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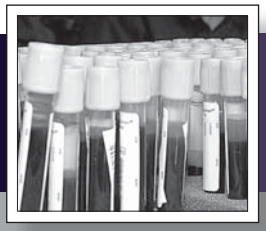

MEDICAL SURVEILLANCE MONTHLY REPORT

INSIDE THIS ISSUE:

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Updates: Routine Screening for Antibodies to HIV-1 among Civilian Applicants for U.S. Military Service; U.S. Army and U.S. Air Force, Active and Reserve Components; U.S. Navy and Marine Corps, Active Duty

Since October 1985, the U.S. military has conducted routine screening for antibodies to HIV -1 among civilian applicants for U.S. military service. Since 1986, all members of the active and reserve components of the U.S.Armed Forces have been periodically screened for antibodies to HIV-1. This report summarizes prevalences and trends of HIV -1 antibody seropositivity among civilian applicants for military service and members of the active and reserve components of the U.S. Army who have been screened since 1990.

Methods:

For civilian applicants for U.S. military service and members of the U.S. Army, prevalences of HIV-1 antibody seropositivity were estimated by matching specimen numbers and serologic test results to the personal identifiers of the individuals who provided the specimens. All data were accessed from records maintained in the Defense Medical Surveillance System.

For this summary, an incident diagnosis of HIV-1 antibody seropositivity was defined as two "positive" results from serologic testing of two different specimens from the same individual (or one "positive" result from serologic testing of the last specimen provided by an individual). Annual HIV-1 prevalences among civilian applicants for service were calculated by dividing the number of applicants identified as HIV-1 antibody seropositive by the number of applicants tested each year. For calendar year summaries of routine screening in the U.S. Army, denominators were the numbers of individuals from the active component, National Guard, and U.S. Army Reserve who were tested at least once during each year of interest.

Results:

Civilian applicants for U.S. Military service

During the 18-month period from January 2007 to June 2008, 546,318 tests for antibodies to HIV-1 were conducted among 545,427 civilian applicants for military service. During the period, 225 applicants were detected with antibodies to HIV-1 (seroprevalence: 0.41 per 1,000 tested) **(Table 1)**.

Since routine screening began, the lowest annual seroprevalence among applicants overall was in 2003 (0.32 per 1,000 tested). From 2003 to 2007, seroprevalences among applicants overall increased; however, the increase in seroprevalences among applicants overall was entirely attributable to increasing prevalences among males **(Table 1, Figure 1)**.

Among male applicants, seroprevalences monotonically increased — by more than one-third overall — between 2003 and 2007 (male applicants, HIV-1 seropositive: 2003, n=95; prevalence: 0.34 per 1,000; 2007, n=132; prevalence: 0.46 per 1,000). The prevalence among males in 2007 was higher than in any year since 1995. In contrast, seroprevalences among female applicants have been low and stable since 2002 **(Table 1, Figure 1)**.

As in the past, in 2007, the seroprevalence was sharply higher among applicants who were Black non-Hispanic (1.57 per 1,000) compared to White non-Hispanic (0.19 per 1,000) or Hispanic/other (0.28 per 1,000) race/ethnicity. For several years, there have been no clear trends of race/ethnicity-specific seroprevalences **(Table 2, Figure 2)**.

U.S. Army

Active component : During the 18-month period from January 2007 to June 2008, 632,679 tests for antibodies to HIV-1 were conducted among 555,297 soldiers in the active component of the U.S. Army. During the period, 111 soldiers (0.20 per 1,000 tested) were detected with antibodies to HIV-1 **(Table 3)**.

During calendar year 2007, 60 soldiers were detected with antibodies to HIV-1. The overall prevalence of seropositivity was 0.17 per 1,000 soldiers tested; on average, one new HIV-1 infected soldier was detected per 6,797 screening tests **(Table 3)**.

During the 1990s, overall prevalences of HIV-1 seropositivity among active component soldiers declined by more than half (from 0.36 to 0.17 per 1,000). Since 2000, seroprevalences have been fairly stable — among males, females, and overall. Of the 1,435 active component soldiers diagnosed with HIV-1 infections since 1990, 381 (26.6%) remain in service **(Table 3, Figure 3)**.

Army National Guard: During the 18-month period from January 2007 to June 2008, 257,165 tests for antibodies to HIV-1 were conducted among 239,640 members of the U.S. Army National Guard. During the period, 57 soldiers (0.24 per 1,000 tested) were detected with antibodies to HIV-1 **(Table 4)**.

In calendar year 2007, 39 National Guard soldiers were detected with antibodies to HIV-1. The overall prevalence of seropositivity was 0.27 per 1,000 tested. The annual prevalence in 2007 was higher than in any year since 2002 but lower than in any year of the 1990s. In 2007, on average, one new HIV-1 infected soldier was detected per 4,029 screening tests **(Table 4, Figure 4)**.

In 2007, the seropositivity among male National Guard soldiers was 0.30 per 1,000 tested — the highest since 2002; only one female National Guard soldier was HIV-1 seropositive during routine screening. Of 739 National Guard soldiers diagnosed with HIV-1 infections since 1990, 130 (17.6%) remain in service **(Table 4)**.

Army Reserve : During the 18-month period from January 2007 to June 2008, 139,465 tests for antibodies to HIV-1 were conducted among 127,712 soldiers in the U.S. Army Reserve. During the period, 54 soldiers (0.42 per 1,000 tested) were detected with antibodies to HIV-1 **(Table 5)**.

In calendar year 2007, 37 U.S. Army Reserve soldiers were HIV-1 seropositive; the overall seropositivity was 0.45 per 1,000 tested. The number of HIV-1 infections detected in 2007 was higher than in any year except one since 1993. Of note, all Army Reservists detected with HIV-1 infections in 2007 were males. Finally, in 2007, on average, one new HIV-1 infected soldier was detected per 2,461 screening tests **(Table 5)**.

In general, seroprevalences among Army Reserves are relatively unstable, and there are no clear trends **(Table 5, Figure 5).** Of 641 Reservists diagnosed with HIV-1 since 1990, 144 (22.5%) remain in service **(Table 5)**.

Finally, in 2007, approximately one of 20 HIV-1 tests conducted among soldiers from all components were for clinical indications (including evaluations of sexually transmitted infections) **(Table, p. 4).**

Data summaries by: Gi Taik Oh, Data Analysis Group, Armed Forces Health Surveillance Center

U.S. Air Force

Active component: In 2007, 229,556 tests for antibodies to HIV-1 were conducted among 204,424 members of the active component of the U.S. Air Force. During the year, 40 airmen (0.20 per 1,000 tested) were detected with antibodies to HIV-1. On average, one new HIV-1 infection was detected per 5,739 screening tests **(Table 6).**

The seroprevalence among airmen tested in 2007 was higher than in any year since 1996. From 2004 to 2007, prevalences of seropositivity among airmen overall — and males, in particular — increased nearly three-fold. Of note, all new infections detected during routine testing in 2007 were among males **(Table 6, Figure 6).**

Air National Guard: In 2007, 15,296 tests for antibodies to HIV-1 were conducted among 14,044 members of the U.S. Air Force National Guard. During the year, two airmen (0.14 per 1,000 tested) were detected with antibodies to HIV-1. On average, in 2007, one new HIV-1 infection was detected per 7,648 screening tests **(Table 7).**

Compared to the previous five years, there were fewer HIV-1 infections detected and the seroprevalence was lower among Air National Guard members who were tested in 2007 **(Table 7, Figure 7).**

Air Force Reserve: In 2007, 26,824 tests for antibodies to HIV-1 were conducted among 24,953 members of the U.S. Air Force Reserve. During the year, six airmen (0.24 per 1,000 tested) were detected with antibodies to HIV-1. On average, in 2007, one new HIV-1 infection was detected per 4,471 screening tests **(Table 8)**. The seroprevalence among those tested in 2007 was relatively low compared to recent prior years **(Table 8, Figure 8).**

Data summaries provided by: Ernest Williams, MPH, Jenny Butler, MS, and Natalie Johns, Maj, USAF, BSC, DVM, MPH, dipl ACVPM.

U.S. Navy

Active duty: In 2007, 75 sailors on active duty in the U.S. Navy (0.32 per 1,000 tested) were newly detected with antibodies to HIV -1 **(Table 9)**. The prevalence of seropositivity in 2007 continued a 6-year trend of relative stability **(Table 9, Figure 9).**

Data source: National Naval Medical Center Bethesda - HIV Central Services. Accessed on 27 August 2008 at: http://www-nmcphc.med.navy.mil/hp/sharp/sharp_stats.htm

U.S. Marine Corps

Active duty: In 2007, 20 active duty members of the U.S. Marine Corps (0.16 per 1,000 tested) were newly detected with antibodies to HIV -1 **(Table 10)**. The prevalence of seropositivity in 2007 continued a trend of relatively low seroprevalences **(Table 10, Figure 10).**

Data source: National Naval Medical Center Bethesda - HIV Central Services. Accessed on 27 August 2008 at: http://www-nmcphc.med.navy.mil/hp/sharp/sharp_stats.htm

Editorial comment:

The U.S. military began routine screening for antibodies to HIV-1 among civilian applicants for all military Services in October 1985. Routine periodic screening of all members of all components of the Services began shortly thereafter. During the "first rounds" of HIV-1 antibody testing in the Services, detections of "new" infections were relatively frequent because most service members had never been tested — thus, both longstanding (prevalent) and recently acquired (incident) infections were subject to detection through routine screening. By 1990, nearly all service members had been tested at least once — as applicants for and/or while serving in the military. As a result, periodic screening was detecting only infections that had been acquired since service members' last negative tests (incident infections).

Results of routine, periodic screening for HIV-1 in dynamic (i.e., continuously changing) military populations must be interpreted cautiously — particularly, comparisons of seropositivity from year to year across Services and components. Prevalences of seropositivity in repeatedly screened populations reflect not only infection incidence rates (i.e., rates of acquisition of new HIV-1 infections) but also testing frequencies. If rates of acquisition of HIV-1 infections (infection incidence rates) were identical in two serially tested populations, prevalences of seropositivity during each round of testing would directly vary by the times between rounds (because the longer the interval, the more undetected infections accumulate, between testing rounds). Thus, for example, increases or declines in observed seroprevalences during routine periodic screening could reflect changes in rates of infection acquisition and/or decreases or increases, respectively, in test intervals. In turn, differences in observed seroprevalences across Services or components could reflect differences in infection risks and/or differences in testing policies and practices.

With the above caveats in mind, the monitoring of results and trends of HIV-1 seroprevalences in various military populations can help target and focus prevention initiatives. The results presented here suggest that, in general, prevalences of HIV-1 infection among civilian applicants for military service and infection incidence rates among active and reserve component members of the services are relatively low and stable.

Indication for HIV-1 tests, among soldiers, U.S. Army, by component, January-December 2007

Test indication	Active component	National Guard	Reserve	Total	% of total
Clinical (including sexually transmitted diseases)	28,089	1,943	1,435	31,467	4.8
Routine screening	139,668	45,851	18,983	204,502	31.2
Physical examination	64,325	64,124	47,408	175,857	26.8
Other/unknown	175,714	45,215	23,232	244,161	37.2
Total 407,796		**157,133**	**91,058**	**655,987**	**100.0**

Table 1. Diagnoses of HIV-1 infections, by gender, civilian applicants for U.S. military service, January 1990-June 2008

Year	Total HIV tests	Total persons tested#	Males tested	Females tested	Total HIV-1 (+)#	HIV-1 (+), males	HIV-1 (+), females	HIV-1 (+) per 1000 tested, overall	HIV-1 (+) per 1000 tested, males	HIV-1 (+) per 1000 tested, females
1990	461,866	403,884	340,514	63,332	356	325	31	0.88	0.95	0.49
1991	435,117	383,532	326,690	56,816	317	286	31	0.83	0.88	0.55
1992	387,843	340,541	279,344	61,165	185	155	30	0.54	0.55	0.49
1993	360,998	316,292	258,462	57,828	174	150	24	0.55	0.58	0.42
1994	329,012	280,879	224,164	56,714	130	97	33	0.46	0.43	0.58
1995	294,954	239,259	190,394	48,772	136	113	23	0.57	0.59	0.47
1996	327,396	287,776	226,767	60,442	94	79	14	0.33	0.35	0.23
1997	356,389	315,713	243,605	62,743	126	103	18	0.40	0.42	0.29
1998	336,566	298,548	234,184	63,399	126	108	18	0.42	0.46	0.28
1999	363,327	326,288	257,298	68,853	130	109	21	0.40	0.42	0.30
2000	388,946	354,113	277,984	75,865	134	111	23	0.38	0.40	0.30
2001	413,130	381,563	303,673	77,784	140	120	20	0.37	0.40	0.26
2002	415,046	388,081	307,126	80,850	139	122	17	0.36	0.40	0.21
2003	361,566	341,592	275,949	65,564	110	95	15	0.32	0.34	0.23
2004	307,229	293,485	237,602	55,873	107	93	14	0.36	0.39	0.25
2005	319,131	310,226	251,620	58,579	111	101	10	0.36	0.40	0.17
2006	353,906	350,701	283,055	67,621	137	120	17	0.39	0.42	0.25
2007	350,370	349,573	284,029	65,527	143	132	11	0.41	0.46	0.17
2008*	195,948	195,854	159,796	36,053	82	74	8	0.42	0.46	0.22
Total	**6,758,740**	**6,157,900#**	**4,962,256**	**1,183,780**	**2,877#**	**2,493**	**378**			

*Through 30 June 2008

"Total persons tested" and "total HIV-1 (+)" include "unknown/missing" genders.

Figure 1. Diagnoses of HIV-1 infections, by gender, civilian applicants for U.S. military service, January 1990-June 2008.

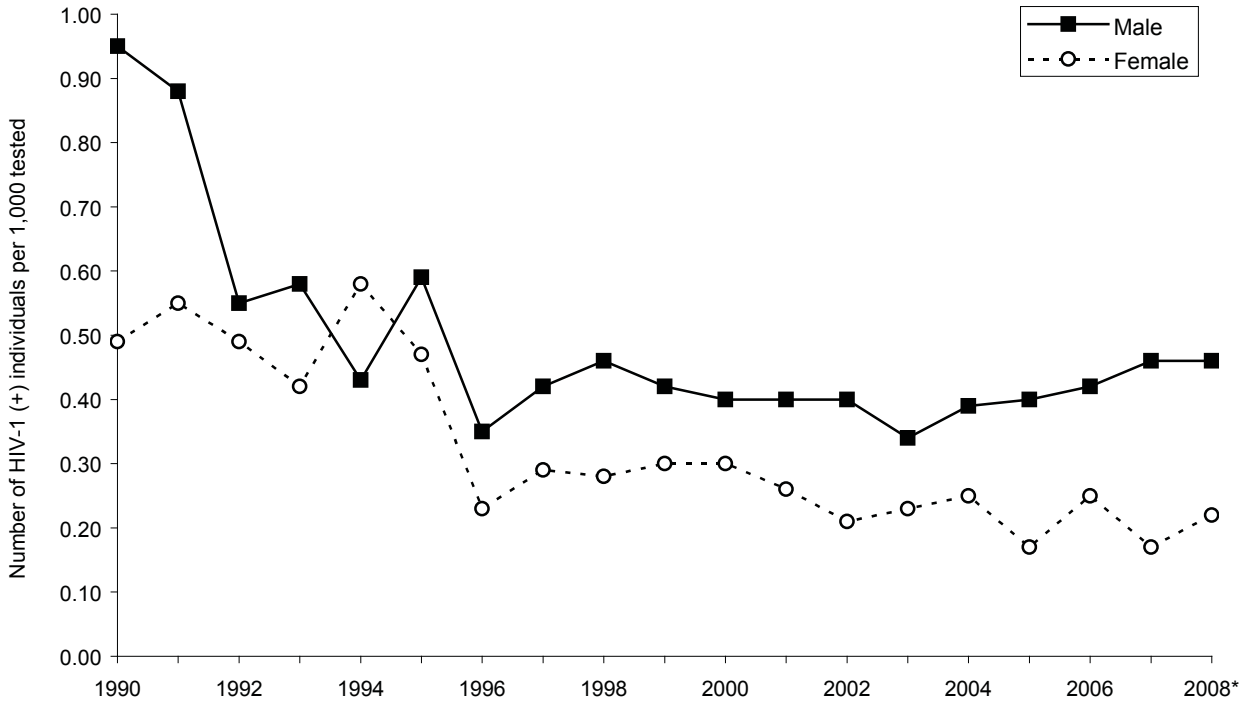


Table 2. Diagnoses of HIV-1 infections by race/ethnicity, civilian applicants for U.S. military service, January 1990-June 2008

Year	Total HIV tests	Total persons tested	White non-hispanic tested	Black non-hispanic tested	Hispanic and others tested	Total HIV-1 (+)	White non-hispanic HIV-1(+)	Black non-hispanic HIV-1(+)	Hispanic and others HIV-1(+)	Overall rate per 1000 tested	White non-hispanic rate per 1000 tested	Black non-hispanic rate per 1000 tested	Hispanic and others rate per 1000 tested
1990	461,866	403,884	289,658	73,776	40,450	356	125	200	31	0.88	0.43	2.71	0.77
1991	435,117	383,532	289,921	55,270	38,341	317	114	173	30	0.83	0.39	3.13	0.78
1992	387,843	340,541	247,536	55,545	37,460	185	57	117	11	0.54	0.23	2.11	0.29
1993	360,998	316,292	228,953	52,114	35,225	174	57	109	8	0.55	0.25	2.09	0.23
1994	329,012	280,879	190,124	50,870	39,885	130	30	93	7	0.46	0.16	1.83	0.18
1995	294,954	239,259	158,369	43,358	37,532	136	36	89	11	0.57	0.23	2.05	0.29
1996	327,396	287,776	188,941	54,197	44,638	94	22	67	5	0.33	0.12	1.24	0.11
1997	356,389	315,713	199,251	59,289	57,173	126	30	83	13	0.40	0.15	1.40	0.23
1998	336,566	298,548	192,020	56,279	50,249	126	29	87	10	0.42	0.15	1.55	0.20
1999	363,327	326,288	214,142	61,907	50,239	130	29	91	10	0.40	0.14	1.47	0.20
2000	388,946	354,113	231,528	68,197	54,388	134	23	104	7	0.38	0.10	1.52	0.13
2001	413,130	381,563	258,801	65,934	56,828	140	32	91	17	0.37	0.12	1.38	0.30
2002	415,046	388,081	265,816	63,100	59,165	139	40	86	13	0.36	0.15	1.36	0.22
2003	361,566	341,592	235,659	49,499	56,434	110	26	71	13	0.32	0.11	1.43	0.23
2004	307,229	293,485	198,183	41,377	53,925	107	26	66	15	0.36	0.13	1.60	0.28
2005	319,131	310,226	212,487	41,280	56,459	111	41	59	11	0.36	0.19	1.43	0.19
2006	353,906	350,701	241,290	49,780	59,631	137	44	80	13	0.39	0.18	1.61	0.22
2007	350,370	349,573	241,638	51,006	56,929	143	47	80	16	0.41	0.19	1.57	0.28
2008*	195,948	195,854	136,273	30,109	29,472	82	19	56	7	0.42	0.14	1.86	0.24
Total	**6,758,740**	**6,157,900**	**4,220,590**	**1,022,887**	**914,423**	**2,877**	**827**	**1,802**	**248**				

*Through 30 June 2008

"Total persons tested" and "total new HIV-1 (+)" include "unknown/missing" genders.

Figure 2. Diagnoses of HIV-1 infections, by race/ethnicity, civilian applicants for U.S. military service, January 1990-June 2008.

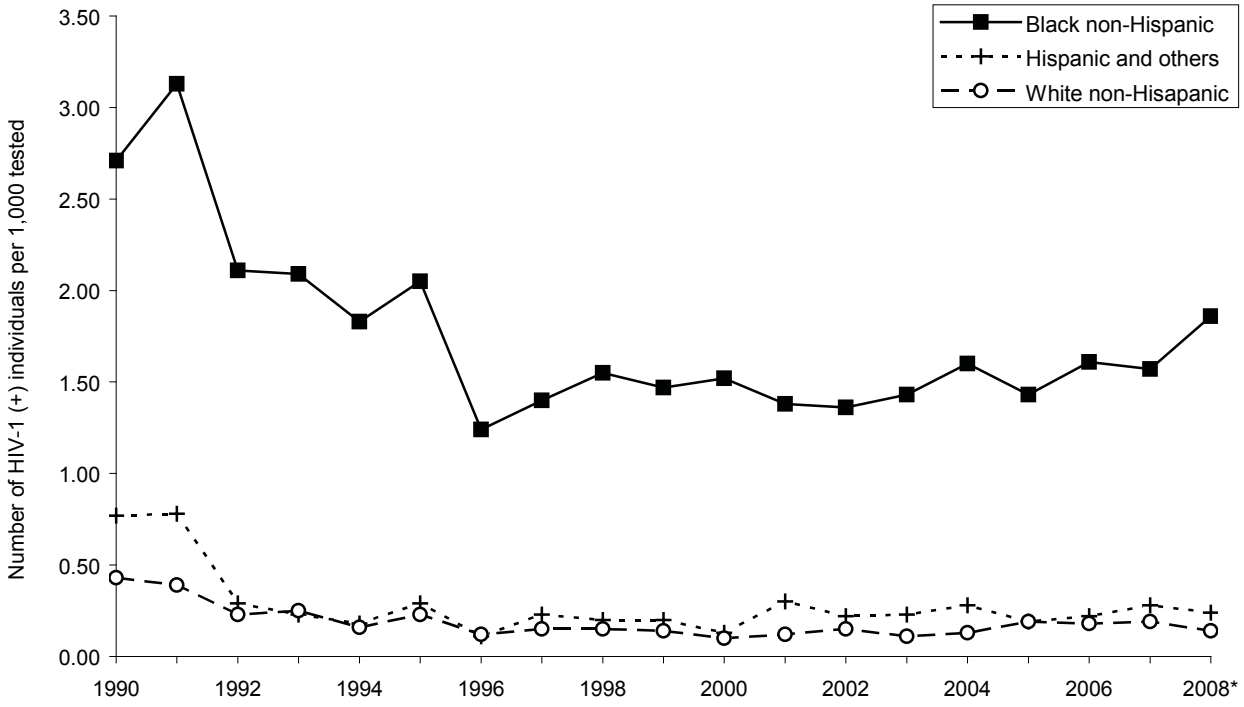


Table 3. New diagnoses of HIV-1 infections, by gender, active component, U.S. Army, January 1990-June 2008

Year	Total HIV tests	Total persons tested#	Males tested	Females tested	Total new HIV-1 (+)#	New HIV-1 (+), males	New HIV-1 (+), females	HIV-1 (+) per 1000 tested, overall	HIV-1 (+) per 1000 tested, males	HIV-1 (+) per 1000 tested, females	HIV-1 (+) still in active service, by year of diagnosis
1990	505,188	423,149	369,855	53,187	154	145	9	0.36	0.39	0.17	3
1991	448,792	385,831	337,290	48,438	136	128	8	0.35	0.38	0.17	4
1992	500,253	419,865	367,705	52,050	125	119	6	0.30	0.32	0.12	6
1993	447,215	364,221	316,126	48,025	95	91	4	0.26	0.29	0.08	7
1994	413,639	339,234	292,250	46,923	84	79	5	0.25	0.27	0.11	7
1995	463,508	340,352	292,816	47,474	78	73	5	0.23	0.25	0.11	12
1996	434,005	326,211	278,467	47,698	66	61	5	0.20	0.22	0.10	10
1997	427,476	312,697	264,558	48,088	69	61	8	0.22	0.23	0.17	13
1998	397,427	312,206	262,775	49,375	62	55	7	0.20	0.21	0.14	13
1999	357,747	291,980	245,253	46,681	54	51	3	0.18	0.21	0.06	8
2000	354,067	289,124	242,034	47,051	48	41	7	0.17	0.17	0.15	20
2001	385,096	311,812	261,842	49,963	61	58	3	0.20	0.22	0.06	19
2002	420,526	331,470	278,598	52,859	56	54	2	0.17	0.19	0.04	25
2003	494,780	366,069	308,698	57,362	61	57	4	0.17	0.18	0.07	29
2004	483,251	374,075	318,856	55,219	54	53	1	0.14	0.17	0.02	28
2005	439,104	349,555	297,873	51,682	55	53	2	0.16	0.18	0.04	34
2006	454,532	372,858	320,074	52,784	66	63	3	0.18	0.20	0.06	42
2007	407,796	347,150	296,737	50,413	60	58	2	0.17	0.20	0.04	52
2008*	224,882	208,147	178,025	28,261	51	48	2	0.25	0.27	0.07	49
Total	**8,059,284**	**6,466,006#**	**5,529,832**	**933,533**	**1,435#**	**1,348**	**86**				**381**

*Through 30 June 2008

"Total persons tested" includes "unknown/missing" genders.

Figure 3. New diagnoses of HIV-1 infections, by gender, active component, U.S. Army, January 1990-June 2008.

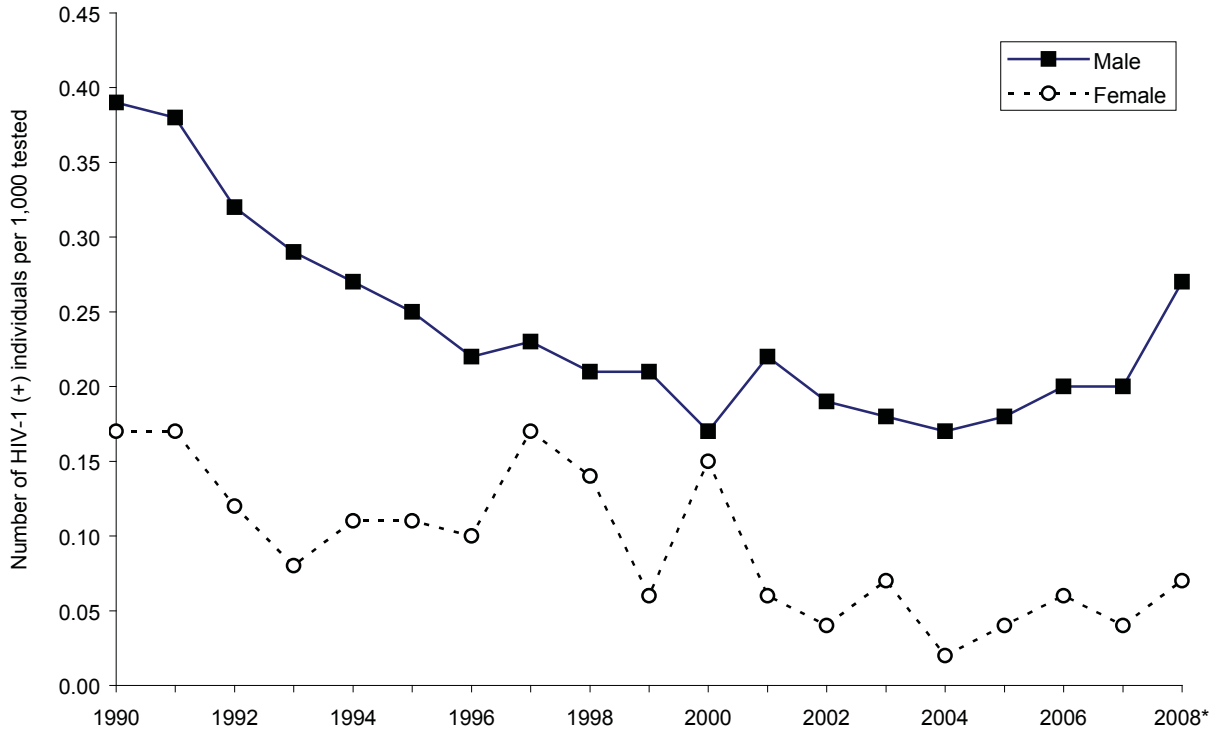


Table 4. New diagnoses of HIV-1 infections, by gender, National Guard, U.S. Army, January 1990-June 2008

Year	Total HIV tests	Total persons tested#	Males tested	Females tested	Total new HIV-1 (+)	New HIV-1 (+), males	New HIV-1 (+), females	HIV-1 (+) per 1000 tested, overall	HIV-1 (+) per 1000 tested, males	HIV-1 (+) per 1000 tested, females	HIV-1 (+) still in NG, by year of diagnosis
1990	231,024	213,778	198,708	15,065	75	72	3	0.35	0.36	0.20	0
1991	191,256	178,701	166,934	11,764	68	63	5	0.38	0.38	0.43	2
1992	252,702	235,720	218,430	17,287	68	64	4	0.29	0.29	0.23	0
1993	168,746	158,782	147,079	11,701	49	48	1	0.31	0.33	0.09	0
1994	200,001	186,369	171,689	14,680	52	49	3	0.28	0.29	0.20	0
1995	147,848	140,799	130,427	10,371	42	39	3	0.30	0.30	0.29	5
1996	65,427	61,680	56,566	5,114	26	25	1	0.42	0.44	0.20	0
1997	75,156	70,847	64,196	6,651	23	22	1	0.32	0.34	0.15	1
1998	82,246	78,156	70,818	7,338	29	28	1	0.37	0.40	0.14	2
1999	88,788	82,660	74,685	7,975	27	26	1	0.33	0.35	0.13	4
2000	78,368	73,972	66,233	7,739	24	20	4	0.32	0.30	0.52	5
2001	105,076	95,953	86,154	9,798	25	23	2	0.26	0.27	0.20	1
2002	117,031	106,357	95,675	10,682	35	33	2	0.33	0.34	0.19	3
2003	230,090	176,990	158,531	18,459	43	39	4	0.24	0.25	0.22	14
2004	217,689	175,234	156,798	18,435	37	36	1	0.21	0.23	0.05	11
2005	227,997	186,408	167,758	18,649	33	33	0	0.18	0.20	0.00	17
2006	148,785	131,300	116,441	14,858	26	22	4	0.20	0.19	0.27	15
2007	157,133	143,494	127,248	16,246	39	38	1	0.27	0.30	0.06	32
2008*	100,032	96,146	83,893	11,174	18	18	0	0.19	0.21	0.00	18
Total	**2,885,395**	**2,593,346**	**2,358,263**	**233,986**	**739**	**698**	**41**				**130**

*Through 30 June 2008

"Total persons tested" and "total new HIV-1 (+)" include "unknown/missing" genders.

Figure 4. New diagnoses of HIV-1 infections, by gender, National Guard, U.S. Army, January 1990-June 2008

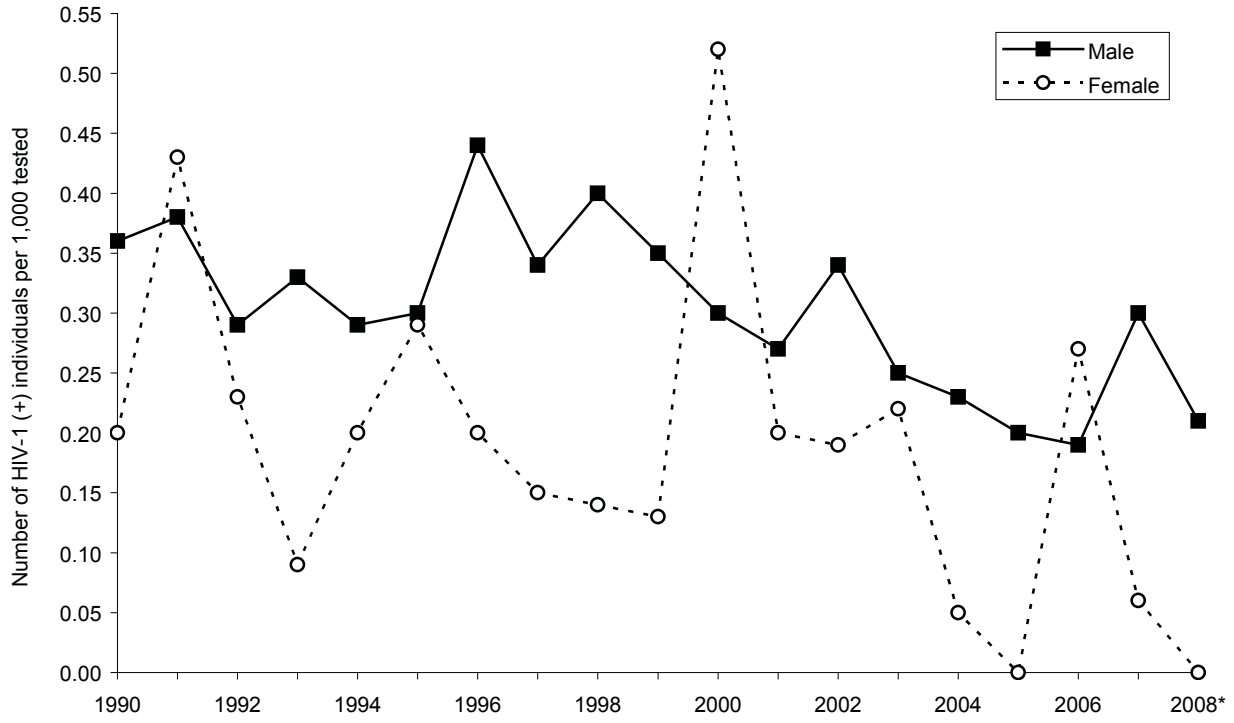


Table 5. New diagnoses of HIV-1 infections by gender, U.S. Army Reserve, January 1990-June 2008

Year	Total HIV tests	Total persons tested#	Males tested	Females tested	Total new HIV-1 (+)	New HIV-1 (+) males	New HIV-1 (+) females	HIV-1 (+) per 1000 tested, overall	HIV-1 (+) per 1000 tested, males	HIV-1 (+) per 1000 tested, females	HIV-1 (+) still in USAR, by year of diagnosis
1990	176,060	153,403	122,376	31,017	83	80	3	0.54	0.65	0.10	0
1991	122,887	111,716	89,085	22,620	66	64	2	0.59	0.72	0.09	0
1992	183,681	160,624	128,008	32,609	70	60	10	0.44	0.47	0.31	1
1993	147,357	130,566	104,234	26,331	50	46	4	0.38	0.44	0.15	0
1994	137,367	123,096	97,023	26,068	25	21	4	0.20	0.22	0.15	0
1995	106,089	96,126	75,765	20,353	31	26	5	0.32	0.34	0.25	2
1996	55,326	50,295	39,309	10,983	16	16	0	0.32	0.41	0.00	2
1997	49,344	45,113	34,492	10,621	13	12	1	0.29	0.35	0.09	0
1998	41,403	38,779	29,588	9,190	14	13	1	0.36	0.44	0.11	1
1999	44,026	39,418	29,897	9,521	22	17	5	0.56	0.57	0.53	3
2000	40,197	36,712	27,582	9,130	9	6	3	0.25	0.22	0.33	4
2001	55,853	50,196	38,052	12,144	24	20	4	0.48	0.53	0.33	8
2002	63,414	56,625	43,912	12,713	26	19	7	0.46	0.43	0.55	11
2003	158,194	113,152	88,219	24,933	62	61	1	0.55	0.69	0.04	21
2004	120,305	99,419	77,717	21,702	30	29	1	0.30	0.37	0.05	12
2005	101,542	86,991	68,814	18,177	17	16	1	0.20	0.23	0.06	10
2006	82,472	71,764	56,263	15,501	29	27	2	0.40	0.48	0.13	21
2007	91,058	81,852	64,379	17,473	37	37	0	0.45	0.57	0.00	31
2008*	48,407	45,860	36,081	9,779	17	15	2	0.37	0.42	0.20	17
Total	**1,824,982**	**1,591,707**	**1,250,796**	**340,865**	**641**	**585**	**56**				**144**

*Through 30 June 2008

"Total persons tested" and "total new HIV-1 (+)" include "unknown/missing" genders.

Figure 5. New diagnoses of HIV-1 infections, by gender, U.S. Army Reserve, January 1990-June 2008.

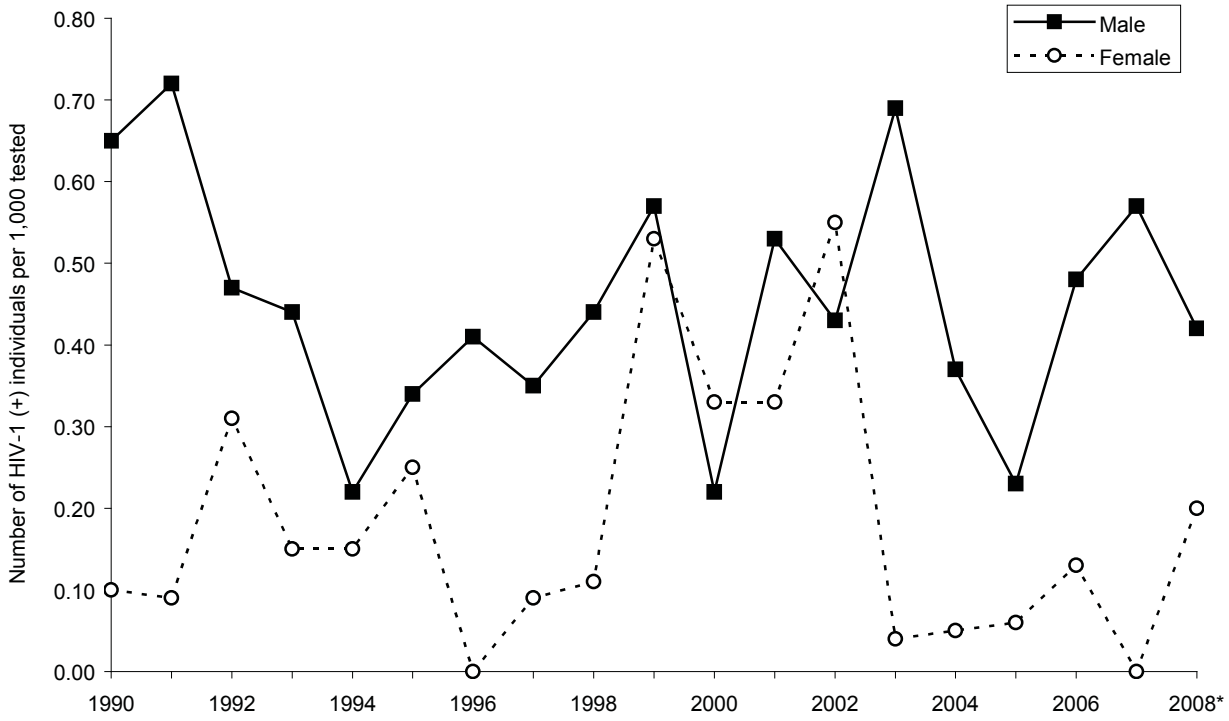


Table 6. New diagnoses of HIV-1 infections, by gender, active component, U.S. Air Force, 1996-2007

Year	Total HIV tests	Total persons tested#	Males tested	Females tested	Total new HIV-1 (+)	New HIV-1 (+) males	New HIV-1 (+) females	HIV-1 (+) per 1000 tested, overall	HIV-1 (+) per 1000 tested, males	HIV-1 (+) per 1000 tested, females
1996	123,922	123,801	93,143	30,385	36	34	2	0.29	0.37	0.07
1997	144,977	144,834	109,312	33,512	24	21	3	0.17	0.19	0.09
1998	179,396	178,826	134,975	39,489	34	34	0	0.19	0.25	0.00
1999	203,096	201,349	155,480	43,244	20	19	1	0.10	0.12	0.02
2000	228,590	226,224	175,157	48,578	26	24	2	0.11	0.14	0.04
2001	239,369	237,980	183,467	51,958	35	35	0	0.15	0.19	0.00
2002	258,981	257,756	198,449	56,132	38	36	2	0.15	0.18	0.04
2003	261,593	260,764	201,029	57,027	30	28	2	0.12	0.14	0.04
2004	271,384	271,297	208,618	59,835	19	18	1	0.07	0.09	0.02
2005	245,644	235,706	186,073	48,648	26	24	2	0.11	0.13	0.04
2006	251,161	228,686	182,501	46,185	34	32	2	0.15	0.18	0.04
2007	229,556	204,424	162,738	41,686	40	40	0	0.20	0.25	0.00
Total	**2,637,669**	**2,571,647**	**1,990,942**	**556,679**	**362**	**345**	**17**	**0.14**	**0.17**	**0.03**

"Total persons tested" includes "unknown/missing" genders.

Figure 6. New diagnoses of HIV-1 infections, by gender, active component, U.S. Air Force, 1996-2007

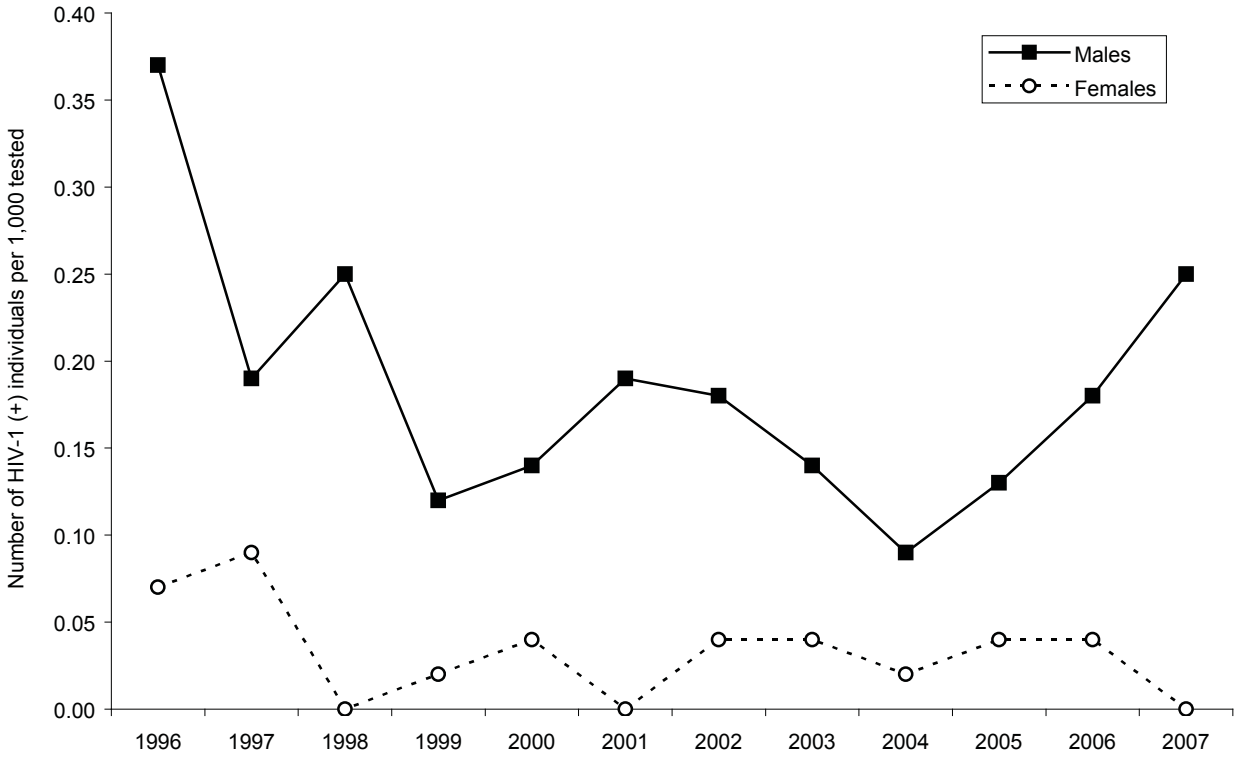


Table 7. New diagnoses of HIV-1 infections, by gender, Air National Guard, U.S. Air Force, 1996-2007

Year	Total HIV tests	Total persons tested#	Males tested	Females tested	Total new HIV-1 (+)	New HIV-1 (+) males	New HIV-1 (+) females	HIV-1 (+) per 1000 tested, overall	HIV-1 (+) per 1000 tested, males	HIV-1 (+) per 1000 tested, females
1996	24,407	24,383	20,532	3,657	0	0	0	0.00	0.00	0.00
1997	24,473	24,454	20,137	3,494	0	0	0	0.00	0.00	0.00
1998	28,514	28,492	23,041	3,908	0	0	0	0.00	0.00	0.00
1999	28,787	28,761	23,893	4,173	0	0	0	0.00	0.00	0.00
2000	36,128	36,115	29,992	5,207	0	0	0	0.00	0.00	0.00
2001	43,087	43,075	34,180	5,882	1	1	0	0.02	0.03	0.00
2002	41,120	41,088	33,666	6,057	8	8	0	0.19	0.24	0.00
2003	41,956	41,922	34,808	6,036	7	7	0	0.17	0.20	0.00
2004	43,704	43,666	35,313	7,166	10	9	1	0.23	0.25	0.14
2005	37,999	35,643	28,903	6,093	11	11	0	0.31	0.38	0.00
2006	15,275	14,100	11,269	2,831	8	8	0	0.57	0.71	0.00
2007	15,296	14,044	11,321	2,723	2	1	1	0.14	0.09	0.37
Total	**380,746**	**375,743**	**307,055**	**57,227**	**47**	**45**	**2**	**0.13**	**0.15**	**0.03**

"Total persons tested" includes "unknown/missing" genders.

Figure 7. New diagnoses of HIV-1 infections, by gender, Air National Guard, U.S. Air Force, 1996-2007

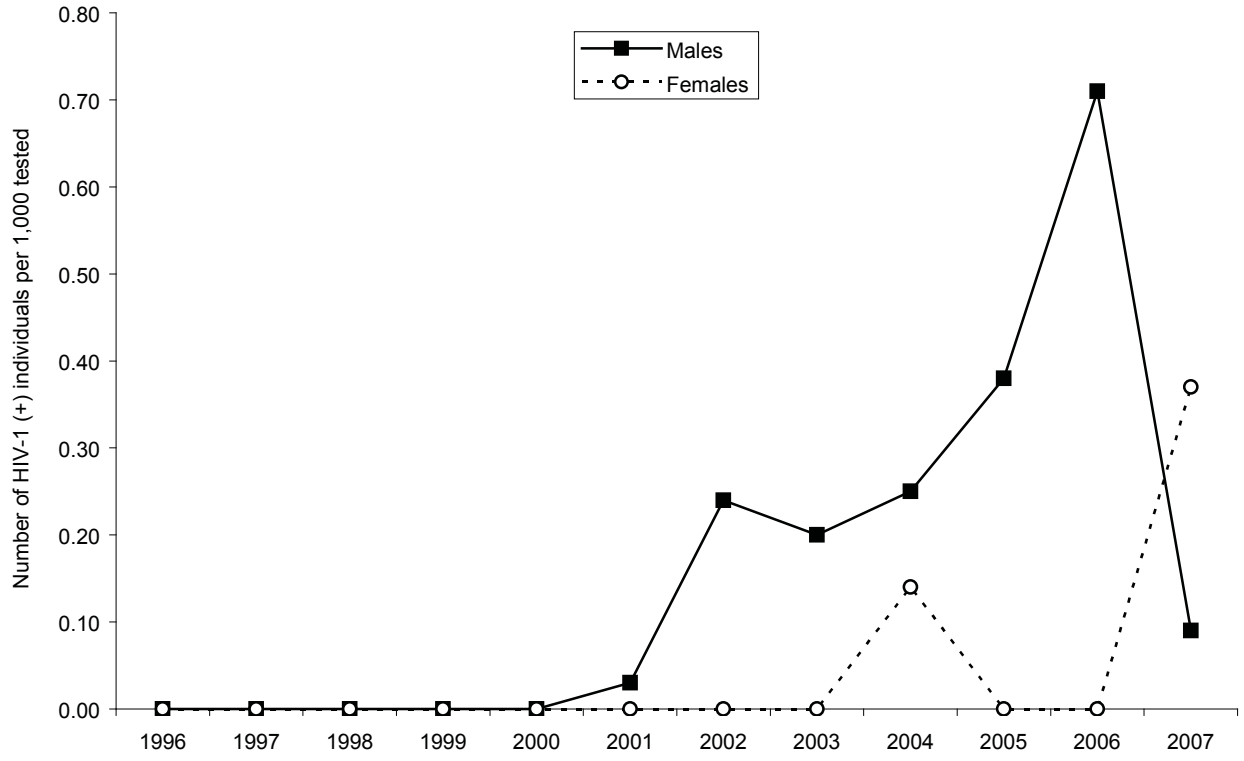


Table 8. New diagnoses of HIV-1 infections, by gender, Air Force Reserve, U.S. Air Force, 1996-2007

Year	Total HIV tests	Total persons tested#	Males tested	Females tested	Total new HIV-1 (+)	New HIV-1 (+) males	New HIV-1 (+) females	HIV-1 (+) per 1000 tested, overall	HIV-1 (+) per 1000 tested, males	HIV-1 (+) per 1000 tested, females
1996	16,614	16,612	12,790	3,709	1	1	0	0.06	0.08	0.00
1997	18,561	18,555	14,101	4,143	0	0	0	0.00	0.00	0.00
1998	19,027	19,003	14,346	4,141	2	2	0	0.11	0.14	0.00
1999	14,120	14,095	10,613	3,159	3	2	1	0.21	0.19	0.32
2000	13,283	13,272	10,157	2,719	0	0	0	0.00	0.00	0.00
2001	12,599	12,593	9,347	2,212	9	9	0	0.71	0.96	0.00
2002	22,452	22,432	16,989	4,440	10	10	0	0.45	0.59	0.00
2003	35,683	35,654	27,162	7,139	9	9	0	0.25	0.33	0.00
2004	31,237	31,234	23,675	6,584	6	6	0	0.19	0.25	0.00
2005	35,874	23,927	18,566	5,032	12	12	0	0.50	0.65	0.00
2006	22,982	21,432	16,746	4,686	8	8	0	0.37	0.48	0.00
2007	26,824	24,953	19,579	5,374	6	5	1	0.24	0.26	0.19
Total	**269,256**	**253,762**	**194,071**	**53,338**	**66**	**64**	**2**	**0.26**	**0.33**	**0.04**

"Total persons tested" includes "unknown/missing" genders.

Figure 8. New diagnoses of HIV-1 infections, by gender, Air Force Reserve, U.S. Air Force, 1996-2007

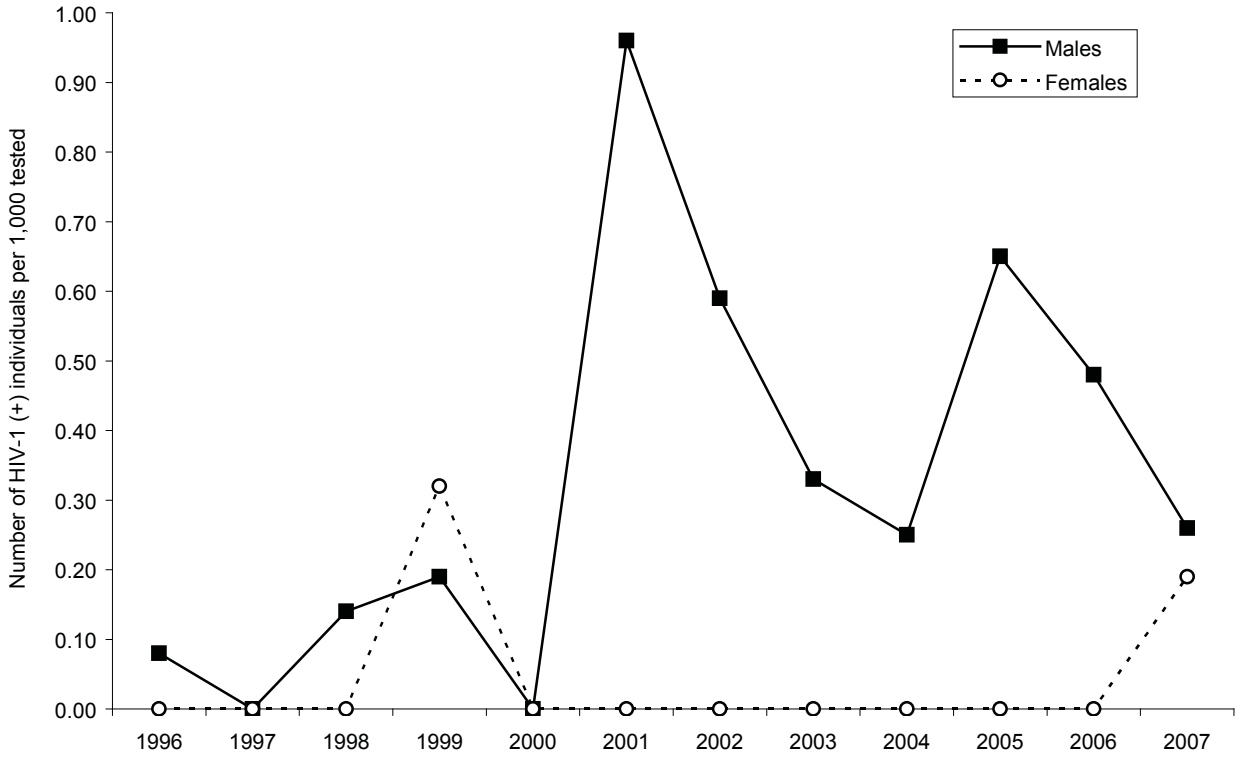


Table 9. New diagnoses of HIV-1 infections, active component, U.S. Navy, January 1990-December 2007

Year	Total new HIV-1 (+)	HIV-1 (+) per 1000 tested
1990	249	0.55
1991	186	0.50
1992	183	0.47
1993	161	0.38
1994	118	0.30
1995	87	0.23
1996	94	0.26
1997	61	0.17
1998	58	0.17
1999	57	0.16
2000	77	0.21
2001	85	0.24
2002	84	0.28
2003	87	0.29
2004	84	0.30
2005	79	0.28
2006	85	0.33
2007	75	0.32

Figure 9. New diagnoses of HIV-1 infections, U.S. Navy, 1990-2007

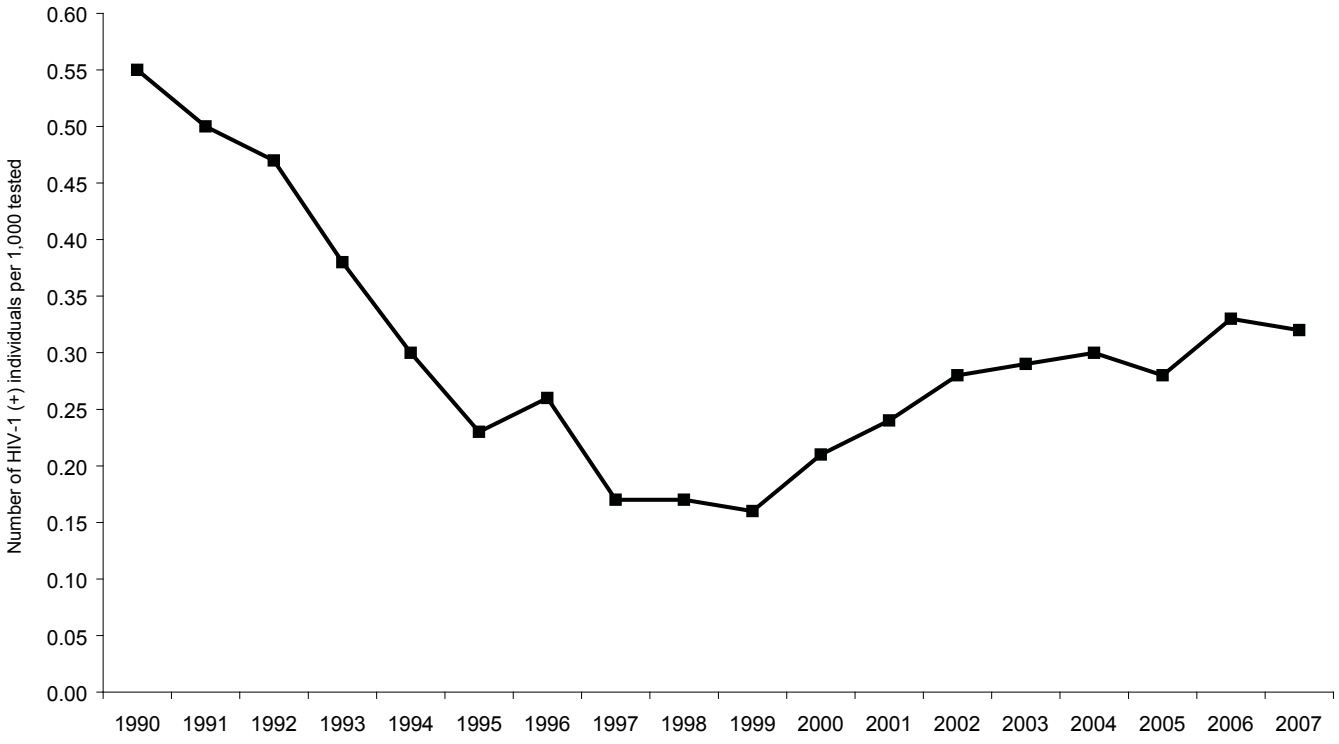
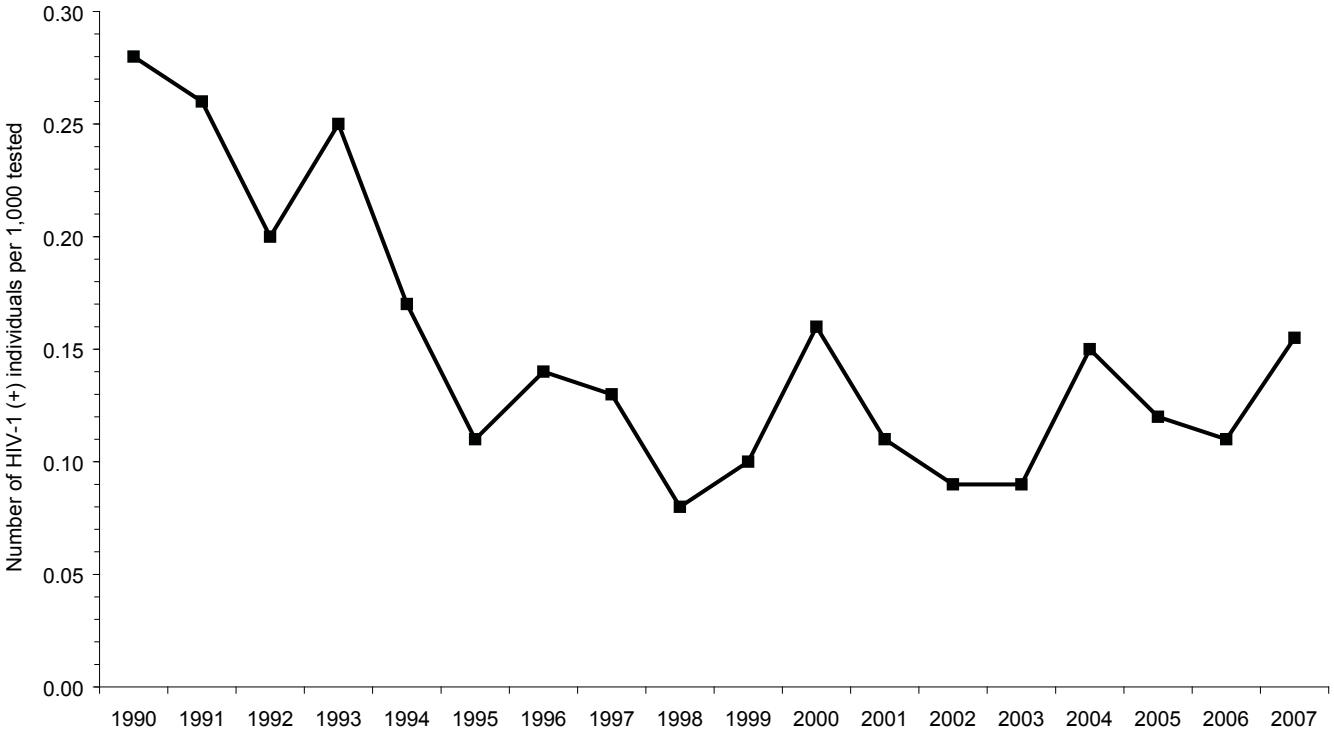


Table 10. New diagnoses of HIV-1 infections, active component, U.S. Marine Corps, January 1990-December 2007

Year	Total new HIV-1 (+)	HIV-1 (+) per 1000 tested
1990	49	0.28
1991	37	0.26
1992	29	0.20
1993	41	0.25
1994	28	0.17
1995	18	0.11
1996	22	0.14
1997	22	0.13
1998	13	0.08
1999	14	0.10
2000	23	0.16
2001	16	0.11
2002	13	0.09
2003	13	0.09
2004	18	0.15
2005	16	0.12
2006	15	0.11
2007	20	0.16

Figure 10. New diagnoses of HIV-1 infections, U.S. Marine Corps, 1990-2007



Occupational Bloodborne Pathogen Exposure, Medical Personnel, Active Component, U.S. Armed Forces, 1998-2007

Exposure to bloodborne pathogens (BBP) is a risk associated with many occupations. Some health care occupations are particularly risky. The agents most often considered occupational BBP threats are the human immunodeficiency virus (HIV) and the hepatitis B and C viruses (HBV, HCV). Because these and other pathogens can be spread by contaminated blood or body fluids, needlesticks and "sharps" injuries are the focuses of most occupational BBP exposure prevention programs. However, BBP exposures also occur through splashes to the eyes, contact of contaminated fluids with broken skin, and other mechanisms.

There is considerable information regarding BBP transmission and risk reduction in civilian medical settings. However, there are few published studies, surveys, or reviews of occupational BBP exposure risk in military populations and settings. A survey in a U.S. military medical center by Goob and colleagues documented significant underreporting of occupational injuries with BBP exposure potential; in this study, the patient sources of exposures were identified as "positive" for BBPs relatively infrequently: HIV-1 (4.3%), HBV (4.4%), and HCV (7.1%).[1] Clearly, more militarily relevant information is needed to inform risk assessments which, in turn, should guide resource allocations — e.g., for education, training, equipment, supplies, and surveillance. The need for information is especially critical in relation to military medical activities under less than optimal conditions (e.g., combat casualty care in Iraq and Afghanistan) and in areas where bloodborne pathogens such as HIV-1 are hyperendemic.

For this report, passively acquired surveillance data were summarized to estimate the frequencies, trends, and characteristics of U.S. military health care workers who had medical encounters for occupationally-related BBP exposures in military healthcare settings during a recent 10-year period.

Methods:

The surveillance period was 1 January 1998 to 31 December 2007. The surveillance population included all individuals in an active component of the U.S. Armed Forces whose records indicated that they served in a medical or healthcare-related occupation. Cases were determined from ambulatory visit records maintained in the Defense Medical Surveillance System (DMSS).

For surveillance purposes, a case of occupationally-related BBP exposure ("BBP exposure-related visit") was defined as an ambulatory visit with a diagnosis in position 1-4 of the standard ambulatory medical encounter record of ICD-9-CM[1]: 998.2 "accidental puncture or laceration during procedure"; V15.85 "exposure to potentially hazardous body fluids"; and/or E920.5 "accidents caused by cutting and piercing instruments or objects, hypodermic needle." Because each BBP exposure could result in multiple ambulatory visits, only one exposure-related visit per 30-day period per individual was included for analysis.

For surveillance purposes, service members with Department of Defense Primary Occupation Codes (DODPOCs) beginning with "13" (enlisted, health care specialists) or "26" (officers, health care officers) were considered to have medical and healthcare-related military occupations. Enlisted and officer veterinary care occupations were excluded from this analysis because the focus was human BBP exposure. Service members with undocumented or unidentifiable DODPOCs were also excluded.

The experiences of the Navy and Marine Corps were combined because the medical support of both services is provided by members of the Navy medical department. Job-specific BBP exposure experiences were estimated separately in healthcare-related occupational subgroups of enlisted members (n=5) and officers (n=6).

Enlisted healthcare-related occupational subgroups were defined as: i) *Medical care/treatment, general*: medical specialist; practical nurse; hospital corpsman; hospitalman; respiratory specialist; cardiovascular technician; independent duty corpsman; ii) *Surgery*: operating room specialist; OR technician; surgical service apprentice, journeyman, or craftsman; iii) *Laboratory services*: medical laboratory specialist; cytology specialist; hemodialysis technician; medical, histopathology, cytotechnology apprentice, journeyman, or craftsman; iv) *Dental*, general treatment and laboratory: dental specialist; dentalman; dental hygienist; dental surgical technologist; dental assistant; dental laboratory specialist; dental laboratory technician; dental laboratory apprentice, journeyman, or craftsman; and v) *Behavioral science, therapy/orthopedics, ancillary*: behavioral sciences; mental health specialist; psychiatry technician; occupational therapy specialist; physical therapy specialist; orthopedic specialist; cast room technician; aerospace/undersea medicine; pharmacy; radiology; biomedical sciences; environmental health services; optometry; physiology; biomedical equipment maintenance/repair; administration; medical logistics.

Officer healthcare-related occupational subgroups were defined as: i) *Physicians, medicine* – aviation/aerospace, allergy, ER, anesthesia, dermatology, family medicine, pediatrics,

PM&R, preventive medicine, psychiatry, radiology, nuclear medicine, general internal medicine, medicine subspecialties (pulmonology, gastroenterology, cardiology, nephrology, hematology, rheumatology, infectious disease), physician assistants; ii) *Physicians, surgery* – OB/GYN, ophthalmology, ENT, pathology, general surgery, surgical subspecialties (colorectal, neurologic, orthopedic, plastic, cardiothoracic, oncologic, pediatric, urologic), podiatry; iii) *Dentists* – general / comprehensive / public health dentistry, end-, orth-, ped-, peri-, and prosthodontics, OMF surgery, oral pathology; iv) *Nurses, general* – general nurses, nurse practitioners, flight nurses, mental health nurses, nurse educators, nursing administrators; v) *Nurses, OR / surgical / anesthesia* – nurse anesthetist, OR nurse, nurse midwife, critical care nurses; and vi) *Biomedical science, allied health* – audiology, speech pathology, biomedical lab services, environmental health services, optometry, pharmacy, PT/OT, physiology, diet therapy, administration.

Results:

During the 10-year surveillance period, there were 30,120 incident ambulatory visits (incidence rate: 26.6 per 1,000 person-years [p-yrs]) for occupationally-related BBP exposures **(Table 1).** The annual numbers and rates of incident exposure-related visits increased each year — and nearly doubled overall — from 1998 (rate: 16.7 per 1,000 p-yrs) to 2004 (32.8 per 1,000 p-yrs). The rate was stable from 2004 to 2006 and sharply declined in 2007 **(Figure 1).**

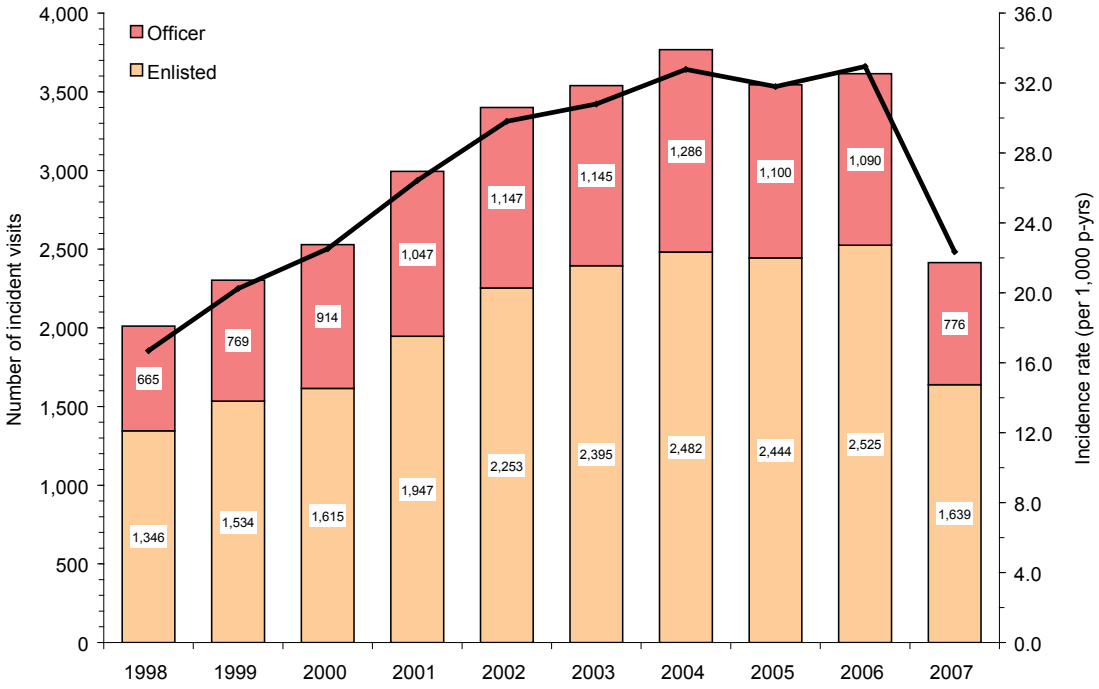
For the entire period, more cases occurred in August (10% of all cases) than in any other month; and the three-month period from June-August accounted for nearly one-third

Table 1. Incident medical encounters for occupational blood-borne pathogen exposures, among military healthcare workers, active component, U.S. Armed Forces, 1998-2007

	Incident visits	% of total	Incidence rate (per 1,000 person-years)	Rate ratio
Total	**30,120**	**100.0**	**26.6**	
Gender				
Male	17,865	59.3	24.0	ref
Female	12,255	40.7	31.6	1.32
Age group (years)				
<20	2,653	8.8	61.7	4.06
21-24	9,768	32.4	37.2	2.45
25-29	6,860	22.8	28.2	1.86
30-34	4,732	15.7	22.5	1.48
35-39	3,149	10.5	17.5	1.16
40+	2,958	9.8	15.2	ref
Race-ethnicity				
Black non-Hispanic	5,586	18.5	24.5	ref
White non-Hispanic	16,479	54.7	25.1	1.02
Hispanic	3,365	11.2	28.8	1.18
Asian/Pacific Island	3,165	10.5	39.0	1.59
Native Am/Alaskan	493	1.6	39.0	1.59
Military status (grade)				
Officer, company (O1-O3)	6,463	21.5	35.2	5.90
Officer, field (O4-O6)	3,476	11.5	20.5	3.44
Enlisted, junior (E1-E3)	9,824	32.6	51.0	8.54
Enlisted, mid (E4-E6)	9,880	32.8	19.5	3.26
Enlisted, senior (E1-E3)	476	1.6	6.0	ref
Service				
Army	6,756	22.4	15.4	1.58
Navy	20,061	66.6	56.4	5.77
Air Force	3,303	11.0	9.8	ref

Visits across categories are not equal because "unknowns" and "others" are excluded.

Figure 1. Overall incidence rates (and incident medical encounters by military status) of occupational exposures to blood/other body fluids among military healthcare workers, active component, U.S. Armed Forces, by year, 1998-2007



(29%) of all cases (data not shown). Occupational health clinics (68.3%) and emergency departments (22.0%) were the points of care for more than 90% of all reported incident BBP exposure-related visits (data not shown).

Males accounted for approximately 60% of all incident exposure-related visits of military health care workers; however, the rate was approximately 30% higher among females than males. Approximately one-half of all incident episodes affected service members between 21 and 29 years of age; however, the highest and lowest rates were among the youngest (<20 years old: 61.7 per 1,000 p-yrs) and oldest (40 years and older: 15.2 per 1,000 p-y) health care workers, respectively. More than one-half (54.7%) of all incident episodes occurred among White healthcare workers; however, incidence rates were similar (approximately 25 per 1,000 p-yrs) among Black and White workers **(Table 1).**

Approximately two-thirds (67%) of all incident visits for BBP exposures were among Navy healthcare workers. The rate of reported exposure-related visits among Navy medical workers (56.4 per 1,000 p-yrs) was 5.8- and 3.7-times higher than among their counterparts in the Air Force (9.8 per 1,000 p-yrs) and Army (15.4 per 1,000 p-yrs), respectively **(Table 1).**

Overall, rates of BBP exposure-related visits were highest among the most junior of both enlisted and officer health care workers (enlisted grades, E1-E3: 51.0 per 1,000 p-yrs; officer grades, O1-O3: 35.2 per 1,000 p-yrs) **(Table 1, Figure 2).**

Among enlisted healthcare workers, approximately 40% of all incident BBP exposure-related visits occurred in the "*medical treatment, general*" subgroup. While the "*surgery*" subgroup accounted for relatively few cases overall (7%), the rate among them (70.0 per 1,000 p-yrs) was more than 2-times higher than among "*medical treatment, general*" workers (29.3 per 1,000 p-yrs) **(Table 2)**. During the 10-year period, rates of BBP exposure-related visits generally declined in all occupational subgroups (except "*dental*") — in all occupational subgroups except "*dental*," rates of BBP exposure-related visits in 2007 were lower than in 2002 (data not shown).

Among officer health care workers, the "*physicians, medicine*" (11.6%) and "*nurses, general*" (11.1%) subgroups had the most incident BBP exposure-related visits. While the "*physicians, surgery*" subgroup accounted for a small proportion of all cases (2.5%), the overall rate among surgeons (36.7 per 1,000 p-yrs) was higher than in any other subgroup except "*nurses, general*" (40.1 per 1,000 p-yrs) **(Table 2).** Of note, the annual rate among "*dentists*" increased each year from 1998 (19.3 per 1,000 p-yrs) to 2006 (63.8 per 1,000 p-yrs) — and was higher than in any other subgroup each year from 2004 (data not shown).

Analysis and report by Theodore R. Brown, DO, MPH, MAJ, MC, U.S. Army.

Editorial comment:

To our knowledge, this is the first systematic estimate of numbers and rates of occupational BBP exposures among U.S. military health care workers. The results establish benchmarks against which future research and surveillance findings can be compared.

There are several limitations of this analysis that should be considered when interpreting the results. For example, for the analysis, BBP exposures were identified by searching for "indicator" ICD-9 codes that were recorded as diagnoses during outpatient medical encounters of military members with healthcare-related military occupations. Two of the codes (ICD-9-CM codes 998.2 and E920.5) used to detect BBP exposures specify occurrences of accidental injuries, e.g., punctures, lacerations during procedures, but not exposures to potentially contaminated body fluids. Episodes documented with these non-specific codes were included because healthcare workers likely seek medical attention more often after injuries with needles or sharps that they know or suspect are contaminated. Similarly, the code (V15.85) for "exposure to potentially hazardous body fluids" is non-specific in regard to "blood-borne pathogens." The code was included as a case-defining diagnosis to enable the detection of occupational BBP exposures that occur through splashes or direct contacts not involving sharps. Of note, the code V01.79 "contact with or exposure to communicable diseases, other viral diseases" was not included because few additional potential cases would have been identified (and many "false positive" cases related to pathogens not primarily transmitted in blood or body fluids, e.g. tuberculosis, would have been included).

The indicator diagnosis codes used for this analysis were selected after consulting many occupational health clinics to ascertain how they coded occupational BBP exposures in their practices. The codes most commonly used in clinical practice were consistent with those considered most relevant after reviewing ICD-9 code definitions, coding guidelines, and other relevant sources. To some extent, the finding that more than 90% of all incident visits were reported from occupational health clinics (68.3%) and emergency departments (22.0%) validates the code selection.

There are many occupational BBP exposures of service members that do not result in medical encounters in fixed military medical treatment facilities (e.g., on-board ships, other deployed settings) and/or are documented with diagnoses not considered case indicators for this analysis. For these reasons, the results presented here likely underestimate the actual numbers and rates of occupational BBP exposures of military health care workers. In relation to ascertainment, the significantly higher rates of BBP exposure-related visits among Navy versus other healthcare workers may be due, at least in part, to more complete ascertainment (e.g., medical evaluation, diagnostic coding) of cases in Navy medical treatment facilities.

In 1999, Goob and colleagues estimated an annual incidence of 93.7 exposures per 1,000 workers at a U.S. military medical center and concluded there was widespread underreporting — by at least fourfold — of blood and body fluid exposures.[1] Their findings are generally consistent with the overall estimate in this report of 26.6 occupational BBP exposure-related visits per 1,000 p-yrs.

Table 2. Incident medical encounters for occupational blood-borne pathogen exposures, by military status and healthcare occupational subgroup, active component, U.S. Armed Forces, 1998-2007

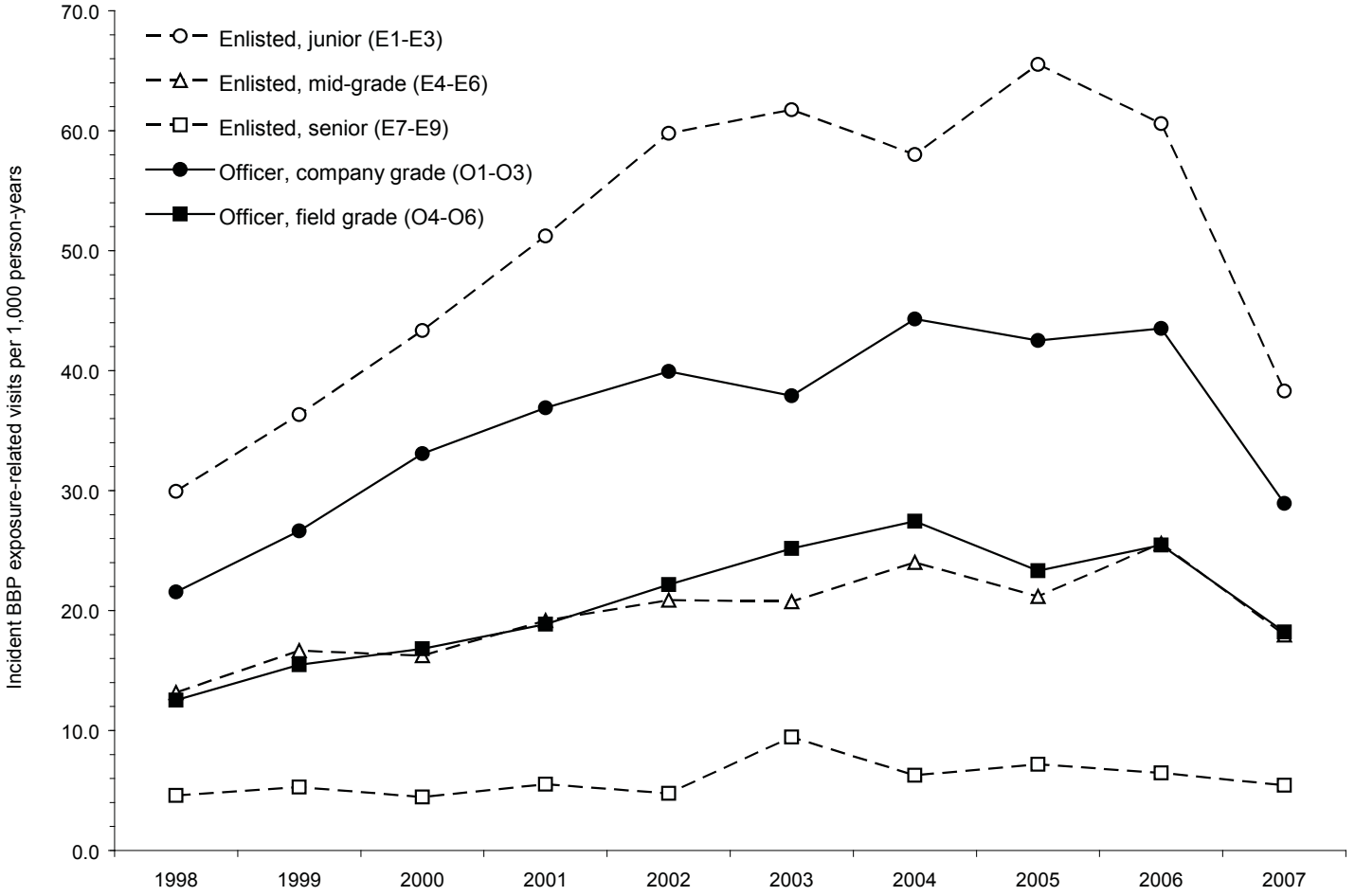
	Incident visits	% of total	Incidence rate (per 1,000 person-years)	Rate ratio
Enlisted				
Surgery	2,178	7.2	70.0	6.36
Laboratory services	1,462	4.9	30.5	2.77
Dental	2,044	6.8	30.4	2.76
Medical treatment, general	12,060	40.0	29.3	2.67
Behavioral science, therapy, ancillary	2,436	8.1	11.0	ref
Officer				
Nurses, general	3,339	11.1	40.1	4.23
Physicians, surgery	739	2.5	36.7	3.88
Dentists	1,146	3.8	36.6	3.87
Physicians, medicine	3,484	11.6	33.5	3.54
Nurses, OR/surgery/anesthesia	290	1.0	19.0	2.01
Biomedical sciences, allied health	942	3.1	9.5	ref

The youngest and most junior healthcare workers are also the most inexperienced; their routine duties often entail exposures to potentially contaminated materials (e.g., needles, syringes, dressings, linen, waste), and they may be more likely than others to report and/or seek care for potentially hazardous exposures. Not surprisingly, rates of BBP exposure-related visits are relatively high among them.

The relatively high rates of BBP exposure related visits among enlisted *"surgery"* and *"laboratory services"* workers reflect the relatively high risk of injury during activities closely associated with patient blood and body fluids — e.g., drawing blood; performing laboratory tests; assisting in emergency departments, operating rooms, and treatment rooms. BBP exposure prevention activities should emphasize education, training, and supervision of junior health care workers — particularly those who perform inherently high risk surgery support and laboratory service activities.

In contrast to all other groups, the rate of BBP exposure-related visits in the *"dental"* group generally increased throughout the period. The finding may reflect increased patient volumes, more complete ascertainment of cases, more frequent and/or higher risk activities, decreased vigilance, and/or other factors. At local levels, occupational health, infection control, and

Figure 2. Incidence rates of occupational blood-borne pathogen (BBP) exposure-related medical encounters, among U.S. military healthcare workers, by military status and grade, by year, 1998-2007



dental personnel should assess the natures and magnitudes of risks, implement policies and practices to counter them, and track the numbers, natures, and rates of incidents over time.

Among officers, "general nurses" had the highest rate of BBP exposure-related medical visits. In the civilian sector, occupational BBP exposure risk is often assessed in relation to bed-days to document relationships between patient volume, staffing levels, and exposure risk. Such assessments may be informative at individual medical treatment facilities.

This analysis was an overall assessment of the incidence of occupational BBP exposures among military healthcare workers in general. The identification of risk factors and high-risk groups may help in designing surveillance, education, and training programs at local levels. However, this analysis did not document the burden to the healthcare system associated with evaluating and treating BBP exposures and their effects (e.g., clinic visits, laboratory tests, prophylactic medications) or assess specific correlates of risk — such as time of day, specific clinical setting, or exposure mechanism (e.g., needlestick, sharp, splash, area of body affected). Detailed studies of such factors would be informative and useful. Finally, the findings of this report should inform planning for training and operational missions overseas — particularly those involving care for non-U.S. military populations in areas highly endemic for blood-borne pathogens (e.g., peacekeeping, humanitarian assistance, disaster relief).

References:

1. Goob TC, Yamada SM, Newman RE, Cashman TM. Bloodborne exposures at a United States Army Medical Center. *Appl Occup Environ Hyg.* 1999 Jan;14(1):20-5.

2. National Center for Health Statistics and Centers for Medicare and Medicaid Services. *International Classification of Diseases, 9th Revision, Clinical Modification (ICD-9-CM).* Government Printing Office. Washington, DC. 2006.

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

The force 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 until or emerged within three to six months after redeployment.[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 predeployment to postdeployment.

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 January 2006.

Results:

During the 12-month period from August 2007 to July 2008, there were 354,886 pre-deployment health assessments, 382,610 post-deployment health assessments, and 283,412 post-deployment health reassessments completed at field sites, forwarded to the Armed Forces Health Surveillance Center, and archived in the Defense Medical Surveillance System **(Table 1)**.

Between January 2003 and July 2008, there were peaks and troughs in numbers of pre-deployment and post-deployment health assessments that generally corresponded to times of departure and return of large numbers of deployers **(Figure 1)**. Since April 2006, the numbers of post-deployment health reassessments (PDHRA) completed per month have been relatively stable **(Figure 1, Table 1)**.

From August 2007 through July 2008, nearly three-fourths (73.3%) of deployers rated their "health in general" as "excellent" or "very good" during pre-deployment health assessments. Smaller proportions of redeployers rated their general health as "excellent" or "very good" during post-deployment assessments (58.0%) and post-deployment reassessments (52.8%); also, there were increases in the proportions of deployers who rated their health as "fair" or

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

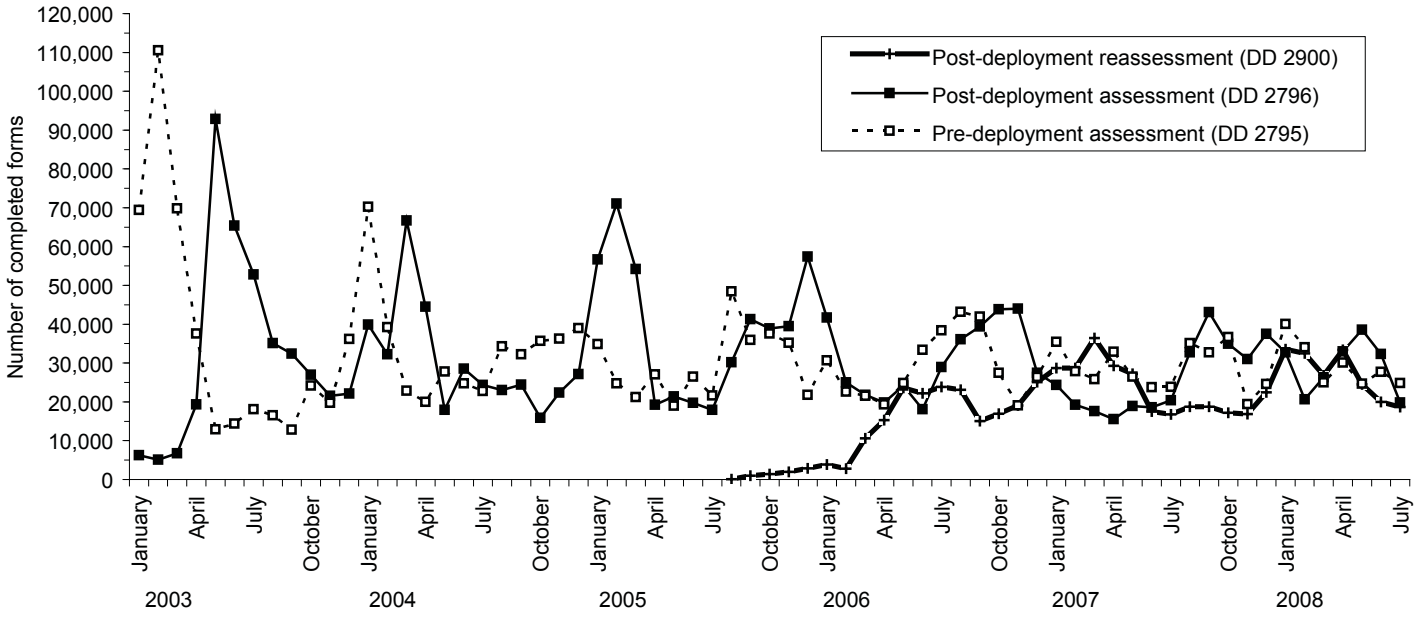


Table 1. Deployment-related health assessment forms, by month, U.S. Armed Forces, August 2007-July 2008

	Pre-deployment assessment DD2795		Post-deployment assessment DD2796		Post-deployment reassessment DD2900	
	No.	%	No.	%	No.	%
Total	**354,886**	**100**	**382,610**	**100**	**283,412**	**100**
2007						
August	35,139	9.9	32,736	8.6	18,776	6.6
September	32,696	9.2	43,117	11.3	18,790	6.6
October	36,657	10.3	34,943	9.1	17,159	6.1
November	19,396	5.5	31,018	8.1	16,854	5.9
December	24,578	6.9	37,540	9.8	22,488	7.9
2008						
January	40,048	11.3	32,707	8.5	33,529	11.8
February	34,057	9.6	20,617	5.4	32,454	11.5
March	24,984	7.0	26,292	6.9	26,852	9.5
April	30,104	8.5	32,956	8.6	33,366	11.8
May	24,700	7.0	38,578	10.1	24,483	8.6
June	27,695	7.8	32,306	8.4	19,951	7.0
July	24,832	7.0	19,800	5.2	18,710	6.6

"poor" from pre-deployment to post-deployment to 3-6 months after returning from deployment. For example, prior to deploying, one of 40 (2.5%) deployers rated their health as "fair" or "poor"; at redeployment, one of 14 (6.6%) deployers rated their health as "fair" or "poor"; and 3-6 months after returning from deployment, one of 7 (13.8%) deployers rated their health as "fair" or "poor" **(Figure 2)**.

In the past 12 months, the proportion of deployers who assessed their general health as "fair" or "poor" was consistently low before deployment (mean, by month: 2.5%), higher at redeployment (mean, by month: 7.2%), and highest 3-6 months after redeployment (mean, by month: 13.5%) **(Figure 3)**. From month to month, there was relatively little variability in the proportions of deployers who rated their health as "fair" or "poor" on predeployment, post-deployment, and post-deployment reassessment questionnaires **(Figure 3)**. Of deployers who completed health assessments prior to and 3-6 months after returning from deployment, approximately one of 6 (16.3%) indicated significant declines (i.e., change of 2 or more categories on a 5-category scale) in their perceived general health states between the assessments (**Figure 4**).

In general, on post-deployment assessments and reassessments, deployers in the Army and in Reserve components were more likely than their respective counterparts to report health and exposure-related concerns. Particularly among Reserve component members of the Army and Marine Corps, health and exposure-related concerns and indications for referrals were much greater 3-6 months after redeployment (DD2900) than at the time of redeployment (DD2796). For example, at the time of redeployment, active component soldiers were the most likely of all deployers to receive mental health referrals; however, 3-6 months after redeployment, Reserve component members of the Army and Marine Corps were the most likely of all deployers to receive mental health referrals **(Table 2, Figures 5,6)**.

Figure 2. Percent distributions of self-assessed health status as reported on deployment health assesment forms, U.S. Armed Forces, August 2007-July 2008

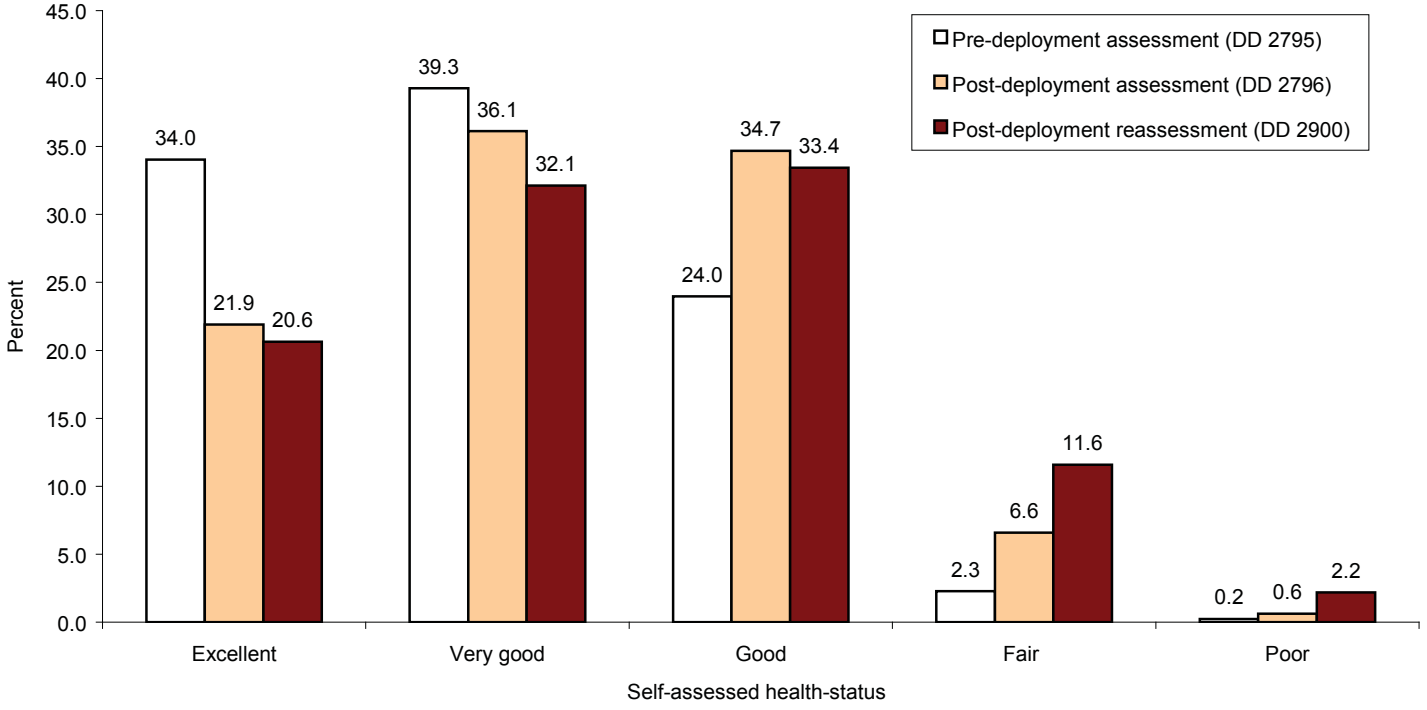
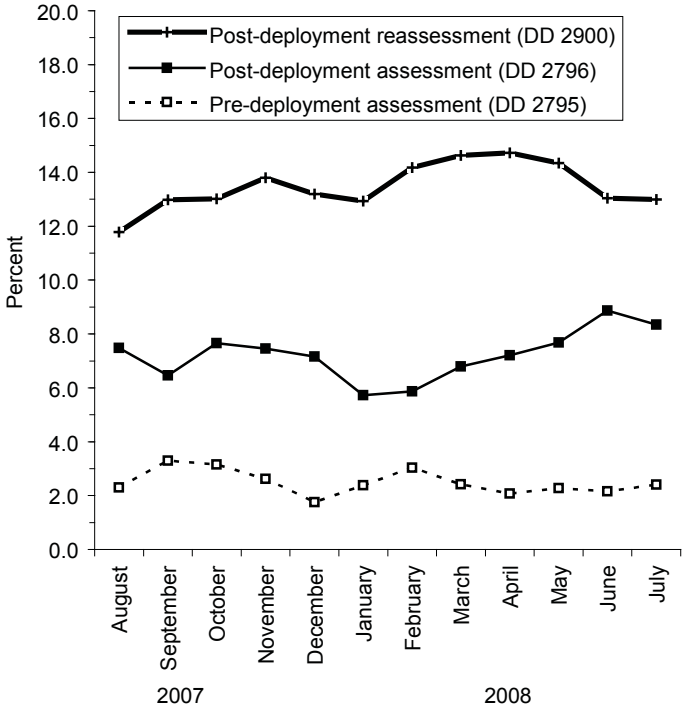


Figure 3. Proportion of deployment health assessment forms with self-assessed health status as "fair" or "poor", U.S. Armed Forces, August 2007-July 2008



Finally, in general, soldiers and Reserve component members were more likely than their respective counterparts to report "exposure concerns"; and both active and Reserve component members were more likely to report "exposure concerns" 3-6 months after compared to the time of redeployment **(Table 2, Figures 6,7)**.

Editorial comment:

Regardless of the Service or component, deployers rate their general health worse when they redeploy 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, as a group, redeployed service members rate their general health worse and are more likely to report exposure concerns 3-6 months after returning from deployment compared to the time of redeployment. Symptoms of post deployment 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] Among British veterans of the Iraq war, Reservists reported more "ill health" than their active counterparts. 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 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. 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 redeployment.

References:

1. Undersecretary of Defense for Personnel and Readiness. Department of Defense Instruction (DODI) No. 6490.3, subject: Deployment health, dated 11 August 2006. Washington, DC.
2. Assistant Secretary of Defense (Health Affairs). Memorandum for the Assistant Secretaries of the Army (M&RA), Navy (M&RA), and Air Force (M&RA), subject: Post-deployment health reassessment (HA policy: 05-011), dated 10 March 2005. Washington, DC.
3. Rubertone MV, Brundage JF. The Defense Medical Surveillance System and the Department of Defense serum repository: glimpses of the future of public health surveillance. *Am J Public Health*. 2002 Dec;92(12):1900-4.
4. Hoge CW, Terhakopian A, Castro CA, Messer SC, Engel CC. Association of posttraumatic stress disorder with somatic symptoms, health care visits, and absenteeism among Iraq war veterans. *Am J Psychiatry*. 2007 Jan;164(1):150-3.
5. Browne T, Hull L, Horn O, et al. Explanations for the increase in mental health problems in UK reserve forces who have served in Iraq. *Br J Psychiatry*. 2007 Jun;190:484-489.

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, August 2007-July 2008

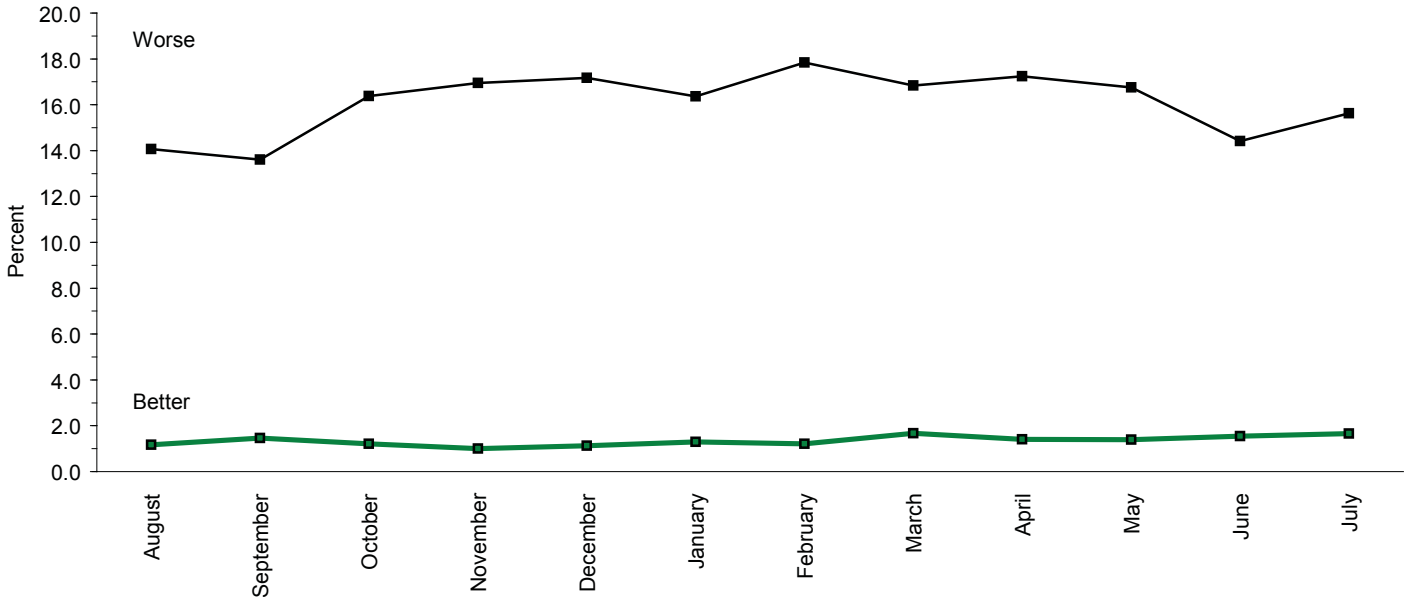


Figure 5. Percent of deployers with mental or behavioral health referrals, by Service and component, by timing of health assessment, U.S. Armed Forces, August 2007-July 2008

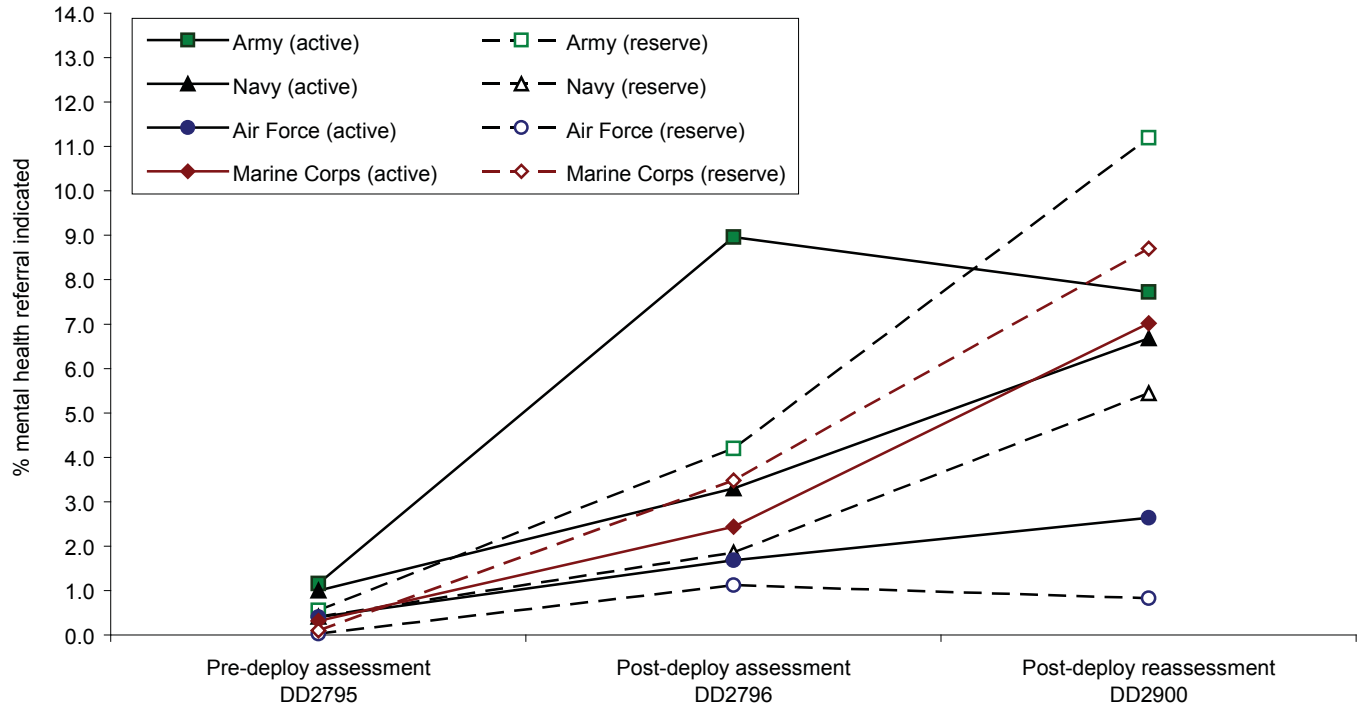


Table 2. Percentages of service members who endorsed selected questions/received referrals on health assessment forms, U.S. Armed Forces, August 2007-July 2008

	Army			Navy			Air Force			Marine Corps			All service members		
Active component	Pre-deploy DD2795	Post-deploy DD2796	Reassessmt DD2900	Pre-deploy DD2795	Post-deploy DD2796	Reassessmt DD2900	Pre-deploy DD2795	Post-deploy DD2796	Reassessmt DD2900	Pre-deploy DD2795	Post-deploy DD2796	Reassessmt DD2900	Pre-deploy DD2795	Post-deploy DD2796	Reassessmt DD2900
	n=128,842	n=130,480	n=84,296	n=16,882	n=12,307	n=7,816	n=59,581	n=53,588	n=51,735	n=36,770	n=30,975	n=39,014	n=242,075	n=227,350	n=182,861
	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%
General health “fair” or “poor”	4.1	8.4	17.5	1.6	3.8	7.1	0.5	2.6	4.6	2.0	2.6	10.4	2.7	6.0	11.9
Health concerns, not wound or injury	12.9	29.2	39.2	5.4	9.6	22.2	3.5	13.2	16.0	4.2	7.2	28.9	8.7	21.3	29.7
Health worse now than before deployed	0.0	19.0	29.3	0.0	6.0	15.2	0.0	6.5	9.8	0.0	7.5	20.7	0.0	13.8	21.4
Exposure concerns	0.0	22.1	24.7	0.0	9.3	15.9	0.0	8.2	15.0	0.0	6.4	22.2	0.0	16.0	21.1
PTSD symptoms (2 or more)	0.0	16.1	19.3	0.0	3.7	9.7	0.0	3.0	3.4	0.0	3.8	12.0	0.0	10.7	12.8
Depression symptoms (any)	0.0	26.9	37.7	0.0	10.8	27.5	0.0	7.5	15.3	0.0	16.3	34.1	0.0	20.0	30.1
Referral indicated by provider (any)	5.5	30.9	24.5	6.2	15.7	22.7	1.6	10.2	10.0	4.9	11.9	29.1	4.5	22.6	21.3
Mental health referral indicated*	1.2	9.0	7.7	1.0	3.3	6.7	0.4	1.7	2.6	0.3	2.4	7.0	0.8	6.1	6.1
Medical visit following referral†	96.4	99.0	98.4	85.7	89.9	93.5	73.8	93.7	95.6	73.5	66.6	72.7	88.8	95.1	88.6

	Army			Navy			Air Force			Marine Corps			All service members		
Reserve component	Pre-deploy DD2795	Post-deploy DD2796	Reassessmt DD2900	Pre-deploy DD2795	Post-deploy DD2796	Reassessmt DD2900	Pre-deploy DD2795	Post-deploy DD2796	Reassessmt DD2900	Pre-deploy DD2795	Post-deploy DD2796	Reassessmt DD2900	Pre-deploy DD2795	Post-deploy DD2796	Reassessmt DD2900
	n=48,399	n=60,177	n=74,189	n=4,391	n=3,987	n=4,979	n=15,133	n=13,751	n=13,762	n=2,989	n=2,931	n=4,033	n=70,912	n=80,846	n=96,963
	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%
General health “fair” or “poor”	2.0	9.9	19.4	0.6	3.5	9.2	0.4	2.7	4.8	1.2	4.8	11.1	1.5	8.2	16.5
Health concerns, not wound or injury	14.9	40.6	55.2	3.2	17.7	36.2	1.8	18.7	17.2	4.8	23.4	43.6	10.9	35.1	48.4
Health worse now than before deployed	0.0	25.5	38.0	0.0	12.9	23.6	0.0	9.1	10.6	0.0	8.3	26.7	0.0	21.5	32.9
Exposure concerns	0.0	29.5	38.5	0.0	24.2	29.0	0.0	11.9	20.1	0.0	15.7	29.2	0.0	25.8	35.0
PTSD symptoms (2 or more)	0.0	13.1	24.9	0.0	3.4	12.7	0.0	2.0	3.2	0.0	3.2	18.5	0.0	10.4	20.9
Depression symptoms (any)	0.0	24.8	39.7	0.0	12.1	27.6	0.0	6.2	14.4	0.0	13.0	34.4	0.0	20.6	35.2
Referral indicated by provider (any)	5.7	27.0	35.8	4.3	14.1	21.5	0.5	10.1	8.4	5.3	27.2	37.4	4.5	23.5	31.2
Mental health referral indicated*	0.6	4.2	11.2	0.4	1.9	5.4	0.0	1.1	0.8	0.1	3.5	8.7	0.4	3.5	9.3
Medical visit following referral†	94.0	97.0	23.2	81.3	68.2	28.9	38.2	54.4	25.6	80.2	72.9	22.5	90.3	91.6	23.5

*Includes behavioral health, combat stress and substance abuse referrals
†Record of inpatient or outpatient visit within 6 months after referral

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, August 2007-July 2008

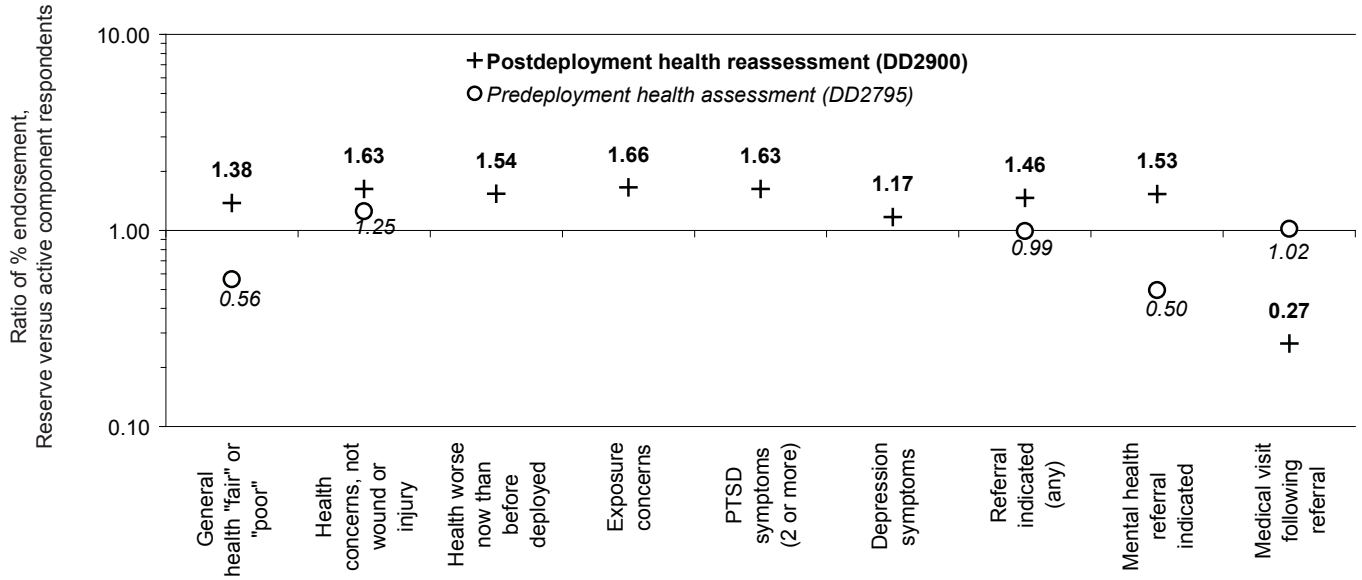
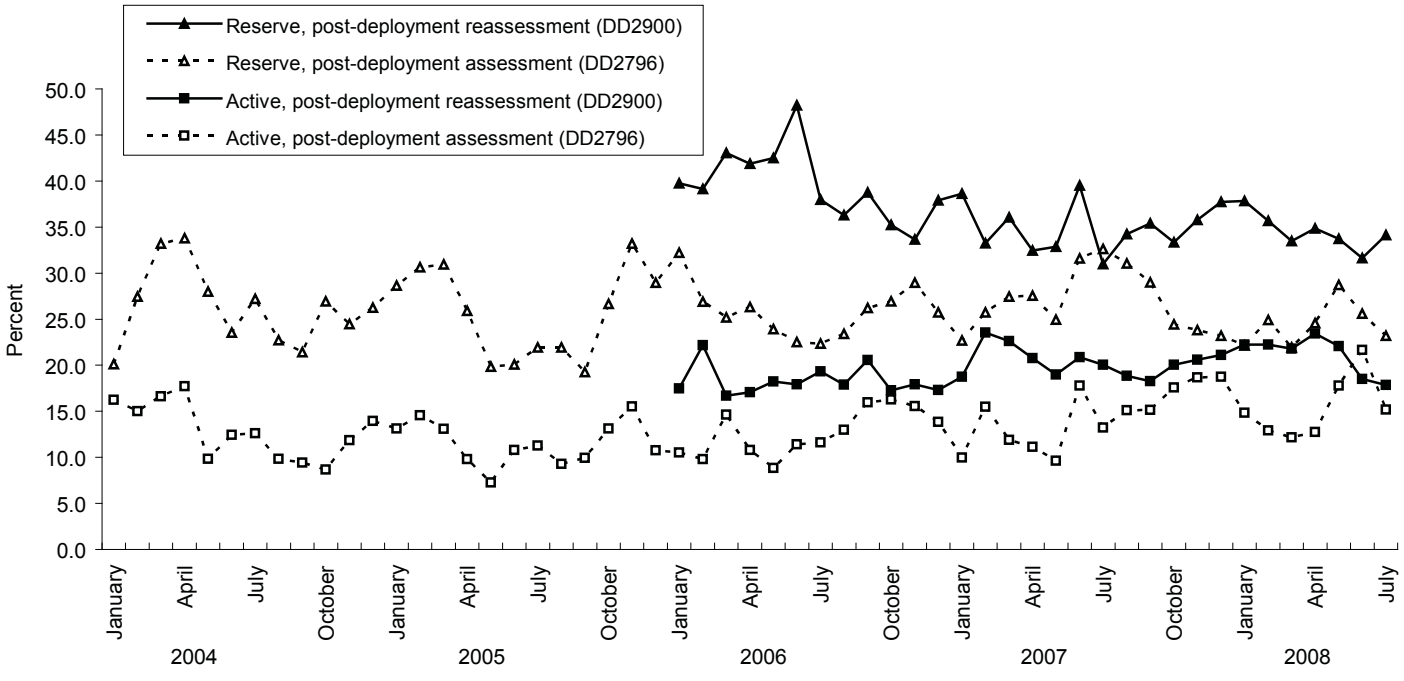


Figure 7. Proportion of service members who endorse exposure concerns on post-deployment health assessments, U.S. Armed Forces, January 2004-July 2008



Sentinel reportable events for service members and beneficiaries at U.S. Army medical facilities, cumulative numbers* for calendar years through 31 July 2007 and 31 July 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	2007	2008
NORTH ATLANTIC																
Washington, DC Area	175	230	.	1	3	3	2	1	.	.	.	.	5	2	1	6
Aberdeen, MD	19	40	.	.	1	.	.	1	.	.	.	.	.	.	.	.
FT Belvoir, VA	158	168	8	5	2	.	4	3	1	2	.	.	.	.	1	.
FT Bragg, NC	764	959	2	1	.	.	12	9	2	.	.	.	.	.	.	.
FT Drum, NY	126	202	.	.	.	.	.	.	.	.	.	.	2	.	.	.
FT Eustis, VA	117	444	.	1	.	.	.	1	.	.	.	.	.	.	.	1
FT Knox, KY	162	412	.	2	.	.	2	.	1	.	.	.	1	.	.	.
FT Lee, VA	260	200	.	.	1	.	1	.	1	.	.	.	2	3	.	1
FT Meade, MD	37	198	.	.	.	1	.	.	.	1	.	.	.	.	.	.
West Point, NY	19	76	.	.	.	.	.	.	.	.	.	.	3	1	.	.
GREAT PLAINS																
FT Sam Houston, TX	380	497	.	.	1	.	2	7	.	11	.	.	3	.	6	.
FT Bliss, TX	100	335	.	.	.	.	.	6	.	.	.	.	.	.	.	.
FT Carson, CO	413	531	2	2	2	3	.	2	.	.	.	.	.	1	.	.
FT Hood, TX	1,278	1,407	5	5	3	1	8	18	9	5	.	.	.	.	1	2
FT Huachuca, AZ	65	61	.	.	.	.	5	1	.	1	.	.	.	1	.	.
FT Leavenworth, KS	30	31	1	.	.	.	.	.	1	.	.	.	.	.	.	.
FT Leonard Wood, MO	246	369	.	1	.	2	1	1	1	1	.	.	.	1	9	1
FT Polk, LA	134	108	.	1	3	.	2	.	.	1	.	.	.	.	1	1
FT Riley, KS	229	360	2	.	.	.	5	1	.	.	.	.	.	2	2	.
FT Sill, OK	121	167	.	.	.	.	1	.	.	.	.	.	.	.	1	.
SOUTHEAST																
FT Gordon, GA	442	613	.	1	.	.	2	9	.	13	.	.	1	1	.	2
FT Benning, GA	241	267	1	1	1	1	3	5	1	1	.	.	1	.	1	.
FT Campbell, KY	395	223	.	1	.	.	.	.	2	2	.	.	.	.	.	.
FT Jackson, SC	142	181	.	.	.	.	.	.	.	.	.	.	1	1	.	.
FT Rucker, AL	53	48	.	.	.	.	.	2	10	.	.	.	1	.	.	.
FT Stewart, GA	642	482	1	3	.	1	13	9	9	1	.	.	2	6	2	.
WESTERN																
FT Lewis, WA	433	722	1	4	3	.	1	1	1	2	.	.	.	.	1	.
FT Irwin, CA	64	39	1	.	.	.	2	1	1	1	.	.	.	.	.	.
FT Wainwright, AK	146	254	.	4	.	.	.	1	.	.	.	.	.	.	.	.
OTHER LOCATIONS																
Hawaii	458	529	20	26	1	1	9	11	.	3	.	.	1	4	.	.
Germany	524	854	5	9	1	2	6	11	6	1	.	.	.	5	1	.
Korea	348	451	.	.	.	.	.	.	.	.	.	.	.	.	2	1
Total	**8,721**	**11,458**	**49**	**68**	**22**	**15**	**81**	**101**	**46**	**46**	**0**	**0**	**23**	**28**	**29**	**15**

*Events reported by August 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* for calendar years through 31 July 2007 and 31 July 2008

Army

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	3	11	2	1	98	85	15	19	4	5	.	.	.	.	.	15
Aberdeen, MD	.	6	.	.	10	15	3	1	.	.	.	.	.	.	.	.
FT Belvoir, VA	1	.	1	.	108	98	15	5	2	.	.	.	.	.	.	.
FT Bragg, NC	.	1	2	8	542	615	98	133	.	1	50	44	1	.	52	55
FT Drum, NY	2	3	2	.	76	144	13	14	.	.	.	.	.	.	.	.
FT Eustis, VA	1	.	.	.	94	132	5	21	.	3	.	.	.	.	8	1
FT Knox, KY	1	1	.	.	131	123	20	28	.	1	.	.	.	.	.	2
FT Lee, VA	2	2	.	1	201	131	26	48	2	1	.	.	1	.	9	3
FT Meade, MD	.	1	.	.	28	34	6	2	1	.	1	.	1	.	.	.
West Point, NY	6	27	.	.	9	20	.	.	.	.	.	.	.	.	.	.
GREAT PLAINS																
FT Sam Houston, TX	1	.	.	.	191	185	41	53	2	17	.	.	.	1	1	4
FT Bliss, TX	.	.	.	.	81	229	13	43	1	5	.	.	.	.	.	.
FT Carson, CO	.	.	.	.	275	366	40	33	1	.	7	12	1	.	.	.
FT Hood, TX	.	.	4	.	939	1,006	149	197	2	.	65	52	.	.	19	.
FT Huachuca, AZ	.	1	.	.	51	44	9	9	.	.	.	.	.	.	.	3
FT Leavenworth, KS	.	1	.	.	24	26	4	4	.	.	.	.	.	.	.	.
FT Leonard Wood, MO	.	.	.	.	164	117	28	13	1	.	.	.	2	3	7	6
FT Polk, LA	.	.	15	.	70	72	21	24	1	1	.	.	.	.	20	7
FT Riley, KS	.	4	.	1	165	211	10	19	.	1	.	1	.	1	10	1
FT Sill, OK	.	.	1	.	68	55	17	10	1	.	.	.	1	.	26	8
SOUTHEAST																
FT Gordon, GA	1	.	.	.	315	302	58	77	3	.	.	.	.	.	1	1
FT Benning, GA	.	.	1	.	150	168	46	51	.	1	.	.	1	.	19	12
FT Campbell, KY	.	.	.	.	289	118	40	5	.	1	.	.	.	.	1	6
FT Jackson, SC	.	.	.	.	109	138	27	21	2	.	.	.	.	.	2	20
FT Rucker, AL	.	1	.	.	36	33	1	8	.	1	.	.	.	.	4	2
FT Stewart, GA	.	.	.	2	456	353	92	65	3	2	.	.	.	.	21	23
WESTERN																
FT Lewis, WA	.	.	2	2	372	575	39	58	.	1	8	12	.	.	.	.
FT Irwin, CA	1	.	1	.	34	23	4	4	.	.	.	.	.	.	17	10
FT Wainwright, AK	.	1	.	.	115	173	7	21	.	1	.	.	10	12	.	1
OTHER LOCATIONS																
Hawaii	.	.	.	1	333	378	36	50	.	.	.	.	.	.	3	.
Germany	13	23	3	10	311	509	99	109	2	7	3	.	.	8	28	4
Korea	.	.	2	.	283	389	37	44	1	4	1	.	20	.	2	3
Total	**32**	**83**	**36**	**26**	**6,128**	**6,867**	**1,019**	**1,189**	**29**	**53**	**135**	**121**	**38**	**25**	**250**	**187**

‡Primary and secondary.
§Urethritis, non-gonococcal (NGU).

Sentinel reportable events for service members and beneficiaries at U.S. Navy medical facilities, cumulative numbers* for calendar years through 31 July 2007 and 31 July 2008

Navy

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	2007	2008
NATIONAL CAPITOL AREA																
Annapolis, MD	0	25	.	1	.	.	.	1	.	.	.	.	.	.	.	.
Bethesda, MD	33	48	1	2	.	1	2	4	.	.	.	.	1	1	.	.
Patuxent River, MD	0	2	.	.	.	.	.	.	.	.	.	.	.	.	.	.
NAVY MEDICINE EAST																
Albany, GA	0	3	.	.	.	.	.	.	.	.	.	.	.	2	.	.
Atlanta, GA	3	2	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Beaufort, SC	189	50	.	.	.	.	.	.	1	.	.	.	.	.	.	.
Camp Lejeune, NC	226	144	.	.	.	.	4	2	.	.	.	.	.	.	.	.
Cherry Point, NC	97	94	.	.	.	.	2	1	.	.	.	.	.	.	3	.
Great Lakes, IL	170	102	.	.	1	.	3	.	.	.	.	.	.	2	.	1
Jacksonville, FL	141	57	1	.	.	.	4	10	2	1	.	.	.	.	.	2
Mayport, FL	24	34	1	.	.	.	4	6	.	2	.	.	.	.	.	.
NABLC Norfolk, VA	54	15	.	.	.	.	.	.	.	.	.	.	.	.	.	.
NBMC Norfolk, VA	200	198	.	.	.	.	.	.	.	.	.	.	.	1	.	.
NEHC Norfolk, VA	4	0	.	.	.	.	.	.	.	.	.	.	.	.	2	.
North Charleston, SC	3	25	.	.	.	.	.	1	.	1	.	.	.	.	.	.
Pensacola, FL	69	55	.	1	.	.	5	3	3	1	.	.	.	.	5	.
Portsmouth, VA	0	5	.	.	.	.	.	.	.	.	.	.	.	1	.	.
Washington, DC	4	8	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Guantanamo Bay, Cuba	2	5	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Europe	22	30	.	.	.	.	.	3	.	.	.	.	.	.	.	.
NAVY MEDICINE WEST																
Camp Pendleton, CA	13	87	.	.	.	1	1	3	.	1	.	.	.	.	.	.
Corpus Christi, TX	4	2	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Fallon, NV	0	3	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Ingleside, TX	2	2	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Lemoore, CA	1	15	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Pearl Harbor, HI	0	21	.	.	.	.	.	.	.	.	.	.	.	.	.	.
San Diego, CA	313	141	3	.	2	.	3	1	2	1	.	.	28	5	.	1
Guam	27	17	.	.	.	.	1	.	.	.	.	.	.	.	.	2
Japan	32	40	.	.	.	.	.	.	.	.	.	.	.	1	1	.
NAVAL SHIPS																
COMNAVAIRLANT/CINCLANTFLEET	7	0	.	.	.	.	.	.	.	.	.	.	.	.	.	.
COMNAVSURFPAC/CINCPACFLEET	24	13	.	.	.	.	.	.	.	.	.	.	.	.	1	.
Total	**1,664**	**1,243**	**6**	**4**	**3**	**2**	**29**	**35**	**8**	**7**	**0**	**0**	**29**	**13**	**12**	**6**

*Events reported by August 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* for calendar years through 31 July 2007 and 31 July 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	.	.	.	12	.	.	.	.	.	.	.	.	.	1
Bethesda, MD	2	2	.	2	20	25	2	1	1	1	.	.	.	.	.	.
Patuxent River, MD	.	2	.	.	.	.	.	.	.	.	.	.	.	.	.	.
NAVY MEDICINE EAST																
Albany, GA	.	.	.	.	.	1	.	.	.	.	.	.	.	.	.	.
Atlanta, GA	.	.	.	.	1	2	1	.	1	.	.	.	.	.	.	.
Beaufort, SC	.	.	.	.	152	4	16	.	2	.	.	.	.	.	12	44
Camp Lejeune, NC	12	.	1	.	168	63	25	22	.	.	.	16	.	.	16	40
Cherry Point, NC	.	1	.	.	78	64	6	10	1	.	.	.	.	.	1	3
Great Lakes, IL	.	.	.	.	143	94	16	4	.	.	.	.	.	.	.	.
Jacksonville, FL	.	.	.	.	105	25	14	2	2	1	.	.	.	.	2	.
Mayport, FL	.	.	.	.	16	16	.	2	1	.	.	.	.	.	.	.
NABLC Norfolk, VA	.	.	.	.	49	14	5	1	.	.	.	.	.	.	.	.
NBMC Norfolk, VA	.	.	.	.	166	161	33	29	.	1	.	.	.	.	.	.
NEHC Norfolk, VA	.	.	.	.	2	.	.	.	.	.	.	.	.	.	.	.
North Charleston, SC	.	1	.	.	3	14	.	3	.	1	.	.	.	.	.	1
Pensacola, FL	.	.	.	.	37	41	3	3	.	.	.	.	.	.	12	.
Portsmouth, VA	.	.	.	.	.	3	.	1	.	.	.	.	.	.	.	.
Washington, DC	.	1	.	.	4	7	.	.	.	.	.	.	.	.	.	.
Guantanamo Bay, Cuba	.	.	.	.	2	5	.	.	.	.	.	.	.	.	.	.
Europe	.	.	.	1	21	24	1	2	.	.	.	.	.	.	.	.
NAVY MEDICINE WEST																
Camp Pendleton, CA	.	.	.	.	10	72	1	8	1	.	.	.	.	.	.	.
Corpus Christi, TX	.	.	.	.	3	.	1	2	.	.	.	.	.	.	.	.
Fallon, NV	.	.	.	.	.	3	.	.	.	.	.	.	.	.	.	.
Ingleside, TX	.	.	.	.	2	2	.	.	.	.	.	.	.	.	.	.
Lemoore, CA	.	.	.	.	.	7	.	.	.	.	.	.	.	.	.	.
Pearl Harbor, HI	.	.	.	.	.	20	.	.	.	1	.	.	.	.	.	.
San Diego, CA	1	1	.	1	197	108	35	12	5	2	.	.	.	.	.	.
Guam	.	.	.	2	23	8	3	3	.	.	.	.	.	.	.	.
Japan	.	.	.	1	20	28	5	4	.	.	.	.	.	.	4	2
NAVAL SHIPS																
COMNAVAIRLANT/CINCLANTFLEET	.	.	.	.	7	.	.	.	.	.	.	.	.	.	.	.
COMNAVSURFPAC/CINCPACFLEET	.	.	.	.	16	9	6	2	.	.	.	2	.	.	1	.
Total	**15**	**13**	**1**	**7**	**1,245**	**832**	**173**	**111**	**14**	**7**	**0**	**18**	**0**	**0**	**48**	**91**

‡Primary and secondary.

§Urethritis, non-gonococcal (NGU).

Sentinel reportable events for service members and beneficiaries at U.S. Air Force medical facilities, cumulative numbers* for calendar years through 31 July 2007 and 31 July 2008

Air Force

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	2007	2008
Air Combat Cmd	1,023	1,107	2	2	1	2	4	9	.	4	.	.	4	28	6	3
Air Education & Training Cmd	438	599	1	1	.	3	10	8	3	1	.	.	4	1	5	4
Lackland, TX	0	0	.	.	.	.	.	.	.	.	.	.	.	.	.	.
USAF Academy, CO	33	11	.	.	.	.	2	.	.	.	.	.	.	.	.	.
Air Force Dist. of Washington	15	19	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Air Force Materiel Cmd	325	450	.	1	.	1	10	2	1	4	.	.	.	.	1	.
Air Force Special Ops Cmd	93	154	.	.	.	.	.	.	1	.	.	.	.	2	.	.
Air Force Space Cmd	210	284	2	1	2	.	5	5	1	1	.	.	2	2	1	1
Air Mobility Cmd	468	644	1	1	1	2	7	5	2	2	.	.	4	2	2	8
Pacific Air Forces	324	360	1	6	2	4	4	2	1	.	.	.	3	6	8	3
PACAF Korea	96	138	.	.	.	.	.	.	.	.	.	.	5	1	1	.
U.S. Air Forces in Europe	181	256	3	1	.	.	.	1	1	.	.	.	1	2	.	1
Total	**3,206**	**4,022**	**10**	**13**	**6**	**12**	**42**	**32**	**10**	**12**	**0**	**0**	**23**	**44**	**24**	**20**

*Events reported by August 7, 2007 and 2008

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

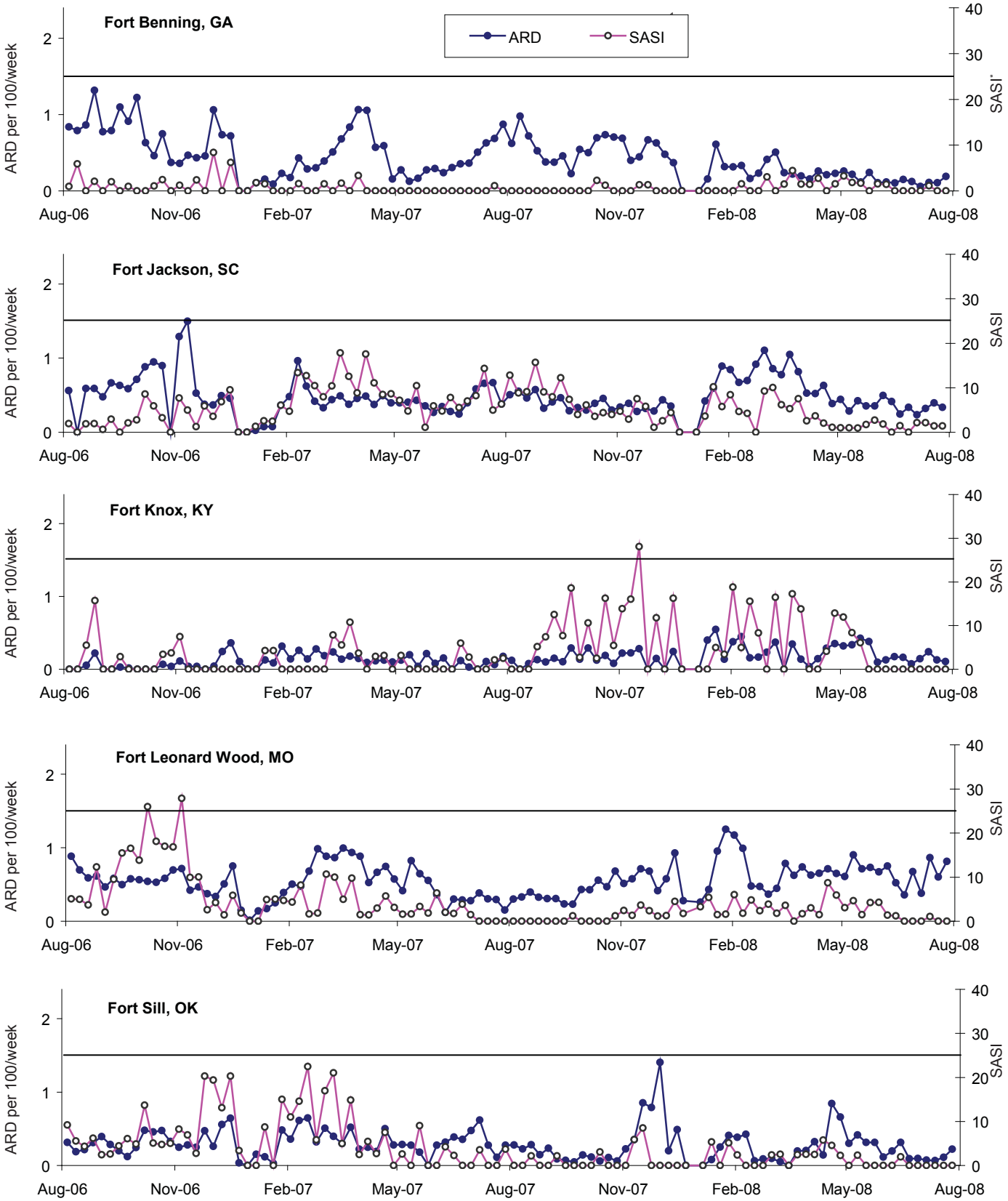
Note: Completeness and timeliness of reporting vary by facility.

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	7	3	.	.	639	624	51	55	1	2	2	1	.	3	6	.
Air Education & Training Cmd	1	3	.	.	344	343	38	31	.	2	.	.	1	.	1	1
Lackland, TX	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
USAF Academy, CO	.	.	.	.	28	11	1	.	.	.	.	.	.	.	.	.
Air Force Dist. of Washington	.	1	.	.	14	12	1	1	.	.	.	.	.	.	.	.
Air Force Materiel Cmd	6	6	1	1	256	263	36	41	.	2	.	.	.	.	.	.
Air Force Special Ops Cmd	.	1	.	1	81	118	11	21	.	1	.	.	.	.	.	.
Air Force Space Cmd	1	3	.	.	177	190	13	9	.	.	.	.	.	.	.	.
Air Mobility Cmd	5	6	.	.	389	417	28	52	3	3	.	.	.	2	2	4
Pacific Air Forces	1	.	.	.	268	296	15	18	.	1	.	.	1	.	.	.
PACAF Korea	.	.	.	.	71	110	2	4	3	.	.	.	2	.	1	.
U.S. Air Forces in Europe	2	1	.	2	137	199	9	18	.	.	.	.	.	.	.	.
Total	**23**	**24**	**1**	**4**	**2,404**	**2,583**	**205**	**250**	**7**	**11**	**2**	**1**	**4**	**5**	**10**	**5**

‡Primary and secondary.

§Urethritis, non-gonococcal (NGU).

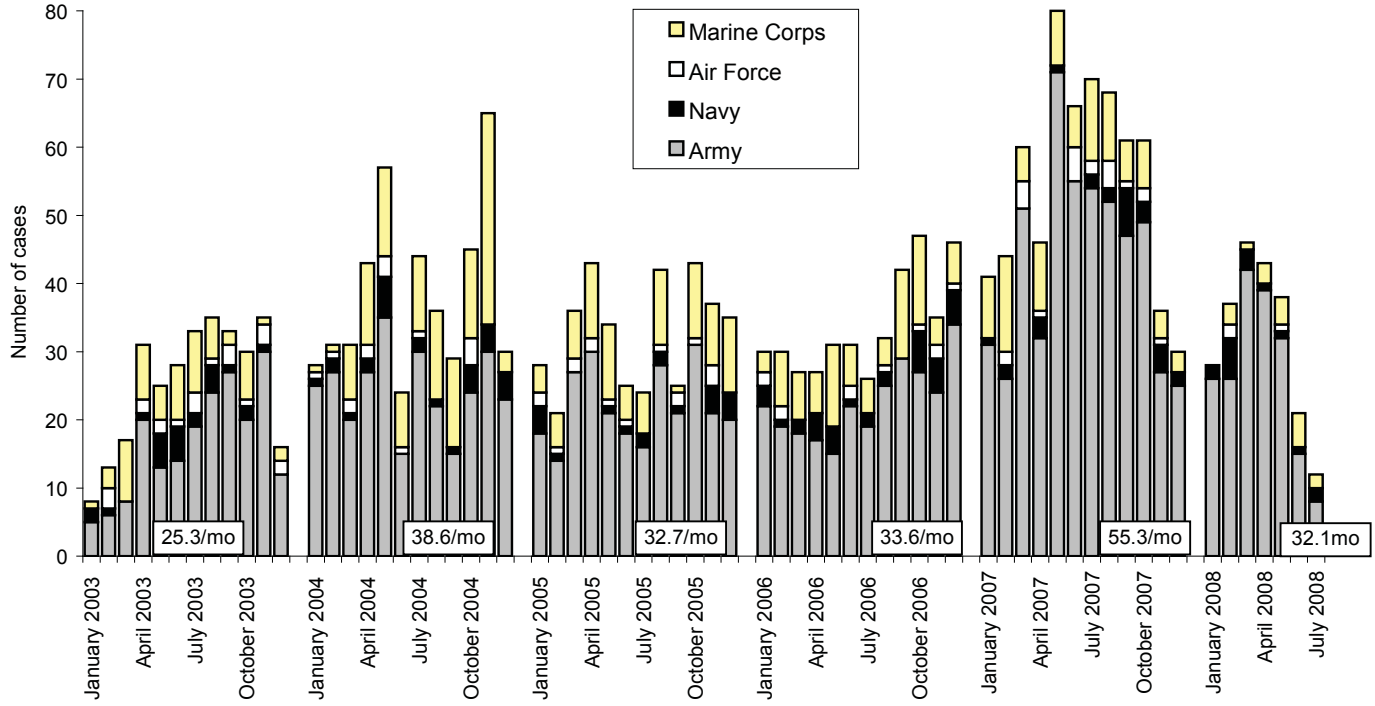
Acute respiratory disease (ARD) and streptococcal pharyngitis rates (SASI*), basic combat training centers, U.S. Army, by week, August 2006-August 2008



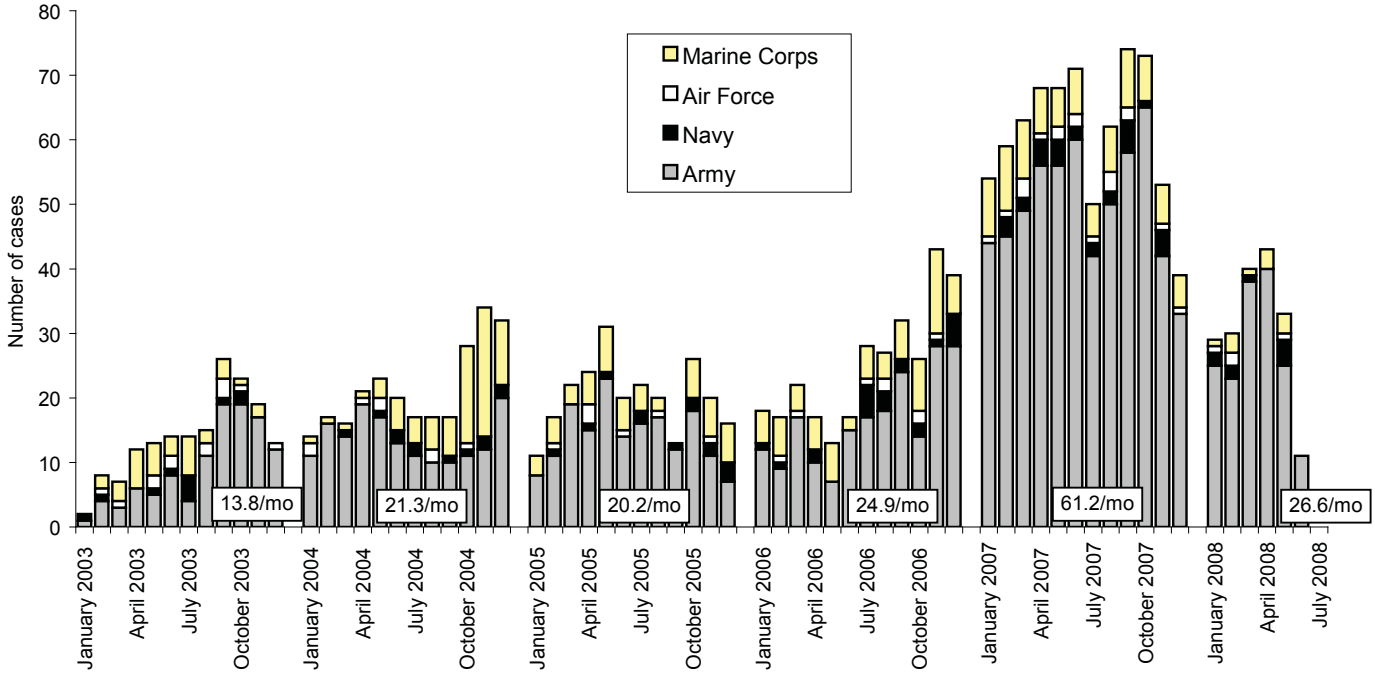
* Streptococcal-ARD surveillance index (SASI) = ARD rate x % positive culture for group A streptococcus
ARD rate = cases per 100 trainees per week
ARD rate ≥ 1.5 or SASI ≥ 25.0 for 2 consecutive weeks are surveillance indicators of epidemics

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



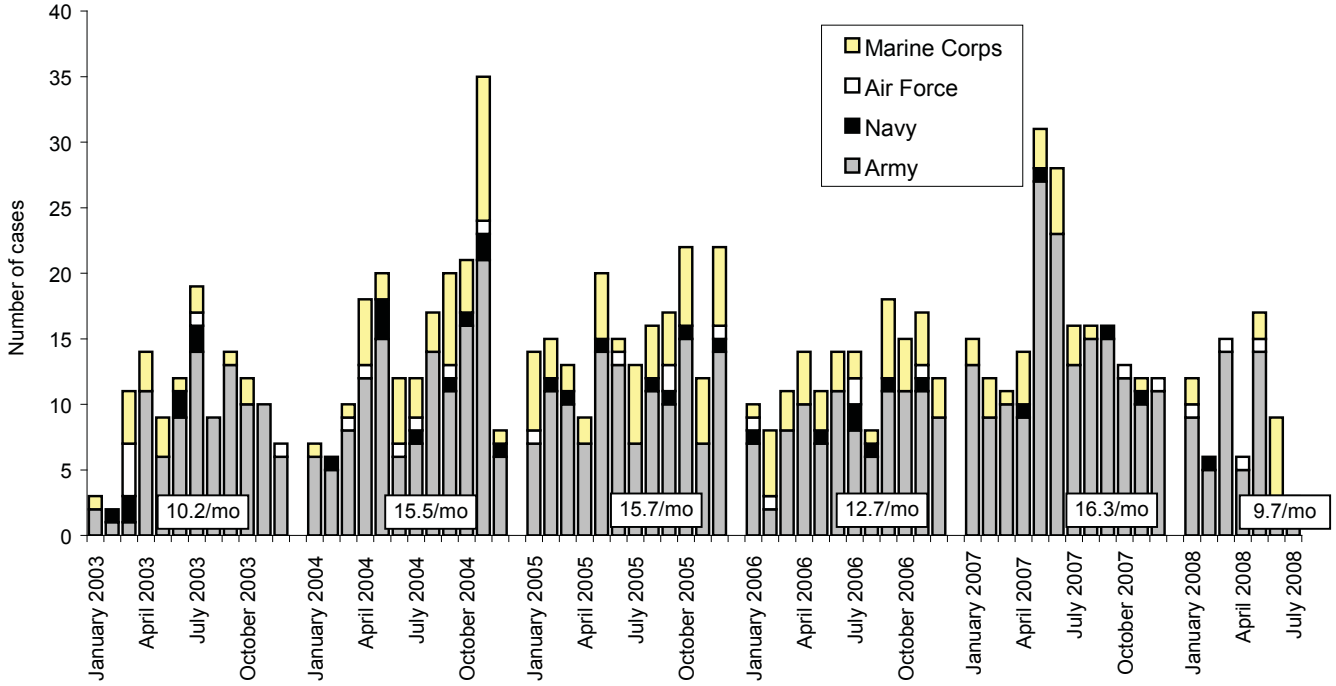
Reference: Army Medical Surveillance Activity. Traumatic brain injury among members of active components, U.S. Armed Forces, 2002-2007. *MSMR*. Aug 2007; 14(5):2-6.

*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.

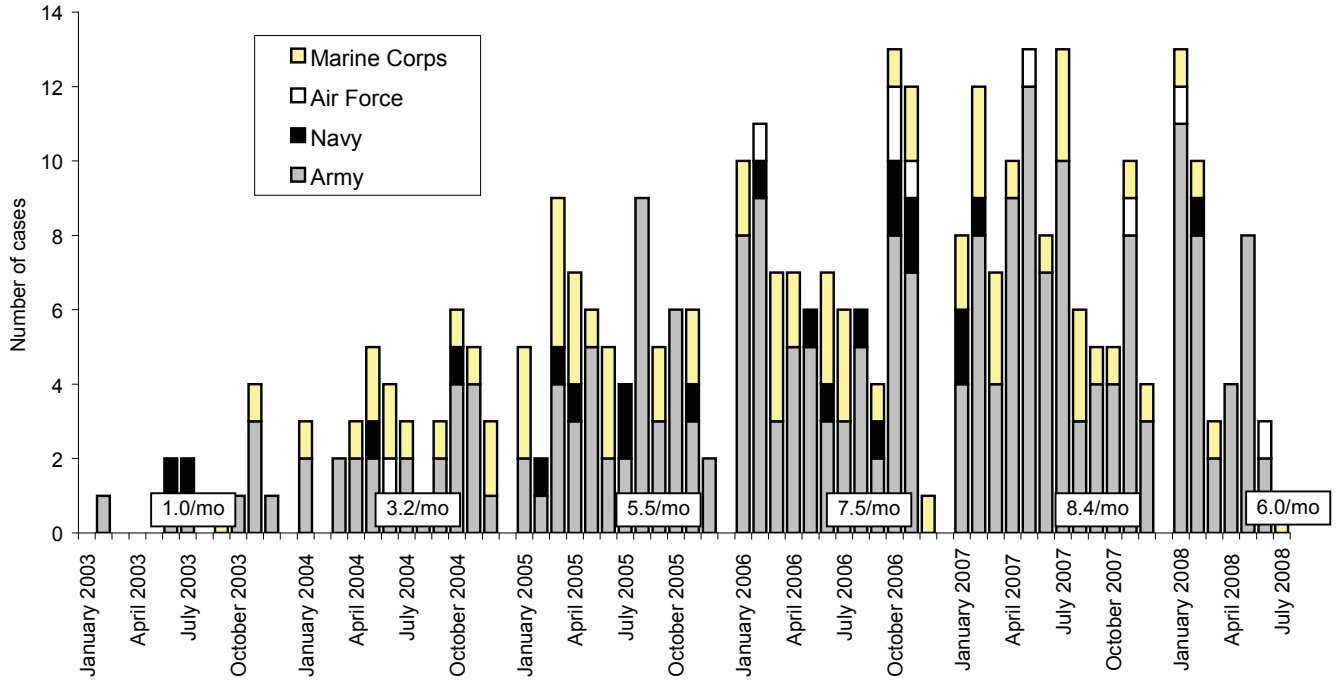
Deployment-related conditions of special surveillance interest, U.S. Armed Forces, by month and service, January 2003 - July 2008

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



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.

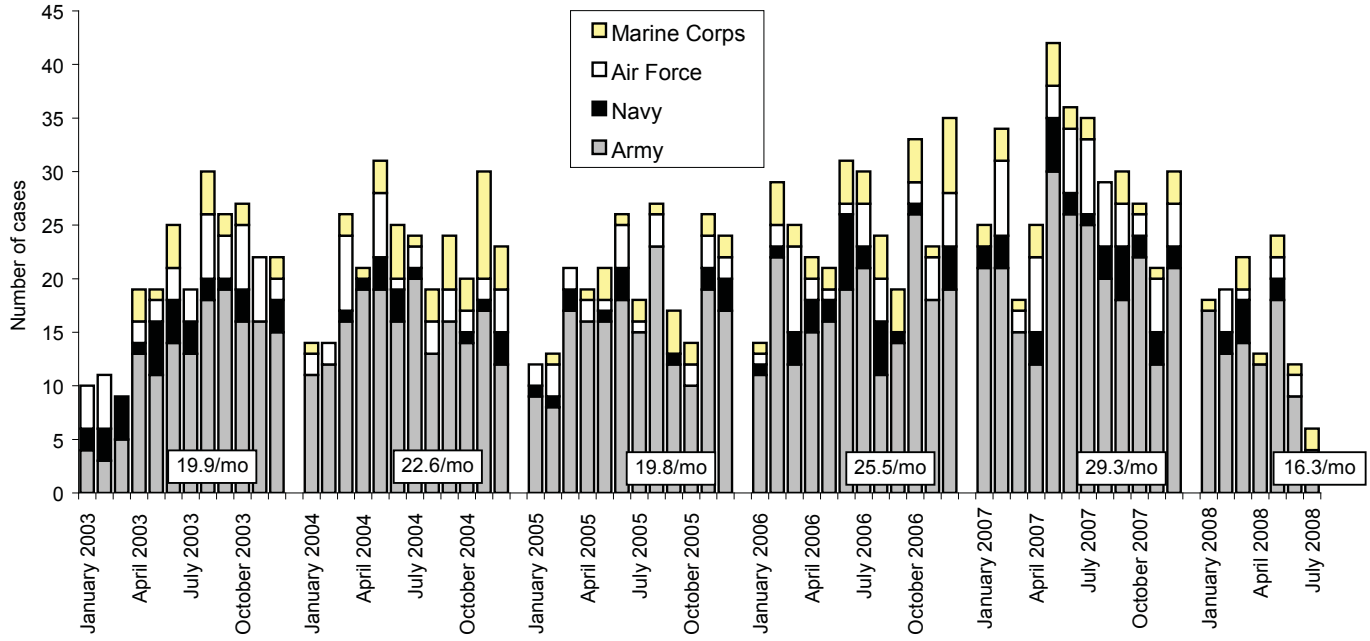
Heterotopic ossification (ICD-9: 728.12, 728.13, 728.19)†



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.

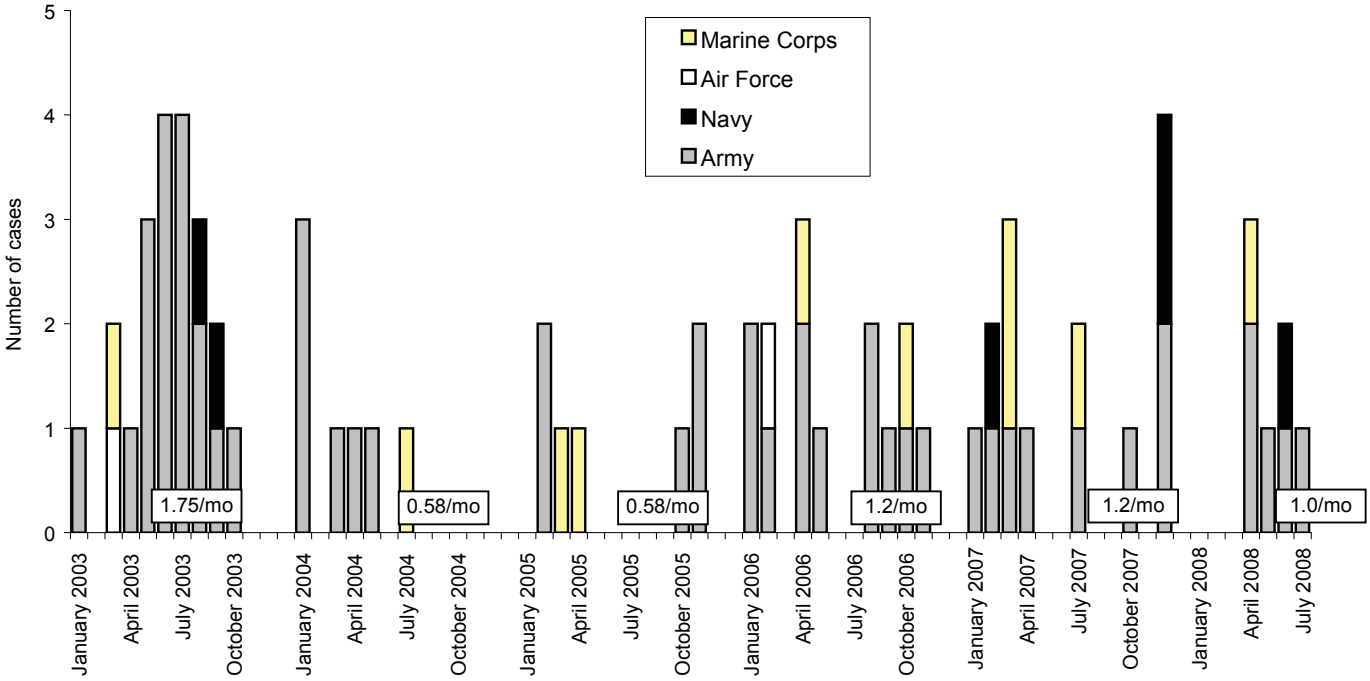
Deployment-related conditions of special surveillance interest, U.S. Armed Forces, by month and service, January 2003 - July 2008

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.

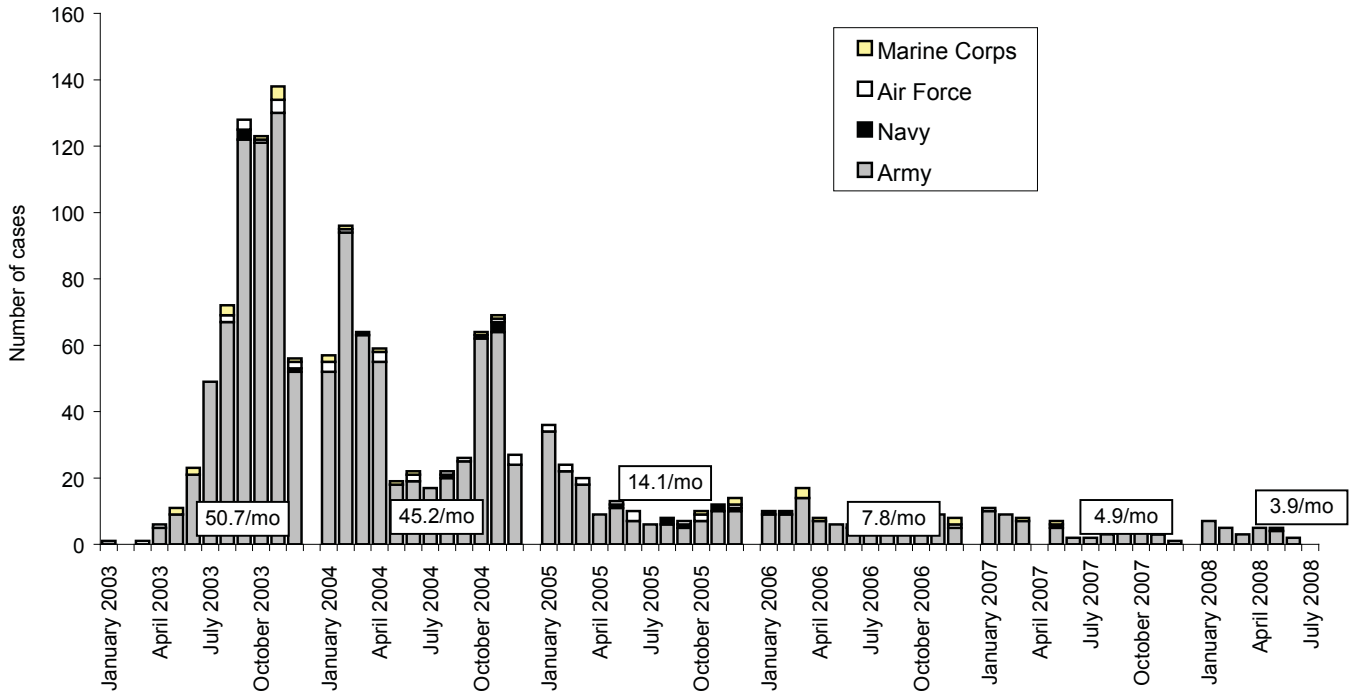
Severe acute pneumonia (ICD-9: 518.81, 518.82, 518.3, 480-487, 786.09)†



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 - July 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.

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