Education	N	N	N
Rank	Y	Y	Y
Component	Y	Y	Y
MOS	Y	FY 2010-13	N
<b>MEB</b>			
Date of MEB Evaluation	FY 1990-2012	Y	Y
MEB diagnosis	N	Y	N
<b>PEB</b>			
Board type	N	Y	Y
Date of PEB Evaluation	Y	Y	Y
VASRD	Y	Y	Y
VASRD Analog	Y	Y	Y
Percent Rating	Y	Y	Y
Disposition	Y	Y	Y
Disposition Date	Y	Y	Y
<b>Combat</b>			
Combat Related	Y	Y	FY 2010-13
Armed Conflict	Y	Y	N
Instrumentality of War	FY 1990-2012	N	FY 2010-13

<sup>1</sup>Demographic characteristics at time of disability evaluation.

### Demographic Characteristics

Demographic variables including age at disability evaluation, date of birth, sex, race, rank, and component are available in all databases except Air Force databases. Education was not available in any DES database and Military Occupation Specialty (MOS) was available only for all years in Army data received by AMSARA. AMSARA has traditionally utilized demographic variables from other sources, such as Defense Manpower Data Center (DMDC) personnel records and MEPS application records, in the analysis of demographic variables and these sources can be used in combination with disability databases to obtain information on certain

constant demographic characteristics (i.e. date of birth, race, sex) for individuals who have personnel and application records in AMSARA databases. Demographic characteristics of individuals evaluated for disability in the Air Force are obtained using DMDC and Military Entrance Processing Station (MEPS) records. Characteristics which can vary over time, such as education, rank, component, and MOS, are most valuable when collected at the time of disability evaluation.

### **MEB variables**

Date of Medical Evaluation Board (MEB) evaluation is present in all disability databases prior to FY 2013. Army disability data does not contain MEB dates effective FY 2013. MEB diagnosis is only available for Navy/Marine Corps disability evaluations. For Navy/Marine Corps evaluations, the MEB diagnosis is recorded as a text field rather than as a code. Recoding of this field into ICD-9 codes by a nosologist will be necessary before further analysis of this field can be conducted.

### **PEB variables**

All AMSARA datasets contain several key variables regarding the PEB evaluation including board type, date of PEB evaluation, Veterans Affairs Schedule Veterans Affairs Schedule for Rating Disabilities (VASRD) and analogous codes, percent rating, disposition, and disposition date. VASRD codes, specific for the unfitting condition, and analogous coding which utilizes a VASRD code that best approximates the functional impairment rendered by a medical condition for which there is no specific VASRD code, are used to define unfitting medical conditions which prompted the disability evaluation. These codes are not diagnostic codes, but are derived from the MEB diagnosis, and specify criteria associated with disability ratings and determine disability compensation. The number of VASRD codes assigned to an each diagnosis varies by service. Prior to FY 2013, Army evaluations allowed for each condition to have one VASRD code and one analogous code, with up to four conditions included per evaluation. Starting in FY 2013, up to five VASRD codes can be assigned to an unfitting condition and the number of conditions an individual can be rated for is not restricted. Up to three VASRD codes are used for the same condition in the Air Force with up to no limit on the number of conditions per evaluation. In the Navy and Marine Corps, the number of VASRD codes per condition is unlimited and there is no limit to the number of conditions that can be assigned to an evaluation.

There are two general disposition types for members determined unfit for duty: separation and disability retirement. Separations can be administered with or without severance pay and are further classified as separated with severance pay and separated without benefits. Severance pay is given when a service member's condition is found to be unfitting and assigned a disability rating between 0 and 20 percent. Separation without benefits occurs when a service member is found unfit for duty, but the condition is determined to have occurred as a result of misconduct,

negligence, or if the member has less than eight years of service and the condition is the result of a medical condition that existed prior to service.

Disability retirements can be classified as either permanent disability retirement or temporary disability retirement. Permanent disability is assigned when the member is found unfit, and either has a length of service greater than 20 years or has a disability rating that is 30 percent or higher, and the condition is considered unlikely to improve or likely to worsen. Temporary disability is assigned when a member is deemed unfit for continued service and either has a length of service greater than 20 years or has a disability percent rating of 30 percent or higher. However, those with temporary disabilities differ from those with permanent disabilities in that their condition, while considered disabling, is not considered stable for purposes of rating. Service members placed on the temporary disability retirement list (TDRL) are re-evaluated every 6-18 months, for up to five years following initial placement on the TDRL. Once the unfitting condition is considered stable for purposes of rating by the PEB, the case is assigned a final disposition and percent rating. Therefore, a re-evaluation may result in a service member returning to duty or converting to another disposition, though most on the TDRL eventually convert to permanent disability retired [1].

### Combat Variables

Data received by AMSARA from the Army, Navy, and Marine Corps include variables regarding combat (Table 2); the values of which are described in the DoDI 1332.38 [6]. Though the Air Force data includes similar variables, these variables are not well populated and are unreliable for research purposes. Combat variables are used as a part of the percent rating determination taking into account if the disability was caused by, exacerbated by, or had no relation to combat experiences.

*Combat related* is the standard that covers those injuries and diseases attributable to the special dangers associated with armed conflict or the preparation or training for armed conflict [6,7].

*Armed conflict* is described as the physical disability being a disease or injury incurred in the line of duty as a direct result of armed conflict. There must be a definite causal relationship between the armed conflict and the resulting unfitting disability. Armed conflict includes a war, expedition, occupation of an area or territory, battle, skirmish, raid, invasion, rebellion, insurrection, guerrilla action, riot, or any other action in which service members are engaged with a hostile or belligerent nation, faction, force, or terrorists. Armed conflict may also include such situations as related to prisoner of war or detained status [6,7].

*Instrumentality of war* is described as a vehicle, vessel, or device designed primarily for military service and intended for use in such service at the time of the occurrence of the injury. There must be a direct causal relationship between the use of the instrumentality of war and the disability, and the disability must be incurred incident to a hazard or risk of the service [6,7].

## Other Data Sources

### Applications for Military Service

AMSARA receives data on all applicants who undergo an accession medical examination service at any of the 65 MEPS sites. These data, provided by US Military Entrance Processing Command (USMEPCOM) Headquarters (North Chicago, IL), contain several hundred demographic, medical, and administrative elements on enlisted applicants for each applicable branch (regular, reserve, National Guard) of each service (Air Force, Army, Marine Corps, and Navy). These data also include records on a relatively small number of officer recruit applicants and other non-applicants receiving periodic physical examinations.

### Accession Medical Waivers

AMSARA receives records on all recruits considered for an accession medical waiver, i.e. those who received a permanent medical disqualification at the MEPS and sought a waiver for that disqualification. Each service is responsible for its own waiver decisions about applicants, and information on these decisions is generated and provided to AMSARA by each service waiver authority. Specifically, AMSARA receives medical waiver data annually from Air Education Training Command (Lackland AFB, TX) for the Air Force; US Army Recruiting Command (USAREC, Fort Knox, KY) for the Army; US Navy Bureau of Medicine and Surgery (BUMED, Washington, DC) for the Marine Corps; the Office of the Commander, US Navy Recruiting Command (Millington, TN) for the Navy.

### Accession and Discharge Records

The DMDC provides data on individuals entering military service and on individuals discharged from military service. Data are provided to AMSARA annually for all accessions into service and discharges from military service.

### Hospitalizations

AMSARA receives Military Health System (MHS) direct care hospitalization data annually from the MHS data repository. These data contain information on admissions of active duty officers and enlisted personnel, as well as medically eligible reserve component personnel, to any military hospital.

## Descriptive Statistics for All Disability Evaluations

Service-specific characteristics of DES records are shown in Table 3. For the purpose of these analyses, and throughout this report, records are defined as units of a dataset (i.e. lines of data). Changes to the data collection system used by the US Army Physical Disability Agency (USAPDA), which administers disability evaluations in the Army, were made during 2013 which resulted in an increase in the number of observations sent to AMSARA. Prior to 2013, Army disability evaluation records contained multiple conditions for each evaluation. In 2013, each Army disability evaluation record represented one condition. Disability records from the Air Force contain multiple conditions per individual while in the Navy and Marine Corps data, the number of records is representative of the number of conditions adjudicated. Evaluations represent an individual’s unique encounter with the Physical Evaluation Board (PEB), defined using SSN and date of final decision. Therefore, each individual in this report may have more than one evaluation if they had multiple encounters for disability evaluation. The Army has more records, evaluations, and individuals evaluated for disabilities than the other services. The highest number of records per evaluation is found in the Navy (3.4) and Marine Corps (3.9). Across services, the average number of evaluations per individual is only slightly higher in the Navy (1.2) and Marine Corps (1.2), relative to the Army (1.1) and Air Force (1.0). The average number of Veterans Affairs Schedule for Rating Disabilities (VASRD) codes assigned per evaluation is highest in the Army (2.4) and lower in the three other services (1.6-1.8)

Observed differences in the number of records, individuals, and evaluations can be partially accounted for by the differences in the types of records AMSARA received from each service. While the Army sends data on only those who were evaluated by the PEB, Navy/Marine Corps sends data on any individual evaluated by the PEB including those without any unfitting conditions. The inclusion of all PEB evaluations contributes a larger proportion of individuals without VASRD codes in the Navy/Marine Corps and thus a lower average across all records. Temporary disability retirement list (TDRL) re-evaluations are not included in the Air Force data which causes average evaluations/individual to be underestimated.

**TABLE 3: CHARACTERISTICS OF DES EVALUATIONS: FY 2008-2013**

	Army	Navy	Marine Corps	Air Force
<b>Total records</b>	125,454	68,606	88,607	21,714
<b>Total individuals</b>	87,490	17,240	18,502	20,568
<b>Total evaluations</b>	98,204	20,401	22,997	21,714
<b>Average records/evaluation</b>	1.3	3.4	3.9	1.0
<b>Average evaluations/individual</b>	1.1	1.2	1.2	1.1
Non-TDRL	1.1	1.0	1.0	-
TDRL	1.4	1.5	1.6	-
<b>Average VASRD/evaluation</b>	2.4	1.6	1.8	1.7

Total DES evaluations are shown by service and FY in Table 4. Individuals may be counted more than once in this table due to TDRL re-evaluations. Between 2008 and 2012, the number of disability evaluations per year remained relatively stable in the Army. However, there was a large increase in the number of disability evaluation in 2013. No concurrent increase was observed in the other services. In fact, the number of disability evaluations in both the Navy and Marine Corps decreased slightly in 2013 relative to 2012. The number of evaluations between 2008 and 2013 was relatively stable in the Air Force.

**TABLE 4: TOTAL DES EVALUATIONS BY SERVICE AND FISCAL YEAR FY 2008-2013**

	Army		Navy		Marine Corps		Air Force	
	Count	%	Count	%	Count	%	Count	%
<b>2008</b>	14,182	14.4	3,908	19.2	3,086	13.4	4,034	18.6
<b>2009</b>	15,814	16.1	3,171	15.5	3,071	13.4	3,117	14.4
<b>2010</b>	14,770	15.0	3,061	15.0	3,418	14.9	3,624	16.7
<b>2011</b>	13,752	14.0	2,826	13.9	3,764	16.4	3,814	17.6
<b>2012</b>	15,807	16.1	4,078	20.0	5,485	23.9	3,516	16.2
<b>2013</b>	23,879	24.3	3,357	16.5	4,173	18.1	3,609	16.6
<b>Total</b>	<b>98,204</b>		<b>20,401</b>		<b>22,997</b>		<b>21,714</b>	

Estimates of the rate of disability evaluation per total military population from 2008 to 2013 are shown in Table 5 by service and demographic characteristics. Rates from 2013 are compared to the previous five years in aggregate. Because demographic information on Air Force disability evaluation is collected from application, accession, and loss files, and not available for all disability evaluations, the rates of evaluation by demographic characteristics may be underestimated in the Air Force. The overall rate of disability evaluation per 1,000 service members was highest in the Army and Marine Corps during both 2013 and the previous five years. In the Army, the rate of disability evaluation has increased in 2013 (18.7 per 1,000) relative to the previous five years (10.7 per 1,000). Decreases in the rate of disability evaluation were observed in Navy and Air Force while the rate of disability evaluation per 1,000 service members in the Marine Corps was relatively stable when comparing 2013 to the previous five years. All services had higher rates of disability among enlisted and active component service members in both 2013 and years prior. In all services except the Army, the rate of disability evaluation was higher in females than males, both in 2013 and in the previous five years. Rates of disability evaluation were the highest in the 25-29 age group in the period from 2008 to 2012. In 2013, the 25-29 age group had the highest rate of disability evaluation in all services except the Army where the rate of evaluation per 1,000 members was slightly higher in the 30-34 age group. Significant increases in the rate of disability evaluation were observed throughout the Army in 2013. However, the most notable increases are among those over 25 and in the active component and enlisted population.

## DES Analysis and Research Annual Report 2014

**TABLE 5: RATE OF DES EVALUATION PER 1,000 SERVICE MEMBERS BY DEMOGRAPHIC CHARACTERISTICS AND SERVICE: FY 2008-2012 vs. FY 2013<sup>1</sup>**

	2008-2012								2013							
	Army		Navy		Marine Corps		Air Force <sup>2</sup>		Army		Navy		Marine Corps		Air Force <sup>2</sup>	
	Count	Rate	Count	Rate	Count	Rate	Count	Rate	Count	Rate	Count	Rate	Count	Rate	Count	Rate
<b>Sex</b>																
Male	49,088	10.4	11,040	6.8	13,793	12.3	12,073	3.2	17,100	18.8	1,940	6.2	2,879	13.1	1,827	4.5
Female	10,710	12.3	3,540	11.0	1,449	19.2	5,351	5.8	3,187	18.5	709	10.2	369	23.2	864	8.6
<b>Age at Evaluation</b>																
<20	708	1.9	235	2.6	729	4.9	436	2.5	64	0.9	33	1.6	119	3.7	78	4.4
20-24	13,060	8.4	3,839	6.9	7,083	12.8	4,199	3.9	3,250	11.0	700	6.6	1,316	12.7	666	5.8
25-29	16,603	13.2	3,996	9.0	4,469	18.0	4,078	4.1	5,716	23.7	774	8.4	1,051	21.7	719	6.1
30-34	9,914	12.6	2,567	8.5	1,651	14.7	2,793	3.9	4,309	25.2	487	7.8	449	19.0	499	5.4
35-39	6,934	10.9	1,932	7.5	798	10.4	2,320	3.5	2,603	22.7	325	7.0	202	13.5	320	4.8
≥ 40	12,590	12.9	1,961	6.9	449	7.6	3,197	3.2	4,295	22.6	315	5.9	96	7.7	326	3.4
<b>Race</b>																
White	44,430	11.0	9,330	7.6	10,733	11.4	13,082	3.7	14,818	19.0	1,560	6.6	2,127	11.4	1,970	5.2
Black	10,264	10.0	2,471	7.2	1,155	9.7	2,735	4.3	3,313	16.0	419	6.4	226	9.4	403	6.0
Other	5,139	21.5	2,718	8.7	3,303	52.3	1,460	5.7	1,953	35.0	637	8.9	872	65.0	253	6.8
<b>Rank</b>																
Enlisted	56,280	11.9	13,502	8.4	14,788	13.8	16,132	4.3	19,375	21.4	2,467	7.9	3,145	15.0	2,565	6.2
Officer	3,581	4.2	1,055	3.2	410	3.3	1,678	1.9	909	5.1	171	2.5	93	3.7	191	2.0
<b>Component</b>																
Active	45,081	16.4	13,593	8.5	14,193	14.1	15,240	9.3	16,592	31.4	2,506	7.8	3,095	15.8	2,385	7.3
Reserve/NG	14,780	5.3	998	3.0	1,060	5.4	2,570	2.9	3,628	6.5	143	2.3	154	3.9	360	2.0
<b>Total Individuals</b>	<b>59,861</b>	<b>10.7</b>	<b>14,591</b>	<b>7.5</b>	<b>15,253</b>	<b>12.7</b>	<b>17,810</b>	<b>7.1</b>	<b>20,288</b>	<b>18.7</b>	<b>2,649</b>	<b>6.9</b>	<b>3,249</b>	<b>13.8</b>	<b>2,758</b>	<b>5.5</b>

1. Data on total service population was generated using data from Defense Manpower Data Center (DMDC) queries and represents the total number of service members with each demographic as of 30 September of the fiscal year in question.

2. Demographic information is not provided for Air Force disability evaluations and is appended using accession and applicant databases. Because applicant and accession data are not available for a large percentage of Air Force disability evaluations rates presented by age, sex, and race are likely underestimated and should not be compared with the corresponding rates in other services.

Characteristics of individuals who underwent disability evaluation from 2008 to 2013 are shown in Table 6, comparing 2013 evaluations to 2008 through 2012 in aggregate. The vast majority of disability evaluations are performed on enlisted, active component personnel, regardless of service. Army and Air Force had higher percentages of reserve component disability evaluations, likely due to the inclusion of National Guard service members not present in the Navy and Marine Corps reserve component. In addition, most individuals evaluated for disability were male, aged 20-29 at the time of disability evaluation, and white, in all four services. No substantial changes in the demographic composition of the disability evaluated population were observed in 2013 relative to the previous five years, in any service.

**TABLE 6: DEMOGRAPHIC CHARACTERISTICS OF INDIVIDUALS EVALUATED FOR DISABILITY AT TIME OF FIRST DISABILITY EVALUATION: FY 2008-2012 vs. FY 2013**

	2008-2012								2013							
	Army		Navy		Marine Corps		Air Force		Army		Navy		Marine Corps		Air Force	
	Count	%	Count	%	Count	%	Count	%	Count	%	Count	%	Count	%	Count	%
<b>Sex</b>																
Male	49,088	82.0	11,040	75.7	13,793	90.4	12,073	67.8	17,100	84.3	1,940	73.2	2,879	88.6	1,827	66.2
Female	10,710	17.9	3,540	24.3	1,449	9.5	5,351	30.0	3,187	15.7	709	26.8	369	11.4	864	31.3
Missing	63	0.1	11	0.1	11	0.1	386	2.2	1	0.0	0	0.0	1	0.0	67	2.4
<b>Age</b>																
<20	708	1.2	235	1.6	729	4.8	436	2.4	64	0.3	33	1.2	119	3.7	78	2.8
20-24	13,060	21.8	3,839	26.3	7,083	46.4	4,199	23.6	3,250	16.0	700	26.4	1,316	40.5	666	24.1
25-29	16,603	27.7	3,996	27.4	4,469	29.3	4,078	22.9	5,716	28.2	774	29.2	1,051	32.3	719	26.1
30-34	9,914	16.6	2,567	17.6	1,651	10.8	2,793	15.7	4,309	21.2	487	18.4	449	13.8	499	18.1
35-39	6,934	11.6	1,932	13.2	798	5.2	2,320	13.0	2,603	12.8	325	12.3	202	6.2	320	11.6
≥ 40	12,590	21.0	1,961	13.4	449	2.9	3,197	18.0	4,295	21.2	315	11.9	96	3.0	326	11.8
Missing	52	0.1	61	0.4	74	0.5	787	4.4	51	0.3	15	0.6	16	0.5	150	5.4
<b>Race</b>																
White	44,430	74.2	9,330	63.9	10,733	70.4	13,082	73.5	14,818	73.0	1,560	58.9	2,127	65.5	1,970	71.4
Black	10,264	17.1	2,471	16.9	1,155	7.6	2,735	15.4	3,313	16.3	419	15.8	226	7.0	403	14.6
Other	5,139	8.6	2,718	18.6	3,303	21.7	1,460	8.2	1,953	9.6	637	24.0	872	26.8	253	9.2
Missing	28	0.0	72	0.5	62	0.4	533	3.0	204	1.0	33	1.2	24	0.7	132	4.8
<b>Rank</b>																
Enlisted	56,280	94.0	13,502	92.5	14,788	97.0	16,132	90.6	19,375	95.5	2,467	93.1	3,145	96.8	2,565	93.0
Officer	3,581	6.0	1,055	7.2	410	2.7	1,678	9.4	909	4.5	171	6.5	93	2.9	191	6.9
Missing	-	0.0	34	0.2	55	0.4	-	0.0	4	<0.1	11	0.4	11	0.3	2	0.1
<b>Component</b>																
Active	45,081	75.3	13,593	93.2	14,193	93.1	15,240	85.6	16,592	81.8	2,506	94.6	3,095	95.3	2,385	86.5
Reserve/NG	14,780	24.7	998	6.8	1,060	6.9	2,570	14.4	3,628	17.9	143	5.4	154	4.7	360	13.1
Missing	-	0.0	-	0.0	-	0.0	-	0.0	68	0.3	0	0.0	0	0.0	13	0.5
<b>Total Individuals</b>	<b>59,861</b>		<b>14,591</b>		<b>15,253</b>		<b>17,810</b>		<b>20,288</b>		<b>2,649</b>		<b>3,249</b>		<b>2,758</b>	

The distribution of unfitting conditions in individuals discharged with a service connected disability by disability body system for each service is shown in tables 7A through 7D. Classification of an individual's unfitting conditions into body system categories is not mutually exclusive and individuals may be included in more than one body system category if an individual was evaluated for more than one condition. Counts presented in each table represent the number of individuals evaluated for one or more conditions in a given body system. Percentages represent the percent of individuals among all individuals discharged with a service connected disability that had a disability in a given body system and may exceed 100% as individuals may have conditions in multiple body systems. In all services, musculoskeletal conditions were the most common type of disability evaluation, followed by psychiatric and neurological conditions. The proportion of individuals evaluated for disability in 2013 with a musculoskeletal condition increased significantly when compared to the previous five year period, in all services. Large increases in the proportion of discharged individuals with a psychiatric condition were observed in the Army, Navy, and Marine Corps. This increase was largest in the Marine Corps cases where the proportion of individuals with psychiatric disability conditions more than doubled in 2013 relative to the previous five years. A comparable increase in the proportion of cases with psychiatric disability was observed in the Navy where the proportion of individuals discharged with psychiatric conditions nearly doubled. Disability evaluations for respiratory conditions were more common in the Air Force than in other services; in 2013, 10% of those disability discharged from the Air Force had a respiratory condition as compared to 2-4% in the other services.

**TABLE 7A: DISTRIBUTION OF UNFITTING CONDITIONS BY BODY SYSTEM CATEGORY IN INDIVIDUALS WITH A DISABILITY DISCHARGE: ARMY, FY 2008-2012 vs. FY 2013**

Body System Category	2008-2012		2013	
	Count	%	Count	%
Musculoskeletal	38,900	65.7	16,777	70.6
Psychiatric	18,189	30.7	10,089	42.5
Neurological	11,940	20.2	5,776	24.3
Respiratory	2,954	5.0	1,062	4.5
Digestive	1,332	2.3	619	2.6
Dermatological	1,280	2.2	552	2.3
Cardiovascular	1,230	2.1	518	2.2
Endocrine	972	1.6	509	2.1
Genitourinary	882	1.5	389	1.6
Ears/Hearing	799	1.4	424	1.8
Eyes/Vision	679	1.1	233	1.0
Hemic/Lymphatic	236	0.4	127	0.5
Immune	239	0.4	84	0.4
Gynecological	197	0.3	86	0.4
Dental/Oral	76	0.1	39	0.2
Other Sensory	7	<0.1	18	0.1
<b>Total Individuals Discharged</b>	<b>59,167</b>		<b>23,766</b>	

**TABLE 7B: DISTRIBUTION OF UNFITTING CONDITIONS BY BODY SYSTEM CATEGORY IN INDIVIDUALS WITH A DISABILITY DISCHARGE: NAVY, FY 2008-2012 vs. FY 2013**

Body System Category	2008-2012		2013	
	Count	%	Count	%
Musculoskeletal	4,488	30.8	1,152	43.5
Psychiatric	2,638	18.1	905	34.2
Neurological	2,280	15.6	581	21.9
Digestive	758	5.2	181	6.8
Endocrine	464	3.2	83	3.1
Respiratory	353	2.4	80	3.0
Genitourinary	276	1.9	76	2.9
Cardiovascular	301	2.1	75	2.8
Eyes and Vision	179	1.2	53	2.0
Dermatological	166	1.1	42	1.6
Infectious Disease	120	0.8	32	1.2
Ears and Hearing	121	0.8	26	1.0
Hemic/Lymphatic	160	1.1	23	0.9
Gynecological	84	0.6	14	0.5
Dental and Oral	12	0.1	4	0.2
Other Sensory Disorders	1	<0.1	-	0.0
<b>Total Individuals Discharged</b>	<b>14,591</b>		<b>2,649</b>	

**TABLE 7C: DISTRIBUTION OF UNFITTING CONDITIONS BY BODY SYSTEM CATEGORY IN INDIVIDUALS WITH A DISABILITY DISCHARGE: MARINE CORPS, FY 2008-2012 vs. FY 2013**

Body System Category	2008-2012		2013	
	Count	%	Count	%
Musculoskeletal	7,295	47.8	2,005	61.7
Psychiatric	3,024	19.8	1,461	45.0
Neurological	2,944	19.3	882	27.1
Digestive	394	2.6	136	4.2
Respiratory	309	2.0	124	3.8
Genitourinary	242	1.6	78	2.4
Dermatological	273	1.8	60	1.8
Eyes and Vision	263	1.7	57	1.8
Cardiovascular	212	1.4	55	1.7
Ears and Hearing	153	1.0	47	1.4
Endocrine	207	1.4	36	1.1
Hemic/Lymphatic	93	0.6	22	0.7
Infectious Disease	61	0.4	18	0.6
Dental and Oral	23	0.2	7	0.2
Gynecological	26	0.2	7	0.2
Other Sensory Disorders	8	0.1	1	<0.1
<b>Total Individuals Discharged</b>	<b>15,253</b>		<b>3,249</b>	

**TABLE 7D: DISTRIBUTION OF UNFITTING CONDITIONS BY BODY SYSTEM CATEGORY IN INDIVIDUALS WITH A DISABILITY DISCHARGE: AIR FORCE, FY 2008-2012 vs. FY 2013**

Body System Category	2008-2012		2013	
	Count	%	Count	%
Musculoskeletal	6,330	48.4	1,373	54.9
Psychiatric	3,226	24.7	689	27.5
Neurological	2,492	19.0	528	21.1
Respiratory	1,572	12.0	258	10.3
Digestive	659	5.0	127	5.1
Cardiovascular	573	4.4	90	3.6
Endocrine	356	2.7	69	2.8
Genitourinary	264	2.0	68	2.7
Dermatological	203	1.6	49	2.0
Eyes and Vision	166	1.3	39	1.6
Infectious Disease	24	0.2	38	1.5
Ears and Hearing	144	1.1	37	1.5
Hemic/Lymphatic	130	1.0	21	0.8
Dental and Oral	16	0.1	3	0.1
Other Sensory	2	<0.1	2	0.1
Gynecological	63	0.5	-	0.0
Immune	109	0.8	-	0.0
<b>Total Individuals Discharge</b>	<b>13,082</b>		<b>2,502</b>	

The leading VASRD categories (excluding analogous codes) among disability discharges in the most common body system categories from 2008 to 2013 are shown in tables 8A through 8D. Classification of an individual's conditions into body system categories is not mutually exclusive and individuals may be included in more than one body system category in cases of multiple conditions. Like the body system categories, VASRD categories within a body system are not mutually exclusive and an individual is represented in multiple VASRD categories if he/she has more than one code. Therefore, percentages associated with VASRD categories within each body system can be interpreted as the percent of individuals in a VASRD category among all individuals with a condition in the body system.

Among musculoskeletal conditions, dorsopathies were the most common musculoskeletal condition type in 2013 in the Army and Air Force. In the Navy and Marine Corps, limitation of motion was the most common musculoskeletal condition in 2013. Dorsopathies have also increased in prevalence in the Air Force in 2013 relative to the previous five years, while limitation of motion has increased in prevalence in the Army, Navy, and Marine Corps relative to the previous five year period. Posttraumatic stress disorder (PTSD) was the most commonly diagnosed psychiatric condition among in Army and Marine Corps with a disability discharge in 2013 and second most common psychiatric condition with a disability discharge in the Air Force and Navy. PTSD has increased markedly in prevalence in all services in 2013 relative to previous years. In the Air Force and Navy, mood disorders were more common in psychiatric disability cases than PTSD. The prevalence of mood disorder is similar when comparing 2013 to the previous five year period in the Navy. However, the prevalence of mood disorders among disability discharges with psychiatric conditions in the Air Force has increased significantly from 45% in the period from 2008-2012 to 68% in 2013. Among neurological conditions, residuals of traumatic brain injury were the most common condition types in the Army and Marine Corps in 2013 and the previous five year period and were present in about 30% of neurological disability cases in both services. Migraines and paralysis were the most common neurological conditions in Air Force in 2013 and in the previous five year period. Epilepsy and paralysis were the most common neurological conditions in the Navy.

## DES Analysis and Research Annual Report 2014

**TABLE 8A: MOST PREVALENT CONDITIONS WITHIN LEADING BODY SYSTEM CATEGORIES AMONG INDIVIDUALS WITH A DISABILITY DISCHARGE: ARMY, FY 2008-2012 vs. FY 2013**

2008-2012			2013		
	Count	%		Count	%
<b>Musculoskeletal</b>	<b>38,900</b>	<b>65.7</b>	<b>Musculoskeletal</b>	<b>16,777</b>	<b>70.6</b>
Dorsopathies	20,087	51.6	Dorsopathies	9,684	57.7
Arthritis	11,129	28.6	Limitation of motion	8,352	49.8
Limitation of motion	10,765	27.7	Arthritis	3,397	20.2
<b>Psychiatric</b>	<b>18,189</b>	<b>30.7</b>	<b>Psychiatric</b>	<b>10,089</b>	<b>42.5</b>
Posttraumatic stress disorder	11,859	65.2	Posttraumatic stress disorder	7,361	73.0
Mood Disorder	4,115	22.6	Mood Disorder	2,287	22.7
Anxiety Disorder	1,695	9.3	Anxiety Disorder	940	9.3
<b>Neurological</b>	<b>11,940</b>	<b>20.2</b>	<b>Neurological</b>	<b>5,776</b>	<b>24.3</b>
Residuals of traumatic brain injury	3,279	27.5	Residuals of traumatic brain injury	1,667	28.9
Paralysis	3,237	27.1	Paralysis	1,653	28.9
Migraine	2,551	21.4	Migraine	1,671	28.6
<b>Total Individuals Discharged</b>	<b>59,167</b>		<b>Total Individuals Discharged</b>	<b>23,766</b>	

**TABLE 8B: MOST PREVALENT CONDITIONS WITHIN LEADING BODY SYSTEM CATEGORIES AMONG INDIVIDUALS WITH A DISABILITY DISCHARGE: NAVY, FY 2008-2012 vs. FY 2013**

2008-2012			2013		
	Count	%		Count	%
<b>Musculoskeletal</b>	<b>4,488</b>	<b>30.8</b>	<b>Musculoskeletal</b>	<b>1,152</b>	<b>43.5</b>
Dorsopathies	1,589	35.4	Limitation of motion	518	45.0
Limitation of motion	1,415	31.5	Dorsopathies	454	39.4
Arthritis	1,234	27.5	Arthritis	245	21.3
<b>Psychiatric</b>	<b>2,638</b>	<b>18.1</b>	<b>Psychiatric</b>	<b>905</b>	<b>34.2</b>
Mood disorder	1,224	46.4	Mood disorder	371	41.0
Posttraumatic stress disorder	770	29.2	Posttraumatic stress disorder	352	38.9
Anxiety disorder	241	9.1	Anxiety disorder	98	10.8
<b>Neurological</b>	<b>2,280</b>	<b>15.6</b>	<b>Neurological</b>	<b>581</b>	<b>21.9</b>
Paralysis	551	24.2	Epilepsy	113	19.4
Epilepsy	545	23.9	Paralysis	110	18.9
Migraine	289	12.7	Migraine	102	17.6
<b>Total Individuals Discharged</b>	<b>14,591</b>		<b>Total Individuals Discharged</b>	<b>2,649</b>	

**TABLE 8C: MOST PREVALENT CONDITIONS WITHIN LEADING BODY SYSTEM CATEGORIES AMONG INDIVIDUALS WITH A DISABILITY DISCHARGE: MARINE CORPS, FY 2008-2012 vs. FY 2013**

2008-2012			2013		
	Count	%		Count	%
<b>Musculoskeletal</b>	<b>7,295</b>	<b>47.8</b>	<b>Musculoskeletal</b>	<b>2,005</b>	<b>61.7</b>
Limitation of motion	2,908	39.9	Limitation of motion	1,117	55.7
Dorsopathies	1,950	26.7	Dorsopathies	684	34.1
Arthritis	1,904	26.1	Arthritis	343	17.1
<b>Psychiatric</b>	<b>3,024</b>	<b>19.8</b>	<b>Psychiatric</b>	<b>1,461</b>	<b>45.0</b>
Posttraumatic stress disorder	1,931	63.9	Posttraumatic stress disorder	1,100	75.3
Mood disorder	692	22.9	Mood disorder	287	19.6
Dementia	262	8.7	Anxiety disorder	68	4.7
<b>Neurological</b>	<b>2,944</b>	<b>19.3</b>	<b>Neurological</b>	<b>882</b>	<b>27.1</b>
Residuals of traumatic brain injury	861	29.2	Residuals of traumatic brain injury	282	32.0
Paralysis	851	28.9	Paralysis	179	20.3
Epilepsy	453	15.4	Migraine	157	17.8
<b>Total Individuals Discharged</b>	<b>15,253</b>		<b>Total Individuals Discharged</b>	<b>3,249</b>	

**TABLE 8D: MOST PREVALENT CONDITIONS WITHIN LEADING BODY SYSTEM CATEGORIES AMONG INDIVIDUALS WITH A DISABILITY DISCHARGE: AIR FORCE, FY 2008-2012 vs. FY 2013**

2008-2012			2013		
	Count	%		Count	%
<b>Musculoskeletal</b>	<b>6,378</b>	<b>48.8</b>	<b>Musculoskeletal</b>	<b>1,384</b>	<b>55.3</b>
Dorsopathies	3,350	52.5	Dorsopathies	871	62.9
Arthritis	1,444	22.6	Limitation of motion	523	37.8
Limitation of motion	1,369	21.5	Arthritis	290	21.0
<b>Psychiatric</b>	<b>3,429</b>	<b>26.2</b>	<b>Psychiatric</b>	<b>712</b>	<b>28.5</b>
Mood disorder	1,542	45.0	Mood disorder	482	67.7
Posttraumatic stress disorder	1,008	29.4	Posttraumatic stress disorder	466	65.4
Anxiety disorder	452	13.2	Anxiety disorder	156	21.9
<b>Neurological</b>	<b>2,558</b>	<b>19.6</b>	<b>Neurological</b>	<b>540</b>	<b>21.6</b>
Paralysis	612	23.9	Migraine	159	29.4
Migraine	533	20.8	Paralysis	158	29.3
Epilepsy	387	15.1	Epilepsy	85	15.7
<b>Total Individuals Discharged</b>	<b>13,082</b>		<b>Total Individuals Discharged</b>	<b>2,502</b>	

Tables 9A-9D show the top ten most common VASRD condition categories present in service members discharged with a disability for 2008-2012 as compared to 2013. In the Army, the leading VASRD condition category in 2013 was dorsopathies, followed by limitation of motion and posttraumatic stress disorder. Limitation of motion was much more common in Army disability discharges in 2013 (35%) as compared to the previous five years (18%). PTSD was also much more prevalent among Soldiers disability discharged in 2013 (31%) as compared to previous years (20%). Limitation of motion was the most common condition category in 2013 in the Navy followed by dorsopathies and mood disorders. The prevalence of limitation of motion doubled in 2013 (20%) relative the previous five years in the Navy (10%); PTSD also increased in prevalence in 2013 (13%) relative to the previous five year period (5%). Among those disability discharged in the Marine Corps, limitation of motion and PTSD were the most common VASRD condition type in 2013 (34% each). Both of these conditions also increased in prevalence in 2013 relative to the previous five years when limitation of motion was present in 19% of cases and PTSD was present in 13% of cases. In the Air Force, dorsopathies were the most common disability condition in 2013 (35%), increasing slightly in prevalence as compared to previous years (26%). The second most common condition in 2013, limitation of motion (21%), also increased in prevalence in the Air Force relative to the previous five year period (11%).

**TABLE 9A: TEN MOST COMMON VASRD CATEGORIES IN INDIVIDUALS WITH A DISABILITY DISCHARGE: ARMY, FY 2008-2012 vs. FY 2013**

2008-2012			2013		
	Count	%		Count	%
Dorsopathies	20,087	33.9	Dorsopathies	9,684	40.7
Posttraumatic stress disorder	11,859	20.0	Limitation of motion	8,352	35.1
Arthritis	11,129	18.8	Posttraumatic stress disorder	7,361	31.0
Limitation of motion	10,765	18.2	Arthritis	3,397	14.3
Mood disorder	4,115	7.0	Mood disorder	2,287	9.6
Residuals of traumatic brain injury	3,279	5.5	Migraine	1,671	7.0
Paralysis	3,239	5.5	Residuals of traumatic brain injury	1,667	7.0
Joint disorders or inflammation	3,111	5.3	Paralysis	1,663	7.0
Skeletal and joint deformities	2,859	4.8	Joint disorders or inflammation	1,413	5.9
Migraine	2,551	4.3	Skeletal and joint deformities	1,391	5.9
<b>Total Individuals Discharged</b>	<b>59,167</b>		<b>Total Individuals Discharged</b>	<b>23,766</b>	

**TABLE 9B: TEN MOST COMMON VASRD CATEGORIES IN INDIVIDUALS WITH A DISABILITY DISCHARGE: NAVY, FY 2008-2012 vs. FY 2013**

2008-2012			2013		
	Count	%		Count	%
Dorsopathies	1,589	10.9	Limitation of motion	518	19.6
Limitation of motion	1,415	9.7	Dorsopathies	454	17.1
Arthritis	1,234	8.5	Mood disorder	371	14.0
Mood disorder	1,224	8.4	Posttraumatic stress disorder	352	13.3
Posttraumatic stress disorder	770	5.3	Arthritis	245	9.2
Paralysis	551	3.8	Joint disorders or inflammation	152	5.7
Epilepsy	545	3.7	Epilepsy	113	4.3
Noninfectious enteritis and colitis	504	3.5	Paralysis	110	4.2
Joint disorders or inflammation	479	3.3	Noninfectious enteritis and colitis	105	4.0
Diabetes mellitus	415	2.8	Migraine	102	3.9
<b>Total Individuals Discharged</b>	<b>14,591</b>		<b>Total Individuals Discharged</b>	<b>2,649</b>	

**TABLE 9C: TEN MOST COMMON VASRD CATEGORIES IN INDIVIDUALS WITH A DISABILITY DISCHARGE: MARINE CORPS, FY 2008-2012 vs. FY 2013**

2008-2012			2013		
	Count	%		Count	%
Limitation of motion	2,908	19.1	Limitation of motion	1,117	34.4
Dorsopathies	1,950	12.8	Posttraumatic stress disorder	1,100	33.9
Posttraumatic stress disorder	1,931	12.7	Dorsopathies	684	21.1
Arthritis	1,904	12.5	Arthritis	343	10.6
Residuals of traumatic brain injury	861	5.6	Mood disorder	287	8.8
Paralysis	851	5.6	Residuals of traumatic brain injury	282	8.7
Mood disorder	692	4.5	Joint disorders or inflammation	198	6.1
Joint disorders or inflammation	631	4.1	Paralysis	179	5.5
Epilepsy	453	3.0	Migraine	157	4.8
Amputations	444	2.9	Amputations	135	4.2
<b>Total Individuals Discharged</b>	<b>15,253</b>		<b>Total Individuals Discharged</b>	<b>3,249</b>	

**TABLE 9D: TEN MOST COMMON VASRD CATEGORIES IN INDIVIDUALS WITH A DISABILITY DISCHARGE: AIR FORCE, FY 2008-2012 vs. FY 2013**

2008-2012			2013		
	Count	%		Count	%
Dorsopathies	3,350	25.6	Dorsopathies	871	34.8
Mood disorder	1,542	11.8	Limitation of motion	523	20.9
Arthritis	1,444	11.0	Mood disorder	482	19.3
Limitation of motion	1,369	10.5	Posttraumatic stress disorder	466	18.6
Asthma	1,149	8.8	Asthma	300	12.0
Posttraumatic stress disorder	1,008	7.7	Arthritis	290	11.6
Joint disorders or inflammation	640	4.9	Joint disorders or inflammation	188	7.5
Paralysis	613	4.7	Migraine	159	6.4
Migraine	533	4.1	Paralysis	158	6.3
Anxiety disorder	452	3.5	Anxiety disorder	156	6.2
<b>Total Individuals Discharged</b>	<b>13,082</b>		<b>Total Individuals Discharged</b>	<b>2,502</b>	

Table 10 shows the distribution of the last disposition, by service, for all disability discharge evaluations comparing 2013 to 2008-2012, excluding periodic TDRL re-evaluations. Compared to the previous five year period, the proportion of disability evaluations that resulted in a disposition of permanent disability retirement increased in 2013 in all services. Permanent disability retirement was the most common disposition in the Army and Air Force in 2013. In the Navy and Marine Corps, placement on the temporary disability retirement list was the most common disposition in 2013 followed closely by separated with severance pay. The distribution of disability dispositions in the Army, Navy, and Marine Corps in 2013 was similar to previous years. In the Air Force, a larger proportion of disability dispositions were permanent disability retired as compared to previous years. This increase in permanent disability retirement in the Air Force was accompanied by a decrease in fit dispositions in 2013 relative to the previous five year period. Fit determinations were most common in the Navy in 2013, though the proportion of Navy disability evaluations that result in fit determinations decreased in 2013.

## DES Analysis and Research Annual Report 2014

**TABLE 10: MOST RECENT DISPOSITION BY SERVICE FOR ALL INDIVIDUALS EVALUATED FOR DISABILITY DISCHARGE: FY 2008-2012 vs FY 2013<sup>1</sup>**

	2008-2012								2013							
	Army		Navy		Marine Corps		Air Force		Army		Navy		Marine Corps		Air Force	
	Count	%	Count	%	Count	%	Count	%	Count	%	Count	%	Count	%	Count	%
<b>Permanent Disability Retired</b>	13,581	22.7	2,159	15.6	2,224	15.1	3,977	22.3	8,026	39.6	559	21.1	707	21.8	1,170	42.4
<b>Separated without Benefit</b>	682	1.1	420	3.0	444	3.0	590	3.3	49	0.2	33	1.2	37	1.1	80	2.9
<b>Separated with Severance</b>	20,368	34.0	3,711	26.8	5,561	37.7	4,634	26.0	6,441	31.8	621	23.4	1,088	33.5	744	27.0
<b>Fit</b>	3,682	6.2	2,783	20.1	1,241	8.4	4,138	23.2	6	0.0	350	13.2	147	4.5	176	6.4
<b>Placed on TDRL</b>	16,606	27.7	3,895	28.1	4,599	31.2	4,466	25.1	5,462	26.9	837	31.6	1,119	34.4	564	20.4
<b>Administrative Termination</b>	1,778	3.0	-	-	-	-	-	-	11	0.1	-	-	-	-	-	-
<b>Other<sup>2</sup></b>	3,156	5.3	896	6.5	667	4.5	5	<0.1	286	1.4	249	9.4	151	4.6	24	0.9
<b>Total Individuals</b>	<b>59,853</b>		<b>13,864</b>		<b>14,736</b>		<b>17,810</b>		<b>20,281</b>		<b>2,649</b>		<b>3,249</b>		<b>2,758</b>	

1. Individuals with a 'Retained on the TDRL' disposition as their first disposition during the time period covered by this report are excluded from this table.

2. Including, but not limited, individuals with dispositions of no action, limited duty, or administrative removal from TDRL.

Most recent percent rating among evaluations for disability discharge is shown, by service, for the period for 2013 as compared 2008-2012 in Table 11. In 2013, the most frequently assigned rating was 10%, similar to the previous five year period. Air Force disability evaluations most frequently resulted in a rating of 100% when compared to other services in 2013. Relative to the previous five year period, the proportion of individuals who received a rating of 100% increased in all services in 2013. Disability ratings greater than 30% accounted for about 60% of Marine Corps disability ratings and about 70% of Army, Navy, and Air Force ratings in 2013. In all services, the proportion of disability evaluations resulting in ratings of 30% or higher increased in 2013 relative to the previous five year period. A significant decrease in the proportion of disability evaluations that were unrated was observed in 2013 relative to the period from 2008 to 2012.

**TABLE 11: LATEST PERCENT RATING BY SERVICE FOR ALL INDIVIDUALS EVALUATED FOR DISABILITY DISCHARGE: FY 2008-2012 vs FY 2013<sup>1</sup>**

	2008-2012												2013											
	Army			Navy			Marine Corps			Air Force			Army			Navy			Marine Corps			Air Force		
	n	%	CP	n	%	CP	n	%	CP	n	%	CP	n	%	CP	n	%	CP	n	%	CP	n	%	CP
<b>UR</b>	4,366	7.3	N/A	3,200	23.1	N/A	1,684	11.4	N/A	4,311	24.2	N/A	38	0.2	N/A	381	14.4	N/A	184	5.7	N/A	262	9.5	N/A
<b>0</b>	1,572	2.6	3.0	437	3.2	4.3	670	4.5	5.2	217	1.2	1.6	309	1.5	1.6	143	5.4	6.5	248	7.6	8.1	136	4.9	4.1
<b>10</b>	11,598	19.4	25.4	2,105	15.2	24.8	3,338	22.7	31.4	3,063	17.2	23.8	3,484	17.2	19.2	332	12.5	21.6	592	18.2	27.6	512	18.6	19.5
<b>20</b>	8,121	13.6	41.1	1,326	9.6	37.7	1,654	11.2	44.4	1,997	11.2	38.3	2,584	12.7	32.4	244	9.2	32.7	356	11.0	39.3	308	11.2	28.8
<b>30</b>	6,059	10.1	52.8	2,301	16.6	60.2	2,142	14.5	61.2	2,773	15.6	58.4	1,890	9.3	41.9	342	12.9	48.2	309	9.5	49.4	645	23.4	48.3
<b>40</b>	4,553	7.6	61.6	1,383	10.0	73.7	1,366	9.3	71.9	1,613	9.1	70.1	1,710	8.4	50.6	250	9.4	59.6	320	9.8	59.9	382	13.9	59.8
<b>50</b>	5,551	9.3	72.4	1,044	7.5	83.9	1,269	8.6	81.8	1,625	9.1	81.9	2,343	11.5	62.5	316	11.9	74.0	330	10.2	70.8	490	17.8	74.6
<b>60</b>	5,569	9.3	83.1	478	3.4	88.6	702	4.8	87.3	911	5.1	88.5	2,407	11.9	74.7	153	5.8	80.9	179	5.5	76.7	276	10.0	82.9
<b>70</b>	3,855	6.4	90.6	398	2.9	92.4	725	4.9	93.0	619	3.5	93.0	2,294	11.3	86.3	199	7.5	90.0	363	11.2	88.6	265	9.6	90.9
<b>80</b>	2,259	3.8	94.9	122	0.9	93.6	257	1.7	95.0	277	1.6	95.0	1,316	6.5	93.0	59	2.2	92.6	130	4.0	92.8	82	3.0	93.4
<b>90</b>	1,043	1.7	97.0	42	0.3	94.0	95	0.6	95.7	56	0.3	95.4	515	2.5	95.6	11	0.4	93.1	40	1.2	94.2	34	1.2	94.4
<b>100</b>	1,575	2.6	100	611	4.4	100	544	3.7	100	629	3.5	100	860	4.2	100	151	5.7	100	178	5.5	100	185	6.7	100
<b>Miss</b>	3,732	6.2	N/A	417	3.0	N/A	291	2.0	N/A	14	0.1	N/A	537	2.6	N/A	68	2.6	N/A	20	0.6	N/A	32	1.2	N/A
<b>Total</b>	<b>59,853</b>			<b>13,864</b>			<b>14,736</b>			<b>17,810</b>			<b>20,287</b>			<b>2,649</b>			<b>3,249</b>			<b>2,758</b>		

UR: Unrated, Miss: Missing, CP: Cumulative Percent, excluding missing and unrated

1. Individuals with a 'Retained on the TDRL' disposition as their first disposition during the time period covered by this report are excluded from this table.

# History of Medical Disqualification, Pre-existing Conditions, Accession Medical Waiver, and Hospitalization among Service Members Evaluated for Disability

Table 12 shows the number and percentages of individuals in the DES records with records in other datasets received by AMSARA. Applicant and waiver data are for enlisted active duty and reserve service members; hospitalization data were only available for active duty and eligible reserves at the time these analyses were completed. Accession and discharge data were available for all ranks and components. Regardless of service, the majority of those who were evaluated for disability had a discharge record. Applicant records were also available for the majority in all services. Accession records are available for the majority of individuals evaluated for disability. However, the percentage of individuals with an accession record is lower in the Army and Air Force than in the Navy and Marine Corps. Missing applicant data may represent applications prior to 2001, the first year complete data are available. Similarly, in the case of accession data, missing data may represent accessions prior to 1995.

The highest percentage of individuals evaluated for disabilities with waiver records from any waiver authority was found in the Army (7%). Most accession medical waiver records for individuals evaluated for disability were approved regardless of service. Hospitalization at a military treatment facility was least common in Air Force members evaluated for disability. In Army, Navy, and Marine Corps members evaluated for disability, hospitalization rates were similar.

**TABLE 12: INDIVIDUALS EVALUATED FOR DISABILITY WITH RECORDS IN OTHER AMSARA DATA**  
SOURCES: FY 2008-FY 2013

	Army		Navy		Marine Corps		Air Force	
	Count	%	Count	%	Count	%	Count	%
<b>Applicant record<sup>1</sup></b> (2001-2013)	56,430	68.6	9,544	59.8	14,594	81.4	10,131	54.2
<b>Accession medical waiver record<sup>1</sup></b> (1995-2012)	5,967	7.3	906	5.7	1,023	5.7	501	2.7
Approved	5,391	6.6	877	5.5	987	5.5	482	2.6
Denied	576	0.7	29	0.2	36	0.2	19	0.1
<b>Accession record</b> (1995-2012)	69,041	79.0	16,114	93.5	17,767	96.0	14,924	72.6
<b>Hospitalization record<sup>2</sup></b> (1995-2013)	23,595	35.5	6,692	41.6	6,941	40.1	5,430	30.8
<b>Discharge record</b> (1995-2013)	78,228	89.5	11,819	68.6	13,641	73.7	16,715	81.3
<b>Total Individuals</b>	87,392		17,240		18,502		20,568	
<b>Total Enlisted</b>	82,289		15,969		17,933		18,697	
<b>Total Active Duty</b>	66,468		16,103		17,290		17,624	

1. Applicant and waiver datasets include only enlisted service members.

2. Hospitalization dataset (i.e. SIDR) includes active duty service members and qualified reserves.

### Medical disqualification and pre-existing conditions among enlisted service members evaluated for disability

AMSARA enlisted applicant records include data on medical examinations conducted at a Military Entrance Processing Station (MEPS) from 2001 to present. MEPS medical examinations dated after the MEB date were excluded from the analyses. In cases where service members evaluated for disability had more than one MEPS medical examination record, only the most recent record preceding the disability evaluation was used.

Table 13 shows the history of medical examination and application for military service among service members evaluated for disability by year of disability evaluation and service. There is a general trend in all services of increasing proportions of applicant records with increasing year of disability, a trend which is expected given the time frame for which application records are available. Overall, the Marine Corps had the highest percentage of individuals evaluated for disability who also had a MEPS medical examination record for each year of disability evaluation.

**TABLE 13: RECORD OF MEDICAL EXAMINATION AT MEPS AMONG ENLISTED SERVICE MEMBERS EVALUATED FOR DISABILITY BY YEAR OF DISABILITY EVALUATION: FY 2008-FY 2013**

	Army			Navy			Marine Corps			Air Force		
	App	Total	%	App	Total	%	App	Total	%	App	Total	%
<b>2008</b>	6,367	10,082	63.2	1,120	2,459	45.5	1,342	1,899	70.7	1,444	3,595	40.2
<b>2009</b>	7,468	11,271	66.3	1,085	2,151	50.4	1,465	1,909	76.7	1,228	2,757	44.5
<b>2010</b>	7,802	11,548	67.6	1,391	2,386	58.3	1,879	2,414	77.8	1,686	3,208	52.6
<b>2011</b>	8,330	11,894	70.0	1,376	2,345	58.7	2,409	2,948	81.7	1,927	3,396	56.7
<b>2012</b>	10,371	14,761	70.3	2,355	3,562	66.1	4,074	4,774	85.3	1,991	3,176	62.7
<b>2013</b>	16,064	22,719	70.7	2,217	3,066	72.3	3,425	3,989	85.9	1,855	2,565	72.3
<b>Total</b>	<b>56,402</b>	<b>82,275</b>	<b>68.6</b>	<b>9,544</b>	<b>15,969</b>	<b>59.8</b>	<b>14,594</b>	<b>17,933</b>	<b>81.4</b>	<b>10,131</b>	<b>18,697</b>	<b>54.2</b>

App: Applicants with MEPS medical examination record, Total: Enlisted individuals evaluated for a disability.

Medical qualification status at time of application for service for enlisted service members who underwent disability evaluation are shown in Tables 14A-14D comparing service members evaluated for disability in 2013 to those evaluated for disability in the previous five years. The rates of permanent accession medical disqualification were similar for both time periods in each service. Between 7% and 12% of service members evaluated for disability had a history of permanent medical disqualification and 3-10% of service members had a history of temporary medical disqualification. Lowest rates of history of temporary accession medical disqualification were found in Air Force where less than 5% of cases with medical exam record had a temporary disqualification; highest rates were found in the Army where approximately 12% of individuals evaluated for disability in 2012 had a history of temporary disqualification. The Air Force also had the lowest rates of both permanent and temporary medical disqualification; less than 7% of disability cases had a history of medical disqualification. The Army had the highest rates of medical disqualification regardless of time period; about 11% of Army disability cases had a history of medical disqualification prior to accession.

**TABLE 14A: MEDICAL QUALIFICATION STATUS AMONG ENLISTED INDIVIDUALS WHO WERE EVALUATED FOR DISABILITY WITH MEPS EXAMINATION RECORD: ARMY, FY 2008-2012 vs. FY 2013**

	2008-2012		2013	
	Count	%	Count	%
Fully Qualified	31,391	77.8	12,698	79.0
Permanently Disqualified	4,814	11.9	1,827	11.4
Temporarily Disqualified*	4,161	10.3	1,539	9.6
<b>Total DES Cases with Medical Exam Record</b>	<b>40,366</b>		<b>16,064</b>	

\*The majority of temporary disqualifications are due to failure to meet weight for height and body fat standards.

**TABLE 14B: MEDICAL QUALIFICATION STATUS AMONG ENLISTED INDIVIDUALS WHO WERE EVALUATED FOR DISABILITY WITH MEPS EXAMINATION RECORD: NAVY, FY 2008-2012 vs. FY 2013**

	2008-2012		2013	
	Count	%	Count	%
Fully Qualified	6,116	83.5	1,897	85.6
Permanently Disqualified	733	10.0	191	8.6
Temporarily Disqualified*	478	6.5	129	5.8
<b>Total DES Cases with Medical Exam Record</b>	<b>7,327</b>		<b>2,217</b>	

\*The majority of temporary disqualifications are due to failure to meet weight for height and body fat standards.

**TABLE 14C: MEDICAL QUALIFICATION STATUS AMONG ENLISTED INDIVIDUALS WHO WERE EVALUATED FOR DISABILITY WITH MEPS EXAMINATION RECORD: MARINE CORPS, FY 2008-2012 vs. FY 2013**

	2008-2012		2013	
	Count	%	Count	%
Fully Qualified	9,322	83.5	2,928	85.5
Permanently Disqualified	1,020	9.1	298	8.7
Temporarily Disqualified*	827	7.4	199	5.8
<b>Total DES Cases with Medical Exam Record</b>	<b>11,169</b>		<b>3,425</b>	

\*The majority of temporary disqualifications are due to failure to meet weight for height and body fat standards.

**TABLE 14D: MEDICAL QUALIFICATION STATUS AMONG ENLISTED INDIVIDUALS WHO WERE EVALUATED FOR DISABILITY WITH MEPS EXAMINATION RECORD: AIR FORCE, FY 2008-2012 vs. FY 2013**

	2008-2012		2013	
	Count	%	Count	%
Fully Qualified	7,333	88.6	1,661	89.5
Permanently Disqualified	571	6.9	124	6.7
Temporarily Disqualified*	372	4.5	70	3.8
<b>Total DES Cases with Medical Exam Record</b>	<b>8,276</b>		<b>1,855</b>	

\*The majority of temporary disqualifications are due to failure to meet weight for height and body fat standards.

ICD-9 codes present in records of MEPS examination represent the presence of pre-existing conditions in applicants. The leading ICD-9 diagnoses present in MEPS examination records of enlisted service members by year of disability evaluation are shown in Tables 15A-15D. All ICD-9 diagnoses present in the most recent medical examination record that preceded disability evaluation were used in the generation of Table 15A-Table 15D.

In all services and for all time periods, the conditions noted in the applicant files of service members who underwent disability are consistent with highly prevalent conditions in the general military applicant population [8]. In all services except the Air Force, overweight, obesity, and other hyperalimentation was the most common condition noted at MEPS examination in 2013 and in the previous five year period. *Cannabis* abuse was also common in the Army, Navy, and Marine Corps. Abnormal loss of weight or underweight, hearing loss, and disorders of refraction and accommodation were also among the leading ICD-9 codes in all services.

**TABLE 15A: FIVE MOST COMMON ICD-9 DIAGNOSIS CODES APPEARING IN MEPS MEDICAL EXAMINATION RECORDS OF SERVICE MEMBERS EVALUATED FOR DISABILITY: ARMY, FY 2008-2012 vs. FY 2013**

2008-2012				2013			
ICD-9 Diagnosis Code	Count	% of Cond <sup>1</sup>	% of App <sup>2</sup>	ICD-9 Diagnosis Code	Count	% of Cond <sup>1</sup>	% of App <sup>2</sup>
Overweight, obesity and other hyperalimentation	2,649	33.2	6.6	Overweight, obesity and other hyperalimentation	1,026	33.2	6.4
Hearing loss	514	6.4	1.3	Hearing loss	193	6.2	1.2
<i>Cannabis</i> abuse	496	6.2	1.2	Disorders of lipid metabolism	176	5.7	1.1
Disorders of lipid metabolism	373	4.7	0.9	Disorders of refraction and accommodation	149	4.8	0.9
Disorders of refraction and accommodation	292	3.7	0.7	<i>Cannabis</i> abuse	116	3.8	0.7
<b>Total Applicants with Medical Conditions</b>	<b>7,983</b>		<b>19.8</b>	<b>Total Applicants with Medical Conditions</b>	<b>3,091</b>		<b>19.2</b>
<b>Total DES Cases with Medical Exam Record</b>	<b>40,366</b>			<b>Total DES Cases with Medical Exam Record</b>	<b>16,064</b>		

1. Percent of applicants with each medical condition among all applicants with medical conditions.
2. Percent of applicants with each medical condition among all DES cases with a medical exam record.

**TABLE 15B: FIVE MOST COMMON ICD-9 DIAGNOSIS CODES APPEARING IN MEPS MEDICAL EXAMINATION RECORDS OF SERVICE MEMBERS EVALUATED FOR DISABILITY: NAVY, FY 2008-2012 vs. FY 2013**

2008-2012				2013			
ICD-9 Diagnosis Code	Count	% of Cond <sup>1</sup>	% of App <sup>2</sup>	ICD-9 Diagnosis Code	Count	% of Cond <sup>1</sup>	% of App <sup>2</sup>
Overweight, obesity and other hyperalimentation	292	22.4	4.0	Overweight, obesity and other hyperalimentation	71	20.3	3.2
<i>Cannabis</i> abuse	54	4.1	0.7	Disorders of refraction and accommodation	22	6.3	1.0
Asthma	52	4.0	0.7	Asthma	14	4.0	0.6
Disorders of refraction and accommodation	50	3.8	0.7	<i>Cannabis</i> abuse	9	2.6	0.4
Other and unspecified disorders of bone and cartilage	49	3.8	0.7	Elevated blood pressure reading without diagnosis of hypertension	9	2.6	0.4
<b>Total Applicants with Medical Conditions</b>	<b>1,304</b>		<b>17.8</b>	<b>Total Applicants with Medical Conditions</b>	<b>350</b>		<b>15.8</b>
<b>Total DES Cases with Medical Exam Record</b>	<b>7,327</b>			<b>Total DES Cases with Medical Exam Record</b>	<b>2,217</b>		

1. Percent of applicants with each medical condition among all applicants with medical conditions.
2. Percent of applicants with each medical condition among all DES cases with a medical exam record.

**TABLE 15C: FIVE MOST COMMON ICD-9 DIAGNOSIS CODES APPEARING IN MEPS MEDICAL EXAMINATION RECORDS OF SERVICE MEMBERS EVALUATED FOR DISABILITY: MARINE CORPS, FY 2008-2012 vs. FY 2013**

2008-2012				2013			
ICD-9 Diagnosis Code	Count	% of Cond <sup>1</sup>	% of App <sup>2</sup>	ICD-9 Diagnosis Code	Count	% of Cond <sup>1</sup>	% of App <sup>2</sup>
Overweight, obesity and other hyperalimentation	430	22.4	3.8	Overweight, obesity and other hyperalimentation	111	19.8	3.2
<i>Cannabis</i> abuse	160	8.3	1.4	Abnormal loss of weight and underweight	40	7.1	1.2
Abnormal loss of weight and underweight	99	5.1	0.9	<i>Cannabis</i> abuse	33	5.9	1.0
Disorders of refraction and accommodation	77	4.0	0.7	Disorders of refraction and accommodation	20	3.6	0.6
Other and unspecified disorders of bone and cartilage	70	3.6	0.6	Hyperkinetic syndrome of childhood	17	3.0	0.5
<b>Total Applicants with Medical Conditions</b>	<b>1,923</b>		<b>17.2</b>	<b>Total Applicants with Medical Conditions</b>	<b>560</b>		<b>16.4</b>
<b>Total DES Cases with Medical Exam Record</b>	<b>11,169</b>			<b>Total DES Cases with Medical Exam Record</b>	<b>3,425</b>		

1. Percent of applicants with each medical condition among all applicants with medical conditions.

2. Percent of applicants with each medical condition among all DES cases with a medical exam record.

**TABLE 15D: FIVE MOST COMMON ICD-9 DIAGNOSIS CODES APPEARING IN MEPS MEDICAL EXAMINATION RECORDS OF SERVICE MEMBERS EVALUATED FOR DISABILITY: AIR FORCE, FY 2008-2012 vs. FY 2013**

2008-2012				2013			
ICD-9 Diagnosis Code	Count	% of Cond <sup>1</sup>	% of App <sup>2</sup>	ICD-9 Diagnosis Code	Count	% of Cond <sup>1</sup>	% of App <sup>2</sup>
Disorders of refraction and accommodation	45	5.2	0.5	Disorders of refraction and accommodation	14	7.4	0.8
Obesity and other hyperalimentation	35	4.0	0.4	Asthma	9	4.8	0.5
Asthma	32	3.7	0.4	Other nonspecific abnormal findings	8	4.2	0.4
Other disorders of bone and cartilage	30	3.4	0.4	Neurotic disorders	7	3.7	0.4
Other nonspecific abnormal findings	24	2.8	0.3	Other disorders of bone and cartilage	7	3.7	0.4
<b>Total Applicants with Medical Conditions</b>	<b>871</b>		<b>10.5</b>	<b>Total Applicants with Medical Conditions</b>	<b>189</b>		<b>10.2</b>
<b>Total DES Cases with Medical Exam Record</b>	<b>8,276</b>			<b>Total DES Cases with Medical Exam Record</b>	<b>1,855</b>		

1. Percent of applicants with each medical condition among all applicants with medical conditions.

2. Percent of applicants with each medical condition among all DES cases with a medical exam record.

The most prevalent medical disqualification diagnoses at MEPS medical examination are shown in Tables 16A-16D for each service and by leading disability body systems. Only individuals who were discharged with a service connected disability were included in these tables (i.e. Fit and SWOB dispositions are excluded). Classification of an individual's disability conditions into body system categories is not mutually exclusive and individuals may be included in more than one body system category in cases of multiple disability conditions. Like the disability body system categories, ICD-9 diagnosis types at MEPS examination within a body system are not mutually exclusive and an individual is represented in multiple ICD-9 diagnosis categories if he/she has more than one type of medical disqualification. Therefore, percentages associated with ICD-9 diagnosis types at MEPS examination within each body system should be interpreted as the percent of individuals discharged with a specific disability type who had each specific disqualification type at MEPS.

Total rate of medical disqualification prior to accession among individuals disability discharged in 2013 varied from 8% in the Air Force to 17% in the Army. From 2008 to 2012, the rate of medical disqualification overall varied from 7% in the Navy to 17% in the Army. In all services except the Air Force, individuals discharged with a musculoskeletal disability had the highest rates of medical disqualification prior to accession. Overall, medical disqualification rates among those with a musculoskeletal disability discharge in the Air Force were approximately equal to the overall disqualification rate among individuals discharged with a psychiatric disability. In all services, the leading reasons for medical disqualification, described using ICD-9 diagnoses, did not vary based on the body system evaluated for disability. Weight disqualifications, including both underweight and overweight, and musculoskeletal conditions were the most common types of pre-accession medical disqualification in all services regardless of the type of disability discharge.

**TABLE 16A: MOST PREVALENT DISQUALIFICATION TYPES AT MEPS MEDICAL EXAMINATION WITHIN LEADING DISABILITY BODY SYSTEM CATEGORIES: ARMY, FY 2008-2012 vs. FY 2013**

2008-2012			2013		
	Count	%		Count	%
<b>Total Individuals Discharged</b>	<b>59,167</b>		<b>Total Individuals Discharged</b>	<b>23,766</b>	
Weight	2,638	4.5	Weight	1,082	4.6
Musculoskeletal	915	1.5	Musculoskeletal	371	1.6
Substance Abuse	581	1.0	Hearing	193	0.8
Any DQ	9818	16.6	Any DQ	4086	17.2
<b>Musculoskeletal Disability</b>	<b>38,900</b>	<b>65.7</b>	<b>Musculoskeletal Disability</b>	<b>16,777</b>	<b>70.6</b>
Weight	1,990	5.1	Weight	800	4.8
Musculoskeletal	945	2.4	Musculoskeletal	373	2.2
Substance Abuse	415	1.1	Hearing	129	0.8
Any DQ	7,517	19.3	Any DQ	3,058	18.2
<b>Psychiatric Disability</b>	<b>18,189</b>	<b>30.7</b>	<b>Psychiatric Disability</b>	<b>10,089</b>	<b>42.5</b>
Weight	675	3.7	Weight	396	3.9
Musculoskeletal	231	1.3	Musculoskeletal	119	1.2
Substance Abuse	202	1.1	Psychiatric	70	0.7
Psychiatric	139	0.8	Hearing	69	0.7
Any DQ	2,563	14.1	Any DQ	1,445	14.3
<b>Neurological Disability</b>	<b>11,940</b>	<b>20.2</b>	<b>Neurological Disability</b>	<b>5,776</b>	<b>24.3</b>
Weight	449	3.8	Dermatological	18	0.3
Musculoskeletal	171	1.4	Hearing	47	0.8
Substance Abuse	121	1.0	Musculoskeletal	87	1.5
Neurological	61	0.5	Neurological	24	0.4
Any DQ	1,823	15.3	Any DQ	928	16.1

**TABLE 16B: MOST PREVALENT DISQUALIFICATION TYPES AT MEPS MEDICAL EXAMINATION WITHIN LEADING DISABILITY BODY SYSTEM CATEGORIES: NAVY, FY 2008-2012 vs. FY 2013**

2008-2012			2013		
	Count	%		Count	%
<b>Total Individuals Discharged</b>	<b>12,903</b>		<b>Total Individuals Discharged</b>	<b>3,066</b>	
Weight	256	2.0	Weight	71	2.3
Musculoskeletal	144	1.1	Musculoskeletal	31	1.0
Respiratory	51	0.4	Psychiatric	20	0.7
Any DQ	853	6.6	Any DQ	266	8.7
<b>Musculoskeletal Disability</b>	<b>4,299</b>	<b>33.3</b>	<b>Musculoskeletal Disability</b>	<b>1,097</b>	<b>35.8</b>
Weight	122	2.8	Weight	28	2.6
Musculoskeletal	94	2.2	Musculoskeletal	23	2.1
Respiratory	23	0.5	Psychiatric	7	0.6
Any DQ	415	9.7	Any DQ	115	10.5
<b>Psychiatric Disability</b>	<b>2,451</b>	<b>19.0</b>	<b>Psychiatric Disability</b>	<b>838</b>	<b>27.3</b>
Weight	58	2.4	Weight	23	2.7
Musculoskeletal	25	1.0	Vision	9	1.1
Respiratory	15	0.6	Psychiatric	7	0.8
Psychiatric	11	0.4	Respiratory	6	0.7
Any DQ	191	7.8	Any DQ	83	9.9
<b>Neurological Disability</b>	<b>2,112</b>	<b>16.4</b>	<b>Neurological Disability</b>	<b>539</b>	<b>17.6</b>
Weight	52	2.5	Weight	12	2.2
Musculoskeletal	22	1.0	Musculoskeletal	9	1.7
Substance Abuse	17	0.8	Psychiatric	8	1.5
Neurological	3	0.1	Neurological	1	0.2
Any DQ	189	8.9	Any DQ	59	10.9

**TABLE 16C:** MOST PREVALENT DISQUALIFICATION TYPES AT MEPS MEDICAL EXAMINATION WITHIN LEADING DISABILITY BODY SYSTEM CATEGORIES: **MARINE CORPS**, FY 2008-2012 vs. FY 2013

2008-2012			2013		
	Count	%		Count	%
<b>Total Individuals Discharged</b>	<b>13,944</b>		<b>Total Individuals Discharged</b>	<b>3,989</b>	
Weight	478	3.4	Weight	141	3.5
Musculoskeletal	208	1.5	Musculoskeletal	62	1.6
Substance Abuse	166	1.2	Psychiatric	42	1.1
Any DQ	1,455	10.4	Any DQ	432	10.8
<b>Musculoskeletal Disability</b>	<b>7,108</b>	<b>51.0</b>	<b>Musculoskeletal Disability</b>	<b>1,953</b>	<b>49.0</b>
Weight	303	4.3	Weight	80	4.1
Musculoskeletal	155	2.2	Musculoskeletal	44	2.3
Substance Abuse	93	1.3	Psychiatric	23	1.2
Any DQ	891	12.5	Any DQ	244	12.5
<b>Psychiatric Disability</b>	<b>2,952</b>	<b>21.2</b>	<b>Psychiatric Disability</b>	<b>1,420</b>	<b>35.6</b>
Weight	85	2.9	Weight	50	3.5
Substance Abuse	39	1.3	Musculoskeletal	18	1.3
Musculoskeletal	29	1.0	Psychiatric	16	1.1
Psychiatric	19	0.6	Substance Abuse	14	1.0
Any DQ	273	9.2	Any DQ	156	11.0
<b>Neurological Disability</b>	<b>2,853</b>	<b>20.5</b>	<b>Neurological Disability</b>	<b>851</b>	<b>21.3</b>
Weight	90	3.2	Weight	28	3.3
Musculoskeletal	42	1.5	Musculoskeletal	15	1.8
Substance Abuse	41	1.4	Substance Abuse	11	1.3
Neurological	2	0.1	Neurological	0	0.0
Any DQ	300	10.5	Any DQ	85	10.0

**TABLE 16D:** MOST PREVALENT DISQUALIFICATION TYPES AT MEPS MEDICAL EXAMINATION WITHIN LEADING DISABILITY BODY SYSTEM CATEGORIES: **AIR FORCE**, FY 2008-2012 vs. FY 2013

2008-2012			2013		
	Count	%		Count	%
<b>Total Individuals Discharged</b>	<b>12,146</b>		<b>Total Individuals Discharged</b>	<b>2,334</b>	
Weight	196	1.6	Musculoskeletal	35	1.5
Musculoskeletal	111	0.9	Weight	32	1.4
Psychiatric	48	0.4	Psychiatric	20	0.9
Any DQ	943	7.8	Any DQ	194	8.3
<b>Musculoskeletal Disability</b>	<b>5,930</b>	<b>48.8</b>	<b>Musculoskeletal Disability</b>	<b>1,289</b>	<b>55.2</b>
Weight	113	1.9	Musculoskeletal	22	1.7
Musculoskeletal	67	1.1	Weight	20	1.6
Psychiatric	22	0.4	Psychiatric	9	0.7
Any DQ	417	7.0	Any DQ	96	7.4
<b>Psychiatric Disability</b>	<b>2,943</b>	<b>24.2</b>	<b>Psychiatric Disability</b>	<b>629</b>	<b>26.9</b>
Weight	44	1.5	Psychiatric	10	1.6
Musculoskeletal	21	0.7	Musculoskeletal	7	1.1
Psychiatric	13	0.4	Vision	6	1.0
Any DQ	209	7.1	Any DQ	48	7.6
<b>Neurological Disability</b>	<b>2,255</b>	<b>18.6</b>	<b>Neurological Disability</b>	<b>489</b>	<b>21.0</b>
Musculoskeletal	23	1.0	Weight	7	1.4
Weight	21	0.9	Musculoskeletal	5	1.0
Vision	8	0.4	Psychiatric	4	0.8
Neurological	2	0.1	Neurological	1	0.2
Any DQ	141	6.3	Any DQ	27	5.5

## History of accession medical waiver among enlisted service members evaluated for disability

AMSARA enlisted waiver records include data on medical waivers considered by each service's waiver authority from 1995 to present. Only waiver applications that occurred prior to the date of medical evaluation board were included in these analyses. In cases where more than one waiver record was available for an individual, only the most recent waiver record was included.

Table 17 shows the history of medical waiver application among enlisted service members evaluated for disability by year of disability evaluation and service. The overall prevalence of an accession medical waiver application was highest in the Army where about 7% of all disability evaluated service members applied for a waiver. Air Force members evaluated for disability had the lowest percentage of service members with an accession medical waiver, less than 3%. In the Navy and Marine Corps the rate of accession medical waiver in the disability evaluated population was approximately 6%.

**TABLE 17: HISTORY OF ACCESSION MEDICAL WAIVER APPLICATIONS AMONG ENLISTED SERVICE MEMBERS EVALUATED FOR DISABILITY BY YEAR OF DISABILITY EVALUATION: FY 2008-2013**

	Army			Navy			Marine Corps			Air Force		
	Waiver App	Total <sup>1</sup>	% <sup>2</sup>	Waiver App	Total <sup>1</sup>	% <sup>2</sup>	Waiver App	Total <sup>1</sup>	% <sup>2</sup>	Waiver App	Total <sup>1</sup>	% <sup>2</sup>
<b>2008</b>	582	10,082	5.8	124	2,459	5.0	100	1,899	5.3	65	3,595	1.8
<b>2009</b>	723	11,271	6.4	131	2,151	6.1	123	1,909	6.4	69	2,757	2.5
<b>2010</b>	750	11,548	6.5	111	2,386	4.7	132	2,414	5.5	63	3,208	2.0
<b>2011</b>	786	11,894	6.6	131	2,345	5.6	174	2,948	5.9	102	3,396	3.0
<b>2012</b>	1,027	14,761	7.0	233	3,562	6.5	262	4,774	5.5	104	3,176	3.3
<b>2013</b>	1,523	22,719	6.7	176	3,066	5.7	232	3,989	5.8	98	2,565	3.8
<b>Total</b>	<b>5,391</b>	<b>82,275</b>	<b>6.6</b>	<b>906</b>	<b>15,969</b>	<b>5.7</b>	<b>1,023</b>	<b>17,933</b>	<b>5.7</b>	<b>501</b>	<b>18,697</b>	<b>2.7</b>

1.Total enlisted individuals evaluated for disability

2.Percent of enlisted disability cases with a history of accession medical wavier application

The leading diagnosis codes listed in medical accession waiver application records of enlisted service members are shown in Tables 18A-18D. Results are shown by year of disability evaluation comparing 2013 disability evaluations to those occurring in the previous five years. Among Army service members evaluated for disability with a waiver, the leading waiver condition in both 2013 and the preceding five years was hearing loss. Among Navy service members evaluated for disability, disorders of refraction and accommodation was most common in 2013, but in the previous five year period slightly more waivers were granted for disorders of bone and cartilage. Non-specific abnormal findings and other diseases of bone and cartilage were the leading reasons Marine Corps personnel sought pre-accession medical waivers, regardless of the time period they became disabled. Among Air Force personnel evaluated for disability in 2013 and 2008-2012, the leading condition for which pre-accession medical waivers were sought was disorders of refraction and accommodation.

**TABLE 18A:** FIVE MOST COMMON ICD-9 DIAGNOSIS CODES FOR ACCESSION MEDICAL WAIVERS CONSIDERED AMONG ENLISTED INDIVIDUALS EVALUATED FOR DISABILITY: **ARMY**, FY 2008-2012 vs. FY 2013

2008-2012			2013		
ICD-9 Diagnosis Code	Count	%	ICD-9 Diagnosis Code	Count	%
Hearing loss	470	12.2	Hearing loss	182	12.0
Disorders of refraction and accommodation	280	7.2	Disorders of refraction and accommodation	139	9.1
Asthma	205	5.3	Elevated blood pressure reading without diagnosis of hypertension	91	6.0
Elevated blood pressure reading without diagnosis of hypertension	201	5.2	Disorders of lipid metabolism	81	5.3
Disorders of lipid metabolism	185	4.8	Asthma	61	4.0
<b>Total Waiver Applications</b>	<b>3,868</b>		<b>Total Waiver Applications</b>	<b>1,523</b>	

**TABLE 18B:** FIVE MOST COMMON ICD-9 DIAGNOSIS CODES FOR ACCESSION MEDICAL WAIVERS CONSIDERED AMONG ENLISTED INDIVIDUALS EVALUATED FOR DISABILITY: **NAVY**, FY 2008-2012 vs. FY 2013

2008-2012			2013		
DoDI Diagnosis Code	Count	%	DoDI Diagnosis Code	Count	%
Other and unspecified disorders of bone and cartilage	61	8.4	Disorders of refraction and accommodation	19	10.8
Disorders of refraction and accommodation	59	8.1	Elevated blood pressure reading without diagnosis of hypertension	11	6.3
Asthma	57	7.8	Asthma	10	5.7
Hearing loss	47	6.4	Hearing loss	10	5.7
<b>Total Waiver Applications</b>	<b>730</b>		<b>Total Waiver Applications</b>	<b>176</b>	

**TABLE 18C:** FIVE MOST COMMON ICD-9 DIAGNOSIS CODES FOR ACCESSION MEDICAL WAIVERS CONSIDERED AMONG ENLISTED INDIVIDUALS EVALUATED FOR DISABILITY: **MARINE CORPS**, FY 2008-2012 vs. FY 2013

2008-2012			2013		
DoDI Diagnosis Code	Count	%	DoDI Diagnosis Code	Count	%
Other and unspecified disorders of bone and cartilage	103	13.0	Other nonspecific abnormal findings	31	13.4
Other nonspecific abnormal findings	84	10.6	Other and unspecified disorders of bone and cartilage	25	10.8
Disorders of refraction and accommodation	75	9.5	Asthma	22	9.5
Asthma	60	7.6	Anxiety, dissociative and somatoform disorders	19	8.2
Essential hypertension	47	5.9	Essential hypertension	14	6.0
<b>Total Waiver Applications</b>	<b>791</b>		<b>Total Waiver Applications</b>	<b>232</b>	

**TABLE 18D:** FIVE MOST COMMON ICD-9 DIAGNOSIS CODES FOR ACCESSION MEDICAL WAIVERS CONSIDERED AMONG ENLISTED INDIVIDUALS EVALUATED FOR DISABILITY: **AIR FORCE**, FY 2008-2012 vs. FY 2013

2008-2012			2013		
ICD-9 Diagnosis Code	Count	%	ICD-9 Diagnosis Code	Count	%
Disorders of refraction and accommodation	48	11.9	Disorders of refraction and accommodation	11	11.2
Reduction of fracture and dislocation	37	9.2	Hyperkinetic syndrome of childhood	8	8.2
Hyperkinetic syndrome of childhood	28	6.9	Asthma	5	5.1
Repair and plastic operations on joint structures	28	6.9	Other derangement of joint	5	5.1
Asthma	23	5.7	Symptoms involving cardiovascular system	4	4.1
<b>Total Waiver Applications</b>	<b>403</b>		<b>Total Waiver Applications</b>	<b>98</b>	

The most prevalent waiver approvals are shown in Tables 19A-19D for each service and by leading disability body systems. Only individuals who were discharged with a service connected disability were included in these tables (i.e. Fit and SWOB dispositions are excluded). Classification of an individual's disability conditions into body system categories is not mutually exclusive and individuals may be included in more than one body system category in cases of multiple disability conditions. Like the disability body system categories, ICD-9 diagnosis waiver types within a body system are not mutually exclusive and an individual is represented in multiple ICD-9 diagnosis categories if he/she has more than one type of medical waiver. Therefore, percentages associated with ICD-9 diagnosis waiver types within each body system should be interpreted as the percent of individuals with discharged with a specific disability type who had each specific waiver type.

Total rate of waiver among individuals disability discharged in 2013 was between 4-5% in all services. From 2008 to 2012 the rate of waiver overall varied from 3% in the Air Force to 7% in the Army. Within each service, the overall waiver rate did not vary significantly by type of disability discharge. Waivers for musculoskeletal conditions were most common in all services. Hearing waivers were the second most common waiver type in the Army, while psychiatric waivers were second most common in the Navy, Marine Corps, and Air Force. In all services, the leading reasons for waiver, described using ICD-9 diagnoses, did not vary based on the body system evaluated for disability.

**TABLE 19A: MOST PREVALENT ACCESSION MEDICAL WAIVER TYPES WITHIN LEADING DISABILITY BODY SYSTEM CATEGORIES: ARMY, FY 2008-2012 vs. FY 2013**

2008-2012			2013		
	Count	%		Count	%
<b>Total Individuals Discharged</b>	<b>59,167</b>		<b>Total Individuals Discharged</b>	<b>23,766</b>	
Musculoskeletal	922	1.6	Musculoskeletal	204	0.9
Hearing	429	0.7	Hearing	117	0.5
Psychiatric	356	0.6	Psychiatric	104	0.4
Any Waiver	4,078	6.9	Any Waiver	1,132	4.8
<b>Musculoskeletal Disability</b>	<b>38,900</b>	<b>65.7</b>	<b>Musculoskeletal Disability</b>	<b>16,777</b>	<b>70.6</b>
Musculoskeletal	746	1.9	Musculoskeletal	204	1.2
Hearing	256	0.7	Hearing	117	0.7
Psychiatric	236	0.6	Psychiatric	104	0.6
Any Waiver	2,894	7.4	Any Waiver	1,132	6.7
<b>Psychiatric Disability</b>	<b>18,189</b>	<b>30.7</b>	<b>Psychiatric Disability</b>	<b>10,089</b>	<b>42.5</b>
Musculoskeletal	193	1.1	Musculoskeletal	86	0.9
Hearing	145	0.8	Hearing	70	0.7
Psychiatric	128	0.7	Psychiatric	64	0.6
Any Waiver	1,089	6.0	Any Waiver	606	6.0
<b>Neurological Disability</b>	<b>11,940</b>	<b>20.2</b>	<b>Neurological Disability</b>	<b>5,776</b>	<b>24.3</b>
Musculoskeletal	157	1.3	Musculoskeletal	56	1.0
Hearing	97	0.8	Hearing	43	0.7
Psychiatric	66	0.6	Vision	36	0.6
Neurological	15	0.1	Neurological	4	0.1
Any Waiver	753	6.3	Any Waiver	367	6.4

**TABLE 19B: MOST PREVALENT ACCESSION MEDICAL WAIVER TYPES WITHIN LEADING DISABILITY BODY SYSTEM CATEGORIES: NAVY, FY 2008-2012 vs. FY 2013**

2008-2012			2013		
	Count	%		Count	%
<b>Total Individuals Discharged</b>	<b>12,903</b>		<b>Total Individuals Discharged</b>	<b>3,066</b>	
Musculoskeletal	145	1.1	Musculoskeletal	30	1.0
Respiratory	50	0.4	Psychiatric	17	0.6
Vision	50	0.4	Vision	16	0.5
Any Waiver	558	4.3	Any Waiver	156	5.1
<b>Musculoskeletal Disability</b>	<b>4,299</b>	<b>33.3</b>	<b>Musculoskeletal Disability</b>	<b>1,097</b>	<b>35.8</b>
Musculoskeletal	97	2.3	Musculoskeletal	20	1.8
Vision	25	0.6	Psychiatric	6	0.5
Hearing	21	0.5	Respiratory	6	0.5
Any Waiver	283	6.6	Any Waiver	69	6.3
<b>Psychiatric Disability</b>	<b>2,451</b>	<b>19.0</b>	<b>Psychiatric Disability</b>	<b>838</b>	<b>27.3</b>
Musculoskeletal	20	0.8	Psychiatric	8	1.0
Respiratory	13	0.5	Vision	8	1.0
Psychiatric	11	0.4	Musculoskeletal	5	0.6
Any Waiver	113	4.6	Any Waiver	50	6.0
<b>Neurological Disability</b>	<b>2,112</b>	<b>16.4</b>	<b>Neurological Disability</b>	<b>539</b>	<b>17.6</b>
Musculoskeletal	17	0.8	Musculoskeletal	9	1.7
Respiratory	11	0.5	Psychiatric	7	1.3
Psychiatric	9	0.4	Hearing	4	0.7
Neurological	3	0.1	Neurological	0	0.0
Any Waiver	114	5.4	Any Waiver	41	7.6

**TABLE 19C: MOST PREVALENT ACCESSION MEDICAL WAIVER TYPES WITHIN LEADING DISABILITY BODY SYSTEM CATEGORIES: MARINE CORPS, FY 2008-2012 vs. FY 2013**

2008-2012			2013		
	Count	%		Count	%
<b>Total Individuals Discharged</b>	<b>13,944</b>		<b>Total Individuals Discharged</b>	<b>3,989</b>	
Musculoskeletal	198	1.4	Musculoskeletal	53	1.3
Psychiatric	84	0.6	Psychiatric	39	1.0
Vision	66	0.5	Respiratory	22	0.6
Any Waiver	700	5.0	Any Waiver	215	5.4
<b>Musculoskeletal</b>	<b>7,108</b>	<b>51.0</b>	<b>Musculoskeletal</b>	<b>1,953</b>	<b>49.0</b>
Musculoskeletal	138	1.9	Musculoskeletal	38	1.9
Psychiatric	48	0.7	Psychiatric	22	1.1
Vision	37	0.5	Respiratory	8	0.4
Any Waiver	430	6.0	Any Waiver	124	6.3
<b>Psychiatric</b>	<b>2,952</b>	<b>21.2</b>	<b>Psychiatric</b>	<b>1,420</b>	<b>35.6</b>
Musculoskeletal	40	1.4	Musculoskeletal	20	1.4
Psychiatric	19	0.6	Psychiatric	15	1.1
Vision	15	0.5	Respiratory	10	0.7
Any Waiver	136	4.6	Any Waiver	79	5.6
<b>Neurological</b>	<b>2,853</b>	<b>20.5</b>	<b>Neurological</b>	<b>851</b>	<b>21.3</b>
Musculoskeletal	44	1.5	Musculoskeletal	10	1.2
Psychiatric	15	0.5	Psychiatric	7	0.8
Respiratory	15	0.5	Respiratory	5	0.6
Neurological	0	0.0	Neurological	0	0.0
Any Waiver	165	5.8	Any Waiver	36	4.2

**TABLE 19D: MOST PREVALENT ACCESSION MEDICAL WAIVER TYPES WITHIN LEADING DISABILITY BODY SYSTEM CATEGORIES: AIR FORCE, FY 2008-2012 vs. FY 2013**

2008-2012			2013		
	Count	%		Count	%
<b>Total Individuals Discharged</b>	<b>12,146</b>		<b>Total Individuals Discharged</b>	<b>2,334</b>	
Musculoskeletal	63	0.5	Musculoskeletal	15	0.6
Psychiatric	48	0.4	Psychiatric	13	0.6
Vision	44	0.4	Vision	13	0.6
Any Waiver	403	3.3	Any Waiver	98	4.2
<b>Musculoskeletal Disability</b>	<b>5,930</b>	<b>48.8</b>	<b>Musculoskeletal Disability</b>	<b>1,289</b>	<b>55.2</b>
Musculoskeletal	35	0.6	Musculoskeletal	10	0.8
Psychiatric	23	0.4	Vision	7	0.5
Vision	19	0.3	Psychiatric	6	0.5
Any Waiver	171	2.9	Any Waiver	54	4.2
<b>Psychiatric Disability</b>	<b>2,943</b>	<b>24.2</b>	<b>Psychiatric Disability</b>	<b>629</b>	<b>26.9</b>
Musculoskeletal	16	0.5	Psychiatric	5	0.8
Vision	16	0.5	Vision	5	0.8
Psychiatric	12	0.4	Musculoskeletal	3	0.5
Any Waiver	99	3.4	Any Waiver	22	3.5
<b>Neurological Disability</b>	<b>2,255</b>	<b>18.6</b>	<b>Neurological Disability</b>	<b>489</b>	<b>21.0</b>
Musculoskeletal	8	0.4	Psychiatric	2	0.4
Psychiatric	8	0.4	Respiratory	1	0.2
Vision	7	0.3	Weight	1	0.2
Neurological	1	0.0	Neurological	1	0.2
Any Waiver	61	2.7	Any Waiver	15	3.1

### History of hospitalization among active duty service members evaluated for disability

Hospitalization records received by AMSARA include data on direct care inpatient visits among active duty service members from 1995 to present. Only hospitalizations that occurred prior to the date of medical evaluation board were included in these analyses. All hospitalizations that occurred among individuals who were later evaluated for disability were included in these analyses. Only the diagnoses listed as primary in the hospitalization record were utilized in the creation of these tables.

Table 20 shows the history of hospitalization among service members evaluated for disability by year of disability evaluation and service. Over time, the prevalence of hospitalization in the disability evaluated population has remained stable. In 2012, Navy and Marine Corps hospitalization rates increased slightly over previous years. Army hospitalization rates decreased slightly in 2013 relative to previous years. The Air Force and Army had lower percentages of service members evaluated for disability that had been hospitalized. Hospitalization rates were highest in the Navy and Marine Corps.

**TABLE 20: HISTORY OF HOSPITALIZATION BY YEAR OF DISABILITY EVALUATION: FY 2008-2013**

	Army			Navy			Marines Corps			Air Force		
	Hosp	Total*	%	Hosp	Total*	%	Hosp	Total*	%	Hosp	Total*	%
<b>2008</b>	3,279	10,445	31.4	1,394	3,506	39.8	1,076	2,765	38.9	962	3,488	27.6
<b>2009</b>	4,132	11,680	35.4	1,083	2,724	39.8	1,029	2,606	39.5	861	2,622	32.8
<b>2010</b>	3,524	10,819	32.6	969	2,298	42.2	950	2,413	39.4	986	3,032	32.5
<b>2011</b>	3,134	10,256	30.6	798	1,984	40.2	1,021	2,557	39.9	994	3,128	31.8
<b>2012</b>	3,850	11,905	32.3	1,375	3,085	44.6	1,645	3,853	42.7	864	2,969	29.1
<b>2013</b>	5,676	22,447	25.3	1,073	2,506	42.8	1,220	3,096	39.4	763	2,385	32.0
<b>Total</b>	<b>23,595</b>	<b>77,552</b>	<b>30.4</b>	<b>6,692</b>	<b>16,103</b>	<b>41.6</b>	<b>6,941</b>	<b>17,290</b>	<b>40.1</b>	<b>5,430</b>	<b>17,624</b>	

\* Total disability evaluations

The most common primary diagnoses at hospitalization for service members evaluated for disability are shown in Tables 21A-21D. Psychiatric disorders were the leading reason for hospitalization among individuals evaluated for disability in 2013 in all services. In the Army and Marine Corps, adjustment disorders were the most common reason for hospitalization of individuals evaluated for disability in 2013 as well as those evaluated for disability in the previous five year period. Affective psychoses were the most common reason for hospitalization in 2013 Navy disability evaluations and evaluations in the previous five year period. In the Air Force, the most common reason for hospitalization in 2013 was affective psychoses followed closely by childbirth. In the previous five year period, hospitalizations due to childbirth were a more common reason for hospitalization than affective psychoses.

**TABLE 21A:** FIVE MOST COMMON ICD-9 PRIMARY DIAGNOSIS CODES FOR HOSPITALIZATIONS AMONG ACTIVE DUTY DISABILITY EVALUATIONS: **ARMY**, FY 2008-2012 vs. FY 2013

2008-2012			2013		
ICD-9 Diagnosis Code	Count	%	ICD-9 Diagnosis Code	Count	%
Adjustment disorders	1,136	6.4	Adjustment disorders	496	8.2
Episodic mood disorders	884	5.0	Episodic mood disorders	283	4.7
Intervertebral disc disorders	696	3.9	Intervertebral disc disorders	235	3.9
Symptoms involving respiratory system and other chest symptoms	404	2.3	Symptoms involving respiratory system and other chest symptoms	167	2.8
Other cellulitis and abscess	302	1.7	Acute appendicitis	129	2.1
<b>Total DES Hospitalized</b>	<b>17,682</b>		<b>Total DES Hospitalized</b>	<b>6,041</b>	

**TABLE 21B:** FIVE MOST COMMON ICD-9 PRIMARY DIAGNOSIS CODES FOR HOSPITALIZATIONS AMONG ACTIVE DUTY DISABILITY EVALUATIONS: **NAVY**, FY 2008-2012 vs. FY 2013

2008-2012			2013		
ICD-9 Diagnosis Code	Count	%	ICD-9 Diagnosis Code	Count	%
Episodic mood disorders	552	9.8	Episodic mood disorders	98	9.1
Adjustment disorders	313	5.6	Adjustment disorders	93	8.7
Trauma to perineum and vulva during delivery	275	4.9	Trauma to perineum and vulva during delivery	60	5.6
Intervertebral disc disorders	254	4.5	Intervertebral disc disorders	46	4.3
Schizophrenic disorders	207	3.7	Anxiety, dissociative and somatoform disorders	43	4.0
<b>Total DES Hospitalized</b>	<b>5,619</b>		<b>Total DES Hospitalized</b>	<b>1,073</b>	

**TABLE 21C: FIVE MOST COMMON ICD-9 PRIMARY DIAGNOSIS CODES FOR HOSPITALIZATIONS AMONG ACTIVE DUTY DISABILITY EVALUATIONS: MARINE CORPS, FY 2008-2012 vs. FY 2013**

2008-2012			2013		
ICD-9 Diagnosis Code	Count	%	ICD-9 Diagnosis Code	Count	%
Adjustment disorders	410	7.2	Adjustment disorders	104	8.5
Episodic mood disorders	404	7.1	Episodic mood disorders	69	5.7
Fracture of tibia and fibula	193	3.4	Traumatic amputation of leg(s)	67	5.5
Other complications of procedures, not elsewhere classified	191	3.3	Intervertebral disc disorders	51	4.2
Other cellulitis and abscess	173	3.0	Other complications of procedures, not elsewhere classified	50	4.1
<b>Total DES Hospitalized</b>	<b>5,721</b>		<b>Total DES Hospitalized</b>	<b>1,220</b>	

**TABLE 21D: FIVE MOST COMMON ICD-9 PRIMARY DIAGNOSIS CODES FOR HOSPITALIZATIONS AMONG ACTIVE DUTY DISABILITY EVALUATIONS: AIR FORCE, FY 2008-2011 vs. FY 2013**

2008-2012			2013		
ICD-9 Diagnosis Code	Count	%	ICD-9 Diagnosis Code	Count	%
Trauma to perineum and vulva during delivery	292	6.3	Affective psychoses	81	10.6
Affective psychoses	247	5.3	Trauma to perineum and vulva during delivery	76	10.0
Intervertebral disc disorders	182	3.9	Adjustment reaction	45	5.9
Symptoms involving respiratory system and other chest symptoms	159	3.4	General symptoms	45	5.9
Adjustment reaction	151	3.2	Intervertebral disc disorders	36	4.7
<b>Total DES Hospitalized</b>	<b>4,667</b>		<b>Total DES Hospitalized</b>	<b>763</b>	

The most prevalent primary medical diagnoses at hospitalization are shown in Tables 22A-22D for each service and by leading disability body systems. Only individuals who were discharged with a service connected disability were included in these tables (i.e. Fit and SWOB dispositions are excluded). Classification of an individual's disability conditions into body system categories is not mutually exclusive and individuals may be included in more than one body system category in cases of multiple disability conditions. Like the disability body system categories, ICD-9 diagnosis types at hospitalization within a body system are not mutually exclusive and an individual is represented in multiple ICD-9 diagnosis categories if he/she has more than one type of medical diagnosis at hospitalization. Therefore, percentages associated with ICD-9 diagnosis types at hospitalization within each body system should be interpreted as the percent of individuals with discharged with a specific disability type who had each specific condition type at hospitalization.

Total rate of hospitalization among individuals disability discharged in 2013 varied from 25% in the Army to 48% in the Marine Corps. From 2008 to 2012, the rate of hospitalization varied from 28% in Army to 42% in the Air Force. In all services, the rates of hospitalization were lowest in individuals discharged with a musculoskeletal condition. More concordance was observed between the reason for hospitalization and the reason for disability discharge than was observed with either medical disqualifications or waivers, especially among those with musculoskeletal or psychiatric conditions. In 2013, the percentage of musculoskeletal disability cases with a history of hospitalization for a musculoskeletal condition varied from 7% in the Army to 24% in the Marine Corps. Rates of psychiatric hospitalizations varied from 9.5% of psychiatric disability discharges in the Army to 34% of psychiatric disability discharges in the Navy in 2013. Similar trends in the rate of hospitalization by body system type were observed in the previous five year period though considerable variation was observed by service.

## DES Analysis and Research Annual Report 2014

**TABLE 22A: MOST PREVALENT HOSPITALIZATION ICD-9 CATEGORIES WITHIN LEADING DISABILITY BODY SYSTEM CATEGORIES: ARMY, FY 2008-2012 vs. FY 2013**

2008-2012			2013		
	Count	%		Count	%
<b>Total Individuals Discharged</b>	<b>59,167</b>		<b>Total Individuals Discharged</b>	<b>23,766</b>	
Musculoskeletal	4,055	6.9	Musculoskeletal	1,292	5.4
Psychiatric	2,936	5.0	Psychiatric	1,167	4.9
Respiratory	635	1.1	Neurological	212	0.9
Any Hospitalization	16,251	27.5	Any Hospitalization	5,997	25.2
<b>Musculoskeletal Disability</b>	<b>38,900</b>	<b>65.7</b>	<b>Musculoskeletal Disability</b>	<b>16,777</b>	<b>70.6</b>
Musculoskeletal	3,602	9.3	Musculoskeletal	1,185	7.1
Psychiatric	1,071	2.8	Psychiatric	518	3.1
Respiratory	352	0.9	Neurological	139	0.8
Any Hospitalization	10,165	26.1	Any Hospitalization	4,015	23.9
<b>Psychiatric Disability</b>	<b>18,189</b>	<b>30.7</b>	<b>Psychiatric Disability</b>	<b>10,089</b>	<b>42.5</b>
Psychiatric	2,438	13.4	Psychiatric	960	9.5
Musculoskeletal	1,139	6.3	Musculoskeletal	462	4.6
Respiratory	196	1.1	Neurological	86	0.9
Any Hospitalization	6,763	37.2	Any Hospitalization	2,801	27.8
<b>Neurological Disability</b>	<b>11,940</b>	<b>20.2</b>	<b>Neurological Disability</b>	<b>5,776</b>	<b>24.3</b>
Musculoskeletal	1,151	9.6	Musculoskeletal	388	6.7
Psychiatric	439	3.7	Psychiatric	204	3.5
Neurological	371	3.1	Neurological	121	2.1
Any Hospitalization	4,202	35.2	Any Hospitalization	1,641	28.4

**TABLE 22B: MOST PREVALENT HOSPITALIZATION ICD-9 CATEGORIES WITHIN LEADING DISABILITY BODY SYSTEM CATEGORIES: NAVY, FY 2008-2012 vs. FY 2013**

2008-2012			2013		
	Count	%		Count	%
<b>Total Individuals Discharged</b>	<b>13,597</b>		<b>Total Individuals Discharged</b>	<b>2,506</b>	
Psychiatric	1,025	7.5	Psychiatric	345	13.8
Musculoskeletal	979	7.2	Musculoskeletal	237	9.5
Neurological	290	2.1	Neurological	92	3.7
Any Hospitalization	4,279	31.5	Any Hospitalization	1,184	47.2
<b>Musculoskeletal Disability</b>	<b>4,137</b>	<b>30.4</b>	<b>Musculoskeletal Disability</b>	<b>1,077</b>	<b>43.0</b>
Musculoskeletal	755	18.2	Musculoskeletal	177	16.4
Psychiatric	122	2.9	Psychiatric	41	3.8
Neurological	82	2.0	Neurological	23	2.1
Any Hospitalization	1,468	35.5	Any Hospitalization	388	36.0
<b>Psychiatric Disability</b>	<b>2,434</b>	<b>17.9</b>	<b>Psychiatric Disability</b>	<b>857</b>	<b>34.2</b>
Psychiatric	846	34.8	Psychiatric	290	33.8
Musculoskeletal	112	4.6	Vision	43	5.0
Neurological	37	1.5	Musculoskeletal	25	2.9
Any Hospitalization	1,299	53.4	Any Hospitalization	469	54.7
<b>Neurological Disability</b>	<b>2,116</b>	<b>15.6</b>	<b>Neurological Disability</b>	<b>555</b>	<b>22.1</b>
Musculoskeletal	232	11.0	Musculoskeletal	65	11.7
Neurological	205	9.7	Neurological	58	10.5
Psychiatric	81	3.8	Psychiatric	36	6.5
Any Hospitalization	939	44.4	Any Hospitalization	265	47.7

## DES Analysis and Research Annual Report 2014

**TABLE 22C: MOST PREVALENT HOSPITALIZATION ICD-9 CATEGORIES WITHIN LEADING DISABILITY BODY SYSTEM CATEGORIES: MARINE CORPS, FY 2008-2012 vs. FY 2013**

2008-2012			2013		
	Count	%		Count	%
<b>Total Individuals Discharged</b>	<b>14,194</b>		<b>Total Individuals Discharged</b>	<b>3,096</b>	
Musculoskeletal	2,088	14.7	Musculoskeletal	543	17.5
Psychiatric	932	6.6	Psychiatric	344	11.1
Neurological	255	1.8	Neurological	75	2.4
Any Hospitalization	4,858	34.2	Any Hospitalization	1,494	48.3
<b>Musculoskeletal Disability</b>	<b>6,765</b>	<b>47.7</b>	<b>Musculoskeletal Disability</b>	<b>1,876</b>	<b>60.6</b>
Musculoskeletal	1,747	25.8	Musculoskeletal	453	24.1
Psychiatric	181	2.7	Psychiatric	70	3.7
Dermatological	126	1.9	Dermatological	47	2.5
Any Hospitalization	2,571	38.0	Any Hospitalization	762	40.6
<b>Psychiatric Disability</b>	<b>2,783</b>	<b>19.6</b>	<b>Psychiatric Disability</b>	<b>1,388</b>	<b>44.8</b>
Psychiatric	752	27.0	Psychiatric	298	21.5
Musculoskeletal	373	13.4	Musculoskeletal	180	13.0
Dermatological	57	2.0	Respiratory	30	2.2
Any Hospitalization	1,451	52.1	Any Hospitalization	660	47.6
<b>Neurological Disability</b>	<b>2,745</b>	<b>19.3</b>	<b>Neurological Disability</b>	<b>843</b>	<b>27.2</b>
Musculoskeletal	561	20.4	Musculoskeletal	137	16.3
Neurological	161	5.9	Psychiatric	53	6.3
Psychiatric	127	4.6	Neurological	42	5.0
Any Hospitalization	1,267	46.2	Any Hospitalization	359	42.6

**TABLE 22D: MOST PREVALENT HOSPITALIZATION ICD-9 CATEGORIES WITHIN LEADING DISABILITY BODY SYSTEM CATEGORIES: AIR FORCE, FY 2008-2012 vs. FY 2013**

2008-2012			2013		
	Count	%		Count	%
<b>Total Individuals Discharged</b>	<b>11,178</b>		<b>Total Individuals Discharged</b>	<b>2,159</b>	
Musculoskeletal	576	5.2	Psychiatric	175	8.1
Psychiatric	458	4.1	Musculoskeletal	133	6.2
Neurological	158	1.4	Neurological	53	2.5
Any Hospitalization	4,667	41.8	Any Hospitalization	763	35.3
<b>Musculoskeletal Disability</b>	<b>5,304</b>	<b>47.5</b>	<b>Musculoskeletal Disability</b>	<b>1,176</b>	<b>54.5</b>
Musculoskeletal	447	8.4	Musculoskeletal	104	8.8
Psychiatric	82	1.5	Psychiatric	33	2.8
Respiratory	57	1.1	Neurological	24	2.0
Any Hospitalization	1,925	36.3	Any Hospitalization	433	36.8
<b>Psychiatric Disability</b>	<b>2,717</b>	<b>24.3</b>	<b>Psychiatric Disability</b>	<b>578</b>	<b>26.8</b>
Psychiatric	381	14.0	Psychiatric	145	25.1
Musculoskeletal	100	3.7	Musculoskeletal	39	6.7
Respiratory	33	1.2	Neurological	21	3.6
Any Hospitalization	1,071	39.4	Any Hospitalization	380	65.7
<b>Neurological Disability</b>	<b>2,105</b>	<b>18.8</b>	<b>Neurological Disability</b>	<b>439</b>	<b>20.3</b>
Musculoskeletal	121	5.7	Musculoskeletal	37	8.4
Neurological	92	4.4	Neurological	28	6.4
Psychiatric	40	1.9	Psychiatric	20	4.6
Any Hospitalization	858	40.8	Any Hospitalization	229	52.2

## Database Limitations

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- Data utilized in the generation of this report were initially collected for purposes of supporting the Accession Medical Standards Working Group (AMSWG) in the development of evidence-based medical accession standards to reduce morbidity and attrition due to pre-existing conditions. Data use agreements reflected data elements and study populations to support this research and required revision to support DES database analysis. Therefore, not all data elements were available for the full study period for all services.
- Military Occupational Specialty (MOS) at disability evaluation is only complete for Army for the full study period. The Department of the Navy collects information regarding MOS, but this variable was not included in the initial data extracts that were sent to AMSARA. MOS has been associated with disability in both civilian and military literature and is essential to understanding the precise risk factors associated with disability evaluation, separation, and retirement in the military.
- Medical Evaluation Board (MEB) ICD-9 diagnosis codes of the medical condition that precipitated the disability evaluation are not included in any of the service disability datasets received by AMSARA. Veterans Affairs Schedule for Rating Disabilities (VASRD) codes give an indication of the unfitting conditions referred to the Physical Evaluation Board (PEB), but do not contain the level of detail available when diagnoses are coded using ICD-9 codes.
- While the majority of disability evaluations had an accession record in the AMSARA databases, some who undergo disability evaluation do not have an accession record in AMSARA databases. This may limit the ability to study the relationship between characteristics of service members at accession and disability evaluation, separation, and retirement in detail.
- None of the VASRD codes associated with medical conditions for which service members are evaluated for disability is identified as primary in the databases. Therefore, it cannot be determined which condition was the primary condition which precipitated disability evaluation and the impact and prevalence of some conditions in the population may be incorrectly characterized.

LIMITATIONS

## Data Quality and Standardization Recommendations

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1. Accurate indicators of the medical conditions that result in disability rating are not available, precluding surveillance of or evaluation of conditions which lead to disability. Though Veterans Affairs Schedule for Rating Disabilities (VASRD) codes are available, they are not diagnosis codes. To allow for more accurate surveillance of the burden of disability in the military, each service's DES database should include one or more Medical Evaluation Board (MEB) diagnoses in the electronic disability record, in the form of text and ICD-9 codes.
2. To ensure Military Occupational Specialty (MOS) and education are accurate at the time of disability evaluation, each service's DES database should record these variables at the time of disability evaluation. This will allow for the evaluation of the role of MOS and education on disability evaluation, separation, and retirement, including changes in these characteristics throughout length of service.
3. Date of the underlying injury or onset of the condition is an important variable to consider when utilizing disability evaluation system data, allowing for the measurement of time elapsed from onset to MEB to Physical Evaluation Board (PEB) to discharge. Though healthcare utilization patterns can be determined from hospitalization and ambulatory data, the precise date of the event, onset of symptoms, or initial diagnosis is difficult to infer from the data available. Each service should include additional variables within to indicate date of onset of illness or injury and whether medical condition for which a service member is undergoing disability.
4. High utilization of analogous codes, particularly among individuals with musculoskeletal disabilities, and lack of formal MEB medical diagnosis in the electronic file preclude the evaluation of the association of certain types of disability with specific medical conditions. In the absence of formal medical diagnoses that describe the disabling condition, expanding the VASRD codes, particularly musculoskeletal codes, may reduce the utilization of analogous codes and provide more complete information on the condition that precipitated the disability evaluation to inform interventions to decrease disability.

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## Special Studies

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### Epidemiology of Major Depressive Disorder Disability in the U.S. Military: FY 2007-2012

#### Background

Major Depressive Disorder (MDD) affects between 9% [1] and 16% [2] of adults in the US resulting in a significant financial and occupational burden for both individuals and employers. The US Department of Veteran Affairs has reported that MDD is the second most common service-related disability under the category of mental disorders, and its prevalence has increased each year since 2008 [3-7]. Given this and the fact that depression has been linked to attrition [8] and comorbidity [2, 9, 10] as well as significantly more sick days [11, 12], lower productive time [13], and increased health-related costs [13-16], it is understandably of interest to the military.

#### Methods

Service members with a disability evaluation record indicating Major Depressive Disorder (MDD) disability were assessed using a cross-sectional study design. Included in the study were all active duty, enlisted, Army, Navy, Marine Corps and Air Force service members who received a disability evaluation by the US Army Physical Disability Agency, the US Navy Council of Review Boards or the U.S. Air Force Physical Disability Division between October 1, 2006 and September 30, 2012 (i.e. FY 2007 to FY 2012). Service members assessed for MDD disability at their first evaluation but not at their most recent evaluation were excluded from the study. MDD cases reflected those who had a Veterans Affairs Schedule for Rating Disabilities (VASRD) code of 9434, either alone or in combination with other codes, as determined by the PEB.

#### Results

From fiscal year (FY) 2007 to 2012 there were 2,882 individuals, across all services, who received an MDD disability discharge. Of those, 1,777 were in the Army, 263 in the Navy, 113 in the Marine Corps and 729 in the Air Force. The rate of MDD related disability retirement per 100,000 service members increased significantly in all services except the Marine Corps (see Table 23). The Army had the most rapid rise in MDD disability retirement with each FY showing at least a 23% year over year increase.

**TABLE 23: RATE OF MDD RELATED DISABILITY RETIREMENT PER 100,000 SERVICE MEMBER BY FY OF DISABILITY DISPOSITION AND SERVICE**

	<b>Army</b> (n=535)	<b>Navy</b> (n=33)	<b>Marine Corps</b> (n=23)	<b>Air Force</b> (n=330)
<b>2007</b>	0.5	1.1	1.2	3.0
<b>2008</b>	4.2	0	2.2	8.1
<b>2009</b>	15.3	1.8	2.2	6.5
<b>2010</b>	23.3	2.2	3.9	8.7
<b>2011</b>	28.9	4.9	1.1	16.3
<b>2012</b>	44.5	2.3	2.3	24.6
<b>Trend (Z statistic)</b>	17.3 <sup>***</sup>	2.9	0.36	7.8 <sup>***</sup>

p-value: \*<0.05, \*\*<0.001, \*\*\*<0.0001

The majority of the study participants were male, less than 25 when they accessed into the military, white, retired, experienced at least one deployment and had at least one comorbid condition (see Table 24). Females had a higher incidence rate ratio (IRR) of MDD disability evaluation across all services with IRRs ranging from 1.91 (95% Confidence Interval (CI): 1.39-2.61) in the Army to 2.74 (95% CI: 1.44-5.17) in the Navy. Older age at accession ( $\geq 25$  years) appeared significantly protective against MDD disability evaluation in the Air Force (IRR: 0.19, 95% CI: 0.09-0.40). There was a significantly higher IRR of MDD disability evaluation among service members who experienced at least one deployment in the Army (IRR: 13.37, 95% CI: 8.68-20.50), Navy (IRR: 4.31, 95% CI: 2.29-8.12), Marine Corps (IRR: 3.38, 95% CI: 1.55-7.36) and Air Force (IRR: 6.79, 95% CI: 4.59-10.00).

**TABLE 24: DEMOGRAPHIC AND SERVICE CHARACTERISTICS OF MDD DISABILITY CASES BY SERVICE**

	<b>Army</b> (n=1,777)			<b>Navy</b> (n=263)			<b>Marine Corps</b> (n=113)			<b>Air Force</b> (n=729)		
	Rate*	IRR	95% CI	Rate*	IRR	95% CI	Rate*	IRR	95% CI	Rate*	IRR	95% CI
<b>Sex</b>												
Female	112	1.9	1.4-2.6	35	2.7	1.4-5.2	21	2.2	1.0-4.5	83	2.7	1.8-4.1
Male (ref)	58	1.0	-	13	1.0	-	10	1.0	-	30	1.0	-
<b>Age at Accession</b>												
< 25 (ref)	47	1.0	-	17	1.0	-	10	1.0	-	44	1.0	-
≥ 25	61	1.3	0.9-1.9	10	0.6	0.3-1.3	9	0.8	0.3-1.9	9	0.2	0.1-0.4
Missing	21%			8%			3%			33%		
<b>Race</b>												
White (ref)	67	1.0	-	18	1.0	-	9	1.0	-	42	1.0	-
Black	60	0.9	0.7-1.2	13	0.7	0.4-1.5	10	1.0	0.5-2.0	35	0.8	0.6-1.3
Other	137	2.1	1.5-2.7	18	1.0	0.5-2.0	42	4.5	2.2-9.0	52	1.2	0.8-1.8
<b>Retired</b>												
Yes	20	2.7	1.2-6.4	2	0.2	0.04-1.0	2	0.4	0.1-1.8	11	1.6	0.6-3.9
No (ref)	7	1.0	-	10	1.0	-	6	1.0	-	7	1.0	-
<b>Deployment</b>												
Yes	290	13.4	8.7-20.5	50	4.3	2.3-8.1	27	3.4	1.6-7.4	193	6.8	4.6-10.0
No (ref)	22	1.0	-	12	1.0	-	8	1.0	-	28	1.0	-
<b>Comorbidity</b>												
Yes	44	2.0	1.2-3.4	16	0.5	0.3-1.0	3	0.3	0.1-1.3	4	0.3	0.1-0.8
No (ref)	22	1.0	-	29	1.0	-	8	1.0	-	13	1.0	-

\*Rate per 100,000 service members

Table 25 shows the most common comorbid disability categories for MDD disability evaluation cases for all services. Among MDD disability cases, the primary comorbid condition, across all services, was dorsopathies. Further consistencies show posttraumatic stress disorder and arthritis in the top five comorbid conditions in all services.

**TABLE 25: MOST COMMON COMORBID DISABILITY CONDITIONS IN MDD DISABILITY CASES BY SERVICE**

Army (n=1,777)		Navy (n=263)		Marine Corps (n=113)		Air Force (n=729)	
Condition	%*	Condition	%*	Condition	%*	Condition	%*
Dorsopathies	37	Dorsopathies	5	Dorsopathies	9	Dorsopathies	11
Posttraumatic stress disorder	22	Posttraumatic stress disorder	3	Arthritis	6	Arthritis	6
Limitation of motion	18	Arthritis	3	Posttraumatic stress disorder	4	Posttraumatic stress disorder	5
Arthritis	11	Noninfectious enteritis and colitis	2	Joint disorders or inflammation	3	Anxiety disorder	5
Migraine	6	Migraine	2	Residuals of traumatic brain injury	3	Limitation of motion	4

\*Indicates the percent of MDD disability cases with each comorbid disability condition

## Discussion

In both the Army and Air Force, the incidence of MDD disability retirement increased significantly. Findings also show similarities regarding higher incidence rate of MDD disability evaluation among females and those who experienced at least one deployment as well as numerous parallel comorbid categories. However, inconsistencies were found with regard to the remaining demographic characteristics assessed – age, race, retirement and comorbidity. Even as such, results are in line with current literature. Previous studies that explored depression among active duty service members repeatedly show significant positive associations between MDD and female sex [17-21]; some studies also report a significant positive association between MDD and deployment [8, 10, 22]. Furthermore, results are conflicting with regard to age as studies found an association between MDD and older age [18] as well as younger age [17, 23]. Findings from this study add to the existing literature by providing incident, demographic and comorbidity data on the increasing MDD disability population in all services of the military.

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## Variations in Deployment History, Frequency and Total Time Deployed among Navy and Air Force Service Members with a Musculoskeletal Disability: FY 2003-2012

### Background

With recent military operations in Afghanistan (Operation Enduring Freedom) and Iraq (Operation Iraqi Freedom/New Dawn), the United States Government and other key interest groups have shown concern over the adverse health effects that may result from the high volume of deployments on the military population [1, 2]. Previous studies of military populations have shown musculoskeletal (MSK) conditions are a common reason for both inpatient and outpatient medical encounters [3]. MSK conditions are also among the most common reported diagnoses for military personnel returning from deployment, and are the number one cause of medical evacuation from theater [4].

Despite the concerns over the risk of MSK injury among deployed service members, the effects of repeated and longer lengths of deployments on MSK injury in the military population remain poorly understood. The primary objective of this study was to describe relationships between deployment, comorbidity, and disability retirement among service members evaluated for the most common type of disability, MSK disability. The study examines the relationship between deployment history, including number of deployments and cumulative months deployed and MSK disability. In addition, the study examines the interrelationship between comorbidity and deployment history as predictors of disability retirement in the MSK disability population.

### Methods

All subjects were enlisted, active duty service members in the Navy and Air Force who received an evaluation for a musculoskeletal disability. Subjects were excluded if placed on temporary disability retirement list (TDRL) with a MSK condition at their first disability evaluation but not at their last (n=1374 subjects). Personnel with deployment begin date which occurred after the disability disposition date and those with a deployment in a service different to the disability evaluation service were excluded from the study.

Information on history of disability was acquired through service specific DES databases. Disability evaluation records include demographic characteristics of the service member at the time of disability evaluation, the date of the evaluation and the conditions for which the service member was deemed unfit for continued service defined using Veterans Affairs Schedule for Rating Disabilities (VASRD) codes, and disability rating. Only records of the first disability evaluation were used in this analysis. Retirement status was classified based on final disposition. Comorbidity was defined as having a musculoskeletal disability as well as one or more separately unfitting disability condition.

Data on history of deployments was provided by the Defense Manpower Data Center (DMDC) Contingency Tracking System. The deployment file was merged to the disability dataset, and after examining the distribution of each exposure variable, deployment exposure categories were defined as ever deployed (Yes/No), number of deployments (1, 2, and 3 or more), and length of deployments (<6months, 6-12 months, 12+ months). Total time spent deployed was calculated as a summation of time elapsed from the begin date and end date of all completed deployments. Frequencies and percentages were calculated to describe the study population and adjusted odds

ratios were calculated to evaluate the relationship between deployment exposures and disability retirement.

### Results

The study population included a total of 13,209 service members in the Navy and Air Force who were discharged due to a musculoskeletal condition; 73% (9,606) were male and 27% (3,603) were female. Disability retirement occurred in 34% (4,453) of the population while 66% (8,756) were discharged with musculoskeletal disability but not retired.

Service members included in the study were mostly white enlisted males' ages 20 to 29 (Table 26). Overall, 50% of retired male personnel were deployed sometime throughout their military career compared to 40% of males who were not retired. Deployments among female occurred less frequently with 40% of retired females and 30% of non-retired females having completed a deployment (Table 26). In terms of comorbidity, 41% of male personnel who received disability retirement had comorbid disabilities compared to 6% of males who were not retired. Almost 50% of females who received disability retirement also had comorbid disabilities compared to 6% of females who did not receive a disability retirement.

**TABLE 26: CHARACTERISTICS OF MUSCULOSKELETAL DISABILITY CASES AT DISABILITY EVALUATION BY SEX**

	Male				Female			
	Retired		Non-Retired		Retired		Non-Retired	
	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%
<b>Comorbidity</b>								
No	1,962	58.9	5,904	94.1	575	51.3	2,345	94.5
Yes	1,370	41.1	370	5.9	546	48.7	137	5.5
<b>Deployed</b>								
No	1,674	50.2	3,819	60.9	664	59.2	1,740	70.1
Yes	1,658	49.8	2,455	39.1	457	40.8	742	29.9
<b>Age</b>								
<20	53	1.6	199	3.2	13	1.2	175	7.1
20-29	1,508	45.3	4,029	64.2	595	53.1	1,694	68.3
30-39	1,308	39.3	1,738	27.7	399	35.6	521	21.0
≥40	446	13.4	277	4.4	103	9.2	77	3.1
Missing	17	0.5	31	0.5	11	1.0	15	0.6
<b>Race</b>								
White	2,483	74.5	4,514	72.0	712	63.5	1,714	69.1
Black	393	11.8	954	15.2	233	20.8	474	19.1
Other	436	13.1	781	12.5	171	15.3	287	11.6
Missing	20	0.6	25	0.4	5	0.5	7	0.3
<b>Rank</b>								
E1-E4	1,025	30.8	3,219	51.3	380	33.9	1,473	59.4
E5-E6	1,997	59.9	2,871	45.8	668	59.6	969	39.0
E7-E9	300	9.0	184	2.9	73	6.5	40	1.6
Missing	10	0.3	0	0.0	-	-	-	-

Multi-variable analyses indicated that the odds for disability retirement for service members with only a MS disability were significantly higher for service members deployed compared to those not deployed. Deployed males were 1.15 times more likely (95% CI: 1.03-1.28) to receive disability retirement compared to their non-deployed counterparts, while females deployed were not significantly more likely to receive disability retirement. In comparing number of deployments, males deployed 2 times were 1.37 times more likely (95% CI: 1.17-1.62) than non-deployed males to receive retirement, while males deployed 3 or more times, and those deployed once were not significantly more likely to receive the same outcome. Length of deployment was found to be associated with disability retirement as males deployed for 6-12 months were 1.33 times more likely (95% CI: 1.16-1.53) than those deployed less than 6 months to receive a disability retirement. Other deployment length categories were not significantly associated with disability retirement.

Review of relationships among individuals with comorbidities also determined there were no significant associations between deployment and disability retirement among female personnel. Male personnel with comorbidities who deployed however were more like to receive disability retirement compared to their non-deployed counterparts (OR 1.48, 95% CI 1.17-1.87). Of these individuals, those who deployed 2 times were 1.83 times more likely (95% CI: 1.26-2.67) than personnel who were not deployed to receive retirement, and those who deployed 3 or more times were 1.93 times as likely (95% CI: 1.20-3.09) to receive a similar outcome. Males deployed for 6-11 months (OR 1.59, 95% CI, 1.16-2.18) and 12+ months (OR 2.16 95% CI, 1.36-3.41) were also significantly more likely to receive disability retirement compared to those who only deployed for less than 6 month.

**TABLE 27: ADJUSTED ODDS RATIOS FOR DISABILITY RETIREMENT BY DEPLOYMENT HISTORY, FREQUENCY, AND TOTAL TIME DEPLOYED STRATIFIED BY PRESENCE OF COMORBID DISABILITY AND SEX**

<b>Musculoskeletal Disability Only</b>										
	<b>Male</b>					<b>Female</b>				
	Retired (n=1,962)	Non-Retired (n=5,904)	OR <sup>1</sup>	95% CI		Retired (n=575)	Non-Retired (n=1,654)	OR <sup>1</sup>	95% CI	
<b>Ever Deployed</b>										
No	52.5	61.2	1.00	-	-	58.8	70.5	1.00	-	-
Yes	47.6	38.8	1.15	1.03	1.28	41.2	29.5	1.21	0.99	1.48
<b>Deployment</b>										
None	52.5	61.2	1.00	-	-	58.8	70.5	1.00	-	-
1	25.6	24.1	1.06	0.94	1.21	27.0	20.1	1.26	1.00	1.58
2	14.9	9.7	1.37	1.17	1.62	10.1	7.0	1.08	0.77	1.51
3+	7.1	5.1	1.12	0.89	1.39	4.2	2.4	1.24	0.75	2.06
<b>Total Deployed Months</b>										
<6	40.8	47.4	1.00	-	-	48.9	51.1	1.00	-	-
6-11	42.4	37.4	1.33	1.16	1.53	39.9	38.5	1.18	0.91	1.55
12+	16.8	15.3	1.10	0.89	1.35	9.0	11.2	1.04	0.64	1.67
<b>Musculoskeletal + Other Disability</b>										
	<b>Male</b>					<b>Female</b>				
	Retired (n=1,370)	Non-Retired (n=370)	OR <sup>1</sup>	95% CI		Retired (n=546)	Non-Retired (n=137)	OR <sup>1</sup>	95% CI	
<b>Ever Deployed</b>										
No	47.1	56.0	1.00	-	-	59.7	62.8	1.00	-	-
Yes	52.9	44.1	1.48	1.17	1.87	40.3	37.2	1.10	0.74	1.63
<b>Deployment</b>										
None	47.1	56.0	1.00	-	-	59.7	62.8	1.00	-	-
1	27.0	27.0	1.24	0.94	1.63	23.4	25.6	0.96	0.61	1.51
2	15.9	10.8	1.83	1.26	2.67	11.0	7.3	1.47	0.71	3.01
3+	10.0	6.2	1.93	1.20	3.09	5.9	4.4	1.30	0.52	3.25
<b>Total Deployed Months</b>										
<6	37.9	49.7	1.00	-	-	51.8	60.8	1.00	-	-
6-11	39.8	36.2	1.59	1.16	2.18	32.3	27.5	1.27	0.69	2.35
12+	22.3	14.1	2.16	1.36	3.41	16.0	11.8	1.45	0.59	3.54
12+	47.1	56.0	1.00	-	-	59.7	62.8	1.00	-	-

## Discussion

This study provides preliminary evidence that service members with disability evaluations in the Navy and Air Force who deployed, had multiple deployments, and higher total deployed months, were more likely to receive disability retirement compared to their non-deployed counterparts. Findings were also more pronounced among those identified as having co-morbidities compared to personnel who had only a musculoskeletal disability evaluation.

Results are consistent with findings elsewhere that also show higher risk for disability and subsequent discharge in service members who have deployed [5, 6]. Results also point to a possible increase in the severity of illness and injury as a result of increased deployment and combat exposure which are resulting in more individuals receiving disability retirement [6].

Females historically have been prohibited from serving in combat occupations and thereby have different training and deployment experiences. Approximately 70% of the women included in the study had never deployed, which may have contributed to the lack of significant findings among women. In addition, active component Navy and Air Force personnel deploy for 6 months or less on average[7]. This also may have had some influence on the findings.

Further research is necessary with the inclusion of both Army and Marine Corps personnel, a more complex study design, and a larger sample size to review the relationship between deployment characteristics and disability within the military.

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## Descriptive Epidemiology of TBI-Related Disability by Etiology in the U.S. Army, Navy and Marine Corps: FY 2007-2012

### Background

Traumatic brain injury (TBI) is the most common neurological condition associated with disability discharge among Soldiers and Marines, and rates of disability discharge due to combat-related TBI have been steadily increasing since 2005 [1]. Service members with TBI are often diagnosed with comorbid conditions, most notably PTSD and pain associated with the head, neck and back [2-4].

Research on TBI in service members has historically focused on combat-related TBI, yet most TBIs occur in a non-deployed setting [5]. The most common causes of TBI are related to accidents, including motor vehicle crashes, falls, and blunt trauma, while the most common cause among combat-related TBI involves blast exposures typically from improvised explosive devices [4-7].

Although TBI in the military has been extensively studied, little is known on how service members with a combat deployment related (CDR) TBI differ from those with a TBI caused by any other reason (e.g. motor vehicle crashes) in terms of disability. This study compares the trends, population characteristics and comorbid conditions for Soldiers, Sailors and Marines evaluated for disability discharge related to TBI, stratified by etiology.

### Methods

All enlisted, active component US Army, Navy and Marine Corps service members disability evaluated for TBI between FY 2007 and FY 2012 were included in this cross-sectional study. These TBI cases were identified using the Veterans Administration Schedule for Rating Disabilities (VASRD) code for residuals of traumatic brain injury (8045) and were categorized into two groups: CDR TBI and all other TBI (Other TBI). Combat-related classifications are determined during the disability process and are provided by each service's disability evaluation system. The DMDC provided deployment data and service members were categorized as deployed if deployed at any time during the study period. As such, deployed service members disability evaluated for a combat-related TBI were placed into the CDR TBI grouping. All other service members were categorized as Other TBI.

### Results

The Army had the largest population evaluated for TBI disability (2,344 Soldiers), with 83% had deployed and had a combat-related disability. For the Marine Corps, CDR TBI was diagnosed in 70% of the 826 Marines evaluated for TBI. In contrast, only 32% of Sailors were evaluated for a CDR TBI (49 Sailors).

The rate of disability evaluation has significantly increased over time for both TBI groups in all three services; the largest increases were seen for disability evaluations for CDR TBI in Soldiers

and Marines. The overall rate of CDR TBI evaluation is more than three times the rate of Other TBI disability in the Army and Marine Corps. In the Navy, the overall rate of Other TBI (6 per 100,000 Sailors) is double the rate of CDR TBI (3 per 100,000 Sailors).

**TABLE 28: RATE OF DISABILITY EVALUATION BY FISCAL YEAR OF FIRST DISPOSITION DATE BY SERVICE AND TBI TYPE (RATE PER 100,000 ACTIVE DUTY ENLISTED SERVICE MEMBERS)**

Evaluation FY	Army				Navy				Marine Corps			
	CDR TBI		Other TBI		CDR TBI		Other TBI		CDR TBI		Other TBI	
	n	Rate	n	Rate	n	Rate	n	Rate	n	Rate	n	Rate
2007	52	12	45	10	2	1	11	4	34	20	21	13
2008	141	31	40	9	7	3	11	4	63	35	14	8
2009	393	86	84	18	9	3	17	6	78	43	20	11
2010	439	94	72	15	5	2	22	8	72	40	32	18
2011	423	91	75	16	5	2	16	6	118	66	33	18
2012	497	111	83	19	21	8	27	10	272	154	69	39
<b>Overall</b>	1,945	71	399	14	49	3	104	6	637	60	189	18
<b>Trend (Z statistic)</b>	20.33***		3.94***		3.71**		3.10*		15.43***		6.45***	

p-value: \* <0.05, \*\* <0.001, \*\*\* <0.0001

The majority of both CDR TBI and Other TBI cases were white males in their twenties at first disability evaluation (Table 29). Most TBI cases present with comorbid conditions, with CDR TBI cases having a significantly higher proportion of comorbid conditions than Other TBI cases in every service. More than 80% of all TBI cases were disability retired and had a disability rating of 30% or higher, with CDR TBI having a higher proportion of disability retirement than Other TBI cases in the Army and Marine Corps. Over 40% of the Other TBI cases were never deployed during the study period. A higher proportion of CDR TBI cases were deployed more than once compared to Other TBI cases, for all services.

The most common comorbid conditions in both CDR TBI and Other TBI cases were mental disorders and conditions related to the musculoskeletal and neurological systems (Table 30). PTSD was seen in more than 60% of CDR TBI cases, but in less than 14% of Other TBI cases. Dementia was a common comorbid condition in both TBI groups, but was more commonly diagnosed in the Other TBI group.

**TABLE 29: DEMOGRAPHIC, DISABILITY AND DEPLOYMENT CHARACTERISTICS OF THE STUDY POPULATION BY SERVICE AND TBI TYPE**

	Army			Navy			Marine Corps		
	CDR TBI (N=1,945) %	Other TBI (N=399) %	X <sup>2</sup>	CDR TBI (N=49) %	Other TBI (N=104) %	X <sup>2</sup>	CDR TBI (N=637) %	Other TBI (N=189) %	X <sup>2</sup>
<b>Gender</b>									
Male	97.3	88.5	63.4 <sup>***</sup>	95.9	87.5	2.7	98.7	95.2	8.9 <sup>*</sup>
Female	2.7	11.5		4.1	12.5		1.3	4.8	
<b>Age at First Evaluation</b>									
<20	0.2	1.5	47.2 <sup>***</sup>	0.0	1.0	2.6	0.0	1.6	15.2 <sup>*</sup>
20-29	57.4	69.4		59.2	70.2		79.9	84.6	
30-39	34.6	19.8		34.7	25.0		18.7	13.8	
≥40	7.8	9.3		6.1	3.8		1.4	0.0	
<b>Race</b>									
White	82.3	81.0	1.4	81.3	57.7	8.7 <sup>*</sup>	78.3	70.0	5.5
Black	9.2	11.0		8.3	11.5		3.9	5.9	
Other	8.6	8.0		10.4	30.8		17.8	24.1	
<b>Comorbidity</b>									
Yes	97.4	88.0	72.4 <sup>***</sup>	93.9	73.1	8.9 <sup>*</sup>	91.1	72.0	46.0 <sup>***</sup>
No	2.6	12.0		6.1	26.9		8.9	28.0	
<b>Disposition</b>									
Retired	93.0	86.0	80.1 <sup>***</sup>	85.7	88.5	0.6	92.6	83.1	15.5 <sup>**</sup>
SWSP	4.4	11.3		10.2	9.6		7.1	16.4	
SWOB	0.0	2.3		0.0	0.0		0.0	0.0	
Other	2.6	0.5		4.1	1.9		0.3	0.5	
<b>Rating</b>									
<30%	4.8	13.8	45.4 <sup>***</sup>	10.4	9.6	0.02	7.2	16.4	14.5 <sup>**</sup>
≥30%	95.2	86.2		89.6	90.4		92.9	83.6	
<b>Deployment Count</b>									
0	-	40.6	868.6 <sup>***</sup>	-	51.9	40.7 <sup>***</sup>	-	50.8	368.7 <sup>***</sup>
1	49.7	40.6		42.9	26.0		51.0	30.7	
2+	50.3	18.8		57.1	22.1		49.0	18.5	

p-value: \* <0.05, \*\* <0.001, \*\*\* <0.0001, X<sup>2</sup> test comparing deployment and combat-related TBI to all other TBI.

CDR TBI: Deployment- and combat-related traumatic brain injury. SWSP: Separated with severance pay. SWOB: Separated without benefit.

Other disposition includes administrative termination and transferred to the retired reserve.

**TABLE 30: MOST COMMON COMORBID CONDITIONS BY TBI TYPE AND SERVICE**

Army			Navy			Marine Corps		
Condition	n	%	Condition	n	%	Condition	n	%
<b>CDR TBI</b>								
PTSD	1,311	69.2	PTSD	28	60.9	PTSD	389	67.1
Dorsopathies	665	35.1	Dementia	17	37.0	Dementia	161	27.8
Migraines	344	18.2	Paralysis	6	13.0	Dorsopathies	76	13.1
Arthritis	255	13.5	Dorsopathies	5	10.9	Paralysis	63	10.9
Dementia	249	13.1	Amputations	4	8.7	Limitation of motion	59	10.2
<b>Total Individuals*</b>	<b>1,894</b>		<b>Total Individuals*</b>	<b>46</b>		<b>Total Individuals*</b>	<b>580</b>	
<b>Other TBI</b>								
Dementia	105	29.9	Dementia	38	50.0	Dementia	55	40.4
Dorsopathies	88	25.1	Paralysis	15	19.7	Paralysis	27	19.9
Migraines	70	19.9	Dorsopathies	10	13.2	PTSD	18	13.2
Limitation of motion	53	15.1	PTSD	10	13.2	Epilepsy	16	11.8
Paralysis	52	14.8	Mood disorder	9	11.8	Limitation of motion	15	11.0
<b>Total Individuals*</b>	<b>351</b>		<b>Total Individuals*</b>	<b>76</b>		<b>Total Individuals*</b>	<b>136</b>	
CDR TBI: Deployment- and combat-related traumatic brain injury								
* Total individuals with a comorbid condition								

## Discussion

For all services, the rates of disability evaluation related to both TBI types significantly increased over the study period. CDR TBI cases were more common in Soldiers and Marines, while Sailors had higher rates of Other TBI. CDR TBI cases were more likely to have a comorbid condition, have a history of deployment, receive a disability rating of 30% or higher, and be disability retired than those evaluated for Other TBI. Consistent with prior research[2-4], service members with CDR TBI had high rates of comorbid PTSD and pain. TBI has also been associated with an increased risk of dementia[8,9], which was the most common comorbid condition in Other TBI cases.

Although the majority of TBI in this population was related to combat, more than 80% of service members evaluated for an Other TBI were medically retired. This indicates that TBI of any etiology that is severe enough to warrant disability evaluation significantly impacts service members and they often become unfit for military service. To further elucidate disability related to TBI in the military, future research is necessary to determine rates of TBI by severity (i.e. mild, moderate, and severe) and by quantity (single vs repeated) within the disability population.

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## Temporal Trends in Disability Discharge Rates among Soldiers by Physical Demand Rating: Fiscal Year 2008-2013

### Background

Disability is a costly and increasing problem in the U.S. Army population [1]. Numerous risk factors for disability in the Army have already been explored and found to result in increased risk of disability, including: sex, age, body mass index at accession, and military occupation [2]. Additionally, research shows more physically demanding occupations have been associated with early retirement in the civilian population [3] and increased risk of injury and hospitalization in the Army [4]. As such, further exploration of the physical demand aspect of military occupations in the Army is merited. The objective of this study is analyze the trends in all-cause disability rates in enlisted, active component US Army service members across increasing levels of military occupational specialty physical demands ratings.

### Methods

Included in this study were active component, enlisted Soldiers with a disability discharge between FY 2008 and 2012. Service members with a disposition of fit or separated without benefits were excluded as well as individuals missing a disability evaluation or gain record or those with a disability evaluation record before their gain record.

Army pamphlet 611-21 provided physical demand requirement (PDR) information [5]. Each individual military occupational specialty (MOS) has an assigned PDR. The ratings are divided into five categories: Light, Medium, Moderately Heavy, Heavy and Very Heavy<sup>1</sup>. Each PDR represents the physical load a Soldier is expected to lift in a combat setting. To ensure the proper MOS was utilized, only those with a disposition date that fell in between each MOS start and end date were used.

To calculate frequency distributions of disability discharge records, unique SSNs of those with a discharge record were totaled by FY of disposition. The results presented show the rate of disability discharge per 100 evaluations. Evaluations were calculated by summing any non-missing medical evaluation board records by FY. The results were also stratified by leading disability body systems based on assigned VASRD codes and include: Musculoskeletal, Psychiatric, Neurological and Other. To test for significant linear associations between FY and increasing levels of PDR, a Cochran-Armitage trend test was employed. A p-value of less than or equal to 5% was considered statistically significant.

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<sup>1</sup> Light: Lift 20 pounds at times, 10 pounds frequently; Medium: Lift 50 pounds at times, 25 pounds frequently; Moderately Heavy: Lift 80 pounds at times, 40 pounds frequently; Heavy: Lift 100 pounds at times, 50 pounds frequently; Very Heavy: Lift over 100 pounds at times, over 50 pounds frequently [5].

## Results

Table 31 shows the rate of disability discharge by physical demand rating, fiscal year and leading disability body systems per 100 evaluations. In each leading disability body systems, the rate of disability discharge increased significantly across increasing levels of PDR for each fiscal year. The results overwhelming show a positive linear trend across PDR levels with all z-scores resulting in a p-value  $\leq 0.0001$ .

**TABLE 31: RATE OF DISABILITY DISCHARGE BY PHYSICAL DEMAND RATING, FISCAL YEAR AND LEADING DISABILITY BODY SYSTEMS PER 100 EVALUATIONS**

	Physical Demand Rating							Z score†
	N/A	Missing	Light	Medium	Moderately Heavy	Heavy	Very Heavy	
	%	%	Rate	Rate	Rate	Rate	Rate	
<b>Overall</b>								
2008	0.3	1.2	0.3	3.4	9.9	7.6	39.6	76.1***
2009	0.3	1.1	0.4	3.6	10.6	7.9	43.1	85.3***
2010	0.4	0.9	0.5	3.7	9.9	7.3	40.3	78.7***
2011	0.3	0.2	0.6	4.2	11.2	8.2	41.3	77.5***
2012	0.5	0.2	0.6	4.2	11.4	8.9	45.5	90.2***
<b>Musculoskeletal</b>								
2008	0.2	0.9	0.3	2.6	7.5	5.7	28.3	62.6***
2009	0.2	0.7	0.3	2.4	7.4	5.8	29.6	69.2***
2010	0.3	0.7	0.3	2.6	6.9	5.2	27.5	63.4***
2011	0.2	0.1	0.5	3.0	8.0	6.2	29.3	63.9***
2012	0.3	0.1	0.4	3.2	8.4	6.3	32.5	74.2***
<b>Psychiatric</b>								
2008	0.1	0.1	0.0	0.4	2.0	1.1	9.5	37.0***
2009	0.0	0.3	0.1	0.8	2.6	1.6	14.0	48.1***
2010	0.2	0.3	0.1	1.0	3.5	2.1	15.1	47.3***
2011	0.1	0.0	0.2	1.0	3.5	2.1	15.1	46.5***
2012	0.2	0.1	0.2	1.1	3.5	2.7	16.6	53.6***
<b>Neurological</b>								
2008	0.1	0.1	0.0	0.4	1.2	0.9	5.8	28.4***
2009	0.1	0.2	0.0	0.5	1.7	1.2	8.9	38.0***
2010	0.1	0.1	0.1	0.5	1.7	1.2	8.7	35.9***
2011	0.1	0.1	0.1	0.6	2.0	1.4	7.9	32.7***
2012	0.2	0.0	0.1	0.7	2.1	1.6	9.9	40.6***

†z-score includes only light, medium, moderately heavy, heavy and very heavy

p-value: \* <0.05, \*\* <0.001, \*\*\* <0.0001

Further stratifying by sex resulted in more positive linear trends. Table 32 shows the rate of disability discharge among males. Disability discharge rate per 100 evaluations increased significantly in all fiscal years and across all leading body systems. Those with a musculoskeletal disability had the highest rates of disability discharge per 100 evaluations across all PDR levels; this was most notable in the Very Heavy category compared to the other leading disability body systems.

**TABLE 32: RATE OF DISABILITY DISCHARGE AMONG MALES BY PHYSICAL DEMAND RATING, FISCAL YEAR AND LEADING DISABILITY BODY SYSTEMS PER 100 EVALUATIONS**

	Physical Demand Rating							Z score†
	N/A	Missing	Light	Medium	Moderately Heavy	Heavy	Very Heavy	
	%	%	Rate	Rate	Rate	Rate	Rate	
<b>Overall</b>								
2008	0.2	1.0	0.1	2.0	6.5	5.2	35.8	75.0***
2009	0.2	1.0	0.2	2.2	7.4	5.5	39.5	84.1***
2010	0.4	0.8	0.3	2.1	7.1	5.2	36.7	77.8***
2011	0.3	0.2	0.4	2.6	8.2	5.8	37.1	75.7***
2012	0.5	0.2	0.4	2.7	8.6	6.3	41.5	88.3***
<b>Musculoskeletal</b>								
2008	0.2	0.7	0.1	1.5	4.6	3.8	25.4	62.1***
2009	0.2	0.6	0.1	1.4	4.9	3.9	26.9	68.4***
2010	0.2	0.6	0.2	1.4	4.7	3.7	24.9	63.2***
2011	0.2	0.1	0.2	1.7	5.7	4.3	26.2	63.0***
2012	0.3	0.1	0.2	1.9	6.1	4.5	29.5	73.1***
<b>Psychiatric</b>								
2008	0.0	0.1	0.0	0.3	1.6	0.8	8.8	36.5***
2009	0.0	0.3	0.0	0.5	2.1	1.3	13.5	48.2***
2010	0.2	0.3	0.1	0.7	2.9	1.5	14.2	46.9***
2011	0.1	0.0	0.1	0.7	2.8	1.5	13.9	45.4***
2012	0.2	0.1	0.1	0.8	2.8	1.9	15.5	53.0***
<b>Neurological</b>								
2008	0.1	0.1	0.0	0.2	0.9	0.7	5.5	28.4***
2009	0.1	0.2	0.0	0.3	1.4	0.9	8.4	38.0***
2010	0.1	0.1	0.1	0.4	1.4	0.9	8.1	35.6***
2011	0.1	0.1	0.1	0.4	1.5	1.0	7.3	32.8***
2012	0.1	0.0	0.1	0.5	1.6	1.1	9.2	40.2***

†z-score includes only light, medium, moderately heavy, heavy and very heavy

p-value: \* <0.05, \*\* <0.001, \*\*\* <0.0001

When exploring the trends among females (Table 33), the results also show strong positive linear associations between FY and increasing PDR levels. Compared to males, females show much similarity across the rates in all categories except for Very Heavy, as males showed higher rates of disability discharge in that category. Additionally, there was less than 1% missing PDR data among females.

**TABLE 33: RATE OF DISABILITY DISCHARGE AMONG MALES BY PHYSICAL DEMAND RATING, FISCAL YEAR AND LEADING DISABILITY BODY SYSTEMS PER 100 EVALUATIONS**

	Physical Demand Rating							Z score†
	N/A	Missing	Light	Medium	Moderately Heavy	Heavy	Very Heavy	
	%	%	Rate	Rate	Rate	Rate	Rate	
<b>Overall</b>								
2008	0.0	0.1	0.2	1.4	3.4	2.4	3.8	16.6***
2009	0.0	0.1	0.2	1.4	3.1	2.5	3.6	17.4***
2010	0.0	0.2	0.2	1.6	2.8	2.1	3.5	15.8***
2011	0.0	0.1	0.3	1.6	3.0	2.5	4.2	17.5***
2012	0.0	0.0	0.3	1.5	2.8	2.6	3.9	19.1***
<b>Musculoskeletal</b>								
2008	0.0	0.1	0.2	1.1	2.9	1.9	2.8	13.9***
2009	0.0	0.1	0.2	1.0	2.5	1.9	2.7	15.3***
2010	0.0	0.1	0.2	1.2	2.1	1.5	2.6	12.8***
2011	0.0	0.0	0.2	1.3	2.4	1.8	3.1	14.5***
2012	0.0	0.0	0.2	1.2	2.3	1.9	2.9	15.8***
<b>Psychiatric</b>								
2008	0.0	0.0	0.0	0.1	0.4	0.2	0.6	7.3***
2009	0.0	0.0	0.0	0.3	0.5	0.3	0.6	6.6***
2010	0.0	0.0	0.0	0.3	0.7	0.6	0.9	9.0***
2011	0.0	0.0	0.0	0.3	0.6	0.6	1.2	10.9***
2012	0.0	0.0	0.1	0.3	0.8	0.8	1.1	10.6***
<b>Neurological</b>								
2008	0.0	0.0	0.0	0.2	0.3	0.2	0.4	5.2***
2009	0.0	0.0	0.0	0.3	0.3	0.3	0.5	6.0***
2010	0.0	0.0	0.0	0.2	0.4	0.3	0.5	6.6***
2011	0.0	0.0	0.1	0.3	0.5	0.3	0.6	6.0***
2012	0.0	0.0	0.1	0.2	0.5	0.5	0.7	8.3***

†z-score includes only light, medium, moderately heavy, heavy and very heavy

p-value: \* <0.05, \*\* <0.001, \*\*\* <0.0001

## Discussion

The rate of disability discharge per 100 evaluations among active component, enlisted Soldiers has significantly increased across physical demand rating from FY2008-FY2012. Even when stratified by leading body system and sex, the results continued to show statistically significant positive linear trends. While this is the first study to evaluate the trends of disability discharge by PDR, Hollander et al. assessed the hazard ratios of all-cause disability among those in the Heavy category and found significantly greater risk of permanent disability compared to those in the Light category[4].

Given the costly nature of disability discharge, further research is required to evaluate paths to reduce its burden. This initial study has shed some light on the importance of properly assigning Soldiers to the most appropriate PDR categories. Further investigation is necessary to explore the role physical demand rating plays in the risk of disability.

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