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**Medical Surveillance Monthly Report (MSMR). Volume 9, Number 7, November/December 2003**

**U.S. Army Center for Health Promotion and Preventive Medicine, Armed Forces Health Surveillance Center (AFHSC), 2900 Linden Lane, Suite 200, Silver Spring, MD, 20910**

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**16. SECURITY CLASSIFICATION OF:**

<table>
<thead>
<tr>
<th>a. REPORT</th>
<th>b. ABSTRACT</th>
<th>c. THIS PAGE</th>
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</thead>
<tbody>
<tr>
<td>unclassified</td>
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</table>

**17. LIMITATION OF ABSTRACT**

Same as Report (SAR)

**18. NUMBER OF PAGES**

20

**19a. NAME OF RESPONSIBLE PERSON**
The knee is a hinge joint whose stability and function are maintained by four ligaments that attach the femur to the tibia. The cruciate ligaments (anterior and posterior) are short fibrous cords that cross each other inside the joint. They prevent forward and backward movements of the tibia under the femur and guide the tibia over the end of the femur throughout the knee’s range of motion. When cruciate ligaments are torn, the knee loses stability. If complete tears are not repaired, there are increased risks of damage to the “shock absorbing” structures (cartilage) of the knee and, eventually, increased risks of arthritis.

Injuries to cruciate ligaments typically occur during sudden hyperextensions, hyperflexions, and twists of the knee (e.g., flat-footed landings from falls and jumps, sudden stopping from running, twisting falls). Not surprisingly, participants in sports that require running with sudden stops, quick changes of direction, jumping, twisting, and falling (e.g., basketball, soccer, volleyball, football, rugby, lacrosse, alpine skiing) have relatively high risks of cruciate ligament tears. Numerous recent medical and popular press reports have focused attention on tears of cruciate (particularly anterior) ligaments of the knee, especially among young female athletes.

Injuries to cruciate ligaments typically occur during sudden hyperextensions, hyperflexions, and twists of the knee (e.g., flat-footed landings from falls and jumps, sudden stopping from running, twisting falls). Not surprisingly, participants in sports that require running with sudden stops, quick changes of direction, jumping, twisting, and falling (e.g., basketball, soccer, volleyball, football, rugby, lacrosse, alpine skiing) have relatively high risks of cruciate ligament tears. Numerous recent medical and popular press reports have focused attention on tears of cruciate (particularly anterior) ligaments of the knee, especially among young female athletes.

Military physical and tactical training activities (chiefly under heavy loads) such as forced marches, cross country runs, obstacle courses, and parachute landing falls are inherently hazardous to the cruciate ligaments of the knee. Based on reviews of hospitalizations for physical training and sports-related injuries of US Army soldiers from 1989-1994, Lauder and colleagues reported that the knee and the anterior cruciate ligament (ACL) were the most frequently injured body area and body part, respectively. During the period 1991-1997, Gwinn and colleagues documented 159 incident ACL injuries among midshipmen at the U.S. Naval Academy. The incidence rate overall was 2.4 times higher among females than males; and during presumed high-risk military training activities (i.e., instructional wrestling, obstacle course), the rate of ACL injuries was 9.7 times higher among females than males. Recently, Uhorchak and colleagues documented 24 noncontact ACL tears during a four year prospective followup of 859 cadets at the U.S. Military Academy. The cumulative incidence of noncontact ACL tears was 2.8% overall and was approximately 3 times higher among females (6.6%) than males (2.1%).

However, there have not been assessments of rates and trends of cruciate ligament tears in active duty members of the US Armed Forces in general. For this report, we assessed all medical encounters of active duty servicemembers to estimate frequencies, incidence rates, trends, and demographic correlates of risk of cruciate ligament tears from 1990 through 2002.

Methods. There are 3 diagnoses in the International Classification of Diseases, 9th revision, Clinical Modifications (ICD-9-CM) that are specific for, or suggestive of, tears of cruciate ligaments of the knee: “old disruption of anterior cruciate ligament” (ICD-9-CM 717.83); “old disruption of posterior cruciate ligament” (ICD-9-CM 717.84); and “sprains and strains of knee and leg, cruciate ligament of the knee” (ICD-9-CM 844.2) which includes “lacerations,” “ruptures,” and “tears” (per ICD-9-CM coding guidelines). In addition, 7 procedure codes (ICD-9-CM codes [in patient procedures]; Current Procedural Terminology (CPT) codes [out patient procedures]) are specific for, or suggestive of, surgical repair of a cruciate ligament of the knee (when used in conjunction with relevant diagnosis codes): “triad knee repair: medial meniscectomy with repair of the anterior cruciate ligament and the medial collateral ligament” (ICD-9-CM 81.43); “other repair of the cruciate ligaments” (ICD-9-CM 81.45); “tendon graft” (ICD-9-CM 83.81); “arthroscopically aided anterior cruciate ligament repair/augmentation or reconstruction” (CPT 29888); “arthroscopically aided posterior cruciate ligament repair/augmentation or reconstruction’’ (CPT 29889); “repair, primary, torn ligament and/or capsule, knee; cruciate” (CPT 27407); “repair, primary, torn ligament and/or capsule, knee; collateral and cruciate ligaments’’ (CPT 27409).

For this report, the surveillance period was defined as 1 January 1990 to 31 December 2002. Records of the Defense Medical Surveillance System (DMSS) were searched to identify all hospitalizations
Table 1. Incidence rates of "probable" and "possible" cruciate ligament tears* by demographic characteristics, active duty, US Armed Forces, 1990-2002

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<tr>
<th></th>
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<td></td>
<td>Rate per</td>
<td>Rate</td>
</tr>
<tr>
<td></td>
<td>100,000 p-y</td>
<td>ratio</td>
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<td>30-34</td>
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<td>35-39</td>
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<td>40 and over</td>
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<td>Marital status</td>
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<td>Other</td>
<td>1,069</td>
<td>155.5</td>
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</tbody>
</table>

* Hospitalization and outpatient records, any diagnosis, ICD-9-CM 717.83, 717.84, or 844.2
(during the surveillance period) and ambulatory visits (since 1998) of active duty US servicemembers that resulted in a diagnosis specific for, or suggestive of, a tear of a cruciate ligament of the knee. A “probable” case was defined as an active duty servicemember with a diagnosis specific for or suggestive of a tear of a cruciate ligament of the knee and a procedure code specific for/suggestive of a surgical repair of a torn cruciate ligament of the knee. A “possible” case was defined as an active duty servicemember with a diagnosis, but not a procedure code, indicative of a tear of a cruciate ligament of the knee. For surveillance purposes, the date of the first medical encounter with a cruciate ligament injury-specific diagnosis, regardless of whether or when a repair was performed, was considered the date of the injury.

**Results:** During the surveillance period, 74,377 active duty servicemembers had a total of 435,432 inpatient and outpatient medical encounters with diagnoses specific for or suggestive of tears of cruciate ligaments of the knee (table 1). For surveillance purposes, 38% (n=28,312) of all affected servicemembers were considered “probable” cases and the remainder (n=46,065) were considered “possible” cases (table 1).

The crude incidence rate of a cruciate ligament tear overall (probable and/or possible) during the period was 367.5 per 100,000 person-years. From the beginning of the surveillance period through the mid-1990s, rates of “probable” tears steadily increased while rates of “possible” tears decreased (figure 1). However, from 1998 (when ambulatory records became widely available) through 2002, rates of both “probable” and “possible” tears sharply decreased (figure 1).

Overall, males had higher rates than females of both “probable” and “possible” cruciate ligament tears (table 1). In addition, during each year of the surveillance period, males had higher crude rates of “probable” and “possible” cruciate ligament tears than females (figure 1).

The highest number of cruciate ligament tears occurred among servicemembers 20-24 years old (table 1); however, the highest rate was among servicemembers 25-29 years old. Of note, among servicemembers younger than 20, females had a slightly higher rate of “probable” tears and a substantially higher rate of “possible” tears than their male counterparts (figure 2). In addition, after age 30, rates of “probable” tears tended to decrease with age, while rates of “possible” tears tended to increase with age (particularly among females) (figure 2).

Finally, soldiers and Marines had higher rates of cruciate ligament tears than airmen and sailors, both overall (table 1) and in each gender and age-defined subgroup (data not shown).

**Editorial comment.** Several findings of this surveillance may be informative and useful. First, as expected, cruciate ligament tears are relatively common injuries among active duty servicemembers, overall as well in all demographic subgroups. Second, rates of cruciate ligament tears have declined sharply among US servicemembers since 1998 (when ambulatory data were routinely available). Third, rates of “probable” tears (i.e., relevant diagnosis plus surgical repair) are highest among servicemembers in their late 20’s, while rates of “possible” tears (i.e., relevant diagnosis but no surgical repair) continue to increase with age beyond age 30 (particularly among females). Fourth, in general, rates of cruciate ligament tears are higher among males than females. Of note, however, rates of cruciate ligament tears (particularly “possible” tears) are higher among teenaged females than teenaged males. Finally, rates of cruciate ligament tears are higher in the Army and Marines than in the Navy and Air Force.

The findings of this surveillance should be interpreted with consideration of several significant limitations. For example, the surveillance case definitions are not specific for incident (“new”) cruciate ligament tears (the intended endpoint of the surveillance) because there are no ICD-9-CM diagnostic codes that are specific for acute tears. Thus, for surveillance purposes, we established definitions for “probable” and “possible” cases that were based on codes (and combinations of codes) for “old” disruptions of cruciate ligaments, “sprains and strains” (which include “tears” per coding guidelines), and surgical repairs. As a result, it is likely that some old tears and some acute injuries of cruciate ligaments other than tears were included as “incident cases” for this surveillance. It is also likely that the completeness and accuracy of diagnosing and reporting cruciate ligament tears changed over the surveillance period: for example, as ambulatory record systems were automated; as diagnoses and procedures in outpatient settings became more frequent and/or more completely reported; and as diagnostic technologies
Figure 1. Incidence rates of "probable" and "possible" cruciate ligament tears, by gender and year, active duty, US Armed Forces, 1990-2002.

- Male, probable
- Female, probable
- Male, possible
- Female, possible

1990-1997: Hospitalization data only
1998 forward: Ambulatory data included

Figure 2. Incidence rates of "probable" and "possible" cruciate ligament tears, by gender and age group, active duty, US Armed Forces, 1990-2002.

- Male, probable
- Female, probable
- Male, possible
- Female, possible
and therapeutic interventions for cruciate ligament injuries (particularly in outpatient settings) improved.

Analysis by Karen E. Johnson, MS, Analysis Group, Army Medical Surveillance Activity.

References
U.S. soldiers conduct worldwide training and operations during all seasons. In turn, they are exposed to a wide spectrum of weather conditions. Prolonged and/or intense exposures to cold can significantly degrade the health, well-being, and operational effectiveness of soldiers and their units. The U.S. military has developed extensive and effective countermeasures against threats associated with training and operations in cold environments.\(^1\)

Cold weather injury-related diagnoses are routinely surveilled by the Army Medical Surveillance Activity (AMSA).\(^2\) This report summarizes frequencies, rates, and correlates of risk of cold weather injuries among active duty soldiers during the past five cold weather seasons.

**Methods.** The surveillance period was defined as 1 July 1998 to 30 June 2003. The active service of all soldiers in the U.S. Army at any time during the surveillance period was included in analyses. For summary purposes, years were divided into 1 July through 30 June intervals (in order to include complete cold weather seasons in each yearly interval).

Inpatient, outpatient, and reportable medical event records in the Defense Medical Surveillance System (DMSS) were searched to identify all diagnoses related to the “effects of reduced temperature” (International Classification of Diseases, 9\(^{th}\) Revision, clinical modifications (ICD-9-CM 991.1-991.9) during the surveillance period. To exclude follow-up medical encounters for single cold injury episodes, only one diagnosis per individual per year was included in the analysis. Thus, for surveillance purposes, a case was defined as an active duty soldier with a cold injury-related diagnosis (primary or any other) during a specific year of surveillance. Case counts, rates, and trends were summarized in relation to general military and demographic characteristics.

**Results.** During the 5-year period, there were 3,446 cold injury-related episodes reported among active duty soldiers. During the period, 92% of all cold weather injuries were frostbite or immersion injuries. The remaining 8% were chilblains or other unspecified cold injuries. The highest number of cold weather injuries occurred in the year 2002, with a peak of 800 cases. The lowest number of cases occurred in 2000, with 600 cases. The distribution of cold weather injuries by year is shown in Figure 1.

![Figure 1. Episodes of cold related injuries, by type, active duty, US Army, by year, July 1998-June 2003.](image-url)
injuries were primary diagnoses. Overall and during each year of the period, the most frequently reported cold injury was “frostbite” (46% for the entire period; 43% in 2002-2003) (table, figure 1).

After a small peak in 1999-2000, numbers and rates of cold injuries were remarkably stable (figure 1). During the 2002-2003 season, 640 cold injuries (18.6% of the total) were reported. The overall rate in 2002-2003 was 131.5 episodes per 100,000 person-years.

Overall (and in each year), cold injury rates were 2-3 times higher among males than females; were highest among soldiers younger than 20 years and declined monotonically with age; were much higher among black soldiers than white, Hispanic, or other soldiers; and were higher among junior enlisted than senior enlisted soldiers or officers (table 1).

Finally, in the past year, the Army installations with the most cold injuries were Fort Wainwright, Alaska (n=71); Fort Bragg, North Carolina (n=37); and Fort Drum, New York (n=23). There were 34 and 27 cold injuries among soldiers assigned in Korea and Europe, respectively (figure 2).

**Editorial comment.** This report documents that numbers and rates of cold injuries among US soldiers have remained remarkably stable over the past 3 years. Black soldiers, female soldiers, and the youngest (and thus most inexperienced) enlisted soldiers remain at significantly higher risk of cold injuries relative to their counterparts. The Disease Prevention and Control Program of the U.S. Army Center for Health Promotion and Preventive Medicine in collaboration with the U.S. Army Research Institute of Environmental Medicine provides a variety of cold injury prevention materials (including posters, presentation outlines, policies, regulations, and

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**Table 1. Cold injury-related episodes, active duty, US Army, by type, July 1998-June 2003**

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<tr>
<th>Gender</th>
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<th>Immersion</th>
<th>Chilblains</th>
<th>Hypothermia</th>
<th>Other/Unspecified</th>
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<td>Cases</td>
<td>Rate*</td>
<td>Cases</td>
<td>Rate*</td>
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</table>

* Rate calculated per 100,000 person-years
technical bulletins) at the following website:  http://chppm-www.apgea.army.mil/coldinjury/.

Analysis and report by Jamease Kowalczyk, MPH, Analysis Group, Army Medical Surveillance Activity.

References

Figure 2. Cold injury episodes, by installation/location, active duty, US Army by year, July1998-June 2003.

*2002-2003: 71 cases
2001-2002: 188 cases
2000-2001: 106 cases
1999-2000: 103 cases

The June 2003 issue of the MSMR summarized the background of, rationale for, and applicable polices and guidelines related to pre- and post-deployment health assessments of deploying servicemembers.1-10 Briefly, prior to deploying, the health of each servicemember is assessed to ensure his/her medical fitness and readiness for deployment; and at the time of redeployment, the health of each servicemember is again assessed to identify medical conditions and/or exposures of concern—to ensure timely and comprehensive evaluation and treatment.

Completed pre- and post-deployment health assessment forms are routinely sent to the Army Medical Surveillance Activity (AMSA) where they are scanned, data entered, and archived in the Defense Medical Surveillance System (DMSS).11 In the DMSS, data recorded on pre- and post-deployment forms are integrated with data that document demographic and military characteristics and medical experiences (e.g., hospitalizations, ambulatory visits, immunizations) of servicemembers.11 The continuously expanding integrated DMSS database can be used to monitor the health of servicemembers who participate in various deployments.11-13

The overall success of deployment force health protection efforts depends in part on the completeness and quality of pre- and post-deployment health assessments. This report summarizes characteristics of servicemembers who completed pre- (since 1 September 2002) and post- (since 1 January 2003) deployment forms, responses to selected questions on pre- and post-deployment forms, and changes in responses of individuals from pre- to post-deployment.

Methods. For this update, the DMSS was searched to identify all pre- and post-deployment forms that were completed after 1 September 2002 (in order that assessments of servicemembers who deployed in October 2002 were included in analyses). For summary purposes, pre-deployment responses included all assessments (DD Form 2795) completed after 1 September 2002, and post-deployment responses included all assessments (DD Form 2796) completed after 1 January 2003.

Results. From 1 September 2002 to 30 September 2003, 403,952 pre-deployment health assessment forms were completed at field sites, shipped to AMSA, and entered into the DMSS database—approximately 60% were completed in January, February, or March (table 1).

From 1 January to 30 September 2003, 271,725 post-deployment health assessments were completed at field sites, shipped to AMSA, and entered into the DMSS database—more than two-thirds (69%) were completed in May, June, or July (table 1).

In general, the distributions of self-assessments of “overall health status” were similar among pre- and post-deployment form respondents (figure 1). Relatively more pre-deployment (31.9%) than post-deployment (24.7%) respondents assessed their “overall health” as “excellent”; nearly identical proportions (40-42%) of respondents to each of the forms assessed their “overall health” as “very good”; and before and after deploying, 5% or fewer respondents assessed their overall health as “fair” or “poor” (figure 1).

On post-deployment forms, approximately 25% of active and 34% of Reserve component respondents reported “medical/dental problems”; and approximately 4% of respondents overall reported “mental health concerns” (table 2). Twenty to 25% of post-deployment forms overall documented that “referrals” were indicated (table 2).

Among servicemembers (n=127,230) who completed both forms, approximately half (49.6%) chose the same descriptor of their “overall health status” before and after deploying (figures 2, 3). Of those (n=64,154) who changed their health status assessments from pre- to post-deployment, more than three-fourths (78.5%) changed by a single category (on a five category scale) (figure 2,3); and of those who changed by more than one category, approximately 7-times more indicated a decrement (n=12,071) than an improvement (n=1,723) in overall health (figure 3).
Figure 1. Percent distributions of self-assessed overall health status, pre- and post-deployment health forms, US Armed Forces, September 2002-2003.

Table 1. Total pre-deployment and post-deployment health assessments, by month and year, US Armed Forces

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<tr>
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</tr>
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</tr>
<tr>
<td>Total</td>
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</tr>
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</tr>
<tr>
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</tr>
<tr>
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<td>16,418</td>
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<tr>
<td>November</td>
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<td>December</td>
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<tr>
<td>2003</td>
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<tr>
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<td>67,188</td>
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<tr>
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<td>67,977</td>
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<td>May</td>
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<td>July</td>
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<td>August</td>
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<tr>
<td>September</td>
<td>11,140</td>
<td>2.8</td>
</tr>
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* Total pre-deployment assessments (DD form 2795), 1 September 2002 - 30 September 2003.
** Total post deployment assessments (DD form 2796), 1 January 2003 - 30 September 2003.
Overall, 9.6% of all servicemembers who completed post-deployment forms reported deployment-related “exposure concerns.” The likelihood of reporting an “exposure concern” increased monotonically with age (table 3). In general, reservists, members of the Marine Corps and Army, and officers were more likely to report “exposure concerns” than their respective counterparts (table 3).

**Editorial comment.** In general, servicemembers who have been mobilized/deployed since October 2002 have assessed their overall health as “good” to “excellent.” The distributions of self-assessed health statuses are generally similar prior to and after returning from deploying; however, more servicemembers reported declines than improvements in their overall health from pre- to post-deployment. This is not surprising considering the extreme physical and psychological stresses associated with mobilization, overseas deployment, and harsh and dangerous living and working conditions. The deployment health assessment process is specifically designed to identify, assess, and follow-up as necessary all servicemembers with concerns regarding health and/or deployment-related exposures.

Overall, approximately one of every 11 servicemembers who completed post-deployment health assessments reported an “exposure concern.” Of demographic factors, the strongest correlate of reporting an exposure concern was older age. The higher crude prevalences of exposure concerns among reservists (versus active component) and officers (versus enlisted), for example, may be related at least in part to differences in the age distributions of the respective groups. Trends in the numbers and natures of deployment-related “exposure concerns” will be monitored as more servicemembers return from over-

<table>
<thead>
<tr>
<th>Active component</th>
<th>Army</th>
<th>Navy</th>
<th>Air Force</th>
<th>Marines</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>SMs with DD 2796 at AMSA</td>
<td>70,345</td>
<td>26,763</td>
<td>31,733</td>
<td>37,855</td>
<td>166,696</td>
</tr>
<tr>
<td>General health (“fair” or “poor”)</td>
<td>9%</td>
<td>5%</td>
<td>2%</td>
<td>6%</td>
<td>6%</td>
</tr>
<tr>
<td>Medical/dental problems</td>
<td>25%</td>
<td>13%</td>
<td>11%</td>
<td>18%</td>
<td>19%</td>
</tr>
<tr>
<td>Currently on profile</td>
<td>12%</td>
<td>1%</td>
<td>2%</td>
<td>3%</td>
<td>6%</td>
</tr>
<tr>
<td>Mental health concerns</td>
<td>4%</td>
<td>2%</td>
<td>1%</td>
<td>2%</td>
<td>3%</td>
</tr>
<tr>
<td>Exposure concerns</td>
<td>15%</td>
<td>7%</td>
<td>6%</td>
<td>12%</td>
<td>11%</td>
</tr>
<tr>
<td>Health concerns</td>
<td>14%</td>
<td>7%</td>
<td>5%</td>
<td>8%</td>
<td>10%</td>
</tr>
<tr>
<td>Referral indicated</td>
<td>25%</td>
<td>8%</td>
<td>11%</td>
<td>11%</td>
<td>14%</td>
</tr>
<tr>
<td>Med. visit following referral**</td>
<td>91%</td>
<td>65%</td>
<td>83%</td>
<td>53%</td>
<td>81%</td>
</tr>
<tr>
<td>Post deployment serum***</td>
<td>90%</td>
<td>65%</td>
<td>93%</td>
<td>63%</td>
<td>83%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Reserve component</th>
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<th>Navy</th>
<th>Air Force</th>
<th>Marines</th>
<th>Total</th>
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</thead>
<tbody>
<tr>
<td>SMs with DD 2796 at AMSA</td>
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<td>9,017</td>
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<td>9,932</td>
<td>92,507</td>
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<td>General health (“fair” or “poor”)</td>
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<td>5%</td>
<td>3%</td>
<td>11%</td>
<td>8%</td>
</tr>
<tr>
<td>Medical/dental problems</td>
<td>34%</td>
<td>34%</td>
<td>18%</td>
<td>38%</td>
<td>31%</td>
</tr>
<tr>
<td>Currently on profile</td>
<td>15%</td>
<td>5%</td>
<td>2%</td>
<td>4%</td>
<td>11%</td>
</tr>
<tr>
<td>Mental health concerns</td>
<td>4%</td>
<td>2%</td>
<td>1%</td>
<td>3%</td>
<td>3%</td>
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<tr>
<td>Exposure concerns</td>
<td>17%</td>
<td>13%</td>
<td>10%</td>
<td>32%</td>
<td>17%</td>
</tr>
<tr>
<td>Health concerns</td>
<td>18%</td>
<td>19%</td>
<td>9%</td>
<td>26%</td>
<td>17%</td>
</tr>
<tr>
<td>Referral indicated</td>
<td>20%</td>
<td>17%</td>
<td>15%</td>
<td>30%</td>
<td>15%</td>
</tr>
<tr>
<td>Med. visit following referral**</td>
<td>44%</td>
<td>79%</td>
<td>23%</td>
<td>47%</td>
<td>45%</td>
</tr>
<tr>
<td>Post deployment serum***</td>
<td>87%</td>
<td>77%</td>
<td>72%</td>
<td>70%</td>
<td>83%</td>
</tr>
</tbody>
</table>

* As of 12 December 2003.
** Inpatient or outpatient visit within 6 months after referral.
*** Only calculated for DD 2796 completed since 1 June 2003.

Note: Subgroup totals may not equal the overall total due to missing/unknown data.
seas assignments and/or demobilize.

References
6. 10 USC 1074f, subject: Medical tracking system for members deployed overseas. 18 Nov 1997.

---

**Figure 2.** Self-assessed health status on post-deployment form, in relation to self assessed health status pre-deployment, US Armed Forces, September 2002-September 2003.
Table 3. Deployment related "exposure concerns" reported on post-deployment health assessments*, US Armed Forces, January-September 2003.

<table>
<thead>
<tr>
<th></th>
<th>Total respondents</th>
<th>Exposure concerns no.</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
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<td>22,343</td>
<td>9.6</td>
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<td><strong>Component</strong></td>
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<tr>
<td>Active</td>
<td>154,031</td>
<td>17,378</td>
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<tr>
<td>Reserve</td>
<td>79,048</td>
<td>13,080</td>
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<tr>
<td><strong>Service</strong></td>
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<td>Army</td>
<td>111,176</td>
<td>16,845</td>
<td>15.2</td>
</tr>
<tr>
<td>Navy</td>
<td>33,286</td>
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</tr>
<tr>
<td>Air Force</td>
<td>42,580</td>
<td>3,111</td>
<td>7.3</td>
</tr>
<tr>
<td>Marines</td>
<td>46,228</td>
<td>7,697</td>
<td>16.7</td>
</tr>
<tr>
<td><strong>Age (years)</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>&lt;20</td>
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<td>661</td>
<td>7.3</td>
</tr>
<tr>
<td>20-29</td>
<td>122,933</td>
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</tr>
<tr>
<td>30-39</td>
<td>64,634</td>
<td>9,520</td>
<td>14.7</td>
</tr>
<tr>
<td>&gt;39</td>
<td>36,628</td>
<td>6,130</td>
<td>16.7</td>
</tr>
<tr>
<td><strong>Gender</strong></td>
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</tr>
<tr>
<td>Men</td>
<td>207,522</td>
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</tr>
<tr>
<td>Women</td>
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<td>3,615</td>
<td>14.0</td>
</tr>
<tr>
<td><strong>Race/ethnicity</strong></td>
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<td>Black nonhispanic</td>
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<tr>
<td>Hispanic</td>
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<tr>
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<td>White nonhispanic</td>
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<td>Enlisted</td>
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<tr>
<td>Officer</td>
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</tr>
</tbody>
</table>

* Post-deployment health assessments (DD Form 2796) with completion dates: 1 January - 30 September 2003.

**Total does not reflect missing responses to exposure concerns or missing characteristics.
Change in self-assessment of overall health status, pre- to post-deployment, was calculated as:
post deployment health status - pre-deployment health status, using the following scale for health status:
1 = "poor"; 2 = "fair"; 3 = "good"; 4 = "very good"; and 5 = "excellent."
### Sentinel reportable events for all beneficiaries\(^1\) at US Army medical facilities, cumulative numbers\(^2\) for calendar years through December 31, 2002 and 2003

<table>
<thead>
<tr>
<th>Reporting location</th>
<th>Number of reports all events(^2)</th>
<th>Food-borne</th>
<th>Vaccine Preventable</th>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Washington, DC Area</td>
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<tr>
<td>Aberdeen, MD</td>
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<td>. 1 . . .</td>
</tr>
<tr>
<td>FT Belvoir, VA</td>
<td>224 279</td>
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</tr>
<tr>
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<td>FT Lee, VA</td>
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<td>. . . . . .</td>
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<td>. . . 1 . 1</td>
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<tr>
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<td>GREAT PLAINS</td>
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<tr>
<td>Korea</td>
<td>596 581</td>
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</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>15,717 14,502</strong></td>
<td><strong>138 114 53 59 234 179 124 179</strong></td>
<td><strong>8 21 21 16 25 26</strong></td>
</tr>
</tbody>
</table>

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

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 December 31, 2002 and 2003

<table>
<thead>
<tr>
<th>Reporting location</th>
<th>Arthropod-borne</th>
<th>Sexually Transmitted</th>
<th>Environmental</th>
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</thead>
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<td>Malaria</td>
<td>Chlamydia</td>
</tr>
<tr>
<td>NORTH ATLANTIC</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Washington, DC Area</td>
<td>5</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Aberdeen, MD</td>
<td>2</td>
<td>2</td>
<td>.</td>
</tr>
<tr>
<td>FT Belvoir, VA</td>
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<td>2</td>
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</tr>
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<td>FT Bragg, NC</td>
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</tr>
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<tr>
<td>FT Sam Houston, TX</td>
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<tr>
<td>FT Leonard Wood, MO</td>
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</tr>
<tr>
<td>FT Polk, LA</td>
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<td>1</td>
</tr>
<tr>
<td>FT Riley, KS</td>
<td>.</td>
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</tr>
<tr>
<td>FT Sill, OK</td>
<td>.</td>
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<td>.</td>
</tr>
<tr>
<td>SOUTHEAST</td>
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<td></td>
<td></td>
</tr>
<tr>
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<td>1</td>
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<tr>
<td>FT Benning, GA</td>
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<td>29</td>
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<tr>
<td>FT Campbell, KY</td>
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<td>1</td>
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</tr>
<tr>
<td>FT Jackson, SC</td>
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<tr>
<td>FT Rucker, AL</td>
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</tr>
<tr>
<td>FT Stewart, GA</td>
<td>3</td>
<td>1</td>
<td>.</td>
</tr>
<tr>
<td>WESTERN</td>
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<tr>
<td>FT Lewis, WA</td>
<td>.</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>FT Irwin, CA</td>
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</tr>
<tr>
<td>FT Wainwright, AK</td>
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<td>.</td>
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<tr>
<td>OTHER LOCATIONS</td>
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<tr>
<td>Hawaii</td>
<td>.</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Europe</td>
<td>9</td>
<td>5</td>
<td>10</td>
</tr>
<tr>
<td>Korea</td>
<td>.</td>
<td>20</td>
<td>19</td>
</tr>
<tr>
<td>Total</td>
<td>74</td>
<td>50</td>
<td>64</td>
</tr>
</tbody>
</table>

3. Primary and secondary.
4. Urethritis, non-gonococcal (NGU).

Note: Completeness and timeliness of reporting vary by facility.

Source: Army Reportable Medical Events System.
Acute respiratory disease (ARD) and streptococcal pharyngitis (SASI), Army Basic Training Centers, by week through December 27, 2003

ARD Rate\(^1\)  

\(^1\)ARD rate = cases per 100 trainees per week

SASI\(^2\)  

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

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