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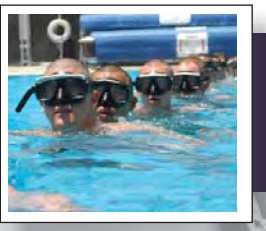

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Sexually Transmitted Infections, U.S. Armed Forces, 2004-2009
(corrected version: posted 30 March 2011)

Throughout history, sexually transmitted infections have adversely affected the health and operational effectiveness of military forces. Since October 1985, HIV-1 infection has been a medically disqualifying condition for entry to military service. Routine periodic screening and infection prevention counseling practices have limited the spread of HIV among U.S. military forces. However, other sexually transmitted infections (STIs) continue to occur at relatively high rates in U.S. military populations.

In the U.S. Military Health System, STI-related encounters are frequent and reflect the evaluation and treatment of symptomatic disease, screening to detect asymptomatic infections, and follow-up examinations. Screening for STIs varies across the Services and by patient characteristics; in turn, differences in rates across demographic and military subgroups must be interpreted cautiously. For example, a higher proportion of women than men are screened for *Chlamydia*; as a result, chlamydia rates may be higher among women than men because of more complete ascertainment of prevalent infections rather than higher rates of new infections.

For several reasons, knowledge regarding the incidence and natures of STIs among U.S. military members has significant current interest. For example, STI rates among military members often increase during times of frequent deployments and high operational stresses (e.g., war). In the past nine years, many U.S. service members have deployed at least once for combat-related service in Iraq or Afghanistan. Also, in recent years, STI rates have increased in some areas and populations in the U.S.

The newly-formed DoD HIV/STI Prevention Working Group convened on 23 September 2009 at the Uniformed Services University of the Health Sciences (USUHS) with representation from DoD/Health Affairs, Army, Navy, Marine Corps, Air Force, Public Health Service, USUHS, and the National Institute of Allergy and Infectious Diseases (NIAID). In order to inform public health policies and practices related to STI surveillance and prevention, the working group requested an overview of the descriptive epidemiology of sexually transmitted infection encounters during recent years among active component members of the U.S. Armed Forces. Surveillance of STIs in the U.S. Armed Forces is enabled by reports to the reportable medical event systems of the Services and through periodic investigations. This report summarizes STI-related medical encounters and notifiable medical event reports from 2004 through 2009.

Methods:

The surveillance period was from 1 January 2004 to 31 December 2009. The surveillance population included active

Figure 1. Incident diagnoses of selected sexually transmitted infections per 100,000 person-years of active military service, active component, U.S. Armed Forces, 2004-2009

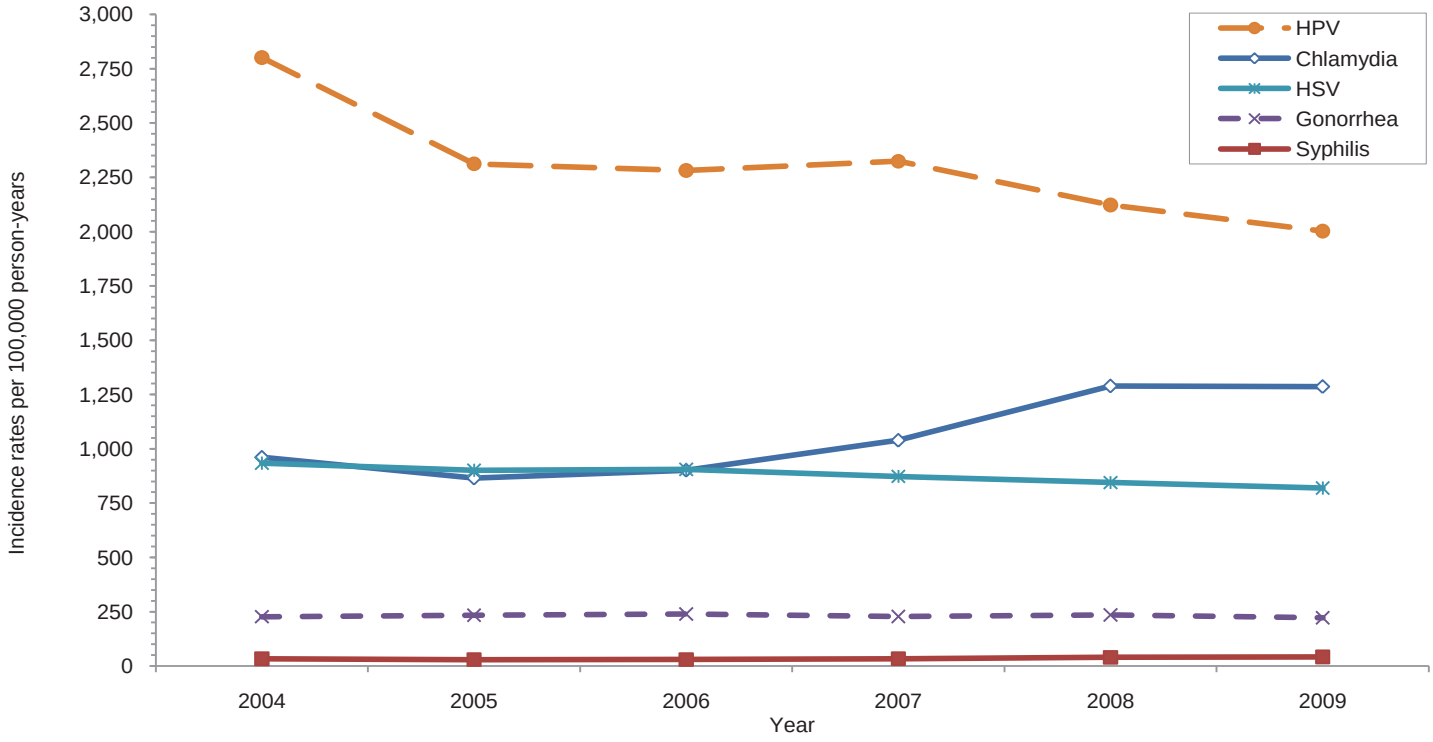


Table 1. Diagnostic codes (ICD-9-CM) for sexually transmitted infections of interest for this report

Condition	Diagnostic codes
Chlamydia	099.41, 099.5
Gonorrhea	098
Herpes simplex (HSV)	054
Human papillomavirus (HPV)	078.1, 079.4, 795.05, 795.09, 795.15, 796.75, 796.79
Syphilis	090, 091, 092, 093, 094, 095, 096, 097

component members of the Army, Navy, Air Force, Marine Corps and Coast Guard. Diagnoses of sexually transmitted diseases were derived from medical administrative data and reports of notifiable medical events routinely provided to the Armed Forces Health Surveillance Center (AFHSC) and maintained in the Defense Medical Surveillance System (DMSS) for health surveillance purposes.

DMSS was searched to identify all medical encounters at U.S. military treatment facilities and non-military facilities that are reimbursed through the Military Health System and all notifiable medical event reports that included diagnostic codes (ICD-9-CM) indicative of chlamydia, gonorrhea, syphilis, herpes simplex virus (HSV), and human papillomavirus (HPV) infections **(Table 1).**

To estimate the number of individuals affected by each STI of interest, each individual could be considered an"incident case" only once per calendar year for chlamydia, gonorrhea, and syphilis and once during the entire surveillance period for HSV and HPV.

Annual incidence rates were calculated by dividing the number of incident cases of each STI during each calendar year by the person-years of service in the active component of the U.S. military (excluding service while deployed to a major joint operation, e.g., Operation Enduring Freedom [OEF], Operation Iraqi Freedom [OIF]) during the corresponding calendar year.

To include recurrent episodes of chlamydia, gonorrhea and syphilis in overall case counts, each affected individual was considered at risk of being a new case beginning 30 days after a previous case-defining encounter. Thus, single individuals could account for more than one case of chlamydia, gonorrhea or syphilis within a year; however, annual incidence rates were based on "incident cases" of these STIs (one per person per calendar year).

Results:

During the surveillance period, more service members were diagnosed with HPV than any other STI; the overall incidence rate of HPV was 2,307.4 per 100,000 person-years [p-yrs]). Overall incidence rates of chlamydia, HSV, and gonorrhea were 1,056.2, 879.6, and 230.8 per 100,000 p-yrs, respectively; the rate of syphilis was much lower than the rates of the other STIs considered here (overall incidence rate: 34.6 per 100,000 p-yrs) **(Tables 2,3).** In general, STI rates were higher among military members who were female, in their 20s, black, non-Hispanic, in the Army, and from the Southern region of the U.S. (per self-reported home of record) compared to their respective counterparts **(Table 2).**

During the period, an average of 28,280 service members per year had at least one HPV-related medical encounter; also, 13,296 and 11,053 service members were diagnosed each year (means) with chlamydia and HSV infections, respectively **(Table 3).**

Chlamydia

Rates of chlamydia were relatively stable from 2004-2006 (range: 865.4 to 960.9 per 100,000 p-yrs), increased through 2008 (1,288.8 per 100,000 p-yrs), and remained relatively high in 2009 (1,286.0 per 100,000 p-yrs) **(Table 3, Figure 1).** Compared to their respective counterparts, rates of chlamydia were higher among service members who were enlisted, female, black, non-Hispanic, in the Army, of Southern origin, and unmarried **(Table 2, Figure 2a).** In general, rates of chlamydia decreased with age; however, among females, the highest rates were among the youngest (<20 years), while among males, the highest rates were among 20-24 year olds **(Figures 2b,c).**

Gonorrhea

Rates of gonorrhea were relatively stable throughout the period (range: 221.9 to 239.5 cases per 100,000 p-yrs) **(Figure 1, Table 3).** In general, rates were relatively high among service members who were young, black, non-Hispanic, in the Army, of Southern origin, and with less formal education compared to their respective counterparts **(Table 2, Figure 3).** As with chlamydia, among females, the highest rates were among the youngest (<20 years), while among males, the highest rates were among the 20-24 year olds. Among both males and females, rates monotonically declined with increasing ages over 25; however, rates were higher among women than men in each age group younger than 39 but similar among men and women in each older age group **(Table 2).**

Syphilis

Overall rates of syphilis were relatively low and stable during the first four years (range: 29.3 to 33.7 per 100,000 p-yrs) and slightly increased during the last two years (2009: 42.1 per 100,000 p-yrs) of the period **(Table 3, Figure 1).** From 2004 through 2008, rates of encounters for syphilis were slightly higher among females than males; in 2009, the rate was slightly higher among males (42.4 per 100,000 p-yrs) than females (40.5 per 100,000 p-yrs) **(Figure 4a).** Compared to their respective counterparts, rates of syphilis

Table 2. Numbers and rates of incident medical encounters (per 100,000 person-years of active military service) for selected sexually transmitted infections, active component, U.S. Armed Forces, 2004-2009

	Chlamydia		Gonorrhea		Syphilis		HSV		HPV	
	Incidence[a]	Rate[b]	Incidence[a]	Rate[b]	Incidence[a]	Rate[b]	Incidence[c]	Rate[b]	Incidence[c]	Rate[b]
Total	79,777	1,056.2	17,436	230.8	2,616	34.6	66,316	879.6	169,682	2,307.4
Sex										
Female	35,828	3,172.6	5,066	448.1	454	40.2	24,885	2,277.3	49,374	4,696.4
Male	43,949	684.1	12,370	192.5	2,162	33.7	41,431	642.7	120,308	1,908.9
Age Group										
17-19	12,968	1,878.9	2,422	350.8	179	25.9	4,742	695.8	15,417	2,351.9
20-24	44,543	1,776.8	9,146	364.7	831	33.1	22,503	902.1	70,126	2,903.3
25-29	14,986	935.2	3,596	224.4	646	40.3	15,869	990.5	38,563	2,463.1
30-34	4,607	427.7	1,249	115.9	341	31.7	9,406	871.0	18,465	1,738.9
35-39	1,928	208.9	689	74.7	360	39.0	7,522	813.2	13,802	1,514.5
40-44	592	115.0	251	48.7	183	35.5	4,252	823.0	8,607	1,692.3
45-49	130	72.4	71	39.6	52	29.0	1,521	844.1	3,358	1,894.4
50+	23	38.8	12	20.3	24	40.5	501	843.1	1,344	2,305.2
Race-ethnicity										
American Indian/Alaskan Native	1,417	1,046.9	215	158.8	53	39.1	1,101	815.5	3,175	2,410.3
Asian/Pacific Islander	3,372	938.1	449	124.9	96	26.7	2,120	587.8	6,931	1,972.0
Black, non-Hispanic	30,590	2,420.0	10,212	807.4	1,177	93.0	14,714	1,175.3	22,159	1,787.8
Hispanic	9,235	1,202.1	1,516	197.3	281	36.6	6,924	905.7	17,306	2,319.6
Other	886	1,449.9	115	188.1	19	31.1	565	930.0	1,746	2,970.6
White, non-Hispanic	32,985	688.0	4,664	97.3	921	19.2	39,355	820.5	114,568	2,458.2
Unknown	1,292	758.0	265	155.4	69	40.5	1,537	903.8	3,797	2,289.8
Home of Record Region										
Midwest	9,577	926.7	2,074	200.7	305	29.5	8,182	793.8	22,971	2,282.6
Northeast	7,854	954.9	1,922	233.6	291	35.4	6,862	837.9	17,184	2,144.5
South	30,579	1,304.4	8,665	369.5	1,149	49.0	21,606	926.7	49,561	2,169.0
West	10,954	887.1	1,954	158.2	327	26.5	9,671	785.1	27,546	2,293.2
Unknown	20,813	982.3	2,821	133.1	544	25.7	19,995	940.4	52,420	2,544.5
Rank										
Enlisted	77,374	1,231.2	16,919	269.2	2,417	38.5	55,459	884.7	141,828	2,318.4
Officer/Warrant officer	2,403	189.2	517	40.7	199	15.7	10,857	854.5	27,854	2,252.8
Education Level										
No high School	546	1,147.2	140	294.1	18	37.8	352	738.0	935	2,000.8
College	3,251	241.0	661	49.0	305	22.6	11,980	888.4	29,502	2,245.1
High School	71,046	1,330.7	15,422	288.8	2,040	38.2	45,964	862.3	122,003	2,347.1
Some College	3,504	558.8	819	130.6	208	33.2	6,341	1,015.1	12,670	2,066.8
Unknown	1,430	751.1	394	206.9	45	23.6	1,679	893.7	4,572	2,510.9
Marital Status										
Married	24,679	591.6	5,671	135.9	1,056	25.3	33,094	792.3	79,322	1,938.3
Single	50,424	1,638.1	10,857	352.6	1,415	45.9	28,199	920.6	81,751	2,754.1
Other	4,605	1,542.1	882	295.3	143	47.9	4,960	1,684.6	8,465	2,930.9
Unknown	69	1,494.8	26	562.9	2	43.3	63	1,399.7	144	3,340.2

[a]One incident diagnosis per person per calendar year
[b]Incident diagnoses per 100,000 person-years
[c]One incident diagnosis per person during the surveillance period

were higher among service members who were single, black, non-Hispanic, of Southern origin, and with less formal education; there were no clear trends in relation to age **(Table 2).** Of note, from 2006 to 2008, incidence rates of syphilis diagnoses nearly doubled among black, non-Hispanic service members (78.6 to 121.9 per 100,000 p-yrs) and in the Navy (30.4 to 58.4 per 100,000 p-yrs) **(Figure 4b,c).**

HSV

Overall rates of incident diagnoses (first per person during the surveillance period) of HSV slightly declined during the period (range: 933.7 to 819.1 cases per 100,000 p-yrs) **(Table 3, Figure 1).** Rates were more than three times higher among females (2,277.3 per 100,000 p-yrs) than males (642.7 per 100,000 p-yrs); of note, rates were relatively low among service members who were younger than 20 (695.8 per 100,000 p-yrs), Asian/Pacific Islander identity (587.8 per 100,000 p-yrs), or in the Marine Corps (624.6 per 100,000 p-yrs) **(Table 2).**

HPV

Overall rates of incident diagnoses (first per person during the surveillance period) of HPV were the highest of all STIs considered in the analysis; annual incidence rates generally

Table 2 (continued). Numbers and rates of incident medical encounters (per 100,000 person-years) for selected sexually transmitted infections, active component, U.S. Armed Forces, 2004-2009

	Chlamydia		Gonorrhea		Syphilis		HSV		HPV	
	Incidence[a]	Rate[b]	Incidence[a]	Rate[b]	Incidence[a]	Rate[b]	Incidence[c]	Rate[b]	Incidence[c]	Rate[b]
Age Group By Sex										
Female										
17-19	8,740	7,627.9	1,164	1,013.5	49	42.6	2,481	2,260.1	6,402	6,384.9
20-24	19,606	4,830.8	2,752	677.0	175	43.0	9,657	2,462.5	23,981	6,481.7
25-29	5,389	2,106.9	780	304.7	85	33.2	6,001	2,425.3	10,515	4,363.8
30-34	1,440	981.0	237	161.4	70	47.7	3,141	2,211.6	4,050	2,883.4
35-39	486	433.7	99	88.3	38	33.9	2,048	1,879.8	2,340	2,165.2
40-44	136	221.1	26	42.3	29	47.1	1,022	1,695.6	1,338	2,236.8
45-49	23	99.8	6	26.0	4	17.3	397	1,756.7	503	2,251.4
50+	8	82.7	2	20.7	4	41.3	138	1,447.9	245	2,603.1
Male										
17-19	4,228	734.5	1,258	218.5	130	22.6	2,261	395.4	9,015	1,623.6
20-24	24,937	1,186.9	6,394	304.3	656	31.2	12,846	611.0	46,145	2,256.1
25-29	9,597	712.7	2,816	209.1	561	41.7	9,868	728.5	28,048	2,117.3
30-34	3,167	340.4	1,012	108.8	271	29.1	6,265	668.0	14,415	1,564.4
35-39	1,442	177.8	590	72.8	322	39.7	5,474	670.8	11,462	1,427.0
40-44	456	100.6	225	49.6	154	34.0	3,230	707.8	7,269	1,619.7
45-49	107	68.4	65	41.5	48	30.7	1,124	713.2	2,855	1,842.9
50+	15	30.3	10	20.2	20	40.4	363	727.5	1,099	2,247.8
Service										
Army	39,619	1,614.7	9,978	406.6	1,035	42.2	24,730	1,015.2	55,869	2,341.5
Navy	12,775	659.6	2,970	153.3	793	40.9	13,870	712.7	37,922	1,992.0
Air Force	20,643	1,053.9	2,610	133.2	492	25.1	19,189	975.3	51,260	2,693.8
Marine Corps	6,262	649.9	1,695	175.9	234	24.3	5,963	624.6	18,134	1,940.8
Coast Guard	478	198.6	183	76.0	62	25.8	2,564	1,091.0	6,497	2,863.9

[a]One incident diagnosis per person per calendar year
[b]Incident diagnoses per 100,000 person-years
[c]One incident diagnosis per person during the surveillance period

Table 3. Numbers and rates[b] of incident diagnoses of selected sexually transmitted infections, active component, U.S. Armed Forces, 2004-2009

	2004	2005	2006	2007	2008	2009
Chlamydia						
Incidence[a]	12,648	10,977	11,195	12,641	15,892	16,424
Rate[b]	960.9	865.4	901.5	1,039.2	1,288.8	1,286.0
Gonorrhea						
Incidence[a]	2,992	2,962	2,974	2,776	2,898	2,834
Rate[b]	227.1	233.4	239.5	228.2	235.0	221.9
Syphilis						
Incidence[a]	442	372	366	410	488	538
Rate[b]	33.5	29.3	29.5	33.7	39.6	42.1
HSV						
Incidence[c]	12,139	11,360	11,256	10,654	10,440	10,467
Rate[b]	933.7	900.6	905.6	872.9	844.5	819.1
HPV						
Incidence[c]	35,040	28,173	27,525	27,705	25,832	25,407
Rate[b]	2,801.3	2,312.1	2,281.4	2,323.9	2,122.4	2,002.5

[a]One incident diagnosis per person per calendar year
[b]Incident diagnoses per 100,000 person-years
[c]One incident diagnosis per person during the surveillance period

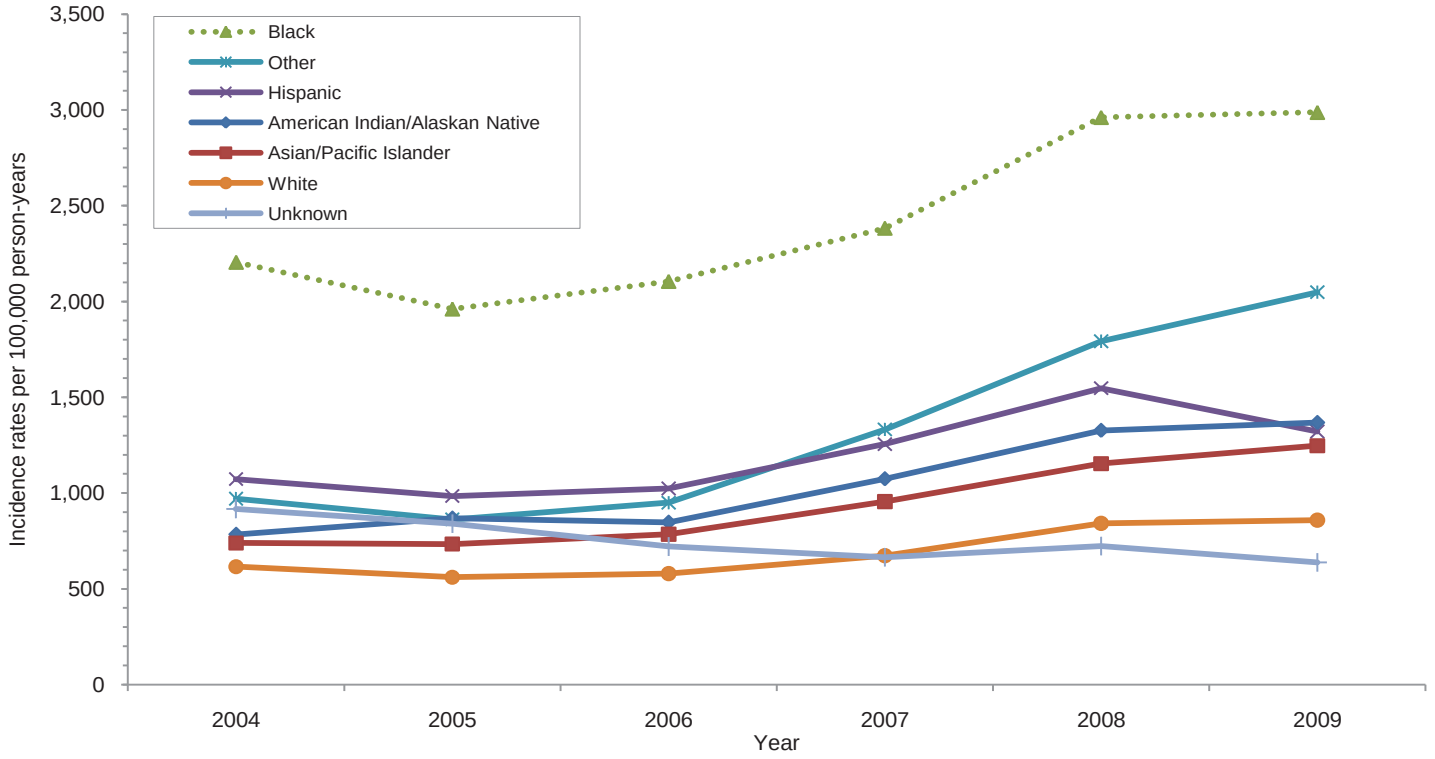
declined during the period (range: 2,801.3 to 2,002.5 cases per 100,000 p-yrs) **(Table 3, Figure 1).** Rates were more than 2.5 times higher among females (4,696.4 per 100,000 p-yrs) than males (1,908.9 per 100,000 p-yrs) and markedly higher among unmarried than married service members **(Table 2).** Of note, rates among the youngest aged (17-19 years) females very sharply declined from 2007 to 2009 (8,041.4 to 3,617.7 cases per 100,000 p-yrs) **(Figure 5).**

Editorial comment:

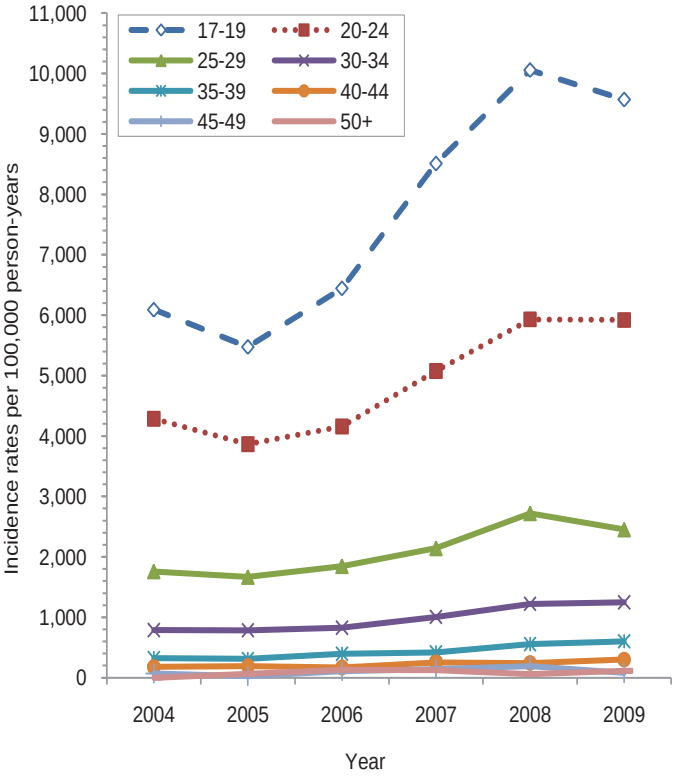
Military members are considered at high risk of STIs. This report provides an overview of recent STI experiences of U.S. military members. The results document that STIs remain a common problem among active component members. Sharp increases in incidence rates of some STIs in some subgroups, and the relatively widespread effects of STIs among military members overall, warrant re-emphasis of prevention and control efforts. Effective STI screening, diagnosis, treatment, and prevention practices are essential to protect the health and operational effectiveness of U.S. military forces.

Figure 2. Incident diagnoses of chlamydia infections per 100,000 person-years, active component, U.S. Armed Forces, 2004-2009

a. By race/ethnicity



b. Females, by age group



c. Males, by age group

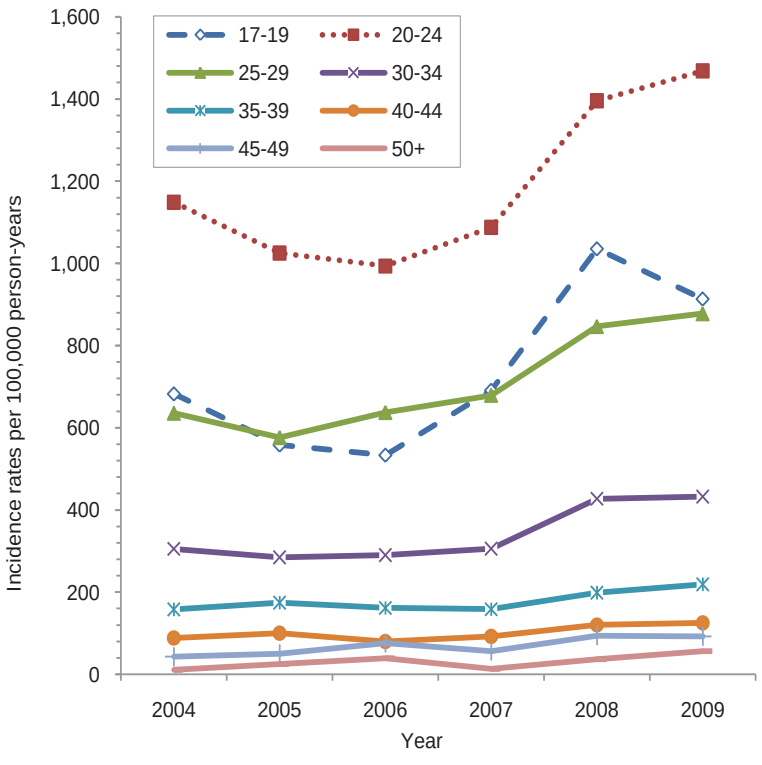
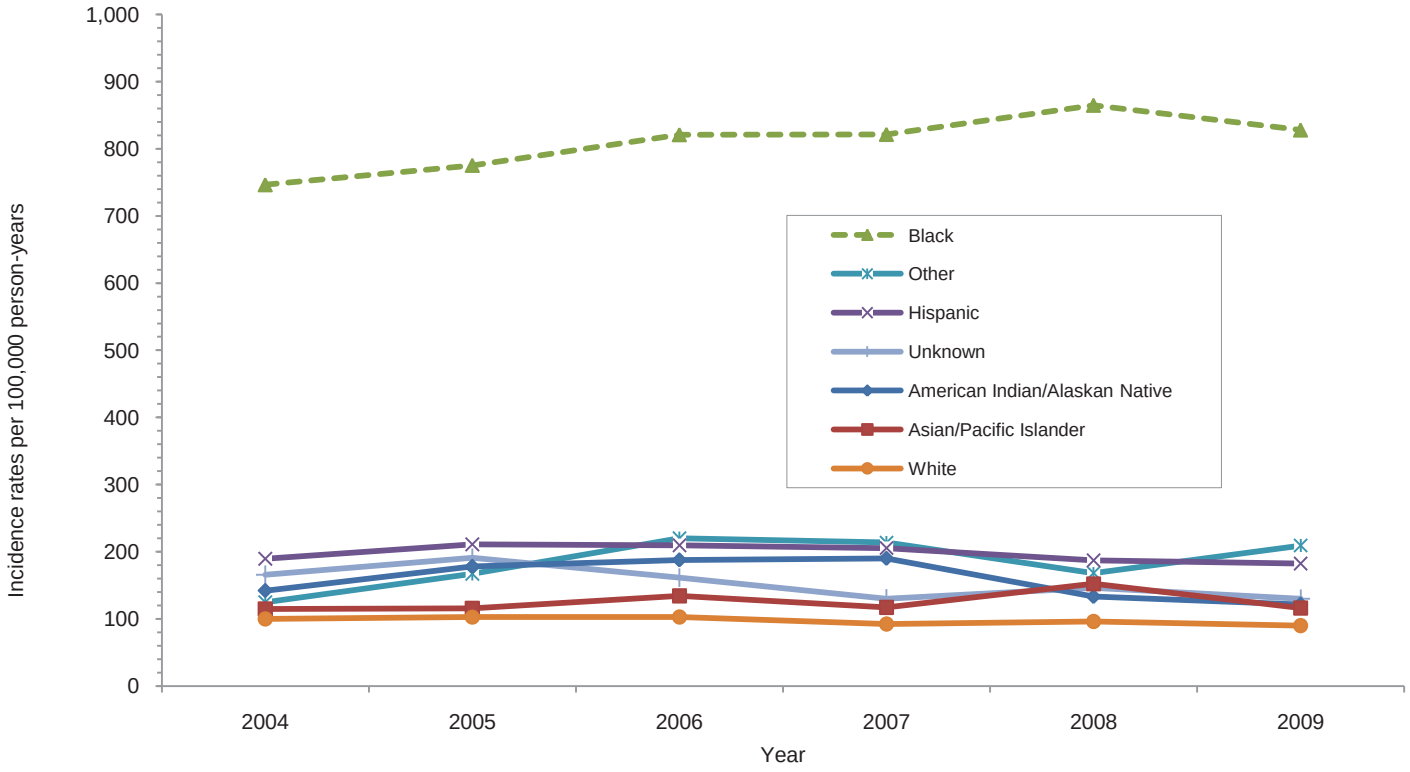


Figure 3. Incident diagnoses of gonorrhea per 100,000 person-years, by race/ethnicity, active component, U.S. Armed Forces, by year, 2004-2009



Routine, periodic screening for STIs and offering opportunities for contact tracing to find and treat asymptomatic, unscreened cases are proven strategies to identify and treat infected individuals. In the U.S. military, screening practices vary among the Services. In the Navy, Marine Corps, and Air Force, female recruits younger than 26 years old are routinely screened for chlamydia and gonorrhea within the first few days of service; female members of these Services are also routinely screened yearly. Army policy requires screening for STIs during mandatory annual screening examinations (including Papanicolaou testing) of female soldiers under 30 years of age. In all of the Services, screening for other STIs including HIV is recommended when service members are diagnosed with sexually-transmissible infections.

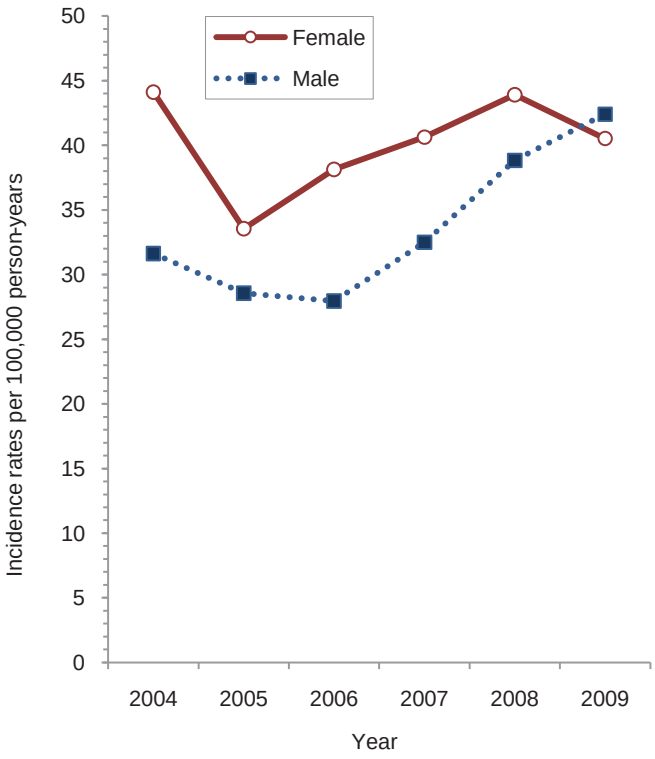
Chlamydia accounts for the largest number of treatable STI cases among military members. The rise in incidence rates of chlamydia from 2006 to 2008 suggests a potentially growing, but addressable, military public health problem. A recent analysis of U.S. military experience documented that rates of pelvic inflammatory disease (PID), a severe consequence of chlamydia and other STIs, were nearly two-thirds higher among women in the Army than the Navy within five years after beginning military service; given the differences in the screening policies and practices of the Services, the finding suggests a significant benefit to early screening of recruit populations.[2] This report documents a leveling of chlamydia rates in 2008-2009 in the Navy and Air Force, but not in the Army; the finding suggests that early screening may play a role in prevention. Screening of young, sexually active U.S. military male recruits for chlamydia coupled with partner notification can be cost effective in preventing transmission and resulting complications.[3] Strengthening chlamydia screening among new recruits would likely provide a significant public health benefit to U.S. military populations. Other opportunities for STI screening in high risk settings (e.g., peri-deployment periods, overseas non-combat garrisons) should be assessed for their potential values as public health interventions.

Gonorrhea is much less frequent than chlamydia among U.S. military members; its occurrence in the U.S. military generally reflects the epidemiology of most STIs in military and general U.S. populations. The highest rates of gonorrhea are among service members and their civilian counterparts who are young, black non-Hispanic, female, and from the Southern United States.

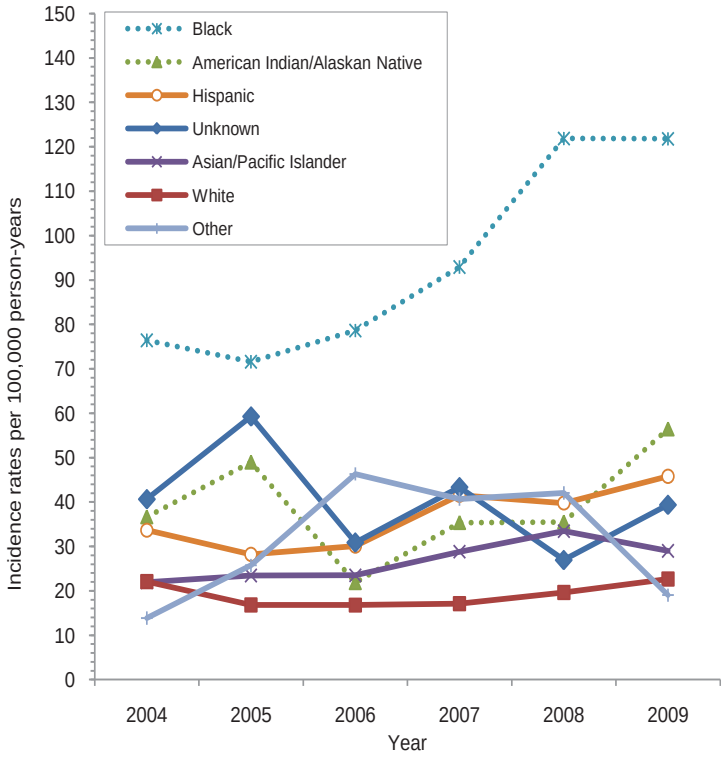
Gonorhhea presents a special public health concern because of its ability to develop resistance to most antimicrobials. In several regions, cephalosporins (e.g., ceftriaxone, cefixime) are the sole class of antibiotics recommended as first-line treatment of gonorrhea. As a result, the CDC recommends the use of these drugs to treat all gonococcal infections in the U.S. In the past decade, cephalosporin-resistant gonorrhea has emerged in several

Figure 4. Incident diagnoses of syphilis per 100,000 person-years, active component, U.S. Armed Forces, by year, 2004-2009

a. By gender



b. By race/ethnicity



c. By service

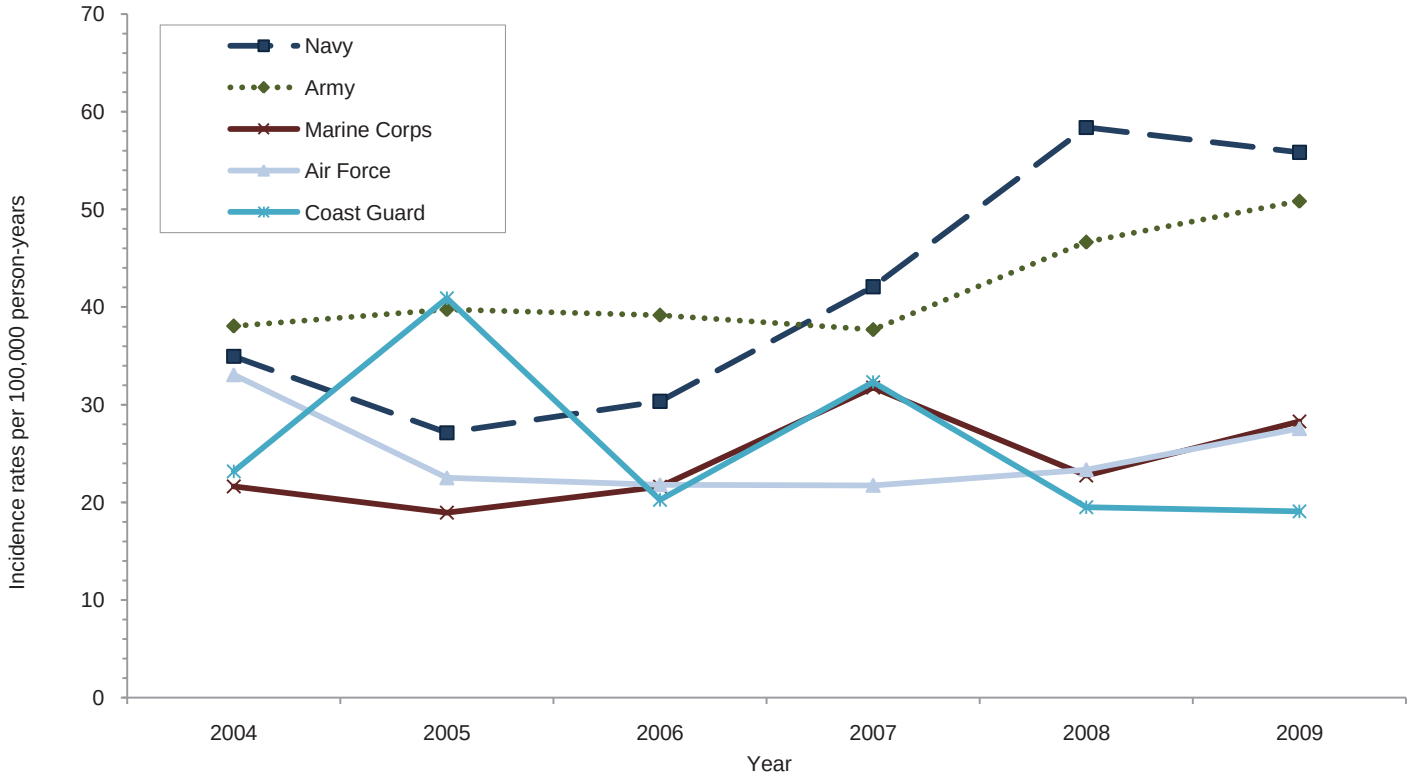
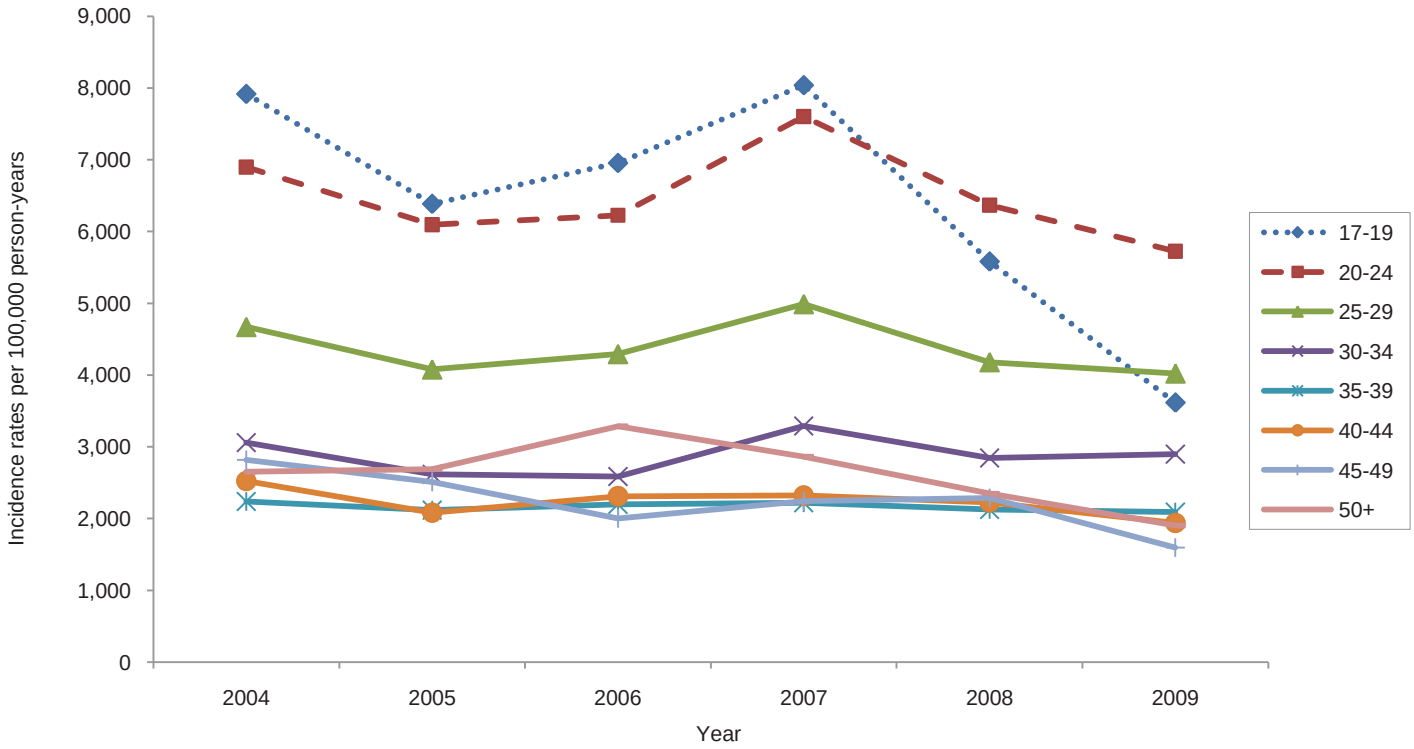


Figure 5. Incident diagnoses of human papillomavirus (HPV) infection among females, by age group, active component, U.S. Armed Forces, 2004-2009



regions raising concerns about future treatment options and reemphasizing the need for increased prevention and control efforts.[4,5]

Syphilis shares epidemiologic characteristics with gonorrhea; unlike gonorrhea, however, it is relatively more common among men (i.e., it is the only STI considered in this report with similar incidence rates overall among men and women). The reasons for the recent sharp increase in syphilis rates among Navy members are unknown. In general, differences in rates among subgroups may reflect differences in screening practices; other factors such as differences in sexual networks and military housing arrangements may also play roles and offer opportunities for targeted prevention.[6]

Human papillomavirus (HPV), the cause of genital warts and a major risk factor for cervical, penile, and anal cancers, was more prevalent and associated with more healthcare encounters than any other STI considered in this report. In 2006, the U.S. Food and Drug Administration (FDA) approved the first preventive HPV vaccine; the second was approved in 2009. In 2007, the U.S. Army, Navy/Marine Corps, and Air Force issued policies supporting the use of these vaccines as recommended by the U.S. Centers for Disease Control. It is unclear to what extent these policies have been implemented and whether or not the recent decline in rates of HPV among females is due to vaccination; assessments are needed to refine policies and practices regarding HPV vaccination in military populations.

Vaccines against other STIs such as HSV and chlamydia are in development. In this report, medical encounters for HSV were relatively common. Because infection with HSV is persistent and may produce recurrent symptoms and morbidity, HSV is a particularly important target for preventive vaccine development.

This report documents that STIs and their complications are costly not only to those affected but also to the Military Health System (e.g., medical encounters, diagnostic laboratory testing, drug treatment). STIs are often associated with comorbid and complicating conditions that also are costly. For example, STIs are a significant cause of infertility among both men and women. Infertility is prevalent and increasing in the U.S. general population, and infertility-related medical evaluations and treatments can be very expensive. Such costs are not accounted for in the incidence estimates summarized in this report. The costs of impaired health and productivity and adverse effects on military readiness and deployability due to STIs were also not specifically addressed; they should be accounted for when assessing the costs versus the potential benefits of STI-related screening and vaccination policies and practices.

There are several limitations of the analyses that should be considered when interpreting the results. For example, the analyses were based on administrative records of medical encounters. Such records do not specify the laboratory tests (or specific results) or clinical criteria that were used to

confirm STI diagnoses. In addition, diagnoses of STIs may be incorrectly coded; for example, STI-specific "rule out" diagnoses, vaccinations, counseling may be reported with STI-specific diagnostic codes.

Also, the analysis was based on incident diagnoses of STIs. For some STIs, the detection of prevalent infections may occur long after the subject infections were acquired. As a result, changes in incidence rates reflect, at least in part, temporal changes in case ascertainment (e.g., more aggressive screening). In addition, the STI diagnoses reported here underestimate the actual numbers of diagnoses to the extent that affected service members are diagnosed and treated through non-reimbursed, non-military care providers (e.g., county health departments, family planning centers) or in deployed settings (e.g., overseas training exercises, combat operations, on-board ships); in general, records of such encounters are not included in the surveillance database used for this report. Finally, military service while deployed to Iraq or Afghanistan was not included as "time at risk" (denominators) for rate calculations; however, all STIs that were diagnosed during medical encounters or reported as notifiable medical events were considered potential cases (i.e., numerators) regardless of the deployment statuses of the affected service members (e.g., some STIs may be diagnosed during R&R leave from deployment). As a result, reported cases and rates slightly overestimate the actual numbers and rates of STI diagnoses during non-deployed service.

The lack of standard practices across the Services and their installations regarding screening, testing, treatment, and reporting make interpretations of differences between services, military and demographic subgroups, and locations difficult. Establishing screening, testing, treatment, and reporting standards across the Services and ensuring adherence would likely improve efforts to detect, characterize, and counter STI-related health threats that affect the military members and installations of more than one service.

In summary, this report provides a comprehensive evaluation of medical encounters for STIs among U.S. military members. It documents that STIs due to many causes are a prevalent problem among active military members and impose a significant burden on the military healthcare system. Policies and resources aimed at standardizing and strengthening STI screening programs, improving preventive interventions, identifying high-risk populations and settings, and developing and employing new prevention tools such as vaccines and behavioral interventions could yield important public health and military operational benefits.

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Notice: The annual HIV update will appear in the September MSMR.

Surveillance Snapshot: Malaria Among Deployers to Haiti, U.S. Armed Forces, 13 January - 30 June 2010

On 12 January 2010, a catastrophic earthquake (7.0 on the Richter magnitude scale) occurred near Port-au-Prince, Haiti. The following day, the U.S. Armed Forces initiated a large joint operation (Operation Unified Response [OUR]) to provide humanitarian and disaster relief support.[1] The objective of this analysis was to assess the number, nature, and timing of malaria cases among U.S. military participants in Haiti relief operations.

The period of interest was 13 January to 30 June 2010 (i.e., start of OUR to 30 days after end of OUR). U.S. service members who deployed to Haiti during the period were identified from deployment rosters routinely maintained by the Services. Electronic records of all hospitalizations, ambulatory visits, and notifiable medical events among all deployers to Haiti from the dates of deployment until 30 days after returning to the U.S. were assessed. Medical encounters at medical treatment facilities in Haiti were not available for analysis.

Malaria was the most frequent cause of hospitalizations of U.S. military participants in Haiti relief operations (data not shown). During the period of the operation, 13 U.S. military deployers to Haiti were diagnosed with primary (first-listed) diagnoses of malaria **(Figure 1).** Eleven cases were hospitalized; two others were identified through notifiable medical event reports (no hospitalization records were available). Of the 13 cases, eight were reported as due to *P. falciparum*; the species of the five others were unspecified. Because there is no appreciable transmission of malaria parasites other than *P. falciparum* on Haiti, it is likely that all cases were caused by that species.[2]

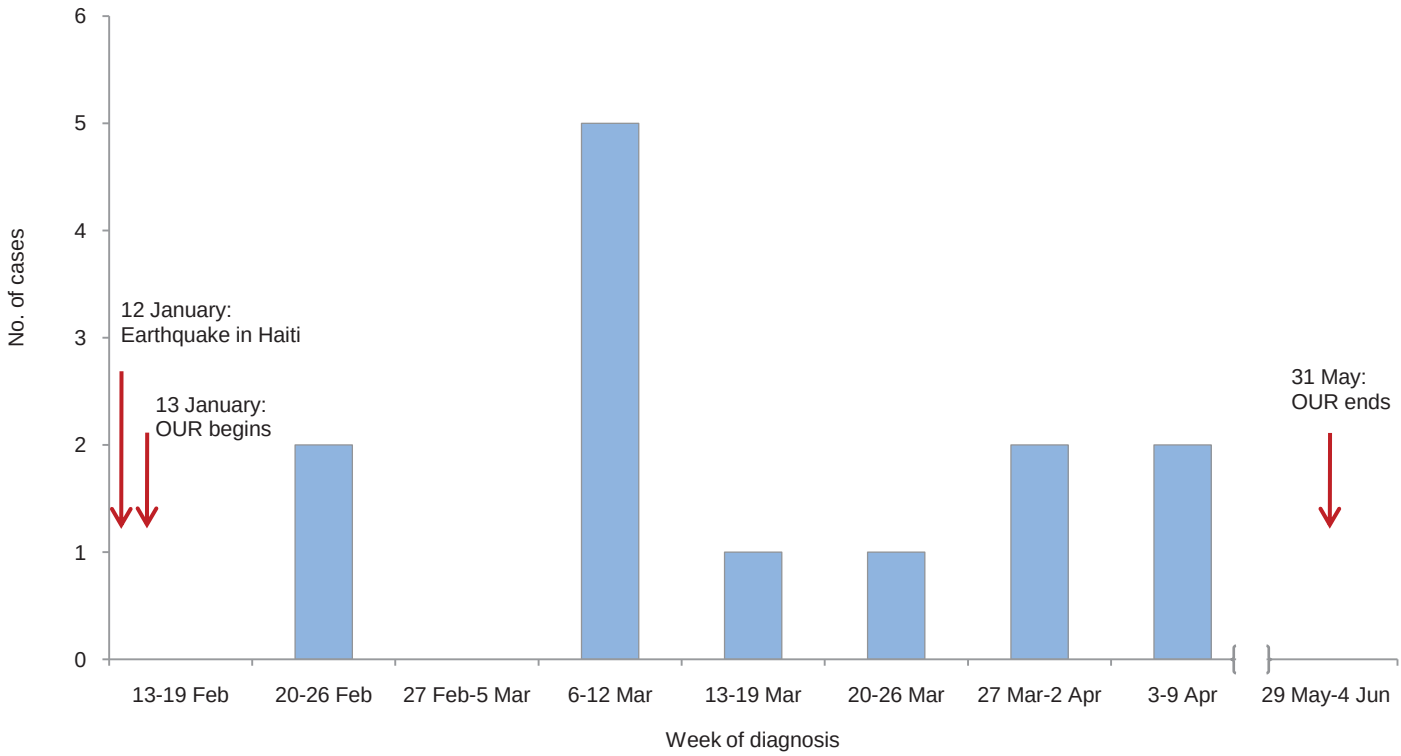
Of the 13 cases overall, five were medically evacuated from Haiti; five others were diagnosed with malaria from 5 to 27 days after departing Haiti (per routinely reported deployment end dates).

Of the total cases, 12 were males; seven were in the Army, four in the Marine Corps, and two in the Navy. All cases were treated at U.S. military medical facilities in the United States: ten in North Carolina (Fort Bragg [n=8], Marine Corps Base Camp Lejeune [n=2]), two in Virginia (Naval Medical Center Portsmouth), and one at Fort Hood, Texas.

This outbreak of *P. falciparum* malaria underscores the importance of proper malaria prevention measures even in low transmission areas. Military commanders must emphasize these measures as a force protection issue.

1. United States Department of Defense. Haiti Earthquake Relief. http://www.defense.gov/home/features/2010/0110_haiti/. Accessed on August 24, 2010.
2. Centers for Disease Control. Malaria: Haiti Pre-decision Brief for Public Health Action. http://www.bt.cdc.gov/disasters/earthquakes/haiti/malaria_pre-decision_brief.asp. Updated April 23, 2010. Accessed August 23, 2010.

Figure 1. Malaria diagnoses among deployers to Operation Unified Response (OUR), active and reserve components, U.S. Armed Forces, by week, 12 February - 31 May 2010



Upsurge in Reported Cases of *Shigella sonnei*, Fort Hood, Texas

During June 2010, there was a notable increase in case reports of *Shigella* infections (shigellosis) to the Army's Reportable Medical Events System (RMES). Reviews of RMES reports and laboratory results (Health Level 7 [HL7] data maintained by the Navy and Marine Corps Public Health Center) revealed 42 cases of confirmed *Shigella sonnei* (*S. sonnei*) infections diagnosed at the Darnall Army Medical Center (DAMC), Fort Hood, Texas from January through June 2010. The number of cases from DAMC during the first half of 2010 (n=42) was more than eight times the number during a comparable period in 2009 (n=5) and over twice the number for all of 2009 (n=19) **(Figure 1).**

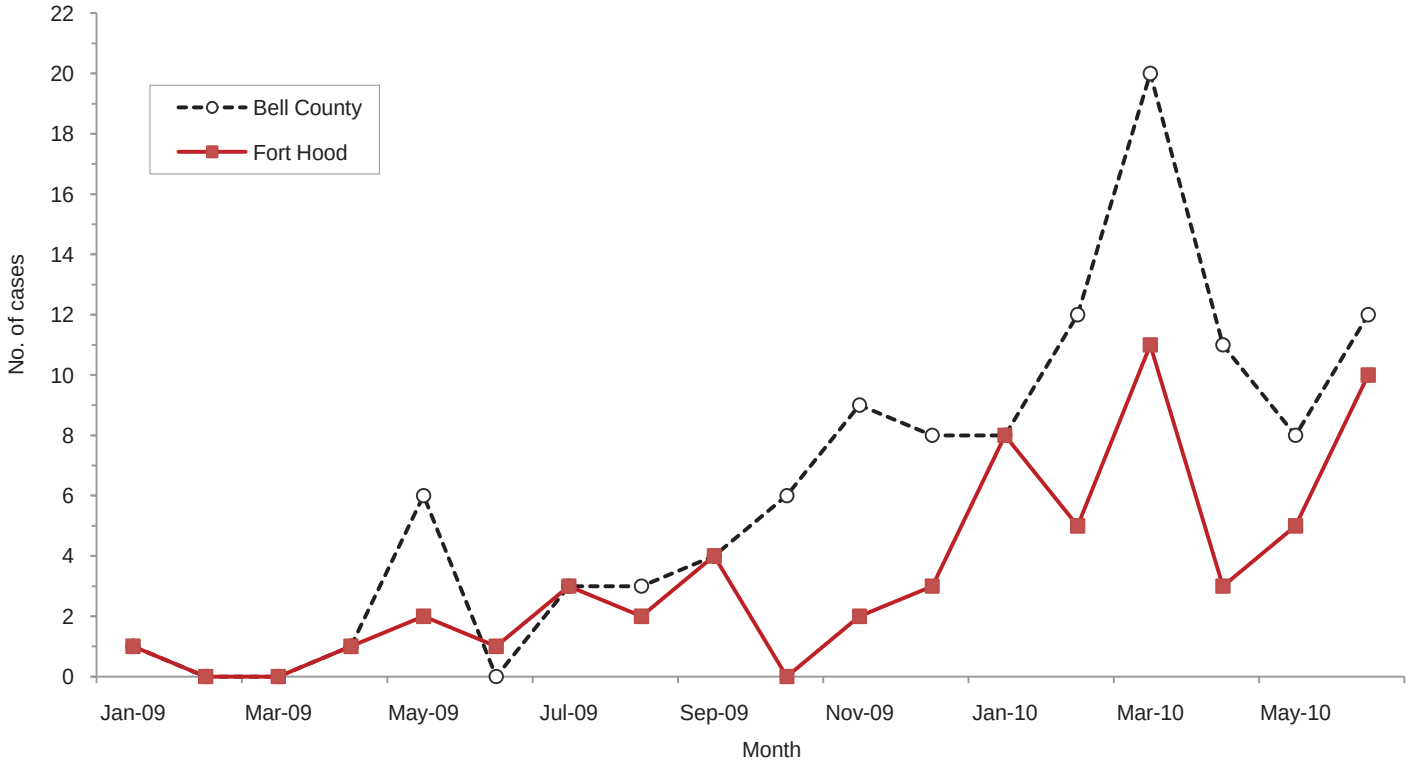
In the spring of 2010, staff members from the DAMC Preventive Medicine Department and epidemiologists at the adjacent Bell County Public Health District had noted increases in the incidence of shigellosis from the Fort Hood and surrounding communities. In Bell County, counts of confirmed cases by six-month intervals were: January to June 2009: 8 cases; July to December 2009: 33 cases; and January to June 2010: 71 cases. For Fort Hood, the counts of confirmed cases for the same intervals were 5, 14, and 42 cases respectively **(Figure 1).** No epidemiologic links among the cases were identified.

Of the 42 cases identified from Fort Hood during the first six months of 2010, nearly two-thirds were females (64%) and more than three-fourths (76%) were children 10 years old and younger; the median age of those affected was five years **(Table 1).**

Of all cases from Fort Hood during the first six months of 2010, 14 (33%) were diagnosed in the period 21 February through 27 March, and 8 (19%) others were diagnosed during 30 May through 12 June **(Figure 2).** The February-March cases were investigated by the DAMC Communicable Disease Service; no links (other than within households) were identified. In regard to the May-June cluster of cases, the DAMC staff hypothesized a possible relationship of cases to recreational water activities during the Memorial Day weekend. Two cases attended the same pool party (other children who played in the same pool were reportedly sick but did not get tested). Two other cases swam in lakes shortly before their illness onsets. The other four cases reportedly had ill family members but no common links. Although several new child development centers (CDCs) had recently opened near Fort Hood, no CDCs – old or new – were linked to cases.

The Fort Hood Communicable Disease Service and Bell County epidemiologists informed the public about the

Figure 1. Shigella cases per month, Fort Hood and Bell County, Texas, January 2009-June 2010[a]



[a]Fort Hood data obtained from Army Reportable Medical Events System (RMES) and Navy and Marine Corps Public Health Center (HL7 laboratory data), Bell County data reported by county epidemiologist

Table 1. Characteristics of individuals with *Shigella sonnei*-related gastroenteritis (n=42), Fort Hood, Texas, January-June 2010

	Frequency	Percent
Age group		
0-5 years	23	54.7
5-10 years	9	21.4
11-20 years	1	2.4
21 years and older	9	21.4
Gender		
Female	27	64.3
Male	15	35.7
Hospital Admission		
Yes	3	7.1
No	34	81.0
Missing	5	11.9

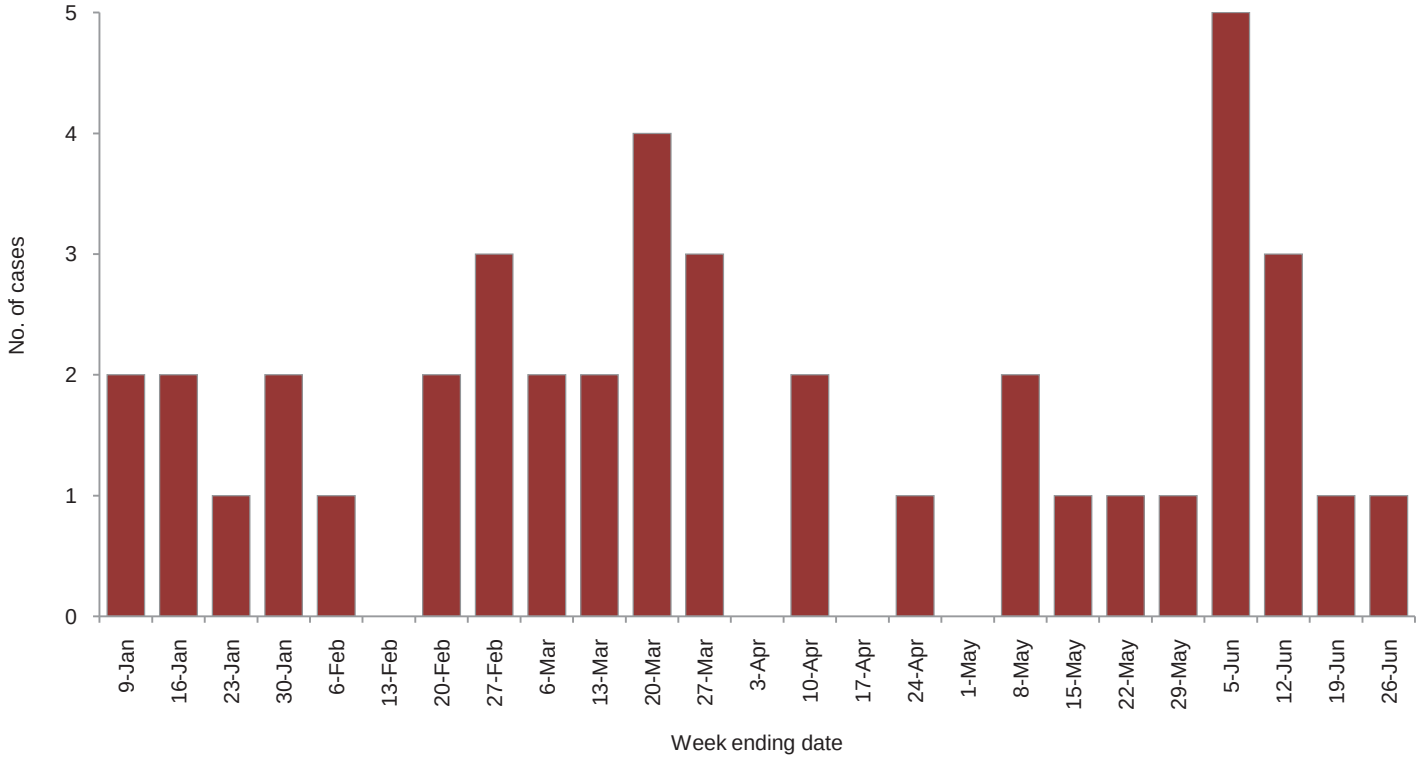
increase of shigellosis in the area and described appropriate precautionary measures. Specifically, the Bell County Health Department sent informational letters to schools, daycare centers, physicians and parents in the area; these letters were provided to the DAMC medical staff for use on the installation. The DAMC Communicable Disease Service explained control measures to all shigellosis patients and their family members. Information shared included disease symptoms, incubation period, methods of transmission, period of communicability, and proper hand washing and food handling practices.

Editorial comment:

Bacteria from the genus *Shigella* are capable of invading the colon and distal small intestine, resulting in illness characterized by diarrhea, fever, vomiting, nausea, cramps, fever, and pain during bowel movements. Patients with shigellosis often experience watery diarrhea, but in classic *Shigella* dysentery, stools contain blood or mucus. Disease severity depends on characteristics of the pathogen and the infected host. The genus *Shigella* includes four species: *S. dysenteriae*, *S. flexneri*, *S. boydii*, and *S. sonnei*. *S. sonnei*, the species responsible for the cases in this report, is the most common cause of shigellosis in the United States and other industrialized countries. Illnesses due to *S. sonnei* usually have short clinical courses and low case fatality. In contrast, *S. dysenteriae* type 1 infections often have serious clinical expressions and can be lethal; cases and outbreaks of shigellosis due to *S. dysenteriae* type 1 are relatively common in lesser-developed countries.[1]

Like many enteric pathogens, *Shigella* is spread by the fecal-oral route. Ingestion of as few as 10 to 100 *Shigella* organisms can produce disease. An infected person can be the source of infection for others from the time of onset of illness until *Shigella* bacteria are no longer present in feces. Without antibiotic treatment, this communicability may last for up

Figure 2. *Shigella sonnei* cases at Fort Hood, Texas, by week, January-June 2010



to four weeks after resolution of symptoms. Transmission generally occurs from person-to-person (via symptomatic cases or asymptomatic carriers) or through ingestion of contaminated food or water. Shigellosis outbreaks often occur in daycare centers, prisons, refugee camps, and other densely crowded settings with inadequate food, water, or sanitary waste disposal practices.

The results of this report should be interpreted in light of inherent limitations. For example, as with most endemic infectious diseases with epidemic potential, there is uncertainty regarding the completeness and accuracy of shigellosis case detection and reporting. For this report, cases were identified from reports to the Army's Reportable Medical Events System and from laboratory confirmed *Shigella* infections (per HL7 data). However, many individuals with acute gastrointestinal illnesses are not tested to determine the etiologies; as a result, cases of reportable enteric infectious illnesses that are identified through passive surveillance systems may under represent the actual disease burden. Thus, while the case finding approach for this report was broad, the actual number of cases of shigellosis during the period and at the location of interest was undoubtedly underestimated.

This report did not identify any specific extra familial sources of infection or routes of transmission; this is not surprising. Since 1995, summaries of four shigellosis outbreaks at Army installations have been reported in the *MSMR*. Two of the outbreaks were centered on child development centers. However, of 42 cases that occurred in May-June 1997 at Fort Bragg, the majority was clustered in an on-post housing area; the large child development center on the installation remained free of cases. Also, in August-December 1995, a cluster of cases treated at the Walter Reed Army Medical Center involved two families that lived near each other and interacted daily. The children of both families attended daycare; however, the daycare center remained unaffected.

Recent reports suggest that the majority of reportable bacterial enteric infections (e.g., *Campylobacter, Salmonella, E. coli* O157, *Shigella*) are sporadic in nature and not outbreak related. Although outbreak investigations often implicate specific foods as sources of infection, food preparation and kitchen cleaning practices and non-food vectors may play greater roles in sporadic disease occurrence than previously believed. A recent study of sporadic enteric bacterial infections among children indicated that non-food vectors were as important as food vectors in infection transmission; in the study, water-based recreational activities were the leading risk factor.[2] This report and other studies emphasize that routes of transmission of *Shigella* other than contaminated food or drinking water should be considered during outbreak investigations.

Report and comment prepared by Clemmons NS[1], Leamer NL[1], Pollack D[2], Jordan NN[1].

[1]U.S. Army Public Health Command (Provisional), Aberdeen Proving Ground, Maryland, [2]Bell County Public Health District, Bell County, Texas.

We would like to express our gratitude to Fort Hood Preventive Medicine Department (LTC Mendalose Harris, Dr. Charles Lucey and Ms. Rosa Vega) for their help with this report.

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Brief Report: Recurrent Chlamydia Diagnoses, Active Component, 2000-2009

Chlamydia is the most common bacterial sexually transmitted infection in the general U.S. population and the active U.S. military.[1,2] Many chlamydia infections are asymptomatic; yet, they can be epidemiologically and clinically significant. For example, chlamydia infections can facilitate HIV transmission and the development of human papillomavirus (HPV)-related cancers. In women, adverse complications of chlamydia include pelvic inflammatory disease (PID), tubal infertility, and chronic pelvic pain. A major risk factor for the development of these complications is recurrent chlamydia infections.[3]

This report summarizes numbers and characteristics of U.S. military members who had recurrent diagnoses of chlamydia during a single calendar year from 2000 through 2009.

Methods:

The surveillance period was 1 January 2000 to 31 December 2009. The surveillance population included all individuals who served in the active component of the U.S. Armed Forces at any time during the surveillance period.

Figure 1. Numbers and percentages of chlamydia diagnoses considered recurrences, active component, U.S. Armed Forces, 2000-2009

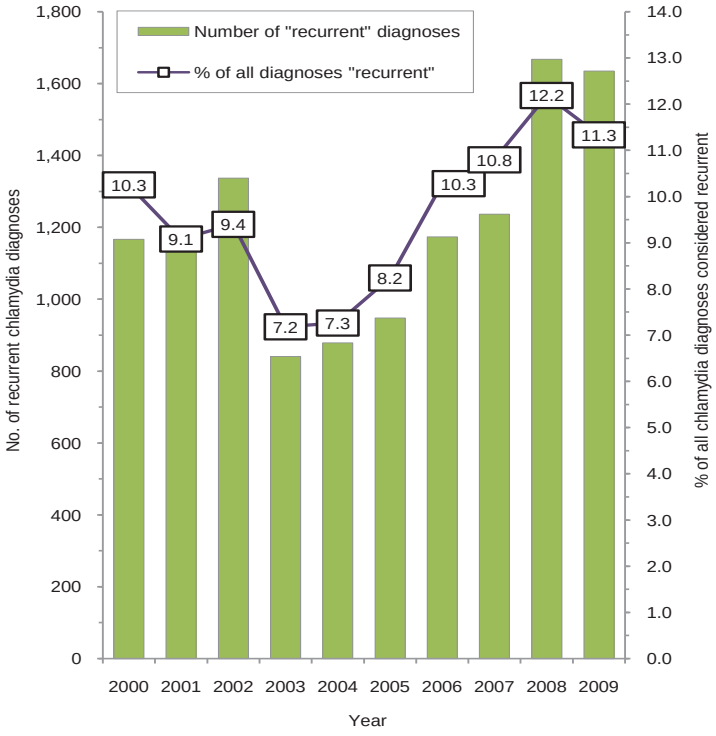


Table 1. Individuals with multiple chlamydia diagnoses with a single calendar year, active component, U.S. Armed Forces, 2000-2009

Number of chlamydia diagnoses in a single calendar year	Number of individuals
2	10,817
3	1,086
4	132
5	24
>5	7
Total[a]	12,066

[a]Total individuals with more than one chlamydia diagnosis in a single calendar year

For surveillance purposes, an incident chlamydia case was defined by a record of an outpatient medical encounter or a notifiable medical event report that included one of the following ICD-9-CM diagnostic codes in any diagnostic position: 078.88 "other specified diseases due to chlamydia"; 079.88 "other specified chlamydial infection"; 079.98 "unspecified chlamydia infection"; 099.41 "*Chlamydia trachomatis*"; or 099.5x "other venereal diseases due to *Chlamydia trachomatis*".

Separate analyses were conducted for each calendar year of the period. In each calendar year, a "recurrent case" of chlamydia was defined as a medical encounter for chlamydia that occurred during the same calendar year as, and 30 days or more after, a previous chlamydia case-defining medical encounter. To assess trends, the proportions of all chlamydia cases that were considered recurrent cases were estimated for each calendar year of the period.

Results:

During the 10-year period, 12,066 active component service members had recurrent diagnoses of chlamydia within a single calendar year. Of all service members with recurrent chlamydia diagnoses, approximately 90% (n=10,817) had two episodes and 9% (n=1,086) had three episodes. Service members with 4 or more chlamydia diagnoses comprised less than 1% of those with recurrent diagnoses **(Table 1)**.

There was nearly a two-fold increase in the numbers of recurrent chlamydia diagnoses between 2003 (n=841) and 2008 (n=1,668). Also, in 2003, approximately one of 14 (7.2%) chlamydia diagnoses were "recurrent" episodes, while in 2008, approximately one of eight (12.2%) chlamydia diagnoses were considered "recurrent" **(Figure 1)**. The steady increases in the numbers and proportions of recurrent chlamydia diagnoses from 2003 to 2008 were most pronounced among young (<25 years old) females **(Table 2)**.

Editorial comment:

This report documents that, in the last ten years, more than 12,000 U.S. military members had recurrent diagnoses of chlamydia within a single calendar year. While the number of military members with recurrent chlamydia infections is concerning, the great majority of chlamydia diagnoses were the first encounters for chlamydia among those affected. The finding emphasizes the importance of providing prevention counseling to military members who are affected by chlamydia and other sexually transmissible infections.

The results of this analysis should be interpreted cautiously. For example, from the data used for the analysis, it could not be determined if recurrent chlamydia diagnoses indicated "true" cases of reinfection or follow-ups of initial infections (e.g., prevention counseling, treatment failures). In addition, case counts based on reports of indicator ICD-9-CM diagnostic codes are subject to error due to incorrect

Table 2. Individuals with recurrent chlamydia diagnoses within a calendar year, active component, U.S. Armed Forces, 2000-2009

	2000		2001		2002		2003		2004		2005		2006		2007		2008		2009	
	No.	%[a]	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Total	1,167	10.3	1,180	9.1	1,337	9.4	841	7.2	879	7.3	948	8.2	1,174	10.3	1,237	10.8	1,668	12.2	1,635	11.3
Sex																				
Female	492	11.6	570	11.2	671	11.6	406	8.7	420	8.8	471	10.4	546	12.3	663	14.0	843	15.5	880	16.3
Male	675	9.5	610	7.7	666	7.9	435	6.2	459	6.3	477	6.8	628	9.0	574	8.5	825	10.0	755	8.4
Age Group																				
17-19	104	9.6	144	11.4	167	11.7	88	9.2	66	8.2	73	9.5	96	13.8	91	12.6	126	13.2	128	14.0
20-24	718	10.9	759	9.7	850	9.6	541	7.5	612	8.2	586	8.4	701	10.5	743	11.2	970	12.6	995	12.1
25-29	231	10.1	176	7.2	221	8.9	143	6.3	138	5.6	183	7.5	246	9.1	260	9.4	392	11.6	360	10.3
30-34	77	8.8	67	7.7	63	6.8	47	5.7	33	4.0	65	7.8	80	9.5	96	11.3	117	10.9	100	8.9
35-39	33	8.1	29	6.7	27	6.5	15	4.6	19	5.2	28	7.5	36	9.4	33	9.3	45	10.8	40	8.7
40-44	4	4.0	3	2.7	9	6.9	7	6.7	10	7.9	13	9.6	12	10.8	11	9.2	14	10.4	9	6.2
45-49	0	0.0	2	11.1	0	0.0	0	0.0	1	4.8	0	0.0	3	8.3	3	10.7	4	10.3	3	8.3
Race-ethnicity																				
Black	600	11.4	575	9.7	657	10.5	403	8.1	371	7.4	422	9.3	506	11.3	486	11.4	649	13.1	613	11.7
White	360	8.6	412	8.5	438	8.0	289	6.3	321	6.6	347	7.3	417	9.1	489	10.4	626	10.9	627	10.2
Hispanic	121	10.9	102	8.2	133	9.2	72	5.9	119	8.9	104	8.1	133	9.8	166	11.4	230	13.3	200	12.0
Other	86	10.4	91	9.5	109	10.1	77	8.1	68	7.4	75	7.8	118	11.5	96	9.1	163	13.0	195	14.2
Rank																				
Enlisted	1,143	10.3	1,153	9.1	1,308	9.5	816	7.2	856	7.3	924	8.3	1,137	10.3	1,205	10.9	1,618	12.2	1,600	11.5
Officer/Warrant officer	24	7.6	27	7.5	29	6.6	25	6.3	23	5.6	24	5.6	37	9.1	32	8.2	50	10.7	35	7.3
Education Level																				
No high school	15	16.3	9	11.8	7	7.7	7	10.6	13	12.0	8	6.6	16	17.2	9	11.5	10	12.3	3	3.7
High school	820	9.9	1,080	9.1	1,226	9.5	756	7.2	769	7.1	842	8.3	1,037	10.3	1,081	10.8	1,495	12.4	1,474	11.6
Some college or above	202	8.5	71	8.3	70	6.9	58	6.2	73	7.3	80	8.0	100	9.5	122	10.4	144	11.0	122	8.7
Unknown	130	20.4	20	9.2	34	12.7	20	8.4	24	10.1	18	7.8	21	9.9	25	15.8	19	8.3	36	14.9
Marital Status																				
Married	332	9.0	358	8.6	404	9.4	241	6.4	257	6.4	330	8.1	438	10.4	457	10.8	639	12.3	625	11.4
Single	756	10.7	767	9.3	871	9.4	557	7.6	588	7.9	570	8.4	658	10.2	674	10.6	902	12.2	864	11.1
Other/Unknown	79	12.4	55	9.0	62	9.0	43	7.1	34	5.2	48	6.9	78	10.2	106	12.0	127	11.6	146	12.4
Age Group By Sex																				
Female																				
17-19	62	10.4	100	13.3	117	14.0	59	10.4	46	9.5	51	11.0	63	14.4	72	15.6	94	17.3	93	17.3
20-24	304	11.6	379	11.6	432	11.6	281	9.1	309	9.9	319	11.1	348	12.6	428	14.7	524	16.5	552	17.2
25-29	91	12.6	66	8.4	92	10.9	46	6.3	52	6.3	68	8.1	93	10.5	107	11.0	169	13.8	173	15.0
30-34	30	13.9	14	7.1	24	9.4	17	7.2	7	3.1	21	9.1	29	12.1	42	16.3	41	12.4	41	11.8
35-39	5	6.8	8	9.6	3	4.0	2	3.0	4	4.9	8	10.3	12	14.5	11	12.1	13	11.8	17	14.7
40-44	0	0.0	3	13.6	3	14.3	1	6.7	2	8.7	4	17.4	1	4.5	3	11.5	1	3.3	4	12.1
45-49	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	1	12.5	0	0.0
Male																				
17-19	42	8.7	44	8.6	50	8.4	29	7.4	20	6.3	22	7.3	33	12.7	19	7.3	32	7.7	35	9.3
20-24	414	10.4	380	8.3	418	8.2	260	6.3	303	7.0	267	6.6	353	9.1	315	8.5	446	9.9	443	8.8
25-29	140	8.9	110	6.6	129	7.9	97	6.3	86	5.2	115	7.3	153	8.4	153	8.5	223	10.3	187	7.9
30-34	47	7.1	53	7.9	39	5.8	30	5.1	26	4.3	44	7.3	51	8.4	54	9.2	76	10.3	59	7.6
35-39	28	8.4	21	6.0	24	7.1	13	5.0	15	5.3	20	6.8	24	8.0	22	8.3	32	10.5	23	6.7
40-44	4	4.9	0	0.0	6	5.5	6	6.7	8	7.8	9	8.0	11	12.4	8	8.6	13	12.5	5	4.5
45-49	0	0.0	2	12.5	0	0.0	0	0.0	1	5.9	0	0.0	3	10.3	3	15.8	3	9.7	3	10.0

[a]Among all individuals with a chlamydia diagnosis, percent with more than one during the same year

and miscoded diagnoses. Also, the estimates of recurrent diagnoses reported here likely underestimate actual chlamydia recurrent infection rates because the analysis were restricted to events within single calendar years. As a result, for example, a recurrent chlamydia infection that occurred in a different calendar year from an initial infection was not counted as a recurrent diagnosis in this analysis.

Finally, among U.S. military members, females were more likely than males to have recurrent chlamydia diagnoses. The finding undoubtedly reflects increased ascertainment of asymptomatic infections during routine periodic screening examinations of young female service members. Comparisons of chlamydia rates in general or recurrent diagnosis rates between demographic or military subgroups should consider variations in screening practices across the groups.

References:

1. Gottlieb SL, Brunham RC, Byrne GA, et al. Introduction: The natural history and immunobiology of *Chlamydia trachomatis* genital infection and implications for chlamydia control. *J Infect Dis*. 2010 Jun 15;201 Suppl 2:S85-7.
2. Armed Forces Health Surveillance Center. Sexually transmitted infections, U.S. Armed Forces, 2004-2009. *Medical Surveillance Monthly Report (MSMR)*. 2010 Aug;17(8).
3. Haggerty CL, Gottlieb SL, Taylor BD, et al. Risk of sequelae after *Chlamydia trachomatis* genital infection in women. *J Infect Dis*. 2010 Jun 15; 201 Suppl 2:S134-55.

Update: Deployment Health Assessments, U.S. Armed Forces, August 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. Between April 2006 and March 2010, the number of post-deployment reassessment (PDHRA) forms per month ranged from 17,000 to 36,000 **(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 10-14% 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).** Since approximately 2009, among both active and reserve component members, the proportions reporting exposure concerns have been similar at the time of and three to six months after 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, similar proportions of active and reserve component soldiers received mental health referrals **(Table 2).**

Finally, in general, reserve component members have been more likely than active component service members to report "exposure concerns" on postdeployment assessments and reassessments **(Figure 3).**

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

	Pre-deployment assessment DD2795		Post-deployment assessment DD2796		Post-deployment reassessment DD2900	
	No.	%	No.	%	No.	%
Total	**417,001**	**100**	**442,633**	**100**	**311,478**	**100**
2009						
September	30,646	7.3	39,640	9.0	26,302	8.4
October	36,478	8.7	32,468	7.3	24,099	7.7
November	32,324	7.8	32,921	7.4	20,707	6.6
December	31,042	7.4	36,551	8.3	29,097	9.3
2010						
January	55,617	13.3	34,227	7.7	25,751	8.3
February	31,425	7.5	27,745	6.3	26,992	8.7
March	32,550	7.8	44,651	10.1	35,677	11.5
April	32,088	7.7	33,498	7.6	24,773	8.0
May	38,202	9.2	35,400	8.0	22,649	7.3
June	30,296	7.3	45,255	10.2	24,341	7.8
July	30,097	7.2	46,479	10.5	22,028	7.1
August	36,236	8.7	33,798	7.6	29,062	9.3

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

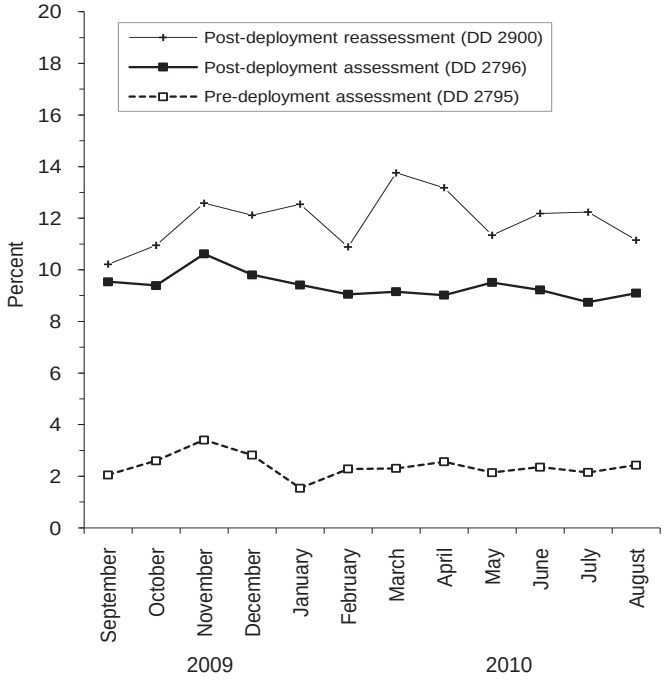


Figure 1. Total deployment health assessment and reassessment forms, by month, U.S. Armed Forces, January 2003-August 2010

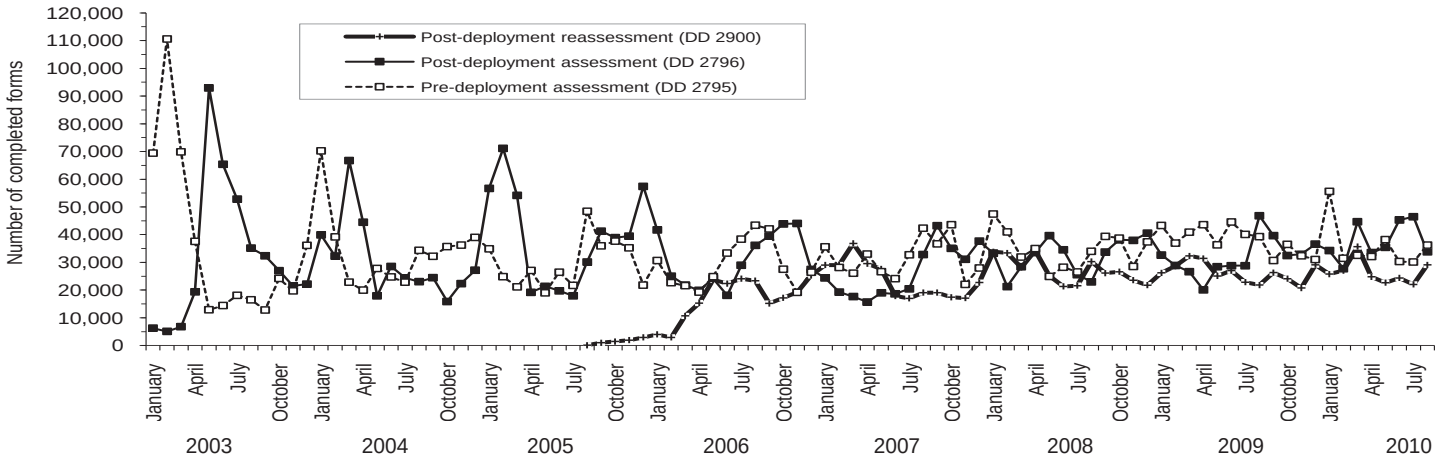


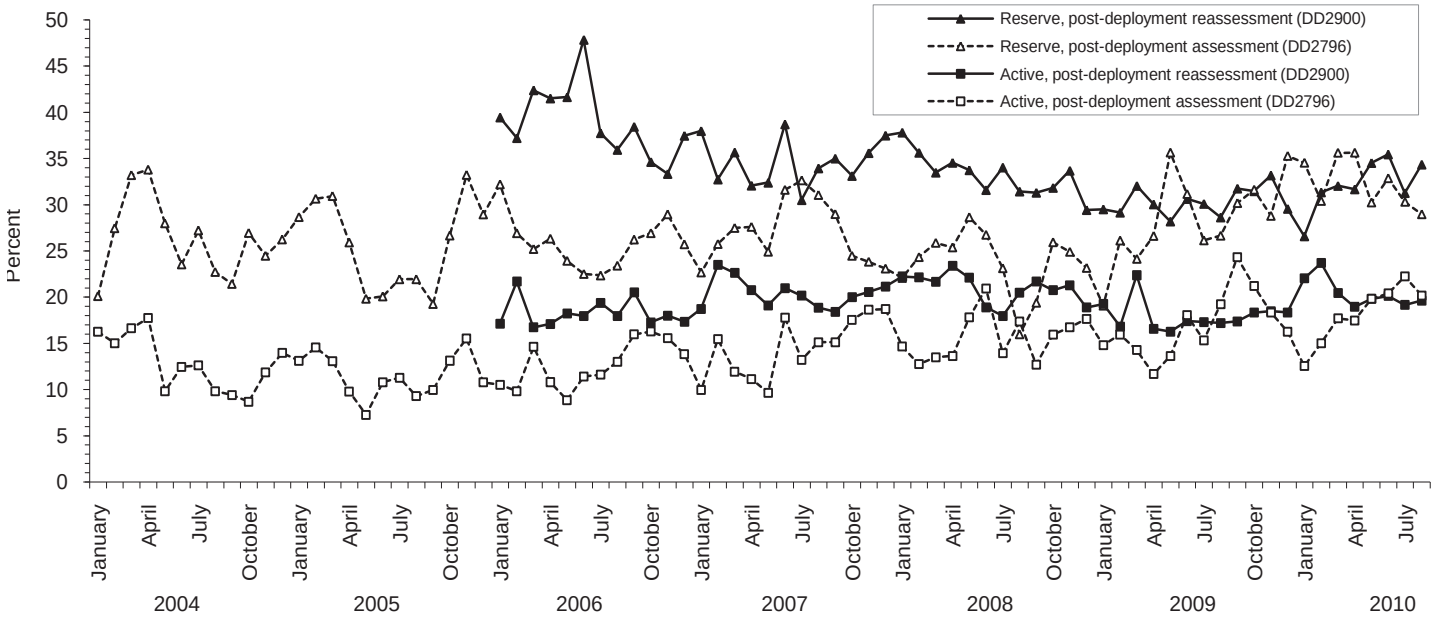
Table 2. Percentage of service members who endorsed selected questions/received referrals on health assessment forms, U.S. Armed Forces, September 2009- August 2010

	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= 151,906	n= 151,496	n= 116,661	n= 18,904	n= 15,571	n= 13,230	n= 59,455	n= 53,936	n= 50,981	n= 32,414	n= 28,762	n= 30,910	n= 262,679	n= 249,765	n= 211,782
	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%
General health "fair" or "poor"	3.9	10.0	14.9	1.2	4.7	5.9	0.4	3.3	4.2	1.5	7.4	9.9	2.6	7.9	11.0
Health concerns, not wound or injury	16.4	26.4	25.8	3.2	11.6	14.7	1.3	5.4	10.8	2.6	11.4	17.4	10.3	19.2	20.3
Health worse now than before deployed	0.0	21.8	25.7	0.0	11.8	13.5	0.0	8.3	8.5	0.0	15.9	18.8	0.0	17.6	19.8
Exposure concerns	0.0	21.7	21.4	0.0	18.8	21.0	0.0	11.1	14.7	0.0	14.2	21.5	0.0	18.4	19.8
PTSD symptoms (2 or more)	0.0	8.6	11.9	0.0	5.6	7.7	0.0	2.5	2.6	0.0	6.5	9.1	0.0	6.9	9.0
Depression symptoms (any)	0.0	30.7	33.1	0.0	22.0	24.2	0.0	13.0	13.7	0.0	25.9	30.1	0.0	25.8	27.5
Referral indicated by provider (any)	5.1	35.3	26.9	4.1	22.2	17.6	2.0	11.7	7.1	3.0	19.3	28.9	4.1	27.6	21.8
Mental health referral indicated[a]	1.3	7.1	13.2	0.6	3.0	5.5	0.5	1.5	2.0	0.3	1.6	5.3	0.9	5.0	8.9
Medical visit following referral[b]	95.4	99.8	97.7	86.0	90.2	95.9	85.7	96.0	97.7	52.4	82.7	93.8	88.1	97.4	96.9

	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= 66,033	n= 80,831	n= 66,957	n= 5,496	n= 4,187	n= 5,241	n= 16,420	n= 15,003	n= 16,201	n= 2,479	n= 3,961	n= 7,275	n= 90,428	n= 103,982	n= 95,674
	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%
General health "fair" or "poor"	1.2	11.5	16.6	0.5	10.3	10.3	0.3	5.1	4.9	1.0	7.3	10.8	1.0	10.3	13.8
Health concerns, not wound or injury	19.7	34.6	42.9	1.2	31.8	32.0	0.5	8.7	14.8	2.5	22.7	36.4	14.6	30.3	37.0
Health worse now than before deployed	0.0	25.9	31.8	0.0	21.0	20.7	0.0	12.6	10.8	0.0	21.1	26.6	0.0	23.6	27.2
Exposure concerns	0.0	34.0	34.0	0.0	43.9	36.0	0.0	18.2	22.5	0.0	14.2	31.5	0.0	31.4	32.0
PTSD symptoms (2 or more)	0.0	8.6	18.1	0.0	6.3	12.4	0.0	2.6	2.8	0.0	4.1	13.3	0.0	7.5	14.8
Depression symptoms (any)	0.0	30.7	34.1	0.0	26.2	24.7	0.0	14.5	13.4	0.0	29.1	27.9	0.0	28.1	29.6
Referral indicated by provider (any)	3.5	36.6	36.5	3.6	29.6	22.9	0.5	14.2	7.7	3.0	29.8	32.9	3.0	32.8	30.6
Mental health referral indicated[a]	0.4	4.8	13.1	0.2	2.9	6.7	0.0	0.9	1.2	0.2	2.2	10.7	0.3	4.1	10.5
Medical visit following referral[b]	91.3	99.3	38.6	96.3	95.7	44.0	58.3	69.4	45.8	57.4	85.7	34.9	89.3	96.5	38.8

[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-August 2010



Sentinel reportable events among service members and beneficiaries at U.S. Army medical facilities, cumulative numbers[a] for calendar years through 31 July 2009 and 31 July 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	34	24	.	.	.	.	.	.	1	.	.	.	.	.
Fort Belvoir, VA	151	149	4	8	2	2	.	2	.	.	.	.	.	.
Fort Bragg, NC	1,066	1,016	4	20	11	9	.	2	.	.	2	.	.	.
Fort Dix, NJ	0	0	.	.	.	.	.	.	.	.	.	.	.	.
Fort Drum, NY	28	45	.	.	.	.	.	.	.	.	.	.	.	.
Fort Eustis, VA	152	123	.	.	2	.	.	.	.	.	.	.	.	.
Fort George G Meade, MD	34	13	.	.	.	.	.	.	.	.	.	.	.	.
Fort Knox, KY	125	220	.	1	.	2	.	2	.	.	.	.	.	1
Fort Lee, VA	331	314	.	.	.	.	.	.	.	.	.	.	.	.
Fort Monmouth, NJ	30	27	.	.	.	1	.	.	.	1	.	1	.	.
Walter Reed AMC, DC	106	100	1	1	.	3	.	.	.	.	1	.	1	.
West Point Military Reservation, NY	57	45	1	.	.	.	.	.	.	.	1	.	.	.
SOUTHERN														
Fort Benning, GA	174	5	.	.	.	.	1	1	1	.	.	.	.	.
Fort Campbell, KY	321	426	.	.	.	.	.	.	.	.	.	.	.	.
Fort Gordon, GA	432	424	1	3	5	10	3	2	.	.	1	.	1	.
Fort Hood, TX	1,186	1,336	7	4	12	7	8	37	.	.	.	1	.	.
Fort Jackson, SC	353	290	.	.	.	.	.	.	.	.	2	.	.	.
Fort Polk, LA	351	275	.	.	1	1	2	3	.	.	.	.	.	.
Fort Rucker, AL	38	64	7	1	1	3	.	.	.	.	.	1	.	.
Fort Sam Houston, TX	357	317	1	.	2	4	.	2	.	.	1	1	1	.
Fort Sill, OK	148	319	.	.	.	.	3	1	.	.	.	.	.	.
Fort Stewart, GA	715	386	.	1	17	12	11	5	.	.	.	1	.	2
WESTERN														
Fort Bliss, TX	253	425	.	3	1	2	1	1	1	.	5	4	.	.
Fort Carson, CO	433	475	2	5	1	3	.	1	.	.	.	.	.	.
Fort Huachuca, AZ	54	59	.	.	.	2	.	.	.	.	.	.	.	.
Fort Leavenworth, KS	44	29	.	.	.	.	.	.	.	.	.	.	.	.
Fort Leonard Wood, MO	244	234	1	.	.	2	.	.	1	.	.	.	1	.
Fort Lewis, WA	706	509	2	5	4	2	1	2	.	1	.	.	.	.
Fort Riley, KS	274	264	1	.	2	1	.	1	.	.	.	.	.	.
Fort Wainwright, AK	118	173	.	.	.	.	.	.	.	.	.	.	.	.
NTC and Fort Irwin, CA	75	75	.	.	1	.	1	.	.	.	.	.	.	.
PACIFIC														
Hawaii	480	513	20	24	11	13	2	4	.	1	2	.	.	.
Japan	3	1	.	.	.	.	.	.	.	.	.	.	.	.
Korea	297	296	.	.	.	.	.	.	.	.	.	.	.	.
EUROPEAN														
Heidelberg	104	102	4	13	1	5	.	1	1	.	.	.	.	.
Landstuhl	416	282	3	2	2	2	.	2	.	.	1	2	1	.
Bavaria	252	336	4	1	5	6	.	.	.	.	.	.	.	.
CENTCOM LOCATIONS														
CENTCOM	126	132	.	.	.	2	1	.	.	.	.	.	.	.
Total	**10,068**	**9,823**	**63**	**92**	**81**	**94**	**34**	**69**	**5**	**3**	**16**	**11**	**5**	**3**

[a]Events reported by Aug 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 July 2009 and 31 July 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	.	.	.	.	27	20	4	4	2	.	.	.	.	.	.	.	.	.
Fort Belvoir, VA	.	.	.	.	131	122	14	15	.	.	.	.	.	.	.	.	.	.
Fort Bragg, NC	.	.	.	5	848	759	158	143	3	1	1	8	39	69	.	.	.	.
Fort Dix, NJ	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Fort Drum, NY	.	.	.	.	25	41	3	4	.	.	.	.	.	.	.	.	.	.
Fort Eustis, VA	.	.	.	.	128	104	22	13	.	2	.	.	.	4	.	.	.	.
Fort George G Meade, MD	1	.	.	.	33	8	.	5	.	.	.	.	.	.	.	.	.	.
Fort Knox, KY	1	.	.	1	108	197	16	14	.	.	.	.	.	1	.	.	.	1
Fort Lee, VA	1	.	.	.	297	284	31	29	2	.	.	.	.	1	.	.	.	.
Fort Monmouth, NJ	6	12	.	.	22	11	1	.	1	1	.	.	.	.	.	.	.	.
Walter Reed AMC, DC	6	4	.	.	76	76	9	14	11	1	.	.	.	.	.	.	1	1
West Point Military Reservation, NY	10	11	.	.	43	26	2	4	.	.	.	.	.	4	.	.	.	.
SOUTHERN																		
Fort Benning, GA	.	.	5	.	131	.	33	.	1	.	.	.	1	4	.	.	1	.
Fort Campbell, KY	5	.	.	.	221	383	60	35	1	.	.	.	34	8	.	.	.	.
Fort Gordon, GA	.	.	.	.	357	346	60	63	.	.	.	.	4	.	.	.	.	.
Fort Hood, TX	.	.	.	1	927	1,061	215	216	5	7	.	.	11	1	.	.	1	1
Fort Jackson, SC	.	1	.	.	202	148	31	22	1	.	.	8	117	111	.	.	.	.
Fort Polk, LA	.	.	.	1	237	196	30	29	1	.	.	.	80	45	.	.	.	.
Fort Rucker, AL	.	.	.	.	28	53	2	2	.	.	.	.	.	4	.	.	.	.
Fort Sam Houston, TX	.	.	.	1	275	263	55	37	10	9	.	.	12	.	.	.	.	.
Fort Sill, OK	.	.	.	.	112	231	15	35	.	1	.	.	18	51	.	.	.	.
Fort Stewart, GA	.	2	1	.	517	301	93	42	5	.	.	.	64	20	6	.	1	.
WESTERN																		
Fort Bliss, TX	.	.	.	3	206	359	33	46	5	4	.	.	.	2	.	.	1	1
Fort Carson, CO	.	.	.	1	390	430	40	35	.	.	.	.	.	.	.	.	.	.
Fort Huachuca, AZ	.	1	.	.	50	50	3	2	.	.	.	.	1	4	.	.	.	.
Fort Leavenworth, KS	2	1	.	.	37	26	3	1	1	1	.	.	1	.	.	.	.	.
Fort Leonard Wood, MO	.	.	.	.	215	195	21	30	.	.	1	.	3	6	.	.	1	1
Fort Lewis, WA	.	.	.	.	635	461	62	34	1	1	.	.	1	2	.	.	.	1
Fort Riley, KS	.	1	1	.	229	240	37	17	1	.	1	.	2	4	.	.	.	.
Fort Wainwright, AK	.	.	.	4	109	153	6	7	.	.	1	9	1	.	1	.	.	.
NTC and Fort Irwin, CA	.	.	.	.	69	66	1	6	1	1	.	.	2	2	.	.	.	.
PACIFIC																		
Hawaii	.	.	.	.	392	413	43	51	3	2	.	.	1	2	1	.	5	3
Japan	.	.	.	.	3	1	.	.	.	.	.	.	.	.	.	.	.	.
Korea	.	.	.	4	280	252	11	27	2	.	1	8	3	5	.	.	.	.
EUROPEAN																		
Heidelberg	6	4	.	.	81	69	11	9	.	1	.	.	.	.	.	.	.	.
Landstuhl	16	10	1	6	323	189	46	41	8	.	.	.	13	27	.	.	2	1
Bavaria	7	5	3	.	213	275	19	48	.	1	1	.	.	.	.	.	.	.
CENTCOM LOCATIONS																		
CENTCOM	.	.	.	.	116	115	7	11	1	3	.	.	.	.	1	1	.	.
Total	**61**	**52**	**11**	**27**	**8,093**	**7,924**	**1,197**	**1,091**	**66**	**36**	**6**	**33**	**408**	**377**	**9**	**1**	**13**	**10**

Sentinel reportable events among service members and beneficiaries at U.S. Navy medical facilities, cumulative numbers[a] for calendar years through 31 July 2009 and 31 July 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	112	103	3	3	2	1	.	2	2	.	5	7	.	.
NHC Annapolis, MD	2	19	.	.	.	.	.	.	.	.	.	.	.	.
NHC Patuxent River, MD	24	7	.	.	.	1	.	.	.	.	.	.	.	.
NHC Quantico, VA	81	51	1	.	1	.	3	.	.	.	.	1	.	.
NAVY MEDICINE EAST														
NH Beaufort, SC	298	66	.	.	.	.	.	.	1	.	2	.	.	.
NH Camp Lejeune, NC	355	328	.	.	5	5	1	1	.	.	.	1	.	.
NH Charleston, SC	3	0	.	.	.	.	.	.	.	.	.	.	.	.
NH Cherry Point, NC	3	0	.	.	.	.	.	.	.	.	.	.	.	.
NH Corpus Christi, TX	2	9	.	.	.	.	.	.	.	.	.	.	.	.
NHC Great Lakes, IL	151	352	.	.	.	.	.	.	.	.	.	3	.	1
NH Guantanamo Bay, Cuba	0	0	.	.	.	.	.	.	.	.	.	.	.	.
NH Jacksonville, FL	175	146	.	2	13	13	1	.	.	.	.	7	.	.
NH Naples, Italy	1	0	.	.	.	.	.	.	.	.	.	.	.	.
NHC New England, RI	0	0	.	.	.	.	.	.	.	.	.	.	.	.
NH Pensacola, FL	129	93	1	1	5	2	2	.	.	.	.	.	.	.
NMC Portsmouth, VA	114	191	.	.	.	2	.	.	.	.	1	3	.	.
NH Rota, Spain	0	0	.	.	.	.	.	.	.	.	.	.	.	.
NH Sigonella, Italy	1	0	.	.	.	.	.	.	.	.	.	.	1	.
NAVY MEDICINE WEST														
NH Bremerton, WA	2	3	.	.	.	.	.	.	.	.	.	1	.	.
NH Camp Pendleton, CA	6	1	.	.	.	.	.	.	.	.	.	.	.	.
NH Guam-Agana, Guam	26	57	.	.	2	1	.	.	.	.	.	.	.	.
NHC Hawaii, HI	18	311	.	5	.	3	.	.	.	.	.	.	.	.
NH Lemoore, CA	42	2	.	.	.	.	.	.	.	.	.	.	.	.
NH Oak Harbor, WA	75	63	3	1	2	.	.	.	.	.	2	1	1	.
NH Okinawa, Japan	39	115	.	.	.	.	.	.	.	.	.	1	.	.
NMC San Diego, CA	538	676	.	9	8	8	.	2	.	.	42	18	1	.
NH Twentynine Palms, CA	1	2	.	.	.	.	.	.	.	.	.	.	.	.
NH Yokosuka, Japan	30	52	.	.	.	.	.	.	.	.	3	1	.	.
NAVAL SHIPS														
COMNAVAIRLANT/CINCLANTFLEET	21	16	.	.	.	.	.	.	.	.	.	.	.	.
COMNAVSURFPAC/CINCPACFLEET	38	29	.	.	.	.	.	.	.	.	.	.	.	.
OTHER LOCATIONS														
Other	2,446	2,128	8	10	13	4	4	.	1	.	8	17	2	5
Total	**4,733**	**4,820**	**16**	**31**	**51**	**40**	**11**	**5**	**4**	**0**	**63**	**61**	**5**	**6**

[a]Events reported by Aug 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 July 2009 and 31 July 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	7	17	.	1	84	49	8	6	1	16	.	.	.	.	.	1	.	.
NHC Annapolis, MD	.	1	.	.	2	17	.	.	.	1	.	.	.	.	.	.	.	.
NHC Patuxent River, MD	4	2	.	.	17	3	2	1	1	.	.	.	.	.	.	.	.	.
NHC Quantico, VA	1	1	.	.	58	32	7	3	.	.	.	6	10	8	.	.	.	.
NAVY MEDICINE EAST																		
NH Beaufort, SC	.	.	.	.	282	60	12	6	1	.	.	.	.	.	.	.	.	.
NH Camp Lejeune, NC	2	7	1	3	254	243	61	30	.	.	1	2	30	35	.	1	.	.
NH Charleston, SC	.	.	.	.	2	.	1	.	.	.	.	.	.	.	.	.	.	.
NH Cherry Point, NC	.	.	.	.	3	.	.	.	.	.	.	.	.	.	.	.	.	.
NH Corpus Christi, TX	.	2	.	.	2	6	.	1	.	.	.	.	.	.	.	.	.	.
NHC Great Lakes, IL	.	2	.	.	139	310	11	30	.	3	.	.	.	2	.	1	1	.
NH Guantanamo Bay, Cuba	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
NH Jacksonville, FL	.	2	1	.	145	108	15	9	.	1	.	.	.	3	.	.	.	1
NH Naples, Italy	.	.	.	.	1	.	.	.	.	.	.	.	.	.	.	.	.	.
NHC New England, RI	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
NH Pensacola, FL	.	.	.	.	92	80	12	8	1	2	.	.	14	.	2	.	.	.
NMC Portsmouth, VA	.	7	.	3	89	143	20	20	2	10	.	.	.	1	.	.	2	2
NH Rota, Spain	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
NH Sigonella, Italy	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
NAVY MEDICINE WEST																		
NH Bremerton, WA	.	.	.	.	2	2	.	.	.	.	.	.	.	.	.	.	.	.
NH Camp Pendleton, CA	.	.	.	.	6	1	.	.	.	.	.	.	.	.	.	.	.	.
NH Guam-Agana, Guam	.	.	.	.	22	51	2	5	.	.	.	.	.	.	.	.	.	.
NHC Hawaii, HI	.	.	.	.	17	270	1	32	.	1	.	.	.	.	.	.	.	.
NH Lemoore, CA	.	.	.	.	41	.	1	2	.	.	.	.	.	.	.	.	.	.
NH Oak Harbor, WA	1	.	.	1	66	55	.	3	.	1	.	1	.	.	.	.	.	.
NH Okinawa, Japan	.	.	.	1	39	93	.	11	.	.	.	.	.	8	.	.	.	1
NMC San Diego, CA	.	2	3	1	391	561	63	52	15	14	.	.	11	9	2	.	2	.
NH Twentynine Palms, CA	.	.	.	.	.	1	.	1	1	.	.	.	.	.	.	.	.	.
NH Yokosuka, Japan	1	.	.	.	26	48	.	2	.	1	.	.	.	.	.	.	.	.
NAVAL SHIPS																		
COMNAVAIRLANT/CINCLANTFLEET	.	.	1	.	20	14	.	2	.	.	.	.	.	.	.	.	.	.
COMNAVSURFPAC/CINCPACFLEET	.	.	.	.	36	27	2	2	.	.	.	.	.	.	.	.	.	.
OTHER LOCATIONS																		
Other	17	30	6	15	2,052	1,724	251	185	8	12	9	8	63	116	.	.	4	2
Total	**33**	**73**	**12**	**25**	**3,888**	**3,898**	**469**	**411**	**30**	**62**	**10**	**17**	**128**	**182**	**4**	**3**	**9**	**6**

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

Air Force

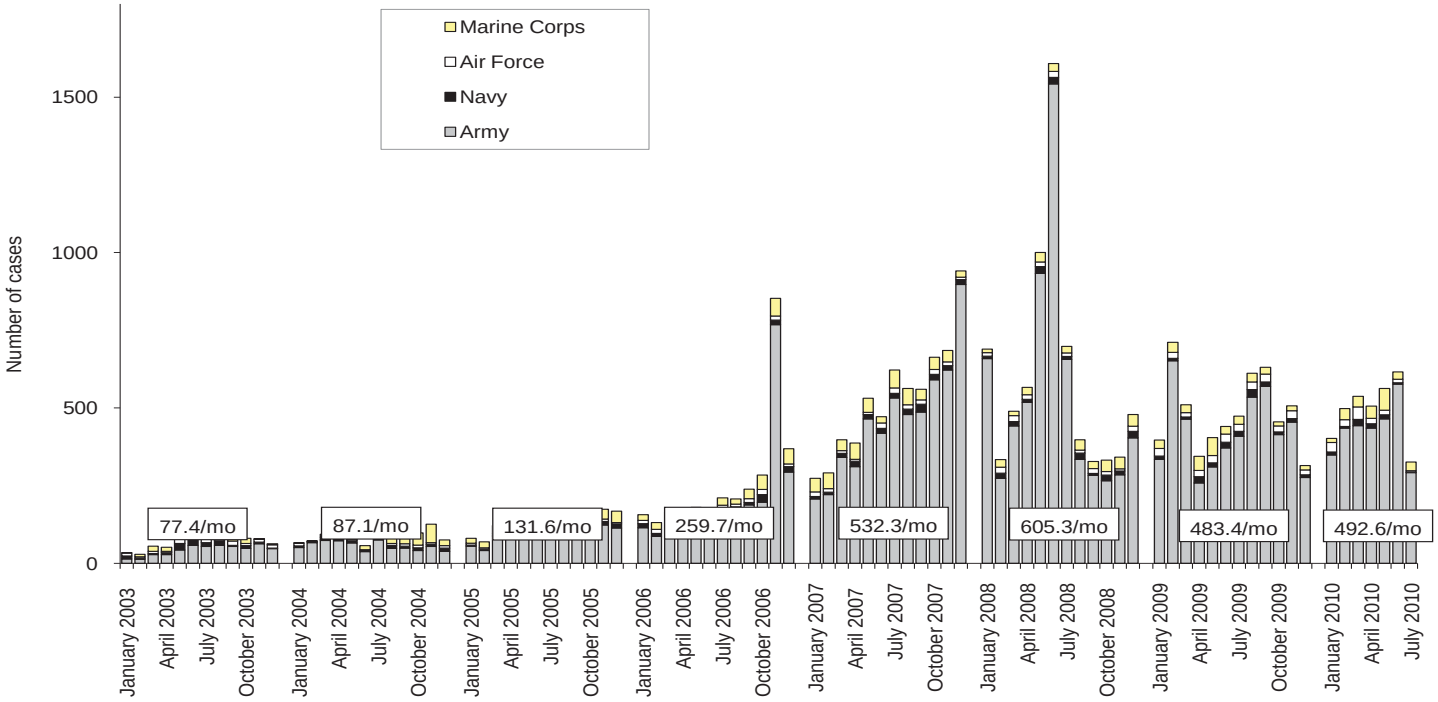
Reporting locations	Number of reports all events[b]		Food-borne						Vaccine preventable					
			Campylo-bacter		Salmonella		Shigella		Hepatitis A		Hepatitis B		Varicella[c]	
	2009	2010	2009	2010	2009	2010	2009	2010	2009	2010	2009	2010	2009	2010
Air Combat Cmd	886	904	5	2	8	7	1	3	.	1	2	12	3	1
Air Education & Training Cmd	965	828	4	8	17	3	4	1	3	3	6	17	.	2
Air Force Dist. of Washington	126	119	.	4	2	.	.	1	.	.	2	2	.	.
Air Force Materiel Cmd	360	307	1	4	5	9	.	.	1	.	4	1	.	.
Air Force Special Ops Cmd	106	111	1	.	1	10	.	1	.	.	.	1	.	.
Air Force Space Cmd	191	193	1	.	5	4	.	.	1	1	1	1	.	.
Air Mobility Cmd	528	343	4	2	5	4	3	.	1	2	4	2	1	.
Pacific Air Forces	333	508	2	1	5	6	.	2	.	.	4	2	2	1
U.S. Air Forces in Europe	382	303	3	2	4	7	.	.	.	.	4	.	1	3
U.S. Air Force Academy	36	38	.	.	1	1	.	.	.	.	.	2	.	.
Other	54	48	1	.	2	5	.	2	.	.	.	.	.	.
Total	**3,967**	**3,702**	**22**	**23**	**55**	**56**	**8**	**10**	**6**	**7**	**27**	**40**	**7**	**7**

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	7	9	.	.	781	765	66	81	3	5	5	4	5	13	.	.	.	1
Air Education & Training Cmd	5	.	2	2	822	709	89	77	4	4	3	.	6	1	.	.	.	1
Air Force Dist. of Washington	7	5	.	.	106	86	9	18	.	.	.	.	.	3	.	.	.	.
Air Force Materiel Cmd	11	2	.	.	304	255	31	29	3	1	.	.	.	6	.	.	.	.
Air Force Special Ops Cmd	1	.	.	.	98	93	3	4	1	1	1	1	.	.	.	.	.	.
Air Force Space Cmd	1	1	.	2	172	170	8	12	.	.	.	1	1	1	.	.	1	.
Air Mobility Cmd	19	12	1	1	430	288	43	26	2	3	14	2	1	1	.	.	.	.
Pacific Air Forces	.	.	1	1	274	455	28	33	2	1	9	.	6	5	.	.	.	1
U.S. Air Forces in Europe	12	12	1	2	323	251	30	25	2	.	1	.	.	.	.	.	1	1
U.S. Air Force Academy	1	2	1	1	32	31	1	1	.	.	.	.	.	.	.	.	.	.
Other	.	.	3	1	30	35	5	1	.	1	1	1	10	2	1	.	1	.
Total	**64**	**43**	**9**	**10**	**3,372**	**3,138**	**313**	**307**	**17**	**16**	**34**	**9**	**29**	**32**	**1**	**0**	**3**	**4**

[a]Events reported by Aug 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.

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

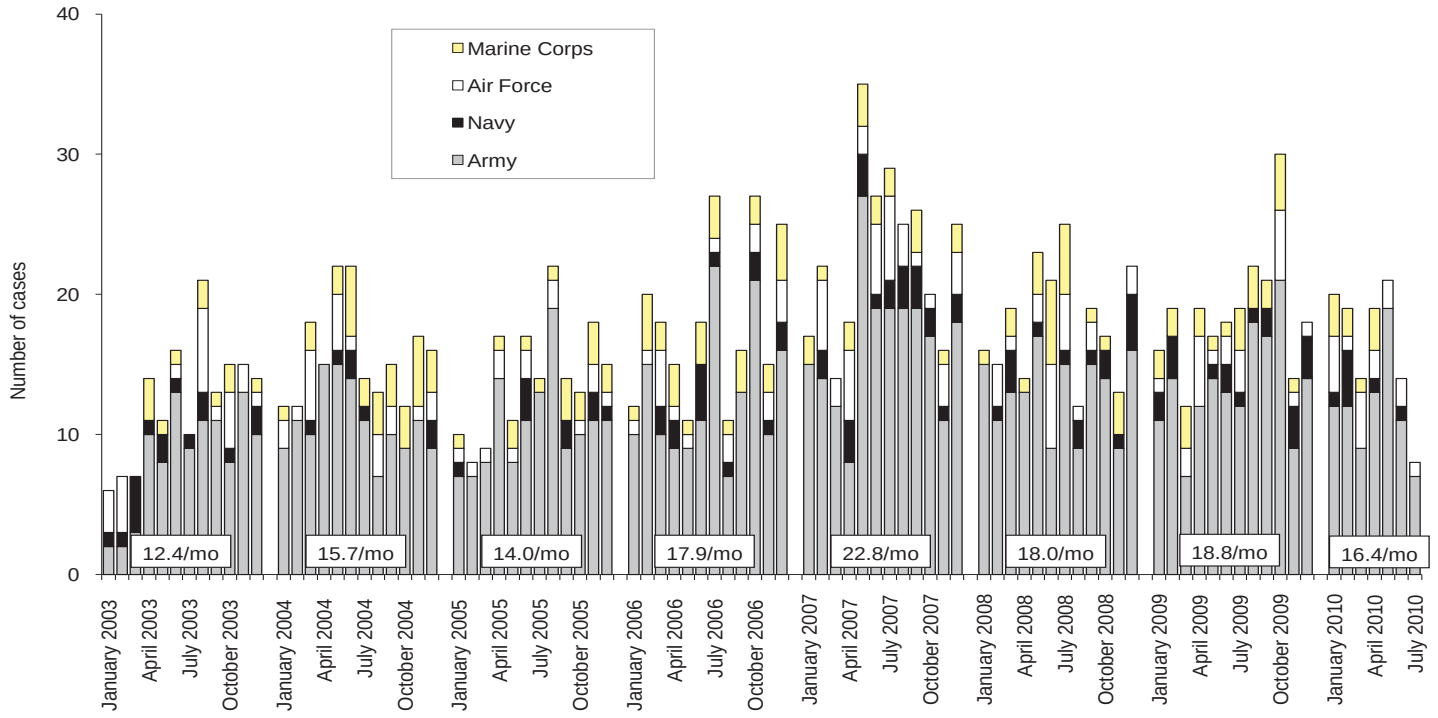
Traumatic brain injury (ICD-9: 310.2, 800-801, 803-804, 850-854, 907.0, 950.1-950.3, 959.01, V15.5_1-9, V15.5_A-F, V15.59_1-9, V15.59_A-F)[a]



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 2,369 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]

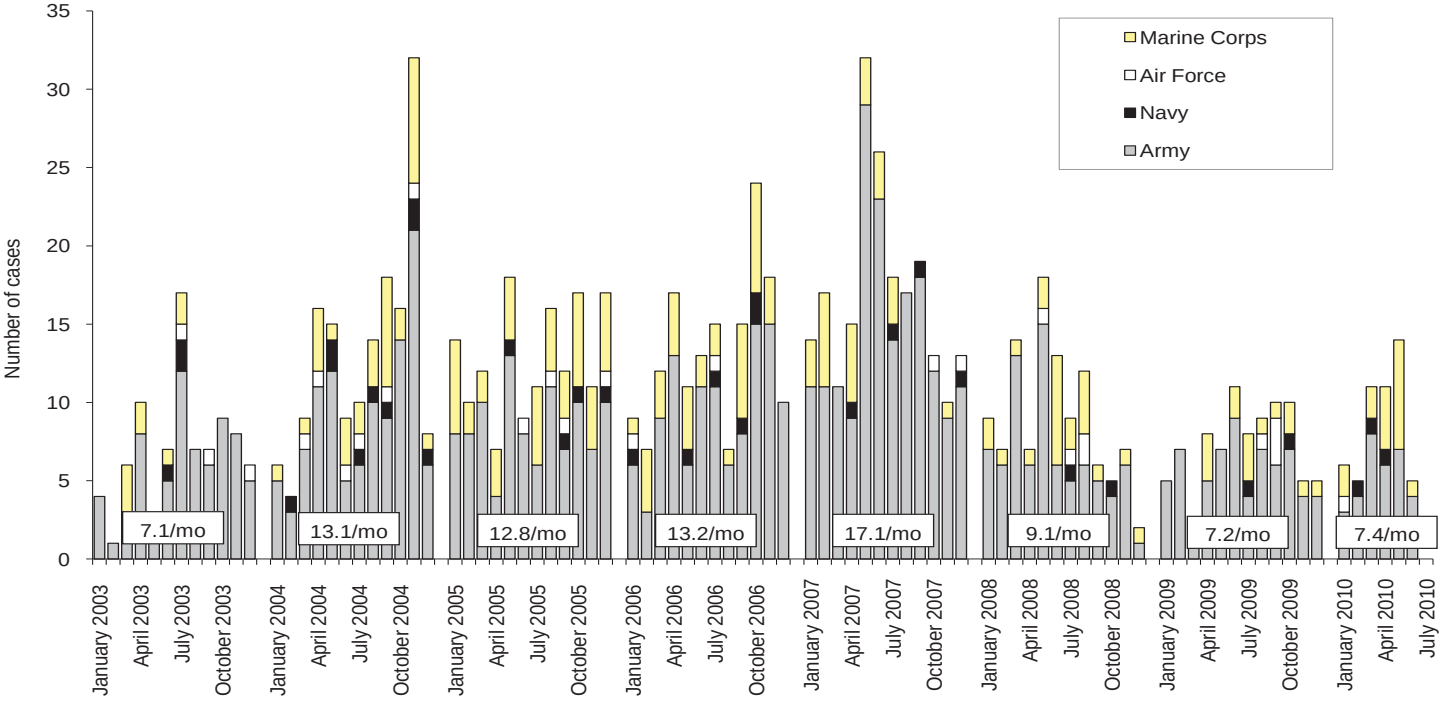


Reference: Isenbarger DW, Atwood JE, Scott PT, et al. Venous thromboembolism among United States soldiers deployed to Southwest Asia. *Thromb Res*. 2006;117(4):379-83.

[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.

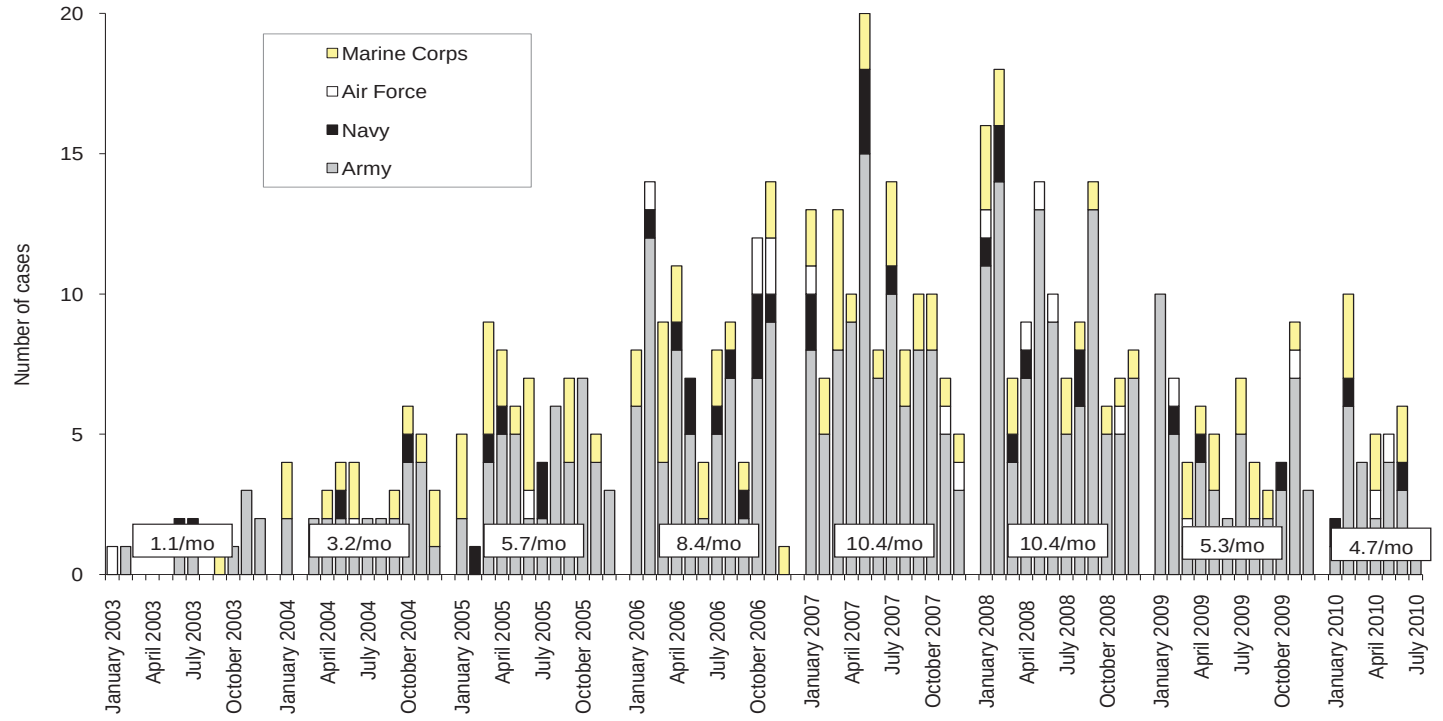
Deployment-related conditions of special surveillance interest, U.S. Armed Forces, by month and service, January 2003 - July 2010 (data as of 27 August 2010)

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.

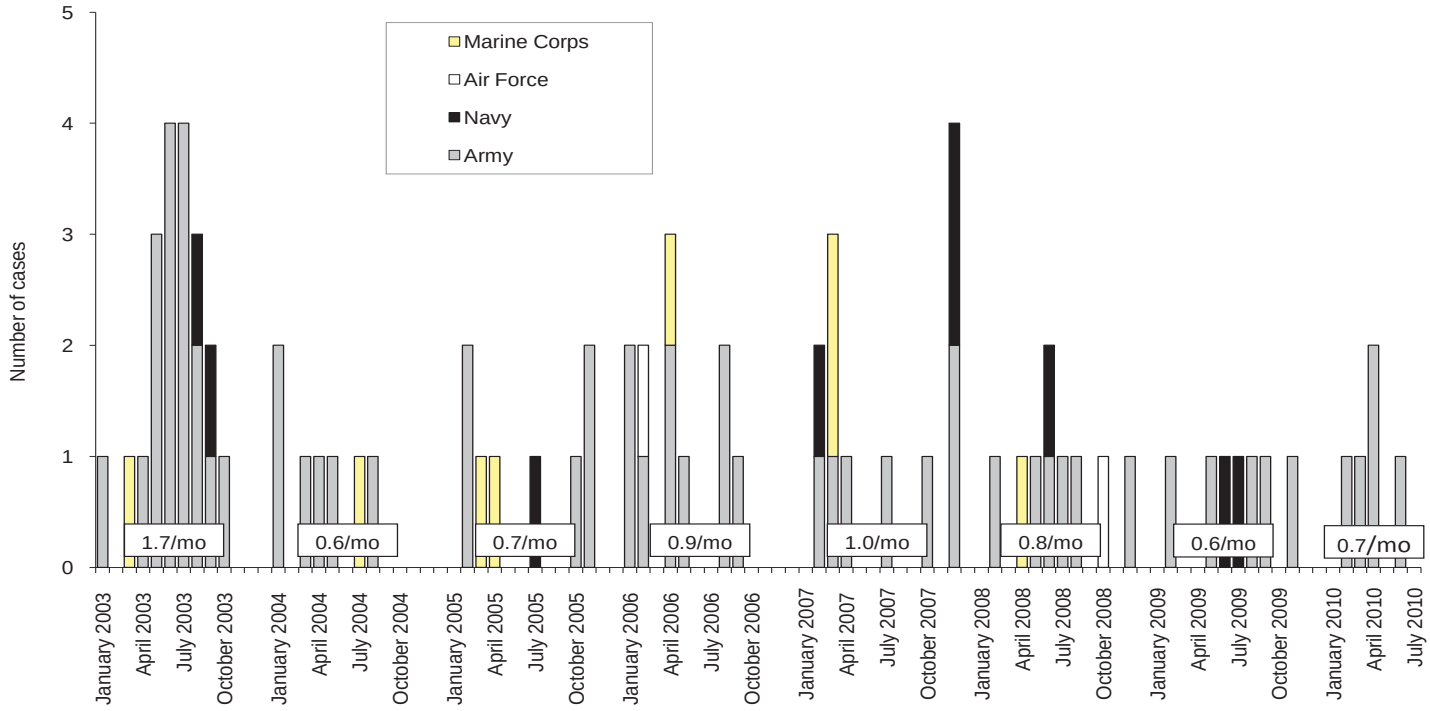
Heterotopic ossification (ICD-9: 728.12, 728.13, 728.19)[b]



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 - July 2010 (data as of 27 August 2010)

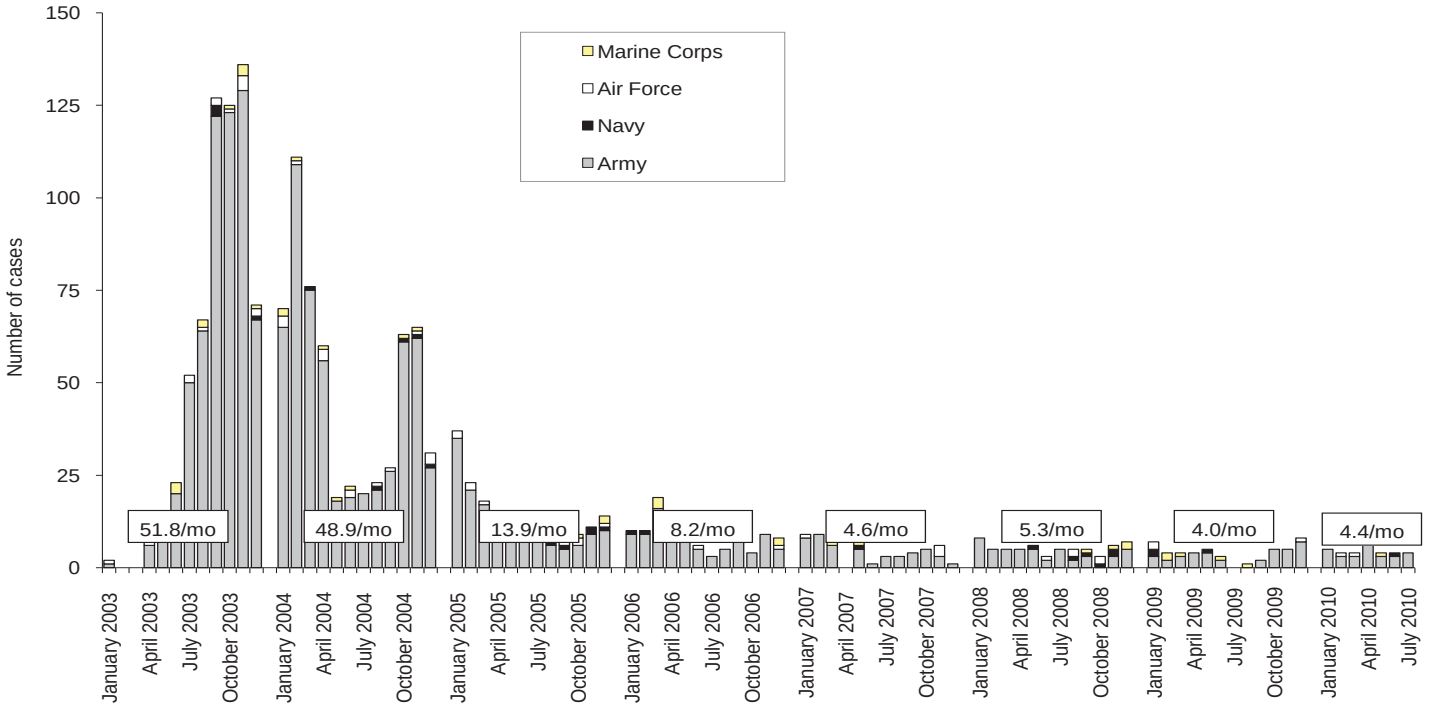
Severe acute pneumonia (ICD-9: 518.81, 518.82, 480-487, 786.09)[a]



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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