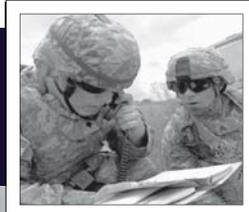
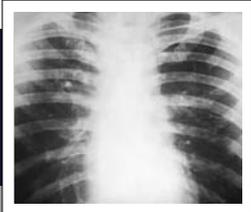




MSMR

A publication of the Armed Forces Health Surveillance Center



MEDICAL SURVEILLANCE MONTHLY REPORT

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Update: Pneumonia-Influenza and Severe Acute Respiratory Illnesses, U.S. Armed Forces, January 1997-April 2008

Throughout history, military populations have been at high risk of acute respiratory illnesses.¹⁻⁴ In the U.S. military, acute respiratory illnesses are leading causes of hospitalizations and ambulatory visits of service members.⁵⁻⁷

Upper respiratory infectious illnesses are extremely common among U.S. service members, particularly among recruits and during fall-winter “cold and influenza” seasons. Upper respiratory illnesses are among the leading causes of medical encounters and limited duty dispositions of service members.^{6,7} Acute infections of the lower respiratory tract (e.g., pneumonias) are less frequent but more debilitating than upper respiratory illnesses. Consistently, pneumonias and influenza are among the leading causes of hospitalizations of service members.^{5,7} Finally, there are sporadic cases and rare outbreaks of severe, life threatening acute respiratory illnesses, usually in recruit camps and during training and operational deployments.⁸⁻¹⁰ In 2003, there were 19 cases of severe acute respiratory illnesses among U.S. service members deployed in the Middle East and south-central Asia. Two of the cases

were fatal – despite extensive investigation, the etiologies of the cases were not identified.¹⁰

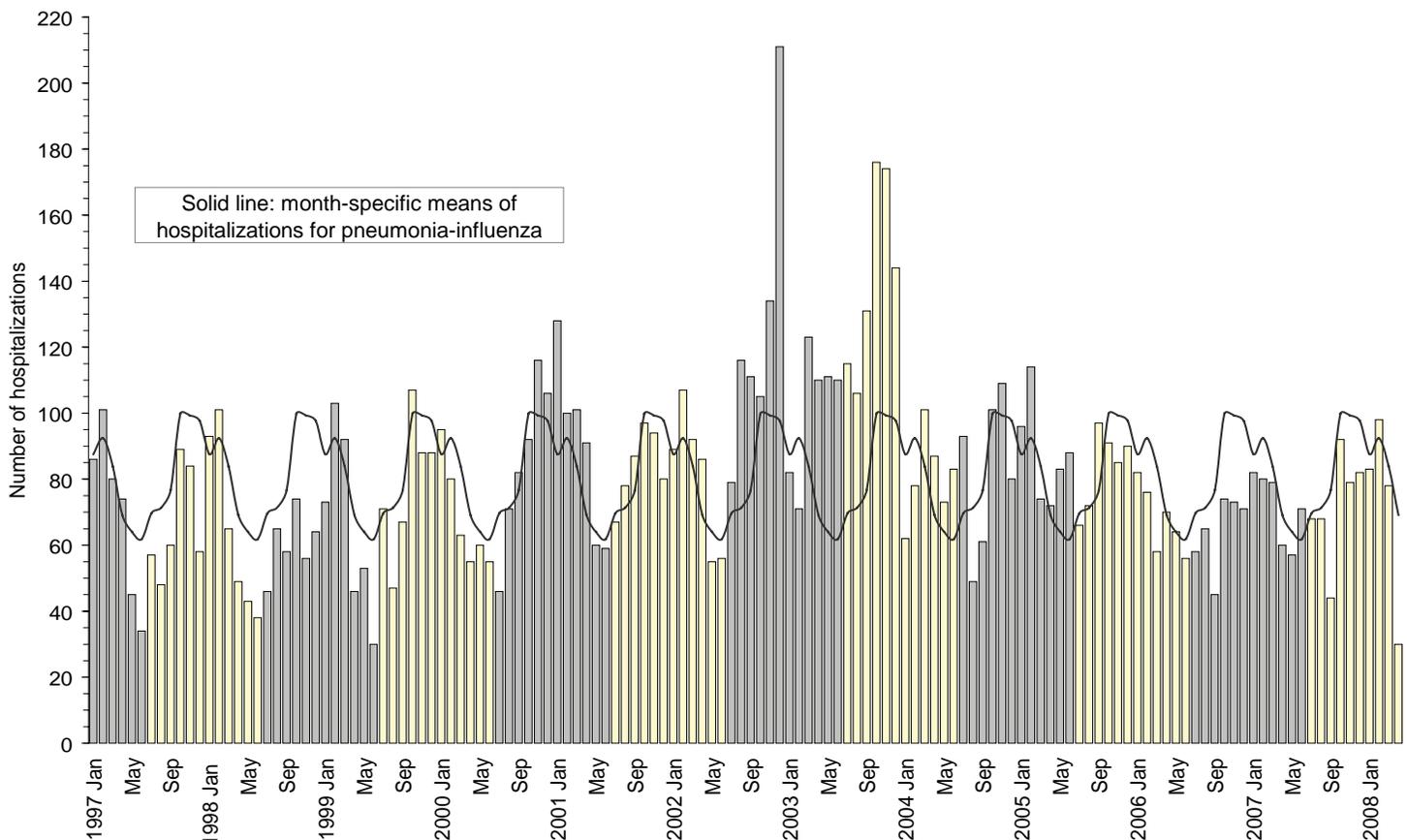
This report summarizes frequencies, seasonal variability, and general trends of hospitalizations of U.S. service members for “pneumonia and influenza” and severe acute respiratory illnesses (e.g., acute respiratory failure, acute respiratory distress) from January 1997 to April 2008.

Methods:

The surveillance period was 1 January 1997 to 30 April 2008. The surveillance population included all individuals who served in any component of the U.S. Armed Forces any time during the surveillance period.

For surveillance purposes, a case of “pneumonia-influenza (P&I)” was defined as a hospitalization with a primary (first-listed) diagnosis of “pneumonia and influenza” (ICD-9: 480-487); or a primary diagnosis of “acute respiratory infection” (ICD-9 460-466) plus a secondary diagnosis (in diagnostic

Figure 1. Hospitalizations for pneumonia or influenza, by month, active component, U.S. Armed Forces, January 1997-April 2008



position 2 through 8) of “pneumonia and influenza” (ICD-9: 480-487).

A case of “severe acute respiratory illness (SARI)” was defined as a hospitalization with a primary diagnosis of “acute respiratory failure” (ICD-9-CM: 518.81) or “other pulmonary insufficiency” (which includes “acute respiratory distress, acute respiratory insufficiency, adult respiratory distress syndrome [ARDS]”) (ICD-9-CM: 518.82); or a secondary diagnosis (in diagnostic position 2 through 8) of “acute respiratory failure” (ICD-9-CM: 518.81) or “other pulmonary insufficiency” (ICD-9-CM: 518.82) plus a primary diagnosis of one of the following: “respiratory distress/insufficiency” (ICD-9-CM: 786.09), “acute respiratory infection” (ICD-9 460-466) or “pneumonia and influenza” (ICD-9: 480-487).

For surveillance purposes, a “respiratory illness year” was considered 1 July through 30 June of the following year. For each service member during each respiratory illness year, only one incident episode each of pneumonia-influenza and severe acute respiratory illness were included in analyses.

Results:

Pneumonia-influenza:

During the period, there were 11,038 incident hospitalizations for pneumonia and influenza (Table 1). The most and fewest cases per respiratory illness year were in 2002-3 (n=1,363) and 1998-9 (n=760), respectively (Table 1).

Over the entire period, the fewest cases were in the “spring” and “summer” (mean cases per month, April-June: 65.1; July-September: 72.5) and the most in the “fall” and “winter” (mean cases per month, October-December: 98.9; January-March: 87.9) (Table 1). In most years, the distinct seasonality in P&I case occurrence was apparent: in general, P&I-related hospitalizations sharply increased from late summer through

early fall and sharply decreased through the spring (Figure 1).

On average, the most cases per month each year were in October (mean: 99.8) and November (mean: 99.3) and the fewest in June (mean: 61.8). During the period, the most cases in any month were in December 2002 (n=200) and the fewest were in June 1999 and April 2008 (n=30) (Figure 1).

In general, there were relatively fewer P&I-related hospitalizations during the beginning and end of the surveillance period relative to the middle. For example, during 35 (80%) of the 44 months from January 1997 through August 2000 and during 28 (90%) of the 31 months from October 2005 through April 2008, there were “deficits” of P&I-related hospitalizations (relative to the means for the respective months overall) (Figure 2). In contrast, during 43 (70%) of the 61 months from September 2000 to September 2005, there were “excess” P&I-related hospitalizations (relative to the means for the respective months overall) (Figure 2). Of particular note, during the 10-month period from March-December 2003, there were more than 35 “excess” P&I-related hospitalizations each month and 507 excess hospitalizations overall (Figure 2).

Severe acute respiratory illness:

During the period, there were 626 incident hospitalizations for severe acute respiratory illnesses (SARI) (Table 1). The most and fewest cases per year were in 2006-7 (n=99) and 1998-9 (n=18), respectively (Table 1). Based on dispositions reported on hospital discharge records, case fatality overall was 9.4% (with no clear trend of increasing or decreasing case fatality over the period [data not shown]).

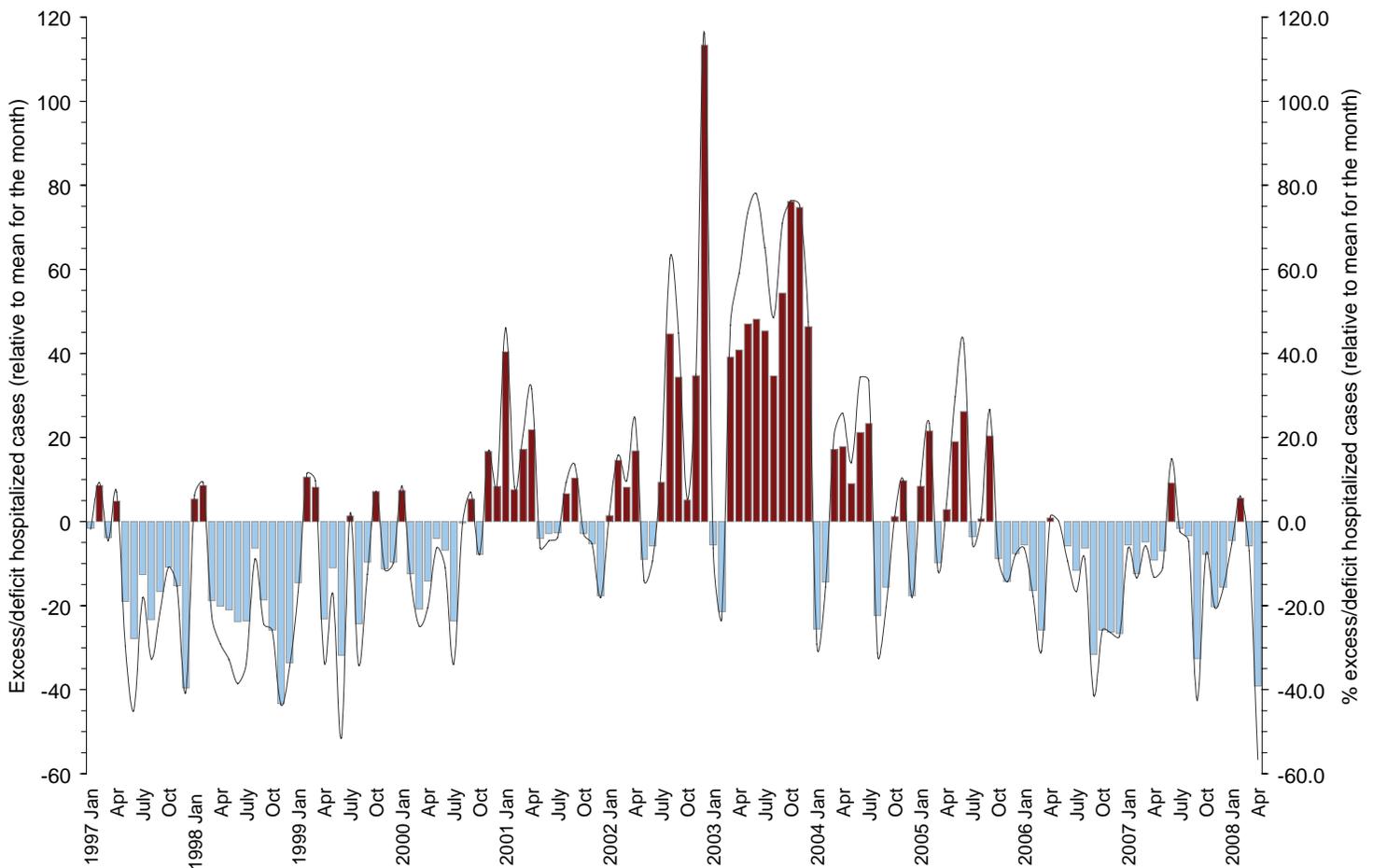
Numbers of SARI-related hospitalizations generally increased during the period (Table 1, Figures 3). For example, during 29 (81%) of the 36 months from January 1997 through December 1999, there were “deficits” of SARI-related

Table 1. Incident hospitalized cases of pneumonia-influenza and severe acute respiratory illness, by calendar quarter, U.S. Armed Forces, January 1997-April 2008

<i>Pneumonia-influenza</i>	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	Total	Mean cases per month	
														No.	Relative no.
Jan-Mar	267	259	268	238	329	288	276	241	284	216	241	259	3,166	87.9	1.35
Apr-Jun	153	130	129	170	210	197	331	243	243	190	188	30	2,214	65.1	ref
Jul-Sep	165	169	185	199	232	306	352	203	235	168	180		2,394	72.5	1.11
Oct-Dec	231	194	283	314	271	450	494	290	266	218	253		3,264	98.9	1.52
<i>Total</i>	816	752	865	921	1,042	1,241	1,453	977	1,028	792	862	289	11,038	81.2	

<i>Severe acute respiratory illness</i>	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	Total	Mean cases per month	
														No.	Relative no.
Jan-Mar	13	13	5	10	15	15	15	12	24	14	25	15	176	4.9	1.20
Apr-Jun	12	8	7	7	11	9	16	13	24	17	19	0	143	4.2	1.04
Jul-Sep	5	3	9	5	9	12	17	13	16	31	14		134	4.1	ref
Oct-Dec	7	3	13	18	10	15	19	17	26	24	21		173	5.2	1.29
<i>Total</i>	37	27	34	40	45	51	67	55	90	86	79	15	626	4.6	

Figure 2. Number (bars) and percent (line) of excess/deficit of hospitalizations for pneumonia-influenza, relative to the mean number for the respective month for the entire period, U.S. Armed Forces, January 1997-April 2008



hospitalizations (relative to the means for the respective months overall) (Figure 4). In contrast, during 33 (92%) of the 36 months from January 2005 to December 2007, there were “excess” SARI-related hospitalizations (relative to the means for the respective months overall) (Figure 4). Of note, during the 4-months from July through September 2006, there were approximately 27 “excess” (of 44 overall) SARI-related hospitalizations of U.S. service members (Figure 4).

As with pneumonia and influenza, the fewest SARI-related cases were in the “spring” and “summer” (mean cases per month, April-June: 4.2; July-September: 4.1) and the most in the “fall” and “winter” (mean cases per month, October-December: 5.2; January-March: 4.9) (Table 1). However, in contrast to the distinct seasonality of pneumonia-influenza incidence, there was no consistent month-to-month or seasonal variability in SARI-related hospitalizations (Table 1, Figure 3). For the entire period, the most cases in any month ($n=13$) were in June 2005, July 2006, and October 2006; while in eight months overall – including six (14%) of 43 months from January 1997 to July 2000, there were no SARI-related hospitalizations (Figure 3).

Finally, there was no apparent relationship between the number of pneumonia-influenza-related hospitalizations

each month and the number of SARI cases in the same month (data not shown).

Data analysis by Vicki Jeffries and Tannya Martin.

Editorial comment:

Compared to the general experience since 1997, in the past few years – particularly since the fall of 2005, there have been relatively few (accounting for the month) hospitalizations for pneumonia-influenza. U.S. military members receive annual influenza immunizations. The recent experience regarding pneumonia-influenza reflects, at least in part, the effectiveness of influenza vaccines against predominant circulating strains.¹¹

In contrast, since the fall of 2002 – particularly since January 2005, there were more hospitalizations for severe acute respiratory illness than in the preceding 5-years. Because the case definition used for this analysis required a respiratory illness-specific primary diagnosis (indicative of the primary reason for hospitalization), it is unlikely that the increase reflects complications of combat-related trauma or associated care. Also, in response to the cluster of “severe acute pneumonitis” cases among deployed service members in

Figure 3. Hospitalizations for severe acute respiratory illness, by month, U.S. Armed Forces, January 1997-April 2008

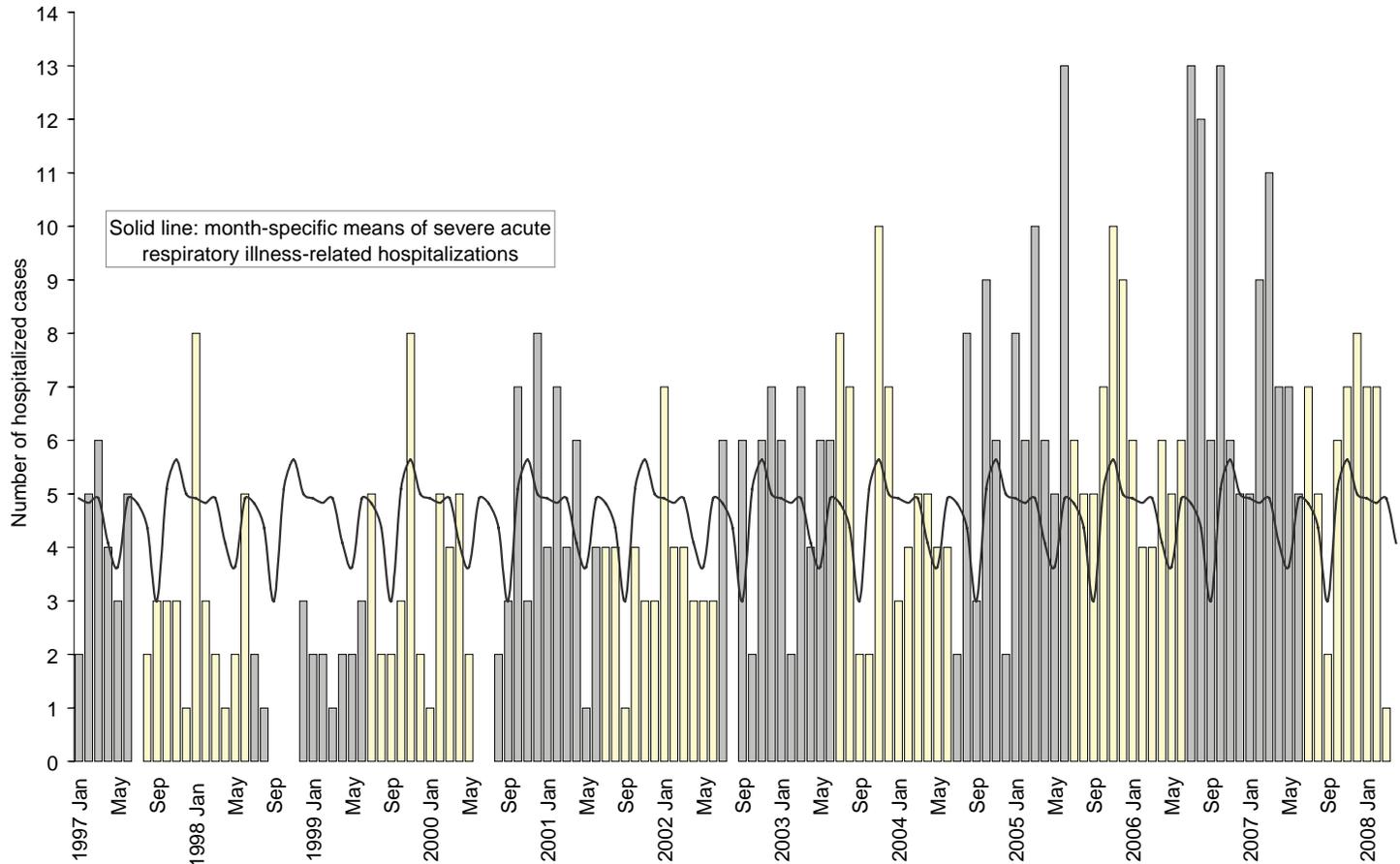
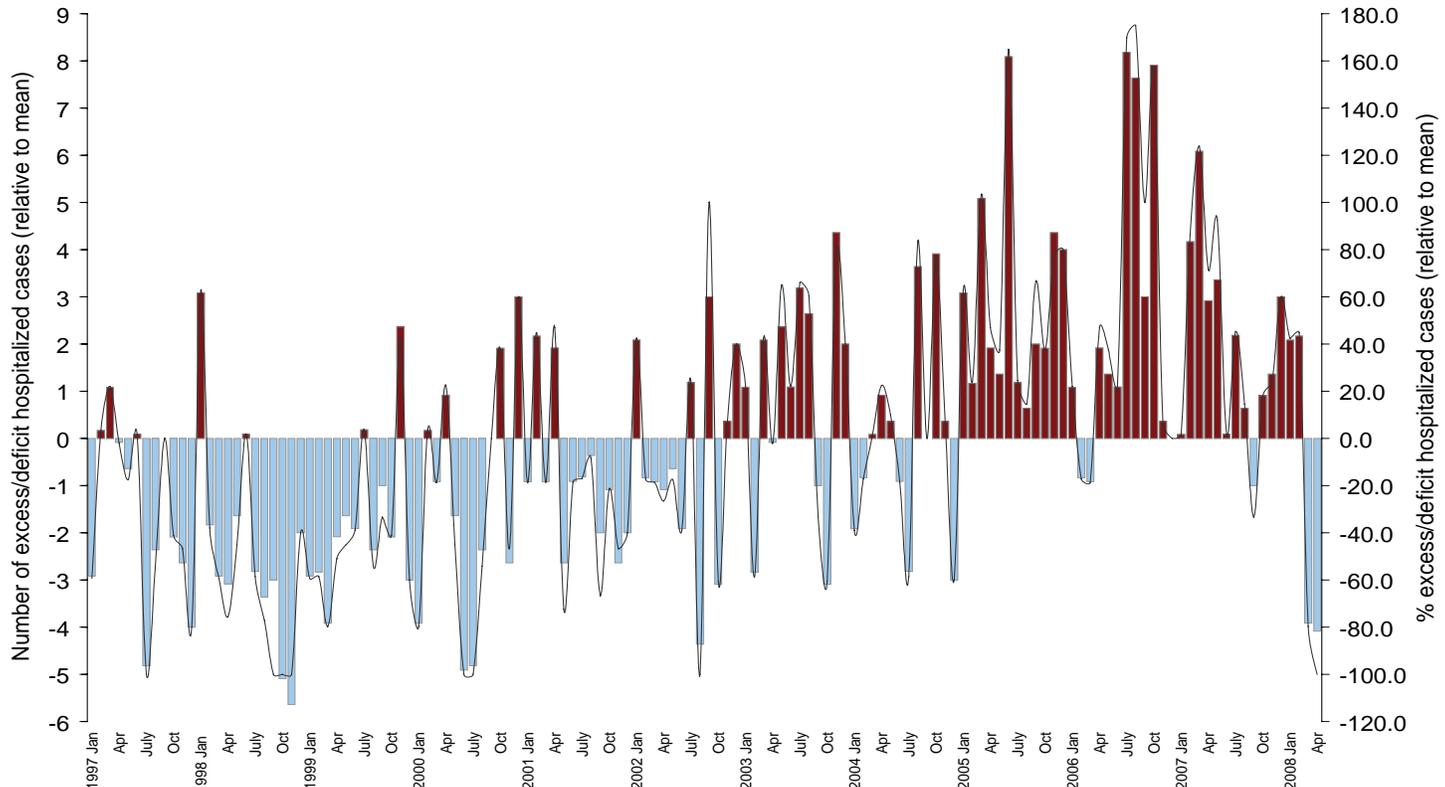


Figure 4. Number (bars) and percent (line) of excess/deficit of hospitalizations for severe acute respiratory illness, relative to the mean number for the respective month for the entire period, U.S. Armed Forces, January 1997-April 2008



the spring-summer of 2003⁹, the MSMR has tracked incident episodes of “severe acute pneumonia” among service members deployed to or within 30 days of returning from service in Afghanistan or Iraq (using a similar but not identical case definition as for this report) (see page 26). Since 2004, there have been consistently few cases per month of severe acute pneumonia temporally related to deployment (range, cases per month: 0-4; annual mean cases per month: 0.6-1.2) (see page 26). Thus, deployment-related cases may explain some but not all of the increase in severe acute respiratory illness cases since 2002. Another contributory cause is likely adenovirus type 14 which has recently emerged as a significant pathogen among U.S. military trainees.¹²⁻¹⁴

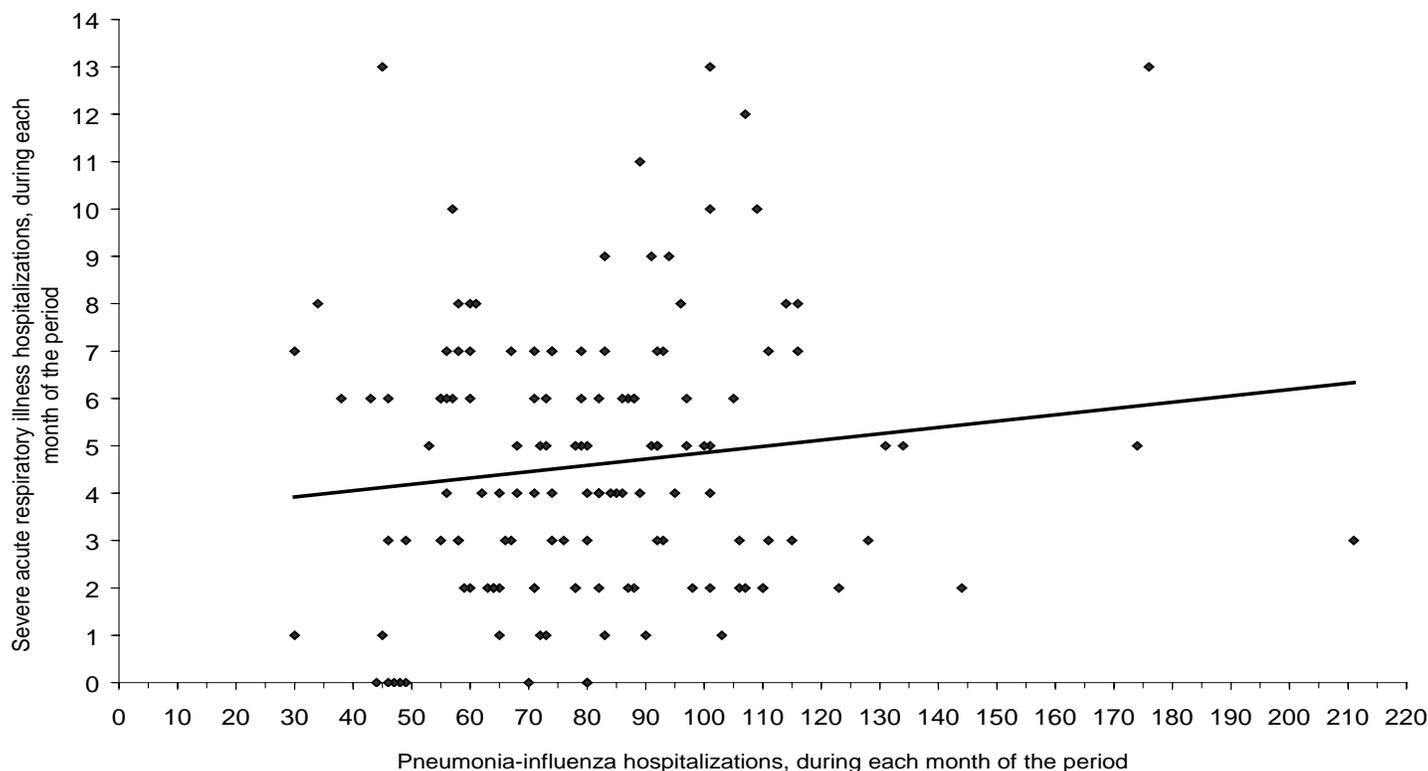
This analysis clearly documents the seasonality of pneumonia-influenza incidence among U.S. service members. From 1997 through 2007, the fewest pneumonia-influenza hospitalizations were in June and the most in October. In most years of the period, there were sharp increases in pneumonia-influenza hospitalizations beginning in the late summer (July-August). The findings suggest that annual activities to counter seasonal pneumonia-influenza risk should be conducted as soon as possible after the current year’s vaccines are available.

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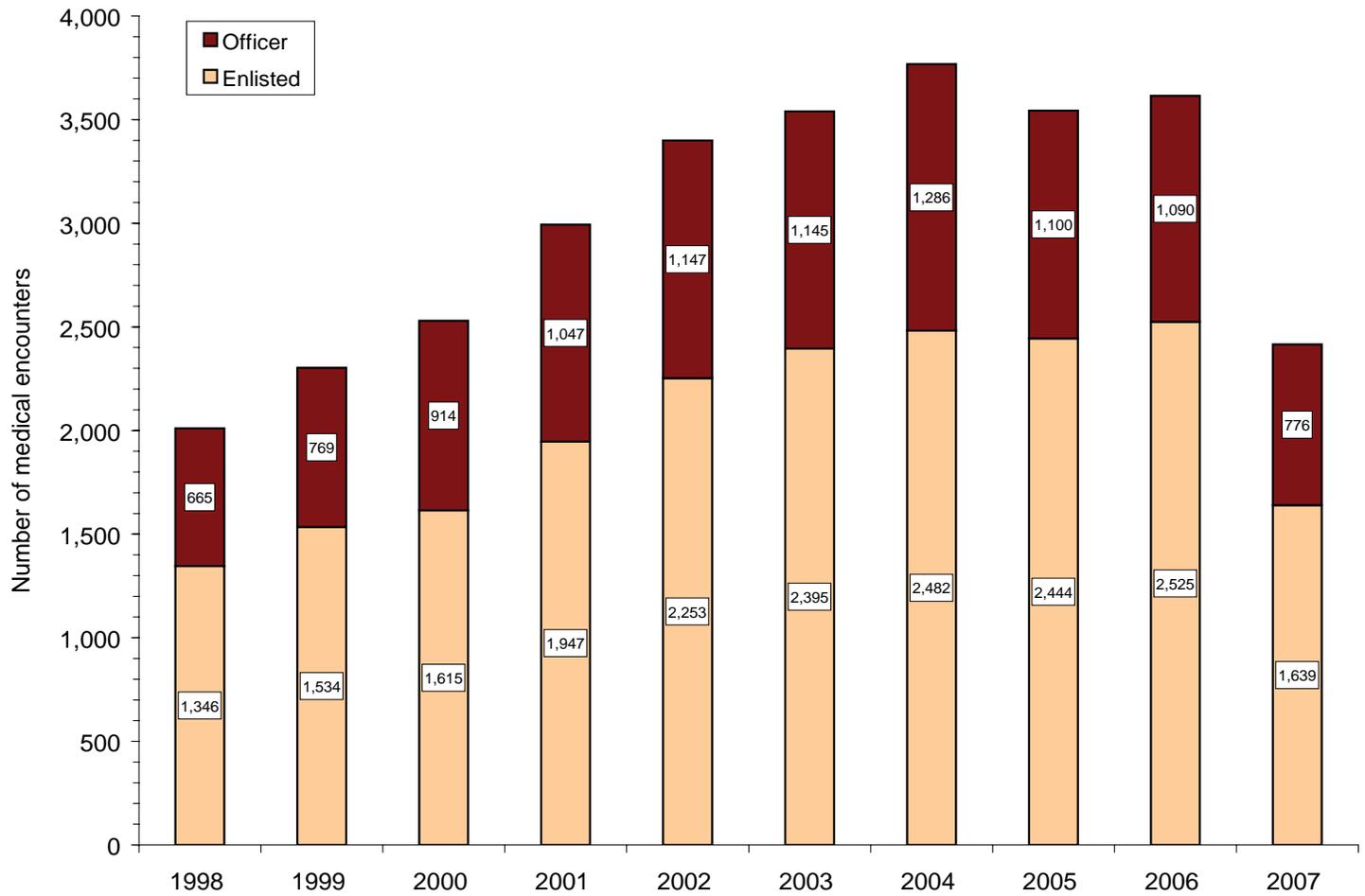
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Figure 5. Relationship between pneumonia-influenza hospitalizations each month and severe acute respiratory illness cases during the same month, U.S. Armed Forces, January 1997-April 2008



SURVEILLANCE SNAPSHOT

Medical encounters for occupational exposures to blood/other body fluids,
by military status, U.S. Armed Forces, 1998-2007



Allergic Rhinitis, U.S. Armed Forces, 1998-2007

Allergic rhinitis (“hay fever”) affects an estimated 10-30% of the general population of the United States.¹ Between 2000 and 2005, expenditures for ambulatory care and treatment of allergic rhinitis in the U.S. increased 73% to \$11.2 billion.²

In 2007, approximately 48,000 U.S. service members had at least one medical encounter for allergic rhinitis. Allergic rhinitis was the primary (first-listed) diagnosis for nearly 3% of all medical encounters of service members in 2007.³ It is a significant cause of morbidity and lost duty time, especially during the spring and fall allergy seasons.

This report summarizes frequencies, rates, seasonal trends and correlates of risk of allergic rhinitis among U.S. service members during the past 10 years.

Methods:

The surveillance period was 1 January 1998 to 31 December 2007. The surveillance population included all service members who served in an active component of the U.S. Armed Forces any time during the surveillance period. A case of allergic rhinitis was defined as an outpatient encounter with a diagnoses of allergic rhinitis (ICD-9-CM:

477) in any diagnostic position. For this analysis, incident ambulatory visits were limited to one per service member per 30 consecutive days of follow-up.

Results:

During the 10-year surveillance period, 438,330 service members had approximately 1.2 million ambulatory medical encounters related to allergic rhinitis. Approximately 79% of all affected individuals had more than one allergic rhinitis-related clinic visit during the period. Among service members with multiple visits, the mean number was 2.7 visits per year.

There were 833,772 incident (one per person per 30 days) ambulatory visits for allergic rhinitis during the surveillance period (Table 1). Incidence rates increased with age and were higher among females than males and in the Air Force than the other services (Table 1). Numbers of affected individuals and incidence rates generally increased during the first seven years and were stable during the last three years of the surveillance period (Figure 1).

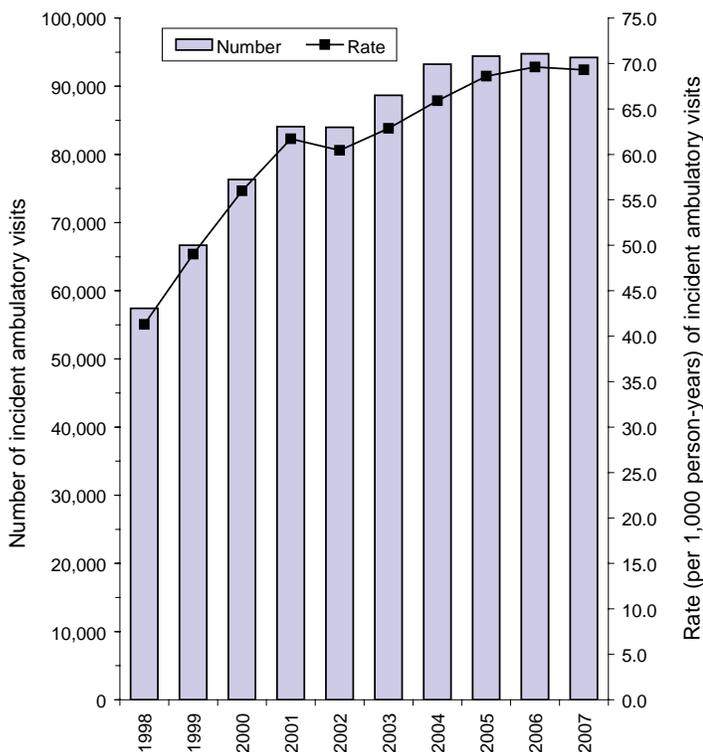
Throughout the period, there were distinct seasonal trends in allergic rhinitis incidence. Each year, there were large spring and smaller fall outbreaks (Figure 2). During the ten spring outbreaks, numbers of incident ambulatory visits

Table 1. Number and rates (per 1,000 person-years) of incident* ambulatory visits for allergic rhinitis, active components, U.S. Armed Forces, 1998 - 2007

	1998		1999		2000		2001		2002		2003	
	Incident Visits	Rate	Incident Visits	Rate	Incident Visits	Rate	Incident Visits	Rate	Incident Visits	Rate	Incident Visits	Rate
Total	57,414	41.3	66,679	49.0	76,307	56.0	84,059	61.7	83,986	60.4	88,683	62.9
Service												
Air Force	26,657	73.1	32,626	91.5	35,427	100.7	38,123	109.5	37,414	103.9	40,232	109.6
Army	18,065	37.9	19,389	41.4	24,298	51.3	28,043	59.2	28,289	58.9	28,677	58.5
Navy	9,993	26.5	11,618	31.9	13,320	36.4	13,955	37.9	14,415	38.2	15,685	41.6
Marine Corps	2,699	15.8	3,046	17.8	3,262	19.0	3,938	23.0	3,868	22.5	4,089	23.1
Gender												
Female	15,607	80.6	18,216	94.5	21,233	107.5	23,661	117.4	23,702	114.0	25,546	120.7
Male	41,807	35.0	48,463	41.5	55,074	47.3	60,398	52.1	60,284	51.0	63,137	52.7
Race/ethnicity												
Black non-Hispanic	12,329	45.0	13,952	51.8	16,315	60.0	18,274	67.0	17,814	65.5	19,135	71.4
Asian	2,260	44.7	2,766	53.0	3,277	60.2	3,591	64.5	3,629	61.6	4,100	66.5
White non-Hispanic	32,066	38.8	39,578	47.1	47,002	54.9	51,963	60.9	52,247	60.1	54,164	61.3
Hispanic	8,624	46.0	7,970	54.3	6,885	54.4	6,933	55.3	7,028	53.4	7,536	54.8
Native American	528	37.5	649	42.8	771	45.9	891	48.6	941	47.3	1,056	49.1
Other	1,607	43.9	1,764	48.3	2,057	56.7	2,407	67.3	2,327	62.4	2,692	69.3
Age group												
<20	2,722	20.6	3,134	23.0	4,145	28.1	5,299	33.3	5,342	33.5	5,116	33.7
20-24	12,532	29.8	14,688	35.3	17,009	39.6	19,827	45.1	20,106	43.4	21,865	45.0
25-29	12,144	41.9	14,102	50.9	15,612	58.0	16,271	62.9	16,402	62.9	17,819	65.9
30-34	10,841	46.8	11,847	54.6	13,339	64.3	14,343	71.7	14,028	70.0	14,567	72.6
35-39	11,115	56.5	13,260	67.9	14,645	76.1	15,638	83.3	14,824	80.2	14,894	82.9
>39	8,060	68.0	9,648	81.7	11,557	99.3	12,681	108.7	13,284	109.9	14,422	117.5
Military occupation												
Combat	6,776	24.1	7,700	28.0	9,149	33.3	10,077	36.9	9,961	36.2	10,207	36.6
Health care	8,976	73.2	9,988	85.7	10,591	92.6	11,606	100.8	11,487	99.0	12,189	104.4
Other	41,662	42.2	48,991	50.6	56,567	58.1	62,376	64.1	62,538	62.6	66,287	65.3

*One ambulatory visit per service member per 30-day period

Figure 1. Number and rates of incident ambulatory visits for allergic rhinitis, active components, U.S. Armed Services, 1998-2007



sharply increased in March and peaked in April (n=5) or May (n=5). The most incident visits per day during any months of the period were in April 2004 (incident visits per day: 464) and April 2005 (incident visits per day: 467).

During each fall season except one, the peaks of incidence were in September (Figure 2). Invariably, the magnitudes of the peaks of incidence in the fall were much smaller than those in the spring — in general, there were approximately 70% more incident visits during the peak months of each spring season compared to the respective fall seasons (ratio, incident visits during peak months of spring and fall, 1998-2007: 1.44-2.03) (Figure 2). Seasonal trends in gender- and age-defined subgroups reflected the overall trend (data not shown).

Data analysis by Vicki Jeffries.

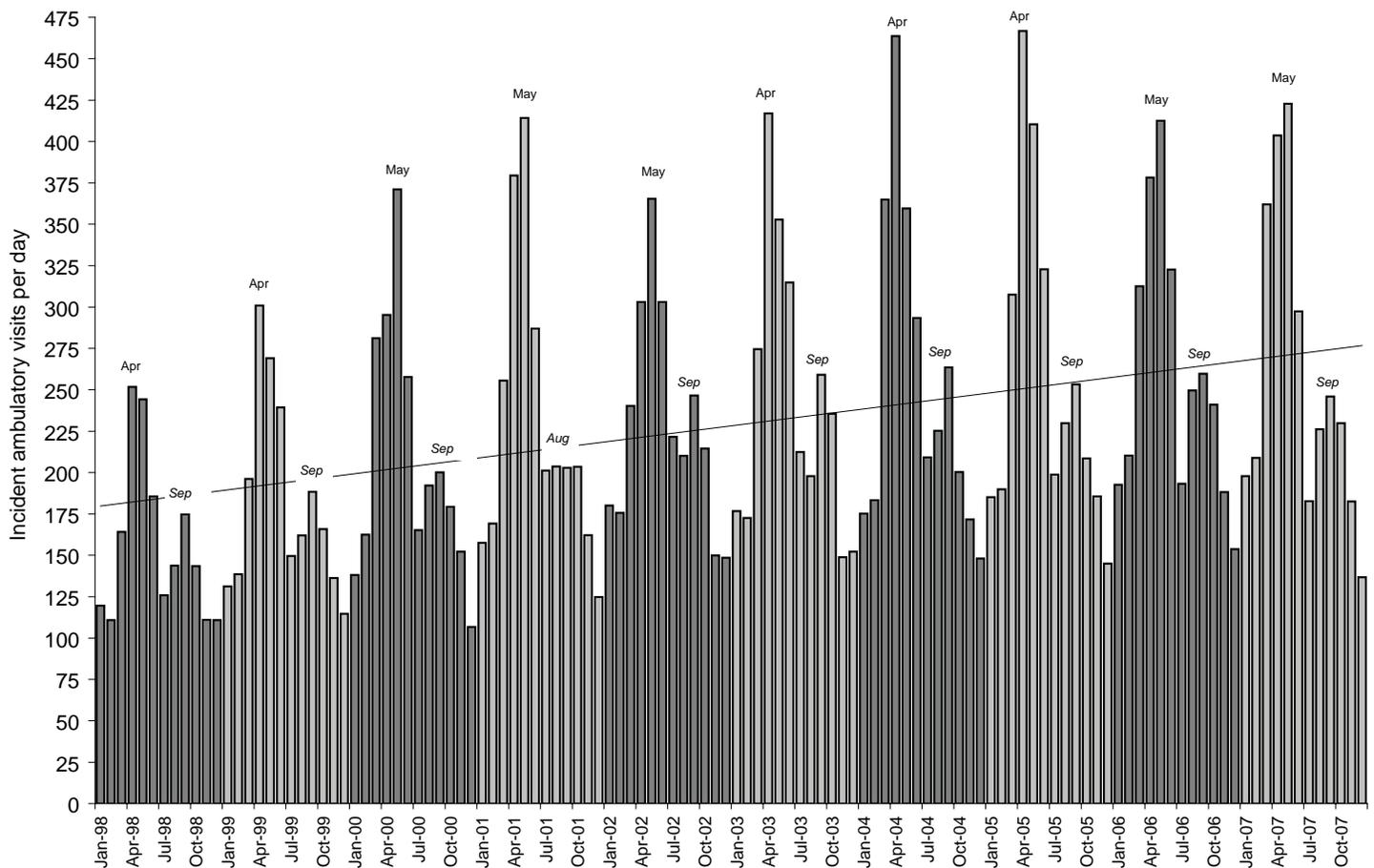
Editorial comment:

In the past 10 years, approximately 70,000 U.S. service members per year have received medical care for allergic rhinitis. Between 1998 and 2005, the number of service members treated each year for allergic rhinitis increased by approximately two-thirds. The trend may reflect a true increase in incidence of symptomatic allergic rhinitis, changes in health care seeking for treatment of allergic rhinitis symptoms, and/or changes in case ascertainment (e.g., diagnosis, reporting).

Table 1 continued. Number and rates (per 1,000 person-years) of incident* ambulatory visits for allergic rhinitis, active components, U.S. Armed Forces, 1998 - 2007

	2004		2005		2006		2007		Total			
	Incident Visits	Rate	Rate ratio									
Total	93,233	65.9	94,408	68.6	94,766	69.6	94,237	69.3	833,772	60.5		
Service												
Air Force	41,807	111.7	41,646	117.8	41,543	120.5	41,506	124.5	376,981	106.1	ref	
Army	31,128	63.2	31,884	65.6	32,453	65.9	32,448	63.6	274,674	56.7	0.53	
Navy	16,123	43.4	16,355	45.6	16,119	46.6	15,582	46.7	143,165	39.4	0.37	
Marine Corps	4,175	23.6	4,523	25.4	4,651	26.1	4,701	25.8	38,952	22.3	0.21	
Gender												
Female	26,851	127.5	26,707	132.8	26,315	133.2	25,473	130.3	233,311	116.1	ref	
Male	66,382	55.1	67,701	57.6	68,451	58.8	68,764	59.1	600,461	51.0	0.44	
Race/ethnicity												
Black non-Hispanic	19,540	75.5	19,928	81.8	19,407	83.0	18,790	82.4	175,484	67.7	ref	
Asian	4,391	67.8	4,847	73.9	4,811	72.6	4,836	72.3	38,508	64.5	0.95	
White non-Hispanic	57,315	64.5	57,280	66.2	57,795	67.3	56,802	65.9	506,212	58.8	0.87	
Hispanic	7,952	56.7	8,253	58.9	8,454	60.1	8,448	59.9	78,083	55.1	0.81	
Native American	1,163	50.1	1,254	52.5	1,276	52.2	1,209	49.4	9,738	48.3	0.71	
Other	2,872	73.0	2,846	75.3	3,023	80.9	4,152	111.9	25,747	69.1	1.02	
Age group												
<20	4,527	31.3	4,307	33.6	4,626	37.9	4,236	34.9	43,454	31.0	ref	
20-24	23,303	47.3	22,447	46.7	21,291	44.8	20,476	43.7	193,544	42.3	1.37	
25-29	19,245	69.1	20,148	71.6	20,171	70.7	20,220	69.2	172,134	62.3	2.01	
30-34	15,462	77.2	15,724	80.1	15,728	81.8	15,580	82.0	141,459	69.5	2.24	
35-39	15,032	87.1	15,173	92.5	15,743	97.5	16,132	99.4	146,456	81.5	2.63	
>39	15,664	124.5	16,609	132.1	17,207	137.9	17,593	139.8	136,725	112.5	3.63	
Military occupation												
Combat	11,530	40.6	12,019	41.7	12,396	41.0	12,503	43.6	102,318	36.3	ref	
Health care	12,691	108.4	12,928	114.1	12,868	115.3	13,004	118.2	116,328	100.9	2.78	
Other	69,012	68.1	69,461	71.3	69,502	73.3	68,730	71.3	615,126	62.7	1.73	

Figure 2. Average number per day of incident visits for allergic rhinitis, by calendar month, active components, U.S. Armed Forces, 1998-2007



Of interest, studies in civilian populations suggest that reports of allergic rhinitis significantly increased between 2000 and 2005.²

There are limitations to this summary that should be considered when interpreting the results. For example, for this report, incident ambulatory visits were limited to one per person per 30 consecutive days of follow-up. In turn, incident episodes of seasonal allergic rhinitis – e.g., from exposures to pollens of specific trees, grasses, weeds, etc. – are appropriately attributed to the seasons when the instigating allergens are present. However, individuals with perennial allergic rhinitis – e.g., from exposures to dust, dander, molds, etc. that may persistently contaminate indoor environments – may be overrepresented because they can count as an incident case once every 30 days of follow-up. Also, it is likely that many service members with allergic rhinitis seek care from unit medical personnel and/or treat themselves with over-the-counter medications. Because such episodes are not documented with electronic medical records, the results reported here likely underestimate the actual numbers of individuals affected and the health care costs associated with treatment. Finally, many individuals with “allergic

rhinitis” may receive non-specific symptomatic diagnoses (e.g., headache, cough, malaise) during routine medical visits – the result would be underascertainment of the number of affected individuals and associated health care costs.

Allergic rhinitis does not cause significant disability; however, its symptoms (e.g., nasal obstruction, headache, watery eyes, sneezing) and potential side effects of treatment (e.g., drowsiness, lethargy) can degrade the performance of physically and mentally demanding tasks.⁴ Thus, allergic rhinitis is militarily relevant because it affects so many service members, decreases military operational capabilities, and causes significant lost duty time and high health care costs (e.g., clinic visits, medication).

The management of allergic rhinitis in military populations should aim to minimize the frequency of attacks, the severity of symptoms during attacks, the impacts on military operational performance, and health care costs. However, the management of allergic rhinitis in military populations and settings is difficult. Service members are stationed in or deployed to many regions of the U.S. and overseas; and among susceptible individuals, exposures that can precipitate symptoms often vary across geographic locations, indoor

environments, and activities – and are unpredictable. Also, military operational considerations often limit or eliminate options for avoiding significant indoor (e.g., military billets) and outdoor (e.g., field exercises, deployment operations) allergen exposures. Still, there are many preventive interventions, countermeasures, and treatments that can reduce the very large occupational and health care burdens associated with allergic rhinitis in military members.^{1,4}

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Update: Deployment Health Assessments, U.S. Armed Forces, May 2008

The health protection strategy of the U.S. Armed Forces is designed to deploy healthy, fit, and medically ready forces, to minimize illnesses and injuries during deployments, and to evaluate and treat physical and psychological problems (and deployment-related health concerns) following deployment.

In 1998, the Department of Defense initiated health assessments of all deployers prior to and after serving in major operations outside of the United States.¹ In March 2005, the Post-Deployment Health Reassessment (PDHRA) program was begun to identify and respond to health concerns that persisted for or emerged within three to six months after return from deployment.²

This report summarizes responses to selected questions on deployment health assessments completed since 2003. In addition, it documents the natures and frequencies of changes in responses from before to after deployments.

Methods:

Completed deployment health assessment forms are transmitted to the Armed Forces Health Surveillance Center (AFHSC) where they are incorporated into the Defense Medical Surveillance System (DMSS).³ In the DMSS, data recorded on health assessment forms are integrated with data that document demographic and military characteristics and medical encounters (e.g., hospitalizations, ambulatory visits) at fixed military and other (contracted care) medical facilities of the Military Health System. For this analysis, DMSS was searched to identify all pre (DD2795) and post (DD2796)

deployment health assessment forms completed since 1 January 2003 and all post-deployment health reassessment (DD2900) forms completed since 1 August 2005.

Results:

Since January 2003, 1,894,503 pre-deployment health assessment forms, 1,905,239 post-deployment health assessment forms, and 487,129 post-deployment health reassessment forms were completed at field sites, transmitted to the AFHSC, and integrated into the DMSS (Figure 1). Throughout the period, there were intervals of approximately 2-4 months between peaks of pre-deployment and post-deployment health assessments (that were completed by different cohorts of deployers) (Figure 1). Post-deployment health reassessments rapidly increased between February and May 2006 (Figure 1). Since then, numbers of reassessment forms per month have been relatively stable (reassessment forms per month, June 2007-May 2008: mean: 21,274; range: 10,558-33,392) (Figure 1, Table 1).

Between June 2007 and May 2008, nearly three-fourths (73.3%) of deployers rated their "health in general" as "excellent" or "very good" during pre-deployment health assessments (Figure 2). During the same period, only 58.1% and 51.9% of redeployers rated their general health as "excellent" or "very good" during post-deployment assessments and post-deployment reassessments, respectively (Figure 2).

From pre-deployment to post-deployment to post-deployment reassessments, there were sharp increases in the proportions of deployers who rated their health as "fair" or "poor"

Figure 1. Total deployment health assessment and reassessment forms, by month, U.S. Armed Forces, January 2003-May 2008

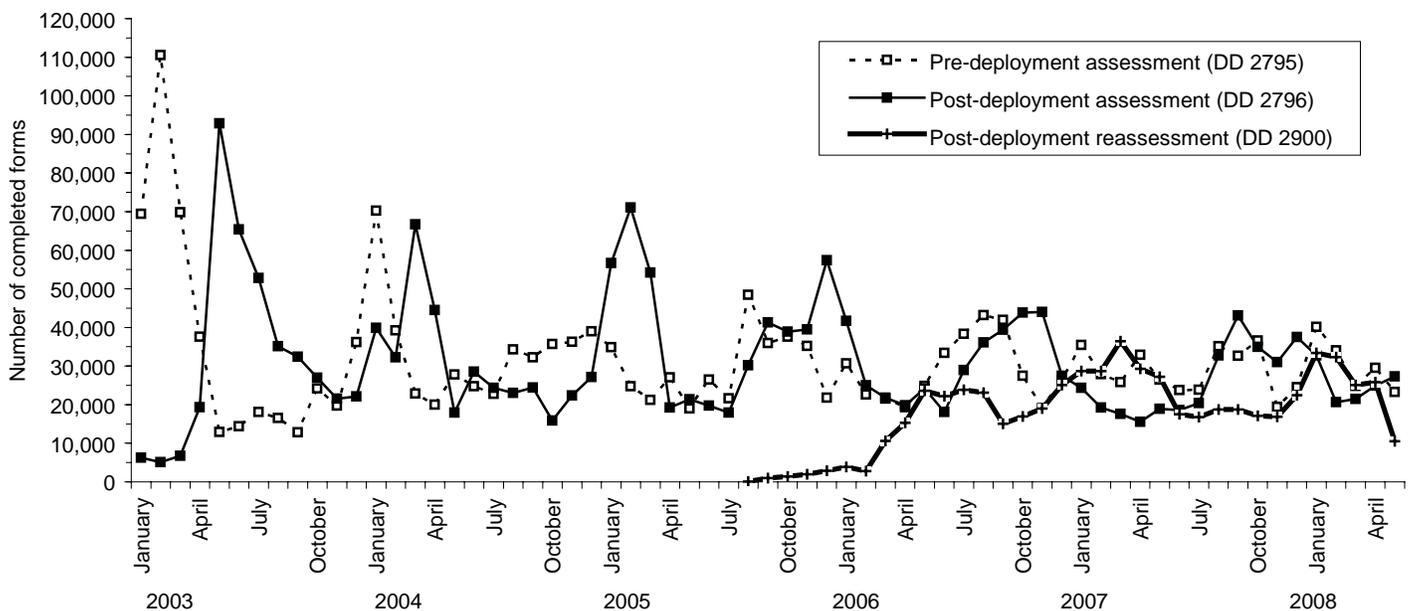


Table 1. Deployment-related health assessment forms, by month, U.S. Armed Forces, June 2007-May 2008

	Pre-deployment assessment DD2795		Post-deployment assessment DD2796		Post-deployment reassessment DD2900	
	No.	%	No.	%	No.	%
Total	347,733	100	345,360	100	255,292	100
2007						
June	23,784	6.8	18,605	5.4	17,512	6.9
July	23,812	6.8	20,404	5.9	16,745	6.6
August	35,124	10.1	32,729	9.5	18,743	7.3
September	32,679	9.4	43,105	12.5	18,744	7.3
October	36,635	10.5	34,936	10.1	17,107	6.7
November	19,374	5.6	31,004	9.0	16,825	6.6
December	24,519	7.1	37,523	10.9	22,432	8.8
2008						
January	40,103	11.5	32,709	9.5	33,392	13.1
February	34,034	9.8	20,622	6.0	32,339	12.7
March	24,859	7.1	21,455	6.2	25,109	9.8
April	29,540	8.5	24,950	7.2	25,786	10.1
May	23,270	6.7	27,318	7.9	10,558	4.1

(Figure 2). For example, prior to deployment, approximately one of 40 (2.5%) deployers rated their health as “fair” or “poor”; however, 3-6 months after returning from deployment (during post-deployment reassessments), approximately one of seven (14.1%) respondents rated their health as “fair” or “poor” (Figure 2).

During the past 12 months, the proportion of deployers who assessed their general health as “fair” or “poor” before deploying remained consistently low (% “fair” or “poor” “health in general,” pre-deployment health assessments, June 2007-May

2008, by month: mean: 2.5% [range: 1.8-3.3%]) (Figure 3). The proportion of redeployers who assessed their general health as “fair” or “poor” around times of return from deployment was consistently and clearly higher than before deploying (% “fair” or “poor” “health in general,” post-deployment health assessments, May 2007-April 2008, by month: mean: 6.9% [range: 5.7-8.1%]) (Figure 3). Finally, the proportion of redeployers who assessed their general health as “fair” or “poor” 3-6 months after redeploying was sharply higher than at redeployment (% “fair” or “poor” “health in general,” post-deployment health reassessments, June 2007-May 2008, by month: mean: 14.1% [range: 11.3-20.3%]) (Figure 3).

More than half of service members who rated their overall health before deployment chose a different descriptor after deploying, but usually by a single category (on a five-category scale). The proportions of deployers whose self-rated health improved by more than one category from pre-deployment to reassessment remained relatively stable between June 2007 and May 2008 (mean: 1.3%, range:1.0-1.7%) (Figure 4). The proportions of service members whose self-assessed health declined by more than one category was relatively stable between May and September 2007 and has generally increased since September 2007 (mean: 16.6, range 13.6-21.9%) (Figure 4).

In general, on post-deployment assessments and reassessments, members of Reserve components and members of the Army were much more likely than their respective counterparts to report mental health-related symptoms and health and exposure-related concerns – and in turn, to have indications for medical and mental health follow-ups (“referrals”) (Table 2).

Among Reserve versus active component members, relative excesses of health-related concerns and provider-indicated

Figure 2. Percent distributions of self-assessed health status as reported on deployment health assessment forms, U.S. Armed Forces, June 2007-May 2008

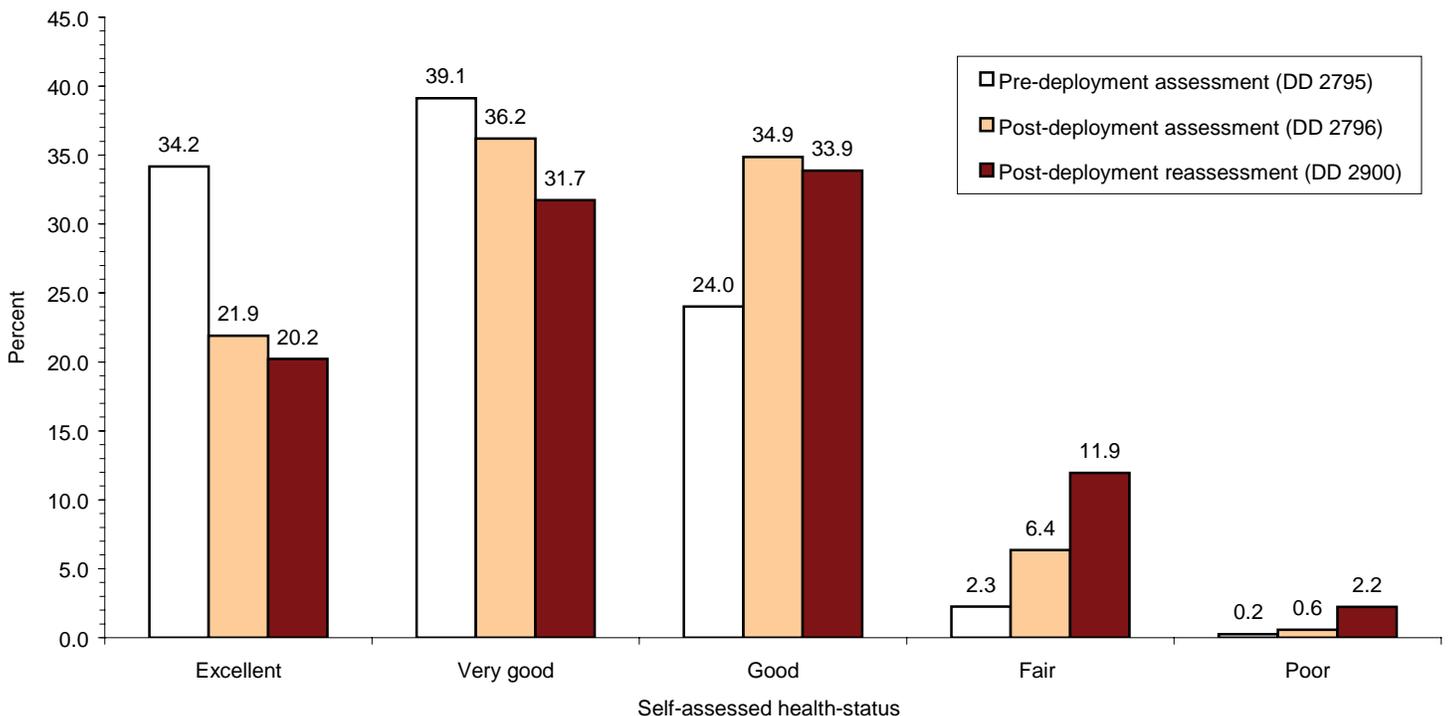
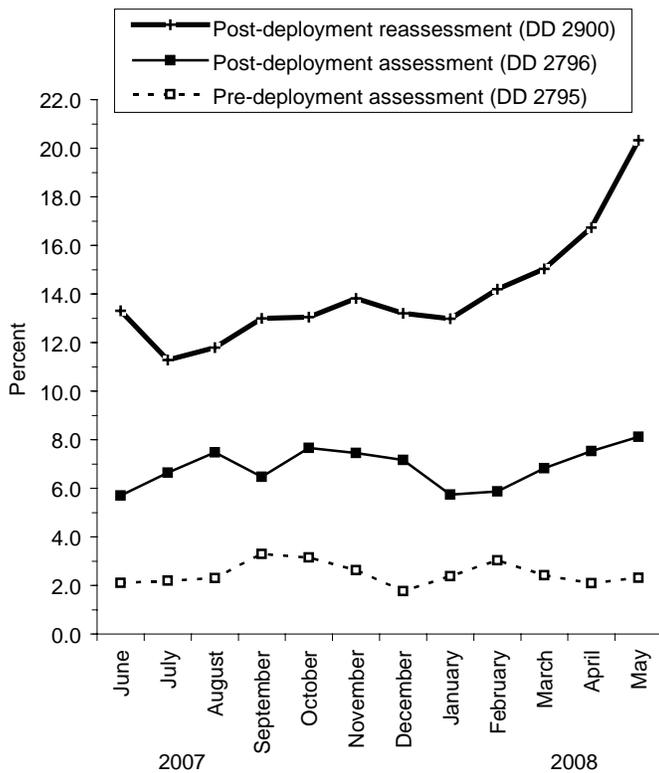


Figure 3. Proportion of deployment health assessment forms with self-assessed health status as “fair” or “poor”, U.S. Armed Forces, June 2007-May 2008



referrals were much greater 3-6 months after redeployment (DD2900) than either before deploying (DD2795) or at redeployment (DD2796) (Table 2, Figures 5,6). For example, among both active and Reserve component members of all Services, mental or behavioral health referrals were more common after deployment than before (Figure 5). However, from the time of redeployment to 3-6 months later, mental health referrals sharply increased among Reserve component members of the Army, Navy, and Marine Corps (but not Air Force) (Table 2, Figure 5). Of note in this regard, the largest absolute increase in mental health referrals from redeployment to 3-6 months later was for Reserve component members of the Army (post-deployment: 4.9%; reassessment: 11.6%) (Table 2, Figure 5).

Finally, over the past three years, Reserve component members have been approximately twice as likely as active to report “exposure concerns” on post-deployment health assessments (DD2796) (“exposure concerns,” post-deployment assessments, by month, June 2007-May 2008: Reserve: mean: 27.0%, range: 22.2-32.6%; active: mean: 16.5%; range: 13.2-22.7%) (Table 2, Figures 6,7). Sharply higher proportions of both Reserve and active component members endorsed exposure concerns 3-6 months after (DD2900) compared to around times (DD2796) of redeployment (“exposure concerns,” post-deployment reassessments, by month, June 2007-May 2008: Reserve: mean: 36.2%, range: 31.0-41.7%; active: mean: 20.7%; range: 18.3-28.3%) (Figure 7).

Editorial comment:

In general, since 2003, proportions of U.S. deployers to Iraq and Afghanistan who report medical or mental health-related symptoms (or have indications for medical or mental health referrals) on deployment-related health assessments increased from pre-deployment to post-deployment to 3-6 months post-deployment, are higher among members of the Army than the other Services, and are higher among Reserve than the active component members.

Regardless of the Service or component, deployers often rate their general health worse when they return compared to before deploying. This is not surprising because deployments are inherently physically and psychologically demanding. Clearly, there are many more – and more significant – threats to the physical and mental health of service members when they are conducting or supporting combat operations away from their families in hostile environments compared to when serving at their permanent duty stations (active component) or when living in their civilian communities (Reserve component).

However, many redeployed service members rate their general health worse 3-6 months after returning from deployment compared to earlier. This finding may be less intuitively understandable. Symptoms of post-traumatic stress disorder (PTSD) may emerge or worsen within several months after a life threatening experience (such as military service in a war zone). PTSD among U.S. veterans of combat duty in Iraq has been associated with higher rates of physical health problems after redeployment.⁴ The post-deployment health reassessment at 3-6 months post-deployment is designed to detect service members with symptoms not only of PTSD but also persistent or emerging deployment-related medical and mental health problems.

Among British veterans of the Iraq war, Reservists reported more “ill health” than their active counterparts.⁵ Roles, traumatic experiences, and unit cohesion while deployed were associated with medical outcomes after redeployment; however, PTSD symptoms were more associated with problems at home (e.g., reintegration into family, work, and other aspects of civilian life) than with events in Iraq.⁵ The finding may explain, at least in part, the differences in prevalences of mental health symptoms, medical complaints, and provider-indicated mental health referrals among Reserve compared to active members — 3-6 months after returning from deployment compared to earlier.

Post-deployment health assessments may be more reliable several months after redeployment compared to earlier. Commanders, supervisors, family members, peers, and providers of health care to redeployed service members should be alert to emerging or worsening symptoms of physical and psychological problems for several months, at least, after returning from deployment.

Figure 4. Proportion of service members whose self-assessed health status improved (“better”) or declined (“worse”) (by 2 or more categories on 5-category scale) from pre-deployment to reassessment, by month, U.S. Armed Forces, June 2007-May 2008

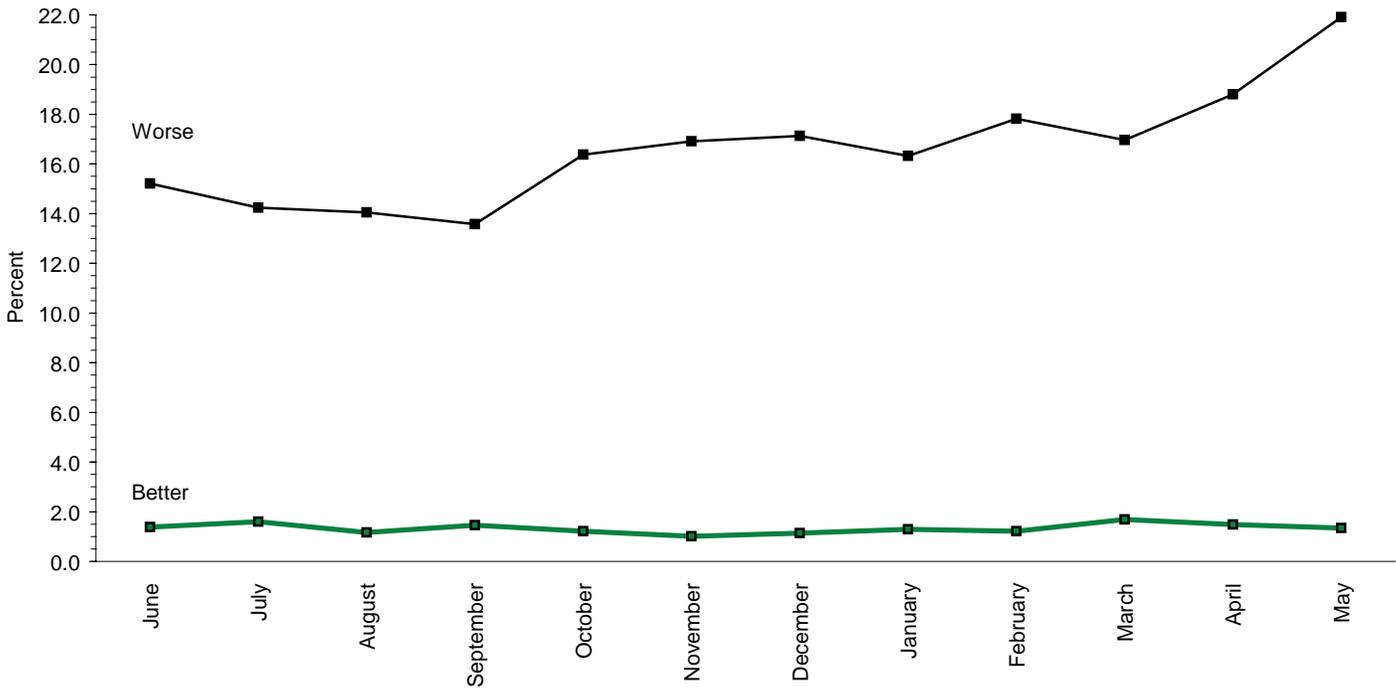


Figure 5. Percent of deployers with mental or behavioral health referrals, by Service and component, by timing of health assessment, U.S. Armed Forces, June 2007-May 2008

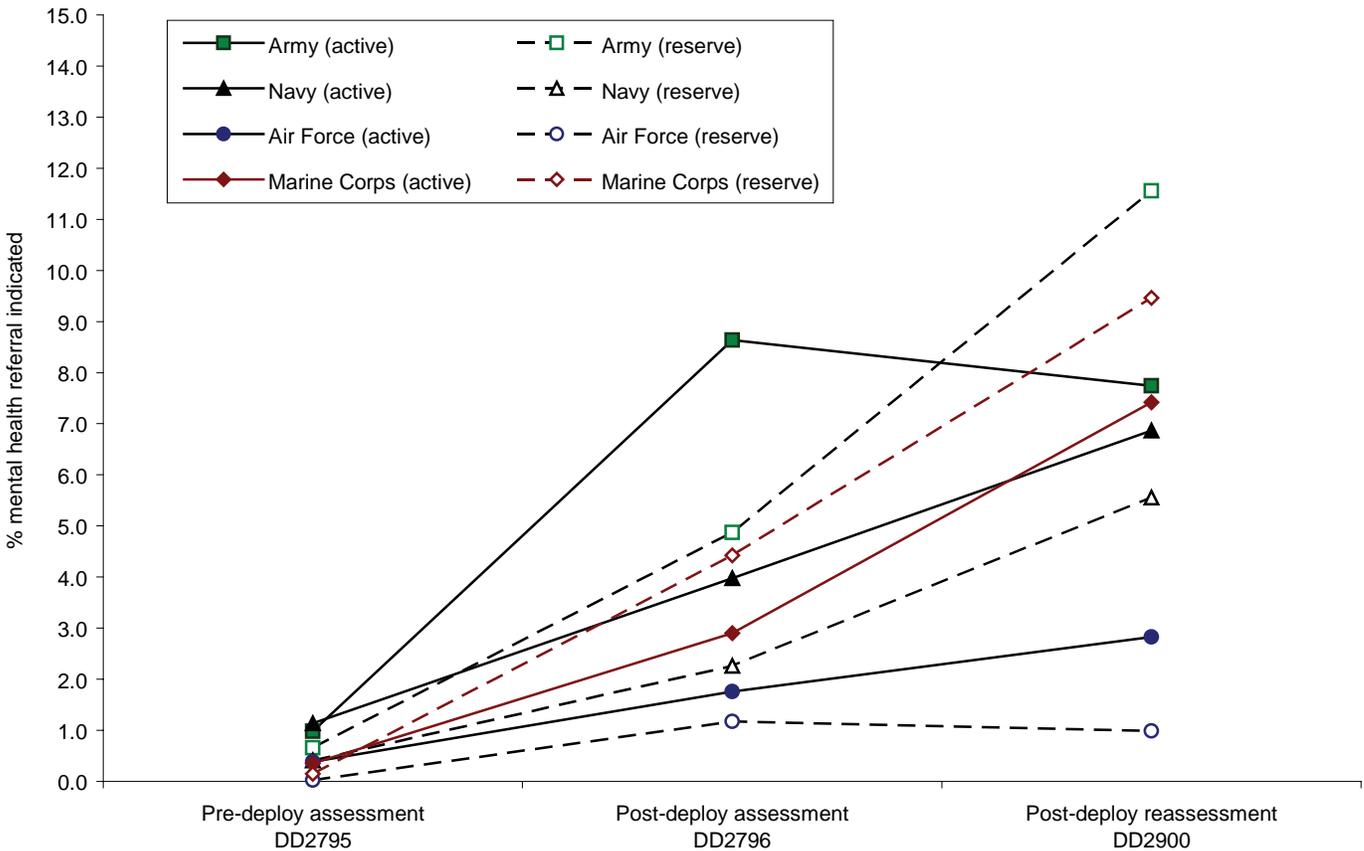


Table 2. Percentage of service members who endorsed selected questions/received referrals on health assessment forms, U.S. Armed Forces, June 2007-May 2008

	Army		Navy		Air Force		Marine Corps		All service members	
	Pre-deploy DD2795	Post-deploy DD2796 Reassessmt DD2900	Pre-deploy DD2795	Post-deploy DD2796 Reassessmt DD2900						
Active component	n=136,993	n=163,974	n=17,858	n=9,310	n=61,417	n=49,303	n=36,993	n=25,467	n=253,261	n=248,054
	%	%	%	%	%	%	%	%	%	%
General health "fair" or "poor"	4.2	8.2	1.6	4.2	0.5	2.2	2.0	3.1	2.8	6.3
Health concerns, not wound or injury	13.5	28.5	5.6	11.6	4.1	15.1	4.4	8.5	9.3	23.2
Health worse now than before deployed	0.0	23.1	0.0	9.9	0.0	8.4	0.0	11.0	0.0	18.4
Exposure concerns	0.0	21.3	0.0	12.3	0.0	7.1	0.0	7.7	0.0	16.7
PTSD symptoms (2 or more)	0.0	17.7	0.0	5.1	0.0	2.9	0.0	5.4	0.0	13.0
Depression symptoms (any)	0.0	33.8	0.0	18.5	0.0	9.3	0.0	23.8	0.0	27.3
Referral indicated by provider (any)	6.2	32.7	6.8	21.8	1.7	11.6	4.8	14.9	4.9	26.3
Mental health referral indicated*	1.0	8.6	1.1	4.0	0.4	1.8	0.4	2.9	0.8	6.5
Medical visit following referral†	96.1	99.4	85.6	89.0	76.3	93.7	72.9	67.2	91.2	96.0
	n=69,531	n=80,050	n=4,651	n=2,965	n=16,257	n=13,025	n=4,033	n=1,266	n=94,472	n=97,306
	%	%	%	%	%	%	%	%	%	%
General health "fair" or "poor"	2.1	9.9	0.6	4.4	0.3	2.0	1.9	5.1	1.7	8.6
Health concerns, not wound or injury	16.2	40.0	3.3	23.1	1.9	22.9	4.9	17.6	12.6	36.9
Health worse now than before deployed	0.0	29.6	0.0	18.5	0.0	11.9	0.0	20.0	0.0	26.8
Exposure concerns	0.0	31.1	0.0	31.7	0.0	9.2	0.0	16.8	0.0	28.0
PTSD symptoms (2 or more)	0.0	14.3	0.0	4.5	0.0	1.9	0.0	4.6	0.0	12.2
Depression symptoms (any)	0.0	29.5	0.0	17.0	0.0	8.0	0.0	30.7	0.0	26.2
Referral indicated by provider (any)	8.6	31.2	5.1	19.2	0.4	11.5	5.3	33.6	6.9	28.3
Mental health referral indicated*	0.7	4.9	0.4	2.3	0.0	1.2	0.1	4.4	0.5	4.3
Medical visit following referral†	95.4	96.0	90.1	78.8	51.9	56.0	48.9	80.7	93.0	93.6
	n=69,531	n=73,252	n=4,651	n=2,965	n=16,257	n=13,025	n=4,033	n=1,266	n=94,472	n=94,475
	%	%	%	%	%	%	%	%	%	%
General health "fair" or "poor"	19.6	19.6	8.3	4.4	4.7	4.7	4.7	11.9	16.7	16.7
Health concerns, not wound or injury	56.9	56.9	38.0	23.1	19.2	19.2	19.2	44.5	50.3	50.3
Health worse now than before deployed	38.3	38.3	23.3	18.5	11.1	11.1	11.1	26.8	33.4	33.4
Exposure concerns	39.7	39.7	28.7	31.7	19.9	19.9	19.9	28.2	36.0	36.0
PTSD symptoms (2 or more)	24.8	24.8	12.9	4.5	3.6	3.6	3.6	20.0	21.1	21.1
Depression symptoms (any)	40.0	40.0	26.9	17.0	14.9	14.9	14.9	35.9	35.7	35.7
Referral indicated by provider (any)	38.1	38.1	25.4	19.2	11.3	11.3	11.3	40.0	33.8	33.8
Mental health referral indicated*	11.6	11.6	5.6	2.3	1.0	1.0	1.0	9.5	9.7	9.7
Medical visit following referral†	26.3	26.3	30.6	78.8	26.1	26.1	26.1	23.1	26.4	26.4

*Includes behavioral health, combat stress and substance abuse referrals

†Record of inpatient or outpatient visit within 6 months after referral

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Figure 6. Ratio of percents of deployers who endorse selected questions, Reserve versus active component, on pre-deployment health assessments (DD2795) and post-deployment health reassessments (DD2900), U.S. Armed Forces, June 2007-May 2008

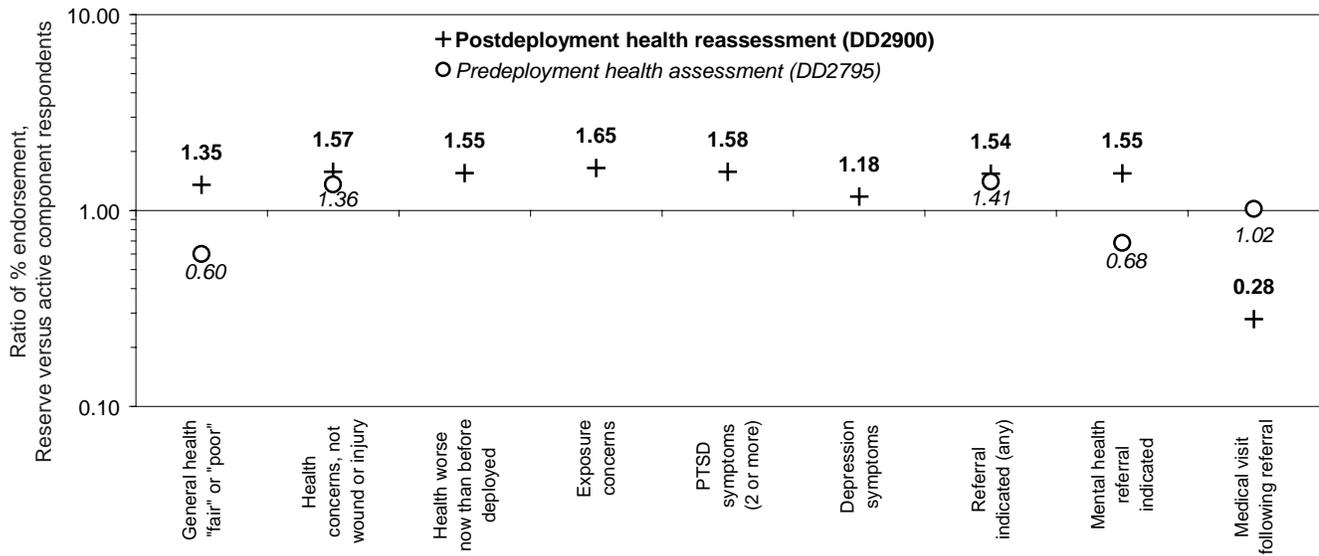
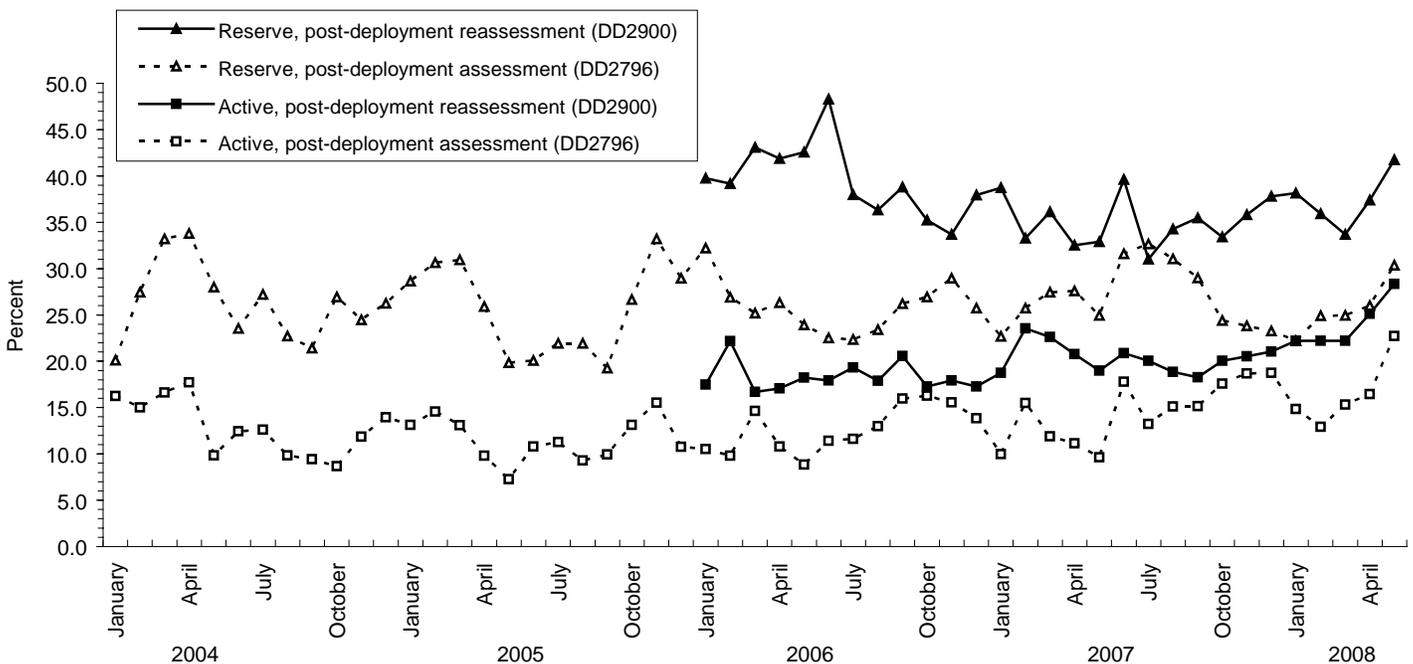


Figure 7. Proportion of service members who endorse exposure concerns on post-deployment health assessments, U.S. Armed Forces, January 2004-May 2008



Sentinel reportable events for service members and beneficiaries at U.S. Army medical facilities, cumulative numbers* through May 2007 and May 2008



Army

Reporting locations	Number of reports all events†		Food-borne								Vaccine preventable					
			Campylo-bacter		Giardia		Salmonella		Shigella		Hepatitis A		Hepatitis B		Varicella	
			2007	2008	2007	2008	2007	2008	2007	2008	2007	2008	2007	2008	2007	2008
NORTH ATLANTIC																
Washington, DC Area	114	159	.	1	3	2	1	1	.	.	.	.	2	1	1	6
Aberdeen, MD	17	0	.	.	1	.	.	.	.	.	.	.	.	.	.	.
FT Belvoir, VA	105	125	6	2	.	.	1	1	1	.	.	.	.	.	.	.
FT Bragg, NC	523	645	1	.	.	.	7	7	2	.	.	.	.	.	.	.
FT Drum, NY	108	199	.	.	.	.	.	.	.	.	.	.	2	.	.	.
FT Eustis, VA	83	400	.	.	.	.	.	.	.	.	.	.	.	.	.	.
FT Knox, KY	124	345	.	2	.	.	1	.	.	.	.	.	1	.	.	.
FT Lee, VA	191	153	.	.	.	.	.	.	.	.	.	.	2	1	.	1
FT Meade, MD	23	190	.	.	.	1	.	.	.	.	.	.	.	.	.	.
West Point, NY	14	44	.	.	.	.	.	.	.	.	.	.	3	.	.	.
GREAT PLAINS																
FT Sam Houston, TX	312	394	.	.	1	.	2	4	.	8	.	.	2	.	6	.
FT Bliss, TX	53	229	.	.	.	.	.	1	.	.	.	.	.	.	.	.
FT Carson, CO	328	412	.	1	2	.	.	2	.	.	.	.	.	.	.	.
FT Hood, TX	891	966	3	2	2	.	3	9	6	5	.	.	.	.	1	1
FT Huachuca, AZ	49	43	.	.	.	.	5	1	.	1	.	.	.	.	.	.
FT Leavenworth, KS	22	19	1	.	.	.	.	.	.	.	.	.	.	.	.	.
FT Leonard Wood, MO	182	322	.	.	.	2	.	1	.	.	.	.	.	1	5	.
FT Polk, LA	76	76	.	.	3	.	2	.	.	1	.	.	.	.	1	1
FT Riley, KS	130	285	1	.	.	.	3	1	.	.	.	.	.	1	.	.
FT Sill, OK	77	148	.	.	.	.	1	.	.	.	.	.	.	.	1	.
SOUTHEAST																
FT Gordon, GA	314	507	.	.	.	.	.	7	.	9	.	.	1	.	.	1
FT Benning, GA	180	181	1	.	1	.	2	.	.	.	.	.	1	.	1	.
FT Campbell, KY	0	144	.	.	.	.	.	.	.	.	.	.	.	.	.	.
FT Jackson, SC	85	111	.	.	.	.	.	.	.	.	.	.	1	1	.	.
FT Rucker, AL	25	37	.	.	.	.	.	1	5	.	.	.	.	.	.	.
FT Stewart, GA	459	329	1	1	.	1	4	6	9	.	.	.	1	5	1	.
WESTERN																
FT Lewis, WA	268	506	1	2	1	.	1	.	1	1	.	.	.	.	1	.
FT Irwin, CA	40	27	1	.	.	.	1	1	.	1	.	.	.	.	.	.
FT Wainwright, AK	95	186	.	3	.	.	.	.	.	.	.	.	.	.	.	.
OTHER LOCATIONS																
Hawaii	332	380	12	16	.	1	8	7	.	3	.	.	1	3	.	.
Germany	327	639	4	7	1	2	2	2	1	1	.	.	.	4	1	.
Korea	260	310	.	.	.	.	.	.	.	.	.	.	.	.	2	1
Total	5,807	8,511	32	37	15	9	44	52	25	30	0	0	17	17	21	11

*Events reported by June 7, 2007 and 2008

†Seventy medical events/conditions specified by Tri-Service Reportable Events Guidelines and Case Definitions, May 2004.

Note: Completeness and timeliness of reporting vary by facility.

Sentinel reportable events for service members and beneficiaries at U.S. Army medical facilities, cumulative numbers* through May 2007 and May 2008



Reporting location	Arthropod-borne				Sexually transmitted								Environmental			
	Lyme disease		Malaria		Chlamydia		Gonorrhea		Syphilis [‡]		Urethritis [§]		Cold		Heat	
	2007	2008	2007	2008	2007	2008	2007	2008	2007	2008	2007	2008	2007	2008	2007	2008
NORTH ATLANTIC																
Washington, DC Area	1	2	.	.	67	48	9	15	2	4	.	.	.	.	.	.
Aberdeen, MD	8	.	3	.	.	.	.	.	.	.	.	.
FT Belvoir, VA	70	67	10	1	2	.	.	.	.	.	.	.
FT Bragg, NC	.	.	1	3	387	424	67	82	.	1	41	28	1	.	15	8
FT Drum, NY	.	3	.	.	62	141	13	14	.	.	.	.	.	.	.	.
FT Eustis, VA	71	100	2	13	.	3	.	.	.	.	1	.
FT Knox, KY	101	69	17	18	.	1	.	.	.	.	.	.
FT Lee, VA	1	1	.	.	151	101	23	39	.	1	.	.	1	.	.	.
FT Meade, MD	.	1	.	.	16	28	5	1	1	.	.	.	1	.	.	.
West Point, NY	2	5	.	.	8	11	.	.	.	.	.	.	.	.	.	.
GREAT PLAINS																
FT Sam Houston, TX	1	.	.	.	144	123	25	31	2	11	.	.	.	1	1	.
FT Bliss, TX	42	147	7	31	1	3	.	.	.	.	.	.
FT Carson, CO	202	260	32	25	1	.	5	12	1	.	.	.
FT Hood, TX	659	676	98	122	1	.	51	36	.	.	.	.
FT Huachuca, AZ	38	35	6	5	.	.	.	.	.	.	.	.
FT Leavenworth, KS	19	19	2	.	.	.	.	.	.	.	.	.
FT Leonard Wood, MO	119	83	20	11	1	.	.	.	2	3	2	.
FT Polk, LA	.	.	14	.	44	49	8	18	1	.	.	.	.	.	2	6
FT Riley, KS	.	2	.	1	87	150	5	12	.	.	.	.	.	1	2	.
FT Sill, OK	53	41	14	10	.	.	.	.	1	.	2	4
SOUTHEAST																
FT Gordon, GA	221	223	32	60	1	.	.	.	.	.	.	.
FT Benning, GA	.	.	1	.	115	114	39	32	.	1	.	.	1	.	3	8
FT Campbell, KY	51	.	2	.	1	.	.	.	.	.	.
FT Jackson, SC	66	94	16	16	2	.	.	.	.	.	.	.
FT Rucker, AL	.	1	.	.	18	26	1	7	.	1	.	.	.	.	1	.
FT Stewart, GA	.	.	.	1	327	257	73	45	2	2	.	.	.	.	1	.
WESTERN																
FT Lewis, WA	.	.	1	.	232	389	19	39	.	1	6	8	.	.	.	.
FT Irwin, CA	29	21	3	3	.	.	.	.	.	.	5	1
FT Wainwright, AK	.	1	.	.	69	119	3	14	.	.	.	.	10	11	.	.
OTHER LOCATIONS																
Hawaii	.	.	.	1	230	263	27	35	.	.	.	.	.	.	2	.
Germany	7	16	3	5	201	356	56	81	1	4	3	.	.	8	7	4
Korea	.	.	1	.	214	261	22	31	.	4	1	.	20	.	.	3
Total	12	32	21	11	4,070	4,746	657	813	18	38	107	84	38	24	44	34

‡Primary and secondary.

§Urethritis, non-gonococcal (NGU).

Sentinel reportable events for service members and beneficiaries at U.S. Navy medical facilities, cumulative numbers* through May 2007 and May 2008



Navy

Reporting location	Number of reports all events†		Food-borne								Vaccine preventable					
			Campylo-bacter		Giardia		Salmonella		Shigella		Hepatitis A		Hepatitis B		Varicella	
	2007	2008	2007	2008	2007	2008	2007	2008	2007	2008	2007	2008	2007	2008	2007	2008
NATIONAL CAPITOL AREA																
Annapolis, MD	0	10	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Bethesda, MD	17	19	1	.	.	1	.	1	.	.	.	.	.	1	.	.
Patuxent River, MD	0	0	.	.	.	.	.	.	.	.	.	.	.	.	.	.
NAVY MEDICINE EAST																
Albany, GA	0	3	.	.	.	.	.	.	.	.	.	.	.	2	.	.
Atlanta, GA	3	1	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Beaufort, SC	100	4	.	.	.	.	.	.	1	.	.	.	.	.	.	.
Camp Lejeune, NC	141	27	.	.	.	.	.	1	.	.	.	.	.	.	.	.
Cherry Point, NC	60	42	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Great Lakes, IL	134	10	.	.	1	.	1	.	.	.	.	.	.	.	.	.
Jacksonville, FL	108	27	1	.	.	.	2	4	3	.	.	.	.	.	.	1
Mayport, FL	23	21	1	.	.	.	4	3	.	1	.	.	.	.	.	.
NABLC Norfolk, VA	32	4	.	.	.	.	.	.	.	.	.	.	.	.	.	.
NBMC Norfolk, VA	198	88	.	.	.	.	.	.	.	.	.	.	.	.	.	.
NEHC Norfolk, VA	4	0	.	.	.	.	.	.	.	.	.	.	.	.	2	.
North Charleston, SC	3	14	.	.	.	.	.	1	.	1	.	.	.	.	.	.
Pensacola, FL	42	21	.	.	.	.	2	.	1	1	.	.	.	.	3	.
Portsmouth, VA	0	0	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Washington, DC	0	3	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Guantanamo Bay, Cuba	1	0	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Europe	16	9	.	.	.	.	.	.	.	.	.	.	.	.	.	.
NAVY MEDICINE WEST																
Camp Pendleton, CA	13	14	.	.	.	1	1	.	.	.	.	.	.	.	.	.
Corpus Christi, TX	3	1	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Fallon, NV	0	1	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Ingleside, TX	0	0	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Lemoore, CA	1	10	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Pearl Harbor, HI	0	3	.	.	.	.	.	.	.	.	.	.	.	.	.	.
San Diego, CA	268	22	1	.	2	.	2	.	2	1	.	.	28	1	.	.
Guam	27	3	.	.	.	.	1	.	.	.	.	.	.	.	.	2
Japan	25	22	.	.	.	.	.	.	.	.	.	.	.	.	1	.
NAVAL SHIPS																
COMNAVAIRLANT/CINCLANTFLEET	5	0	.	.	.	.	.	.	.	.	.	.	.	.	.	.
COMNAVSURFPAC/CINCPACFLEET	20	2	.	.	.	.	.	.	.	.	.	.	.	.	1	.
Total	1,244	381	4	0	3	2	13	10	7	4	0	0	28	4	7	3

*Events reported by June 7, 2007 and 2008

†Seventy medical events/conditions specified by Tri-Service Reportable Events Guidelines and Case Definitions, May 2004.

Note: Completeness and timeliness of reporting vary by facility.

Sentinel reportable events for service members and beneficiaries at U.S. Navy medical facilities, cumulative numbers* through May 2007 and May 2008



Navy

Reporting location	Arthropod-borne				Sexually transmitted								Environmental				
	Lyme disease		Malaria		Chlamydia		Gonorrhea		Syphilis‡		Urethritis§		Cold		Heat		
	2007	2008	2007	2008	2007	2008	2007	2008	2007	2008	2007	2008	2007	2008	2007	2008	
NATIONAL CAPITOL AREA																	
Annapolis, MD	5	.	.	.	.	.	.	.	.	.	.	.
Bethesda, MD	.	.	.	1	12	8	.	1	1	.	.	.	.	.	.	.	.
Patuxent River, MD
NAVY MEDICINE EAST																	
Albany, GA	1	.	.	.	.	.	.	.	.	.	.	.
Atlanta, GA	1	1	1	.	1	.	.	.	.	.	.	.	.
Beaufort, SC	78	1	6	.	2	.	.	.	.	.	7	1	.
Camp Lejeune, NC	8	.	1	.	111	15	17	3	.	.	.	5	.	.	4	2	.
Cherry Point, NC	52	24	4	5	1	.	.	.	.	.	.	.	.
Great Lakes, IL	117	10	11	.	.	.	.	.	.	.	.	.	.
Jacksonville, FL	84	11	12	.	2	.	.	.	.	.	.	.	.
Mayport, FL	15	11	.	2	1	.	.	.	.	.	.	.	.
NABLC Norfolk, VA	30	4	2	.	.	.	.	.	.	.	.	.	.
NBMC Norfolk, VA	165	73	32	10	.	1	.	.	.	.	.	.	.
NEHC Norfolk, VA	2	.	.	.	.	.	.	.	.	.	.	.	.
North Charleston, SC	3	7	.	1	.	1	.	.	.	.	.	.	.
Pensacola, FL	25	14	3	.	.	.	.	.	.	.	4	.	.
Portsmouth, VA
Washington, DC	.	1	.	.	.	2	.	.	.	.	.	.	.	.	.	.	.
Guantanamo Bay, Cuba	1	.	.	.	.	.	.	.	.	.	.	.	.
Europe	.	.	.	1	15	6	1	2	.	.	.	.	.	.	.	.	.
NAVY MEDICINE WEST																	
Camp Pendleton, CA	10	11	1	.	1	.	.	.	.	.	.	.	.
Corpus Christi, TX	2	.	1	1	.	.	.	.	.	.	.	.	.
Fallon, NV	1	.	.	.	.	.	.	.	.	.	.	.
Ingleside, TX
Lemoore, CA	3	.	.	.	.	.	.	.	.	.	.	.
Pearl Harbor, HI	2	.	.	.	1	.	.	.	.	.	.	.
San Diego, CA	1	.	.	.	165	18	29	1	3	1	.	.	.	.	.	.	.
Guam	23	1	3	.	.	.	.	.	.	.	.	.	.
Japan	18	16	4	3	.	.	.	.	.	.	1	.	.
NAVAL SHIPS																	
COMNAVAIRLANT/CINCLANTFLEET	5	.	.	.	.	.	.	.	.	.	.	.	.
COMNAVSURFPAC/CINCPACFLEET	14	2	5	.	.	.	.	.	.	.	.	.	.
Total	9	1	1	2	948	247	132	29	12	4	0	5	0	0	16	3	

‡Primary and secondary.

§Urethritis, non-gonococcal (NGU).

Sentinel reportable events for service members and beneficiaries at U.S. Air Force medical facilities, cumulative numbers* through May 2007 and May 2008



Air Force

Reporting location	Number of reports all events†		Food-borne								Vaccine preventable					
			Campylobacter		Giardia		Salmonella		Shigella		Hepatitis A		Hepatitis B		Varicella	
	2007	2008	2007	2008	2007	2008	2007	2008	2007	2008	2007	2008	2007	2008	2007	2008
Air Combat Cmd	753	831	1	2	1	2	.	1	.	3	.	.	4	16	6	3
Air Education & Training Cmd	277	409	.	.	.	2	3	1	.	.	.	.	3	1	4	3
Lackland, TX	0	0	.	.	.	.	.	.	.	.	.	.	.	.	.	.
USAF Academy, CO	22	9	.	.	.	.	2	.	.	.	.	.	.	.	.	.
Air Force Dist. of Washington	9	8	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Air Force Materiel Cmd	213	324	.	1	.	.	4	2	.	2	.	.	.	.	1	.
Air Force Special Ops Cmd	59	103	.	.	.	.	.	.	1	.	.	.	.	2	.	.
Air Force Space Cmd	143	214	1	.	2	.	5	2	.	.	.	.	2	1	1	1
Air Mobility Cmd	331	486	.	1	.	2	1	2	2	.	.	.	3	2	2	4
Pacific Air Forces	228	219	.	4	1	2	3	1	.	.	.	.	2	4	8	2
PACAF Korea	77	95	.	.	.	.	.	.	.	.	.	.	4	.	1	.
U.S. Air Forces in Europe	141	191	2	1	.	.	.	.	1	.	.	.	.	.	.	1
Total	2,253	2,889	4	9	4	8	18	9	4	5	0	0	18	26	23	14

*Events reported by June 7, 2007 and 2008

†Seventy medical events/conditions specified by Tri-Service Reportable Events Guidelines and Case Definitions, May 2004.

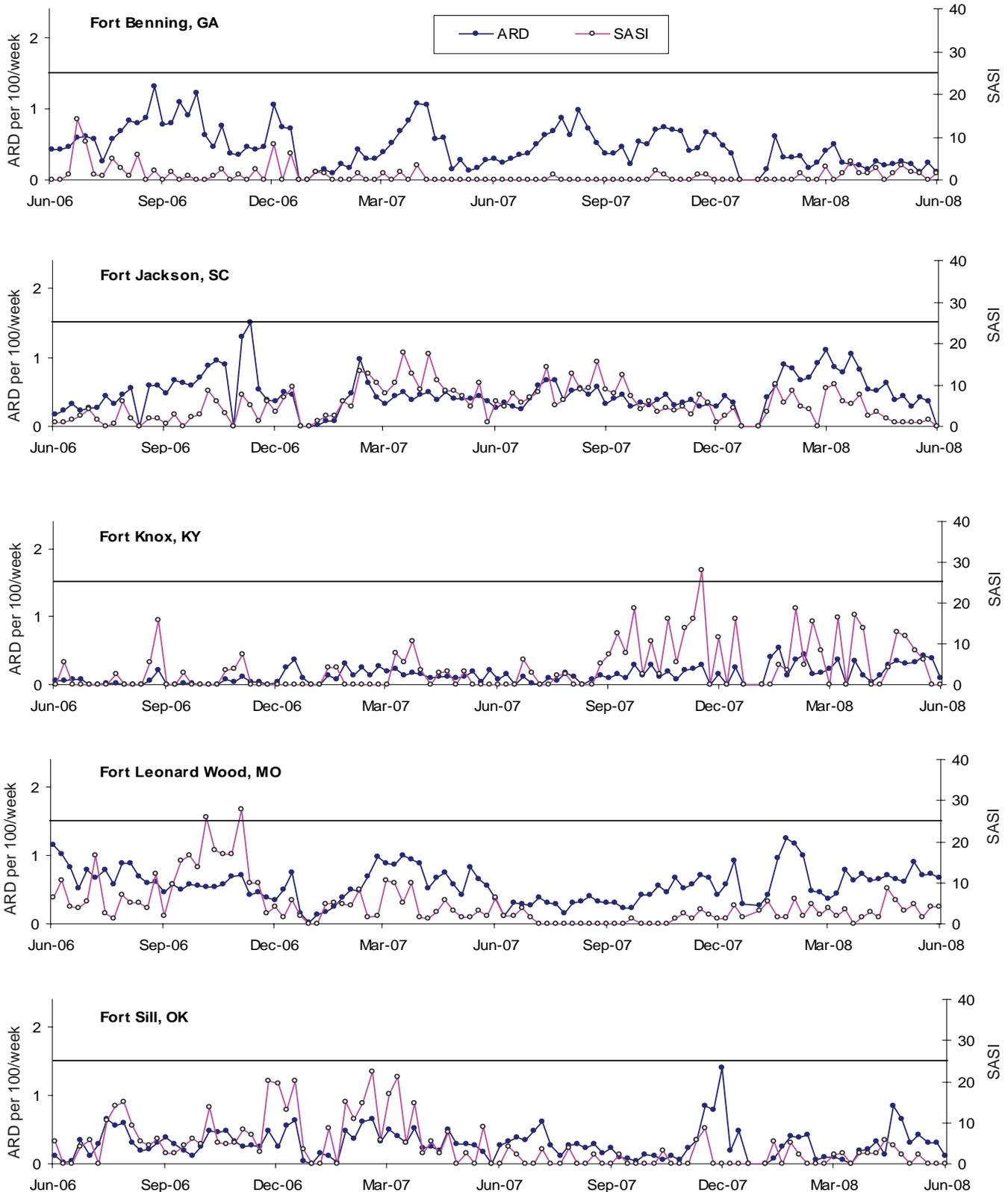
Note: Completeness and timeliness of reporting vary by facility.

Reporting location	Arthropod-borne				Sexually transmitted								Environmental			
	Lyme disease		Malaria		Chlamydia		Gonorrhea		Syphilis‡		Urethritis§		Cold		Heat	
	2007	2008	2007	2008	2007	2008	2007	2008	2007	2008	2007	2008	2007	2008	2007	2008
Air Combat Cmd	2	3	.	.	409	414	33	38	.	.	.	1	.	3	2	.
Air Education & Training Cmd	.	2	.	.	220	192	19	15	.	.	.	.	.	.	.	.
Lackland, TX	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
USAF Academy, CO	.	.	.	.	18	9	.	.	.	.	.	.	.	.	.	.
Air Force Dist. of Washington	.	.	.	.	9	3	.	.	.	.	.	.	.	.	.	.
Air Force Materiel Cmd	.	2	.	1	176	174	20	14	.	2	.	.	.	.	.	.
Air Force Special Ops Cmd	.	1	.	1	52	75	6	16	.	.	.	.	.	.	.	.
Air Force Space Cmd	1	1	.	.	116	132	10	6	.	.	.	.	.	.	.	.
Air Mobility Cmd	3	3	.	.	280	303	17	29	2	1	.	.	2	2	2	2
Pacific Air Forces	.	.	.	.	185	174	8	8	.	1	.	.	1	.	.	.
PACAF Korea	.	.	.	.	57	70	1	3	2	.	.	.	2	.	.	.
U.S. Air Forces in Europe	2	.	.	1	99	146	9	13	.	.	.	.	.	.	.	.
Total	8	12	0	3	1,621	1,692	123	142	4	4	0	1	3	5	4	2

‡Primary and secondary.

§Urethritis, non-gonococcal (NGU).

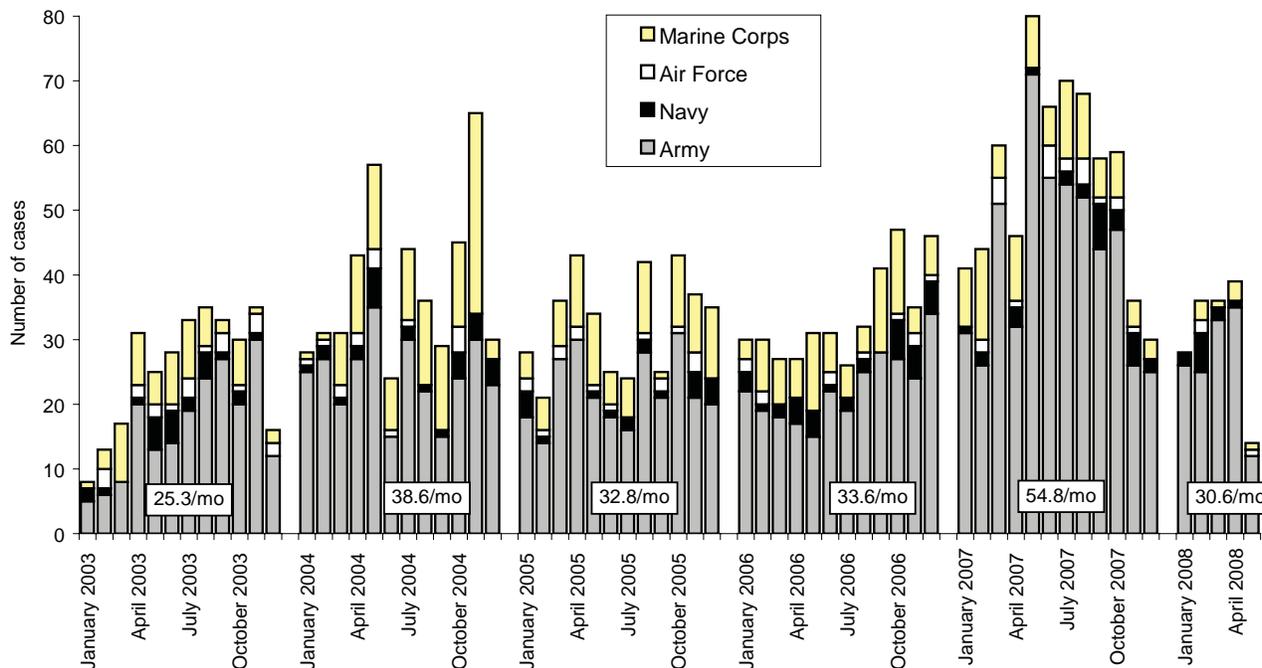
Acute respiratory disease (ARD) and streptococcal pharyngitis rates (SASI*), basic combat training centers, U.S. Army, by week, June 2006-June 2008



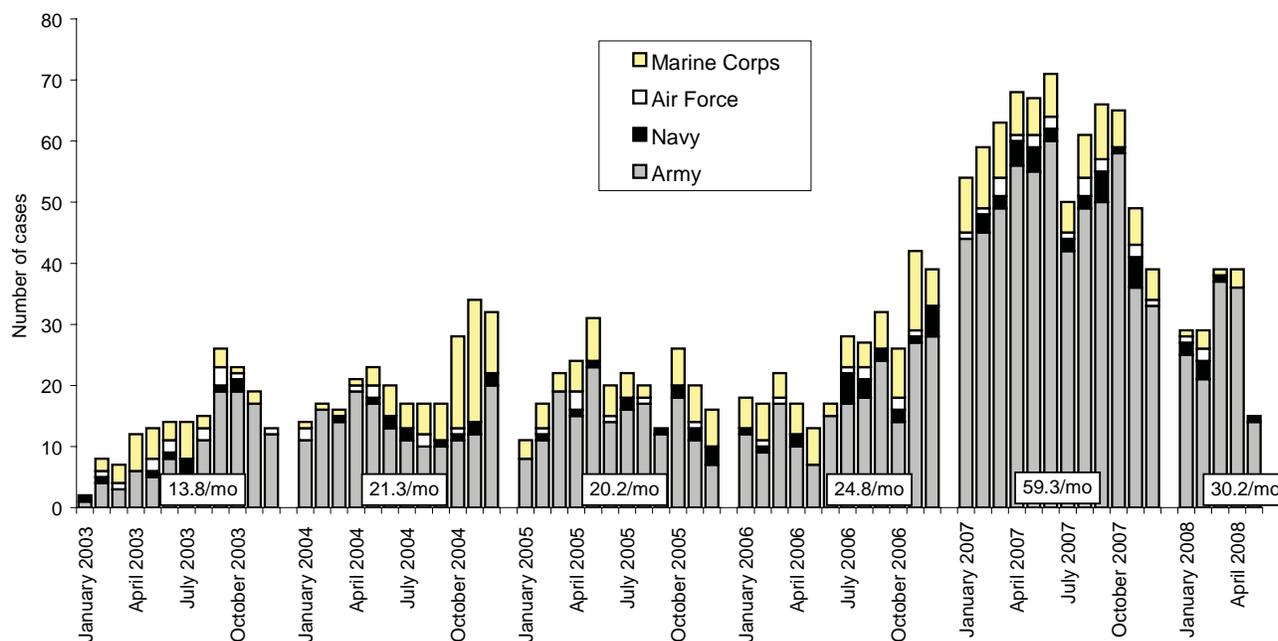
*Streptococcal-ARD surveillance index (SASI) = ARD rate x % positive culture for group A streptococcus
 ARD rate = cases per 100 trainees per week
 ARD rate ≥ 1.5 or SASI ≥ 25.0 for 2 consecutive weeks are surveillance indicators of epidemics

Deployment-related conditions of special surveillance interest, U.S. Armed Forces, by month and service, January 2003-May 2008

Traumatic brain injury, hospitalizations (ICD-9: 800-804, 850-854, 959.01)*



Traumatic brain injury, multiple ambulatory visits (without hospitalization), (ICD-9: 800-804, 850-854, 959.01)†



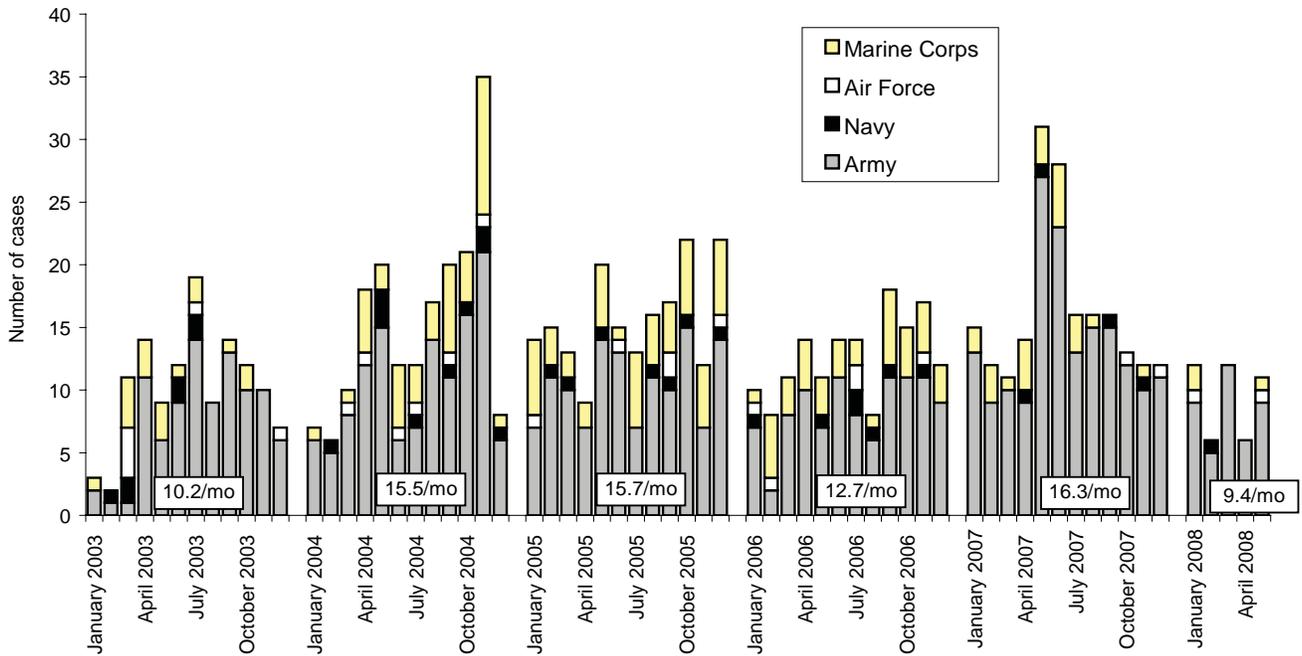
Reference: Army Medical Surveillance Activity. Traumatic brain injury among members of active components, U.S. Armed Forces, 2002-2007. *MSMR*. Aug 2007; 14(5):2-6.

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

†Two or more ambulatory visits at least 7 days apart 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-May 2008

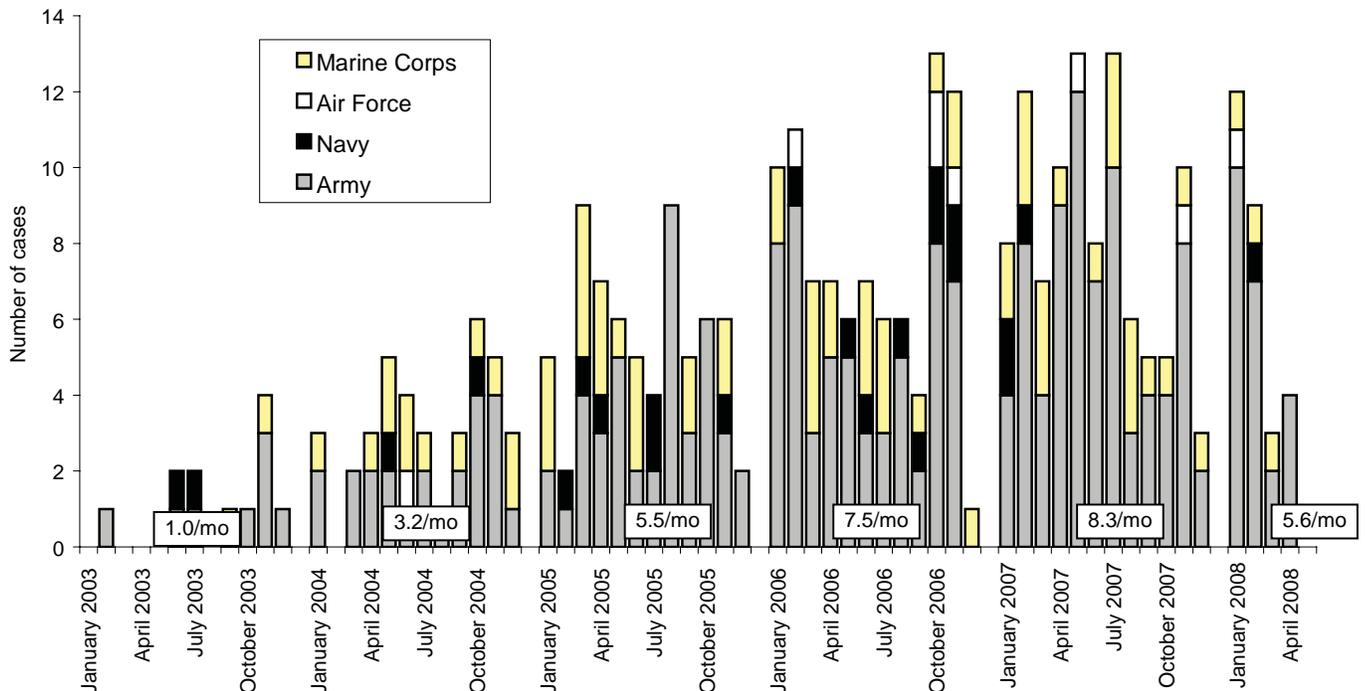
Amputations (ICD-9: 887, 896, 897, V49.6 to V49.7, PR 84.0 to PR 84.1)*



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.

*Indicator diagnosis (one per individual) during a hospitalization or ambulatory visit while deployed to/within 365 days of returning from OEF/OIF.

Heterotopic ossification (ICD-9: 728.12, 728.13, 728.19)†

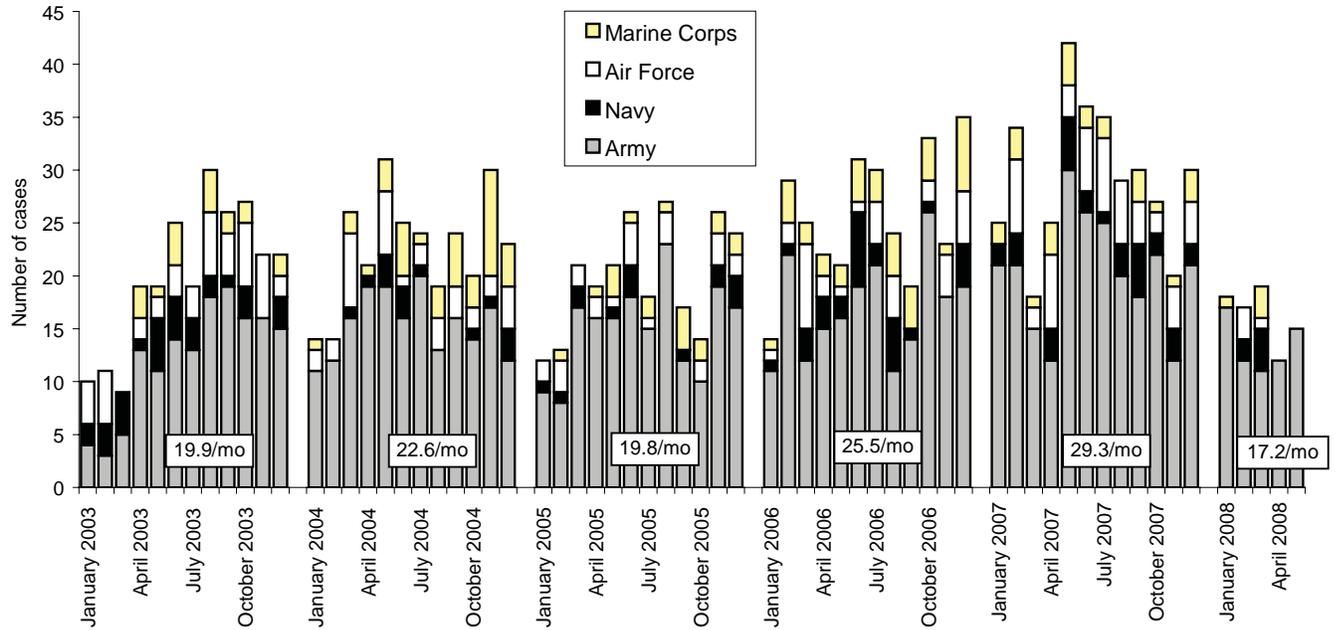


Reference: Army Medical Surveillance Activity. Heterotopic ossification, active components, U.S. Armed Forces, 2002-2007. *MSMR*. Aug 2007; 14(5):7-9.

†One diagnosis during a hospitalization or two or more ambulatory visits at least 7 days apart 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-May 2008

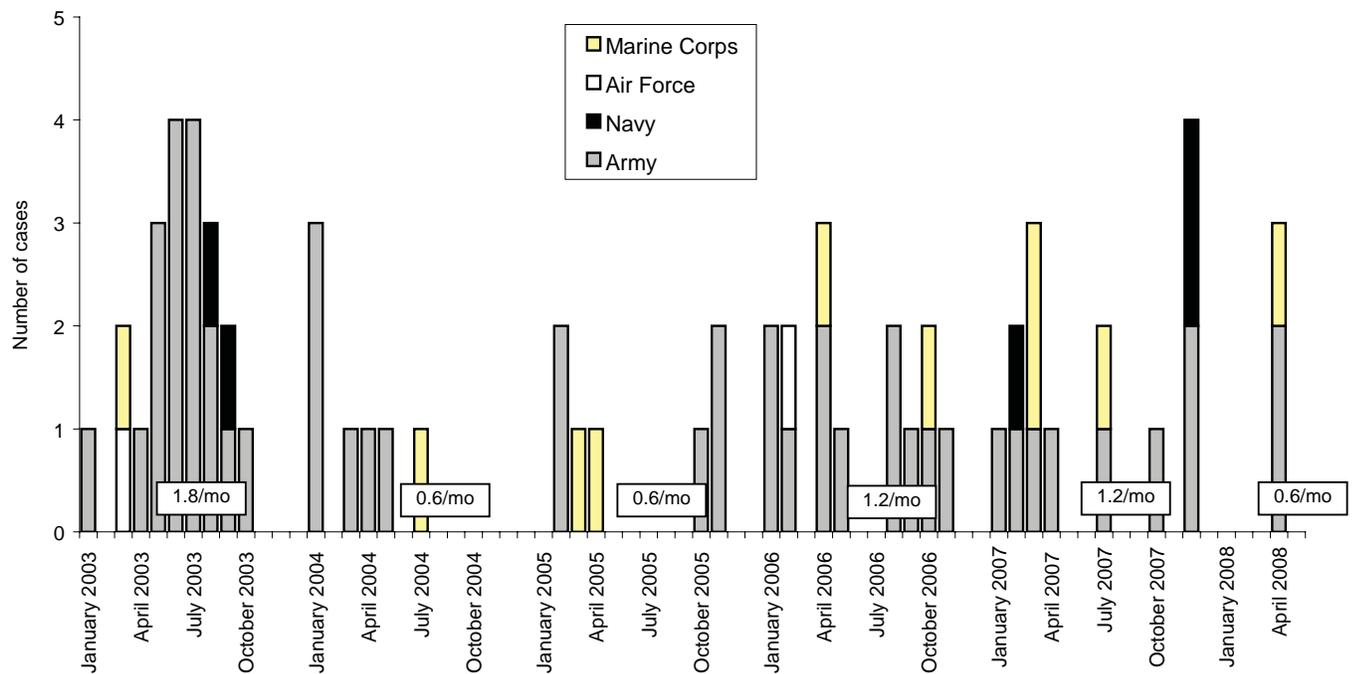
Deep vein thrombophlebitis/pulmonary embolus (ICD-9: 415.1, 451.1, 451.81, 451.83, 451.89, 453.2, 453.40 to 453.42 and 453.8)*



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.

*Indicator diagnosis (one per individual) during a hospitalization while deployed to/within 90 days of returning from OEF/OIF.

Severe acute pneumonia (ICD-9: 518.81, 518.82, 518.3, 480-487, 786.09)†

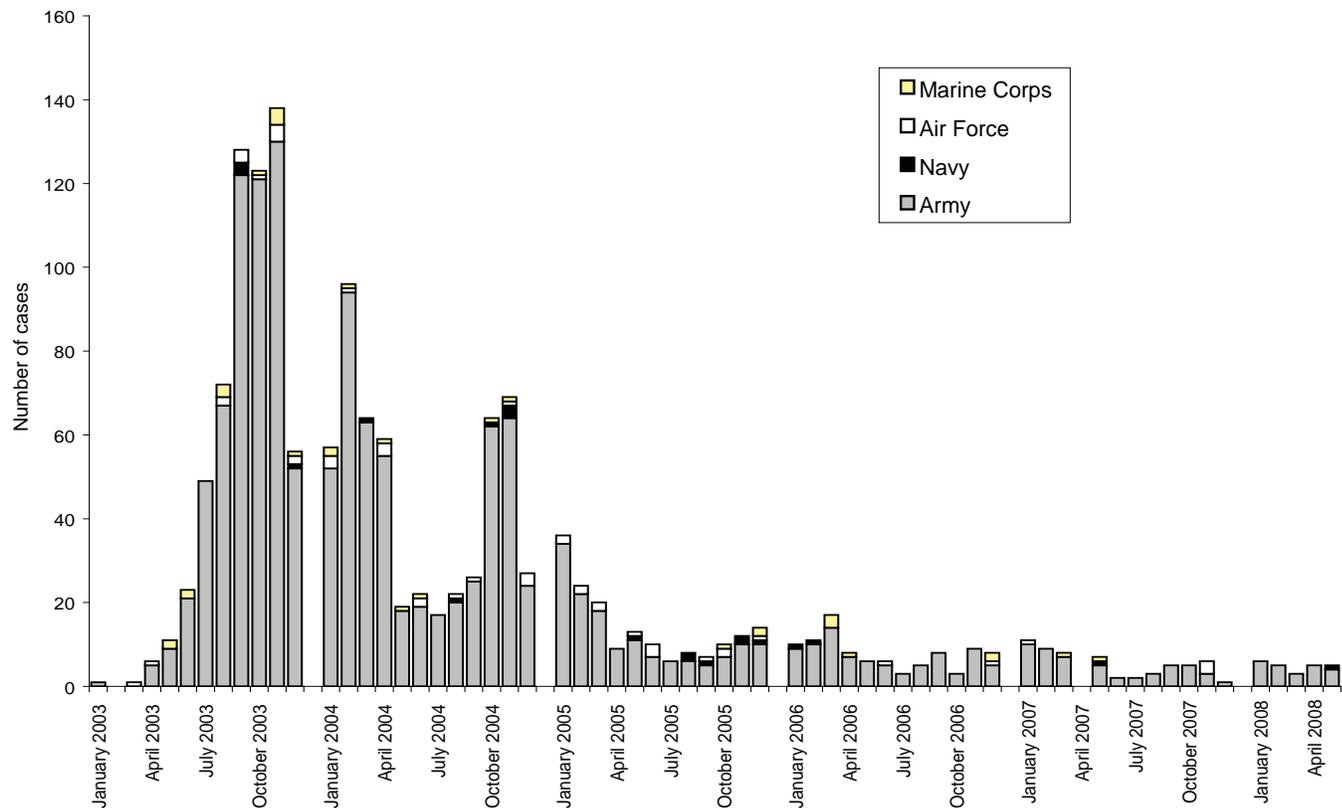


Reference: Army Medical Surveillance Activity. Deployment-related condition of special surveillance interest: severe acute pneumonia. Hospitalizations for acute respiratory failure (ARF)/acute respiratory distress syndrome (ARDS) among participants in Operation Enduring Freedom/Operation Iraqi Freedom,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

†Indicator diagnosis (one per individual) during a hospitalization or ambulatory visit while deployed to/within 30 days of returning from OEF/OIF.

Deployment-related conditions of special surveillance interest, U.S. Armed Forces, by month and service, January 2003-May 2008

Leishmaniasis (ICD-9: 085.0 to 085.9)*



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.
 *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 Center for Health Promotion
and Preventive Medicine
ATTN: MCHB-TS-EDM
5158 Blackhawk Road
Aberdeen Proving Ground, MD 21010-5422

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The *Medical Surveillance Monthly Report* (MSMR) is prepared by the Armed Forces Health Surveillance Center (AFHSC), US Army Center for Health Promotion and Preventive Medicine (USACHPPM).

Data in the MSMR are provisional, based on reports and other sources of data available to AFHSC.

Inquiries regarding content or material to be considered for publication should be directed to: Editor, Armed Forces Health Surveillance Center, 2900 Linden Lane, Suite 200 (Attn: MCHB-TS-EDM), Silver Spring, MD 20910. E-mail: mshr.afhsc@amedd.army.mil

To be added to the mailing list, contact the Armed Forces Health Surveillance Center at (301) 319-3240. E-mail: mshr.afhsc@amedd.army.mil

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