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Urinary Tract Infections among Active Duty Members, US Armed Forces, 1998-2001

In the United States, urinary tract infections (UTIs) are among the most common bacterial illnesses of young adults, especially among women.^{1,2} UTIs are relatively easy to diagnose and treat; and with prompt and appropriate evaluation and treatment, UTIs are generally short-lived and mildly symptomatic.¹ However, because they are so common and so often recurrent, UTIs are responsible for significant short-term disability and very high health care costs. A recent report estimated that in 1995 more than 11 million women in the US were treated with antibiotics for UTIs, and the costs of prescriptions were estimated as \$1.6 billion.³ In 1997, UTIs accounted for approximately 8.3 million doctor visits and significant disability-related costs (e.g., lost work).⁴

Women constitute a large and increasing proportion of the U.S. Armed Forces. However, there have not been population-based estimates of incidence rates or correlates of risk of UTI among military members. For this report, we calculated incidence rates of UTIs in demographic subgroups of active duty servicemembers for the years 1998 through 2001.

Methods. All data were derived from the Defense Medical Surveillance System. The surveillance population included all persons who served on active duty in the US Armed Forces between 1998 and 2001. A case was defined as an active duty servicemember who received at least one diagnosis of "acute cystitis" (*ICD-9-CM*: 595.0) or "acute urinary tract infection, site not specified" (*ICD-9-CM*: 599.0) between 1998 and 2001.

Only the earliest diagnosis of UTI, either inpatient or outpatient, per case was used for incidence rate calculations. Incidence rates were calculated by dividing the number of incident visits for UTI by the sum of person-years at risk between 1998 and 2001. Incidence rates were calculated overall and in gender, race/ethnic (Black, White, Other), marital status (single, married, non-single/non-married), and age (17-19, 20-24, 25-29, 30-34, 35-39, >39 years)-defined subgroups.

Results. Between 1998 and 2001, 100,181 active duty servicemembers received at least one diagnosis of urinary tract infection. The crude incidence rate was 18.4 per 1,000 person-years. Overall, the rate was more than 11-times higher among women than men; rates among black non-hispanic and "other" racial-ethnic subgroup members were approximately twice as high as among white nonhispanic servicemembers; and in general, rates decreased with age until approximately 35 years old and then were relatively stable (table 1). In regard to marital status, incidence

Table 1. Incident cases and rates, urinary tract infections, active duty, US Armed Forces, 1998 - 2001

	Cases	Person-years	Rate*	Rel rate
Total	100,181	5,466,366	18.30	
Gender				
Male	34,112	4,685,033	7.28	1.00
Female	66,069	781,333	84.56	11.61
Race				
White	55,399	3,803,676	14.56	1.00
Black	31,072	1,118,103	27.79	1.91
Other	13,710	529,316	25.90	1.78
Marital status				
Married	45,199	2,993,447	15.10	1.00
Single	48,796	2,264,651	21.55	1.43
Other	6,186	198,485	31.17	2.06
Age group				
17-19	14,710	483,469	30.43	2.41
20-24	37,840	1,700,961	22.25	1.77
25-29	19,564	1,107,705	17.66	1.40
30-34	11,750	854,995	13.74	1.09
35-39	9,722	798,326	12.18	0.97
40-65	6,595	524,642	12.57	1.00

* incident cases per 1,000 person-years

rates were lowest among servicemembers who were currently married, intermediate among those who had never been married, and highest among those who were previously but not currently married (table 1).

Among women, incidence rates decreased with age, while among men, incidence rates were relatively stable across ages (figure 1). As a result, the rate among the youngest (17-19 years) female servicemembers was approximately 17-times higher than the rate among the youngest males, but the rate among the oldest (40-65 years) females was only approximately 5-times higher than the rate among the oldest males (figure 1).

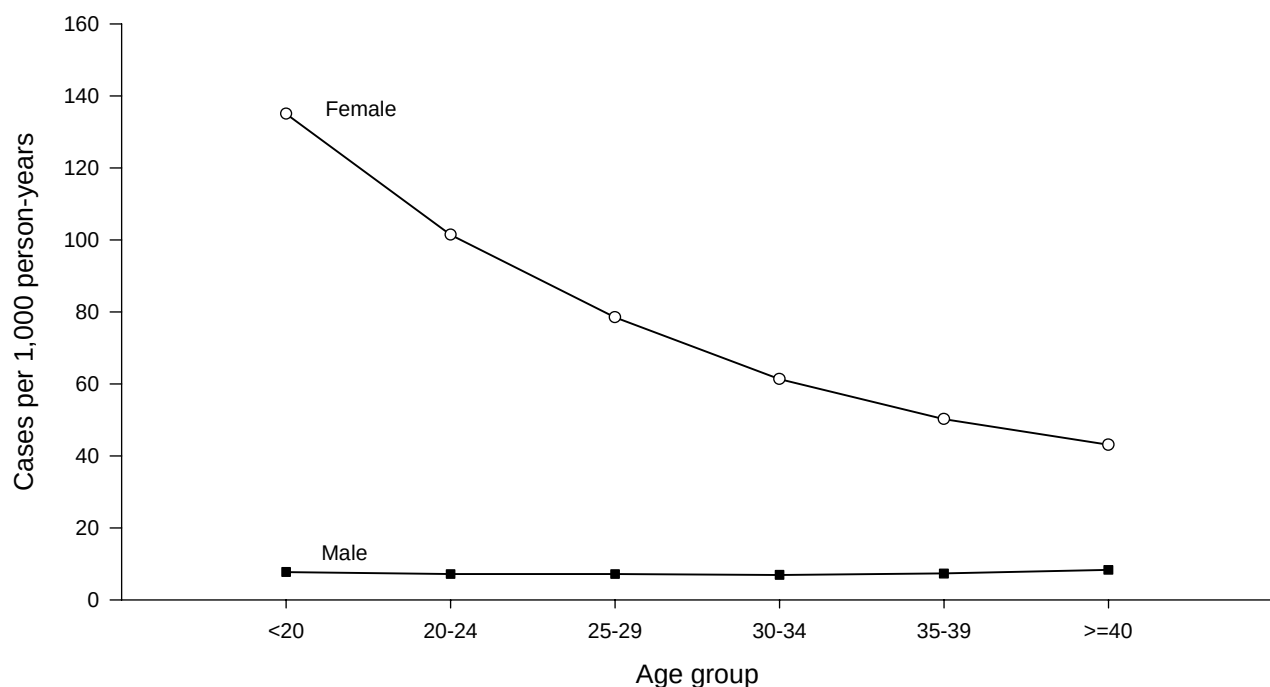
In regard to marital status, in every age group, incidence rates were higher among previously married (e.g., separated, divorced, widowed) than married or never married servicemembers (figure 2). By far the largest rate differences in relation to marital status were in the youngest age group—among teenaged servicemembers, the rate difference between previously married servicemembers and married and never married servicemembers was more than 120 per 1,000 person-years (figure 2). During the surveillance period, nearly one-third (309.8 per 1,000

person-years) of all teenaged female servicemembers who had been but were not currently married had at least one urinary tract infection (data not shown).

Editorial comment. During the 4-year period of this surveillance, more than 100,000 servicemembers were diagnosed with at least one UTI. Approximately two-thirds of all incident UTI diagnoses were among females (who comprise only 15% of the active military force).

Studies in civilian populations have consistently found that sexual behavior (e.g., frequency of intercourse), history of UTI, spermicide contraceptive use, and marital status are predictors of UTI risk among women.^{1,2,5-7} In this surveillance, UTI risk among female servicemembers was higher among those who were not married and significantly decreased with age. Fewer than 10% of female servicemembers younger than 20, but more than 50% of those older than 25, are married (unpublished data, DMED, 24 July 2002). Thus, some of the decline in UTI risk with age among female servicemembers is related to changes in marital status.

Figure 1. Incidence rate of urinary tract infections, US Armed Forces, by age and gender, 1998-2001.



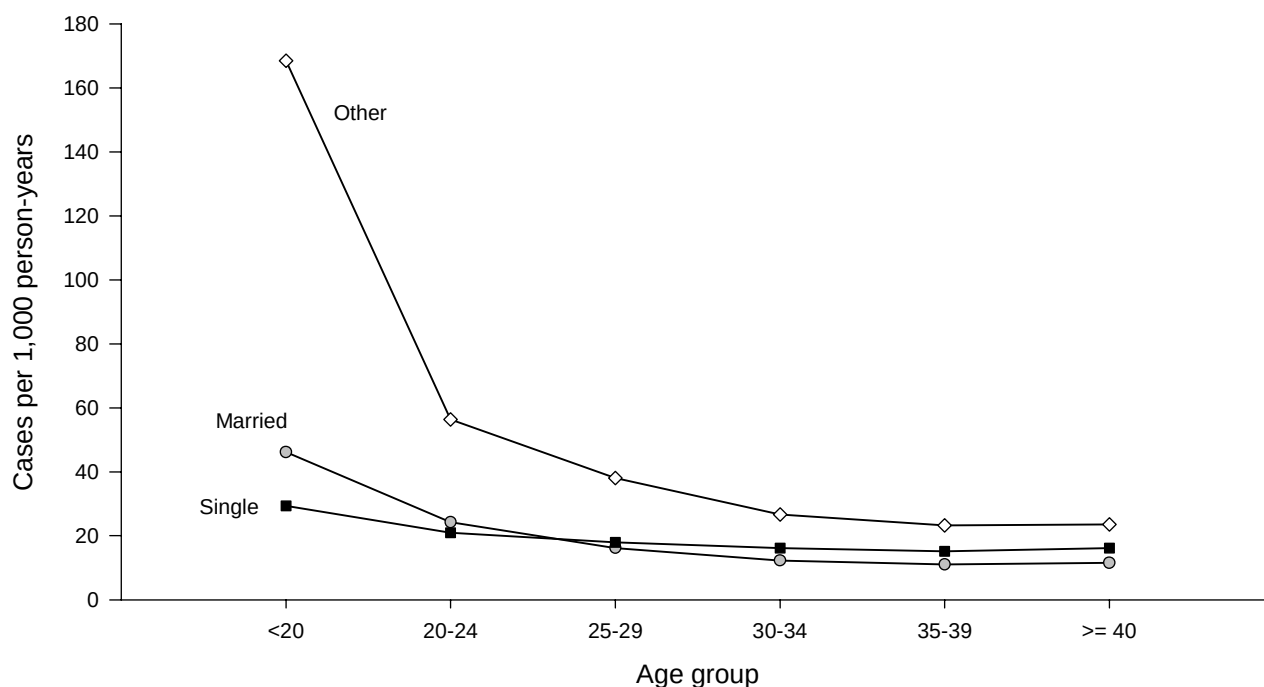
By far the highest rate (31.0% per year [data not shown]) of UTI among US servicemembers was among females younger than 20 who were previously married (e.g., separated, divorced). The incidence rate in this relatively small subgroup was approximately 18-times higher than the rate overall. In nonmilitary studies, preventive interventions (e.g., postcoital prophylactic antibiotics) have been found to be effective among women with recurrent infections.⁸⁻¹⁰ In the military, epidemiologic studies to define the nature, settings, and periods of highest risk—and eventually studies of preventive interventions in high-risk subgroups and settings—are indicated.

Analysis and report by Gabriella Andreotti, MPH, Analysis Group, Army Medical Surveillance Activity.

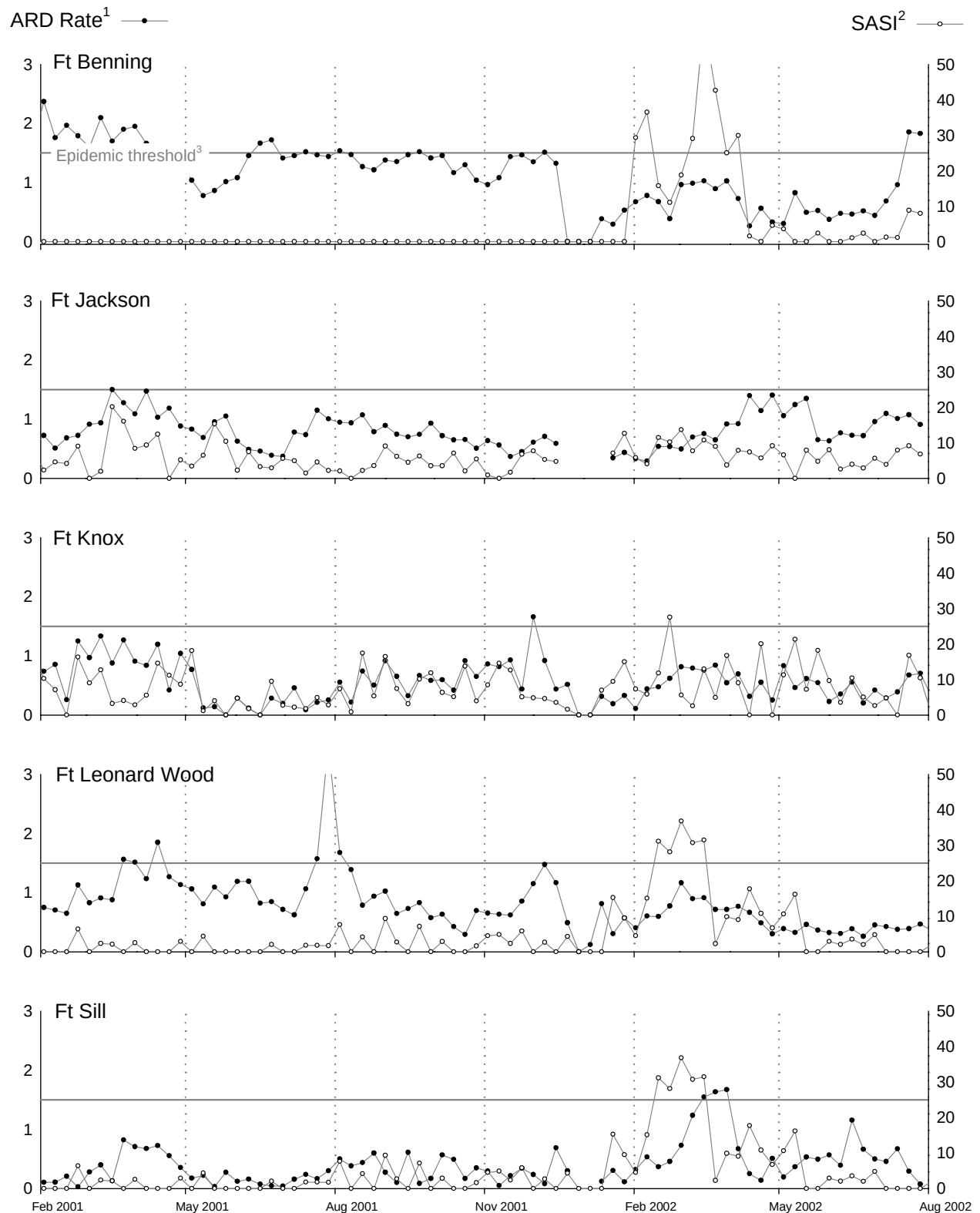
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Figure 2. Incidence rate of urinary tract infections, US Armed Forces, by age and marital status, 1998-2001.



Acute respiratory disease (ARD) and streptococcal pharyngitis (SASI), Army Basic Training Centers by week through July 27, 2002



¹ARD rate = cases per 100 trainees per week

²SASI (Strep ARD surveillance index) = (ARD rate)x(rate of Group A beta-hemolytic strep)

³ARD rate ≥ 1.5 or SASI ≥ 25.0 for 2 consecutive weeks indicates an "epidemic"

Pre- and Post-Deployment Health Status Assessments, US Armed Forces, 2000-2002

Pre-deployment and post deployment health status assessments are part of the U.S. military's force health protection program.¹ Before deploying, all servicemembers must complete standardized health status assessments to identify medical and dental concerns and to assure medical and dental readiness (e.g., immunizations, corrective lenses, prescription medications).¹ Upon completion of deployments, servicemembers must complete health status assessments to identify medical, dental, and exposure-related concerns and to arrange for appropriate evaluations, treatments, and follow-ups.² This report summarizes the number of pre- and post-deployment health status assessments by operation/location that were completed and centrally archived between 1 January 2000 and 31 May 2002. The report also summarizes responses to general health status and exposure-related questions prior to and after deploying to recent major operations.

Methods. Analyses included all records of pre- and post-deployment health status assessments completed by U.S. servicemembers between 1 January 2000 and 31 May 2002. Each record included personal identifier, demographic, and military information; responses to a series of health status-related questions; and concerns regarding deployment-related exposures (post-deployment only). In addition, each record included medical problems identified by a medical care provider and a final medical disposition (pre-deployment only). Hard copies of each form were sent to the Army Medical Surveillance Activity (AMSA) where they were scanned, data entered, and included in the Defense Medical Surveillance System (DMSS). For summary purposes, information regarding the military component and service, age, gender, race/ethnicity, education, marital status, occupation, military rank, and length of service were identified for each respondent as of the date of completion of each health status assessment.

Results. Between 1 January 2000 and 31 May 2002, 153,006 and 111,138 pre- and post-deployment forms, respectively, were completed by active and reserve component servicemembers. During the surveillance

period, 55,085 servicemembers completed both a pre-deployment and a post-deployment form, and relatively few servicemembers completed more than one of either form (table 1).

The numbers of pre- and post-deployment forms associated with various operations/locations are summarized in table 1. The largest numbers of pre-deployment (41.5% of the total) and post-deployment (53.8% of the total) forms were completed in relation to deployments to Southwest Asia. Nearly one-third (30.7%) of all pre-deployment forms—but only one-tenth (9.3%) of post-deployment forms—listed “other/unknown” as the operation/location. The second largest number of post-deployment forms were completed after deployments to Kosovo (19.6% of the total) (table 1).

Figure 1 presents the distributions of self-assessed health statuses reported on pre- and post-deployment forms. The overall distributions prior to and after deploying were remarkably similar; and before and after deploying, most servicemembers reported their health status as “excellent” or “very good.”

Figure 2 (page 8) presents a comparison of the self-assessed health statuses of 55,085 servicemembers who completed both a pre-deployment and a post-deployment form. Most servicemembers who reported their health status as “excellent”, “very good” or “good” on their pre-deployment forms had identical assessments of their health status on their post-deployment forms. The relatively few deployers who assessed their health status as “fair” or “poor” prior to deploying were likely to change their assessments (usually in a positive direction) after deployment.

Figure 3 (page 8) demonstrates a normal distribution centered on 0 (“no change”) of changes in self-assessed health statuses from pre- to post-deployment. Most deployers (61.7%) reported the same health status on their pre- and post-deployment forms, while nearly identical proportions of the remainder reported improvements and decrements of their health.

Of 110,927 post deployment forms that had responses, 4,525 (4.1%) indicated concerns about

Table 1. Pre-deployment and post-deployment forms, by year and operation/location, US Armed Forces, 2000-2002

	Pre-deployment forms		Post-deployment forms	
	no.	%	no.	%
Total	153,006	100.0	111,138	100.0
Year				
2000	53,315	34.8	49,835	44.8
2001	69,035	45.1	42,147	37.9
2002	30,656	20.0	19,156	17.2
Operation/location				
Bosnia	10,457	6.8	9,632	8.7
Kosovo	12,922	8.4	21,801	19.6
Enduring Freedom	13,262	8.7	8,859	8.0
Other/unknown	47,049	30.7	10,312	9.3
Southwest Asia	63,539	41.5	59,834	53.8
United States	5,777	3.8	700	0.6
Number of forms per person				
1	122,140	89.5	85,693	87.7
2	12,657	9.3	10,699	11.0
3	1,465	1.1	1,104	1.1
4	223	0.2	136	0.1
>4	50	0.0	35	0.0

Figure 1. Frequency distributions of self-assessed health status, pre- and post-deployment forms, US Armed Forces 2000-2002.

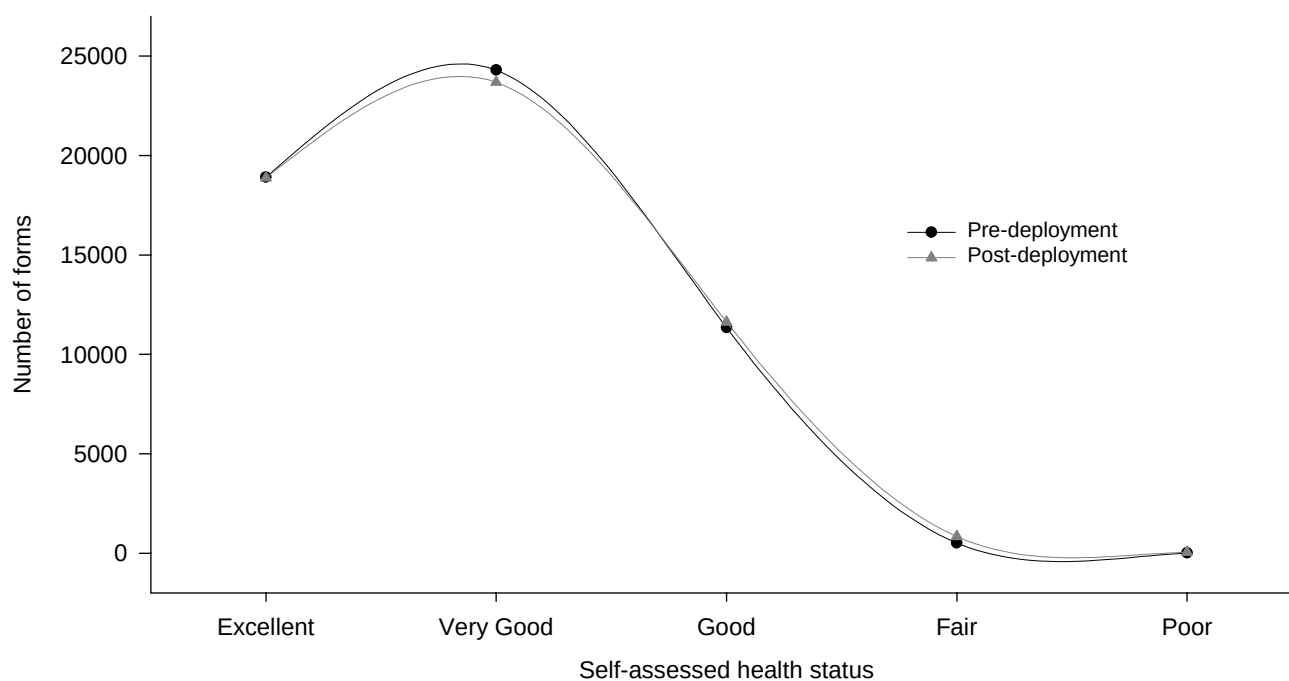


Figure 2. Change in self-assessed health status from pre- to post-deployment forms, US Armed Forces, 2000-2002.

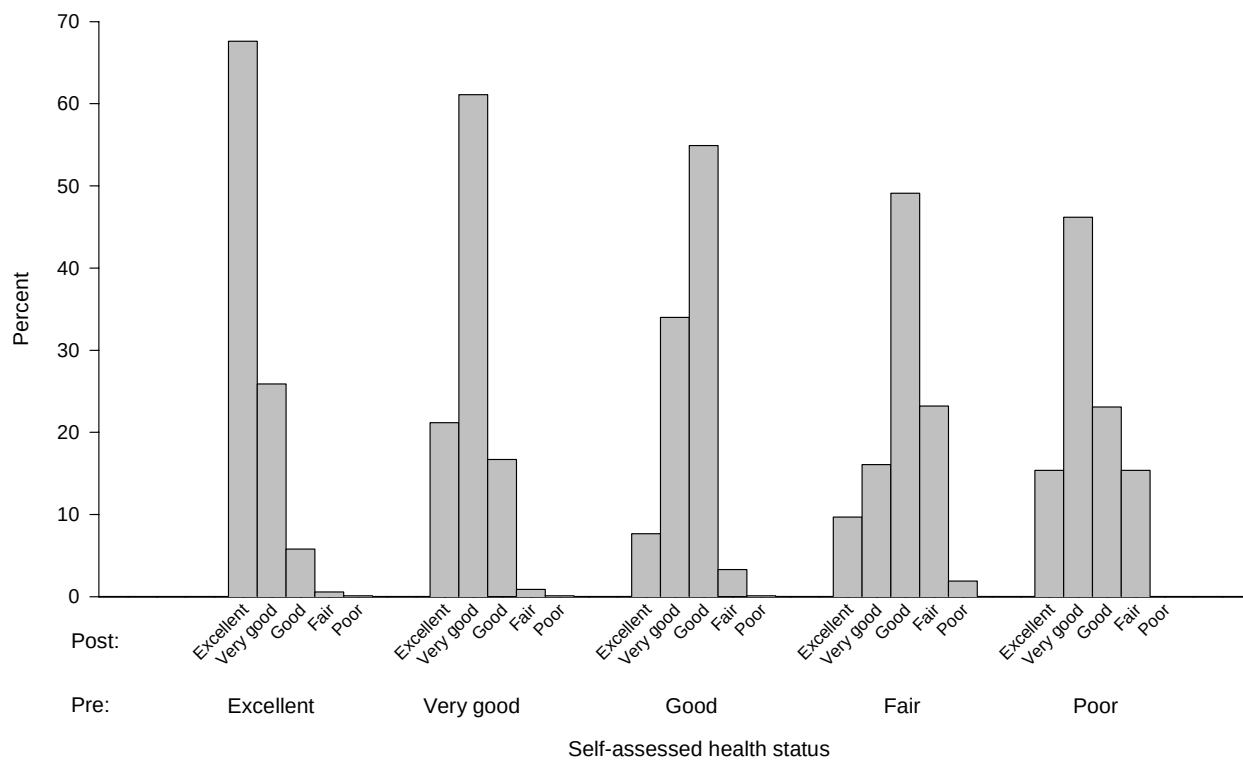
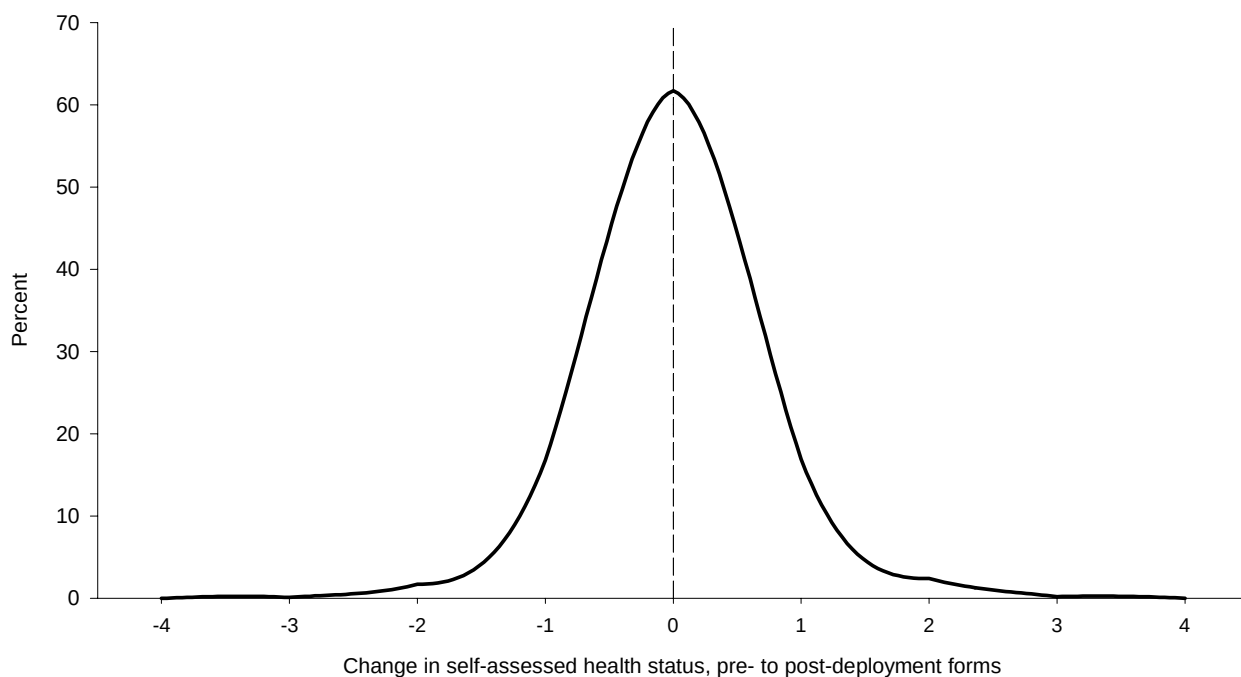


Figure 3. Distribution of changes* of self-assessed health statuses, from pre- to post deployment, US Armed Forces, 2000-2002.



* Change is equal to post-deployment health assessment minus pre-deployment health assessment using following classification: 4=Excellent; 3=Very good; 2=Good; 1=Fair; 0=Poor

“exposures” during deployment. Figure 4 presents the number and percent of post-deployment forms with exposure concerns by operation/location. The highest number ($n=1,792$) but the lowest percentage (3.0%) of post-deployment forms with exposure concerns was associated with deployment to Southwest Asia. The highest percentage (6.6%) of forms with exposure concerns was associated with deployment to Bosnia.

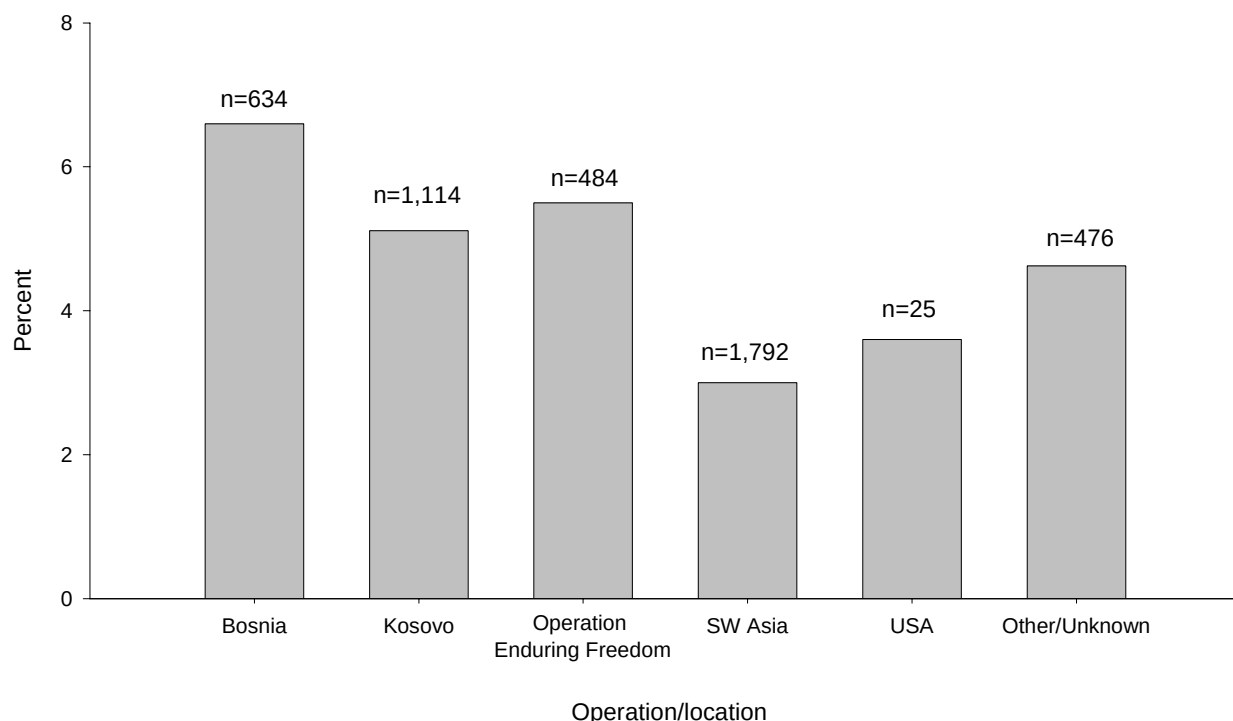
Table 2 (page 10) presents comparisons of deployers with and without exposure concerns. Relative to their respective counterparts, servicemembers with exposure concerns were more likely to be in the Reserves or National Guard ($p<0.001$), in the Army or Navy, older than 30 years of age ($p<0.001$), have some post-graduate education ($p<0.001$), be married or previously married ($p<0.001$), have a medical or combat-specific military occupation ($p<0.001$), and be an officer ($p<0.001$). There were no large differences in exposure concerns in relation to race/ethnicity or gender.

Editorial comment: Health status questionnaires are primarily used to solicit information regarding the medical/dental statuses, the health and exposure concerns, and the evaluation and treatment needs of individual servicemembers before and after they

deploy. However, during deployment operations, servicemembers may be exposed to multiple, varied, and unforeseeable hazards. The systematic analysis of health status assessment, medical encounter, and exposure-related data prior to, during, and following deployments may provide insights into threats (and potential countermeasures) to the health, fitness, operational effectiveness, and well-being of deployers.

This report summarizes responses on pre- and post-deployment health status questionnaires completed and centrally archived between January 2000 and May 2002. During the period, most deployers assessed their health as excellent or very good before and after deploying; and the majority (>60%) of respondents did not change their assessments from pre- to post-deployment. Approximately 4% (range: 3.0-6.6%, by operation/location) of all deployers reported concerns regarding deployment-related exposures. Factors associated with concerns regarding exposures included Reserve/National Guard membership, older age (>30 years), higher than college education (“some post-graduate”), married or previously married marital status, officer military rank, and deployment to Bosnia. Future analyses will examine whether responses on health status questionnaires are predictive of future medical events,

Figure 4. Percent and number of post-deployment forms with specific exposure concerns, by operation/location, US Armed Forces, 2000-2002.



such as hospitalizations, ambulatory visits, or lost duty time.

Analysis and report by Michael Silverberg, PhD, MPH, Army Medical Surveillance Activity.

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Table 2. Characteristics of servicemembers with and without deployment-related exposure concerns (on post-deployment forms), US Armed Forces, 2000-2002

	Exposure concerns	No exposure concerns	Total	% with exposure concerns	Relative % with exposure concerns	
Total	4,525	106,402	110,927	4.1		
Military component						
Active	3,062	82,471	85,533	3.6	1.0	<0.001
National Guard	815	16,196	17,011	4.8	1.3	
Reserve	648	7,735	8,383	7.7	2.2	
Military service						
Air Force	2,175	68,559	70,734	3.1	1.0	<0.001
Army	2,200	35,006	37,206	5.9	1.9	
Marines	93	2,135	2,228	4.2	1.4	
Navy	57	702	759	7.5	2.4	
Age (years)						
<20	76	3,473	3,549	2.1	1.0	<0.001
20-29	1,921	57,833	59,754	3.2	1.5	
30-39	1,718	32,605	34,323	5.0	2.3	
>39	810	12,491	13,301	6.1	2.8	
Gender						
Male	4,025	94,758	98,783	4.1	1.0	0.823
Female	500	11,644	12,144	4.1	1.0	
Race/ethnicity						
Black	620	15,937	16,557	3.7	1.0	0.036
Hispanic	204	5,265	5,469	3.7	1.0	
Other	262	5,776	6,038	4.3	1.2	
White	3,438	79,405	82,843	4.2	1.1	
Education						
High school or less	2,405	60,630	63,035	3.8	1.0	<0.001
Some college or degree	1,764	40,711	42,475	4.2	1.1	
Some post-graduate	286	3,973	4,259	6.7	1.8	
Marital status						
Single, never married	1,552	42,598	44,150	3.5	1.0	<0.001
Married/previously married	2,970	63,725	66,695	4.5	1.3	
Occupation						
Non-combat, non-medical	1,934	55,164	57,098	3.4	1.0	<0.001
Medical	140	3,327	3,467	4.0	1.2	
Combat	969	23,593	24,562	3.9	1.2	
Military rank						
Enlisted	3,656	94,091	97,747	3.7	1.0	<0.001
Officer	869	12,311	13,180	6.6	1.8	

Human Immunodeficiency Virus, Type 1 (HIV-1), Antibody Screening Among Active and Reserve Component Soldiers and Civilian Applicants for Military Service, 1985-June 2002

Since 1986, all members of the active and reserve components of the US Armed Forces have been periodically screened for antibodies to human immunodeficiency virus, type 1 (HIV-1); in addition, since October 1985, all applicants for US military service have been screened for antibodies to HIV-1 during preinduction medical examinations at Military Entrance Processing Stations (MEPS). This report summarizes prevalences and trends of new diagnoses of HIV-1 among routinely screened soldiers in active and reserve components of the US Army and among applicants for military service.

Methods. For active, reserve, and National Guard soldiers, new diagnoses of HIV-1 infections were summarized based on the earliest confirmed positive tests of individuals who were listed with identical information on contemporaneous personnel files. For calendar-year-specific seroprevalence calculations, denominators were the numbers of soldiers in each component who were tested at least once during each calendar year. Annual HIV-1 infection prevalences among civilian applicants for service were calculated by dividing the number of applicants with first positive tests by the number of applicants tested each calendar year.

Army active duty. Between January 2001 and June 2002, 79 soldiers (76 males, 3 females) were diagnosed with HIV-1 infections during routine screening. During 2001, the overall prevalence (0.19 per 1000 tested) was slightly higher than in the preceding year but the third lowest since testing began (table 1). Of the 2,709 active duty soldiers diagnosed with HIV-1 infections

since routine testing began, 293 (10.8%) remain on active duty (table 1).

Army Reserve. Between January 2001 and June 2002, 27 soldiers (22 males, 5 females) of the U.S. Army Reserve were diagnosed with HIV-1 infections during routine testing. During 2001, prevalences among male and female reservists were similar (table 2, figure 2). The overall prevalence in 2001 (0.36 per 1000 tested) extended the approximately 10-year period of relative stability (table 2).

Army National Guard. Between January 2001 and June 2002, 30 soldiers (27 males, 3 females) of the Army National Guard were diagnosed with HIV-1 infections during routine testing. The overall prevalence in 2001 (0.21 per 1000 tested) was higher than in the preceding year but consistent with the approximately 10-year trend of relative stability (table 3).

Civilian applicants for military service. Since October 1985, 4,692 civilian applicants for military service have been diagnosed with HIV-1 infections during preinduction medical examinations. From January 2001 to June 2002, 164 applicants (137 males, 27 females) were diagnosed with HIV-1 infections. During 2001, the overall prevalence (0.31 per 1000 tested) was remarkably similar to the overall prevalences of the preceding 5 years (table 4). Finally, in 2001, there were no significant changes in prevalences in gender or race/ethnicity-defined subgroups (figures 4, 5).

Data summaries provided by Vince P. Desborough, Army Medical Surveillance Activity.

Table 1. Rates of new diagnoses of HIV-1 infections, by gender, Army active duty, 1985/86 - June 2002

Year	Total HIV tests	Total persons tested	Males tested	Females tested	Total newly identified HIV +	Newly identified HIV + males	Newly identified HIV + females	Total rate per 1000 tested	Male rate per 1000 tested	Female rate per 1000 tested	HIV + currently on active duty (by year of diagnosis)
1985/86	390,629	365,734	327,158	38,576	927	883	44	2.53	2.70	1.14	8
1987	462,806	351,617	315,262	36,355	393	378	15	1.12	1.20	0.41	2
1988	446,893	381,088	334,964	46,124	195	188	7	0.51	0.56	0.15	2
1989	488,540	405,995	357,250	48,745	168	162	6	0.41	0.45	0.12	3
1990	532,156	440,804	385,558	55,246	153	144	9	0.35	0.37	0.16	7
1991	478,920	397,362	347,416	49,946	132	126	6	0.33	0.36	0.12	8
1992	529,503	427,670	374,244	53,426	124	116	8	0.29	0.31	0.15	15
1993	455,576	368,597	319,904	48,693	91	88	3	0.25	0.28	0.06	10
1994	419,301	342,745	295,402	47,343	80	75	5	0.23	0.25	0.11	14
1995	457,537	339,557	292,110	47,447	78	73	5	0.23	0.25	0.11	25
1996	400,792	307,783	261,964	45,819	68	62	6	0.22	0.24	0.13	26
1997	395,042	299,060	252,593	46,467	65	58	7	0.22	0.23	0.15	23
1998	373,505	300,975	252,908	48,067	62	54	8	0.21	0.21	0.17	29
1999	348,462	288,691	242,558	46,133	52	49	3	0.18	0.20	0.07	24
2000	360,727	285,724	239,498	46,226	42	35	7	0.15	0.15	0.15	30
2001	388,085	307,122	258,165	48,957	59	56	3	0.19	0.22	0.06	47
2002*	186,642	170,611	143,360	27,251	20	20	0	0.12	0.14	0.00	20
Total	7,115,116	5,781,135	5,000,314	780,821	2,709	2,567	142				293

* - Data through 30 June 2002.

Figure 1. Rates of new diagnoses of HIV-1 infections, by gender, Army active duty, 1992-2001.



Table 2. Rates of new diagnoses of HIV-1 infections, by gender, Army Reserve (AR), 1985-2002

Year	Total HIV tests	Total persons tested	Males tested	Females tested	Total newly identified HIV +	Newly identified HIV + males	Newly identified HIV + females	Total rate per 1000 tested	Male rate per 1000 tested	Female rate per 1000 tested	HIV + in AR (by years of diagnosis)
1985/86	6,469	6,298	5,396	902	8	7	1	1.27	1.30	1.11	1
1987	157,944	147,589	120,329	27,260	35	33	2	0.24	0.27	0.07	1
1988	92,790	87,811	70,693	17,118	77	75	2	0.88	1.06	0.12	1
1989	172,215	158,201	127,387	30,814	81	76	5	0.51	0.60	0.16	0
1990	173,780	151,978	121,303	30,675	73	70	3	0.48	0.58	0.10	0
1991	121,011	110,230	87,942	22,288	61	59	2	0.55	0.67	0.09	0
1992	182,196	159,894	127,516	32,378	64	52	12	0.40	0.41	0.37	1
1993	146,299	130,104	103,876	26,228	42	38	4	0.32	0.37	0.15	1
1994	136,753	122,915	96,902	26,013	27	22	5	0.22	0.23	0.19	0
1995	105,326	95,689	75,465	20,224	29	23	6	0.30	0.30	0.30	2
1996	51,275	47,662	37,191	10,471	15	15	0	0.31	0.40	0.00	4
1997	44,759	41,823	31,806	10,017	15	13	2	0.36	0.41	0.20	4
1998	37,245	35,723	27,182	8,541	10	9	1	0.28	0.33	0.12	3
1999	41,314	38,402	29,142	9,260	17	13	4	0.44	0.45	0.43	7
2000	38,644	35,679	26,767	8,912	8	5	3	0.22	0.19	0.34	5
2001	54,834	50,051	37,938	12,113	18	14	4	0.36	0.37	0.33	15
2002*	30,007	28,755	22,262	6,493	9	8	1	0.31	0.36	0.15	8
Total	1,592,861	1,448,804	1,149,097	299,707	589	532	57				53

* - Data through 30 June 2002.

Figure 2. Rates of new diagnoses of HIV-1 infections, by gender, Army Reserve, 1992-2002.

**Table 3. Rates of new diagnoses of HIV-1 infections, by gender,
Army National Guard (NG), 1985-2002**

Year	Total HIV tests	Total persons tested	Males tested	Females tested	Total newly identified HIV +	Newly identified HIV + males	Newly identified HIV + females	Total rate per 1000 tested	Male rate per 1000 tested	Female rate per 1000 tested	HIV + in NG (by years of diagnosis)
1985/86	97,021	95,858	90,929	4,929	32	30	2	0.33	0.33	0.41	1
1987	235,527	227,489	215,667	11,822	39	38	1	0.17	0.18	0.08	0
1988	163,489	157,690	148,325	9,365	48	44	4	0.30	0.30	0.43	2
1989	198,139	189,150	177,839	11,311	72	70	2	0.38	0.39	0.18	2
1990	229,582	213,210	198,148	15,062	66	64	2	0.31	0.32	0.13	0
1991	189,880	177,578	165,906	11,672	56	52	4	0.32	0.31	0.34	1
1992	251,527	236,027	218,722	17,305	56	54	2	0.24	0.25	0.12	0
1993	168,321	159,223	147,496	11,727	34	33	1	0.21	0.22	0.09	2
1994	199,904	186,972	172,243	14,729	39	36	3	0.21	0.21	0.20	5
1995	147,515	140,837	130,450	10,387	35	32	3	0.25	0.25	0.29	7
1996	61,844	58,818	53,946	4,872	20	19	1	0.34	0.35	0.21	0
1997	71,115	67,925	61,558	6,367	16	15	1	0.24	0.24	0.16	4
1998	79,042	75,809	68,718	7,091	18	18	0	0.24	0.26	0.00	4
1999	86,259	81,413	73,590	7,823	20	20	0	0.25	0.27	0.00	4
2000	76,423	72,700	65,171	7,529	10	10	0	0.14	0.15	0.00	5
2001	104,013	95,895	86,141	9,754	20	18	2	0.21	0.21	0.21	14
2002*	61,984	59,614	53,561	6,053	10	9	1	0.17	0.17	0.17	9
Total	2,421,585	2,296,208	2,128,410	167,798	591	562	29				60

* - Data through 30 June 2002.

**Figure 3. Rates of new diagnoses of HIV-1 infections, by gender,
Army National Guard, 1992-2002.**

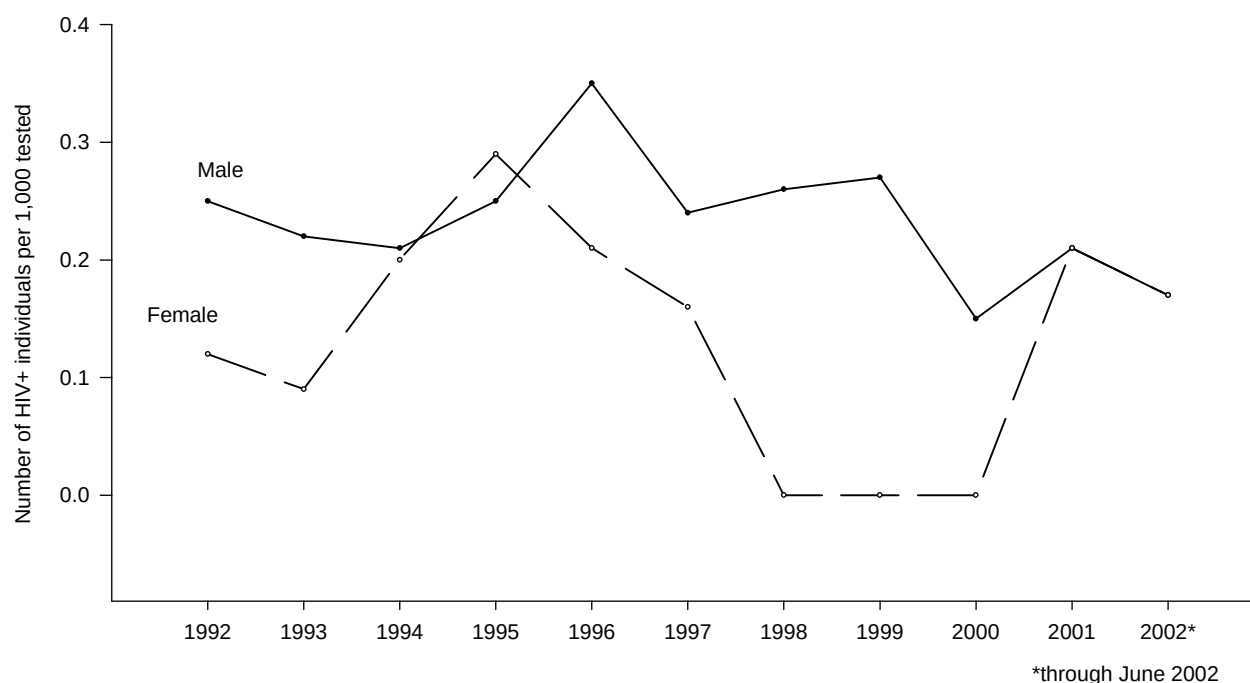
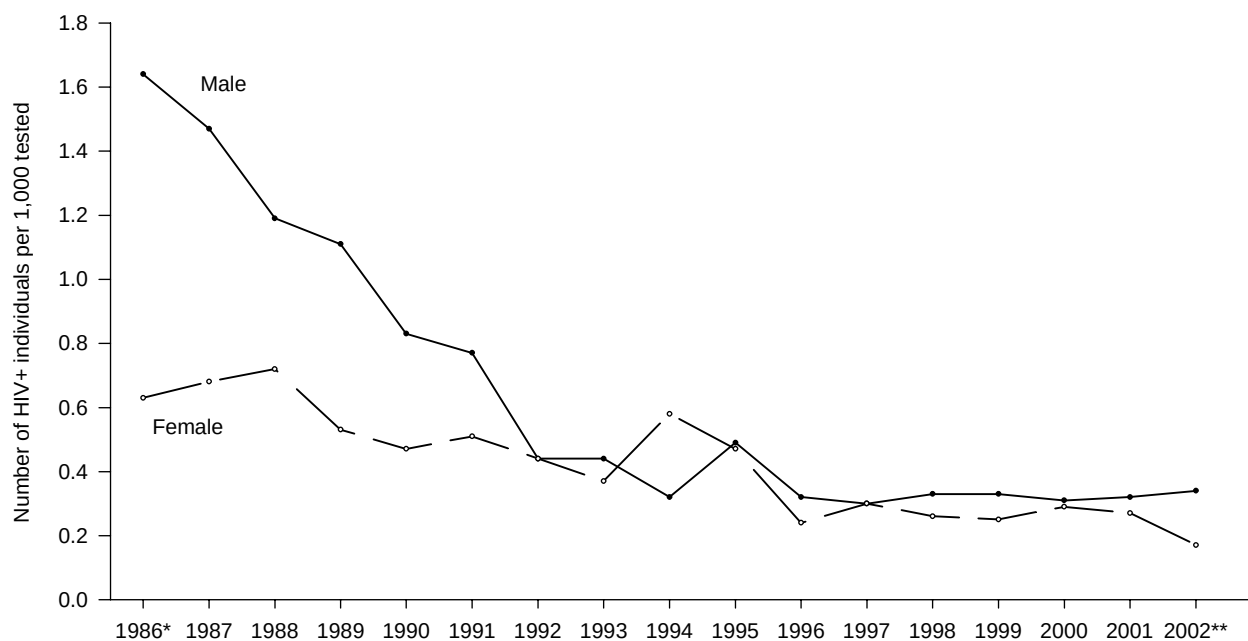


Table 4. Rates of new diagnoses of HIV-1 infections, by gender, civilian applicants for military service, 1985-2002

Year	Total HIV tests	Total persons tested	Males tested	Females tested	Total newly identified HIV +	Newly identified HIV + males	Newly identified HIV + females	Total rate per 1000 tested	Male rate per 1000 tested	Female rate per 1000 tested
1985/86	1,064,618	788,059	679,259	108,800	1,180	1,111	69	1.50	1.64	0.63
1987	918,908	550,032	473,792	76,240	747	695	52	1.36	1.47	0.68
1988	943,854	499,988	423,601	76,387	558	503	55	1.12	1.19	0.72
1989	633,652	497,676	419,071	78,605	507	465	42	1.02	1.11	0.53
1990	461,267	404,187	340,211	63,976	311	281	30	0.77	0.83	0.47
1991	434,816	376,179	319,345	56,834	274	245	29	0.73	0.77	0.51
1992	387,065	334,300	273,370	60,930	148	121	27	0.44	0.44	0.44
1993	363,299	307,744	250,419	57,325	132	111	21	0.43	0.44	0.37
1994	331,806	276,945	219,997	56,948	103	70	33	0.37	0.32	0.58
1995	287,566	217,222	172,199	45,023	105	84	21	0.48	0.49	0.47
1996	354,862	295,347	231,525	63,822	88	73	15	0.30	0.32	0.24
1997	355,634	290,321	229,624	60,697	88	70	18	0.30	0.30	0.30
1998	340,958	286,421	224,424	61,997	91	75	16	0.32	0.33	0.26
1999	368,338	308,958	241,989	66,969	96	79	17	0.31	0.33	0.25
2000	396,370	330,328	257,531	72,797	100	79	21	0.30	0.31	0.29
2001	413,133	345,255	272,036	73,219	108	88	20	0.31	0.32	0.27
2002*	221,216	184,504	144,286	40,218	56	49	7	0.30	0.34	0.17
Total	8,277,362	6,293,466	5,172,679	1,120,787	4,692	4,199	493			

* - Data through 30 June 2002.

Figure 4. Rates of new diagnoses of HIV-1 infections, by gender, civilian applicants, 1985/86-2002.



*includes Oct-Dec 1985

**through June 2002

Table 5. Rates of new diagnoses of HIV-1 infections, by race/ethnicity, civilian applicants, 1985-2002

Year	Total HIV tests	Total persons tested	White non-Hispanic	Black non-Hispanic	Other/Hispanic	Total newly identified HIV +	Newly identified HIV+ White non-Hispanic	Newly identified HIV+ Black non-hispanic	Newly identified HIV+ other/Hispanic	Total rate per 1000 tested	White non-Hispanic rate per 1000 tested	Black non-Hispanic rate per 1000 tested	Other/Hispanic rate per 1000 tested
1985/86	1,064,618	788,059	604,197	144,708	39,154	1,180	506	590	84	1.50	0.84	4.08	2.15
1987	918,908	550,032	415,027	106,102	28,903	747	307	400	40	1.36	0.74	3.77	1.38
1988	943,854	499,988	370,727	101,180	28,081	558	187	336	35	1.12	0.50	3.32	1.25
1989	633,652	497,676	363,284	104,805	29,587	507	156	322	29	1.02	0.43	3.07	0.98
1990	461,267	404,187	302,676	75,659	25,852	311	113	173	25	0.77	0.37	2.29	0.97
1991	434,816	376,179	298,007	55,223	22,949	274	98	147	29	0.73	0.33	2.66	1.26
1992	387,065	334,300	257,808	55,231	21,261	148	48	92	8	0.44	0.19	1.67	0.38
1993	363,299	307,744	236,813	51,058	19,873	132	49	78	5	0.43	0.21	1.53	0.25
1994	331,806	276,945	205,093	51,161	20,691	103	23	76	4	0.37	0.11	1.49	0.19
1995	287,566	217,222	157,959	40,030	19,233	105	30	66	9	0.48	0.19	1.65	0.47
1996	354,862	295,347	210,050	56,591	28,706	88	21	63	4	0.30	0.10	1.11	0.14
1997	355,634	290,321	203,393	56,495	30,433	88	26	59	3	0.30	0.13	1.04	0.10
1998	340,958	286,421	201,233	54,415	30,773	91	20	62	9	0.32	0.10	1.14	0.29
1999	368,338	308,958	217,610	58,799	32,549	96	20	68	8	0.31	0.09	1.16	0.25
2000	396,370	330,328	235,272	63,777	31,279	100	13	82	5	0.30	0.06	1.29	0.16
2001	413,133	345,255	255,264	59,707	30,284	108	25	72	11	0.31	0.10	1.21	0.36
2002*	221,216	184,504	138,746	29,839	15,919	56	15	37	4	0.30	0.11	1.24	0.25
Total	8,277,362	6,293,466	4,673,159	1,164,780	455,527	4,692	1,657	2,723	312				

* - Data through 30 June 2002.

Figure 5. Rates of new diagnoses of HIV-1 infections, by race/ethnicity, civilian applicants, 1985/86-2002.

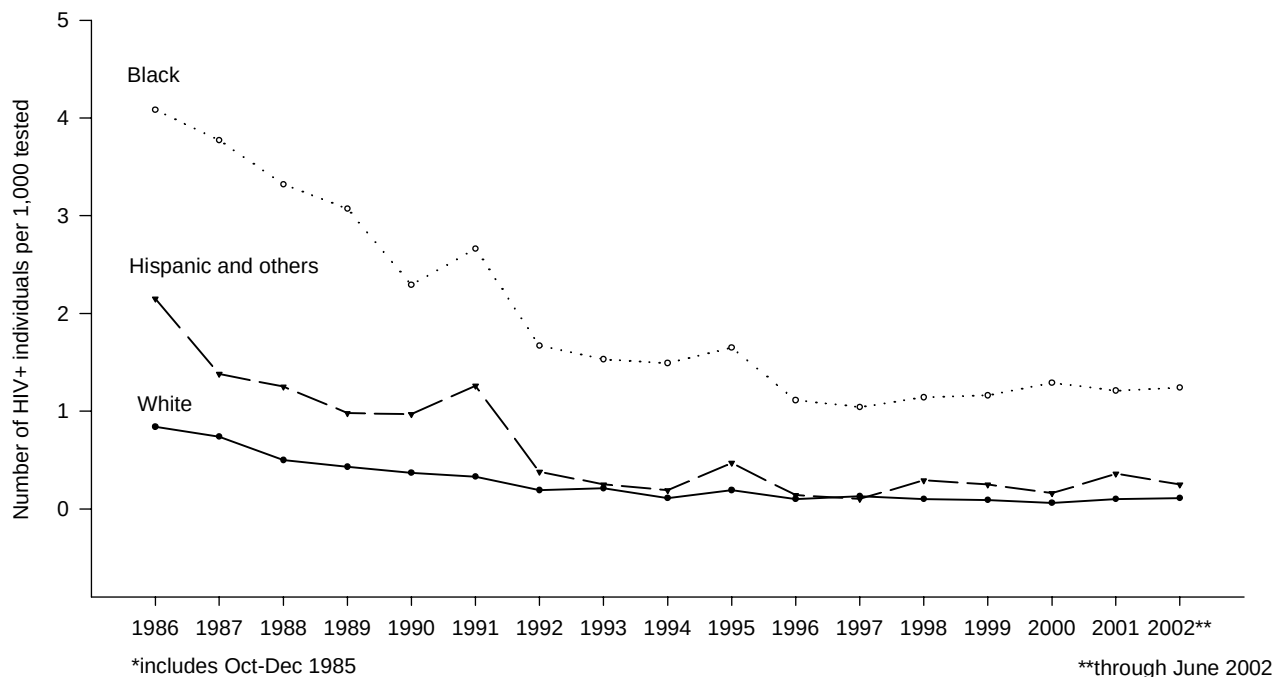
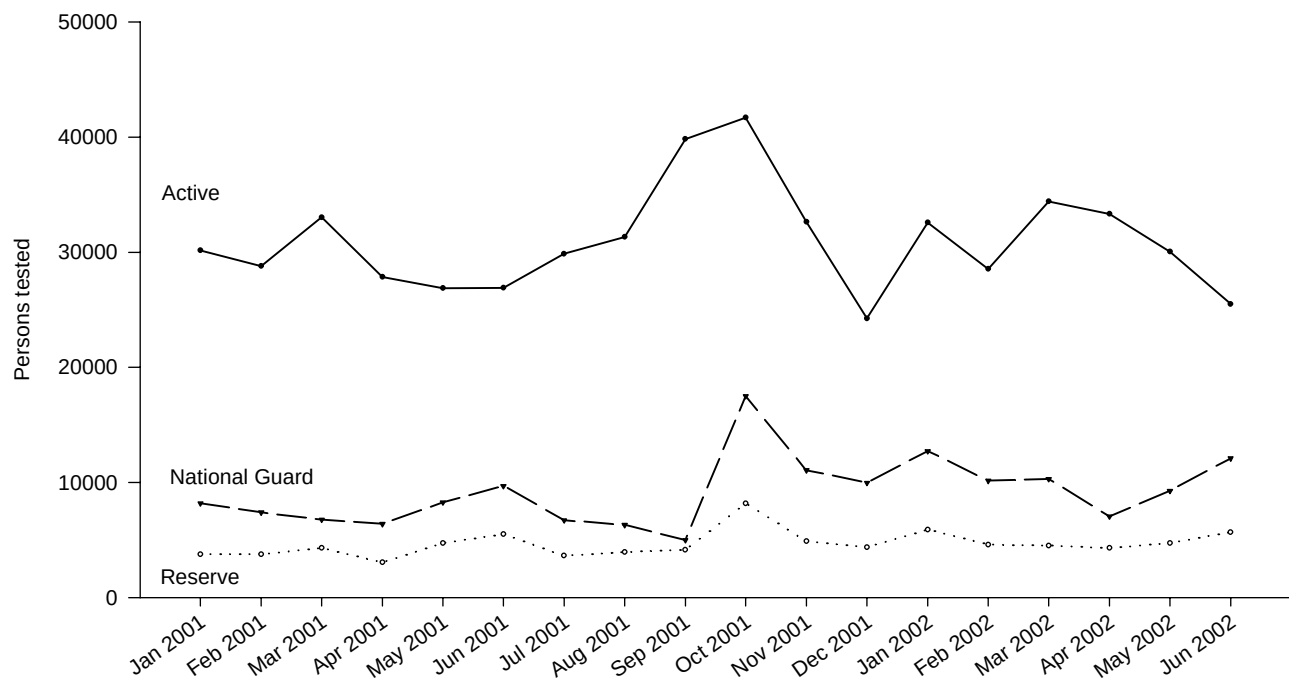


Table 6. HIV-1 tests, by indication, US Army, Active, Reserve, and National Guard, CY 2001

Test indication	Active Duty	Reserve	National Guard	Total
Clinical / STD	33,513	1,607	1,873	36,993
Force testing	265,934	31,232	43,636	340,802
Physical exam	77,627	21,227	56,280	155,134
Other / unknown	11,011	768	2,224	14,003
Total tests	388,085	54,834	104,013	546,932
 Total persons tested	 307,122	 50,051	 95,895	 453,068
Number positive	59	18	20	97
Prevalence per 1000	0.19	0.36	0.21	0.21

Figure 6. Total HIV-1 tests performed, US Army, Active, Reserve, and National Guard, Jan 2001-June 2002.



**Sentinel reportable events for all beneficiaries¹ at US Army medical facilities,
cumulative numbers² for calendar years through July 31, 2001 and 2002**

Reporting location	Number of reports all events ³		Food-borne								Vaccine Preventable					
			Campylo-bacter		Giardia		Salmonella		Shigella		Hepatitis A		Hepatitis B		Varicella	
	2001	2002	2001	2002	2001	2002	2001	2002	2001	2002	2001	2002	2001	2002	2001	2002
NORTH ATLANTIC																
Washington, DC Area	66	67	-	2	3	1	2	-	2	4	-	1	-	-	1	-
Aberdeen, MD	23	21	-	-	-	-	-	-	-	-	-	-	1	1	-	-
FT Belvoir, VA	42	38	5	4	3	-	-	2	-	-	-	-	-	-	-	-
FT Bragg, NC	737	963	2	4	-	-	1	2	1	2	-	-	-	1	2	-
FT Drum, NY	106	40	1	1	-	-	-	-	-	-	-	-	-	-	-	-
FT Eustis, VA	101	100	-	1	-	-	1	-	-	-	-	-	-	1	1	2
FT Knox, KY	108	106	-	3	1	1	1	1	-	-	-	-	-	-	1	-
FT Lee, VA	116	117	-	-	-	-	-	-	-	-	-	-	-	-	-	-
FT Meade, MD	32	46	-	-	-	-	-	-	-	-	-	-	-	-	-	1
West Point, NY	27	39	1	-	-	-	1	-	-	-	2	1	-	1	-	-
GREAT PLAINS																
FT Sam Houston, TX	141	127	-	-	1	-	-	-	-	-	-	-	-	-	-	-
FT Bliss, TX	81	65	1	-	3	1	-	-	-	1	-	-	1	2	1	-
FT Carson, CO	314	239	-	4	-	-	-	-	-	-	-	-	1	1	-	-
FT Hood, TX	811	1,023	1	1	-	-	-	3	-	-	-	-	6	-	2	-
FT Huachuca, AZ	17	24	1	-	-	-	-	-	-	-	-	-	-	-	1	-
FT Leavenworth, KS	12	13	-	-	-	-	1	-	-	-	-	-	-	-	-	-
FT Leonard Wood, MO	106	119	-	-	-	-	-	1	-	-	-	-	-	-	5	2
FT Polk, LA	125	103	-	-	-	-	-	-	-	-	-	-	-	-	-	-
FT Riley, KS	126	127	-	-	-	-	-	-	-	-	-	-	1	-	-	1
FT Sill, OK	173	143	-	1	-	-	-	-	-	-	-	-	1	-	1	-
SOUTHEAST																
FT Gordon, GA	97	75	-	-	-	-	-	-	-	-	1	-	1	-	-	-
FT Benning, GA	169	189	1	-	1	1	2	3	-	-	-	-	-	-	3	2
FT Campbell, KY	335	296	2	1	3	-	2	1	-	2	-	-	-	-	-	1
FT Jackson, SC	142	155	-	-	-	-	-	-	-	-	-	-	5	-	2	1
FT Rucker, AL	33	37	-	1	-	-	1	-	-	-	-	-	-	-	-	-
FT Stewart, GA	244	292	-	-	-	1	-	-	-	1	-	-	1	-	-	1
WESTERN																
FT Lewis, WA	316	336	2	1	-	-	3	1	-	-	-	-	1	-	-	-
FT Irwin, CA	27	19	-	-	-	-	-	-	-	-	2	-	1	-	2	-
FT Wainwright, AK	39	58	-	1	-	-	-	-	-	-	-	-	-	-	-	-
OTHER LOCATIONS																
Hawaii	301	301	14	14	5	3	4	4	2	-	-	-	1	1	-	-
Europe	708	1,070	18	15	-	-	22	9	-	1	2	1	5	6	6	5
Korea	32	292	-	-	-	-	1	4	-	-	-	-	-	-	2	1
Total	5,707	6,640	49	54	20	8	42	31	5	11	7	3	26	14	30	17

1. Includes active duty servicemembers, dependents, and retirees.

2. Events reported by August 7, 2001 and 2002.

3. Seventy events specified by Tri-Service Reportable Events, Version 1.0, July 2000.

Note: Completeness and timeliness of reporting vary by facility.

Source: Army Reportable Medical Events System.

(Cont'd) Sentinel reportable events for all beneficiaries¹ at US Army medical facilities, cumulative numbers² for calendar years through July 31, 2001 and 2002

Reporting location	Arthropod-borne				Sexually Transmitted								Environmental			
	Lyme Disease		Malaria		Chlamydia		Gonorrhea		Syphilis ³		Urethritis ⁴		Cold		Heat	
	2001	2002	2001	2002	2001	2002	2001	2002	2001	2002	2001	2002	2001	2002	2001	2002
NORTH ATLANTIC																
Washington, DC Area	1	1	-	1	31	35	9	8	5	3	-	-	-	-	-	2
Aberdeen, MD	-	-	-	-	14	19	5	1	-	-	-	-	2	-	-	-
FT Belvoir, VA	-	2	-	-	23	18	5	7	-	1	-	-	-	-	3	2
FT Bragg, NC	-	-	4	1	281	673	167	124	-	-	167	83	7	-	103	72
FT Drum, NY	-	-	-	-	82	24	19	12	1	-	-	-	2	-	-	3
FT Eustis, VA	-	1	-	-	65	76	31	18	-	-	-	-	-	-	1	1
FT Knox, KY	-	-	-	-	81	80	20	16	2	-	-	-	-	-	1	3
FT Lee, VA	-	1	-	-	82	100	34	15	-	-	-	-	-	-	-	1
FT Meade, MD	-	2	-	-	24	38	7	3	1	-	-	2	-	-	-	-
West Point, NY	15	4	-	-	6	8	1	5	-	-	-	-	-	-	1	19
GREAT PLAINS																
FT Sam Houston, TX	-	-	1	-	107	100	19	19	-	-	1	-	1	-	8	1
FT Bliss, TX	1	-	2	-	48	44	19	7	-	1	-	-	-	-	3	1
FT Carson, CO	-	-	-	1	227	165	35	28	-	-	50	34	-	1	-	-
FT Hood, TX	-	-	-	3	407	531	171	239	2	3	191	214	-	-	27	21
FT Huachuca, AZ	-	-	-	-	14	18	1	4	-	-	-	-	-	-	-	2
FT Leavenworth, KS	-	-	-	-	8	10	1	3	-	-	-	-	-	-	-	-
FT Leonard Wood, MO	-	-	-	1	57	83	20	21	-	-	5	2	3	-	11	5
FT Polk, LA	-	-	1	1	92	68	29	29	-	2	-	-	-	-	-	-
FT Riley, KS	-	-	1	-	80	86	16	25	-	-	-	-	3	11	24	3
FT Sill, OK	1	-	-	-	90	77	33	20	-	-	37	29	-	-	7	16
SOUTHEAST																
FT Gordon, GA	-	1	-	-	79	61	9	10	-	-	-	-	-	-	2	-
FT Benning, GA	-	-	-	-	85	66	33	49	-	1	1	-	-	-	13	62
FT Campbell, KY	2	-	-	1	256	229	67	50	1	1	-	-	-	1	2	5
FT Jackson, SC	-	-	-	-	87	123	37	27	2	1	-	-	-	3	5	-
FT Rucker, AL	-	-	-	-	25	22	4	10	-	-	-	-	-	-	2	4
FT Stewart, GA	-	1	-	-	58	168	68	81	-	1	108	-	-	-	9	38
WESTERN																
FT Lewis, WA	-	-	-	2	180	227	49	34	-	2	76	66	4	-	-	-
FT Irwin, CA	-	-	-	-	16	12	2	7	-	-	-	-	-	-	2	-
FT Wainwright, AK	-	1	-	-	29	37	-	4	-	-	-	-	10	13	-	-
OTHER LOCATIONS																
Hawaii	-	-	-	2	233	219	31	42	-	1	1	-	-	-	-	5
Europe	1	4	-	3	531	756	107	250	1	3	1	3	8	4	-	5
Korea	-	-	4	4	4	214	14	59	1	-	1	1	-	3	4	5
Total	21	18	13	20	3,402	4,387	1,063	1,227	16	20	639	434	40	36	228	276

3. Primary and secondary.

4. Urethritis, non-gonococcal (NGU).

Note: Completeness and timeliness of reporting vary by facility.

Source: Army Reportable Medical Events System.

Completeness and Timeliness of Reporting of Hospitalized Notifiable Conditions, Active Duty Servicemembers, US Army Medical Treatment Facilities, 1995–2001

In 1994, the US Army implemented an automated Reportable Medical Events System (RMES) that enabled real-time reporting of diseases/conditions with public health and/or military operational importance¹. Approximately four years later, the Army Surgeon General directed that Army medical activities report all occurrences of conditions specified in the tri-service consensus list of reportable medical events^{2,3}. Subsequently, the Assistant Secretary of Defense for Health Affairs directed that the tri-service consensus list of reportable events be used to guide notifiable events surveillance and reporting of all the Services⁴.

This report is the eleventh semi-annual assessment of the completeness and timeliness of reporting of hospitalizations of active duty servicemembers in Army medical treatment facilities for notifiable medical events.

All reports to the Army's Reportable Medical Events System (RMES) are incorporated in the Defense Medical Surveillance System (DMSS).^{3,4} Completeness of reporting is estimated by matching hospitalizations for notifiable conditions with confirmed reports to the US Army's Reportable Medical Events System (RMES). Reportable hospitalizations are identified based on ICD-9-CM coded discharge diagnoses. Timeliness of reporting is measured as the number of days between the date of hospital discharge and the date of receipt of the matching confirmed report in the DMSS.

Completeness of reporting, hospitalizations overall. For 2001, there were 327 hospitalizations of active duty service members at Army medical treatment facilities for conditions considered reportable. Of those, 180 (55%) were reported through RMES. Overall, completeness of reporting has been remarkably stable since 1998 (figure 1).

Completeness of reporting, by diagnosis. As in previous years, the most common reportable conditions that resulted in hospitalizations in 2001 were heat injuries (n=168), malaria (n=34), and pneumococcal pneumonia (n=27). Completeness of reporting of these conditions were 66%, 79%, and 7%, respectively.

In contrast to past years, varicella (n=23) was only the fourth most common reportable hospitalized condition—70% of hospitalized varicella cases were reported (table 1).

Completeness of reporting, by location. As in previous years, there was significant variability in the number of reportable hospitalizations and in reporting completeness across locations. In 2001, 22 reporting sites had reportable hospitalized cases; and of these, 11 (50%) reported at least half of their reportable cases and two reported none (of 1 case each) (table 2).

Timeliness of reporting of hospitalized cases. Of all reported hospitalizations, approximately 40% were reported within a week of the date of discharge, and approximately 65% were reported within one month. Timeliness of reporting has gradually improved over the past years (figure 2).

Editorial Comment: Over the past six years, the Army Medical Surveillance Activity has periodically compared reportable cases of notifiable conditions based on hospital discharge diagnoses with cases reported through the RMES. This method may underestimate actual reporting completeness because some ICD-9-CM codes are not specific to the reportable condition (i.e., they may include clinical states that are not reportable); and diagnoses made in hospital settings may not be based on the same criteria as those required for confirmed reportable cases. Nonetheless, monitoring of compliance with reporting requirements can provide meaningful epidemiologic information for evaluation, planning, and disease trending⁵. The results of this analysis suggest that the timeliness of reporting may be improving and the overall completeness of reporting is stable.

Analysis and report by Barbara E. Nagaraj, MPH, Analysis Group, Army Medical Surveillance Activity.

References

1. Memorandum: Office of the Surgeon General. SGPS –PSP (40-5). Subject: Implementation of new medical surveillance system, April 1994.

2. Memorandum: HQ, US Army Medical Command, June 17, 1998. Subject: Tri-service reportable events list.
 3. Tri-service reportable events: guidelines and case definitions, version 1.0, July 1998.

4. Memorandum: Office of the Assistant Secretary of Defense (Health Affairs). November 6, 1998. Subject: Tri-service reportable events document.
 5. Headquarters, U.S. Army Medical Command MCHO-CL-W (40) Tri-service Reportable Events List.

Table 1. Completeness* of reporting of hospitalized active duty cases through Reportable Medical Events System, by disease, US Army, 1999-2001

Reportable Event**	1999			2000			2001		
	Hospitalized cases	Reported no.	%	Hospitalized cases	Reported no.	%	Hospitalized cases	Reported no.	%
Amebiasis	2	0	0	2	2	100	2	1	50
Campylobacter	2	2	100	1	1	100	2	1	50
Carbon monoxide poisoning	1	0	0	0	0	-	2	0	0
Coccidioidomycosis	3	1	33	4	2	50	4	2	50
Cold	2	1	50	6	3	50	3	2	67
Cryptosporidiosis	0	0	-	0	0	-	1	0	0
Cyclospora	0	0	-	0	0	-	1	0	0
Dengue fever	1	1	100	0	0	-	3	0	0
Ehrlichiosis	1	0	0	2	0	0	0	0	-
Filariasis	0	0	-	1	1	100	0	0	-
Giardiasis	0	0	-	0	0	-	2	2	100
Gonorrhea	5	2	40	8	2	25	6	3	50
Heat	129	94	73	135	84	62	168	111	66
Hemorrhagic fever	1	1	100	0	0	-	1	1	100
Hepatitis A	3	0	0	3	0	0	1	0	0
Hepatitis B	8	4	50	6	3	50	1	0	0
Hepatitis C	1	0	0	1	0	0	0	0	-
Influenza	11	1	9	7	0	0	12	0	0
Legionellosis	8	1	13	3	0	0	2	0	0
Leishmaniasis	0	0	-	0	0	-	1	1	100
Leptospirosis	1	0	0	1	1	100	2	1	50
Lyme disease	2	0	0	3	1	33	3	0	0
Malaria	41	31	76	33	29	88	34	27	79
Meningococcal disease	5	2	40	4	2	50	1	1	100
Mumps	0	0	-	0	0	-	2	0	0
Pneumococcal pneumonia	18	4	22	20	1	5	27	2	7
Rheumatic fever, acute	0	0	-	0	0	-	1	0	0
Rocky Mountain spotted fever	0	0	-	2	2	100	0	0	-
Salmonellosis	10	4	40	4	4	100	5	3	60
Schistosomiasis	0	0	-	1	0	0	1	0	0
Shigellosis	0	0	-	0	0	-	1	0	0
Toxic shock syndrome	0	0	-	1	0	0	1	0	0
Tuberculosis, pulmonary	7	3	43	5	3	60	11	5	45
Typhoid fever	0	0	-	0	0	-	3	1	33
Urethritis, non-gonococcal	1	0	0	0	0	-	0	0	-
Varicella, active duty only	67	35	52	57	35	61	23	16	70
Total	330	187	57	310	176	57	327	180	55

*Completeness is the percent of hospitalized reportable cases that were reported through the Reportable Medical Events System (RMES).

**Reportable diseases and conditions with no hospitalizations from January 1999 to December 2001 were excluded from this table.

Figure 1. Completeness of reporting of hospitalized cases of notifiable conditions, active duty servicemembers, US Army medical treatment facilities, 1995-2001

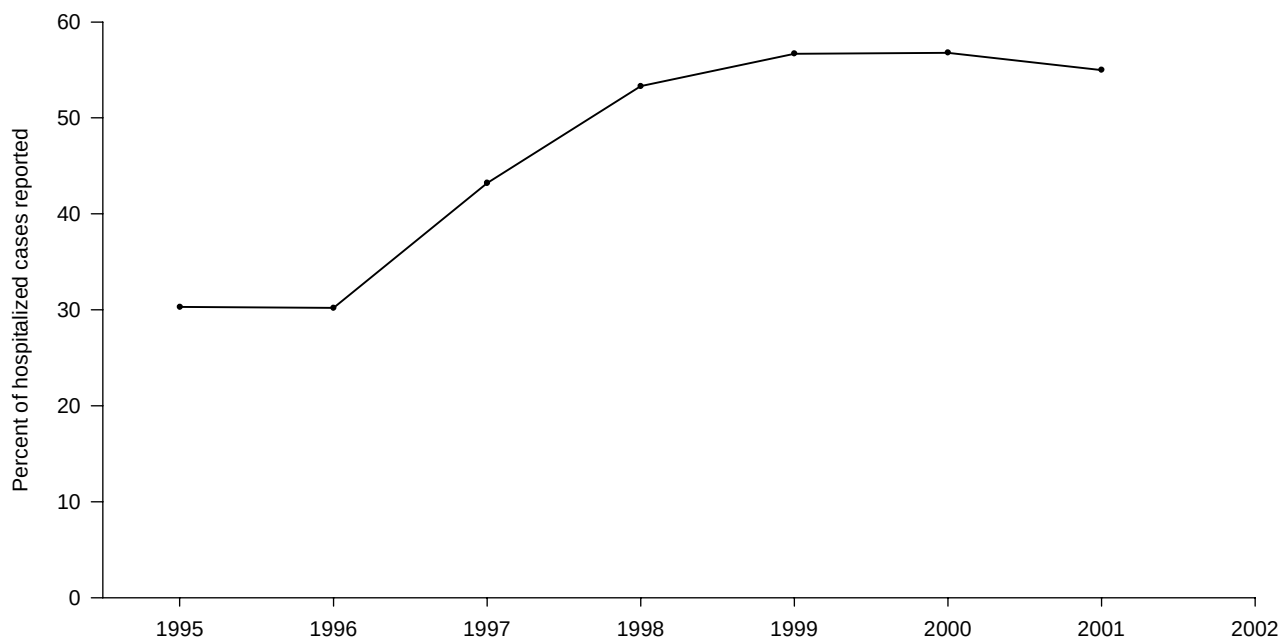


Figure 2. Timeliness of reporting of hospitalized cases of notifiable conditions through the Reportable Medical Events System, US Army, 1995-2001.



**Table 2. Completeness*of reporting of hospitalized active duty cases,
by medical treatment facility, US Army, 1999-June 2001**

Location**	1999			2000			2001		
	Hospitalized cases	Reported no.	%	Hospitalized cases	Reported no.	%	Hospitalized cases	Reported no.	%
A	12	8	67	13	11	85	14	14	100
B	31	22	71	46	40	87	72	66	92
C	12	7	58	10	6	60	3	2	67
D	11	8	73	12	10	83	16	10	63
E	5	1	20	5	2	40	5	3	60
F	11	7	64	17	10	59	16	9	56
G	28	19	68	20	13	65	20	11	55
H	14	7	50	15	8	53	6	3	50
I	10	2	20	9	4	44	4	2	50
J	9	6	67	4	3	75	2	1	50
K	6	6	100	2	1	50	6	3	50
L	68	50	74	52	27	52	67	31	46
M	8	6	75	16	2	13	5	2	40
N	27	4	15	27	11	41	38	15	39
O	11	5	45	4	2	50	8	2	25
P	11	2	18	11	6	55	5	1	20
Q	4	1	25	3	2	67	12	2	17
R	17	10	59	10	4	40	6	1	17
S	7	1	14	8	4	50	8	1	13
T	11	3	27	10	2	20	12	1	8
U	1	1	100	6	4	67	1	0	0
V	4	2	50	4	1	25	1	0	0
W	6	3	50	1	1	100	0	0	-
X	4	4	100	1	0	0	0	0	-
Y	2	2	100	4	2	50	0	0	-
Total	330	187	57	310	176	57	327	180	55

*Completeness is the percent of hospitalized reported cases that were reported through the Reportable Medical Events System (RMES).

**Locations with no reportable hospitalizations from January 1999 to December 2001 were excluded from this table.

Completeness of Reporting of Hospitalized Notifiable Conditions, Active Duty Servicemembers, US Air Force Medical Treatment Facilities, 1998–2001

The US Air Force began automated reporting of notifiable medical conditions in 1998¹. The collection and entry of notifiable case reports into the Air Force Reportable Events Surveillance System (AFRESS) are performed by Public Health offices at Air Force sites worldwide. Each month, case reports are transmitted from individual sites to the Air Force Institute for Environmental and Occupational Health Risk Assessment, Force Health Protection and Surveillance Branch (AFIERA/RSRH); they are then forwarded to the Army Medical Surveillance Activity for integration into the Defense Medical Surveillance System (DMSS). This report summarizes the completeness of reporting of hospitalized cases of notifiable conditions among active duty servicemembers at Air Force medical treatment facilities (MTF) from 1998 to 2001.

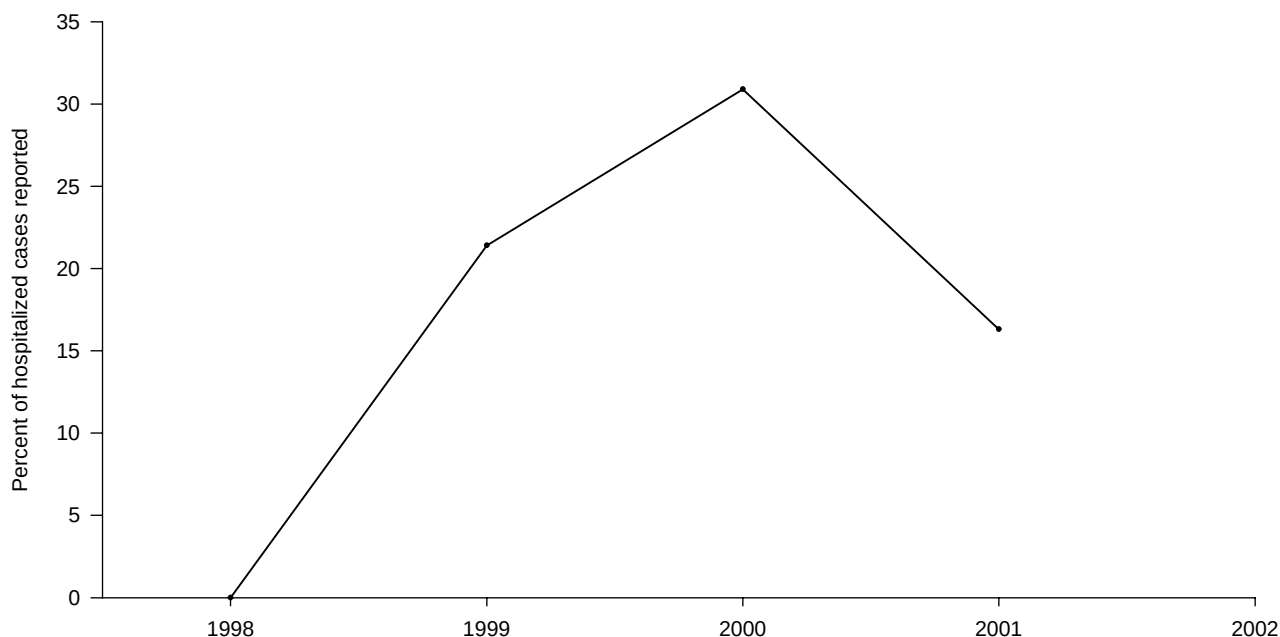
Hospitalized cases of notifiable conditions were identified using ICD-9-CM coded discharge diagnoses. To assess the completeness of reporting, presumably reportable hospitalized cases were compared with confirmed reports to the AFRESS.

Completeness of reporting, hospitalizations overall. For 2001, there were 49 hospitalizations of active duty servicemembers at Air Force medical treatment facilities for conditions considered reportable. Of those, 8 (16%) were reported through AFRESS. Overall, the completeness of reporting in 2001 was lower than in the prior two years (figure 1).

Completeness of reporting, by diagnosis. The most common notifiable conditions that resulted in hospitalizations from 1999 through 2001 were influenza (n=58) and pneumococcal pneumonia (n=29). Estimates of completeness of reporting of these conditions were 39% and 0%, respectively. In 2001, influenza (n=9) and pneumococcal pneumonia (n=9) accounted for the most reportable hospitalizations. The estimated completeness of reporting of these conditions were 11% and 0%, respectively.

Completeness of reporting, by location. The number of presumably reportable hospitalized cases and the

Figure 1. Completeness of reporting of hospitalized cases of notifiable conditions, active duty servicemembers, US Air Force medical treatment facilities, 1998-2001.



completeness of reporting varied significantly across Air Force MTFs. In 2001, 16 sites had at least one reportable hospitalized case; and of these, four reported at least half of their cases and 11 reported none (table 2).

Timeliness of reporting of hospitalized cases. During the 1998-2001 time period, Air Force Public Health offices transmitted notifiable event reports to AFIERA/RSRH once per month. Thus, assessments of the timeliness of reporting from Air Force treatment facilities are not relevant or informative.

Editorial Comment This assessment may underestimate actual reporting completeness because some ICD-9-CM codes are not specific for reportable conditions alone (i.e., they include clinical states that are not reportable); and diagnoses made in a hospital setting may not use the same criteria as those required for confirmed reportable cases. Nevertheless, the results of this analysis suggest that overall completeness of reporting of hospitalized notifiable cases by Air Force MTFs continues to be low.

References

- 1 Tri-service reportable events: guidelines and case definitions, version 1.0, July 1998.

Table 1. Completeness* of reporting of hospitalized active duty cases through the Air Force Reportable Events Surveillance System, by disease, US Air Force, 1999-2001

Reportable Event**	1999			2000			2001		
	Hospitalized cases	Reported no.	%	Hospitalized cases	Reported no.	%	Hospitalized cases	Reported no.	%
Amebiasis	1	0	0	0	0	-	0	0	-
Carbon monoxide poisoning	1	0	0	1	0	0	0	0	-
Coccidioidomycosis	4	2	50	4	0	0	2	0	0
Cold	8	2	25	0	0	-	0	0	-
Giardiasis	0	0	-	0	0	-	1	0	0
Gonorrhea	1	0	0	1	0	0	2	2	100
H. Influenzae, invasive	0	0	-	1	0	0	0	0	-
Heat	13	0	0	6	4	67	6	0	0
Hepatitis B	1	0	0	1	0	0	0	0	-
Influenza	36	16	44	13	6	46	9	1	11
Legionellosis	1	0	0	1	1	100	1	0	0
Lyme disease	2	0	0	1	0	0	0	0	-
Malaria	4	0	0	3	2	67	3	2	67
Meningococcal disease	0	0	-	1	1	100	2	0	0
Pertussis	0	0	-	0	0	-	1	0	0
Pneumococcal pneumonia	11	0	0	8	0	0	9	0	0
Rocky Mountain spotted fever	2	0	0	0	0	-	0	0	-
Salmonellosis	1	0	0	3	2	67	0	0	-
Shigellosis	1	0	0	0	0	-	0	0	-
Streptococcus, Group A, invasive	1	0	0	1	0	0	0	0	-
Syphilis	0	0	-	0	0	-	1	1	100
Toxic shock syndrome	0	0	-	1	0	0	0	0	-
Tuberculosis, pulmonary	4	1	25	1	0	0	4	1	25
Typhoid fever	1	0	0	0	0	-	0	0	-
Urethritis, non-gonococcal	0	0	-	0	0	-	1	0	0
Varicella, active duty only	10	1	10	8	1	13	7	1	14
Total	103	22	21	55	17	31	49	8	16

*Completeness is the percent of hospitalized reportable cases that were reported through the Air Force Reportable Events Surveillance System (AFRESS).

**Reportable diseases and conditions with no hospitalizations from January 1999 to December 2001 were excluded from this table.

**Table 2. Completeness*of reporting of hospitalized active duty cases,
by medical treatment facility, US Air Force, 1999-June 2001**

Location**	1999			2000			2001		
	Hospitalized cases	Reported no.	%	Hospitalized cases	Reported no.	%	Hospitalized cases	Reported no.	%
A	2	0	0	1	0	0	3	2	67
B	3	0	0	4	0	0	4	2	50
C	1	0	0	4	2	50	2	1	50
D	1	0	0	0	0	-	2	1	50
E	42	17	40	16	8	50	15	2	13
F	2	0	0	2	0	0	1	0	0
G	0	0	-	0	0	-	2	0	0
H	5	0	0	3	0	0	1	0	0
I	1	0	0	0	0	-	1	0	0
J	0	0	-	2	1	50	1	0	0
K	0	0	-	0	0	-	1	0	0
L	2	0	0	1	0	0	3	0	0
M	3	1	33	0	0	-	1	0	0
N	3	0	0	5	0	0	10	0	0
O	2	0	0	0	0	-	1	0	0
P	2	1	50	3	1	33	1	0	0
Q	1	0	0	1	0	0	0	0	-
R	1	0	0	0	0	-	0	0	-
S	0	0	-	1	1	100	0	0	-
T	1	1	100	0	0	-	0	0	-
U	4	0	0	3	3	100	0	0	-
V	8	2	25	1	0	0	0	0	-
W	0	0	-	1	0	0	0	0	-
X	3	0	0	0	0	-	0	0	-
Y	0	0	-	2	0	0	0	0	-
Z	1	0	0	0	0	-	0	0	-
Aa	1	0	0	0	0	-	0	0	-
Bb	1	0	0	0	0	-	0	0	-
Cc	3	0	0	0	0	-	0	0	-
Dd	1	0	0	0	0	-	0	0	-
Ee	1	0	0	0	0	-	0	0	-
Ff	0	0	-	1	0	0	0	0	-
Gg	2	0	0	0	0	-	0	0	-
Hh	1	0	0	0	0	-	0	0	-
Ii	1	0	0	1	1	100	0	0	-
Jj	2	0	0	0	0	-	0	0	-
Kk	1	0	0	1	0	0	0	0	-
Ll	1	0	0	2	0	0	0	0	-
Total	103	22	21	55	17	31	49	8	16

*Completeness is the percent of hospitalized reported cases that were reported through the Air Force Reportable Events Surveillance System (AFRESS).

**Locations with no reportable hospitalizations from January 1999 to December 2001 were excluded from this table.

Completeness of Reporting of Hospitalized Notifiable Conditions, Active Duty Servicemembers, US Naval Medical Treatment Facilities, 1998–2001

In 1998, the US Navy began automated reporting of cases of notifiable medical conditions as specified in the tri-service consensus list¹. Regional Navy Environmental and Preventive Medicine Units track and report notifiable cases to the Navy Environmental Health Center (NEHC). In turn, NEHC transmits case reports to the Army Medical Surveillance Activity for integration into the Defense Medical Surveillance System (DMSS).^{2,3} This report summarizes the completeness of reporting of hospitalized cases of notifiable conditions among active duty service members at Navy medical treatment facilities (MTF) from 1998 to 2001.

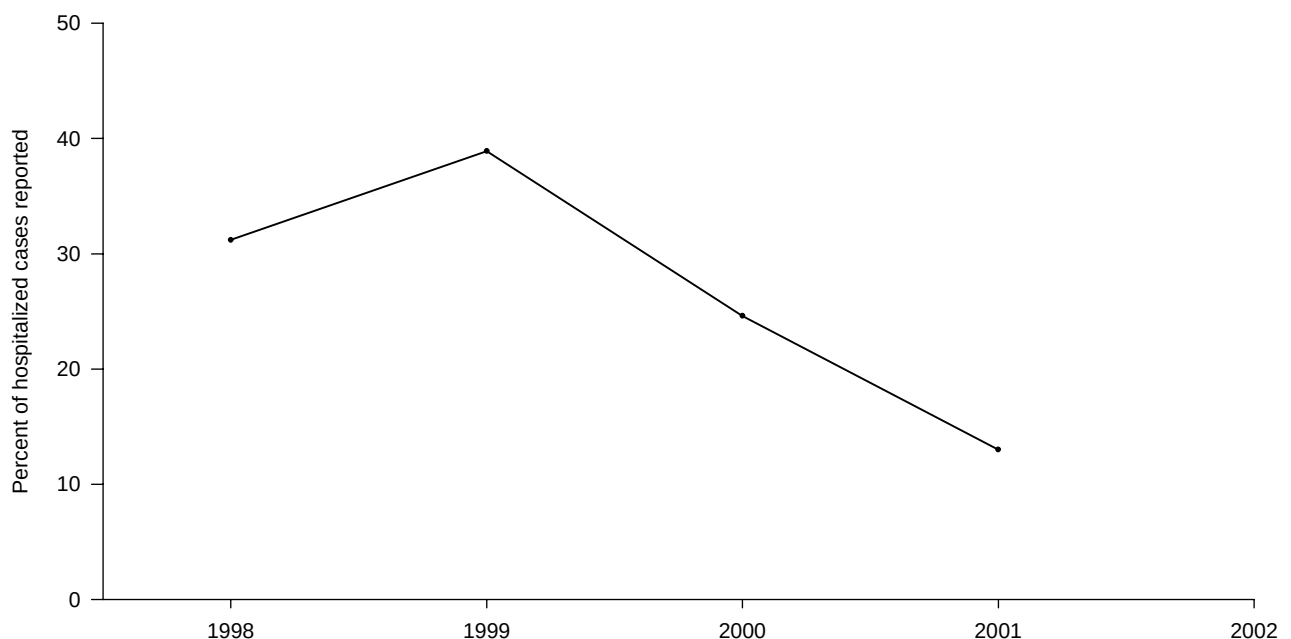
Hospitalized cases of notifiable conditions were identified using ICD-9-CM coded discharge diagnoses. To assess the completeness of reporting, presumably reportable hospitalized cases were compared with confirmed reports to the Navy Disease Reporting System (NDRS).

Completeness of reporting, hospitalizations overall. During 2001, there were 161 hospitalizations of active duty service members at Naval medical treatment facilities for conditions considered reportable. Of those, 21 (13%) were reported through NDRS. Overall, completeness of reporting has declined since 1999; and the estimated completeness of reporting in 2001 was lower than in any of the prior three years (figure 1).

Completeness of reporting, by diagnosis. As in previous years, in 2001 the most common notifiable conditions that resulted in hospitalizations were heat injuries (n=74), varicella (n=30), and pneumococcal pneumonia (n=15). Estimated completeness of reporting of these conditions was 7%, 23%, and 0%, respectively (table 1).

Completeness of reporting, by location. As in the past, there was significant variability in the number of

Figure 1. Completeness of reporting of hospitalized cases of notifiable conditions, active duty servicemembers, US Navy medical treatment facilities, 1998-2001.



presumably reportable hospitalized cases and completeness of reporting across Naval medical treatment facilities. In 2001, 18 sites had at least one reportable hospitalized case; and of these, none reported at least half of their cases, and nine reported none (table 2).

Timeliness of reporting of hospitalized cases. On a monthly basis, Navy sites transmit notifiable event

reports to Environmental Preventive Medicine Units; and once a month, EPMUs forward reports to the Navy Environmental Health Center. Thus, assessments of the timeliness of reporting from Navy treatment facilities are not relevant or informative.

Editorial Comment. The Army Medical Surveillance Activity periodically estimates the completeness of reporting of notifiable cases that are hospitalized at

Table 1. Completeness* of reporting of hospitalized active duty cases through the Navy Disease Reporting System, by disease, US Navy and Marine Corps, 1999-2001

Reportable Event**	1999			2000			2001		
	Hospitalized cases	Reported no.	%	Hospitalized cases	Reported no.	%	Hospitalized cases	Reported no.	%
Amebiasis	0	0	-	1	0	0	0	0	-
Campylobacter	0	0	-	1	0	0	0	0	-
Carbon monoxide poisoning	1	0	0	2	0	0	2	0	0
Coccidioidomycosis	4	2	50	3	2	67	1	1	100
Cold	1	0	0	2	0	0	0	0	-
Dengue fever	0	0	-	2	1	50	0	0	-
Ehrlichiosis	2	1	50	0	0	-	0	0	-
Giardiasis	0	0	-	0	0	-	1	0	0
Gonorrhea	3	0	0	6	1	17	4	0	0
Heat	36	15	42	46	11	24	74	5	7
Hepatitis A	3	0	0	1	0	0	1	0	0
Hepatitis B	4	2	50	3	2	67	4	1	25
Influenza	2	0	0	8	0	0	6	0	0
Legionellosis	3	0	0	0	0	-	1	0	0
Lyme disease	0	0	-	0	0	-	1	0	0
Malaria	13	10	77	13	7	54	6	1	17
Meningitis	1	1	100	5	4	80	4	3	75
Pneumococcal pneumonia	19	2	11	27	0	0	15	0	0
Rheumatic fever, acute	1	0	0	0	0	-	1	1	100
Rocky Mountain spotted fever	0	0	-	2	0	0	0	0	-
Salmonellosis	4	2	50	1	1	100	3	0	0
Shigellosis	0	0	-	2	0	0	0	0	-
Syphilis	1	0	0	0	0	-	1	0	0
Toxic shock syndrome	1	0	0	2	0	0	0	0	-
Tuberculosis, pulmonary	7	7	100	6	4	67	6	2	33
Typhoid fever	1	0	0	1	0	0	0	0	-
Varicella, active duty only	37	14	38	33	8	24	30	7	23
Total	144	56	39	167	41	25	161	21	13

*Completeness is the percent of hospitalized reportable cases that were reported through the Naval Disease Reporting System (NDRS).

**Reportable diseases and conditions with no hospitalizations from January 1999 to December 2001 were excluded from this table.

Navy MTFs. The methods that are used for periodic assessments may underestimate actual reporting completeness (as noted in the editorial comments to the Army and Air Force reports elsewhere in this issue). The results of the current assessment suggest that, in general, the completeness of reporting from Navy MTFs has declined during the past 3 years.

References

1. Tri-service reportable events: guidelines and case definitions, version 1.0, July 1998.
2. Memorandum: Office of the Assistant Secretary of Defense (Health Affairs). November 6, 1998. Subject: Tri-service reportable events document.
3. Navy Environmental Health Center. Naval disease reporting system (NDRS). Naval Medicine Surveillance Report (NMSR), 1998, 1:4,2.

Table 2. Completeness*of reporting of hospitalized active duty cases, by medical treatment facility, US Navy and Marine Corps 1999-June 2001

Location**	1999			2000			2001		
	Hospitalized cases	Reported no.	%	Hospitalized cases	Reported no.	%	Hospitalized cases	Reported no.	%
A	15	2	13	26	4	15	15	5	33
B	1	0	0	0	0	-	3	1	33
C	7	1	14	5	1	20	4	1	25
D	18	9	50	14	4	29	15	3	20
E	19	9	47	35	14	40	26	4	15
F	21	14	67	13	9	69	15	2	13
G	12	6	50	10	1	10	8	1	13
H	6	0	0	9	3	33	10	1	10
I	21	10	48	22	1	5	45	3	7
J	1	0	0	2	0	0	2	0	0
K	6	0	0	12	0	0	8	0	0
L	0	0	-	1	0	0	1	0	0
M	0	0	-	6	2	33	2	0	0
N	4	1	25	1	0	0	1	0	0
O	0	0	-	0	0	-	2	0	0
P	3	2	67	0	0	-	2	0	0
Q	1	0	0	1	0	0	1	0	0
R	5	2	40	5	1	20	1	0	0
S	1	0	0	1	1	100	0	0	-
T	1	0	0	0	0	-	0	0	-
U	1	0	0	3	0	0	0	0	-
V	1	0	0	1	0	0	0	0	-
Total	144	56	39	167	41	25	161	21	13

*Completeness is the percent of hospitalized reported cases that were reported through the Naval Disease Reporting System (NDRS).

**Locations with no reportable hospitalizations from January 1999 to December 2001 were excluded from this table.

Active duty force strength by military treatment facility, US Army, April 2002*

MTF/Post**	Males							Females							All [§]
	< 20	20-24	25-29	30-34	35-39	>= 40	Total M	< 20	20-24	25-29	30-34	35-39	>= 40	Total F	
NORTH ATLANTIC RMC															
Walter Reed AMC	32	415	472	470	471	678	2538	23	264	269	235	166	232	1189	3727
Aberdeen Prov Grd, MD	238	367	244	323	340	327	1839	58	97	74	79	39	45	392	2231
FT Belvoir, VA	11	205	243	292	382	509	1642	10	91	76	81	95	104	457	2099
FT Bragg, NC	2858	12860	7344	5661	4222	2535	35480	384	1838	1085	685	457	294	4743	40224
FT Drum, NY	706	4110	2144	1351	999	603	9913	144	518	246	137	87	55	1187	11100
FT Eustis, VA	506	1467	1014	753	686	444	4870	137	423	249	135	120	73	1137	6008
FT Knox, KY	1277	2595	1447	1249	1134	696	8398	54	196	162	116	94	91	713	9111
FT Lee, VA	366	962	654	602	545	383	3512	290	419	267	239	115	81	1411	4923
FT Meade, MD	52	470	440	486	425	323	2196	27	198	173	118	117	79	712	2908
West Point, NY	1	135	110	329	212	297	1084	10	48	34	69	32	38	231	1315
GREAT PLAINS RMC															
Brooke AMC	291	742	776	939	815	866	4429	260	455	355	356	298	312	2036	6465
Wm Beaumont AMC	558	2732	1695	1287	1214	1050	8536	178	723	371	232	151	175	1830	10366
FT Carson, CO	769	4556	3008	1990	1528	855	12706	195	826	387	225	163	101	1897	14603
FT Hood, TX	2488	13648	7404	4990	3850	2369	34749	671	2822	1394	854	562	379	6682	41432
FT Huachuca, AZ	376	1056	822	627	534	409	3824	158	280	193	112	97	80	920	4744
FT Leavenworth, KS	28	274	196	427	906	567	2398	17	79	44	63	101	48	352	2750
FT Leonard Wood, MO	1055	1968	1108	1055	855	488	6529	693	831	359	246	104	72	2305	8835
FT Polk, LA	533	2772	1556	1223	906	427	7417	141	533	239	145	102	63	1223	8640
FT Riley, KS	706	3688	1874	1197	866	521	8852	145	452	222	152	88	52	1111	9963
FT Sill, OK	1561	4170	2200	1699	1236	746	11612	94	417	243	171	113	66	1104	12716
SOUTHEAST RMC															
Eisenhower AMC	1000	2033	1236	990	811	670	6740	253	589	422	293	202	183	1942	8682
FT Benning, GA	3301	6681	3517	2406	1516	768	18189	159	541	367	227	132	95	1521	19711
FT Campbell, KY	1508	7973	4832	3563	2474	1276	21626	291	1242	608	412	258	132	2943	24570
FT Jackson, SC	1234	2088	1127	1080	876	494	6899	742	1070	499	388	214	103	3016	9916
FT Rucker, AL	134	869	1101	666	567	500	3837	51	189	153	90	56	49	588	4425
FT Stewart, GA	890	5281	2770	1896	1491	903	13231	212	874	546	287	199	121	2239	15471
WESTERN RMC															
Madigan AMC	1071	5879	3547	2421	1908	1232	16058	269	1012	535	348	247	192	2603	18662
FT Irwin, CA	178	1345	899	691	522	299	3934	41	210	106	94	57	24	532	4466
FT Wainwright, AK	273	1435	1013	634	399	198	3952	50	229	157	106	62	34	638	4590
OTHER LOCATIONS															
Tripler AMC	569	4485	3063	1929	1299	881	12226	140	852	577	369	246	215	2399	14626
Europe	2762	16049	11055	7881	6090	3654	47491	747	3555	1988	1276	838	585	8989	56481
Korea	1739	8947	5013	3635	3263	2050	24647	486	1715	895	649	528	381	4654	29301
Other/Unknown	1584	9671	9206	10495	11362	11047	53365	507	2391	1954	1723	1584	1507	9666	63054
Total	30655	131928	83130	65237	54704	39065	404719 [§]	7637	25979	15249	10712	7724	6061	73362 [§]	478115 [§]

* Based on duty zip code. Does not account for TDY.

§ Includes unknown age groups and unknown gender.

** Includes any subordinate catchment areas not listed separately.

Source: Defense Manpower Data Center (DMDC)

Update: Serogroup C Meningococcal Disease Outbreak—Fort Leonard Wood, Missouri, 2002

The May issue of the MSMR reported seven cases (5 confirmed, 1 probable, 1 suspect) of serogroup C meningococcal disease among servicemembers who were or had been recently assigned to Fort Leonard Wood and their contacts.¹ The report also described the nature and scope of interventions that were implemented to counter the outbreak. This update describes two additional cases of serogroup C meningococcal disease in individuals with epidemiologic links to Fort Leonard Wood.

Case 8 (confirmed): On 26 May 2002, a 20 year old active duty soldier developed a headache, body aches, and fever after developing a sore throat the day before. He presented to the emergency room the following day with a fever of 102.7 and a worsening headache. The soldier had received the quadrivalent (serogroups A, C, Y, W135) meningococcal vaccine two days prior to developing symptoms. Blood cultures demonstrated gram-negative diplococci that were later confirmed to be *Neisseria meningitidis* serogroup C of identical serotype, serosubtype, and LOS type of the four prior confirmed cases. His hospital course was unremarkable, and he recovered without sequelae.

Case 9 (probable): On 25 June 2002, a 16 year old female developed a severe headache and fever and presented to a local civilian hospital emergency room. Eight days before developing symptoms, the girl met and began dating a soldier in the US Army Reserve who had recently completed Advanced Individual Training (AIT) at Fort Leonard Wood. The soldier graduated from AIT on 31 May. According to records, the soldier had received Ciprofloxacin® during a mass chemoprophylaxis operation on 4 May. Initial laboratory results from the female patient demonstrated intracellular and extracellular diplococci. Cultures of cerebrospinal fluid (CSF) and blood were negative; however, bacterial antigen from CSF was later determined to be serogroup C *Neisseria meningitidis* by PCR. No further typing could be performed. The patient was treated with antibiotics and discharged in good health on 1 July 2002.

Updates of this report will be included in future MSMRs as needed.

Report submitted by Greg Martin, CPT, MC, USA, Fort Leonard Wood, Missouri.

Reference

1. Faix DJ, Martin G, Petrucci BP, Mott RL. Serogroup C meningococcal disease outbreak—Fort Leonard Wood, Missouri, 2002. MSMR, 8:3, 8-11.

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