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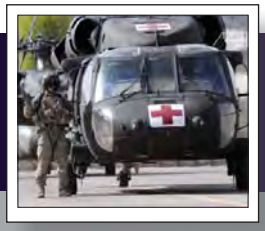

MEDICAL SURVEILLANCE MONTHLY REPORT

15th Anniversary Issue

ANNUAL SUMMARY ISSUE:

Summary tables and figures

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To Readers of the Medical Surveillance Monthly Report (MSMR):

This is the 15th anniversary issue of the *Medical Surveillance Monthly Report (MSMR)*. The *MSMR* began as a publication of the Army Medical Surveillance Activity. It is now the publication of record of the Armed Forces Health Surveillance Center (AFHSC) regarding the incidence, impact, distribution, and trends of illnesses and injuries among all Reserve and active component members of the Army, Navy, Air Force, Marine Corps, and Coast Guard. All issues of *MSMR* are available online at <http://afhsc.mil/msmr>.

In April 1995, the *MSMR*'s purpose was described as the dissemination of medical surveillance information of broad interest. "The ultimate goal…is to provide readily available information necessary to inform, motivate, and empower commanders, their surgeons, and medical staffs to design, implement, and resource programs that enhance health, fitness, and readiness."[1] Through the years, the *MSMR* has engaged topics that are militarily important, timely and relevant.[2] Subject areas with high priority for *MSMR* attention include military-specific health threats (e.g., post-combat stress-related disorders, complications of war wounds); threats during military training and operations (e.g., heat and cold-related injuries, diseases endemic to deployment locations); effects of force health protection measures (e.g., vaccines); and specific concerns of military members and their families, advocacy groups, politicians, the popular press, and others (e.g., unexplained illnesses, new and emerging infectious diseases). The *MSMR*'s focus on deployment health issues sharpens during periods of high operational tempo in general and wartime in particular.

The *MSMR*'s target audience includes public health professionals throughout the U.S. Military Health System; unit surgeons and force health protection officers; health care planners, policy makers, and policy analysts on DoD and Service medical department staffs; students in professional medical education programs supported by the U.S. Military Health System; civilian members of boards, commissions, and panels that advise leaders, planners, and policymakers in the U.S. Military Health System; providers of health care to current, medically disabled, and retired members of the U.S. military; and others interested in or concerned regarding the health of military members.

The *MSMR* seeks to provide its readers with unbiased, scientifically rigorous, evidence-based information regarding the current status, trends, and determinants of the physical and mental health of U.S. military members. *MSMR* reports are not written to provoke controversy. However, in keeping with the AFHSC's mission to "identify and evaluate obstacles to medical readiness," some findings of *MSMR* reports may reveal shortcomings in military health care policy or execution. Also, because of the complex topics that are covered and the extensive data sources that are maintained by the AFHSC for surveillance purposes, *MSMR* reports may occasionally include information that contradicts findings published elsewhere. Making news is not an objective of the *MSMR*; it is an occasional consequence of its focus on timely and relevant military health issues.

Most *MSMR* reports summarize data routinely transmitted to and integrated into the Defense Medical Surveillance System (DMSS). Because most *MSMR* reports are based on data routinely collected for other purposes (e.g., medical administration, military personnel management), results of analyses are *estimates* of occurrences, rates, trends, and distributions of subjects of surveillance interest. As such, surveillance findings should be considered "best estimates" of — not infallible or immutable truths regarding — characteristics of phenomena of interest. We hope that the findings of *MSMR* reports will engender questions, suggest hypotheses, and inform the objectives and designs of follow-up epidemiologic and clinical investigations.

MSMR reports usually include editorial comments that place main findings into broader military and public health contexts. In addition, editorial comments alert readers to limitations of analyses (e.g., incomplete ascertainment of cases, potential sources of bias), potentially misleading or easily misinterpreted results, and possible implications of findings for current or indicated policies and practices. Editorial comments reflect the knowledge, experiences, and opinions of the editorial staff of the *MSMR*; as such, they are not official and not necessarily reflective of current policies or positions of the Department of Defense or the Services.

Finally, I encourage individuals not assigned to the AFHSC to submit reports for publication in the *MSMR*. Suitable reports include surveillance summaries, outbreak reports, and case series (either of broad scope or in specific military populations, subgroups, or settings). As a first step, prospective authors of *MSMR* reports should contact the editor of the *MSMR* at msmr.afhsc@amedd.army.mil.

COL Robert F. DeFraites
Director, Armed Forces Health Surveillance Center

References:
1. U.S. Army Center for Health Promotion and Preventive Medicine. The Medical Surveillance Monthly Report (MSMR): A Mirror on the Health, Fitness, and Medical Readiness of America's Army. *MSMR*. 1995 Apr;1(1):2.
2. Army Medical Surveillance Activity. Medical Surveillance Monthly Report (MSMR) The First 100 Issues and the Future. *MSMR*. 2007 Feb/Mar;13(2):2.

Hospitalizations among Members of the Active Component, U.S. Armed Forces, 2009

This report documents the frequencies, rates, trends, and distributions of hospitalizations of active component members of the U.S. Armed Forces during calendar year 2009. Summaries are based on standardized records of hospitalizations at U.S. military and non-military (reimbursed care) medical facilities worldwide. For this report, primary (first-listed) discharge diagnoses are considered indicative of the primary reasons for hospitalizations; summaries are based on the first three digits of ICD-9-CM codes used to report primary discharge diagnoses. Hospitalizations not routinely documented with standardized, automated records (e.g., during deployments, field training exercises, shipboard) are not centrally available for health surveillance purposes and thus not included in this report.

Frequencies, rates, and trends:

In 2009 there were 86,542 reports of hospitalizations of active component members of the U.S. Army, Navy, Air Force, Marine Corps, and Coast Guard **(Table 1).** Nearly one-third (31%) of all hospitalizations were in non-military facilities **(Figure 1).** The hospitalization rate (all causes) was 59.9 per 1,000 service members per year. In the past ten years, hospitalization rates overall have slightly increased (% change, hospitalization rate, 2000 to 2009: +7.8%), while in the last three years hospitalization rates overall have been remarkably stable **(Figure 1).**

Hospitalizations, by illness and injury categories:

As in recent years, in 2009 three diagnostic categories accounted for more than one-half (53.2%) of all hospitalizations of active component members: mental disorders (20.3%), pregnancy-related conditions and childbirth (20.1%), and injuries and poisonings (12.9%) **(Table 1).** In contrast to previous years, in 2009 there were more hospitalizations for mental disorders than for any other major category of illnesses or injuries (per the ICD-9-CM).

From 2005 to 2009, hospitalizations increased in ten and decreased in seven major categories of illnesses and injuries. The largest percentage increases from 2005 to 2009 were for diseases of the nervous system and sense organs (change in hospitalizations, 2005-9: +685; +57.4%) and mental disorders (change in hospitalizations, 2005-9: +6,203; +54.7%); the largest percentage decreases during the same period were for injuries and poisonings (change in hospitalizations, 2005-9: -1,202; -9.7%) and diseases of the skin and subcutaneous tissue (change in hospitalizations, 2005-9: -191; -8.4%) **(Table 1).**

Hospitalizations, by gender:

In 2009, the hospitalization rate (all causes) was more than three times higher among females than males (hospitalization rate, overall: females: 145.4 per 1,000 person-years [p-yrs];

Table 1. Hospitalizations, ICD-9 diagnostic categories, active component, U.S. Armed Forces, 2005, 2007, and 2009

	2005			2007			2009		
Major diagnostic category (ICD-9-CM)	**No.**	**Rate[a]**	**Rank**	**No.**	**Rate[a]**	**Rank**	**No.**	**Rate[a]**	**Rank**
Mental disorders (290 - 319)	11,335	8.01	(3)	13,703	9.78	(2)	17,538	12.13	(1)
Pregnancy and childbirth (630 - 679, relevant V codes)[b]	18,465	13.04 (*89.78*)	(1)	18,201	12.99 (*90.80*)	(1)	17,354	12.01 (*84.46*)	(2)
Injury and poisoning (800 - 999)	12,358	8.73	(2)	12,531	8.95	(3)	11,156	7.72	(3)
Digestive system (520 - 579)	7,332	5.18	(4)	7,373	5.26	(5)	7,676	5.31	(4)
Musculoskeletal system (710 - 739)	7,322	5.17	(5)	7,534	5.38	(4)	7,516	5.20	(5)
Ill-defined conditions (780 - 799)	4,799	3.39	(6)	4,405	3.14	(6)	4,447	3.08	(6)
Respiratory system (460 - 519)	2,941	2.08	(7)	2,952	2.11	(7)	3,564	2.47	(7)
Other (E80-E99 and V01-V89, except pregnancy-related)	1,896	1.34	(12)	2,553	1.82	(10)	2,892	2.00	(8)
Circulatory system (390 - 459)	2,522	1.78	(9)	2,685	1.92	(9)	2,779	1.92	(9)
Genitourinary system (580 - 629)	2,883	2.04	(8)	2,841	2.03	(8)	2,697	1.87	(10)
Skin and subcutaneous tissue (680 - 709)	2,273	1.61	(10)	2,307	1.65	(11)	2,082	1.44	(11)
Neoplasms (140 - 239)	2,154	1.52	(11)	2,163	1.54	(12)	2,061	1.43	(12)
Nervous system (320 - 389)	1,193	0.84	(14)	1,781	1.27	(13)	1,878	1.30	(13)
Infectious and parasitic diseases (001 - 139)	1,273	0.90	(13)	1,325	0.95	(14)	1,288	0.89	(14)
Endocrine, nutrition, immunity (240 - 279)	788	0.56	(15)	877	0.63	(15)	862	0.60	(15)
Hematologic disorders (280 - 289)	330	0.23	(17)	364	0.26	(16)	386	0.27	(16)
Congenital anomalies (740 - 759)	367	0.26	(16)	338	0.24	(17)	366	0.25	(17)
Total	*80,231*	*56.68*		*83,933*	*59.92*		*86,542*	*59.87*	

[a]Rate per 1,000 person-years of service
[b]Rate of pregnancy and childbirth-related hospitalizations among females only (in parentheses)

males: 45.7 per 1,000 p-yrs). However, pregnancy and childbirth accounted for 58.1% of all hospitalizations of females. The rate of hospitalizations for conditions not related to pregnancy and childbirth was one-third (33.5%) higher among females (61.0 per 1,000 per year) than males. Hospitalization rates were higher among males than females for injuries and poisonings (male:female [m:f], rate ratio [RR]: 1.35; rate difference [RD]: 2.08 per 1,000 p-yrs), skin and subcutaneous tissue disorders (m:f, RR: 1.47; RD: 0.48 per 1,000 p-yrs), circulatory disorders (m:f, RR: 1.17; RD: 0.29 per 1,000 p-yrs), musculoskeletal/connective tissue disorders (m:f, RR: 1.10; RD: 0.47 per 1,000 p-yrs), and respiratory diseases (m:f, RR: 1.07; RD: 0.17 per 1,000 p-yrs). Hospitalization rates were higher among females than males for the other 12 major disease categories. Among these 12 categories, the largest absolute differences in hospitalization rates between females and males were for genitourinary disorders (RD: 6.06 per 1,000 p-yrs) and mental disorders (RD: 3.66 per 1,000 p-yrs).

Hospitalization rates in relation to age significantly varied across illness and injury categories **(Figure 2)**. For example, among both males and females, hospitalization rates sharply increased with age for neoplasms, circulatory, genitourinary, and musculoskeletal/connective tissue disorders; they generally decreased with age for mental, respiratory, and skin/subcutaneous tissue disorders **(Figure 2)**.

Most frequent diagnoses:

In 2009, seven diagnoses (at the 3-digit level of the ICD-9-CM) accounted for more than 1,200 hospitalizations each among males: adjustment reactions (n=4,225), episodic mood disorders (n=3,810), intervertebral disc disorders (n=2,346), acute appendicitis (n=1,857), alcohol dependence syndrome (n=1,812), symptoms involving the respiratory system and chest (n=1,424), and other cellulitis and abscess (n=1,381). These seven diagnoses accounted for nearly one-third (29.8%) of all hospitalizations of males in 2009 **(Table 2)**.

In 2009, pregnancy and childbirth-related conditions accounted for nearly 60% of all hospitalizations of females **(Table 3)**. Other than pregnancy and childbirth-related diagnoses, leading causes of hospitalizations of females were episodic mood disorders (n=1,188), adjustment reactions (n=922), uterine leiomyoma (n=475), acute appendicitis (n=280), intervertebral disc disorders (n=265), and depressive disorder (n=247). These six diagnoses accounted for more than one-fourth (26.9%) of all hospitalizations of females not related to pregnancy/childbirth **(Table 3)**.

Mental health conditions:

In 2009 mental disorders accounted for more hospitalizations of U.S. service members than any other category of diagnoses **(Table 1)**. The same five mental disorders (at the 3-digit level) were the leading causes of mental disorder-related hospitalizations of both males and females **(Tables 2,3)**. Adjustment reactions (including post-traumatic stress disorder) and episodic mood disorders accounted for more hospitalizations overall than any other conditions; together, these two mental disorders accounted for 14% and 17% of all hospitalizations (other than pregnancy or childbirth-related) of males and females, respectively.

Injuries and poisonings:

As in the past, injuries and poisonings were a major cause of hospitalizations of U.S. military members **(Table 1)**. Of all injuries and poisonings that resulted in hospitalizations in U.S. military facilities (n=7,450), approximately one of eight (n=964; 12.9%) were reported as intentionally inflicted (e.g., enemy weapons, suicide gestures/attempts, fights, assaults, legal interventions); of these, approximately one-half (n=500; 51.9%) were reported as "battle casualties" **(Table 4)**. Of all unintentional injuries and poisonings that resulted in hospitalizations in U.S. military facilities (n=6,458), two-thirds (67%) were caused by "falls and miscellaneous" (n=2,174), complications of medical or surgical care (n=1,366), or land transportation accidents (n=807) **(Table 4)**.

Figure 1. Rate of hospitalization by calendar year, active component, U.S. Armed Forces, 2000-2009

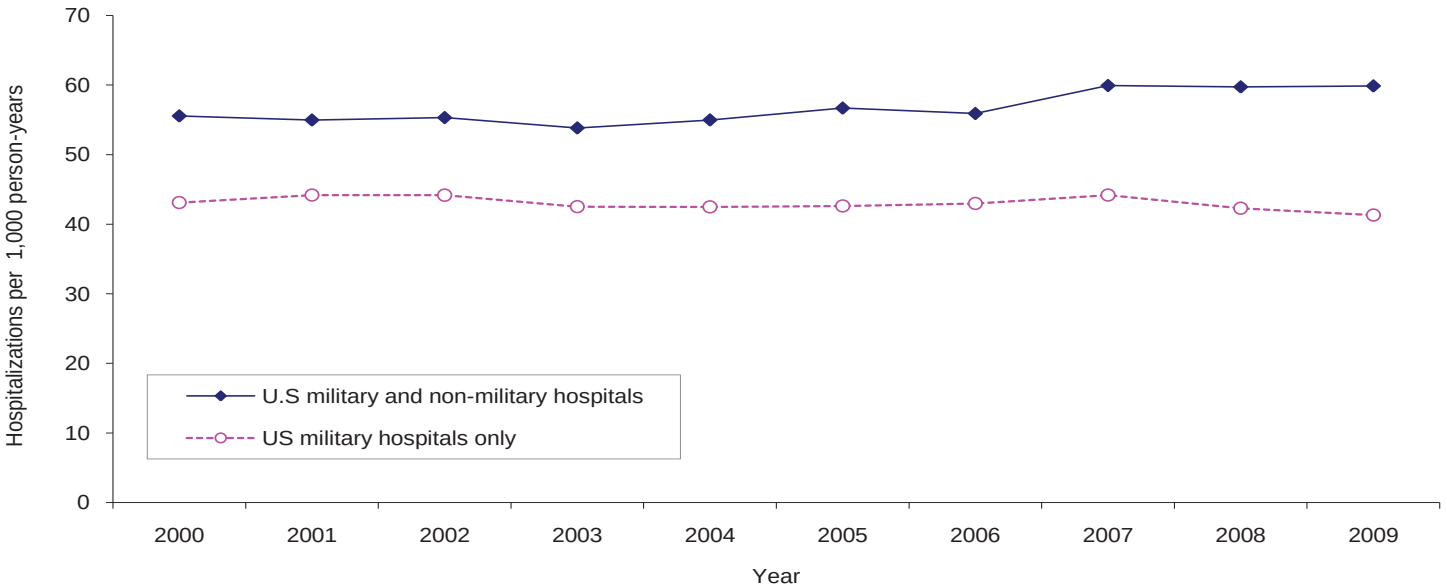
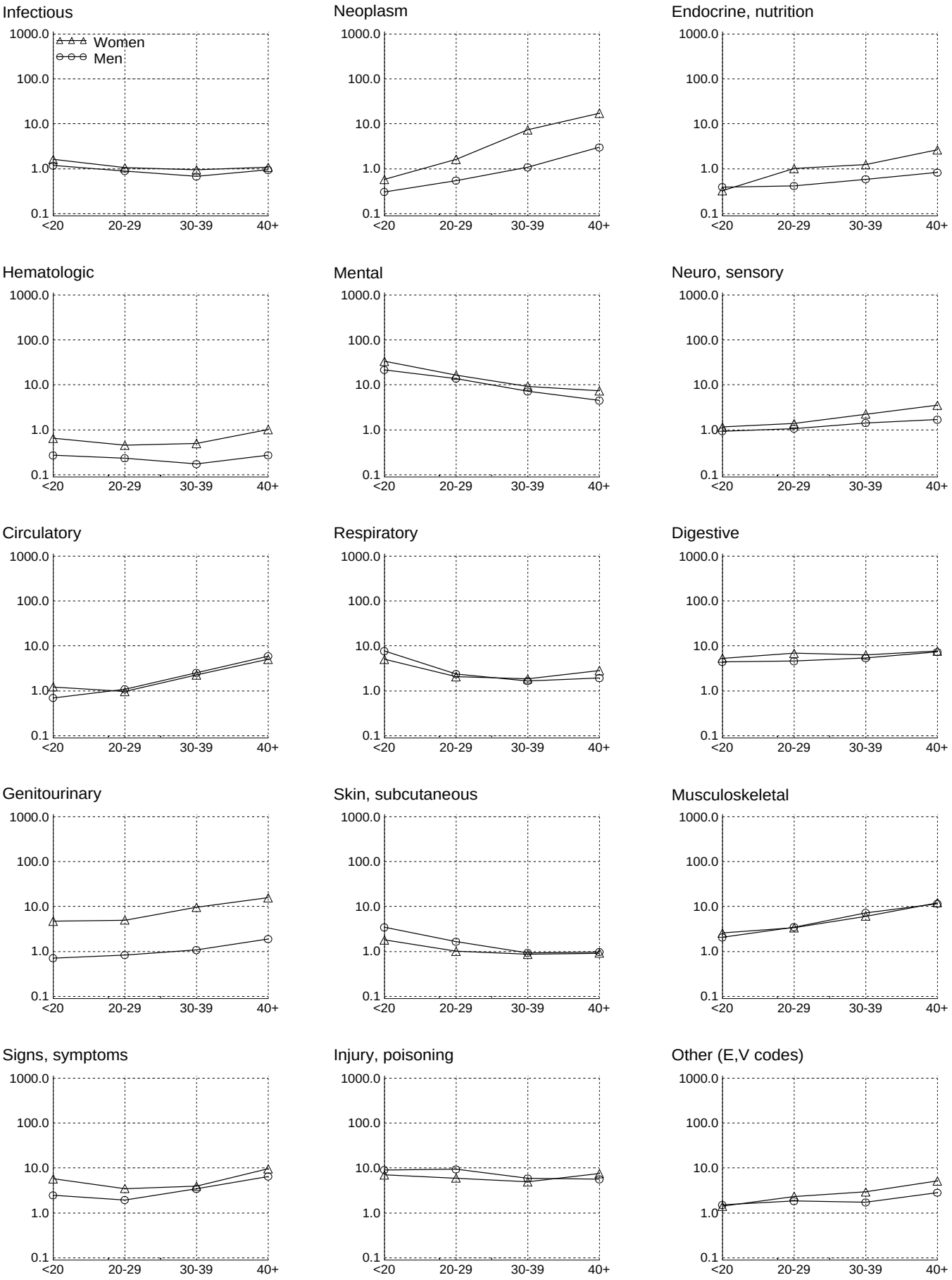


Figure 2. Rate[a] of hospitalizations, by major diagnostic categories, by age and gender, active component, U.S. Armed Forces, 2009



[a]Rate per 1,000 person-years

Table 2. Most frequent diagnoses during hospitalization, by major diagnostic category, males, U.S. Armed Forces, 2009

Diagnostic category (ICD-9-CM codes) ♂	No.	%
Infectious and parasitic diseases (001-139)	1,067	
Meningitis due to enterovirus	157	14.7
Viral & chlamydial infection	140	13.1
Intestinal infections due to other organisms	135	12.7
Septicemia	122	11.4
Ill-defined intestinal infections	70	6.6
Neoplasms (140-239)	1,160	
Malignant neoplasm of prostate	78	6.7
Malignant neoplasm of thyroid gland	75	6.5
Malignant neoplasm of testis	71	6.1
Malignant neoplasm of brain	55	4.7
Benign neoplasm of other endocrine glands	48	4.1
Endocrine, nutrition, immunity (240-279)	624	
Disorders of fluid electrolyte and acid-base balance	209	33.5
Diabetes mellitus	166	26.6
Nontoxic nodular goiter	31	5.0
Overweight, obesity and other hyperalimentation	31	5.0
Thyrotoxicosis with or without goiter	28	4.5
Hematologic disorders (280-289)	277	
Diseases of white blood cells	86	31.0
Purpura and other hemorrhagic conditions	50	18.1
Other diseases of blood and blood-forming organs	45	16.2
Aplastic anemia	28	10.1
Iron deficiency anemias	27	9.7
Mental disorders (290-319)	14,399	
Adjustment reaction	4,225	29.3
Episodic mood disorders	3,810	26.5
Alcohol dependence syndrome	1,812	12.6
Depressive disorder not elsewhere classified	1,042	7.2
Anxiety, dissociative and somatoform disorders	746	5.2
Nervous system (320-389)	1,514	
Organic sleep discorders	253	16.7
Pain, not elsewhere classified	223	14.7
Epilepsy	176	11.6
Migraine	152	10.0
Other conditions of brain	80	5.3
Circulatory system (390-459)	2,435	
Cardiac dysrhythmias	544	22.3
Acute pulmonary heart disease	246	10.1
Acute myocardial infarction	174	7.1
Other forms of chronic ischemic heart disease	171	7.0
Other venous embolism and thrombosis	144	5.9
Respiratory system (460-519)	3,087	
Pneumonia organism unspecified	1,048	33.9
Influenza	186	6.0
Pneumothorax	169	5.5
Peritonsillar abscess	162	5.2
Other diseases of lung	157	5.1

Diagnostic category (ICD-9-CM codes) ♂	No.	%
Digestive system (520-579)	6,300	
Acute appendicitis	1,857	29.5
Cholelithiasis	410	6.5
Dentofacial anomalies including malocclusion	385	6.1
Diseases of esophagus	354	5.6
Diseases of pancreas	335	5.3
Genitourinary system (580-629)	1,245	
Calculus of kidney and ureter	400	32.1
Acute renal failure	156	12.5
Other disorders of male genital organs	149	12.0
Other disorders of kidney and ureter	84	6.7
Urethral stricture	72	5.8
Skin and subcutaneous tissue (680-709)	1,871	
Other cellulitis and abscess	1,381	73.8
Pilonidal cyst	149	8.0
Cellulitis and abscess of finger and toe	111	5.9
Other disorders of skin and subcutaneous tissue	48	2.6
Other hypertrophic and atrophic conditions of skin	41	2.2
Musculoskeletal system (710-739)	6,531	
Intervertebral disc disorders	2,346	35.9
Internal derangement of knee	497	7.6
Other derangement of joint	413	6.3
Disorders of muscle ligament and fascia	412	6.3
Other disorders of bone and cartilage	388	5.9
Congenital anomalies (740-759)	300	
Other congenital musculoskeletal anomalies	75	25.0
Other congenital anomalies of circulatory system	34	11.3
Congenital anomalies of urinary system	33	11.0
Bulbus cordis anomalies and anomalies of cardiac septal	28	9.3
Other congenital anomalies of digestive system	23	7.7
Signs, symptoms, ill-defined conditions (780-799)	3,558	
Symptoms involving respiratory system	1,424	40.0
General symptoms	1,031	29.0
Other symptoms involving abdomen and pelvis	477	13.4
Symptoms involving head and neck	146	4.1
Symptoms involving digestive system	127	3.6
Injury and poisoning (800-999)	9,937	
Other complications, procedures not elsewhere classified	950	9.6
Fracture of face bones	526	5.3
Fracture of ankle	509	5.1
Complications peculiar to certain specified procedures	446	4.5
Fracture of tibia and fibula	403	4.1
Other (E80-E99 and V01-V89)	2,343	
Encounter for other and unspecified procedures	1,038	44.3
Care involving use of rehabilitation procedures	424	40.8
Other orthopedic aftercare	357	84.2
Other psychosocial circumstances	178	49.9
Observation & evaluation, suspected conditions not found	168	94.4

Table 3. Most frequent diagnoses during hospitalization, by major diagnostic category, females, U.S. Armed Forces, 2009

Diagnostic category (ICD-9-CM codes) ♀	No.	%
Infectious and parasitic diseases (001-139)	221	
Meningitis due to enterovirus	42	19.0
Intestinal infections due to other organisms	41	18.6
Septicemia	33	14.9
Viral and chlamydial infection	29	13.1
Ill-defined intestinal infections	11	5.0
Neoplasms (140-239)	901	
Uterine leiomyoma	475	52.7
Malignant neoplasm of thyroid gland	70	7.8
Benign neoplasm of ovary	67	7.4
Malignant neoplasm of female breast	43	4.8
Carcinoma in situ of breast and genitourinary system	18	2.0
Endocrine, nutrition, immunity (240-279)	238	
Disorders of fluid electrolyte and acid-base balance	72	30.3
Nontoxic nodular goiter	53	22.3
Diabetes mellitus	26	10.9
Overweight, obesity and other hyperalimentation	23	9.7
Thyrotoxicosis with or without goiter	19	8.0
Hematologic disorders (280-289)	109	
Iron deficiency anemias	29	26.6
Purpura and other hemorrhagic conditions	23	21.1
Other and unspecified anemias	22	20.2
Diseases of white blood cells	16	14.7
Other diseases of blood and blood-forming organs	11	10.1
Mental disorders (290-319)	3,139	
Episodic mood disorders	1,188	37.8
Adjustment reaction	922	29.4
Depressive disorder not elsewhere classified	247	7.9
Alcohol dependence syndrome	228	7.3
Anxiety, dissociative and somatoform disorders	161	5.1
Nervous system (320-389)	364	
Migraine	81	22.3
Pain, not elsewhere classified	74	20.3
Epilepsy	32	8.8
Other conditions of brain	19	5.2
Multiple sclerosis	16	4.4
Circulatory system (390-459)	344	
Cardiac dysrhythmias	72	20.9
Acute pulmonary heart disease	67	19.5
Other venous embolism and thrombosis	30	8.7
Essential hypertension	17	4.9
Hemorrhoids	15	4.4
Respiratory system (460-519)	477	
Pneumonia organism unspecified	117	24.5
Asthma	51	10.7
Influenza	34	7.1
Chronic disease of tonsils and adenoids	32	6.7
Acute tonsillitis	28	5.9

Diagnostic category (ICD-9-CM codes) ♀	No.	%
Digestive system (520-579)	1,376	
Acute appendicitis	280	20.3
Cholelithiasis	206	15.0
Dentofacial anomalies including malocclusion	163	11.8
Other noninfectious gastroenteritis and colitis	77	5.6
Diseases of pancreas	73	5.3
Genitourinary system (580-629)	1,452	
Menstrual disorder, other abnormal bleeding	235	16.2
Noninflammatory disorders of cervix	176	12.1
Pain & other symptoms, female genital organs	169	11.6
Infections of kidney	148	10.2
Other disorders of breast	115	7.9
Pregnancy complications (630-679, V codes)	17,354	
Trauma to perineum and vulva during delivery	4,523	26.1
Other indications for care, intervention related to labor	1,401	8.1
Other current conditions complicating pregnancy	1,306	7.5
Abnormality of organs and soft tissues of pelvis	1,074	6.2
Hypertension complicating pregnancy childbirth	1,005	5.8
Skin and subcutaneous tissue (680-709)	211	
Other cellulitis and abscess	128	60.7
Pilonidal cyst	24	11.4
Cellulitis and abscess of finger and toe	10	4.7
Disorders of sweat glands	8	3.8
Urticaria	8	3.8
Musculoskeletal system (710 -739)	985	
Intervertebral disc disorders	265	26.9
Other derangement of joint	94	9.5
Other disorders of bone and cartilage	76	7.7
Internal derangement of knee	74	7.5
Other and unspecified disorders of joint	71	7.2
Signs, symptoms, ill-defined conditions (780-799)	889	
Other symptoms involving abdomen and pelvis	237	26.7
Symptoms involving respiratory system, chest	233	26.2
General symptoms	230	25.9
Symptoms involving digestive system	50	5.6
Symptoms involving head and neck	43	4.8
Injury and poisoning (800-999)	1,219	
Other complications of procedures	187	15.3
Poisoning by analgesics antipyretics & antirheumatics	92	7.5
Complications peculiar to certain specified procedures	86	7.1
Fracture of ankle	71	5.8
Poisoning by psychotropic agents	63	5.2
Other (E80-E99 and V01-V89, except pregnancy)	549	
Encounter for administrative purposes	209	38.1
Observation & evaluation for suspected conditions	88	16.0
Care involving use of rehabilitation procedures	55	10.0
Other orthopedic aftercare	53	9.7
Other psychosocial circumstances	39	7.1

Figure 3. Length of hospital stay, by major diagnostic category, active component, U.S. Armed Forces, 2009

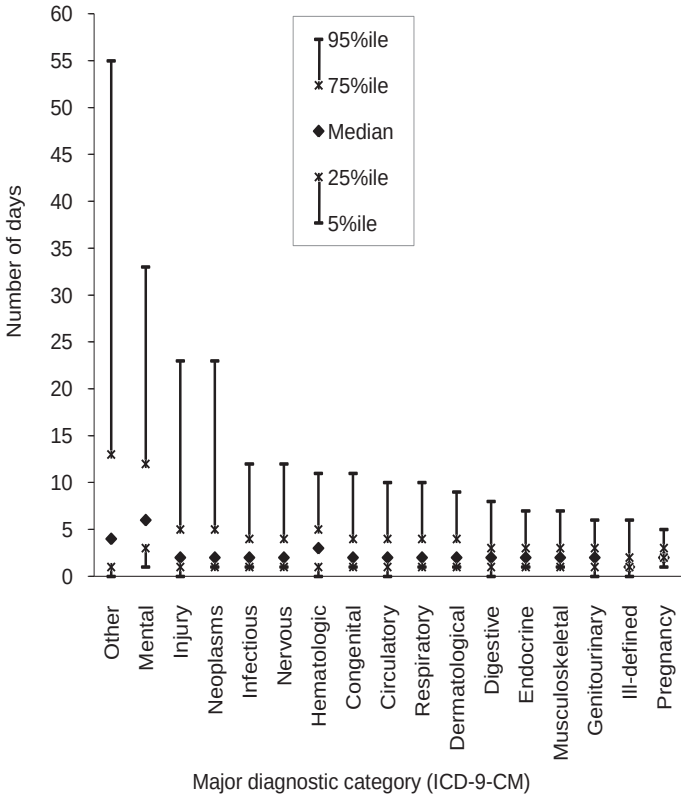


Figure 4. Length of hospital stay, by year, active component, U.S. Armed Forces, 2009

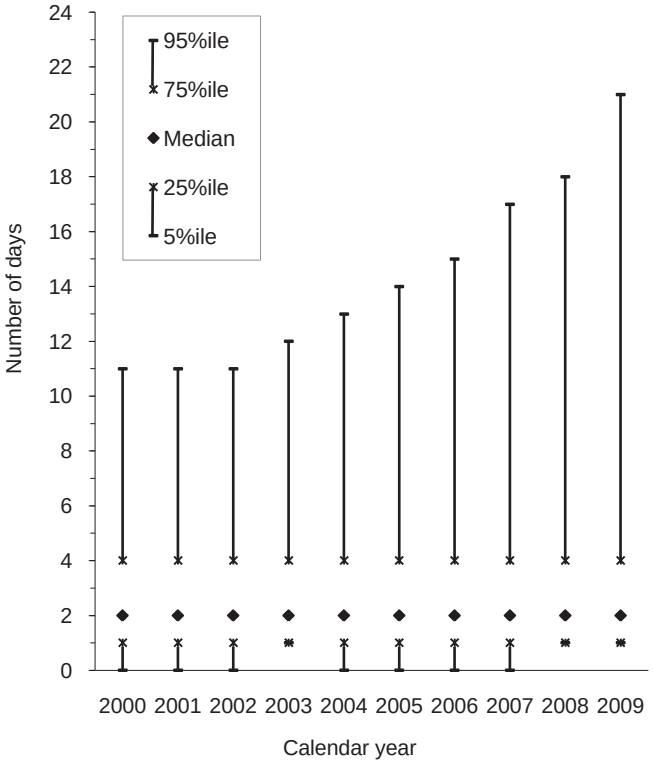


Table 4. Injury and poisoning-related hospitalizations[a] by causes[b], active component, U.S. Armed Forces, 2009

Cause	No.	%
Unintentional	**6,458**	**86.7**
Fall and miscellaneous	2,174	29.2
Complications of medical/surgical procedures	1,366	18.3
Land transport	807	10.8
Guns, explosives (includes accidents during war)	515	6.9
Poisons and fire	497	6.7
Athletics	416	5.6
Environmental	247	3.3
Machinery, tools	224	3.0
Air transport	184	2.5
Water transport	28	0.4
Intentional	**964**	**12.9**
Battle casualty	500	6.7
Self-inflicted	346	4.6
Non-battle, inflicted by other (e.g., assault)	118	1.6
Missing/invalid code	**28**	**0.4**

[a]Hospitalizations in U.S. military medical facilities only
[b]Causes determined by codes specified in NATO Standarization Agreement (STANAG) No.2050

Among males, injury and poisoning-related hospitalizations were most often related to complications of medical and surgical procedures and fractures of face, ankle, and leg bones **(Table 2).** Among females, injury and poisoning-related hospitalizations were most often related to complications of medical and surgical procedures, poisonings (with analgesics, antipyretics, antirheumatics, or psychotropic agents), and ankle fractures **(Table 3).**

Durations of hospitalization:

As in previous years, in 2009, median durations of hospitalization varied across diagnostic categories – from one day (for "signs, symptoms, and ill-defined conditions") to six days (for mental disorders) **(Figure 3).** Median durations of hospitalization for all other categories of diagnoses were two or three days **(Figure 3).** In contrast to median durations of hospitalization, ranges significantly varied across diagnostic categories **(Figure 3).** For example, in 2009, approximately 5% of hospitalizations for mental disorders were longer than 33 days; for most other conditions, fewer than 5% of hospitalizations exceeded 12 days. In general, the median durations of hospitalizations of U.S. service members have been stable (2 days) for the last ten years **(Figure 4).**

Hospitalizations by service:

Among members of the Navy, Air Force, and Coast Guard, pregnancy and childbirth-related conditions accounted for more hospitalizations than any other category of illness or injury. Among members of the Army, mental disorders was the leading cause of hospitalizations. The hospitalization rate for mental disorders was nearly two-times higher among soldiers than Marines and more than two-times higher among soldiers than members of the other Services **(Table 5).**

Injuries and poisonings were the leading cause of hospitalizations among Marines and the third leading cause

Table 5. Hospitalizations, by Service and ICD-9 diagnostic category, active component, U.S. Armed Forces 2009

	Army		Navy		Air Force		Marine Corps		Coast Guard	
Major diagnostic category (ICD-9-CM)	**No.**	**Rate[a]**	**No.**	**Rate[a]**	**No.**	**Rate[a]**	**No.**	**Rate[a]**	**No.**	**Rate[a]**
Mental disorders (290 - 319)	10,222	18.7	2,721	8.4	2,304	7.0	2,009	9.9	282	6.7
Pregnancy and childbirth (630 - 679, relevant V codes)[b]	6,437	11.8	4,296	13.2	4,829	14.7	1,428	7.0	364	8.6
Injury and poisoning (800 - 999)	5,811	10.6	1,764	5.4	1,350	4.1	2,047	10.1	184	4.4
Musculoskeletal system (710 - 739)	3,771	6.9	1,237	3.8	1,422	4.3	943	4.7	143	3.4
Digestive system (520 - 579)	3,355	6.1	1,577	4.8	1,689	5.2	868	4.3	187	4.4
Ill-defined conditions (780 - 799)	2,487	4.5	754	2.3	797	2.4	327	1.6	82	1.9
Respiratory system (460 - 519)	1,931	3.5	484	1.5	468	1.4	634	3.1	47	1.1
Other (E81-E99 and V01-V82, except pregnancy-related)	1,380	2.5	590	1.8	421	1.3	432	2.1	69	1.6
Circulatory system (390 - 459)	1,357	2.5	560	1.7	570	1.7	237	1.2	55	1.3
Genitourinary system (580 - 629)	1,248	2.3	519	1.6	659	2.0	222	1.1	49	1.2
Skin and subcutaneous (680 - 709)	976	1.8	367	1.1	294	0.9	404	2.0	41	1.0
Nervous system (320 - 389)	952	1.7	335	1.0	340	1.0	212	1.0	39	0.9
Neoplasms (140 - 239)	920	1.7	436	1.3	501	1.5	156	0.8	48	1.1
Infectious and parasitic diseases (001 - 139)	616	1.1	229	0.7	238	0.7	165	0.8	40	0.9
Endocrine, nutrition, immunity (240 - 279)	384	0.7	177	0.5	187	0.6	95	0.5	19	0.5
Hematologic disorders (280 - 289)	168	0.3	93	0.3	69	0.2	40	0.2	16	0.4

[a]Rate per 1,000 person-years of service

[b]Rates of pregnancy and childbirth-related hospitalizations among females only in the Army, Navy, Air Force, Marine Corps and Coast Guard were 87.4, 86.3, 74.4, 112.2, and 67.8, respectively.

among soldiers and sailors. The hospitalization rate for injuries and poisonings was slightly higher among soldiers (10.6 per 1000 p-yrs) than Marines (10.1 per 1000 p-yrs) and approximately two-times higher among soldiers than members of the other Services **(Table 5).**

Editorial comment:

In 2009, on average, one of every 17 active component members was hospitalized for any condition; one of every 21 members was hospitalized for a condition not related to pregnancy or childbirth. Hospitalization rates for all causes among active component members have not significantly changed in the past decade. As in the past, in 2009, mental disorders, pregnancy and childbirth-related conditions, and injuries and poisonings accounted for more than one-half of all hospitalizations of active component members. Since 2005, hospitalizations for mental disorders increased by more than 50%; during the same period, hospitalizations for pregnancy and childbirth-related conditions and for injuries and poisonings slightly decreased.

The recent sharp increase in hospitalizations for mental disorders likely reflects the effects of many factors including repeated deployments and prolonged exposures to combat stresses; increased awareness and concern regarding threats to mental health among unit commanders, supervisors, service members and their families; increased screening for and detection of mental disorders after combat-related service and other traumatizing experiences; and decreasing stigmas and barriers to seeking and receiving mental disorder diagnoses and care.

There are limitations to this summary that should be considered when interpreting the results. For example, the scope of this report is limited to members of the active components of the Services. Many Reserve component members were hospitalized for illnesses and injuries while serving on active duty in 2009; these hospitalizations are not accounted for in this report. Also, many injury and poisoning-related hospitalizations occur in non-military hospitals; in most cases, the "external causes" of such injuries and poisonings are not reported on standardized records. If there are significant differences in the causes of injuries and poisonings that resulted in hospitalizations in U.S. military compared to non-military hospitals, the results of this summary **(Table 4)** could be misleading. Also, this summary is based on primary (first-listed) discharge diagnoses only; in many hospitalized cases, there are multiple underlying conditions. For example, military members who are wounded in combat or injured in motor vehicle accidents may have multiple injuries and complex medical and psychological complications. In such cases, only the first-listed discharge diagnosis would be accounted for in this report. Even with these and other limitations, this report provides useful and informative insights regarding the natures, rates, and distributions of the most serious illnesses and injuries that affect active component military members.

In 2009, adjustment reactions (including post-traumatic stress disorder), mood disorders, and intervertebral disc disorders were the leading causes of hospitalizations of both male and female service members. In recent years, attention at the highest levels of the U.S. military and significant resources have been focused on detecting, diagnosing, and treating mental disorders — especially those related to long and repeated deployments and combat stresses. In addition, the findings of this and other surveillance reports suggest that military medical research, force health protection, and clinical practice efforts should focus on improving the prevention, treatment, and rehabilitation of back disorders among U.S. military members.

Ambulatory Visits among Members of the Active Component, U.S. Armed Forces, 2009

This report documents frequencies, rates, trends, and characteristics of ambulatory visits of active component members of the U.S. Armed Forces during calendar year 2009. Ambulatory visits of U.S. service members in fixed military and non-military (reimbursed through the Military Health System) medical treatment facilities are documented with standardized, automated records. These records are routinely archived for health surveillance purposes in the Defense Medical Surveillance System which is the source of data for this report. Records of ambulatory visits not documented with automated records (e.g., during deployments, field training exercises, at sea) are not included.

For this report, all records of ambulatory visits of active component members of the Army, Navy, Air Force, Marine Corps and Coast Guard in 2009 were categorized according to the first three digits of the primary (first-listed) diagnosis code (International Classification of Diseases, 9th revision, clinical modifications [ICD-9-CM]).

Frequencies, rates, and trends:

During 2009, there were 17,352,657 reported ambulatory visits of active component service members **(Table 1).** The crude annual rate (all causes) was 12,004 visits per 1,000 service members; thus, on average, each service member had 12 clinic visits during the year **(Figure 1).** The rate of documented ambulatory visits in 2009 was 8.4% higher than in 2008 and 55.0% higher than in 2000 **(Figure 1).**

In 2009, nearly one-half (45.4%) of all ambulatory visits were for "other contact with health services." This category (indicated by "V" codes of the ICD-9-CM) includes health care not related to a current illness or injury; such care includes counseling, immunizations, deployment-related health assessments, routine and special medical examinations (e.g., periodic, occupational, retirement) and therapeutic and rehabilitative treatments for previously diagnosed illnesses or injuries (e.g., physical therapy) **(Tables 2,3).** Three "V-coded" diagnoses accounted for the majority of the visits in this category: general medical examination (32.1%), care involving use of rehabilitation procedures (15.6%), and special investigations and examinations (7.8%).

In 2009, there were 9,478,603 documented ambulatory visits for illnesses and injuries (ICD-9-CM: 001-999). The crude annual rate of illness and injury-related visits was 6.56 visits per person per year (p-yr). The rate of ambulatory visits for illnesses and injuries in 2009 was 16.8% higher than in 2007 and 35.6% higher than in 2005 **(Table 1).**

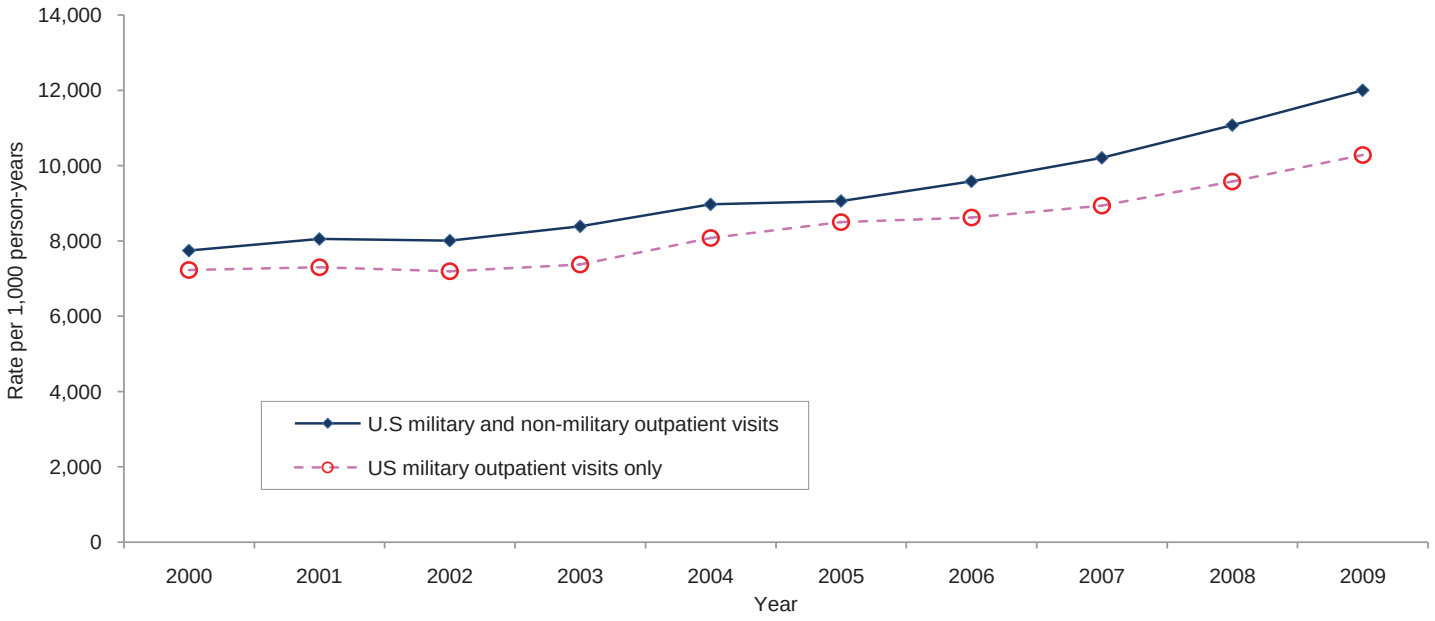
Ambulatory visits, by diagnostic categories:

In 2009, three illness and injury-related diagnostic categories accounted for the majority (50.5%) of all illness and injury-related ambulatory visits among active component service members: musculoskeletal and connective tissue disorders (23.7%), mental disorders (15.6%), and "signs, symptoms and ill-defined conditions" (11.2%) **(Table 1).**

From 2005 to 2009, there were increases in numbers of visits in all major diagnostic categories except infectious and parasitic diseases **(Table 1).** The largest percentage increases from 2005 to 2009 were for mental disorders (change in ambulatory visits, 2005-9: +805,528; +120.1%), "signs, symptoms and ill-defined conditions" (change in ambulatory visits, 2005-9: +416,418; +64.2%), and musculoskeletal and connective tissue disorders (change in ambulatory visits, 2005-9: +729,673; +48.0%) **(Table 1).**

Over the past 5 years, the relative distributions of ambulatory visits by diagnostic categories have changed. Across the 17 major diagnostic categories of the ICD-9-CM,

Figure 1. Rate of ambulatory visits by calendar year, active component, U.S. Armed Forces, 1999-2008



between 2005 and 2009, other (V-coded) encounters and musculoskeletal and connective tissue disorders consistently accounted for the most and second most ambulatory visits, respectively. During the same period, two categories increased and three categories decreased by at least two in rank order based on numbers of attributable visits: mental disorders (change in rank order, 2005-9: 6th to 3rd), "signs, symptoms and ill-defined conditions" (7th to 4th), injury and poisoning (3rd to 5th), diseases of the respiratory system (4th to 7th), and infectious and parasitic diseases (9th to 12th) **(Table 1).**

Ambulatory visits, by gender:

In 2009, males accounted for three-fourths (74.6%) of all illness and injury-related visits; however, the annual crude rate was approximately twice as high among females (11.47 visits/p-yr) than males (5.74 visits/p-yr). Excluding pregnancy-related visits (which accounted for 14.0% of all ambulatory visits among females), the ambulatory visit rate among females was 9.86 visits/p-yr. As in the past, rates were higher among females than males for every illness and injury-related category **(Figure 2).**

The same three illness and injury-specific diagnoses (at the 3-digit level of the ICD-9-CM) accounted for the most ambulatory visits among males and females **(Tables 2,3).** For each of the most frequently reported illness or injury-specific diagnoses, the rate was higher among females than males: other/unspecified disorders of joints (rates [per 1,000 p-yrs], female: 640.9; male: 407.0; female:male rate ratio [RR]: 1.58); other/unspecified disorders of the back (rates, female: 468.8; male: 301.6; RR: 1.55); and adjustment reaction (rates, female: 450.0; male: 312.8; RR: 1.44). Other specific diagnoses that were among the ten most frequently reported among both males and females were disorders of refraction and accommodation, acute upper respiratory infections of multiple or unspecified sites, and "general symptoms." Three mental disorders were among the ten most frequently reported illness or injury-specific diagnoses among both males (adjustment reaction, alcohol dependence syndrome, nondependent abuse of drugs) and females (adjustment reaction, episodic mood disorders, anxiety disorders) **(Tables 2,3).** Of note, "organic sleep disorders" was the tenth most frequent primary diagnosis during ambulatory visits of males **(Table 2).**

Across diagnostic categories, relationships between age and ambulatory visit rates were generally similar among males and females **(Figure 2).** For example, among both males and females, ambulatory visit rates for neoplasms and circulatory disorders were more than 10 times higher among those 40 or older than those younger than 20 years old; in contrast, clinic visit rates for injuries and poisonings, infectious and parasitic diseases, and mental disorders were generally lower among the oldest compared to younger service members. As in the past, clinic visit rates for genitourinary disorders were fairly stable across all age groups among females but sharply increased with age among males **(Figure 2).**

Dispositions after ambulatory visits:

Approximately 58% of all illness and injury-related visits resulted in "released without limitation" dispositions **(Figure 3).** Only one in 25 (4.1%) illness and injury-related visits resulted in "sick in quarters" dispositions. The illness and injury-related

Table 1. Ambulatory visits, ICD-9 diagnostic categories, active component, U.S. Armed Forces, 2005, 2007 and 2009

	2005			2007			2009		
Major diagnostic category (ICD-9-CM)	**No.**	**No. per person**	**Rank**	**No.**	**No. per person**	**Rank**	**No.**	**No. per person**	**Rank**
Other (V01-V89, except pregnancy-related)	5,981,029	4.23	(1)	6,433,381	4.59	(1)	7,874,054	5.45	(1)
Musculoskeletal system (710-739)	1,519,698	1.07	(2)	1,842,735	1.32	(2)	2,249,371	1.56	(2)
Mental disorders (290-319)	670,486	0.47	(6)	908,155	0.65	(4)	1,476,014	1.02	(3)
Ill-defined conditions (780-799)	648,659	0.46	(7)	821,804	0.59	(5)	1,065,077	0.74	(4)
Injury and poisoning (800-999)	815,312	0.58	(3)	924,628	0.66	(3)	956,500	0.66	(5)
Nervous system (320-389)	696,061	0.49	(5)	723,189	0.52	(6)	857,776	0.59	(6)
Respiratory system (460-519)	734,365	0.52	(4)	712,350	0.51	(7)	822,214	0.57	(7)
Skin and subcutaneous tissue (680-709)	350,382	0.25	(8)	374,251	0.27	(8)	392,588	0.27	(8)
Pregnancy complications or care (630-679, relevant V codes)	267,869	0.18 (1.30)[a]	(10)	317,879	0.23 (1.59)[a]	(9)	330,727	0.23 (1.61)[a]	(9)
Digestive system (520-579)	241,472	0.17	(11)	278,283	0.20	(10)	286,725	0.20	(10)
Genitourinary system (580-629)	228,719	0.16	(12)	255,675	0.18	(11)	277,084	0.19	(11)
Infectious and parasitic diseases (001-139)	272,884	0.19	(9)	249,044	0.18	(12)	270,605	0.19	(12)
Circulatory system (390 -459)	148,353	0.10	(13)	166,570	0.12	(13)	178,560	0.12	(13)
Endocrine, nutrition, immunity (240-279)	127,164	0.09	(14)	132,307	0.09	(14)	138,452	0.10	(14)
Neoplasms (140-239)	88,479	0.06	(15)	113,309	0.08	(15)	125,545	0.09	(15)
Congenital anomalies (740-759)	23,118	0.02	(16)	26,573	0.02	(16)	27,682	0.02	(16)
Hematologic disorders (280-289)	15,778	0.01	(17)	18,936	0.01	(17)	23,683	0.02	(17)
Total	*12,829,828*	*9.06*		*14,299,069*	*10.21*		*17,352,657*	*12.00*	

[a]Rate of pregnancy-related visits among females only (in parentheses)

Table 2. Most frequent diagnoses during ambulatory visits by major diagnostic category, males, U.S. Armed Forces, 2009

Diagnostic category (ICD-9-CM codes) ♂	No.	%
Infectious and parasitic Diseases (001 - 139)	207,246	
Viral and chlamydial infection in conditions classified	63,219	30.5
Other diseases due to viruses and chlamydiae	38,766	18.7
Dermatophytosis	28,900	13.9
Intestinal infections due to other organisms	11,887	5.7
Streptococcal sore throat and scarlet fever	9,491	4.6
Neoplasms (140 - 239)	92,915	
Benign neoplasm of skin	16,141	17.4
Neoplasm of uncertain behavior, oth & unspec site	12,816	13.8
Lipoma	8,856	9.5
Neoplasms of unspecified nature	8,395	9.0
Malignant neoplasm of testis	4,583	4.9
Endocrine, nutrition, immunity (240 - 279)	106,772	
Disorders of lipoid metabolism	37,019	34.7
Diabetes mellitus	18,952	17.7
Overweight, obesity and other hyperalimentation	13,449	12.6
Disorders of fluid electrolyte and acid-base balance	7,318	6.9
Acquired hypothyroidism	6,644	6.2
Hematologic disorders (280 - 289)	14,778	
Other and unspecified anemias	3,604	24.4
Diseases of white blood cells	2,637	17.8
Hereditary hemolytic anemias	2,348	15.9
Purpura and other hemorrhagic conditions	1,707	11.6
Other diseases of blood and blood-forming organs	1,614	10.9
Mental disorders (290 - 319)	1,190,352	
Adjustment reaction	387,864	32.6
Alcohol dependence syndrome	173,053	14.5
Nondependent abuse of drugs	146,741	12.3
Anxiety, dissociative and somatoform disorders	130,817	11.0
Episodic mood disorders	111,783	9.4
Nervous system (320 - 389)	691,078	
Disorders of refraction and accommodation	187,672	27.2
Organic sleep disorders	136,546	19.8
Hearing loss	37,435	5.4
Disorders of conjunctiva	36,280	5.2
Migraine	26,114	3.8
Circulatory system (390 - 459)	151,939	
Essential hypertension	69,782	45.9
Hemorrhoids	16,155	10.6
Cardiac dysrhythmias	13,267	8.7
Varicose veins of other sites	5,261	3.5
Other forms of chronic ischemic heart disease	4,415	2.9
Respiratory system (460 - 519)	634,282	
Acute upper respiratory infections, unspecified site	164,394	25.9
Allergic rhinitis	68,380	10.8
Acute pharyngitis	67,629	10.7
Acute nasopharyngitis (common cold)	56,408	8.9
Pneumonia organism unspecified	39,456	6.2

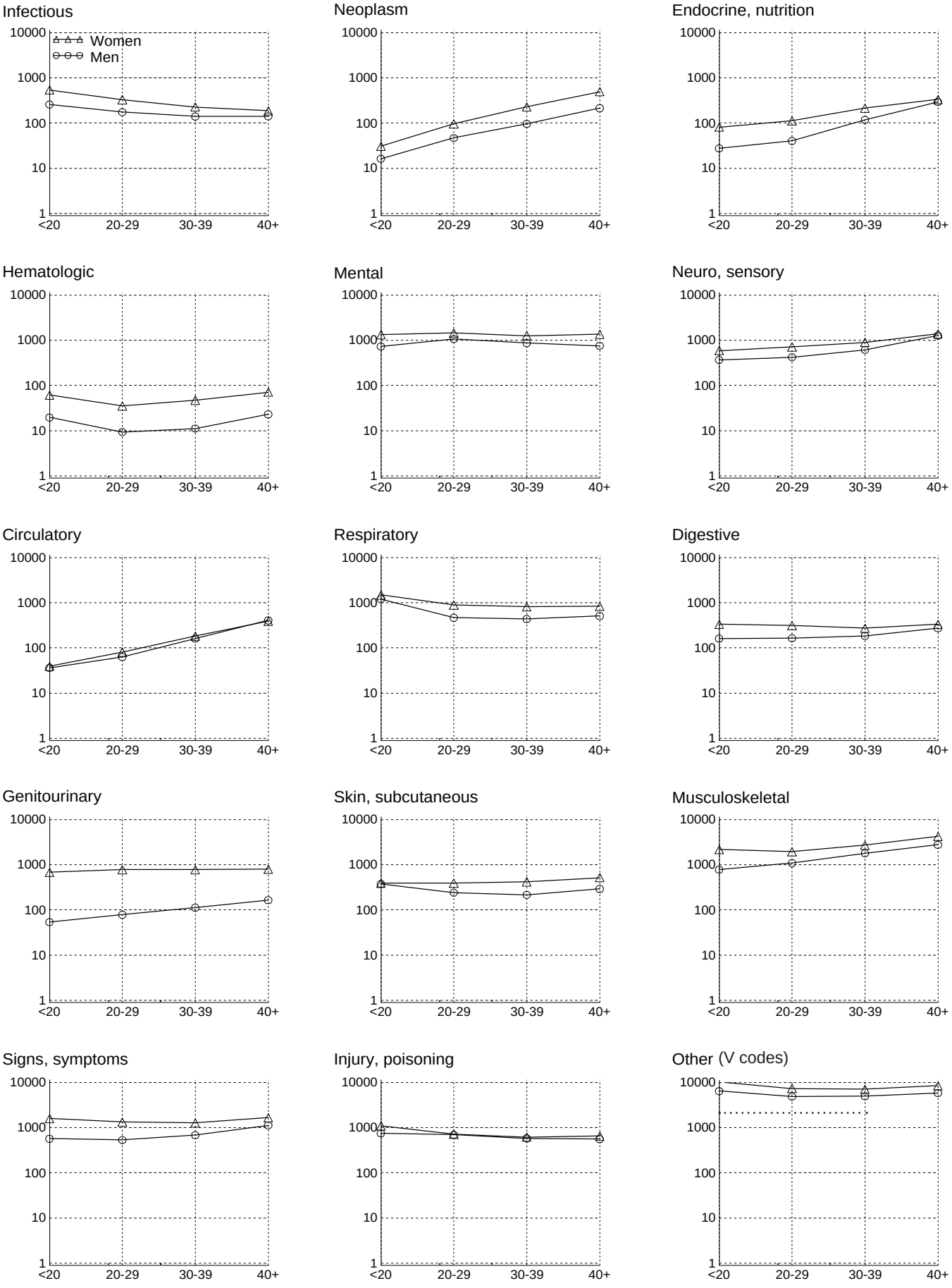
Diagnostic category (ICD-9-CM codes) ♂	No.	%
Digestive system (520 - 579)	223,901	
Other noninfectious gastroenteritis and colitis	56,970	25.4
Diseases of esophagus	32,777	14.6
Inguinal hernia	13,966	6.2
Gastrointestinal hemorrhage	13,826	6.2
Gastritis and duodenitis	12,024	5.4
Genitourinary system (580 - 629)	117,181	
Other disorders of male genital organs	21,600	18.4
Calculus of kidney and ureter	20,284	17.3
Other disorders of urethra and urinary tract	11,874	10.1
Orchitis and epididymitis	10,611	9.1
Male infertility	7,852	6.7
Dermatological diseases (680 - 709)	308,298	
Other cellulitis and abscess	57,207	18.6
Contact dermatitis and other eczema	44,703	14.5
Diseases of hair and hair follicles	42,495	13.8
Diseases of sebaceous glands	37,724	12.2
Diseases of nail	16,486	5.3
Musculoskeletal system (710 - 739)	1,767,059	
Other and unspecified disorders of joint	504,688	28.6
Other and unspecified disorders of back	373,967	21.2
Intervertebral disc disorders	119,867	6.8
Peripheral enthesopathies and allied syndromes	119,603	6.8
Other disorders of soft tissues	109,081	6.2
Congenital anomalies (740 - 759)	20,621	
Certain congenital musculoskeletal deformities	5,827	28.3
Congenital anomalies of the integument	3,121	15.1
Other congenital musculoskeletal anomalies	2,985	14.5
Other congenital anomalies of limbs	2,311	11.2
Congenital anomalies of urinary system	1,004	4.9
Ill-defined conditions (780 - 799)	785,794	
General symptoms	168,972	21.5
Symptoms involving respiratory system, chest	142,976	18.2
Other ill-defined,unknown causes of morbidity	114,194	14.5
Other symptoms involving abdomen and pelvis	80,953	10.3
Symptoms involving digestive system	62,872	8.0
Injury and poisoning (800 - 999)	808,869	
Sprains and strains of ankle and foot	83,783	10.4
Sprains and strains of knee and leg	81,905	10.1
Sprains and strains, other/unspec back	56,819	7.0
Sprains and strains of shoulder and upper arm	50,880	6.3
Injury other and unspecified	45,716	5.7
Other (V01-V82)	6,312,789	
General medical examination	2,143,475	34.0
Care involving use of rehabilitation procedures	985,340	15.6
Special investigations and examinations	414,132	6.6
Encounters for administrative purposes	393,634	6.2
Prophylactic vaccination and inoculation	386,112	6.1

Table 3. Most frequent diagnoses during ambulatory visits by major diagnostic category, females, U.S. Armed Forces, 2009

Diagnostic category (ICD-9-CM codes) ♀	No.	%
Infectious and parasitic Diseases (001 - 139)	63,359	
Viral and chlamydial infection in conditions classified	20,817	32.9
Candidiasis	7,513	11.9
Other diseases due to viruses and chlamydiae	6,922	10.9
Dermatophytosis	5,010	7.9
Intestinal infections due to other organisms	4,048	6.4
Neoplasms (140 - 239)	32,630	
Benign neoplasm of skin	5,142	15.8
Uterine leiomyoma	4,414	13.5
Malignant neoplasm of female breast	3,925	12.0
Neoplasm of uncertain behavior, other & unspec site	3,107	9.5
Neoplasms of unspecified nature	2,248	6.9
Endocrine, nutrition, immunity (240 - 279)	31,680	
Overweight, obesity and other hyperalimentation	5,905	18.6
Acquired hypothyroidism	5,839	18.4
Disorders of fluid electrolyte and acid-base balance	2,708	8.5
Ovarian dysfunction	2,601	8.2
Disorders of lipoid metabolism	2,473	7.8
Hematologic disorders (280 - 289)	8,905	
Other and unspecified anemias	3,262	36.6
Iron deficiency anemias	2,531	28.4
Purpura and other hemorrhagic conditions	739	8.3
Hereditary hemolytic anemias	668	7.5
Diseases of white blood cells	633	7.1
Mental disorders (290 - 319)	285,662	
Adjustment reaction	92,470	32.4
Episodic mood disorders	50,128	17.5
Anxiety, dissociative and somatoform disorders	41,948	14.7
Depressive disorder not elsewhere classified	32,641	11.4
Alcohol dependence syndrome	21,018	7.4
Nervous system (320 - 389)	166,698	
Disorders of refraction and accommodation	48,761	29.3
Migraine	24,186	14.5
Disorders of conjunctiva	10,073	6.0
Other headache syndromes	7,638	4.6
Organic sleep disorders	7,415	4.4
Circulatory system (390 - 459)	26,621	
Essential hypertension	9,096	34.2
Hemorrhoids	3,529	13.3
Cardiac dysrhythmias	2,649	10.0
Varicose veins of lower extremities	1,717	6.4
Disease of capillaries	939	3.5
Respiratory system (460 - 519)	187,932	
Acute upper respiratory infections, unspecified site	49,851	26.5
Allergic rhinitis	24,910	13.3
Acute pharyngitis	22,089	11.8
Acute nasopharyngitis (common cold)	14,724	7.8
Asthma	12,204	6.5

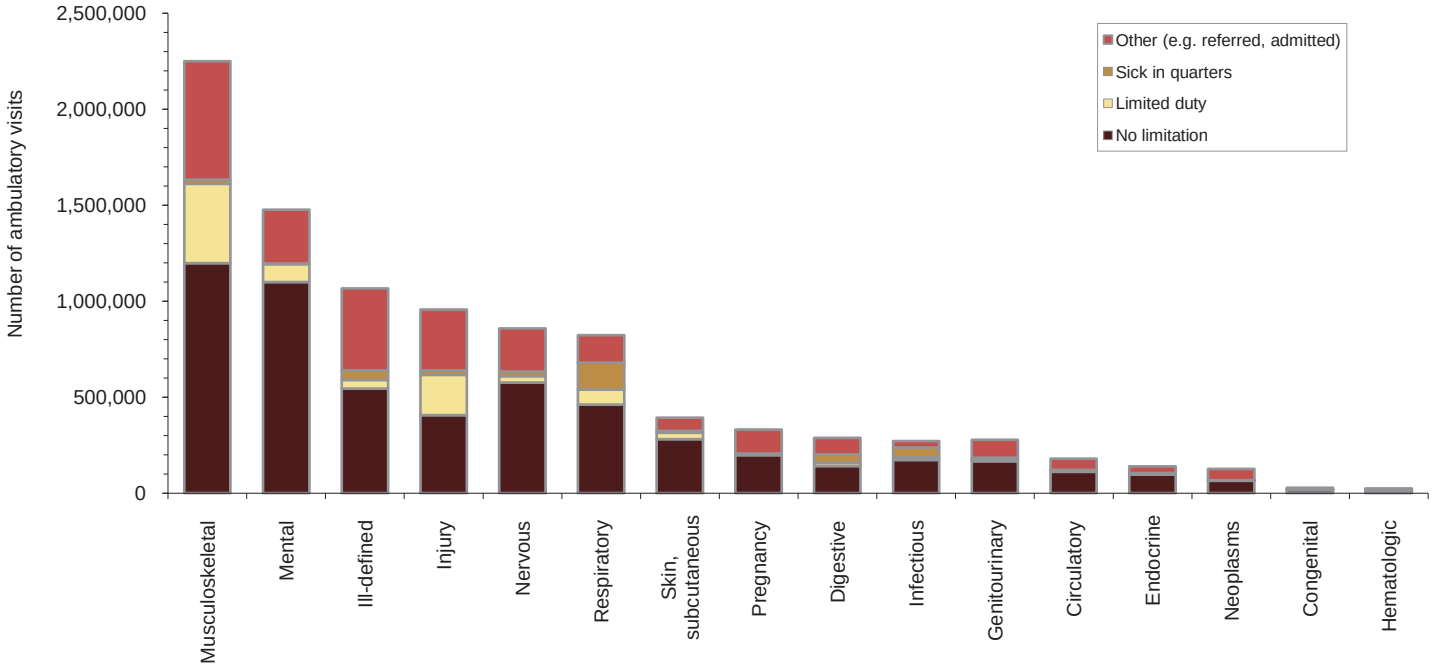
Diagnostic category (ICD-9-CM codes) ♀	No.	%
Digestive system (520 - 579)	62,824	
Other noninfectious gastroenteritis and colitis	19,413	30.9
Functional digestive disorders, nec	8,384	13.3
Diseases of esophagus	6,348	10.1
Gastritis and duodenitis	4,475	7.1
Gastrointestinal hemorrhage	2,589	4.1
Genitourinary system (580 - 629)	159,903	
Pain & other symptoms, female genital organs	24,452	15.3
Menstrual disorders, other abnormal bleeding	21,609	13.5
Other disorders of urethra and urinary tract	20,851	13.0
Inflammatory disease of cervix vagina and vulva	18,572	11.6
Other disorders of breast	12,812	8.0
Pregnancy complications (630 - 679, V codes)	330,727	
Normal pregnancy	119,469	36.1
Other current conditions in the mother classifiable else	28,659	8.7
Postpartum care and examination	27,247	8.2
Other complications of pregnancy, nec	24,210	7.3
Early or threatened labor	11,210	3.4
Dermatological diseases (680 - 709)	84,290	
Diseases of sebaceous glands	17,921	21.3
Contact dermatitis and other eczema	13,208	15.7
Other cellulitis and abscess	9,251	11.0
Diseases of hair and hair follicles	7,205	8.5
Other disorders of skin and subcutaneous tissue	5,502	6.5
Musculoskeletal system (710 - 739)	482,312	
Other and unspecified disorders of joint	131,697	27.3
Other and unspecified disorders of back	96,331	20.0
Other disorders of soft tissues	38,466	8.0
Nonallopathic lesions not elsewhere classified	37,205	7.7
Peripheral enthesopathies and allied syndromes	26,352	5.5
Ill-defined conditions (780 - 799)	279,283	
Other symptoms involving abdomen and pelvis	44,598	16.0
General symptoms	38,739	13.9
Symptoms involving respiratory system, chest	38,149	13.7
Other unknown causes of morbidity	34,076	12.2
Nonspecific abnormal histological/ immunological	29,226	10.5
Injury and poisoning (800 - 999)	147,631	
Sprains and strains of knee and leg	18,471	12.5
Sprains and strains of ankle and foot	17,790	12.1
Sprains and strains of other, unspec parts of back	14,156	9.6
Injury other and unspecified	6,832	4.6
Sprains and strains of shoulder and upper arm	6,435	4.4
Other (V01-V82, except pregnancy-related)	1,561,265	
General medical examination	382,247	24.5
Care involving use of rehabilitation procedures	239,895	15.4
Special investigations and examinations	201,169	12.9
Other persons seeking consultation	107,644	6.9
Encounters for administrative purposes	102,452	6.6

Figure 2. Rate[a] of ambulatory visits, by major diagnostic categories, by age and gender, U.S. Armed Forces, 2009



[a]Rate per 1,000 person-years

Figure 3. Ambulatory visits in relation to reported dispositions, by diagnostic category, active components, U.S. Armed Forces, 2009



diagnostic categories with the highest proportions of "sick in quarters" or "limited duty" dispositions were diseases of the respiratory system (26.4%), infectious and parasitic diseases (24.4%), injuries and poisonings (24.3%), diseases of the digestive system (21.2%), and musculoskeletal and connective tissue disorders (19.4%). Musculoskeletal and connective tissue disorders and injuries and poisonings accounted for two-thirds (63.8%) of all "limited duty" dispositions; diseases of the respiratory system accounted for more than one-third (36.1%) of all "sick in quarters" dispositions – more than twice as many (n= 138,783) as any other disease category **(Figure 3).**

Editorial comment:

In the past five years, the distribution of illness and injury-related ambulatory visits in relation to their reported primary causes has changed. Of particular note, from 2005 to 2009, numbers of documented visits for mental disorders more than doubled; and in 2009, mental disorders accounted for more ambulatory visits of active component members than any other illness or injury-specific category except musculoskeletal and connective tissue disorders. In 2009, musculoskeletal, connective tissue, and mental disorders accounted for nearly 40% of all illness and injury-related ambulatory visits.

There was only a slight increase (3.5%) in ambulatory visits for injuries and poisonings from 2007 to 2009; during that time, the relative importance of injuries and poisonings as a primary cause of ambulatory visits declined. However, the military operational impacts of various conditions cannot be assessed by numbers of attributable ambulatory visits alone. For example, in 2009, injuries and poisonings accounted for only about one of every 20 ambulatory visits overall but approximately one-fourth of all ambulatory visits with duty-limiting dispositions. Of particular note in relation to injuries and musculoskeletal conditions, in 2009 as in the past, back injuries/back pain accounted for extraordinarily large numbers of ambulatory visits and lost duty time; resources should be focused on preventing, treating, and rehabilitating back pain/injuries among active component members.

The findings of this report should be interpreted with consideration of several limitations. For example, ambulatory care that is delivered by unit medics and at deployed (including in Afghanistan, Iraq, and afloat) medical treatment facilities may not be documented on standardized, automated records and thus not archived in the Defense Medical Surveillance System (the source of data for this report). In turn, this summary does not reflect the experience of active component military members overall to the extent that the natures and rates of illnesses and injuries may vary among those who are and are not deployed. Also, this summary is based on first-listed (primary) diagnosis codes reported on ambulatory visit records. As a result, the summary discounts morbidity related to comorbid and complicating conditions. Also, the accuracy of reported diagnoses likely varies across conditions, care providers, treatment facilities, and clinical settings. While specific diagnoses during specific encounters may not be reliable, summaries of the frequencies, natures, and trends of ambulatory encounters among active component members overall are informative and potentially useful. For example, the relatively large and sharply increasing numbers of ambulatory visits for mental disorders in general and organic sleep disorders among men in particular are interesting and perhaps revealing, e.g., responses of the Military Health System to the effects of combat and deployment-related stresses on active force members.

Absolute and Relative Morbidity Burdens Attributable to Various Illnesses and Injuries, U.S. Armed Forces, 2009

Illnesses and injuries are "burdens" to the U.S. Armed Forces to the extent that they degrade the health, fitness, morale, sense of well-being, and military operational effectiveness of service members and their units. They also burden the U.S. Military Health System because they consume scarce resources for diagnosis, treatment, rehabilitation, and disability compensation. Perceptions of the "military importance" of various conditions help determine the natures of and priorities for research and prevention activities. Decisions regarding prevention and research priorities should consider the morbidity and health care burdens that are attributable to various conditions.

Several disease classification systems and morbidity measures have been used to estimate the absolute and relative public health burdens that are attributable to various conditions.[1] Of course, different systems of classifying illnesses and injuries and different morbidity metrics lead to different rankings of illnesses and injuries by their attributable public health burdens.[2] For example, in a given population or setting, the illnesses and injuries that account for the most hospitalizations are likely different from those that account for the most outpatient medical encounters; and the illnesses and injuries that account for the most medical encounters overall likely differ from those that affect the most individuals, have the most debilitating or long-lasting effects, and so on.[2] Clearly, the system used to lump and split related diagnoses into unique "conditions" and the metrics used to quantify condition-specific morbidity burdens can significantly affect estimates of the relative importance of various conditions.

This annual summary uses a standard disease classification system (slightly modified for use among U.S. military members) and several health care burden measures to quantify the impacts of various illnesses and injuries among members of the U.S. Armed Forces in 2009.

Methods:

This summary captured all inpatient and outpatient medical encounters of all active component members of the U.S. Army, Navy, Air Force, Marine Corps, and Coast Guard during 2009 according to the primary (first-listed) diagnosis (if reported with an ICD-9-CM code between 001 and 999). Burden of disease categories were formed by grouping related illnesses and injuries (as defined by ICD-9-CM diagnoses at the 3-digit level) based on a modified version of the classification system developed for the Global Burden of Disease (GBD) Study.[1] In general, the GBD system groups diagnoses with common pathophysiologic or etiologic bases and/or significant international health policymaking importance. For our purposes, we disaggregated some diagnoses that are grouped into single categories in the GBD system (e.g., mental disorders) to increase the military relevance of the results. We also categorized injuries by the affected anatomic sites rather than the causes because external causes of injuries are not routinely reported in military outpatient records.

The "morbidity burdens" attributable to various "conditions" were estimated based on the total number of medical encounters attributable to each condition (with a limit of one encounter per individual per condition per day); total service members affected by each condition (i.e., individuals with at least one medical encounter for the condition during the year); and total bed-days during hospitalizations for each condition.

Results:

Morbidity burden, by category of conditions:

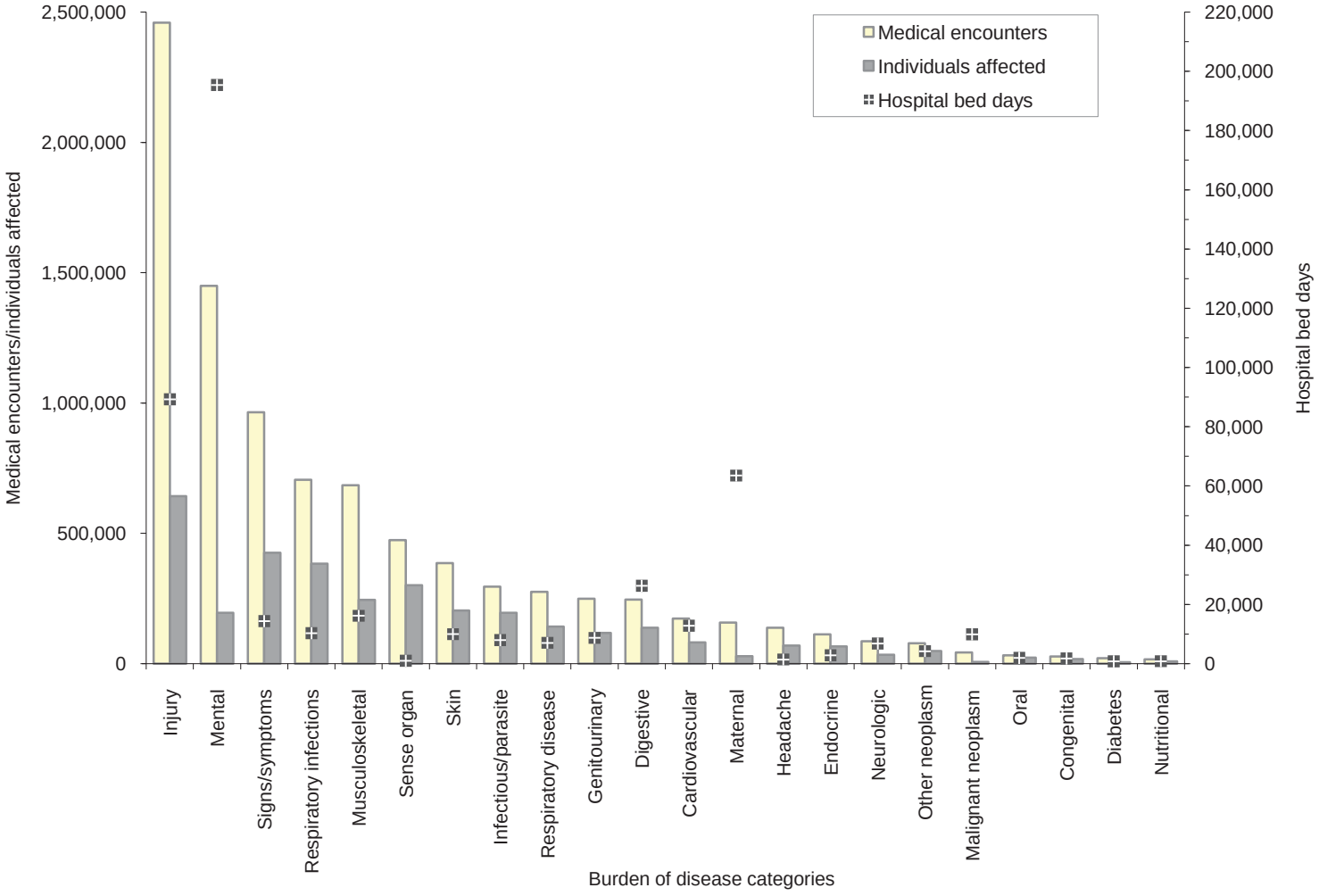
In 2009, more service members (n=643,000) received medical care for injuries than for any other single burden of disease category **(Figure 1).** As in the past, injuries and mental disorders accounted for more medical encounters and hospital bed days by far than any other category **(Figure 1).** Mental disorders accounted for nearly two-fifths (39.7%) of all hospital bed days, and injuries accounted for more than one-fourth (27.1%) of all medical encounters **(Figure 1).** Together, injuries and mental disorders accounted for nearly 60% of all hospital bed days and more than 40% of all medical encounters **(Figure 1).**

Of note, maternal conditions (including pregnancy complications and childbirth) accounted for a relatively large proportion (12.9%) of all hospital bed days but relatively few (1.7%) medical encounters overall **(Figure 1).**

Medical encounters, by condition:

As in the past, in 2009, four conditions accounted for approximately one-fourth, and 11 conditions accounted for more than one-half, of all illness and injury-related medical encounters of military members **(Figure 2).** The conditions that accounted for the most medical encounters included injuries of the back and abdomen, knee, arm and shoulder, and foot and ankle; upper respiratory infections; substance abuse disorders; and various mental health conditions including mood disorders, anxiety disorders, and adjustment disorders. Unlike in previous years, in 2009, there were more medical

Figure 1. Medical encounters, individuals affected and hospital bed days, by burden of disease category, active component, U.S. Armed Forces, 2009



encounters for mood, anxiety, and adjustment disorders than for the most common sensory disorder (disorders of refraction/accommodation) **(Figure 2).**

Individuals affected, by condition:

As in the past, in 2009 more service members received medical care for upper respiratory infections than for any other specific condition **(Table 1).** Of the 10 conditions that affected the most service members, five were injuries – of the back and abdomen, foot and ankle, knee, "unspecified," and arm and shoulder **(Table 1).**

Hospital bed-days, by condition:

In 2009, mood and substance abuse disorders accounted for more than one-fourth of all hospital days **(Table 1, Figure 3).** Together, four mental disorders (mood disorder, substance abuse disorders, adjustment reaction, anxiety disorder) and two pregnancy and childbirth-related conditions (delivery, pregnancy complications) accounted for nearly one-half (48.7%) of all hospital bed-days. **(Table 1, Figure 3).**

Relationships between health care burden indicators:

There was a strong correlation between the number of medical encounters attributable to various conditions and the number of individuals affected by the conditions (r=0.92). For example, the eight conditions that affected the most individuals were among the fifteen leading causes of medical encounters **(Table 1).** In contrast, there were not strong relationships between the hospital bed-days attributable to conditions and either numbers of individuals affected by (r=0.20), or medical encounters attributable to (r=0.45) the same conditions. For example, childbirth and substance abuse disorders were among the top three sources of hospital bed-days; however, these conditions affected relatively few service members. Upper respiratory infections affected more individuals and accounted for medical encounters than any other specific condition; however, this condition accounted for relatively few hospital bed-days **(Table 1).**

Finally, "injuries of the back/abdomen" was the only condition among the top 10 in relation to all burden measures. In addition, "other back problems" was among the top 25 in relation to all burden measures. **(Table 1).**

Table 1. Health care burdens attributable to various diseases and injuries, U.S. Armed Forces, 2009

Major category Condition[a]	Medical encounters[b]		Individuals affected[c]		Bed days	
	No.	Rank	No.	Rank	No.	Rank
Injury and poisoning						
Back and abdomen	553,888	(3)	181,264	(5)	13,731	(10)
Knee	409,033	(5)	135,285	(8)	3,564	(30)
Arm and shoulder	379,080	(6)	123,889	(10)	6,152	(19)
Foot and ankle	343,567	(8)	146,964	(7)	5,925	(20)
Unspecified injury	210,967	(14)	128,337	(9)	3,760	(29)
Head and neck	209,232	(15)	95,165	(14)	18,176	(7)
Hand and wrist	133,861	(22)	71,328	(17)	2,615	(31)
Leg	121,878	(24)	47,274	(28)	9,969	(11)
Other complications NOS	32,618	(48)	18,415	(49)	15,338	(9)
Environmental	29,256	(49)	23,227	(46)	1,648	(41)
All other injury	14,517	(64)	10,094	(60)	2,149	(37)
Other injury from external causes	11,400	(72)	8,523	(63)	348	(79)
Poisoning, drugs	5,572	(82)	3,571	(74)	5,437	(24)
Poisoning, nondrug	4,194	(88)	3,019	(78)	372	(77)
Mental disorders						
Substance abuse disorders	363,484	(7)	38,353	(33)	61,332	(2)
Anxiety	323,026	(9)	54,218	(26)	23,679	(5)
Mood	297,424	(10)	56,426	(25)	68,466	(1)
Adjustment	271,057	(12)	71,440	(16)	24,646	(4)
All other mental disorders	132,389	(23)	50,550	(27)	5,845	(21)
Tobacco dependence	28,795	(51)	17,913	(52)	0	(128)
Psychotic	16,555	(63)	2,118	(82)	9,700	(13)
Personality	11,694	(70)	3,507	(76)	1,163	(49)
Somatoform	5,251	(84)	1,649	(87)	494	(72)
Signs and symptoms						
All other signs and symptoms	682,022	(1)	341,595	(1)	7,824	(16)
Respiratory and chest	167,346	(17)	102,586	(12)	4,087	(28)
Abdomen and pelvis	114,589	(25)	67,094	(20)	2,402	(34)
Respiratory infections						
Upper respiratory infections	558,941	(2)	327,576	(2)	2,007	(39)
Lower respiratory infections	113,352	(26)	70,383	(18)	8,549	(14)
Otitis media	36,929	(47)	28,785	(41)	77	(102)
Musculoskeletal diseases						
All other musculoskeletal	468,924	(4)	190,453	(3)	8,461	(15)
Other back problems	160,229	(18)	59,897	(23)	4,885	(25)
Other knee disorders	23,603	(55)	10,685	(59)	1,509	(43)
Other shoulder disorders	13,962	(66)	7,719	(68)	228	(86)
Osteoarthritis	13,663	(68)	7,793	(66)	893	(58)
Rheumatoid arthritis	3,688	(91)	1,134	(93)	125	(98)
Sense organ diseases						
Refraction/accommodation	236,140	(13)	184,667	(4)	5	(124)
All other sense organ diseases	169,538	(16)	108,314	(11)	873	(59)
Hearing disorders	52,408	(39)	32,431	(37)	49	(109)
Glaucoma	14,439	(65)	8,765	(62)	12	(119)
Cataracts	1,602	(105)	859	(99)	4	(126)
Skin diseases						
All other skin diseases	274,145	(11)	149,732	(6)	9,806	(12)
Contact dermatitis	55,978	(36)	41,337	(31)	56	(106)
Sebaceous gland diseases	55,523	(37)	32,738	(36)	43	(111)
Infectious and parasitic diseases						
All other infectious and parasitic	155,921	(19)	101,897	(13)	4,366	(27)
Unspecified viral infection	78,452	(31)	66,323	(21)	512	(70)
STDs	24,971	(52)	18,498	(48)	770	(61)
Diarrheal diseases	18,137	(61)	16,027	(55)	1,085	(51)
Chlamydia	8,893	(76)	7,821	(65)	19	(115)
Hepatitis B and C	3,126	(95)	1,039	(95)	42	(112)
Bacterial meningitis	781	(110)	348	(106)	260	(84)
Tuberculosis	697	(113)	291	(108)	173	(92)
Malaria	316	(119)	114	(116)	218	(88)
Intestinal nematode infection	223	(122)	200	(112)	0	(127)
Tropical cluster	127	(127)	61	(121)	17	(116)
Respiratory diseases						
Allergic rhinitis	91,720	(29)	45,749	(29)	11	(120)
All other respiratory diseases	62,893	(35)	35,817	(34)	5,801	(22)
Chronic sinusitis	44,045	(41)	34,488	(35)	221	(87)
Asthma	38,859	(44)	18,258	(50)	652	(65)
Chronic obstructive pulmonary	37,838	(45)	30,778	(38)	279	(83)
Genito-urinary diseases						
All other genito-urinary diseases	152,876	(20)	87,055	(15)	4,622	(26)
Female genital pain	24,263	(54)	14,388	(57)	486	(73)
Kidney stones	22,120	(56)	8,276	(64)	1,402	(44)
Menstrual disorders	21,330	(57)	13,808	(58)	644	(66)
Other breast disorders	17,836	(62)	9,597	(61)	425	(76)
Nephritis and nephrosis	7,308	(78)	1,946	(85)	998	(55)
Benign prostatic hypertrophy	3,285	(93)	2,186	(81)	63	(105)
Digestive diseases						
All other digestive diseases	108,450	(27)	56,649	(24)	15,554	(8)
Other gastroenteritis and colitis	76,420	(32)	62,001	(22)	1,288	(46)
Esophagus disease	37,583	(46)	24,730	(43)	1,015	(54)
Inguinal hernia	13,928	(67)	6,126	(69)	758	(63)
Appendicitis	5,558	(83)	3,340	(77)	6,941	(18)
Cirrhosis of the liver	1,838	(104)	1,239	(92)	127	(97)
Peptic ulcer disease	1,596	(106)	1,018	(96)	531	(67)
Cardiovascular diseases						
Essential hypertension	78,488	(30)	41,823	(30)	449	(74)
All other cardiovascular diseases	76,015	(33)	39,444	(32)	6,986	(17)
Ischemic heart disease	8,954	(75)	3,560	(75)	2,224	(36)
Cerebrovascular disease	6,477	(80)	1,938	(86)	2,143	(38)
Inflammatory	2,830	(96)	979	(97)	896	(57)
Rheumatic heart disease	741	(112)	531	(103)	78	(101)
Maternal conditions						
Pregnancy complications	94,342	(28)	23,248	(45)	20,116	(6)
Delivery	50,822	(40)	18,025	(51)	41,399	(3)
Ectopic/miscarriage/abortion	9,352	(74)	4,139	(73)	1,037	(52)
Puerperium complications	2,565	(99)	1,619	(89)	844	(60)
All other maternal disorders	97	(128)	36	(125)	39	(113)
Headache						
Headache	137,641	(21)	69,163	(19)	1,351	(45)

[a]Major categories and conditions defined in the Global Burden of Disease study
[b]Medical encounters: total hospitalizations and ambulatory visits for the condition (with no more than one encounter per individual per day per condition)
[c]Individuals with at least one hospitalization or ambulatory visit for the condition
[d]Conditions affecting newborns erroneously coded on service member medical records

Table 1 continued. Health care burdens attributable to various diseases and injuries, U.S. Armed Forces, 2009

Major category Condition[a]	Medical encounters[b]		Individuals affected[c]		Bed days	
	No.	Rank	No.	Rank	No.	Rank
Endocrine disorders						
All other endocrine disorders	53,888	(38)	24,498	(44)	2,566	(32)
Lipoid metabolism disorders	39,337	(43)	29,353	(39)	45	(110)
Obesity	19,341	(60)	15,048	(56)	134	(95)
Neurologic conditions						
All other neurologic conditions	64,033	(34)	26,763	(42)	5,445	(23)
Other mononeuritis - limbs	11,452	(71)	5,763	(71)	164	(93)
Epilepsy	7,517	(77)	2,374	(79)	770	(62)
Multiple sclerosis	3,252	(94)	619	(102)	345	(80)
Parkinson disease	144	(126)	44	(122)	0	(130)
Alzheimer and other dementias	3	(130)	3	(130)	0	(129)
Other neoplasms						
All other neoplasms	43,939	(42)	28,843	(40)	2,491	(33)
Benign skin neoplasm	20,882	(58)	16,497	(53)	10	(121)
Lipoma	9,476	(73)	6,060	(70)	64	(104)
Uterine leiomyoma	4,409	(87)	2,083	(83)	1,589	(42)
Malignant neoplasms						
Lymphoma and multiple myeloma	7,009	(79)	712	(101)	1,035	(53)
All other malignant neoplasms	6,338	(81)	1,120	(94)	2,374	(35)
Melanoma and other skin cancers	4,891	(85)	2,305	(80)	256	(85)
Testicular cancer	4,511	(86)	719	(100)	335	(81)
Breast cancer	3,761	(90)	357	(105)	118	(99)
Leukemia	3,290	(92)	186	(113)	1,181	(48)
Colon and rectum cancers	2,738	(97)	257	(110)	1,222	(47)
Brain	2,240	(100)	210	(111)	901	(56)
Thyroid	2,175	(101)	501	(104)	441	(75)
Prostate cancer	1,432	(107)	328	(107)	358	(78)
Mouth and oropharynx cancers	1,389	(108)	159	(115)	137	(94)
Trachea,bronchus,lung cancers	660	(114)	86	(118)	309	(82)
Pancreas cancer	382	(115)	39	(124)	212	(89)
Esophagus cancer	381	(116)	17	(129)	109	(100)
Ovary cancer	341	(118)	75	(119)	50	(108)
Stomach cancer	314	(120)	34	(127)	514	(68)
Cervix uteri cancer	297	(121)	40	(123)	14	(117)
Liver cancer	223	(123)	34	(126)	193	(90)
Bladder cancer	221	(124)	90	(117)	50	(107)
Corpus uteri cancer	41	(129)	18	(128)	9	(122)
Oral conditions						
All other oral conditions	29,010	(50)	21,423	(47)	1,873	(40)
Periodontal disease	2,033	(102)	1,629	(88)	6	(123)
Dental caries	1,073	(109)	960	(98)	12	(118)
Congenital anomalies						
All other congenital anomalies	24,937	(53)	16,278	(54)	1,161	(50)
Congenital heart disease	2,686	(98)	1,328	(90)	511	(71)
Diabetes mellitus						
Diabetes mellitus	20,821	(59)	5,430	(72)	707	(64)
Nutritional deficiencies						
All other nutritional deficiencies	12,874	(69)	7,760	(67)	513	(69)
Iron-deficiency anemia	4,003	(89)	1,979	(84)	177	(91)
Protein-energy malnutrition	193	(125)	70	(120)	71	(103)
Conditions arising during the perinatal period[d]						
All other perinatal anomalies	1,896	(103)	1,268	(91)	26	(114)
Low birth weight	774	(111)	283	(109)	130	(96)
Birth asphyxia and birth trauma	369	(117)	160	(114)	4	(125)

[a]Major categories and conditions defined in the Global Burden of Disease study
[b]Medical encounters: total hospitalizations and ambulatory visits for the condition (with no more than one encounter per individual per day per condition)
[c]Individuals with at least one hospitalization or ambulatory visit for the condition
[d]Conditions affecting newborns erroneously coded on service member medical records

Editorial comment:

Once again, this annual report documents the disproportionate morbidity and health care burdens that are attributable to mental disorders and injuries among U.S. military members. Of the 131 burden of disease conditions considered in this analysis, remarkably few accounted for a majority of the morbidity and health care burden of military members. For example, seven conditions accounted for more than one-half of all hospital bed-days; and of these conditions, four mental disorders – mood, substance abuse, adjustment, and anxiety disorders — accounted for 488 person-years of lost duty due to hospitalization in 2009.

Also, eleven conditions accounted for more than one-half of all medical encounters; these conditions included anxiety, mood, and substance abuse disorders; injuries of the back and abdomen; injuries of the upper and lower extremities; upper respiratory infections; and skin diseases.

Of particular note, in the past several years, there has been a continuous and steep increase in lost duty and health care burdens related to mental disorders. Between calendar years 2000 and 2009, the numbers of bed-days and medical encounters attributable to mood, substance abuse, adjustment, and anxiety disorders increased by 290% and 257%, respectively.[7] Throughout military history, mental disorders (including substance abuse disorders) and injuries have been leading causes of morbidity and lost duty time among service members.[3-7] As noted many times in the past, the prevention, treatment, and rehabilitation of injuries of all types – particularly, back injuries – and the detection, characterization, and management of mental disorders – including substance abuse and deployment stress-related disorders, e.g., PTSD – should have the highest priorities for military medical research, public health, and force health protection programs.

In summary, this analysis, like those of recent years, documents that relatively few illnesses and injuries account

Figure 2. Percent and cumulative % distributions, burden categories that accounted for the most medical encounters among U.S. service members, 2009

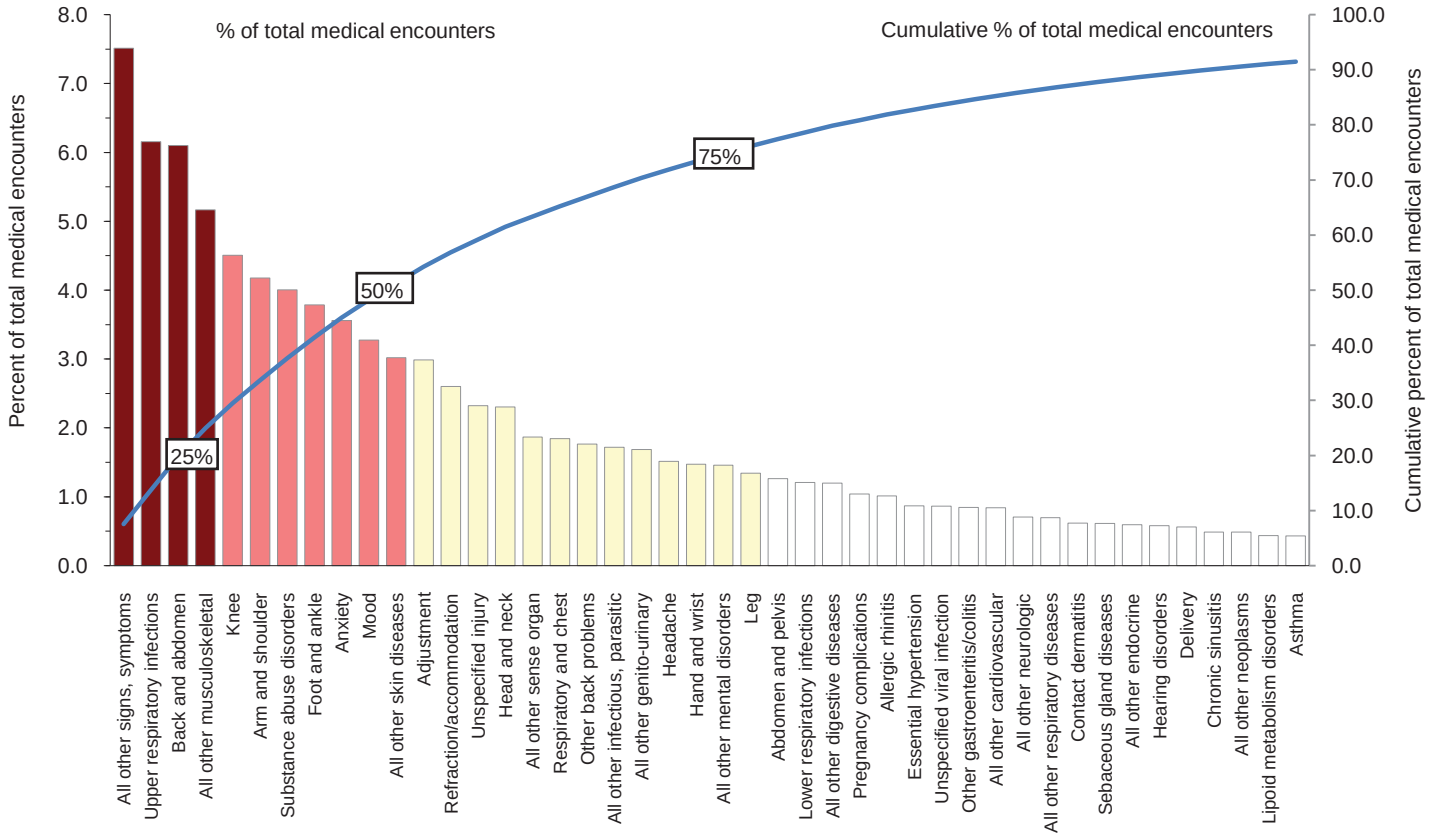
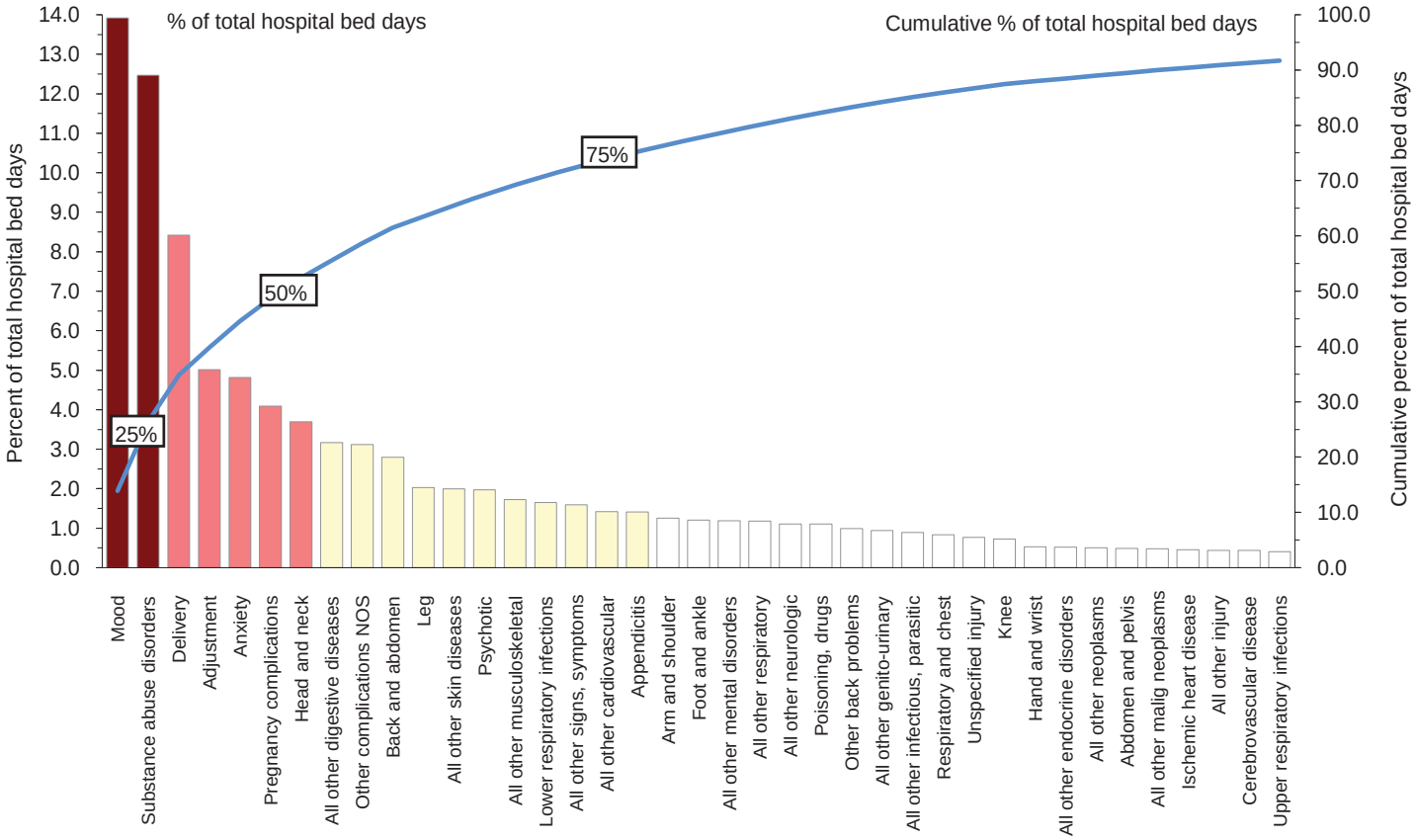


Figure 3. Percent and cumulative % distributions, burden categories that accounted for the most hospital bed days, U.S. service members, 2009



for most of the morbidity and health care burdens that affect U.S. military members. Illnesses and injuries that account for disproportionately large morbidity and health care burdens should be targeted to determine their susceptibilities to primary, secondary, and tertiary prevention efforts and given high priorities for prevention resources.

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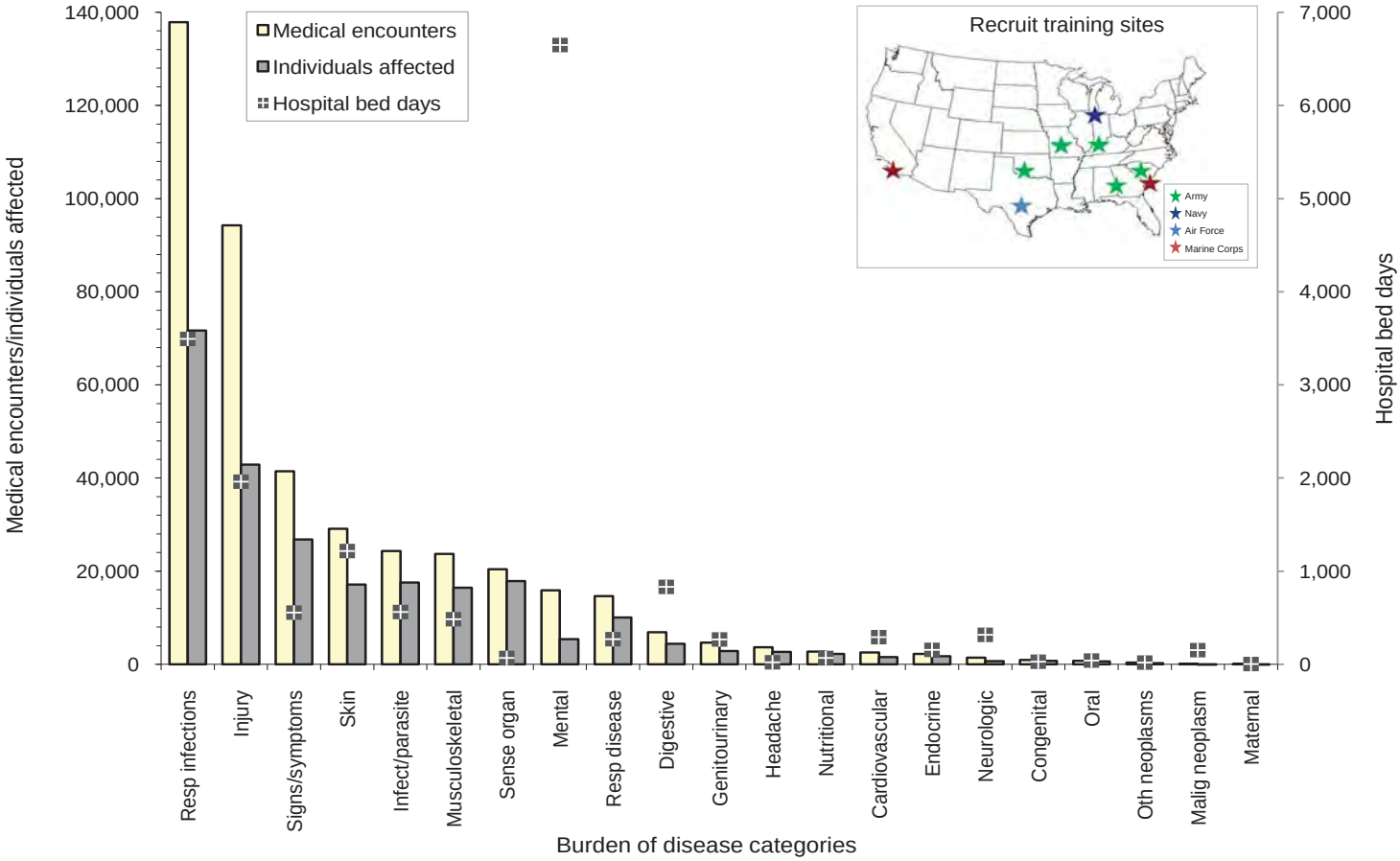
Surveillance Snapshot: Illness and Injury Burdens among U.S. Military Recruits

Medical encounters, individuals affected and hospital bed days, by burden of disease category, recruits[a], active component, U.S. Armed Forces, 2009



[a]Recruits were defined as active component members of the Army, Navy, Air Force or Marine Corps with a rank of E1 to E4 who served at one of nine training locations (inset). Medical encounters were included if they occurred during a service-specific training period following service members' first-ever personnel records.

Reportable Medical Events, Active and Reserve Components, U.S. Armed Forces, 2009

In the U.S. Armed Forces, medical events of public health and/or military importance are reported through service-specific electronic reporting systems: the Army Reportable Medical Events System (RMES), the Air Force Reportable Event Surveillance System (AFRESS), and the Navy Disease Reporting System internet (NDRSi). Preventive medicine/public health centers at military installations worldwide detect and electronically transmit reports of notifiable events to their respective service surveillance centers. Reports from all of the services are forwarded to the Armed Forces Health Surveillance Center (AFHSC) where they are integrated with personnel and other medical event data in the Defense Medical Surveillance System (DMSS). The integration of data from all of the services enables summaries and analyses across the entire U.S. Armed Forces.

In 1998, 70 medical conditions[1] were designated as "reportable" by the Department of Defense. In June 2009, norovirus, SARS and "outbreak, generalized" were added to the official list of reportable events and six conditions were removed.[2] A summary of the 2009 changes and full text of the most recent reportable events guidelines are available at: < http://www.afhsc.mil/reportableEvents >.

This report summarizes frequencies, rates, and trends of notifiable medical events (as reported from U.S. military medical treatment facilities) among active and Reserve component members of the U.S. Armed Forces during calendar year 2009.

During 2009, there were 28,158 reports of notifiable medical events among members of the U.S. Armed Forces. During the year, there were, on average, 40.7, 18.8 and 17.7 case reports per day from Army, Air Force, and Navy medical treatment facilities, respectively. In 2009 compared to 2008, there were 37% more reports from Air Force installations, 31% more from Army installations, and 29% fewer from Navy installations **(Tables 1-4).** The higher number of case reports in 2009 overall likely reflects increases in the incidence of some conditions as well as changes in the numbers and natures of notifiable conditions, increasing awareness of and compliance with reporting requirements, broader access to diagnostic capabilities for some conditions, and increasing numbers of service members who received care in the Military Health System. Trends in the numbers of reports of various conditions must be interpreted with consideration of these factors.

Sexually-transmitted infections:

In 2009, as in prior years, sexually-transmitted infections (due to chlamydia, gonorrhea, syphilis, and nongonococcal urethritis [NGU]) accounted for most (n=20,771; 73.8%) of the notifiable event reports overall; also, sexually-transmitted *Chlamydia trachomatis* remained the most frequently reported condition overall (n=18,015; 64.0% of all reports) **(Tables 1-4).** Numbers of reports of chlamydia, gonorrhea, and syphilis in 2009 were similar to those in 2008. NGU was discontinued as a notifiable medical event in 2009 (as of 31 July); in turn, there were sharply fewer reports of NGU in 2009 than in 2008 **(Table 1).**

Environmental

In 2009, military medical facilities reported 1,028 heat- and 59 cold-related injuries among active and reserve component members. There were similar numbers of cold injury-related reports, but many more heat injury-related reports in 2009 compared to prior years **(Tables 1-4).** In regard to heat injuries, there were similar numbers of heat stroke but many more heat exhaustion/unspecified heat injury reports in 2009 versus prior years. The increase in reports of heat exhaustion/unspecified heat injury may be related to the mid-year change in reporting requirements **(Figure 1).**

Vaccine preventable illnesses

Among military members in 2009, there were no reported cases of anthrax, diphtheria, measles, polio or tetanus. In 2009 compared to prior years, there were more reports of mumps (n=9) but similar numbers of reports of hepatitis A (n=12), hepatitis B (n=105) and pertussis (n=13). For the first time since 2005, cases of rubella (n=2) were reported among U.S. military members. Of note, the number of influenza cases reported in 2009 (n=5,501) was more than 10-times the yearly average from 2006 through 2008 **(Figure 1).** In 2009, 41% of all case reports of influenza among U.S. service members were submitted from Air Force medical facilities **(Tables 1,3).**

Arthropod-transmitted diseases

In 2009 compared to recent prior years, there were notably fewer reports of malaria (n=42) and slightly more reports of Lyme disease (n=89) among U.S. service members **(Table 1, Figure 1).** The decrease in malaria case reports overall reflected sharp declines in cases with *Plasmodium vivax* and unspecified etiologies; the same numbers of *P. falciparum* cases were reported in 2009 and 2008.[3] The number of dengue fever case reports (n=6) in 2009 was lower than in 2008 (n=11), but similar to each of the preceding three years **(Table 1).**

Figure 1. Number of reportable events among U.S. Service members during 2009 compared to the average during the period 2006-2008

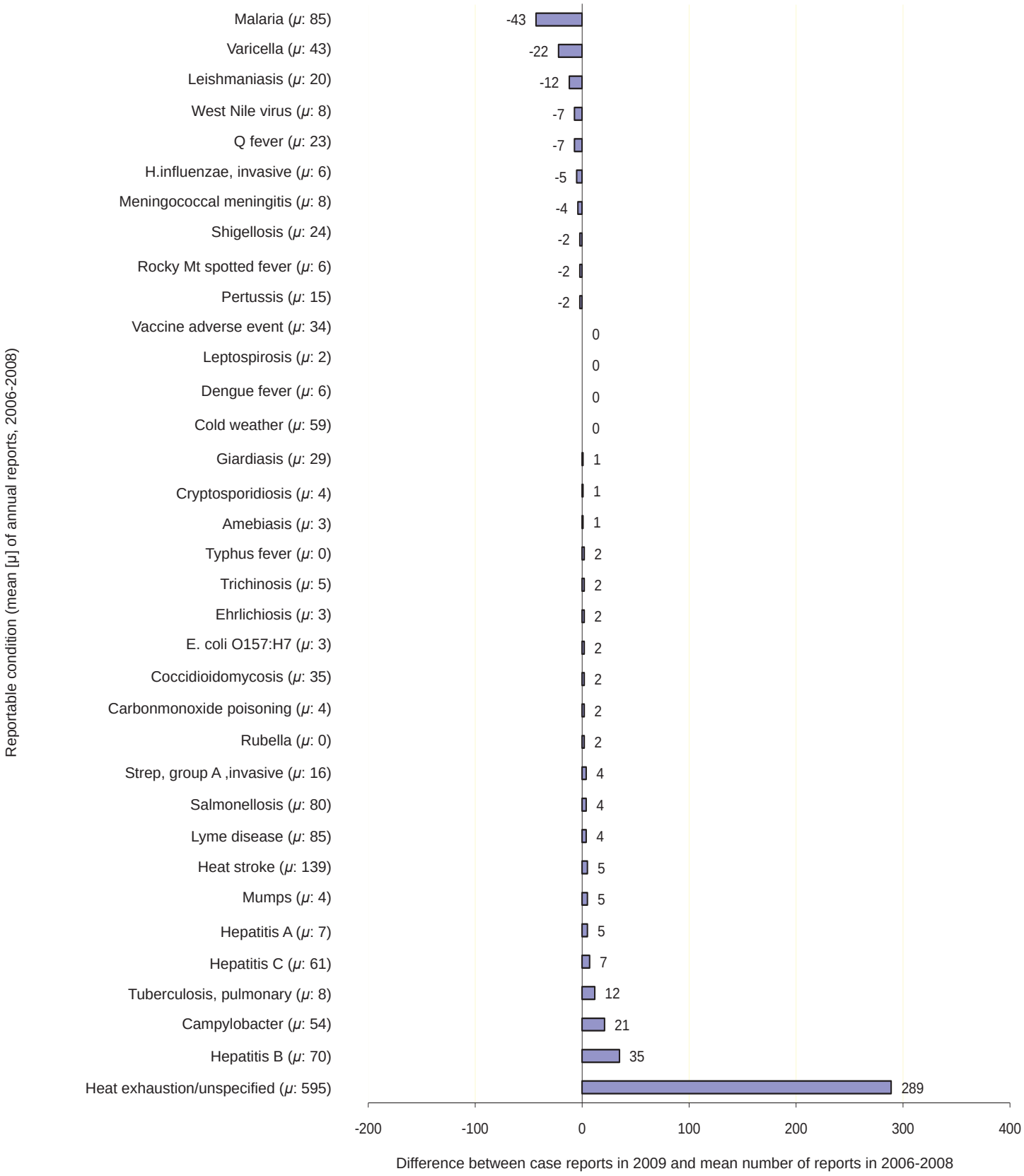


Table 1. Notifiable medical events[a] among active and Reserve component service members, U.S. Armed Forces, as reported from U.S. military medical treatment facilities worldwide, 2005-2009

Diagnosis[b]	2005	2006	2007	2008	2009
All reportable events	**14,218**	**13,405**	**15,753**	**25,376**	**28,158**
Amebiasis	6	3	1	6	4
Anthrax	0	0	0	0	0
Biological warfare agent exposure[3]	0	0	1	0	0
Botulism	0	0	0	0	0
Brucellosis	2	2	2	1	2
Campylobacter	64	54	41	67	75
Carbon monoxide poisoning[c]	1	2	1	9	6
Chemical agent exposure[c]	0	3	0	5	2
Chlamydia	9,762	9,688	11,896	18,972	18,015
Cholera	0	3	0	0	0
Coccidioidomycosis	18	35	17	54	37
Cold weather, frostbite	48	38	39	41	31
Cold weather, hypothermia	2	5	13	6	11
Cold weather, immersion type	2	4	2	4	14
Cold weather, unspecified	10	10	10	5	3
Cryptosporidiosis	2	0	2	9	5
Cyclospora	1	0	0	0	0
Dengue fever	5	4	4	11	6
Diphtheria	0	0	0	0	0
E. coli O157:H7	3	2	5	2	5
Ehrlichiosis	2	2	3	3	5
Encephalitis, arboviral	1	0	1	1	1
Filariasis	0	0	0	0	0
Giardiasis	35	16	23	49	30
Gonorrhea	1,852	1,831	1,892	2,632	2,336
H. influenzae, invasive	0	2	2	15	1
Hantavirus infection	6	2	0	0	2
Heat exhaustion[c]/unspecified heat injury[d]	726	570	548	666	884
Heat stroke	163	128	132	158	144
Hemorrhagic fever	0	0	0	0	1
Hepatitis A	13	9	8	5	12
Hepatitis B	67	41	46	123	105
Hepatitis C	54	37	64	83	68
Influenza	488	192	250	1,162	5,501
Lead poisoning[c]	1	1	1	0	0
Legionellosis	0	0	2	1	3
Leishmaniasis, cutaneous	41	20	20	12	4
Leishmaniasis, mucocutaneous	0	0	0	0	0
Leishmaniasis, unspecified	2	4	2	1	4
Leishmaniasis, visceral	1	1	0	0	0
Leprosy	0	0	1	2	2
Leptospirosis	2	1	2	4	2
Listeriosis	0	0	0	0	1
Lyme disease	42	37	75	144	89
Malaria, falciparum	7	7	3	19	19
Malaria, malariae	0	5	0	0	2
Malaria, ovale	0	3	1	1	1
Malaria, unspecified	30	51	29	28	14
Malaria, vivax	40	48	34	27	6
Measles	1	0	0	0	0
Meningococcal meningitis	10	6	7	10	4
Meningococcal septicemia	0	0	0	3	2
Mumps	2	4	2	5	9
Norovirus[d]	-	-	-	-	13
Outbreak, generalized[d]	-	-	-	-	1
Pertussis	18	14	10	22	13
Plague	0	0	0	0	0
Poliomyelitis	0	0	0	0	0
Q fever	5	6	25	38	16
Rabies, human	1	0	0	0	0
Relapsing fever	1	0	0	2	0
Rheumatic fever, acute	0	1	1	2	1
Rift Valley fever	0	0	0	0	0
Rocky Mountain spotted fever	4	3	6	8	4
Rubella	0	0	0	0	2
Salmonellosis	56	61	62	116	84
SARS[d]	-	-	-	-	0
Schistosomiasis	0	1	0	1	4
Shigellosis	20	6	21	44	22
Smallpox	1	0	0	0	0
Streptococcus, group A, invasive	6	10	13	24	20
Syphilis, congenital	1	1	1	3	3
Syphilis, latent	30	27	42	77	92
Syphilis, primary/secondary	49	53	63	148	121
Syphilis, tertiary	1	2	3	5	2
Tetanus	0	0	0	0	0
Toxic shock syndrome	1	0	0	1	3
Trichinosis	4	1	5	9	7
Trypanosomiasis	0	0	0	1	0
Tuberculosis, pulmonary	8	6	7	12	20
Tularemia	0	0	0	1	1
Typhoid fever	0	1	1	0	1
Typhus fever	0	0	0	0	2
Urethritis, non-gonococcal[c]	441	275	217	419	202
Vaccine, adverse event	32	21	40	42	34
Varicella, active duty only	26	35	45	49	21
West Nile virus[c]	1	10	9	6	1
Yellow fever	0	0	0	0	0

[a]Events reported by April 7, 2010
[b]Tri-Service Reportable Events Guidelines and Case Definitions, June 2009
[c]Event reportable through 31 July 2009
[d]Event reportable since 31 July 2009

Table 2. Notifiable medical events[a] among active and Reserve component service members, U.S. Armed Forces, as reported from U.S. Army medical treatment facilities worldwide, 2005-2009

Diagnosis[b]	2005	2006	2007	2008	2009
All reportable events	**9,768**	**10,017**	**10,074**	**11,349**	**14,854**
Amebiasis	2	2	0	1	1
Anthrax	0	0	0	0	0
Biological warfare agent exposure[c]	0	0	1	0	0
Botulism	0	0	0	0	0
Brucellosis	2	1	1	0	1
Campylobacter	50	47	32	37	50
Carbon monoxide poisoning[c]	0	1	0	0	0
Chemical agent exposure[c]	0	3	0	2	0
Chlamydia	6,321	7,001	7,177	8,213	9,556
Cholera	0	2	0	0	0
Coccidioidomycosis	6	5	4	4	3
Cold weather, frostbite	40	34	38	30	9
Cold weather, hypothermia	1	4	10	1	1
Cold weather, immersion type	2	4	2	2	0
Cold weather, unspecified	9	10	10	4	1
Cryptosporidiosis	2	0	0	5	2
Cyclospora	1	0	0	0	0
Dengue fever	2	2	3	0	0
Diphtheria	0	0	0	0	0
E. coli O157:H7	2	2	2	0	3
Ehrlichiosis	2	1	2	1	1
Encephalitis, arboviral	0	0	0	0	0
Filariasis	0	0	0	0	0
Giardiasis	17	11	13	17	11
Gonorrhea	1,497	1,460	1,415	1,475	1,435
H. influenzae, invasive	0	1	2	13	0
Hantavirus infection	5	1	0	0	2
Heat exhaustion[c]/unspecified heat injury[d]	535	486	439	222	621
Heat stroke	157	121	127	103	97
Hemorrhagic fever	0	0	0	0	1
Hepatitis A	11	7	1	1	4
Hepatitis B	41	22	16	24	18
Hepatitis C	42	30	37	24	32
Influenza	276	127	155	596	2,574
Lead poisoning[c]	1	1	1	0	0
Legionellosis	0	0	2	1	0
Leishmaniasis, cutaneous	38	20	19	6	3
Leishmaniasis, mucocutaneous	0	0	0	0	0
Leishmaniasis, unspecified	1	3	2	0	0
Leishmaniasis, visceral	0	1	0	0	0
Leprosy	0	0	1	2	1
Leptospirosis	2	1	2	3	1
Listeriosis	0	0	0	0	1
Lyme disease	28	30	51	48	37
Malaria, falciparum	5	4	2	6	9
Malaria, malariae	0	5	0	0	2
Malaria, ovale	0	1	0	1	0
Malaria, unspecified	28	50	28	15	4
Malaria, vivax	38	45	33	21	5
Measles	1	0	0	0	0
Meningococcal meningitis	5	5	6	2	0
Meningococcal septicemia	0	0	0	0	0
Mumps	2	3	0	0	3
Norovirus[d]	-	-	-	-	13
Outbreak, generalized[d]	-	-	-	-	1
Pertussis	12	9	5	1	3
Plague	0	0	0	0	0
Poliomyelitis	0	0	0	0	0
Q fever	4	4	21	30	11
Rabies, human	0	0	0	0	0
Relapsing fever	1	0	0	0	0
Rheumatic fever, acute	0	1	0	0	0
Rift Valley fever	0	0	0	0	0
Rocky Mountain spotted fever	3	2	1	5	1
Rubella	0	0	0	0	0
Salmonellosis	29	42	37	36	31
SARS[d]	-	-	-	-	0
Schistosomiasis	0	1	0	0	0
Shigellosis	15	4	16	22	9
Smallpox	0	0	0	0	0
Streptococcus, group A, invasive	4	10	10	9	13
Syphilis, congenital	0	0	0	0	0
Syphilis, latent	23	24	30	37	44
Syphilis, primary/secondary	34	37	35	62	63
Syphilis, tertiary	1	2	3	5	2
Tetanus	0	0	0	0	0
Toxic shock syndrome	1	0	0	0	1
Trichinosis	3	1	5	1	1
Trypanosomiasis	0	0	0	0	0
Tuberculosis, pulmonary	3	4	7	9	10
Tularemia	0	0	0	0	0
Typhoid fever	0	1	1	0	0
Typhus fever	0	0	0	0	2
Urethritis, non-gonococcal[c]	419	272	214	213	133
Vaccine, adverse event	29	11	22	19	19
Varicella, active duty only	15	28	26	18	7
West Nile virus[c]	0	10	7	2	1
Yellow fever	0	0	0	0	0

[a]Events reported by April 7, 2010
[b]Tri-Service Reportable Events Guidelines and Case Definitions, June 2009
[c]Event reportable through 31 July 2009
[d]Event reportable since 31 July 2009

Table 3. Notifiable medical events[a] among active and Reserve component service members, U.S. Armed Forces, as reported from U.S. Air Force medical treatment facilities worldwide, 2005-2009

Diagnosis[b]	2005	2006	2007	2008	2009
All reportable events	**3,017**	**2,011**	**3,962**	**4,979**	**6,846**
Amebiasis	2	1	1	5	3
Anthrax	0	0	0	0	0
Biological warfare agent exposure[c]	0	0	0	0	0
Botulism	0	0	0	0	0
Brucellosis	0	0	0	0	1
Campylobacter	11	1	7	17	12
Carbon monoxide poisoning[c]	1	1	1	7	6
Chemical agent exposure[c]	0	0	0	3	0
Chlamydia	2,486	1,714	3,401	3,937	3,931
Cholera	0	1	0	0	0
Coccidioidomycosis	3	4	9	7	12
Cold weather, frostbite	8	4	1	11	20
Cold weather, hypothermia	0	0	3	3	3
Cold weather, immersion type	0	0	0	2	13
Cold weather, unspecified	1	0	0	1	2
Cryptosporidiosis	0	0	2	0	0
Cyclospora	0	0	0	0	0
Dengue fever	1	1	0	0	1
Diphtheria	0	0	0	0	0
E. coli O157:H7	1	0	2	1	0
Ehrlichiosis	0	1	1	0	2
Encephalitis, arboviral	0	0	0	0	0
Filariasis	0	0	0	0	0
Giardiasis	15	3	6	20	11
Gonorrhea	200	163	276	294	340
H. influenzae, invasive	0	1	0	0	0
Hantavirus infection	0	1	0	0	0
Heat exhaustion[c]/unspecified heat injury[d]	0	1	21	14	38
Heat stroke	0	0	0	2	4
Hemorrhagic fever	0	0	0	0	0
Hepatitis A	1	2	6	3	3
Hepatitis B	15	10	18	27	28
Hepatitis C	6	3	14	25	16
Influenza	194	55	87	423	2,243
Lead poisoning[c]	0	0	0	0	0
Legionellosis	0	0	0	0	1
Leishmaniasis, cutaneous	3	0	1	4	0
Leishmaniasis, mucocutaneous	0	0	0	0	0
Leishmaniasis, unspecified	1	0	0	1	4
Leishmaniasis, visceral	0	0	0	0	0
Leprosy	0	0	0	0	0
Leptospirosis	0	0	0	0	1
Listeriosis	0	0	0	0	0
Lyme disease	10	2	12	28	26
Malaria, falciparum	0	1	0	1	4
Malaria, malariae	0	0	0	0	0
Malaria, ovale	0	2	0	0	0
Malaria, unspecified	0	0	0	3	5
Malaria, vivax	1	3	1	2	1
Measles	0	0	0	0	0
Meningococcal meningitis	2	0	1	5	4
Meningococcal septicemia	0	0	0	1	0
Mumps	0	0	2	4	4
Norovirus[d]	-	-	-	-	0
Outbreak, generalized[d]	-	-	-	-	0
Pertussis	4	3	4	8	7
Plague	0	0	0	0	0
Poliomyelitis	0	0	0	0	0
Q fever	0	0	4	4	2
Rabies, human	0	0	0	0	0
Relapsing fever	0	0	0	0	0
Rheumatic fever, acute	0	0	1	0	1
Rift Valley fever	0	0	0	0	0
Rocky Mountain spotted fever	1	0	1	3	0
Rubella	0	0	0	0	1
Salmonellosis	12	7	19	37	31
SARS[d]	-	-	-	-	0
Schistosomiasis	0	0	0	1	3
Shigellosis	5	1	4	6	7
Smallpox	1	0	0	0	0
Streptococcus, group A, invasive	2	0	2	7	1
Syphilis, congenital	1	0	1	3	1
Syphilis, latent	5	1	3	9	10
Syphilis, primary/secondary	6	9	17	13	18
Syphilis, tertiary	0	0	0	0	0
Tetanus	0	0	0	0	0
Toxic shock syndrome	0	0	0	1	1
Trichinosis	1	0	0	4	2
Trypanosomiasis	0	0	0	1	0
Tuberculosis, pulmonary	2	0	0	1	3
Tularemia	0	0	0	1	0
Typhoid fever	0	0	0	0	0
Typhus fever	0	0	0	0	0
Urethritis, non-gonococcal[c]	1	0	3	3	0
Vaccine, adverse event	3	9	18	17	11
Varicella, active duty only	10	6	10	7	8
West Nile virus[c]	1	0	2	2	0
Yellow fever	0	0	0	0	0

[a]Events reported by April 7, 2010
[b]Tri-Service Reportable Events Guidelines and Case Definitions, June 2009
[c]Event reportable through 31 July 2009
[d]Event reportable since 31 July 2009

Table 4. Notifiable medical events[a] among active and Reserve component service members, U.S. Armed Forces, as reported from U.S. Navy medical treatment facilities worldwide, 2005-2009

Diagnosis[b]	2005	2006	2007	2008	2009
All reportable events	**1,433**	**1,377**	**1,717**	**9,048**	**6,458**
Amebiasis	2	0	0	0	0
Anthrax	0	0	0	0	0
Biological warfare agent exposure[c]	0	0	0	0	0
Botulism	0	0	0	0	0
Brucellosis	0	1	1	1	0
Campylobacter	3	6	2	13	13
Carbon monoxide poisoning[c]	0	0	0	2	0
Chemical agent exposure[c]	0	0	0	0	2
Chlamydia	955	973	1,318	6,822	4,528
Cholera	0	0	0	0	0
Coccidioidomycosis	9	26	4	43	22
Cold weather, frostbite	0	0	0	0	2
Cold weather, hypothermia	1	1	0	2	7
Cold weather, immersion type	0	0	0	0	1
Cold weather, unspecified	0	0	0	0	0
Cryptosporidiosis	0	0	0	4	3
Cyclospora	0	0	0	0	0
Dengue fever	2	1	1	11	5
Diphtheria	0	0	0	0	0
E. coli O157:H7	0	0	1	1	2
Ehrlichiosis	0	0	0	2	2
Encephalitis, arboviral	1	0	1	1	1
Filariasis	0	0	0	0	0
Giardiasis	3	2	4	12	8
Gonorrhea	155	208	201	863	561
H. influenzae, invasive	0	0	0	2	1
Hantavirus infection	1	0	0	0	0
Heat exhaustion[c]/unspecified heat injury[d]	191	83	88	430	225
Heat stroke	6	7	5	53	43
Hemorrhagic fever	0	0	0	0	0
Hepatitis A	1	0	1	1	5
Hepatitis B	11	9	12	72	59
Hepatitis C	6	4	13	34	20
Influenza	18	10	8	143	684
Lead poisoning[c]	0	0	0	0	0
Legionellosis	0	0	0	0	2
Leishmaniasis, cutaneous	0	0	0	2	1
Leishmaniasis, mucocutaneous	0	0	0	0	0
Leishmaniasis, unspecified	0	1	0	0	0
Leishmaniasis, visceral	1	0	0	0	0
Leprosy	0	0	0	0	1
Leptospirosis	0	0	0	1	0
Listeriosis	0	0	0	0	0
Lyme disease	4	5	12	68	26
Malaria, falciparum	2	2	1	12	6
Malaria, malariae	0	0	0	0	0
Malaria, ovale	0	0	1	0	1
Malaria, unspecified	2	1	1	10	5
Malaria, vivax	1	0	0	4	0
Measles	0	0	0	0	0
Meningococcal meningitis	3	1	0	3	0
Meningococcal septicemia	0	0	0	2	2
Mumps	0	1	0	1	2
Norovirus[d]	-	-	-	-	0
Outbreak, generalized[d]	-	-	-	-	0
Pertussis	2	2	1	13	3
Plague	0	0	0	0	0
Poliomyelitis	0	0	0	0	0
Q fever	1	2	0	4	3
Rabies, human	1	0	0	0	0
Relapsing fever	0	0	0	2	0
Rheumatic fever, acute	0	0	0	2	0
Rift Valley fever	0	0	0	0	0
Rocky Mountain spotted fever	0	1	4	0	3
Rubella	0	0	0	0	1
Salmonellosis	15	12	6	43	22
SARS[4]	-	-	-	-	0
Schistosomiasis	0	0	0	0	1
Shigellosis	0	1	1	16	6
Smallpox	0	0	0	0	0
Streptococcus, group A, invasive	0	0	1	8	6
Syphilis, congenital	0	1	0	0	2
Syphilis, latent	2	2	9	31	38
Syphilis, primary/secondary	9	7	11	73	40
Syphilis, tertiary	0	0	0	0	0
Tetanus	0	0	0	0	0
Toxic shock syndrome	0	0	0	0	1
Trichinosis	0	0	0	4	4
Trypanosomiasis	0	0	0	0	0
Tuberculosis, pulmonary	3	2	0	2	7
Tularemia	0	0	0	0	1
Typhoid fever	0	0	0	0	1
Typhus fever	0	0	0	0	0
Urethritis, non-gonococcal[c]	21	3	0	203	69
Vaccine, adverse event	0	1	0	6	4
Varicella, active duty only	1	1	9	24	6
West Nile virus[c]	0	0	0	2	0
Yellow fever	0	0	0	0	0

[a]Events reported by April 7, 2010
[b]Tri-Service Reportable Events Guidelines and Case Definitions, June 2009
[c]Event reportable through 31 July 2009
[d]Event reportable since 31 July 2009

Food/water-transmitted infections

In 2009, the most frequently reported food/water transmitted infectious diseases among military members were salmonellosis (n=84), campylobacter infection (n=75), giardiasis (n=30) and shigellosis (n=22). Over the past five years, numbers of reported cases of food/water-transmitted infectious diseases – overall and by specific causes – have remained fairly stable **(Tables 1-4)**. There continue to be few reported cases of *E. coli* O157:H7, amebiasis, and typhoid fever and none of cholera **(Tables 1-4)**.

Editorial comment:

There were approximately 11% more reports of notifiable medical events among U.S. military members in 2009 than 2008; the increase in case reports overall is largely attributable to a more than four-fold increase in influenza case reports from 2008 to 2009. The increase in case reports of influenza in 2009 undoubtedly reflects increased clinical awareness and more intensive laboratory-based surveillance in response to the emergence and spread of the novel H1N1 influenza strain.[4]

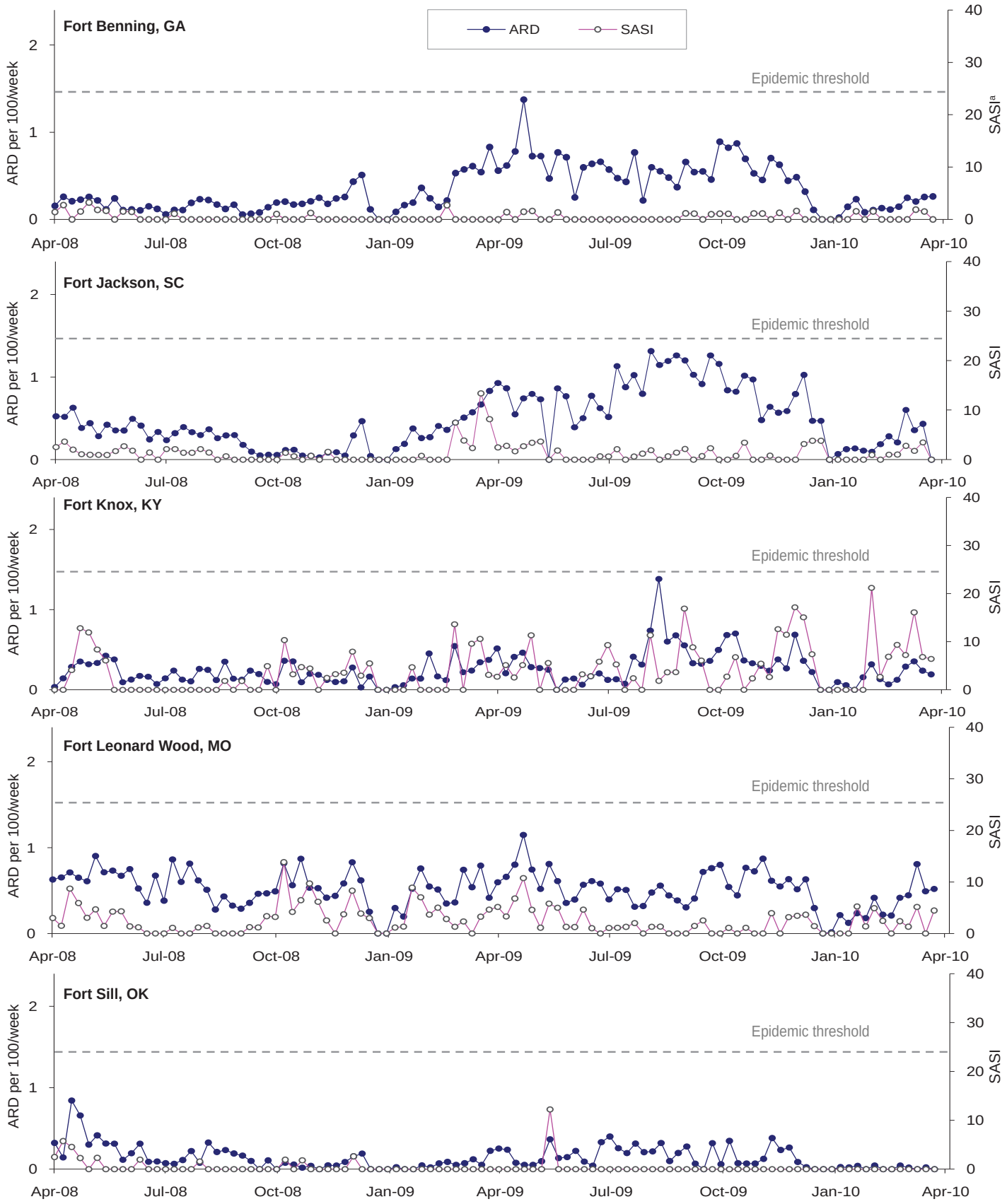
General summaries of notifiable medical conditions among U.S. service members should be interpreted very cautiously. For example, notifiable conditions are incompletely reported, and some case reports may be inaccurate (e.g., false positive diagnoses). Also, the accuracy and completeness of reporting in general likely varies by condition and across Services, medical facilities, medical specialties, individual care providers, locations, and settings (e.g., combat-related deployment, at sea, field training exercises). Clearly, complete assessments of frequencies, rates, and trends of notifiable conditions require review of more than reported cases alone.

Surveillance of reportable medical conditions provides military public health officials with unique, timely, and actionable information regarding ongoing and emerging threats to public health or military operational effectiveness. The integration of installation-specific reports at a central level enables the detection, characterization, and tracking of remote, widely disseminated, and/or spreading health threats. Consider, for example, that exposures to significant health threats while deployed may not be clinically expressed until affected service members have completed their deployment-related assignments (e.g., vivax malaria).[5] By the time such diseases are clinically apparent, affected service members may be widely dispersed, in locations not endemic for the subject diseases, and far removed from the times and locations of relevant exposures. In such situations, care providers at many medical facilities may see one or a few cases of a large, geographically dispersed, and potentially expanding epidemic. With complete and timely reporting of such cases, such epidemics can be detected, investigated, and countered in more timely and effective manners.

References:

1. Army Medical Surveillance Activity. Tri-Service consensus list of reportable medical events: Completeness and timeliness of reporting in the Army, January-June 1998. *MSMR*, 1998;4(8):2-11.
2. Armed Forces Health Surveillance Center. Tri-Service Reportable Events Guidelines and Case Definitions, June 2009. Accessed 27 April 2010 at <http://www.afhsc.mil/reportableEvents>
3. Armed Forces Health Surveillance Center. Update. Malaria, U.S. Armed Forces, 2009. *MSMR*. 2010 Jan;17(1):2-5.
4. Department of Defense pandemic influenza watchboard. Pandemic influenza: clinical and public health guidelines for the Military Health System dated 23 Dec 2009. Accessed on 27 April 2010 at: <http://fhp.osd.mil/aiWatchboard/pdf/CPG_PI_H1N1_December_2009.pdf>.
5. Armed Forces Health Surveillance Center. Korea-acquired malaria, U.S. Armed Forces, January 1998-October 2007. *MSMR*, 2007 Dec;14(8):2-5

Acute respiratory disease (ARD) and streptococcal pharyngitis rates (SASI[a]), basic combat training centers, U.S. Army, by week, April 2008-April 2010



[a]Streptococcal-ARD surveillance index (SASI) = ARD rate x % positive culture for group A streptococcus
ARD rate = cases per 100 trainees per week
ARD rate ≥ 1.5 or SASI ≥ 25.0 for 2 consecutive weeks are surveillance indicators of epidemics

Update: Deployment Health Assessments, U.S. Armed Forces, March 2010

Since January 2003, peaks and troughs in the numbers of pre- and post-deployment health assessment forms transmitted to the Armed Forces Health Surveillance Center generally corresponded to times of departure and return of large numbers of deployers. Since April 2006, numbers of post-deployment health reassessments (PDHRA) transmitted per month have ranged from 17,000 to 43,000 **(Table 1, Figure 1).**

During the past 12 months, the proportions of returned deployers who rated their health as "fair" or "poor" were 8-11% on post-deployment health assessment questionnaires and 11-14% on PDHRA questionnaires **(Figure 2).**

In general, on post-deployment assessments and reassessments, deployers in the Army and in Reserve components were more likely than their respective counterparts to report health and exposure-related concerns **(Table 2, Figure 2).** Both active and Reserve component members were more likely to report exposure concerns three to six months after compared to the time of return from deployment **(Figure 3).**

At the time of return from deployment, soldiers serving in the active component were the most likely of all deployers to receive mental health referrals; however, three to six months after returning, active component soldiers were less likely than Army and Marine Corps Reservists to receive mental health referrals **(Table 2).**

Finally, during the past three years, Reserve component members have been more likely than active to report "exposure concerns" on post-deployment assessments and reassessments **(Figure 3).**

Table 1. Deployment-related health assessment forms, by month, U.S. Armed Forces, April 2009-March 2010

	Pre-deployment assessment DD2795		Post-deployment assessment DD2796		Post-deployment reassessment DD2900	
	No.	%	No.	%	No.	%
Total	**449,555**	**100**	**390,547**	**100**	**313,959**	**100**
2009						
April	43,521	9.7	20,035	5.1	31,378	10.0
May	36,285	8.1	28,335	7.3	25,050	8.0
June	44,448	9.9	28,782	7.4	26,969	8.6
July	40,012	8.9	28,744	7.4	22,729	7.2
August	39,084	8.7	46,732	12.0	21,737	6.9
September	30,552	6.8	39,530	10.1	26,212	8.3
October	36,403	8.1	32,360	8.3	24,026	7.7
November	32,174	7.2	32,781	8.4	20,552	6.5
December	30,605	6.8	36,363	9.3	28,937	9.2
2010						
January	55,137	12.3	33,856	8.7	25,524	8.1
February	30,953	6.9	26,336	6.7	26,578	8.5
March	30,381	6.8	36,693	9.4	34,267	10.9

Figure 2. Proportion of deployment health assessment forms with self-assessed health status as "fair" or "poor", U.S. Armed Forces, April 2009-March 2010

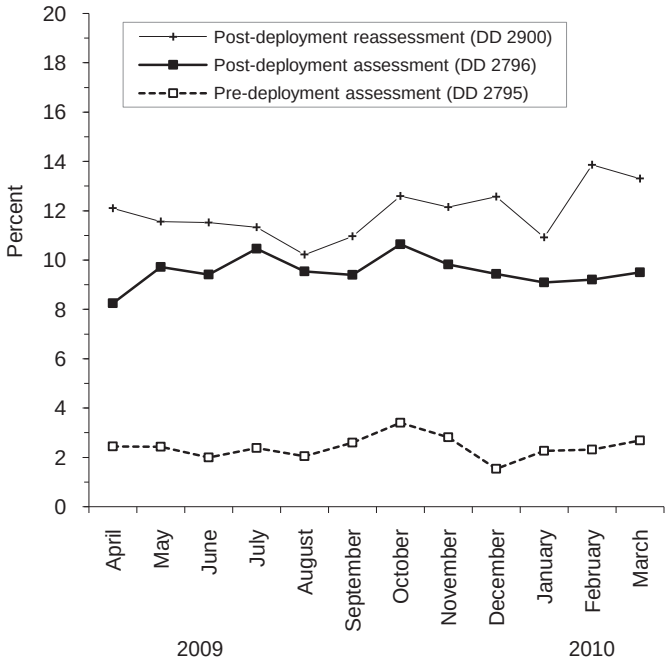


Figure 1. Total deployment health assessment and reassessment forms, by month, U.S. Armed Forces, January 2003-March 2010

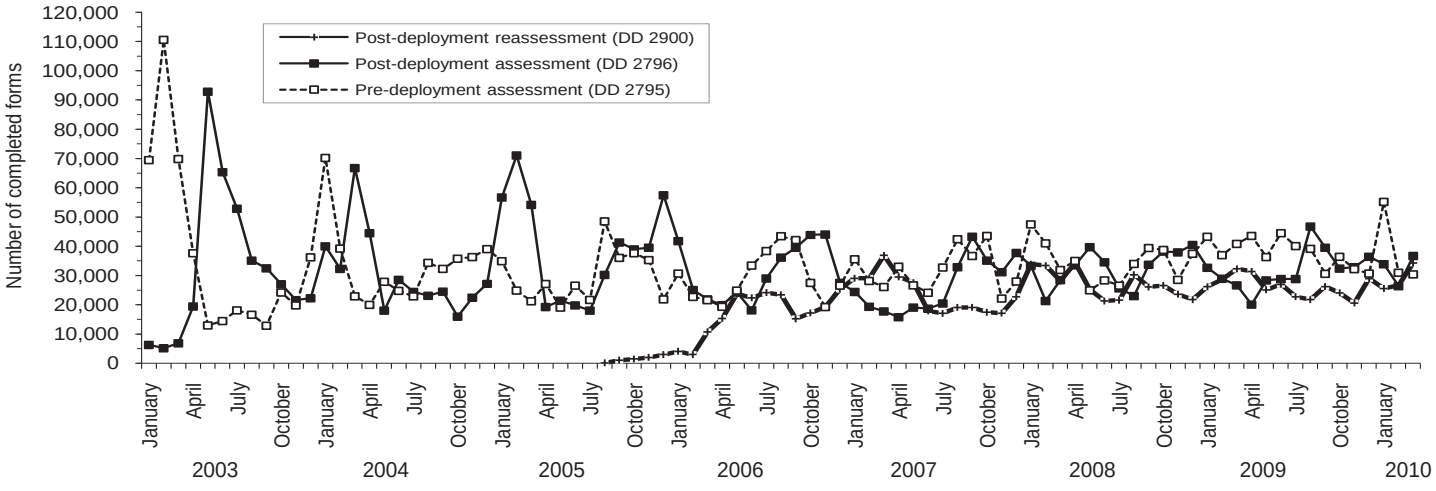


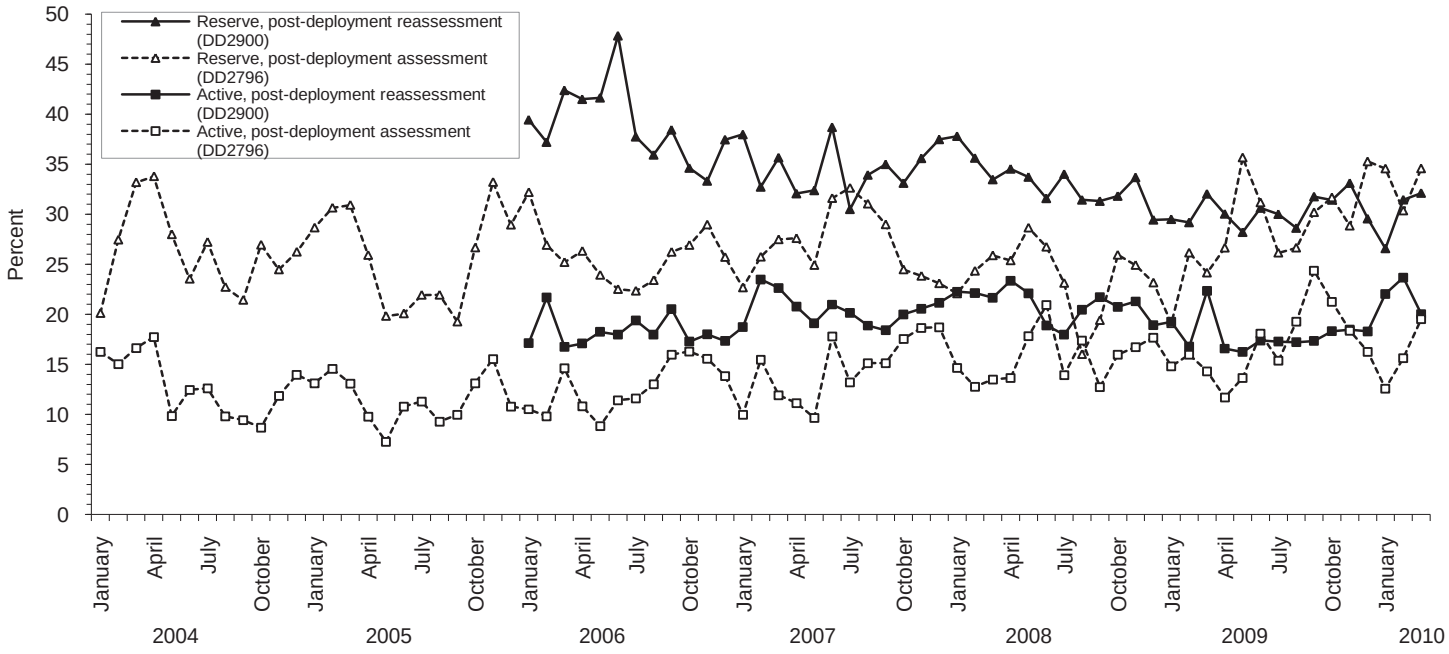
Table 2. Percentage of service members who endorsed selected questions/received referrals on health assessment forms, U.S. Armed Forces, April 2009-March 2010

	Army			Navy			Air Force			Marine Corps			All service members		
Active component	Pre-deploy DD2795	Post-deploy DD2796	Reassess DD2900	Pre-deploy DD2795	Post-deploy DD2796	Reassess DD2900	Pre-deploy DD2795	Post-deploy DD2796	Reassess DD2900	Pre-deploy DD2795	Post-deploy DD2796	Reassess DD2900	Pre-deploy DD2795	Post-deploy DD2796	Reassess DD2900
	n= 152,706	n= 131,092	n= 126,727	n= 19,937	n= 10,915	n= 13,469	n= 59,524	n= 53,254	n= 51,821	n= 31,530	n= 20,686	n= 35,399	n= 263,697	n= 215,947	n= 227,416
	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%
General health "fair" or "poor"	3.9	10.3	14.9	1.3	4.6	5.9	0.5	3.4	4.1	1.5	7.1	9.6	2.6	8.0	11.1
Health concerns, not wound or injury	21.5	25.8	24.8	3.4	12.3	13.5	1.3	5.7	10.4	2.9	12.2	17.5	13.3	18.9	19.7
Health worse now than before deployed	na	22.5	26.1	na	12.0	12.9	na	8.4	8.4	na	15.1	18.5	na	17.8	20.1
Exposure concerns	na	18.9	19.3	na	19.2	19.1	na	11.8	14.8	na	14.4	21.4	na	16.7	18.6
PTSD symptoms (2 or more)	na	8.7	12.1	na	5.0	6.6	na	2.4	2.4	na	5.5	8.4	na	6.6	9.0
Depression symptoms (any)	na	30.8	32.5	na	21.3	23.0	na	13.0	13.8	na	25.4	29.9	na	25.4	27.3
Referral indicated by provider (any)	5.0	34.0	23.7	4.9	20.6	16.4	1.7	11.2	6.9	4.1	18.8	27.3	4.1	26.2	20.0
Mental health referral indicated[a]	1.1	6.7	9.4	0.7	2.7	5.9	0.5	1.4	1.8	0.3	1.6	4.9	0.8	4.7	6.8
Medical visit following referral[b]	93.8	99.6	98.7	86.8	91.7	92.0	83.1	96.7	98.2	43.6	77.6	92.0	84.9	97.7	96.6

	Army			Navy			Air Force			Marine Corps			All service members		
Reserve component	Pre-deploy DD2795	Post-deploy DD2796	Reassess DD2900	Pre-deploy DD2795	Post-deploy DD2796	Reassess DD2900	Pre-deploy DD2795	Post-deploy DD2796	Reassess DD2900	Pre-deploy DD2795	Post-deploy DD2796	Reassess DD2900	Pre-deploy DD2795	Post-deploy DD2796	Reassess DD2900
	n= 81,510	n= 75,678	n= 54,873	n= 5,625	n= 3,129	n= 4,918	n= 15,821	n= 15,171	n= 16,466	n= 3,766	n= 3,718	n= 6,668	n= 106,722	n= 97,696	n= 82,925
	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%
General health "fair" or "poor"	1.5	11.9	16.6	0.6	9.5	8.5	0.3	4.9	4.9	0.8	7.7	11.5	1.2	10.5	13.4
Health concerns, not wound or injury	17.9	34.1	42.5	1.4	36.0	30.5	0.6	8.7	14.8	3.2	23.9	35.9	13.9	29.8	35.8
Health worse now than before deployed	na	26.6	31.8	na	21.0	20.0	na	12.9	11.0	na	19.5	27.1	na	24.0	26.6
Exposure concerns	na	33.0	31.8	na	37.7	33.6	na	20.3	22.9	na	11.7	33.0	na	30.4	30.2
PTSD symptoms (2 or more)	na	8.7	18.4	na	6.2	11.1	na	2.2	2.9	na	3.1	14.0	na	7.4	14.6
Depression symptoms (any)	na	31.2	34.2	na	25.2	23.9	na	14.0	13.5	na	29.9	28.4	na	28.3	29.0
Referral indicated by provider (any)	3.9	36.5	33.9	3.4	27.7	18.9	0.4	13.9	6.2	3.9	26.5	29.3	3.3	32.3	27.2
Mental health referral indicated[a]	0.4	5.0	12.2	0.2	2.9	5.1	0.0	0.9	0.9	0.1	1.9	9.3	0.4	4.2	9.3
Medical visit following referral[b]	93.5	98.8	38.3	94.8	96.2	42.9	54.1	65.0	42.7	42.4	70.1	28.6	88.8	95.7	37.9

[a]Includes behavioral health, combat stress and substance abuse referrals.
[b]Record of inpatient or outpatient visit within 6 months after referral.

Figure 3. Proportion of service members who endorsed exposure concerns on post-deployment health assessments, U.S. Armed Forces, January 2004-March 2010



Sentinel reportable events among service members and beneficiaries at U.S. Army medical facilities, cumulative numbers[a] for calendar years through 31 March 2009 and 31 March 2010

Army

Reporting locations	Number of reports all events[b]		Food-borne						Vaccine preventable					
			Campylo-bacter		Salmonella		Shigella		Hepatitis A		Hepatitis B		Varicella[c]	
	2009	2010	2009	2010	2009	2010	2009	2010	2009	2010	2009	2010	2009	2010
NORTHERN														
Aberdeen Proving Ground, MD	3	0	.	.	.	.	.	.	.	.	.	.	.	.
Fort Belvoir, VA	71	0	2	.	1	.	.	.	.	.	.	.	.	.
Fort Bragg, NC	452	385	.	.	3	1	.	.	.	.	2	.	.	.
Fort Dix, NJ	0	0	.	.	.	.	.	.	.	.	.	.	.	.
Fort Drum, NY	9	0	.	.	.	.	.	.	.	.	.	.	.	.
Fort Eustis, VA	59	61	.	.	.	.	.	.	.	.	.	.	.	.
Fort George G Meade, MD	15	0	.	.	.	.	.	.	.	.	.	.	.	.
Fort Knox, TN	41	83	.	.	.	1	.	1	.	.	.	.	.	.
Fort Lee, VA	167	148	.	.	.	.	.	.	.	.	.	.	.	.
Fort Monmouth, NJ	22	6	.	.	.	.	.	.	.	.	.	.	.	.
Walter Reed AMC, DC	38	0	.	.	.	.	.	.	.	.	.	.	1	.
West Point Military Reservation, NY	20	16	.	.	.	.	.	.	.	.	.	.	.	.
SOUTHERN														
Fort Benning, GA	44	0	.	.	.	.	.	.	.	.	.	.	.	.
Fort Campbell, KY	1	191	.	.	.	.	.	.	.	.	.	.	.	.
Fort Gordon, GA	179	200	.	2	.	1	1	1	.	.	.	.	.	.
Fort Hood, TX	407	525	3	3	6	1	1	20	.	.	.	1	.	.
Fort Jackson, SC	0	75	.	.	.	.	.	.	.	.	.	.	.	.
Fort Polk, LA	75	101	.	.	.	.	.	.	.	.	.	.	.	.
Fort Rucker, AL	16	34	.	.	.	.	.	.	.	.	.	1	.	.
Fort Sam Houston, TX	150	141	.	.	2	1	.	.	.	.	.	.	.	.
Fort Sill, OK	63	103	.	.	.	.	1	1	.	.	.	.	.	.
Fort Stewart, GA	304	149	.	1	1	2	.	.	.	.	.	1	.	.
WESTERN														
Fort Bliss, TX	144	99	.	1	1	1	1	.	1	.	4	.	.	.
Fort Carson, CO	167	175	1	3	.	1	.	.	.	.	.	.	.	.
Fort Huachuca, AZ	14	25	.	.	.	1	.	.	.	.	.	.	.	.
Fort Leavenworth, KS	15	11	.	.	.	.	.	.	.	.	.	.	.	.
Fort Leonard Wood, MO	102	105	.	.	.	1	.	.	1	.	.	.	.	.
Fort Lewis, WA	300	221	.	1	.	1	.	.	.	.	.	.	.	.
Fort Riley, KS	114	88	.	.	1	1	.	1	.	.	.	.	.	.
Fort Wainwright, AK	62	59	.	.	.	.	.	.	.	.	.	.	.	.
NTC and Fort Irwin, CA	28	29	.	.	.	.	1	.	.	.	.	.	.	.
PACIFIC														
Hawaii	177	245	3	7	2	2	.	3	.	1	.	.	.	.
Japan	3	0	.	.	.	.	.	.	.	.	.	.	.	.
Korea	158	58	.	.	.	.	.	.	.	.	.	.	.	.
EUROPEAN														
Heidelberg	45	47	3	4	1	3	.	.	.	.	.	.	.	.
Landstuhl	222	168	1	1	1	.	.	.	.	.	.	2	1	.
Bavaria	112	122	2	1	2	.	.	.	.	.	.	.	.	.
OTHER LOCATIONS														
OTHER	0	0	.	.	.	.	.	.	.	.	.	.	.	.
Total	**3,799**	**3,670**	**15**	**24**	**21**	**18**	**5**	**27**	**2**	**1**	**6**	**5**	**2**	**0**

[a]Events reported by Apr 8, 2009 and 2010
[b]Sixty-seven medical events/conditions specified by Tri-Service Reportable Events Guidelines and Case Definitions, June 2009.
[c]Service member cases only.
Note: Completeness and timeliness of reporting vary by facility.

Sentinel reportable events among service members and beneficiaries at U.S. Army medical facilities, cumulative numbers[a] for calendar years through 31 March 2009 and 31 March 2010


Army

Reporting location	Arthropod-borne				Sexually transmitted						Environmental				Travel associated			
	Lyme disease		Malaria		Chlamydia		Gonorrhea		Syphilis		Cold[c]		Heat[c]		Q Fever		Tuberculosis	
	2009	2010	2009	2010	2009	2010	2009	2010	2009	2010	2009	2010	2009	2010	2009	2010	2009	2010
NORTHERN																		
Aberdeen Proving Ground, MD	.	.	.	.	2	.	1	.	.	.	.	.	.	.	.	.	.	.
Fort Belvoir, VA	.	.	.	.	61	.	7	.	.	.	.	.	.	.	.	.	.	.
Fort Bragg, NC	.	.	.	5	378	303	63	65	1	1	.	7	5	3	.	.	.	.
Fort Dix, NJ	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Fort Drum, NY	.	.	.	.	7	.	2	.	.	.	.	.	.	.	.	.	.	.
Fort Eustis, VA	.	.	.	.	50	56	9	4	.	1	.	.	.	.	.	.	.	.
Fort George G Meade, MD	.	.	.	.	15	.	.	.	.	.	.	.	.	.	.	.	.	.
Fort Knox, TN	.	.	.	1	35	75	6	4	.	.	.	.	.	.	.	.	.	1
Fort Lee, VA	1	.	.	.	147	130	19	18	.	.	.	.	.	.	.	.	.	.
Fort Monmouth, NJ	3	3	.	.	18	3	1	.	.	.	.	.	.	.	.	.	.	.
Walter Reed AMC, DC	2	.	.	.	25	.	3	.	6	.	.	.	.	.	.	.	1	.
West Point Military Reservation, NY	5	1	.	.	15	12	.	3	.	.	.	.	.	.	.	.	.	.
SOUTHERN																		
Fort Benning, GA	.	.	2	.	35	.	7	.	.	.	.	.	.	.	.	.	.	.
Fort Campbell, KY	.	.	.	.	1	177	.	13	.	.	.	.	.	1	.	.	.	.
Fort Gordon, GA	.	.	.	.	153	163	25	33	.	.	.	.	.	.	.	.	.	.
Fort Hood, TX	.	.	.	1	314	413	82	84	1	1	.	.	.	.	.	.	.	1
Fort Jackson, SC	.	.	.	.	.	61	.	11	.	.	.	.	.	3	.	.	.	.
Fort Polk, LA	.	.	.	.	71	89	4	12	.	.	.	.	.	.	.	.	.	.
Fort Rucker, AL	.	.	.	.	14	33	2	.	.	.	.	.	.	.	.	.	.	.
Fort Sam Houston, TX	.	.	.	.	123	125	23	13	2	2	.	.	.	.	.	.	.	.
Fort Sill, OK	.	.	.	.	49	91	13	10	.	1	.	.	.	.	.	.	.	.
Fort Stewart, GA	.	.	.	.	255	133	41	12	4	.	.	.	1	.	2	.	.	.
WESTERN																		
Fort Bliss, TX	.	.	.	.	117	78	16	18	3	1	.	.	.	.	.	.	1	.
Fort Carson, CO	.	.	.	.	150	163	16	8	.	.	.	.	.	.	.	.	.	.
Fort Huachuca, AZ	.	.	.	.	14	24	.	.	.	.	.	.	.	.	.	.	.	.
Fort Leavenworth, KS	.	.	.	.	11	11	3	.	1	.	.	.	.	.	.	.	.	.
Fort Leonard Wood, MO	.	.	.	.	89	90	11	14	.	.	1	.	.	.	.	.	.	.
Fort Lewis, WA	.	.	.	.	266	206	33	12	1	.	.	.	.	.	.	.	.	1
Fort Riley, KS	.	.	.	.	94	82	18	4	.	.	1	.	.	.	.	.	.	.
Fort Wainwright, AK	.	.	.	.	56	48	6	2	.	.	.	9	.	.	.	.	.	.
NTC and Fort Irwin, CA	.	.	.	.	26	28	1	1	.	.	.	.	.	.	.	.	.	.
PACIFIC																		
Hawaii	.	.	.	.	156	208	13	24	.	.	.	.	.	.	1	.	2	.
Japan	.	.	.	.	3	.	.	.	.	.	.	.	.	.	.	.	.	.
Korea	.	.	.	.	151	48	4	3	2	.	1	7	.	.	.	.	.	.
EUROPEAN																		
Heidelberg	3	.	.	.	34	34	4	5	.	1	.	.	.	.	.	.	.	.
Landstuhl	6	1	.	2	182	136	25	26	4	.	.	.	.	.	.	.	2	.
Bavaria	4	2	1	.	93	99	9	19	.	1	1	.	.	.	.	.	.	.
OTHER LOCATIONS																		
Other	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Total	**24**	**7**	**3**	**9**	**3,210**	**3,119**	**467**	**418**	**25**	**9**	**4**	**23**	**6**	**7**	**3**	**0**	**6**	**3**

Sentinel reportable events among service members and beneficiaries at U.S. Navy medical facilities, cumulative numbers[a] for calendar years through 31 March 2009 and 31 March 2010

Navy

Reporting locations	Number of reports all events[b]		Food-borne						Vaccine preventable					
			Campylo-bacter		Salmonella		Shigella		Hepatitis A		Hepatitis B		Varicella[c]	
	2009	2010	2009	2010	2009	2010	2009	2010	2009	2010	2009	2010	2009	2010
NATIONAL CAPITOL AREA														
NNMC Bethesda, MD	45	27	.	3	1	.	.	1	.	.	.	2	.	.
NHC Annapolis, MD	2	7	.	.	.	.	.	.	.	.	.	.	.	.
NHC Patuxent River, MD	2	0	.	.	.	.	.	.	.	.	.	.	.	.
NHC Quantico, VA	36	15	.	.	1	.	2	.	.	.	.	1	.	.
NAVY MEDICINE EAST														
NH Beaufort, SC	227	64	.	.	.	.	.	.	1	.	1	.	.	.
NH Camp Lejeune, NC	125	142	.	.	3	.	.	.	.	.	.	.	.	.
NH Charleston, SC	3	0	.	.	.	.	.	.	.	.	.	.	.	.
NH Cherry Point, NC	3	0	.	.	.	.	.	.	.	.	.	.	.	.
NH Corpus Christi, TX	0	3	.	.	.	.	.	.	.	.	.	.	.	.
NHC Great Lakes, IL	6	206	.	.	.	.	.	.	.	.	.	.	.	1
NH Guantanamo Bay, Cuba	0	0	.	.	.	.	.	.	.	.	.	.	.	.
NH Jacksonville, FL	69	39	.	.	2	3	.	.	.	.	.	.	.	.
NH Naples, Italy	1	0	.	.	.	.	.	.	.	.	.	.	.	.
NHC New England, RI	0	0	.	.	.	.	.	.	.	.	.	.	.	.
NH Pensacola, FL	43	39	.	.	.	2	1	.	.	.	.	.	.	.
NMC Portsmouth, VA	55	73	.	.	.	.	.	.	.	.	1	1	.	.
NH Rota, Spain	0	0	.	.	.	.	.	.	.	.	.	.	.	.
NH Sigonella, Italy	1	0	.	.	.	.	.	.	.	.	.	.	1	.
NAVY MEDICINE WEST														
NH Bremerton, WA	2	1	.	.	.	.	.	.	.	.	.	1	.	.
NH Camp Pendleton, CA	6	0	.	.	.	.	.	.	.	.	.	.	.	.
NH Guam-Agana, Guam	20	12	.	.	1	.	.	.	.	.	.	.	.	.
NHC Hawaii, HI	0	298	.	5	.	1	.	.	.	.	.	.	.	.
NH Lemoore, CA	18	1	.	.	.	.	.	.	.	.	.	.	.	.
NH Oak Harbor, WA	40	23	3	.	2	.	.	.	.	.	1	1	1	.
NH Okinawa, Japan	38	1	.	.	.	.	.	.	.	.	.	.	.	.
NMC San Diego, CA	213	170	.	3	4	.	.	1	.	.	18	11	1	.
NH Twentynine Palms, CA	1	1	.	.	.	.	.	.	.	.	.	.	.	.
NH Yokosuka, Japan	24	21	.	.	.	.	.	.	.	.	1	1	.	.
NAVAL SHIPS														
COMNAVAIRLANT/CINCLANTFLEET	16	8	.	.	.	.	.	.	.	.	.	.	.	.
COMNAVSURFPAC/CINCPACFLEET	16	13	.	.	.	.	.	.	.	.	.	.	.	.
OTHER LOCATIONS														
OTHER	1,247	854	4	4	6	2	.	1	1	.	2	8	1	.
Total	**2,259**	**2,018**	**7**	**15**	**20**	**8**	**3**	**3**	**2**	**0**	**24**	**26**	**4**	**1**

[a]Events reported by Apr 8, 2010
[b]Sixty-seven medical events/conditions specified by Tri-Service Reportable Events Guidelines and Case Definitions, June 2009.
[c]Service member cases only.
Note: Completeness and timeliness of reporting vary by facility.

Sentinel reportable events among service members and beneficiaries at U.S. Navy medical facilities, cumulative numbers[a] for calendar years through 31 March 2009 and 31 March 2010

Navy

Reporting location	Arthropod-borne				Sexually transmitted						Environmental				Travel associated			
	Lyme disease		Malaria		Chlamydia		Gonorrhea		Syphilis		Cold[c]		Heat[c]		Q Fever		Tuberculosis	
	2009	2010	2009	2010	2009	2010	2009	2010	2009	2010	2009	2010	2009	2010	2009	2010	2009	2010
NATIONAL CAPITOL AREA																		
NNMC Bethesda, MD	.	1	.	.	39	12	4	3	1	5	.	.	.	.	.	.	.	.
NHC Annapolis, MD	.	1	.	.	2	6	.	.	.	.	.	.	.	.	.	.	.	.
NHC Patuxent River, MD	.	.	.	.	2	.	.	.	.	.	.	.	.	.	.	.	.	.
NHC Quantico, VA	.	.	.	.	29	12	4	2	.	.	.	.	.	.	.	.	.	.
NAVY MEDICINE EAST																		
NH Beaufort, SC	.	.	.	.	215	58	9	6	1	.	.	.	.	.	.	.	.	.
NH Camp Lejeune, NC	2	2	1	2	101	116	16	19	.	.	1	2	1	1	.	.	.	.
NH Charleston, SC	.	.	.	.	2	.	1	.	.	.	.	.	.	.	.	.	.	.
NH Cherry Point, NC	.	.	.	.	3	.	.	.	.	.	.	.	.	.	.	.	.	.
NH Corpus Christi, TX	.	.	.	.	.	3	.	.	.	.	.	.	.	.	.	.	.	.
NHC Great Lakes, IL	.	.	.	.	6	181	.	24	.	.	.	.	.	.	.	.	.	.
NH Guantanamo Bay, Cuba	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
NH Jacksonville, FL	.	.	.	.	64	33	3	2	.	.	.	.	.	.	.	.	.	1
NH Naples, Italy	.	.	.	.	1	.	.	.	.	.	.	.	.	.	.	.	.	.
NHC New England, RI	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
NH Pensacola, FL	.	.	.	.	40	29	.	6	.	2	.	.	.	.	2	.	.	.
NMC Portsmouth, VA	.	.	.	1	41	61	11	8	.	2	.	.	.	.	.	.	2	.
NH Rota, Spain	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
NH Sigonella, Italy	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
NAVY MEDICINE WEST																		
NH Bremerton, WA	.	.	.	.	2	.	.	.	.	.	.	.	.	.	.	.	.	.
NH Camp Pendleton, CA	.	.	.	.	6	.	.	.	.	.	.	.	.	.	.	.	.	.
NH Guam-Agana, Guam	.	.	.	.	17	11	2	1	.	.	.	.	.	.	.	.	.	.
NHC Hawaii, HI	.	.	.	.	.	262	.	29	.	1	.	.	.	.	.	.	.	.
NH Lemoore, CA	.	.	.	.	18	.	.	1	.	.	.	.	.	.	.	.	.	.
NH Oak Harbor, WA	1	.	.	.	32	20	.	1	.	1	.	.	.	.	.	.	.	.
NH Okinawa, Japan	.	.	.	.	38	.	.	.	.	.	.	.	.	.	.	.	.	1
NMC San Diego, CA	.	.	3	1	156	128	24	22	4	3	.	.	2	1	1	.	.	.
NH Twentynine Palms, CA	.	.	.	.	.	1	.	.	1	.	.	.	.	.	.	.	.	.
NH Yokosuka, Japan	1	.	.	.	22	18	.	1	.	1	.	.	.	.	.	.	.	.
NAVAL SHIPS																		
COMNAVAIRLANT/CINCLANTFLEET	.	.	.	.	16	8	.	.	.	.	.	.	.	.	.	.	.	.
COMNAVSURFPAC/CINCPACFLEET	.	.	.	.	14	13	2	.	.	.	.	.	.	.	.	.	.	.
OTHER LOCATIONS																		
Other	6	6	4	5	1,084	732	123	86	4	4	4	3	7	2	.	.	1	1
Total	**10**	**10**	**8**	**9**	**1,950**	**1,704**	**199**	**211**	**11**	**19**	**5**	**5**	**10**	**4**	**3**	**0**	**3**	**3**

Sentinel reportable events among service members and beneficiaries at U.S. Air Force medical facilities, cumulative numbers[a] for calendar years through 31 March 2009 and 31 March 2010

Air Force

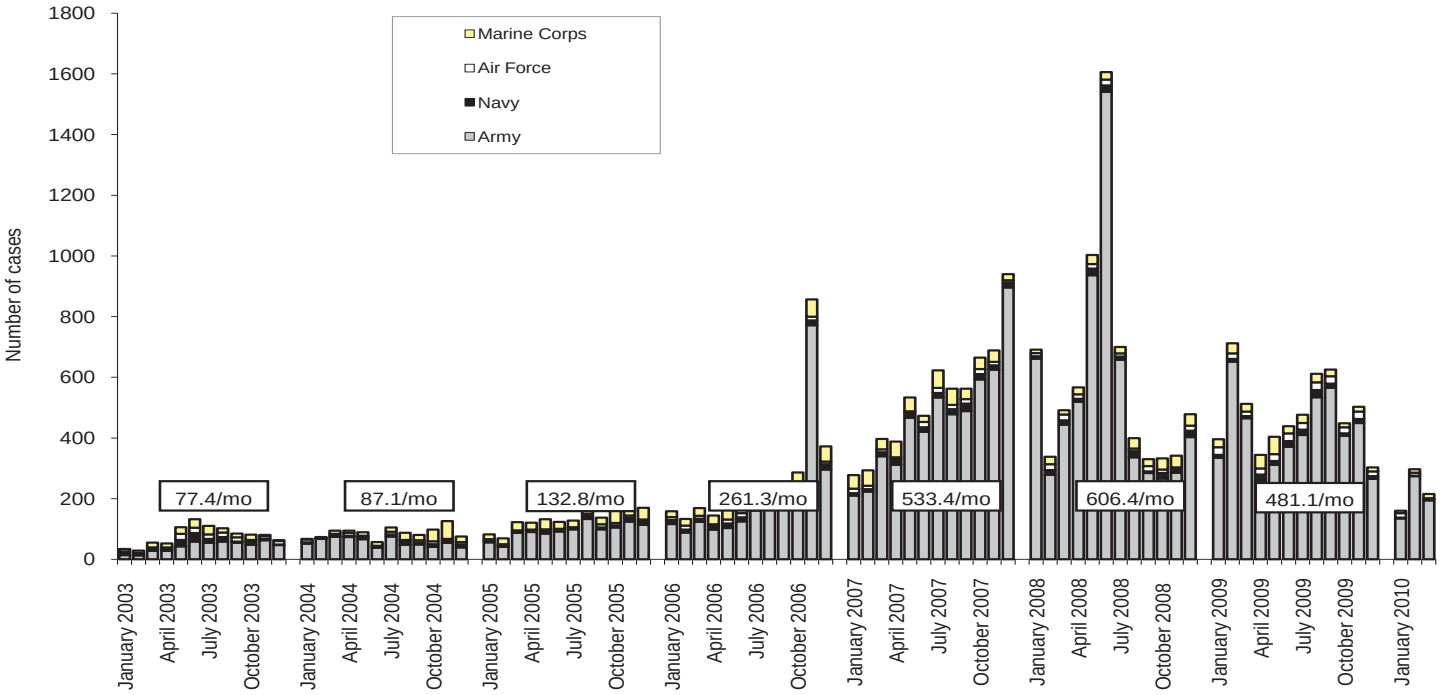
Reporting locations	Number of reports all events[b]		Food-borne						Vaccine preventable					
			Campylo-bacter		Salmonella		Shigella		Hepatitis A		Hepatitis B		Varicella[c]	
	2009	2010	2009	2010	2009	2010	2009	2010	2009	2010	2009	2010	2009	2010
Air Combat Cmd	332	414	1	2	4	2	1	.	.	1	1	5	2	1
Air Education & Training Cmd	385	384	.	.	7	1	1	.	1	2	3	7	.	.
Air Force Dist. of Washington	51	38	.	1	1	.	.	.	.	.	1	2	.	.
Air Force Materiel Cmd	129	130	.	2	2	1	.	.	.	.	.	.	.	.
Air Force Special Ops Cmd	45	50	1	.	.	.	.	1	.	.	.	1	.	.
Air Force Space Cmd	99	78	1	.	2	2	.	.	1	1	.	.	.	.
Air Mobility Cmd	218	151	1	.	3	1	.	.	.	1	2	1	1	.
Pacific Air Forces	131	209	.	.	.	.	.	.	.	.	2	1	1	1
U.S. Air Forces in Europe	157	139	2	.	.	1	.	.	.	.	2	.	.	1
U.S. Air Force Academy	16	18	.	.	1	1	.	.	.	.	.	2	.	.
Other	17	26	1	.	1	3	.	.	.	.	.	.	.	.
Total	**1,580**	**1,637**	**7**	**5**	**21**	**12**	**2**	**1**	**2**	**5**	**11**	**19**	**4**	**3**

[a]Events reported by Apr 8, 2010
[b]Sixty-seven medical events/conditions specified by Tri-Service Reportable Events Guidelines and Case Definitions, June 2009.
[c]Service member cases only.
Note: Completeness and timeliness of reporting vary by facility.

Reporting location	Arthropod-borne				Sexually transmitted						Environmental				Travel associated			
	Lyme disease		Malaria		Chlamydia		Gonorrhea		Syphilis		Cold[c]		Heat[c]		Q Fever		Tuberculosis	
	2009	2010	2009	2010	2009	2010	2009	2010	2009	2010	2009	2010	2009	2010	2009	2010	2009	2010
Air Combat Cmd	1	.	.	.	290	348	26	49	1	3	5	3	.	.	.	.	.	.
Air Education & Training Cmd	.	.	.	1	331	335	37	36	2	1	3	.	.	.	.	.	.	1
Air Force Dist. of Washington	3	1	.	.	43	29	3	5	.	.	.	.	.	.	.	.	.	.
Air Force Materiel Cmd	1	.	.	.	113	114	11	13	2	.	.	.	.	.	.	.	.	.
Air Force Special Ops Cmd	1	.	.	.	39	43	2	3	1	1	1	1	.	.	.	.	.	.
Air Force Space Cmd	.	.	.	1	92	66	3	7	.	.	.	1	.	.	.	.	.	.
Air Mobility Cmd	6	1	.	1	167	134	24	11	1	.	13	1	.	.	.	.	.	.
Pacific Air Forces	.	.	.	1	105	187	13	17	1	1	9	.	.	.	.	.	.	1
U.S. Air Forces in Europe	1	1	1	1	137	120	11	14	1	.	1	.	.	.	.	.	1	1
U.S. Air Force Academy	.	.	.	.	15	15	.	.	.	.	.	.	.	.	.	.	.	.
Other	.	.	.	.	10	20	4	2	.	.	.	1	.	.	1	.	.	.
Total	**13**	**3**	**1**	**5**	**1,342**	**1,411**	**134**	**157**	**9**	**6**	**32**	**7**	**0**	**0**	**1**	**0**	**1**	**3**

Deployment-related conditions of special surveillance interest, U.S. Armed Forces, by month and service, January 2003 - March 2010 (data as of 27 April 2010)

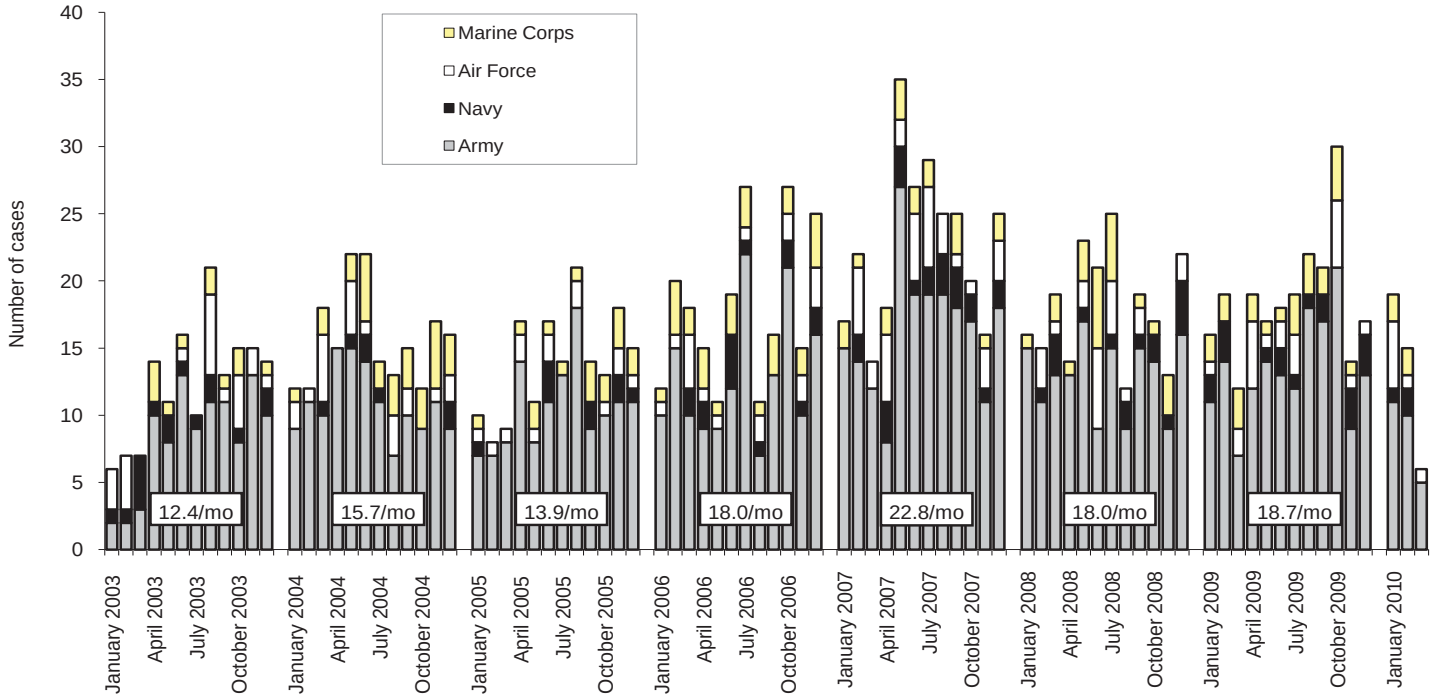
Traumatic brain injury (ICD-9: 310.2, 800-801, 803-804, 850-854, 907.0, 950.1-950.3, 959.01, V15.5_1-9, V15.5_A-F, V15.59_1-9, V15.59_A-F)[a]



Reference: Armed Forces Health Surveillance Center. Deriving case counts from medical encounter data: considerations when interpreting health surveillance reports. *MSMR*. Dec 2009; 16(12):2-8.

[a]Indicator diagnosis (one per individual) during a hospitalization or ambulatory visit while deployed to/within 30 days of returning from OEF/OIF. (Includes in-theater medical encounters from the Theater Medical Data Store [TMDS] and excludes 2,024 deployers who had at least one TBI-related medical encounter any time prior to OEF/OIF).

Deep vein thrombophlebitis/pulmonary embolus (ICD-9: 415.1, 451.1, 451.81, 451.83, 451.89, 453.2, 453.40 - 453.42 and 453.8)[b]

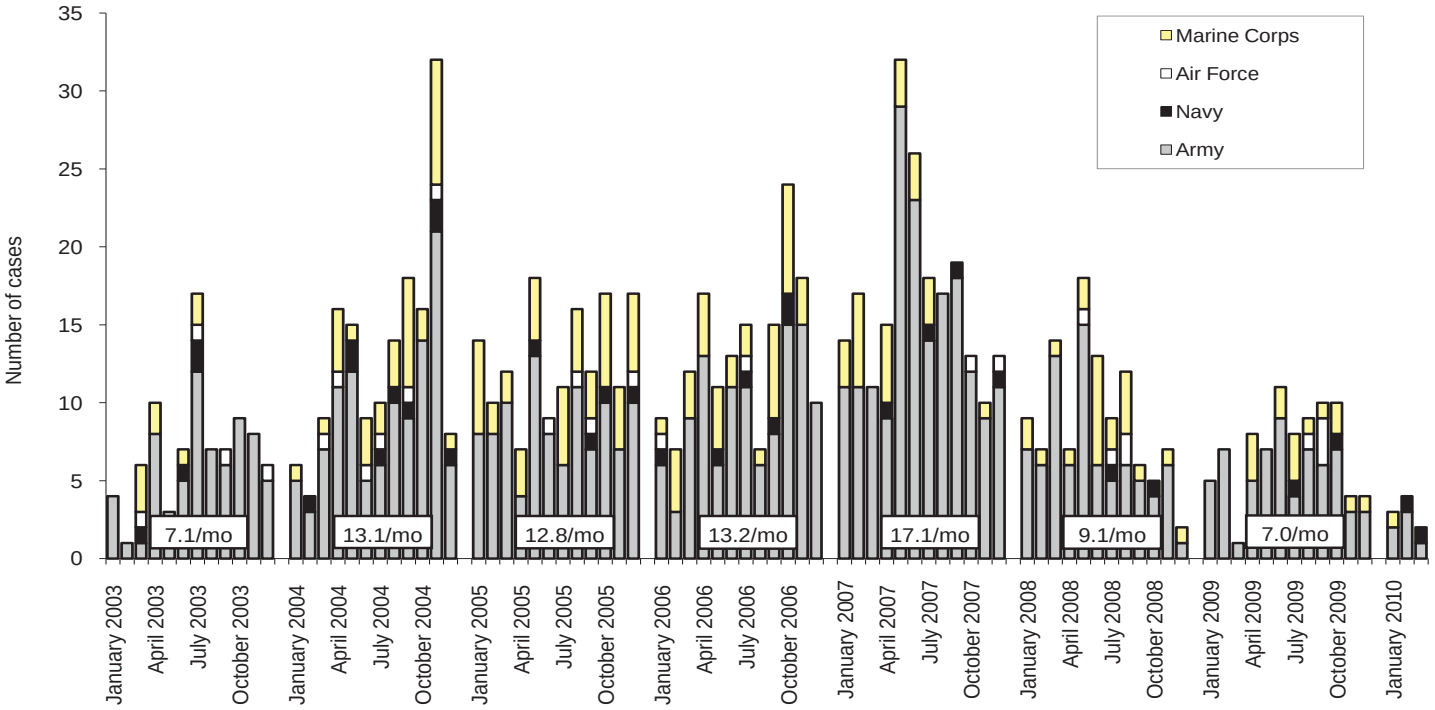


Reference: Isenbarger DW, Atwood JE, Scott PT, et al. Venous thromboembolism among United States soldiers deployed to Southwest Asia. *Thromb Res*. 2006;117(4):379-83.

[b]One diagnosis during a hospitalization or two or more ambulatory visits at least 7 days apart (one case per individual) while deployed to/within 90 days of returning from OEF/OIF.

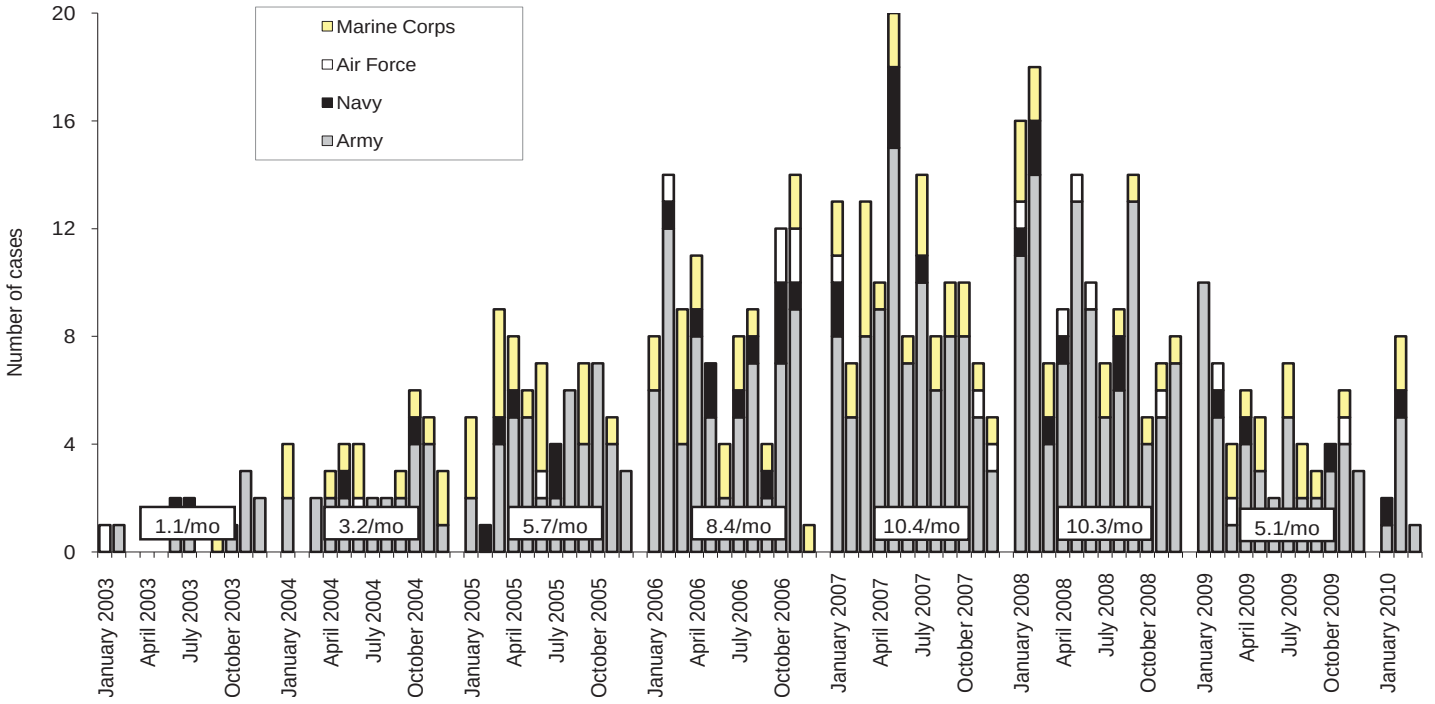
Deployment-related conditions of special surveillance interest, U.S. Armed Forces, by month and service, January 2003 - March 2010 (data as of 27 April 2010)

Amputations (ICD-9: 887, 896, 897, V49.6 except V49.61-V49.62, V49.7 except V49.71-V49.72, PR 84.0-PR 84.1, except PR 84.01-PR 84.02 and PR 84.11)[a]



Reference: Army Medical Surveillance Activity. Deployment-related condition of special surveillance interest: amputations. Amputations of lower and upper extremities, U.S. Armed Forces, 1990-2004. *MSMR*. Jan 2005;11(1):2-6.
[a]Indicator diagnosis (one per individual) during a hospitalization while deployed to/within 365 days of returning from OEF/OIF.

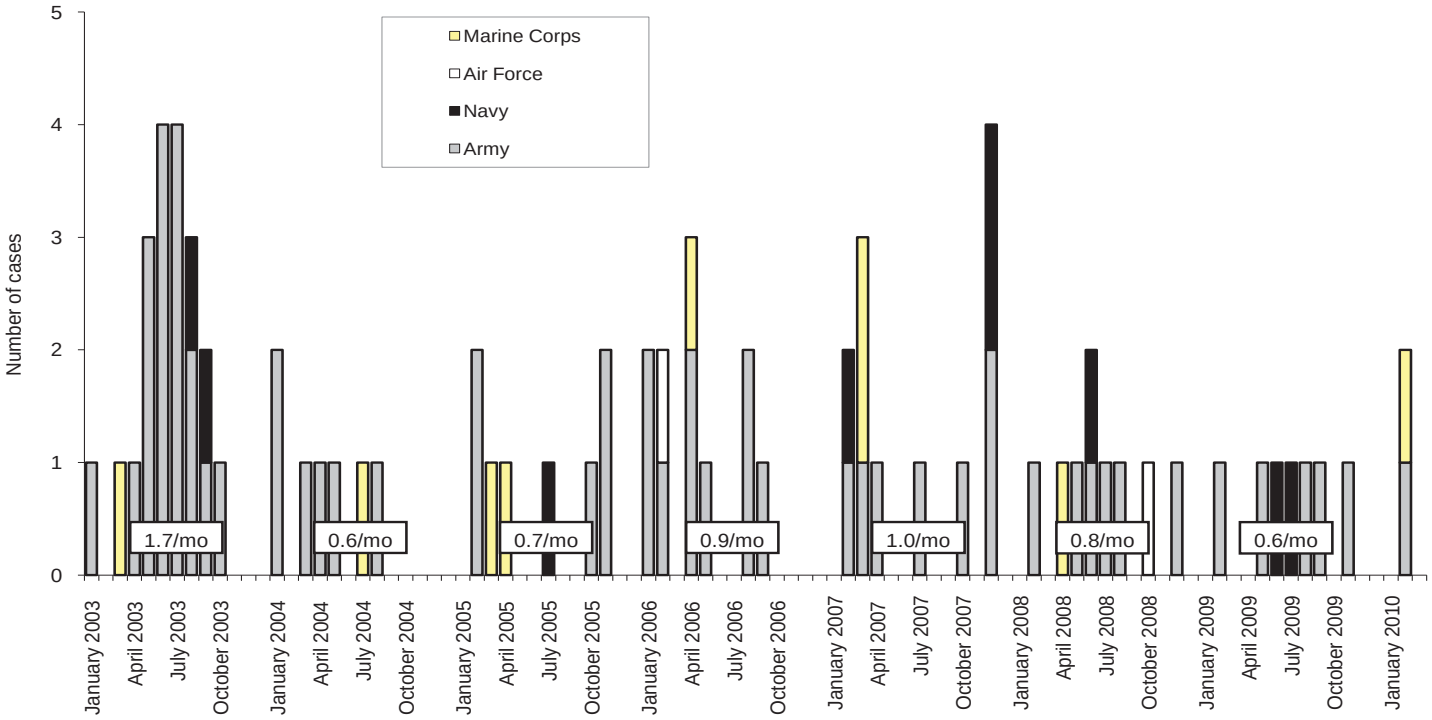
Heterotopic ossification (ICD-9: 728.12, 728.13, 728.19)[b]



Reference: Army Medical Surveillance Activity. Heterotopic ossification, active components, U.S. Armed Forces, 2002-2007. *MSMR*. Aug 2007; 14(5):7-9.
[b]One diagnosis during a hospitalization or two or more ambulatory visits at least 7 days apart (one case per individual) while deployed to/within 365 days of returning from OEF/OIF.

Deployment-related conditions of special surveillance interest, U.S. Armed Forces, by month and service, January 2003 - March 2010 (data as of 27 April 2010)

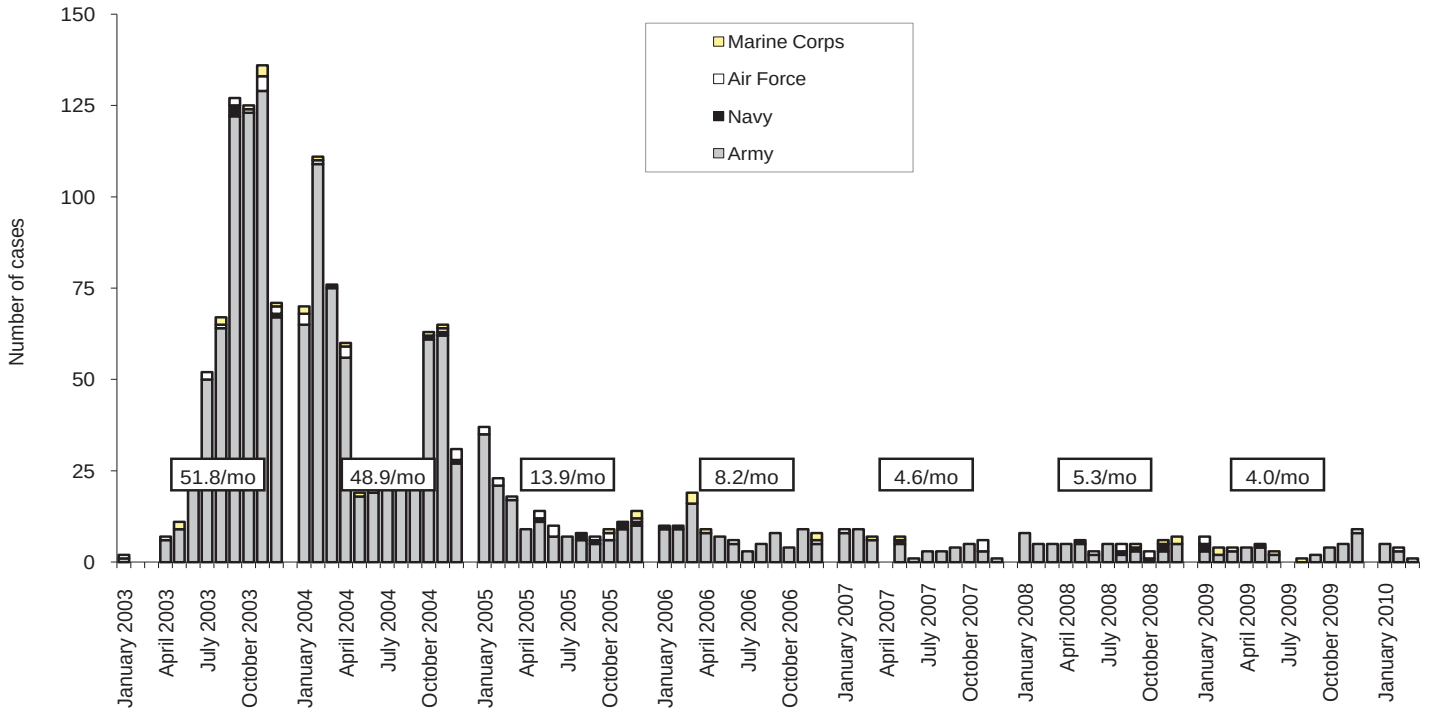
Severe acute pneumonia (ICD-9: 518.81, 518.82, 480-487, 786.09)[a]



Reference: Army Medical Surveillance Activity. Deployment-related condition of special surveillance interest: severe acute pneumonia. Hospitalizations for acute respiratory failure (ARF)/acute respiratory distress syndrome (ARDS) among participants in Operation Enduring Freedom/Operation Iraqi Freedom, active components, U.S. Armed Forces, January 2003-November 2004. *MSMR*. Nov/Dec 2004;10(6):6-7.

[a]Indicator diagnosis (one per individual) during a hospitalization while deployed to/within 30 days of returning from OEF/OIF.

Leishmaniasis (ICD-9: 085.0 to 085.9)[b]



Reference: Army Medical Surveillance Activity. Deployment-related condition of special surveillance interest: leishmaniasis. Leishmaniasis among U.S. Armed Forces, January 2003-November 2004. *MSMR*. Nov/Dec 2004;10(6):2-4.

[b]Indicator diagnosis (one per individual) during a hospitalization, ambulatory visit, and/or from a notifiable medical event during/after service in OEF/OIF.

Commander
U.S. Army Public Health Command (Provisional)
ATTN: MCHB-TS-EDM
5158 Blackhawk Road
Aberdeen Proving Ground, MD 21010-5422

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