# MSMR

Medical Surveillance Monthly Report

Vol. 8 No. 1

January/February 2002


USACHPPM

## *Contents*



Current and past issues of the MSMR may be viewed online at: *http://amsa.army.mil*

## Spontaneous Ruptures of the Achilles Tendon, US Armed Forces, 1998-2001

Injuries and musculoskeletal conditions impact the health and military operational readiness of U.S. Armed Forces servicemembers more than any other category of medical conditions. In addition, injuries and musculoskeletal conditions account for the largest direct costs of medical care.[1]

Non-traumatic ruptures of the achilles tendon are relatively common injuries of recreationally active, middle-aged adults. They are debilitating injuries that require long periods of rehabilitation. For these reasons, in the military, achilles tendon ruptures can disproportionately affect senior leaders and have disproportionately large impacts on unit readiness and operational effectiveness.

Several reports (mainly from Scandinavian countries) have documented increasing rates of achilles tendon ruptures in general populations.[2,3,4,5,6,7] The increasing rates have generally been attributed to increasing participation of middle-aged adults in high-risk sports (e.g., volleyball, badminton, soccer).[3,4,5,6,7,8,9] A review of surgically repaired achilles tendon ruptures in the U.S. military found that Black soldiers were at higher risk than others and that basketball was the most frequently reported activity at the time of injury.[8]

This study reports frequencies, rates, and trends of achilles tendon ruptures among active duty servicemembers between January 1998 and May 2001 and identifies subgroups at highest risk. Rates and trends of non-traumatic ruptures of other tendons are included for comparison.

*Methods*. The Defense Medical Surveillance System was searched to identify all incident ambulatory visits of active duty servicemembers with a primary diagnosis of non-traumatic rupture of the achilles tendon (ICD-9-CM code 727.67) and other tendon ruptures (ICD-9-CM codes 727.60-727.66, 727.68-727.69) between January 1998 and May 2001.

*Results*. During the surveillance period, 1,441 active duty servicemembers were diagnosed with spontaneous ruptures of the achilles tendon. The overall incidence rate (unadjusted) during the period was 30.9 per 100,000 person-years.

Incidence rates increased sharply beginning in calendar year 2000 (table 1). As a result, the incidence rate in 2001 (through May) was approximately one-third higher than in 2000 and more than twice as high as in 1998 and 1999 (table 1).

In general, incidence rates were higher among males than females and increased with age (table 1). However, rates were similar among males and females younger than 30 years old; and over age 30, rates significantly increased among men but were relatively stable among women (figure 1).

Incidence rates were 3 to 4 times higher among Black compared to White and all other servicemembers (table 1). Among Black servicemembers, rates increased very sharply between ages 20 and 30—and were relatively stable over age 30 (figure 2). Compared to their respective counterparts, crude rates were higher in the Air Force and among officers (table 1); however, these differences were negligible when age was accounted for (data not shown).

Finally, during the same surveillance period, there were increases in rates of spontaneous ruptures of the rotator cuff and patellar, biceps, and foot/ankle tendons. Rates of non-traumatic ruptures of quadriceps, extensor and flexor of the hand/wrist, and other unspecified tendons were relatively stable (figure 3).

*Editorial comment*. The most striking finding of this analysis is the sudden and significant increase in rates of achilles tendon ruptures beginning in calendar year 2000. The increase was manifested across all Services and in most demographic subgroups (table 1). Rates of non-traumatic ruptures of several other tendons also increased during the period; and increases in ruptures of the rotator cuff were comparable to those of the achilles tendon.

The critical factors underlying the increasing rates of achilles tendon ruptures are unclear. The analyses in this report were based on data from medical administrative data sources. It is possible that increases in rates of specific diagnoses over time reflect changes in patterns of reporting (e.g., more complete

**Figure 1. Rate of achilles tendon rupture by age and gender, active duty, servicemembers, 1998-2001.**

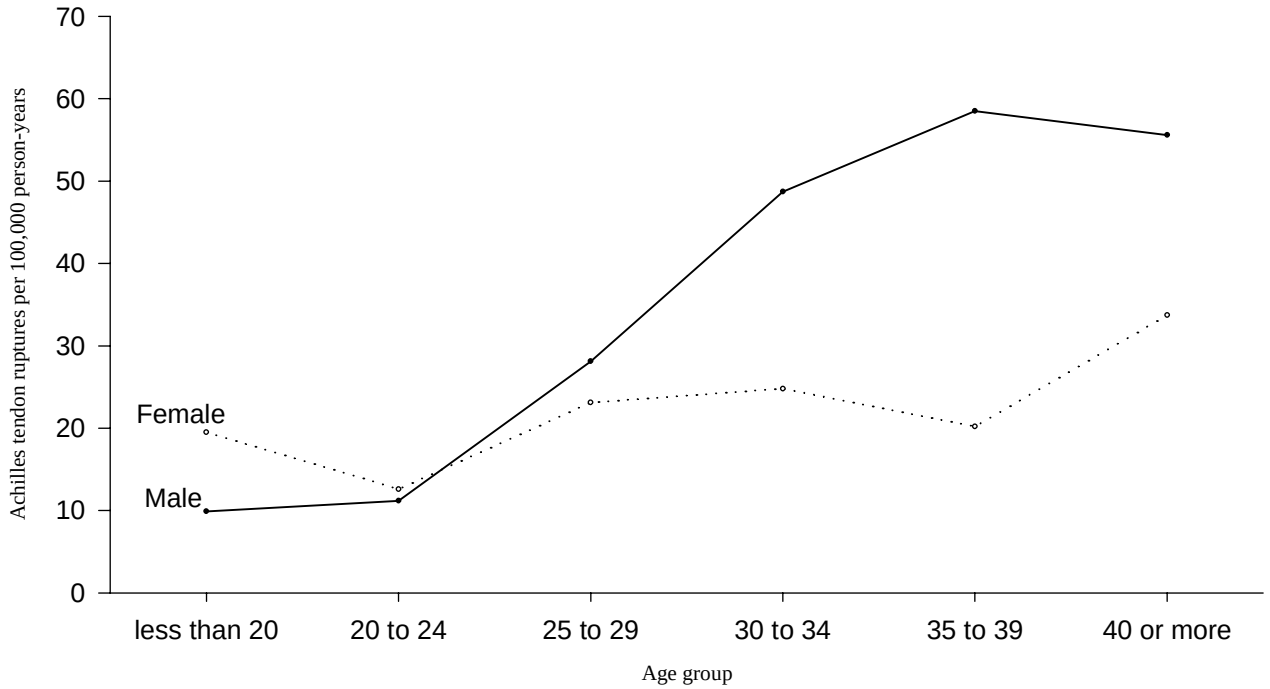
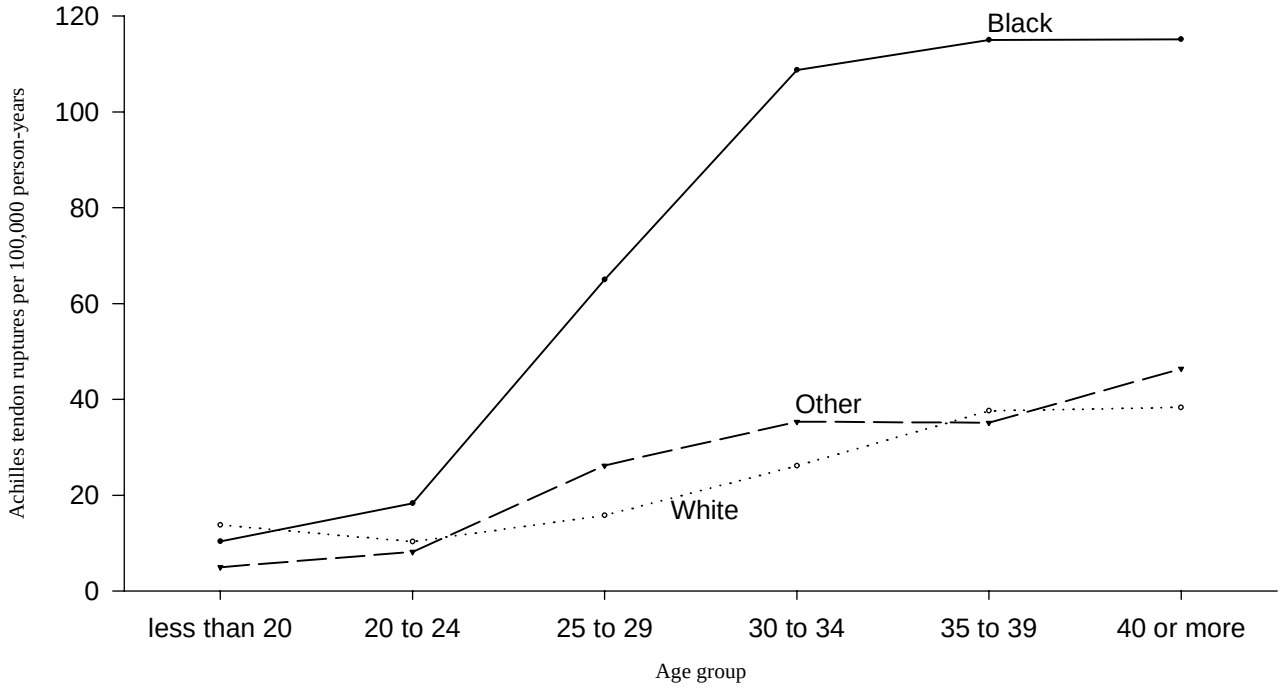



**Figure 2. Rate of achilles tendon rupture by age and race/ethnicity, active duty, servicemembers, 1998-2001.**



ascertainment) rather than actual increases in occurrences of clinical events. Detailed epidemiologic studies are necessary to validate the findings of this analysis and identify significant causes of these injuries.

Previous studies have reported that Black race,[8] male gender,[3,5,6,7,8] increased age,[3,5,6,7,8] use of fluoroquinolone antibiotics,[8,11] extended periods of inactivity followed by rigorous activity,[2-4] and silent degenerative tendinopathies[2] are associated with increased risk of spontaneous rupture of the achilles tendon. In this analysis, the strongest correlates of increased risk were older age, Black non-hispanic race/ethnicity, and male gender (over 30 years old). Fluoroquinolone antibiotic use and the nature and intensity of physical activity could not be assessed.

Participation in recreational sports such as basketball, volleyball, badminton, soccer, and handball have been linked to increased risk of achilles tendon rupture.[3,5,6,7,8,9] More specifically, abrupt repetitive jumping and sprinting movements are thought to rupture achilles tendons that cannot withstand repeated, sudden increases in stress loading.[3,5,9] Athletes, especially middle-aged adults who engage in occasional acceleration-deceleration activities[3,6,8,9] ("weekend warriors[8]"), are considered at particularly high risk of rupturing their achilles tendons.

It is unclear whether relatively high and

**Table 1. Rupture of the achilles tendon, non-traumatic, active duty, U.S. servicemembers, 1998-2001***

| | 1998 | | 1999 | | 2000 | | 2001 | | Overall | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Cases | Rate** | Cases | Rate** | Cases | Rate** | Cases | Rate** | Cases | Rate** |
| **Gender** | | | | | | | | | | |
| Male | 286 | 23.9 | 293 | 25.1 | 465 | 40.0 | 264 | 55.1 | 1,308 | 32.7 |
| Female | 29 | 15.0 | 31 | 16.1 | 49 | 24.9 | 24 | 29.0 | 133 | 20.0 |
| **Service** | | | | | | | | | | |
| Army | 112 | 23.5 | 103 | 22.0 | 198 | 41.9 | 106 | 54.2 | 519 | 32.2 |
| Navy | 47 | 12.5 | 71 | 19.5 | 112 | 30.8 | 75 | 49.7 | 305 | 24.3 |
| Air Force | 120 | 32.9 | 118 | 33.1 | 170 | 48.5 | 79 | 54.8 | 487 | 40.1 |
| Marines | 36 | 21.0 | 32 | 18.7 | 34 | 19.9 | 28 | 39.6 | 130 | 22.3 |
| **Age group** | | | | | | | | | | |
| < 20 | 7 | 7.0 | 9 | 8.9 | 14 | 13.0 | 10 | 21.4 | 40 | 11.6 |
| 20-24 | 31 | 7.4 | 34 | 8.2 | 66 | 15.5 | 33 | 18.1 | 164 | 11.4 |
| 25-29 | 61 | 20.5 | 55 | 19.3 | 96 | 35.0 | 52 | 47.5 | 264 | 27.3 |
| 30-34 | 69 | 30.0 | 82 | 38.0 | 117 | 56.2 | 70 | 83.0 | 338 | 45.7 |
| 35-39 | 87 | 41.9 | 89 | 43.3 | 127 | 62.8 | 76 | 93.7 | 379 | 54.1 |
| >= 40 | 60 | 44.4 | 55 | 40.3 | 94 | 67.2 | 47 | 82.2 | 256 | 52.9 |
| **Rank** | | | | | | | | | | |
| Enlisted | 257 | 22.0 | 251 | 22.0 | 423 | 37.1 | 237 | 50.1 | 1,168 | 29.8 |
| Officer | 58 | 26.0 | 73 | 33.3 | 91 | 41.9 | 51 | 57.5 | 273 | 36.5 |
| **Race/ethnicity** | | | | | | | | | | |
| Black | 132 | 47.7 | 141 | 51.7 | 227 | 82.6 | 139 | 121.6 | 639 | 68.1 |
| White | 152 | 16.3 | 148 | 16.5 | 230 | 25.9 | 130 | 35.8 | 660 | 21.4 |
| Other*** | 31 | 17.2 | 35 | 18.7 | 57 | 28.9 | 19 | 22.7 | 142 | 21.9 |
| **Total** | 315 | 22.7 | 324 | 23.8 | 514 | 37.8 | 288 | 51.3 | 1,441 | 30.9 |

* Data reported through 31-MAY-2001.

** Achilles tendon rupture per 100,000 person-years.

***Includes Asian, Hispanic, Native American, Other, Unknown.

*Source*: Defense Medical Surveillance System.

*Date*: 01-FEB-2002.

increasing rates of achilles tendon ruptures are limited to physically active U.S. military members. We suggest that rates and trends of achilles tendon ruptures be assessed in U.S. civilian populations. We also suggest that the nature and duration of sporting activities (including stretching and warm up prior to participation), levels of fitness, exercise regimens, and medical (e.g., tendonopathies, fluoroquinolone antibiotic uses) and diet (including nutrition supplements) histories be studied in detail in military servicemembers with achilles tendon ruptures.

*Analysis and report by Garret R. Lum, MPH, Analysis Group, Army Medical Surveillance Activity.*

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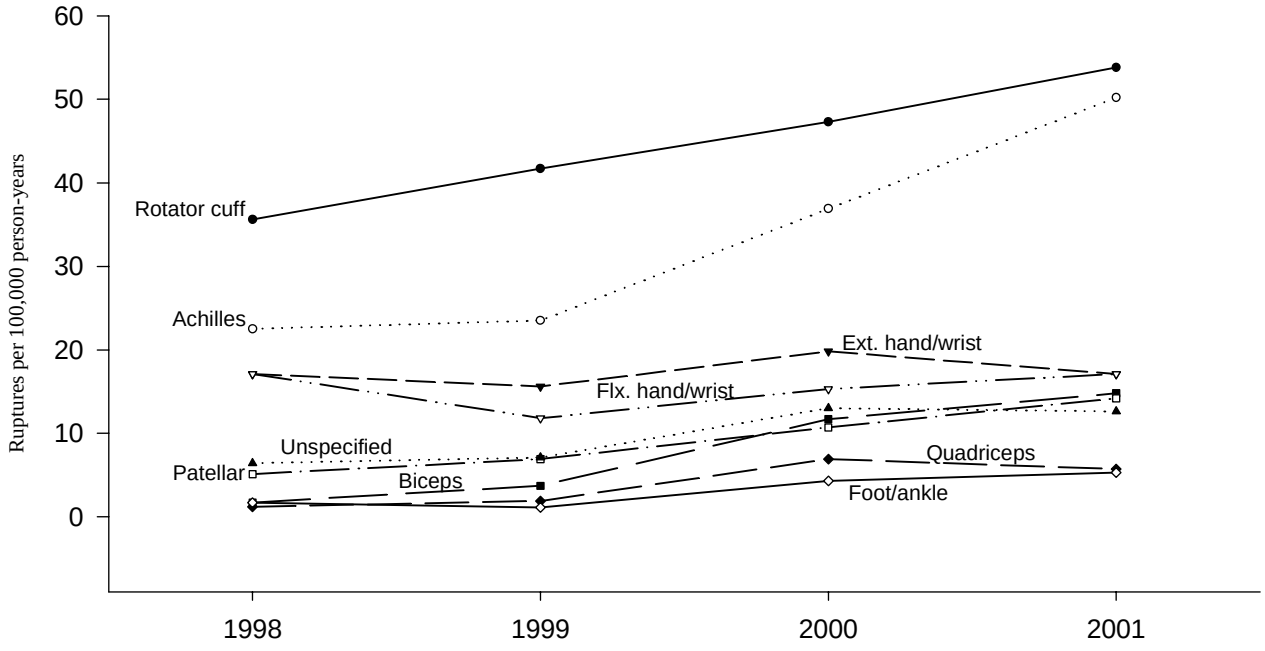
**Figure 3. Rates of tendon ruptures, by anatomic site, U.S. servicemembers, 1998-2001*.**




* Data reported through 31-MAY-2001.

Source: Defense Medical Surveillance System.
Date: 09-JAN-2002

# Human Immunodeficiency Virus, Type 1, Screening Compliance Among Active Duty Servicemembers, US Armed Forces, 2001

Since October 1985, all applicants for U.S. military service have been screened for antibodies to human immunodeficiency virus, type 1 (HIV-1), at Military Entrance Processing Stations. Routine follow-up screening of active duty servicemembers is performed according to the published instructions of each of the Services (table 1). In general, HIV-1 screening is conducted prior to assignments and deployments outside the United States and during routine, periodic medical examinations. Other indications for HIV-1 testing in the military include pregnancy, diagnosis of other sexually transmitted diseases, HIV-related illnesses, occupational exposures, entrance into drug and alcohol treatment facilities, blood donations, and having an HIV-infected sexual partner. Finally, individuals may request screening for HIV-1.

The goal of this report was to describe the completeness and timing of HIV-1 testing among all active military personnel and to identify characteristics associated with more recent testing. Because serum that remains after HIV-1 testing is routinely archived in the DoD Serum Repository, the completeness and frequency of testing has implications not only for HIV-1 prevention, but also for deployment surveillance, public health surveillance, and seroepidemiologic research.

*Methods*. The surveillance population consisted of all active duty members of the U.S. Armed Forces as of August 31, 2001. Data regarding these individuals were obtained from the Defense Medical Surveillance System (DMSS). The time interval, in years, from the most recent HIV-1 test result (or the most recent serum collected for HIV-1 testing) to 31 August 2001 was determined for each individual. Distributions of time intervals were examined in relation to gender, race/ethnicity, military service, age, education level, marital status, and military occupational group. Time interval distributions, overall and in subgroups of interest, were summarized using survival curves, which described the cumulative percent of individuals with an HIV test over time. The survival curves started at 0% tested on 31 August 2001 and increased going back in time (as more individuals were tested). Finally, using standard survival analysis methods, relative percentiles were calculated to estimate the relative increase or decrease in time to the most recent HIV test in selected demographic subgroups.

*Results*. As of 31 August 2001, 98.6% of all active duty members of the U.S. Armed Forces had ever been tested for antibodies to HIV-1. There was variability across the Services (reflecting differences in testing policies) in distributions of times from each

**Table 1. Selected key points of HIV-1 surveillance regulations, US Armed Forces**

| | |
|---|---|
| Army | HIV test required every 2 years. |
| | HIV test required prior to overseas assignment (if no test in previous 6 months). |
| Navy and Marines | HIV test required during routine physical exams (approximately every 5 years). |
| | Personnel stationed overseas or in deployable units tested annually. |
| Air Force | HIV test required during routine physical exams (approximately every 5 years) |
| | or during long flying physical exams (approximately every 3 years). |
| | Deploying personnel must be tested within one year of deployment. |

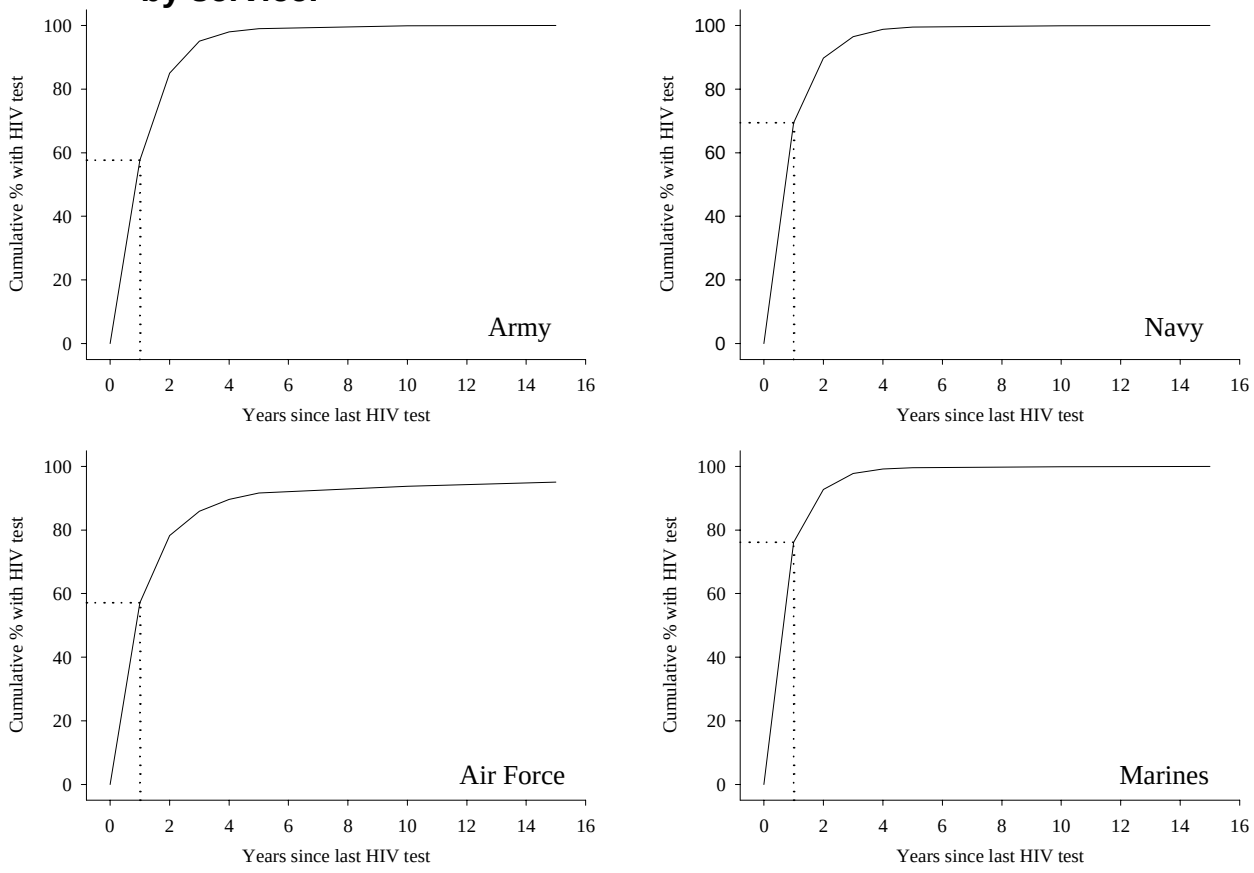
individual's most recent HIV-1 test. The Marines had the highest proportion of members with an HIV test result (92.8%) within two years prior to 31 August 2001, followed by the Navy (89.8%), Army (86.5%) and Air Force (78.3%) (table 2). Within one year, 76.1%, 69.4%, 57.7% and 57.1% of members of the Marines, Navy, Army and Air Force, respectively, had at least one HIV test (figure 1). In general, the Air Force approached complete testing coverage at a slower rate than the other Services (figure 1).

There were striking differences in HIV test intervals in relation to age, education level, and marital status (figure 2). Servicemembers who were older, had higher levels of education, and were married required more years to approach similar levels of HIV test coverage (i.e., were tested less often) than their respective counterparts. Only slight differences were observed in relation to gender, occupational group, and race/ethnicity (figure 2).

Relative percentiles (RP) (table 3) were used to quantify differences between survival curves shown in the figures. After adjusting for the effects of all other variables, the longest times since the most recent HIV tests were in the Air Force, and the shortest were in the Navy and Marines. Test intervals monotonically increased with age (RPs, by age in years: <20: 1.0; 20-29: 1.5; 30-39: 2.1; ≥40: 2.3). Finally, even after adjusting for age and other effects, education level and marital status were correlated with the timing of the most recent HIV test (but less strongly so than suggested by the crude results) (table 2).

*Editorial comment*. Rigorous surveillance of HIV-1 in the U.S. Armed Forces remains important even though rates of new diagnoses have been relatively low[1]. In addition to ensuring the readiness and deployability of U.S. forces, surveillance of HIV-1

**Figure 1. Time since most recent HIV test among active duty* servicemembers, by service.**




* Active Duty on 31-AUG-2001

helps to prevent unwitting transmissions of HIV-1 to family members and others. Well-established surveillance will undoubtedly be useful when effective vaccines against HIV-1 become available. In addition, systematic surveillance of HIV-1 enables the collection and storage of serial specimens from all members of the Armed Services. Pre- and post-deployment serological studies of deployment-related health risks, for example, are much more informative when consistently collected sera are available from all potentially exposed individuals.

The investigation reported here found that nearly all active duty personnel had at least one HIV-1 test and over 80% of all servicemembers had a test within two years. Overall, the most consistent independent correlate of testing interval was age: younger servicemembers had more recent HIV tests than older members. After adjusting for age, individuals with post-graduate degrees and those who were married had HIV tests less frequently than their counterparts. Finally, test intervals were shorter among members of the Navy and Marines compared to the Army and Air Force (reflecting differences in Service-specific testing policies).

The results of this analysis may inform the planning and conduct of surveillance activities and seroepidemiologic studies that use specimens stored in the DoD Serum Repository.

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

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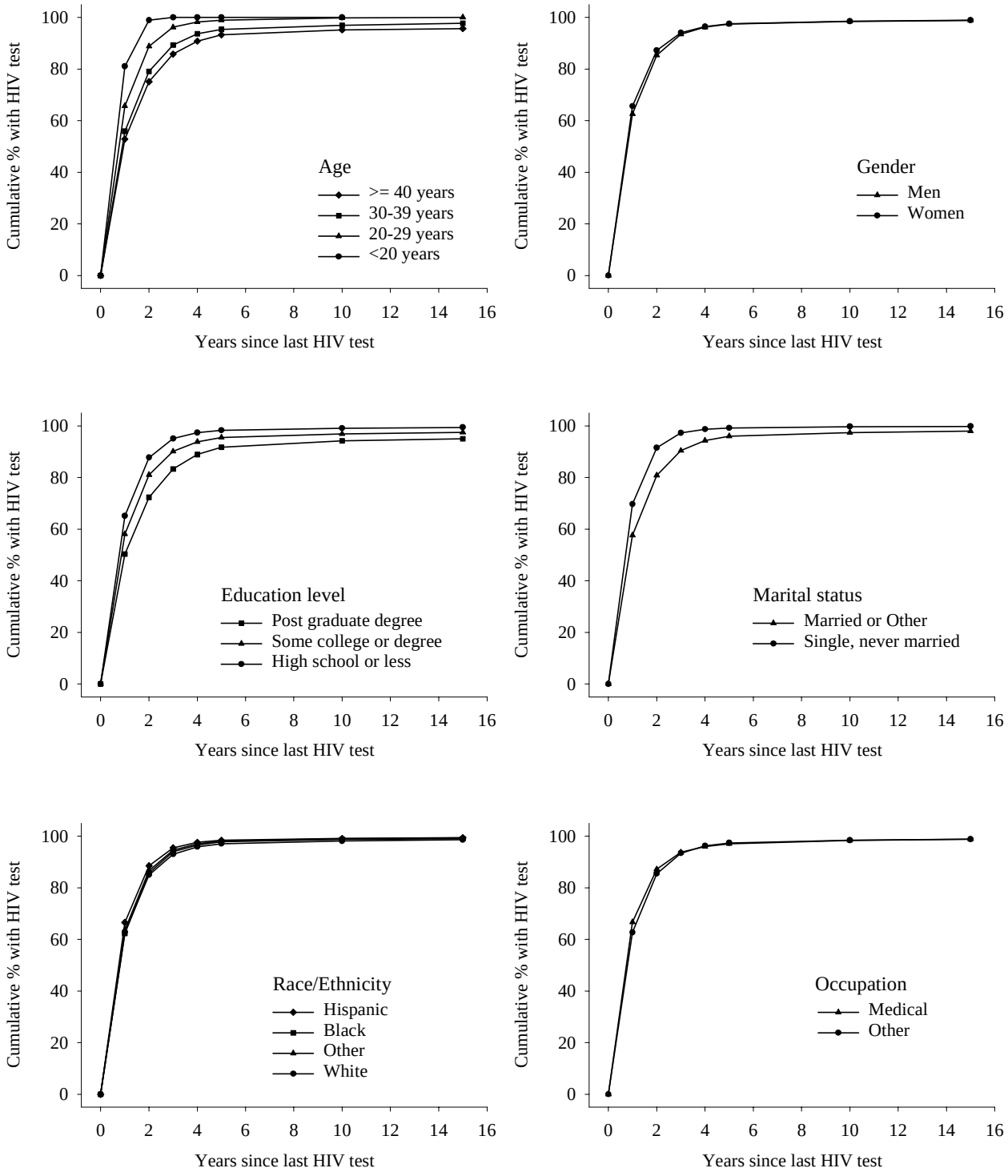
**Table 2. Number and timing of HIV-1 tests of active duty servicemembers, US Armed Forces**

| | Total personnel (on 31 AUG 2001) | Personnel with at least one HIV test in previous 2 years | | Personnel with at least one HIV test in previous 5 years | | Personnel with at least one HIV test result ever | |
|---|---|---|---|---|---|---|---|
| | | Number | % | Number | % | Number | % |
| Army | 477,620 | 413,364 | 86.5 | 473,244 | 99.1 | 477,193 | 99.9 |
| Navy | 371,406 | 333,622 | 89.8 | 369,340 | 99.4 | 371,234 | 100.0 |
| Air Force | 348,677 | 272,910 | 78.3 | 317,880 | 91.2 | 329,885 | 94.6 |
| Marines | 172,664 | 160,282 | 92.8 | 171,958 | 99.6 | 172,572 | 99.9 |
| Total | 1,370,367 | 1,180,178 | 86.1 | 1,332,422 | 97.2 | 1,350,884 | 98.6 |

*Active duty on 31-AUG-2001.

**Figure 2. Time since most recent HIV test among active servicemembers* by selected demographics, US Armed Forces.**




* Active Duty on 31-AUG-2001

**Table 3. Relative times since most recent HIV-1 test in relation to demographic characteristics, crude and adjusted relative percentiles,* active duty servicemembers,** US Armed Forces**

| | Relative Percentile | |
|---|---|---|
| | Crude | Adjusted*** |
| **Service** | | |
| Air Force | 1.70 | 1.50 |
| Navy | 0.82 | 0.82 |
| Marines | 0.70 | 0.75 |
| Army | 1.00 | 1.00 |
| **Age (years)** | | |
| 40+ | 3.34 | 2.30 |
| 30-39 | 2.78 | 2.08 |
| 20-29 | 1.74 | 1.53 |
| <20 | 1.00 | 1.00 |
| **Education** | | |
| Post-graduate | 1.94 | 1.24 |
| Some college or degree | 1.40 | 1.05 |
| High school or less | 1.00 | 1.00 |
| **Marital Status** | | |
| Married or other | 1.66 | 1.14 |
| Single, never married | 1.00 | 1.00 |
| **Race/Ethnicity** | | |
| Hispanic | 0.83 | 1.01 |
| Black | 0.95 | 1.01 |
| Other | 0.90 | 1.00 |
| White | 1.00 | 1.00 |
| **Profession** | | |
| Medical professions | 0.96 | 0.84 |
| Other professions | 1.00 | 1.00 |
| **Gender** | | |
| Female | 0.92 | 0.93 |
| Male | 1.00 | 1.00 |

* Defined as the time since most recent HIV test relative to the corresponding reference group.

** Active duty on 31-AUG-2001.

*** Adjusted for all other covariates.

# Rapidly Successive Hospitalizations for Mental Disorders, Active Duty Servicemembers, U.S. Armed Forces, 1991-2000

Many active duty members of the U.S. Armed Forces have multiple mental disorder-related hospitalizations within very short periods of time—and often within single days. For surveillance purposes, it is important to determine whether hospitalizations in rapid succession represent single, continuous or separate episodes of care. To gain insights into this question, we analyzed pairs of mental disorder hospitalizations of individuals that were separated by less than three days.

*Methods.* For the analysis, we identified all military personnel who were hospitalized two or more times for a mental disorder (codes 290-319, International Classification of Diseases, 9th revision, Clinical Modification) while serving in an active component of the U.S. Armed Forces between 1991 and 2000 (source: Defense Medical Surveillance System). For these individuals, we described the distribution of days between consecutive hospitalizations. In addition, we examined data fields that document transfers, admitting and discharge clinical services, and primary diagnoses in first and subsequent hospitalizations.

The Standard Inpatient Data Record (SIDR) is used to document all hospitalizations in U.S. military hospitals. Two data fields of the SIDR—"source of admission" and "transfer-from"—are used to document occurrences and natures of transfers of patients to U.S. military hospitals. Briefly, the "source of admission" field documents whether a patient was admitted directly to the reporting U.S. military hospital ("not transferred") or was transferred or referred from another hospital ("transferred"). The "transfer-from" field specifies the type of facility that a patient was transferred from (i.e., other U.S. military hospital, foreign medical treatment facility, civilian hospital, Veterans Affairs hospital, other hospital).

*Results.* Of 145,591 total mental disorder hospitalizations between 1991 and 2000, 12,541 (8.6%) had dates of admission that were less than three days after dates of discharge from prior hospitalizations of the same individuals ("rapidly successive hospitalizations"). For approximately half (51.1%) of all pairs of rapidly successive hospitalizations, dates of admission of second hospitalizations were identical to dates of discharge of first hospitalizations ("same-day pairs"). One or two days separated admission and discharge dates of 25.8% and 23.1%, respectively, of all pairs of rapidly successive mental disorder hospitalizations (table 1).

For all second hospitalizations of rapidly successive pairs, we examined the "source of admission" and "transfer-from" fields of relevant SIDR records. For 39.6% of all same-day second hospitalizations, the "source of admission" was reported as "transferred"; in addition, for 39.4% of all same-day second hospitalizations, the "transfer-from" field documented a transfer (table 1). Thus, there was consistency in the reporting of transfers between the "source of admission" and the "transfer-from" fields. However, approximately 60% of all same-day second hospitalizations did not include transfer codes in relevant SIDR fields.

To evaluate the specificity of "source of admission" and "transfer-from" codes to document transfers, we examined reports of "transfers" in first hospitalization records. As expected, there were very few reports of "transfers" in first hospitalization records. For example, of 6,402 first hospitalizations for mental disorders in 2000, only 69 (1%) had codes that indicated they resulted from transfers.

Finally, we examined admission and discharge services in relation to primary discharge diagnoses from first and second hospitalizations of rapidly successive pairs. Of 1,999 service members who were discharged from medical or surgical services with primary mental disorder diagnoses, nearly all were transferred to psychiatry services for their second hospitalizations (table 2). The opposite was rarely true (table 2). The findings suggest that if there are two hospitalizations in rapid succession, and both have primary diagnoses of mental disorders, it is very likely that the diagnosis from the second hospitalization (but not the first) was assigned by a psychiatrist. Thus, mental disorder diagnoses from second hospitalizations of rapidly successive pairs may be more reliable than those from first hospitalizations.

*Editorial comment.* Several findings of this analysis are applicable to the planning, conduct, and interpretation of results of surveillance and research programs of the U.S. military. For example, when transfer-specific codes are recorded on SIDR records, they are reliable indicators of hospitalizations that resulted from transfers. Thus, it seems appropriate that if the admission date of a hospitalization is the same day as the discharge date of a prior hospitalization, and if the second hospitalization has a transfer code, then both hospitalizations should be considered one continuous episode of care (rather than a recurrence, exacerbation, or new condition, for example).

On the other hand, it is not clear that all actual transfers to U.S. military hospitals are documented with transfer codes. Thus, it is not clear how to consider pairs of hospitalizations that are separated by less than a day but not documented as transfer-related. A conservative approach is to count all same day hospitalization pairs as single episodes of care, regardless of statuses of transfer codes. Another conservative approach is to consider all repeat hospitalizations that include transfer codes as continuations of single episodes of care, regardless of lengths of time between hospitalizations. Interestingly, in this analysis, if all same day hospitalization pairs were considered single episodes of care (regardless of transfer code statuses), then 6,410 (4.4%) mental disorder hospitalizations would be excluded from the overall total (table 3). On the other hand, if the presence of a transfer code were used as the sole criterion for considering hospitalization pairs as single episodes of care (regardless of days between hospitalizations), then 6,503 (4.5%) hospitalizations would be excluded from the overall total (table 3). Thus, in this case, both conservative approaches lead to approximately the same bottom-line results.

Finally, mental disorder diagnoses from the second of same-day hospitalization pairs are more likely to be assigned by psychiatrists—and thus are probably more accurate—than those assigned after the first hospitalizations of same-day pairs.

*Analysis and report submitted by Abigail L.G. Wilson, MPH, Analysis Group, Army Medical Surveillance Activity; Charles W. Hoge, LTC(P), MC, USA, Division of Neuropsychiatry, Walter Reed Army Institute of Research; Sandra Lesikar, PhD, Analysis Group, Army Medical Surveillance Activity; and Stephen C. Messer, PhD, Division of Neuropsychiatry, Walter Reed Army Institute of Research.*

**Table 1. Codes recorded in "transferred from" and "source of admission" data fields for the second hospitalization of "rapidly successive" mental disorder hospitalization pairs, active duty, U.S. Armed Forces, 1991-2000**

| | SIDR# data fields | | | | | |
|---|---|---|---|---|---|---|
| | "Source of admission" | | "Transferred from" | | | |
| Days between | Transfer indicated? | | Transfer indicated? | | Total | |
| hospitalizations | Yes | No | Yes | No | Number | Percent* |
| 0 | 2,536 | 3,874 | 2,528 | 3,882 | 6,410 | 4.4 |
| 1 | 1,144 | 2,093 | 1,143 | 2,094 | 3,237 | 2.2 |
| 2 | 1,392 | 1,502 | 1,383 | 1,511 | 2,894 | 2.0 |

* Percent of all mental disorder hospitalizations between 1991 and 2000 (n=145,591).

\# Standard Inpatient Data Record.

## Table 2. Clinic services at times of admissions to and discharges from same-day pairs of mental disorder hospitalizations, active duty, US Armed Forces, 1991-2000

| | Discharge service | | | |
|---|---|---|---|---|
| | First hospitalization | | Second hospitalization | |
| Admitting service | Psychiatry* | Other | Psychiatry* | Other |
| Psychiatry* | 4,331 | 12 | 6,228 | 15 |
| Other | 68 | 1,999 | 23 | 144 |

*Psychiatry admitting services include psychiatry, substance abuse, and family practice psychiatry.

## Table 3. Numbers of pairs of mental disorder hospitalizations* and codes** in "transferred from" data fields, active duty, US Armed Forces, 1991-2000

| Days between hospitalizations | Transfer indicated? Yes | No | Total |
|---|---|---|---|
| 0 | 2,528 | 3,882 | 6,410 |
| 1 | 1,143 | 2,094 | 3,237 |
| 2 | 1,383 | 1,511 | 2,894 |
| 3 | 491 | 949 | 1,440 |
| 4 | 304 | 707 | 1,011 |
| 5 | 127 | 559 | 686 |
| 6 or more | 527 | 17,263 | 17,790 |
| Total | 6,503 | 26,965 | 33,468 |

* Days between hospitalizations = admission date of second hospitalization-discharge date of first hospitalization.

** Based on coding of "transferred from" data field of relevant Standard Inpatient Data Records.

# Sentinel reportable events for all beneficiaries[1] at US Army medical facilities, cumulative numbers[2] for calendar years through February 28, 2001 and 2002

| Reporting location | Number of reports all events[3] | | Food-borne | | | | | | | | Vaccine Preventable | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Campylobacter | | 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 | 33 | 69 | - | - | 1 | 2 | - | - | 1 | 5 | - | - | - | - | 1 | - |
| Aberdeen, MD | - | 5 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| FT Belvoir, VA | 20 | 33 | - | 2 | 1 | - | - | - | - | - | - | - | - | - | - | - |
| FT Bragg, NC | 175 | 340 | - | 2 | - | - | - | 2 | - | - | - | - | - | 1 | 1 | - |
| FT Drum, NY | 45 | 6 | 1 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| FT Eustis, VA | 36 | 37 | - | 1 | - | - | - | - | - | 1 | - | - | - | 1 | 1 | - |
| FT Knox, KY | 53 | 37 | - | - | 1 | - | - | - | - | - | - | - | - | - | 1 | - |
| FT Lee, VA | 58 | 53 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| FT Meade, MD | 14 | 12 | - | - | - | - | 1 | - | - | - | - | - | - | - | - | - |
| West Point, NY | 3 | 2 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| **GREAT PLAINS** | | | | | | | | | | | | | | | | |
| FT Sam Houston, TX | 24 | 63 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| FT Bliss, TX | 48 | 50 | 2 | - | - | 1 | - | 2 | - | 1 | - | - | - | - | - | - |
| FT Carson, CO | 134 | 157 | - | 1 | - | 1 | 1 | - | 1 | - | - | - | - | - | - | - |
| FT Hood, TX | 96 | 258 | 1 | - | - | - | - | 1 | - | 1 | - | - | - | - | 1 | - |
| FT Huachuca, AZ | 2 | 2 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| FT Leavenworth, KS | 1 | 6 | - | - | - | - | - | - | - | - | - | 1 | - | - | - | - |
| FT Leonard Wood, MO | 47 | 53 | - | - | - | - | - | - | - | - | - | - | - | - | 5 | 2 |
| FT Polk, LA | 56 | 15 | - | - | - | - | - | - | - | 1 | - | - | - | - | - | - |
| FT Riley, KS | 19 | 15 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| FT Sill, OK | 59 | 31 | - | - | - | - | - | - | - | 1 | - | - | - | - | 1 | - |
| **SOUTHEAST** | | | | | | | | | | | | | | | | |
| FT Gordon, GA | 39 | 31 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| FT Benning, GA | 87 | 72 | - | - | - | - | 2 | 3 | - | - | - | - | - | - | 3 | - |
| FT Campbell, KY | 83 | 118 | 2 | 1 | 1 | - | 1 | 2 | - | - | - | - | - | - | - | - |
| FT Jackson, SC | 42 | 51 | - | - | - | - | - | - | - | - | - | - | - | - | 1 | 1 |
| FT Rucker, AL | 13 | 9 | - | - | - | - | 2 | - | - | - | - | - | - | - | - | - |
| FT Stewart, GA | 97 | 115 | - | - | - | - | 1 | 2 | - | - | - | - | - | - | - | - |
| **WESTERN** | | | | | | | | | | | | | | | | |
| FT Lewis, WA | 115 | 116 | 1 | - | 1 | - | 1 | - | - | - | - | - | 1 | - | - | - |
| FT Irwin, CA | 4 | 9 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| FT Wainwright, AK | 6 | 7 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| **OTHER LOCATIONS** | | | | | | | | | | | | | | | | |
| Hawaii | 158 | 157 | 5 | 4 | 5 | 7 | 5 | 1 | 3 | - | - | - | - | 1 | - | - |
| Europe | 192 | 312 | 5 | 5 | - | - | 3 | 5 | - | - | - | - | 4 | - | 3 | 2 |
| Korea | 1 | 53 | - | - | - | - | - | - | - | - | - | - | - | - | - | 1 |
| **Total** | **1,760** | **2,294** | **17** | **16** | **10** | **11** | **17** | **18** | **5** | **10** | **0** | **1** | **5** | **3** | **18** | **6** |

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

2. Events reported by March 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 beneficiaries[1] at US Army medical facilities, cumulative numbers[2] for calendar years through February 28, 2001 and 2002

| Reporting location | Arthropod-borne | | | | Sexually Transmitted | | | | | | | | Environmental | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Lyme Disease | | Malaria | | Chlamydia | | Gonorrhea | | Syphilis3 | | Urethritis4 | | Cold | | Heat | |
| | 2001 | 2002 | 2001 | 2002 | 2001 | 2002 | 2001 | 2002 | 2001 | 2002 | 2001 | 2002 | 2001 | 2002 | 2001 | 2002 |
| **NORTH ATLANTIC** | | | | | | | | | | | | | | | | |
| Washington, DC Area | - | 1 | - | - | 9 | 13 | 4 | 3 | 2 | 1 | - | - | - | - | - | - |
| Aberdeen, MD | - | - | - | - | - | 5 | - | - | - | - | - | - | - | - | - | - |
| FT Belvoir, VA | - | - | - | - | 14 | 25 | 4 | 4 | 1 | - | - | - | - | - | - | - |
| FT Bragg, NC | - | - | 2 | 1 | 91 | 245 | 39 | 48 | - | - | 37 | 33 | 2 | - | 2 | 4 |
| FT Drum, NY | - | - | - | - | 34 | 6 | 10 | - | - | - | - | - | - | - | - | - |
| FT Eustis, VA | - | - | - | - | 24 | 29 | 11 | 4 | - | - | - | - | - | - | - | - |
| FT Knox, KY | - | - | - | - | 39 | 31 | 10 | 5 | 1 | - | - | - | - | - | - | - |
| FT Lee, VA | - | - | - | - | 44 | 47 | 14 | 6 | - | - | - | - | - | - | - | - |
| FT Meade, MD | - | - | - | - | 10 | 11 | 3 | 1 | - | - | - | - | - | - | - | - |
| West Point, NY | - | - | - | - | 3 | 1 | - | 1 | - | - | - | - | - | - | - | - |
| **GREAT PLAINS** | | | | | | | | | | | | | | | | |
| FT Sam Houston, TX | - | - | - | - | 21 | 39 | 2 | 3 | - | - | - | - | - | - | - | - |
| FT Bliss, TX | - | - | 1 | - | 23 | 13 | 11 | 1 | - | - | - | - | - | - | - | - |
| FT Carson, CO | - | - | - | - | 100 | 73 | 14 | 19 | - | - | 15 | 19 | - | 1 | - | - |
| FT Hood, TX | - | - | - | 1 | 40 | 104 | 23 | 38 | - | - | 26 | 40 | - | - | - | - |
| FT Huachuca, AZ | - | - | - | - | 2 | 1 | - | 1 | - | - | - | - | - | - | - | - |
| FT Leavenworth, KS | - | - | - | - | - | 3 | 1 | 2 | - | - | - | - | - | - | - | - |
| FT Leonard Wood, MO | - | - | - | - | 28 | 41 | 8 | 8 | - | - | - | 2 | 2 | - | - | - |
| FT Polk, LA | - | - | - | - | 38 | 9 | 14 | 5 | - | - | - | - | - | - | - | - |
| FT Riley, KS | - | - | - | - | 18 | 4 | 1 | 1 | - | - | - | - | - | 10 | - | - |
| FT Sill, OK | - | - | - | - | 31 | 17 | 11 | 6 | - | - | 15 | 7 | - | - | - | - |
| **SOUTHEAST** | | | | | | | | | | | | | | | | |
| FT Gordon, GA | - | - | 1 | - | 35 | 29 | 3 | 1 | - | - | - | - | - | - | - | - |
| FT Benning, GA | - | - | - | - | 56 | 47 | 21 | 21 | - | - | - | - | - | - | - | - |
| FT Campbell, KY | - | - | - | - | 65 | 93 | 13 | 22 | - | - | - | - | - | - | - | - |
| FT Jackson, SC | - | - | - | - | 27 | 37 | 14 | 9 | - | 1 | - | - | - | 3 | - | - |
| FT Rucker, AL | - | - | - | - | 10 | 8 | 1 | 1 | - | - | - | - | - | - | - | - |
| FT Stewart, GA | - | - | - | - | 31 | 82 | 21 | 30 | - | - | 44 | - | - | - | - | - |
| **WESTERN** | | | | | | | | | | | | | | | | |
| FT Lewis, WA | - | - | - | - | 70 | 82 | 19 | 17 | - | - | 19 | 17 | 2 | - | - | - |
| FT Irwin, CA | - | - | - | - | 2 | 7 | - | 2 | - | - | - | - | - | - | - | - |
| FT Wainwright, AK | - | - | - | - | 5 | 5 | - | - | - | - | - | - | 1 | 2 | - | - |
| **OTHER LOCATIONS** | | | | | | | | | | | | | | | | |
| Hawaii | - | - | - | - | 105 | 106 | 16 | 20 | - | - | - | - | - | - | - | - |
| Europe | - | - | - | 2 | 149 | 233 | 22 | 55 | - | 2 | - | 1 | 2 | 4 | - | - |
| Korea | - | - | - | 1 | 1 | 33 | - | 14 | - | - | - | 1 | - | 2 | - | - |
| **Total** | **0** | **1** | **4** | **5** | **1,125** | **1,479** | **310** | **348** | **4** | **4** | **156** | **120** | **9** | **22** | **2** | **4** |

3. Primary and secondary.

4. Urethritis, non-gonococcal (NGU).

Note: Completeness and timeliness of reporting vary by facility.

Source: Army Reportable Medical Events System.

# Reportable events, US Army medical treatment facilities[1]

## Cumulative events for all beneficiaries, January - December 2001[2]

| Diagnosis[3] | Jan-Mar 2001 | Apr-Jun 2001 | Jul-Sep 2001 | Oct-Dec 2001 | Diagnosis[3] | Jan-Mar 2001 | Apr-Jun 2001 | Jul-Sep 2001 | Oct-Dec 2001 |
|---|---|---|---|---|---|---|---|---|---|
| **All reportable events** | **3558** | **3593** | **3939** | **2907** | Listeriosis | - | 1 | - | - |
| Amebiasis | 2 | 1 | - | 1 | Lyme disease | 3 | 25 | 31 | 5 |
| Anthrax | - | - | - | - | Malaria, falciparum | - | 3 | 4 | 7 |
| Biological warfare agent exposure | - | - | - | - | Malaria, malariae | - | - | 1 | - |
| Botulism | - | - | - | - | Malaria, ovale | - | 1 | - | - |
| Brucellosis | - | - | - | - | Malaria, unspecified | 1 | 1 | 5 | 3 |
| Campylobacter | 25 | 57 | 24 | 26 | Malaria, vivax | 3 | 7 | 11 | 5 |
| Carbon monoxide poisoning | 5 | - | - | - | Measles | - | 1 | - | 1 |
| Chemical agent exposure | - | - | - | 1 | Meningococcal meningitis | 1 | 4 | 3 | 3 |
| Chlamydia | 2294 | 2265 | 2439 | 2018 | Meningococcal septicemia | - | 1 | - | - |
| Cholera | - | - | - | - | Mumps | 2 | - | - | 2 |
| Coccidioidomycosis | 1 | - | 2 | - | Pertussis | 2 | - | 3 | - |
| Cold weather, frostbite | 25 | - | 1 | 21 | Plague | - | - | - | - |
| Cold weather, hypothermia | - | - | - | - | Pneumococcal pneumonia | 5 | 2 | 2 | 1 |
| Cold weather, immersion type | 6 | 1 | - | 4 | Poliomyelitis | - | - | - | - |
| Cold weather, unspecified | 8 | 2 | - | 2 | Q fever | - | - | - | - |
| Cryptosporidiosis | - | 2 | 3 | - | Rabies, human | - | - | - | - |
| Cyclospora | - | - | - | - | Relapsing fever | - | - | - | - |
| Dengue fever | 1 | 1 | - | 1 | Rheumatic fever, acute | - | - | - | - |
| Diphtheria | - | - | - | - | Rift valley fever | - | - | - | - |
| E. Coli 0157:H7 | 2 | 4 | 3 | 2 | Rocky mountain spotted fever | 1 | - | 1 | - |
| Ehrlichiosis | - | 6 | 1 | - | Rubella | - | 1 | - | - |
| Encephalitis | 1 | 2 | - | - | Salmonellosis | 33 | 63 | 96 | 30 |
| Filariasis | - | - | - | - | Schistosomiasis | - | - | - | - |
| Giardiasis | 21 | 18 | 24 | 15 | Shigellosis | 9 | 10 | 7 | 22 |
| Gonorrhea | 598 | 601 | 645 | 510 | Smallpox | - | - | - | - |
| H. influenzae, invasive | 1 | 2 | 1 | 2 | Streptococcus, group A, invasive | 1 | 2 | 3 | - |
| Hantavirus infection | - | - | - | - | Syphilis, congenital | - | - | 1 | - |
| Heat exhaustion | 5 | 81 | 226 | 14 | Syphilis, latent | 9 | 4 | 3 | 5 |
| Heat stroke | 11 | 47 | 71 | 7 | Syphilis, primary/secondary | 13 | 7 | 3 | 6 |
| Hemorrhagic fever | - | 1 | - | - | Syphilis, tertiary | 2 | 3 | 8 | 2 |
| Hepatitis A | 3 | 9 | 3 | 2 | Tetanus | - | 1 | - | - |
| Hepatitis B | 23 | 14 | 11 | 3 | Toxic shock syndrome | - | - | - | 1 |
| Hepatitis C | 5 | 13 | 15 | 9 | Trichinosis | - | - | 1 | - |
| Influenza | 102 | 10 | - | 12 | Trypanosomiasis | - | - | - | - |
| Lead poisoning | - | 1 | 2 | 3 | Tuberculosis, pulmonary | 10 | 4 | 4 | 3 |
| Legionellosis | - | 1 | 1 | - | Tularemia | - | - | - | - |
| Leishmaniasis, cutaneous | 1 | - | - | - | Typhoid fever | - | - | - | - |
| Leishmaniasis, mucocutaneous | - | - | - | - | Typhus fever | - | - | - | - |
| Leishmaniasis, unspecified | - | - | - | - | Urethritis, non-gonococcal | 298 | 302 | 274 | 152 |
| Leishmaniasis, visceral | 1 | - | - | - | Vaccine, adverse event | 1 | 3 | 1 | - |
| Leprosy | - | - | - | - | Varicella, active duty only | 22 | 8 | 4 | 5 |
| Leptospirosis | 1 | - | 1 | 1 | Yellow fever | - | - | - | - |

1. Main and satellite clinics.

2. Events reported by January 7, 2002.

3. Tri-Service Reportable Events, Version 1.0, July 1998.

Note: Completeness and timeliness of reporting varies by facility.

Source: Army Reportable Medical Events System.

# Reportable events, US Army medical treatment facilities[1]

## Cumulative events for all beneficiaries, calendar years 2000 and 2001[2]

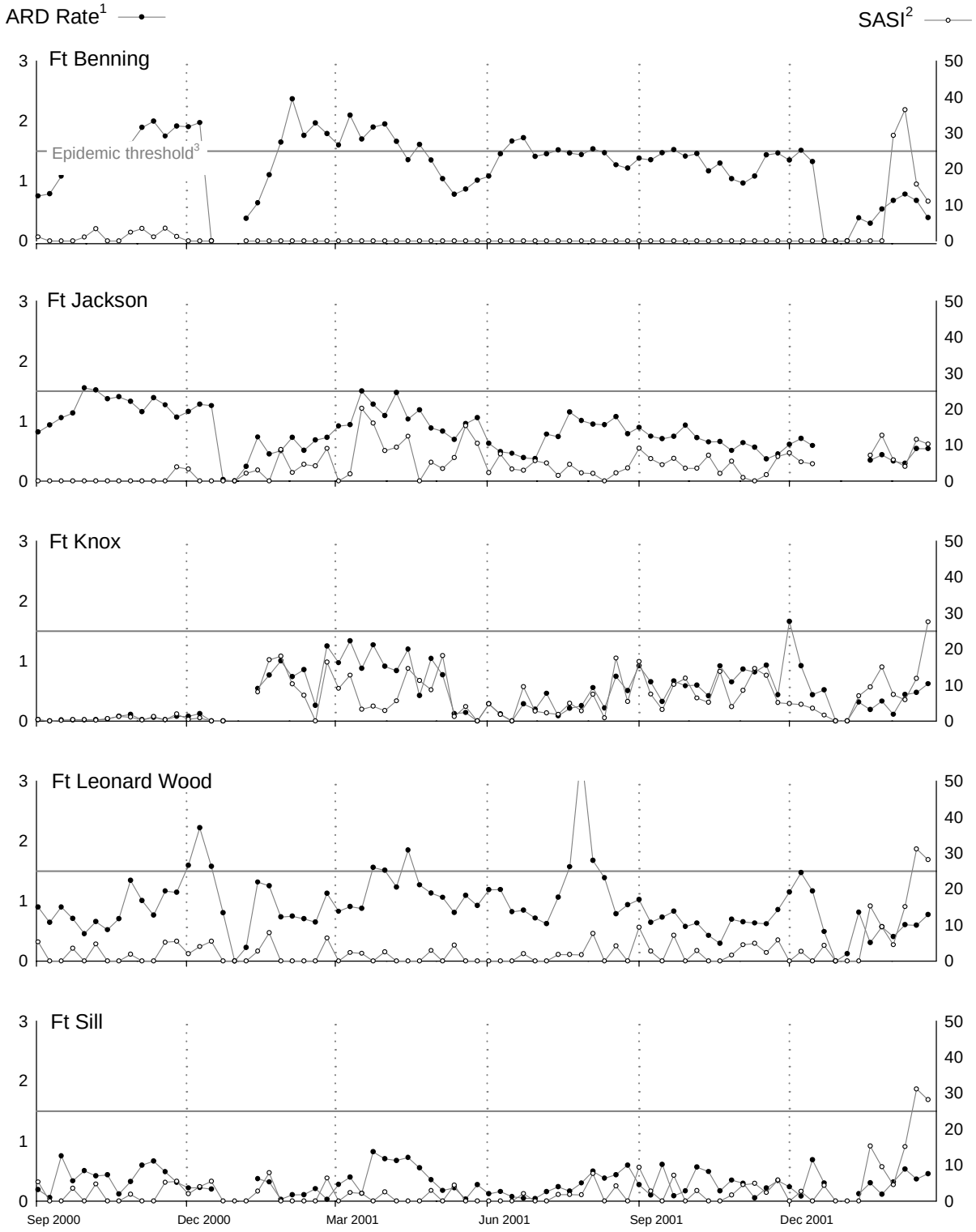
| Diagnosis[3] | 2000 | | 2001 | | Diagnosis[3] | 2000 | | 2001 | |
|---|---|---|---|---|---|---|---|---|---|
| | AD[4] | Other | AD[4] | Other | | AD[4] | Other | AD[4] | Other |
| **All reportable events** | **7884** | **5374** | **9367** | **4630** | Listeriosis | - | - | - | 1 |
| Amebiasis | - | 2 | 3 | 1 | Lyme disease | 17 | 21 | 17 | 47 |
| Anthrax | - | - | - | - | Malaria, falciparum | - | 8 | 12 | 2 |
| Biological warfare agent exposure | - | - | - | - | Malaria, malariae | - | - | 1 | - |
| Botulism | - | 1 | - | - | Malaria, ovale | - | - | 1 | - |
| Brucellosis | - | - | - | - | Malaria, unspecified | 6 | 4 | 7 | 3 |
| Campylobacter | 24 | 89 | 53 | 79 | Malaria, vivax | 45 | 5 | 25 | 1 |
| Carbon monoxide poisoning | - | 16 | 5 | - | Measles | 3 | 2 | - | 2 |
| Chemical agent exposure | - | - | 1 | - | Meningococcal meningitis | 5 | 1 | 4 | 7 |
| Chlamydia | 4905 | 3401 | 5835 | 3181 | Meningococcal septicemia | - | - | - | 1 |
| Cholera | - | - | - | - | Mumps | 2 | 3 | 1 | 3 |
| Coccidioidomycosis | 1 | 2 | 1 | 2 | Pertussis | 1 | 12 | - | 5 |
| Cold weather, frostbite | 34 | 1 | 44 | 3 | Plague | - | - | - | - |
| Cold weather, hypothermia | 3 | - | - | - | Pneumococcal pneumonia | 2 | 3 | 7 | 3 |
| Cold weather, immersion type | 12 | 1 | 11 | - | Poliomyelitis | - | - | - | - |
| Cold weather, unspecified | 28 | - | 12 | - | Q fever | 1 | - | - | - |
| Cryptosporidiosis | 2 | 2 | 1 | 4 | Rabies, human | - | - | - | - |
| Cyclospora | - | 1 | - | - | Relapsing fever | - | - | - | - |
| Dengue fever | 1 | 1 | 1 | 2 | Rheumatic fever, acute | - | - | - | - |
| Diphtheria | - | - | - | - | Rift valley fever | - | - | - | - |
| E. Coli 0157:H7 | 8 | 9 | 2 | 9 | Rocky mountain spotted fever | 13 | 3 | 2 | - |
| Ehrlichiosis | 2 | 2 | 3 | 4 | Rubella | - | - | - | 1 |
| Encephalitis | - | - | 1 | 2 | Salmonellosis | 33 | 143 | 61 | 161 |
| Filariasis | - | - | - | - | Schistosomiasis | 1 | - | - | - |
| Giardiasis | 14 | 42 | 16 | 62 | Shigellosis | 6 | 48 | 6 | 42 |
| Gonorrhea | 1399 | 827 | 1724 | 630 | Smallpox | - | - | - | - |
| H. influenzae, invasive | 1 | 5 | 2 | 4 | Streptococcus, group A, invasive | - | 4 | 2 | 4 |
| Hantavirus infection | - | - | - | - | Syphilis, congenital | 1 | 1 | 1 | - |
| Heat exhaustion | 225 | 70 | 279 | 47 | Syphilis, latent | 12 | 25 | 6 | 15 |
| Heat stroke | 42 | 19 | 121 | 15 | Syphilis, primary/secondary | 35 | 14 | 17 | 12 |
| Hemorrhagic fever | 2 | - | 1 | - | Syphilis, tertiary | 1 | 11 | 7 | 8 |
| Hepatitis A | 1 | 7 | 6 | 11 | Tetanus | - | - | - | 1 |
| Hepatitis B | 14 | 18 | 32 | 19 | Toxic shock syndrome | - | 1 | - | 1 |
| Hepatitis C | 8 | 18 | 20 | 22 | Trichinosis | - | - | 1 | - |
| Influenza | 9 | 107 | 36 | 88 | Trypanosomiasis | - | - | - | - |
| Lead poisoning | - | 4 | - | 6 | Tuberculosis, pulmonary | 4 | 11 | 5 | 16 |
| Legionellosis | - | 1 | 1 | 1 | Tularemia | 1 | 1 | - | - |
| Leishmaniasis, cutaneous | - | - | - | 1 | Typhoid fever | - | - | - | - |
| Leishmaniasis, mucocutaneous | - | - | - | - | Typhus fever | - | - | - | - |
| Leishmaniasis, unspecified | - | - | - | - | Urethritis, non-gonococcal | 861 | 382 | 932 | 94 |
| Leishmaniasis, visceral | - | - | - | 1 | Vaccine, adverse event | 29 | 9 | 3 | 2 |
| Leprosy | - | - | - | - | Varicella, active duty only | 70 | 12 | 36 | 3 |
| Leptospirosis | - | 4 | 2 | 1 | Yellow fever | - | - | - | - |

1. Main and satellite clinics.
2. Events reported by January 7, 2002.
3. Tri-Service Reportable Events, Version 1.0, July 1998.
4. Active duty personnel.

Note: Completeness and timeliness of reporting varies by facility.

Source: Army Reportable Medical Events System.

## Acute respiratory disease (ARD) and streptococcal pharyngitis (SASI), Army Basic Training Centers by week through February 23, 2001




[1]ARD rate = cases per 100 trainees per week

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

[3]ARD rate >=1.5 or SASI >=25.0 for 2 consecutive weeks indicates an "epidemic"

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*The Medical Surveillance Monthly Report (MSMR) is prepared by the Army Medical Surveillance Activity , Directorate of Epidemiology and Disease Surveillance, US Army Center for Health Promotion and Preventive Medicine (USACHPPM).*

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

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