



MSMR



Medical Surveillance Monthly Report

Vol. 6 No. 1

January 2000

U
S
A
C
H
P
P
M

Contents

Meningococcal disease among soldiers, US Army, 1964-1998	2
Sentinel reportable events by reporting facility	4
Sentinel reportable events, active duty soldiers	6
Incidence of renal stone disease, US Military, 1998	7
ARD surveillance update	11
Supplement #1: Reportable medical events	12
Reportable events, by quarter, 1999	12
Reportable events, by patient category, 1998-1999	13
Active duty force strength (September 1999)	14

Data in the MSMR are provisional, based on reports and other sources of data available to the Army Medical Surveillance Activity (AMSA). Notifiable events are reported by date of onset (or date of notification when date of onset is absent). Only cases submitted as confirmed are included.

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

Report Documentation Page				Form Approved OMB No. 0704-0188	
Public reporting burden for the collection of information is estimated to average 1 hour per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to Washington Headquarters Services, Directorate for Information Operations and Reports, 1215 Jefferson Davis Highway, Suite 1204, Arlington VA 22202-4302. Respondents should be aware that notwithstanding any other provision of law, no person shall be subject to a penalty for failing to comply with a collection of information if it does not display a currently valid OMB control number.					
1. REPORT DATE JAN 2000		2. REPORT TYPE		3. DATES COVERED 00-00-2000 to 00-00-2000	
4. TITLE AND SUBTITLE Medical Surveillance Monthly Report (MSMR). Volume 6, Number 1, January 2000				5a. CONTRACT NUMBER	
				5b. GRANT NUMBER	
				5c. PROGRAM ELEMENT NUMBER	
6. AUTHOR(S)				5d. PROJECT NUMBER	
				5e. TASK NUMBER	
				5f. WORK UNIT NUMBER	
7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES) 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				8. PERFORMING ORGANIZATION REPORT NUMBER	
9. SPONSORING/MONITORING AGENCY NAME(S) AND ADDRESS(ES)				10. SPONSOR/MONITOR'S ACRONYM(S)	
				11. SPONSOR/MONITOR'S REPORT NUMBER(S)	
12. DISTRIBUTION/AVAILABILITY STATEMENT Approved for public release; distribution unlimited					
13. SUPPLEMENTARY NOTES					
14. ABSTRACT					
15. SUBJECT TERMS					
16. SECURITY CLASSIFICATION OF:			17. LIMITATION OF ABSTRACT Same as Report (SAR)	18. NUMBER OF PAGES 16	19a. NAME OF RESPONSIBLE PERSON
a. REPORT unclassified	b. ABSTRACT unclassified	c. THIS PAGE unclassified			

Surveillance Trends

Meningococcal Disease among Soldiers, US Army, 1964-1998

During much of the twentieth century (especially during mobilizations for war), there were frequent large outbreaks of meningococcal (MGC) disease among US soldiers. Soldiers in recruit camps were particularly affected.¹⁻⁴ In the late 1960s, researchers from the Walter Reed Army Institute of Research developed a monovalent (serogroup C) MGC vaccine.⁵⁻⁷ By the fall of 1971, all enlisted soldiers in the US Army were receiving serogroup C MGC vaccine during the first few days of their military service. The antigenic components of routinely administered MGC vaccines changed several times between 1971 and 1982. Since 1982, the current tetravalent (serogroups A,C,Y,W135) vaccine has been consistently used. This report summarizes the hospitalization experience of US Army personnel in relation to MGC disease from 1964 (prior to the availability of vaccine) to 1998.

Data sources. Data for this report were taken from three main sources. Hospitalizations of soldiers with MGC disease from 1964 to 1980 were ascertained from a report prepared by the Disease Control Consultant, Office of the Surgeon General, US Army (unpublished report, Erdtmann, R). Hospitalizations of enlisted soldiers with MGC disease from 1981 to 1990 were derived from a

report prepared by Ryan and Feighner while they were assigned to the Uniformed Services University of the Health Sciences (unpublished report, Ryan, M, Feighner, B). Hospitalizations of enlisted soldiers with MGC disease from 1991 to 1998 were ascertained from data in the Defense Medical Surveillance System (DMSS).

Results (figure 1). During the 35-year period from 1964 to 1998, there were 2,814 hospitalizations of soldiers for MGC disease. The overall rate was 10.0 per 100,000 person-years. The highest annual rate was in 1964 (30.1 per 100,000 person-years), and the most cases (n=451) were in 1968. Rates declined precipitously in 1971-2 concomitant with the initiation of immunizations of all new recruits. Since the introduction into routine use of the current tetravalent vaccine, rates have been relatively low (crude rate, enlisted soldiers, 1983-98: 1.4 per 100,000 person-years), and there have been no large outbreaks.

Editorial comment. The first effective vaccine against *Neisseria meningitidis* was developed by US Army investigators in response to a military-specific threat. For the past 17 years, the current tetravalent vaccine has provided safe and effective

Executive Editor

COL Robert F. DeFraites, MD, MPH

Senior Editor

LTC Mark V. Rubertone, MD, MPH

Editor

John F. Brundage, MD, MPH

Managing Editor

Kimmie F. Kohlhasse, MS

Assistant Managing Editor

Yvette E. Smith

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

Inquiries regarding content or material to be considered for publication should be directed to the editor, Army Medical Surveillance Activity, Bldg. T-20, Rm 213, 6825 16th St., NW, Washington DC, 20307-5000. E-mail: editor@amsa.army.mil

To be added to the mailing list, contact the Army Medical Surveillance Activity @ (202) 782-0471, DSN 662-0471. E-mail: msmr@amsa.army.mil

Views and opinions expressed are not necessarily those of the Department of the Army.

protection against four of the five serogroups that have epidemic and virulence potential.

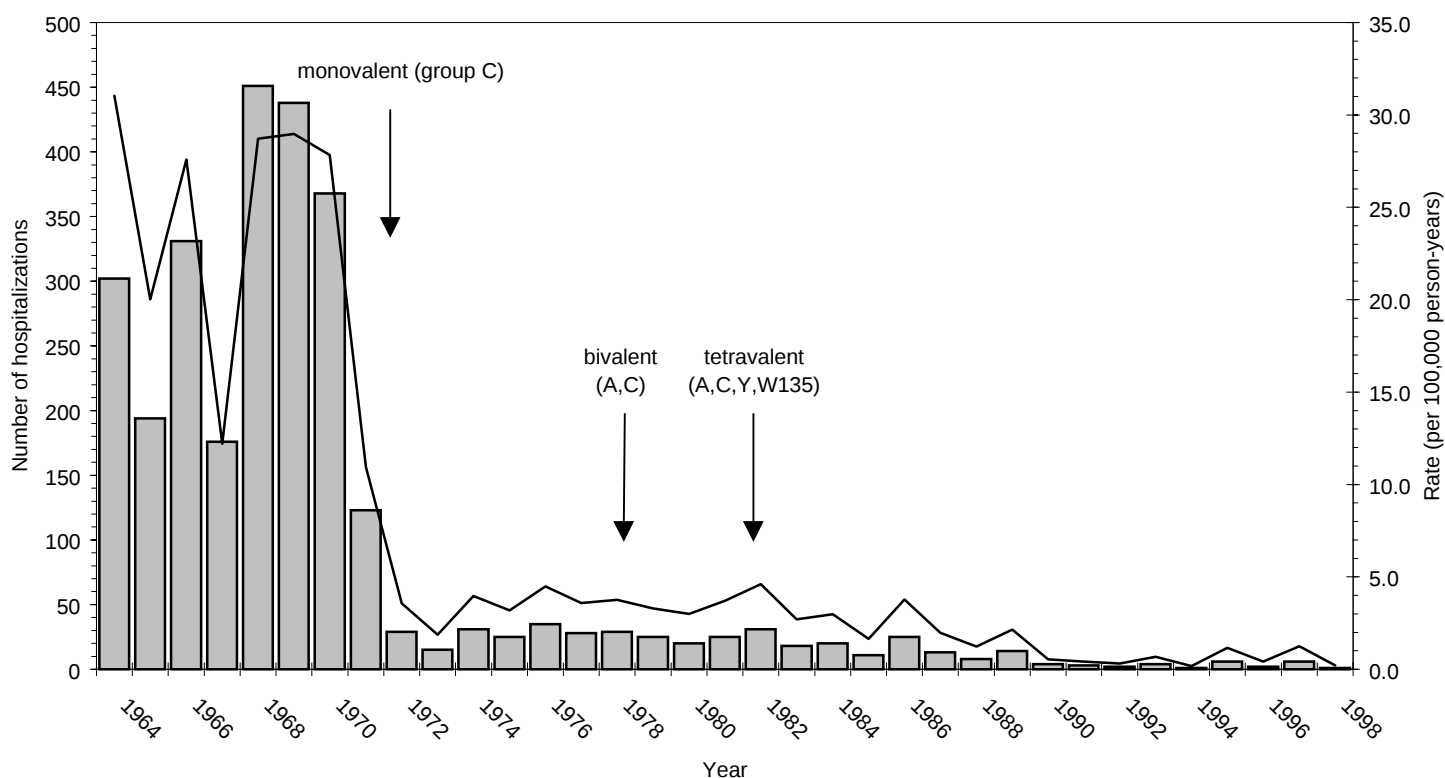
Recently, the Advisory Committee on Immunization Practices (ACIP) of the US Center for Disease Control and Prevention recommended that college students and their parents be informed regarding MGC disease risks and the availability of vaccine and that vaccination be provided or made easily available to freshmen and other undergraduate students who wished to reduce their risk.⁸ In its deliberations, the ACIP considered the military's experience in relation to MGC disease and immunization.

Serogroup B strains now constitute the only significant MGC threat for which there is no specific countermeasure. Investigators at the Walter Reed Army Institute of Research and others are continuing work to develop a safe and effective serogroup B vaccine.

References

1. Brundage, JF, Zollinger, WD. Evolution of meningococcal disease epidemiology in the US Army in: *Evolution of meningococcal disease* (vol 1). Ed: Vedros, NA. CRC Press. Boca Raton, 6-23.
2. Cerebrospinal meningitis, in *The Medical Department of the United States Army in the World War, Communicable Diseases*, vol. IX, US Government Printing Office, Washington, DC, 1928, chap. 4.
3. Phair, JJ. Meningococcal meningitis, in *Preventive Medicine in World War II, Communicable Diseases*, vol. 4, Office of the Surgeon General, US Department of the Army, Washington, DC, 1958, chap. 11.
4. Medical statistics in World War II, Office of the Surgeon General, US Department of the Army, Washington, DC, 1975, 407.
5. Goldschneider, I, Gotschlich, EC, Artenstein, MS. Human immunity to the meningococcus. I-IV. *J Exp Med*, 1969, 129(suppl 6), 1307-1367.
6. Gold, R, Artenstein, MS. Meningococcal infections: 2. Field trial of group C meningococcal polysaccharide vaccine in 1969-70. *Bull WHO*, 45, 1971, 279-82.
7. Artenstein, MS. Control of meningococcal meningitis with meningococcal vaccines. *Yale J Biol Med*, 48, 1975, 197-200.
8. Division of Bacterial and Mycotic Diseases, Centers for Disease Control and Prevention. Meningococcal disease among college students: ACIP modifies recommendations for meningitis vaccination (press release). October 20, 1999. <http://www.cdc.gov/ncidod/dbmd/>

Figure 1. Meningococcal disease hospitalizations, frequencies and rates, US Army, 1964-1998*



*Bars indicate hospitalization frequencies; line indicates rates.

Table I. Sentinel reportable events, US Army medical treatment facilities¹
Cumulative events for all beneficiaries, calendar year through December 31, 1998 and 1999²

Reporting Facility	Number of reported events ³		Environmental				Food- and Water-borne							
			Cold		Heat		Campylobacter		Giardia		Salmonella		Shigella	
	Cum. 1998	Cum. 1999	Cum. 1998	Cum. 1999	Cum. 1998	Cum. 1999	Cum. 1998	Cum. 1999	Cum. 1998	Cum. 1999	Cum. 1998	Cum. 1999	Cum. 1998	Cum. 1999
NORTH ATLANTIC RMC														
Walter Reed AMC, DC	216	180	0	0	0	0	7	5	5	6	10	3	1	0
Aberdeen Prov. Grd., MD	46	24	0	0	2	0	0	0	0	0	0	0	0	0
FT Belvoir, VA	239	215	0	0	6	2	5	9	3	12	11	12	1	3
FT Bragg, NC	393	1272	1	9	131	109	7	8	0	2	57	33	20	0
FT Drum, NY	191	208	15	15	0	3	1	1	2	4	1	1	0	0
FT Eustis, VA	237	214	0	1	21	3	2	2	0	0	5	4	5	1
FT Knox, KY	276	304	0	2	4	15	2	3	0	3	0	1	0	3
FT Lee, VA	85	178	0	0	0	1	0	0	0	0	0	2	0	0
FT Meade, MD	128	66	0	0	0	0	0	0	2	1	1	0	0	0
West Point, NY	48	65	0	0	1	2	0	0	0	0	1	0	0	1
GREAT PLAINS RMC														
Beaumont AMC, TX	395	306	0	0	0	5	0	0	0	0	3	4	5	2
Brooke AMC, TX	258	396	2	0	3	9	1	0	2	0	7	7	1	4
FT Carson, CO	749	757	2	2	5	0	5	5	4	10	3	6	0	1
FT Hood, TX	1464	1560	0	0	10	8	0	2	0	1	10	11	4	13
FT Huachuca, AZ	48	69	0	0	0	2	0	1	0	0	3	1	0	1
FT Leavenworth, KS	50	20	0	0	0	0	0	2	4	1	1	0	0	0
FT Leonard Wood, MO	202	177	2	6	5	3	0	0	1	1	1	3	0	0
FT Polk, LA	204	206	0	0	17	1	0	0	0	0	0	0	0	0
FT Riley, KS	354	220	1	1	0	11	0	0	6	0	1	0	4	0
FT Sill, OK	302	288	0	0	11	9	0	0	0	0	2	0	0	2
SOUTHEAST RMC														
Eisenhower AMC, GA	268	214	0	1	3	4	1	0	0	0	0	5	0	0
FT Benning, GA	347	435	2	0	28	100	4	1	5	2	8	17	3	2
FT Campbell, KY	601	579	1	2	1	10	8	19	13	9	7	18	40	88
FT Jackson, SC	353	405	1	0	3	0	1	0	0	0	2	1	1	0
FT Rucker, AL	39	59	0	0	0	4	0	0	0	0	0	0	0	1
FT Stewart, GA	501	502	1	0	29	20	0	0	0	3	3	6	2	0
WESTERN RMC														
Madigan AMC, WA	568	669	0	0	0	0	19	3	5	7	5	8	1	1
FT Irwin, CA	49	41	0	0	0	0	0	0	1	0	0	0	0	0
FT Wainwright, AK	82	132	13	52	0	0	1	0	0	0	0	0	0	0
OTHER LOCATIONS														
Tripler, HI	471	591	0	0	2	3	21	25	10	14	11	13	1	1
Europe	1229	940	29	3	1	0	25	27	11	0	66	12	1	3
Korea	158	448	1	8	7	5	0	2	0	0	0	1	0	0
Total	10551	11740	71	102	290	329	110	115	74	76	219	169	90	127

1. Main and satellite clinics.

2. Events reported by January 7, 1999 and 2000.

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

Table I. (Cont'd) Sentinel reportable events, US Army medical treatment facilities¹
Cumulative events for all beneficiaries, calendar year through December 31, 1998 and 1999²

Arthropod-borne				Vaccine Preventable						Sexually Transmitted							
Lyme Disease		Malaria		Hepatitis A		Hepatitis B		Varicella		Chlamydia		Gonorrhea		Syphilis ⁴		Urethritis	
Cum. 1998	Cum. 1999	Cum. 1998	Cum. 1999	Cum. 1998	Cum. 1999	Cum. 1998	Cum. 1999	Cum. 1998	Cum. 1999	Cum. 1998	Cum. 1999	Cum. 1998	Cum. 1999	Cum. 1998	Cum. 1999	Cum. 1998	Cum. 1999
4	2	1	4	3	1	0	0	5	3	78	86	30	21	2	3	14	1
0	0	0	0	0	0	2	0	0	1	26	8	11	13	0	0	4	2
1	0	0	0	0	1	0	0	1	0	158	135	47	35	4	0	0	0
2	4	4	3	0	0	9	0	0	1	107	557	27	266	1	6	0	269
2	0	1	3	0	0	2	0	8	6	104	112	47	56	1	0	4	4
0	0	0	2	0	0	0	1	8	2	132	144	60	51	0	0	0	0
1	0	2	0	0	0	0	0	20	1	187	213	54	59	0	1	0	0
0	0	0	0	0	0	1	1	0	0	57	141	27	30	0	3	0	0
2	3	0	0	0	0	0	0	7	1	61	52	12	6	3	0	35	0
9	19	0	0	1	0	1	2	2	1	24	34	6	3	0	0	0	0
0	0	2	1	0	1	0	0	11	2	293	249	70	21	1	0	0	13
0	2	1	2	4	3	4	4	2	2	165	181	47	55	1	0	0	1
0	0	0	0	0	0	0	1	3	2	502	550	100	98	1	0	121	72
0	1	1	4	0	1	11	1	3	4	827	904	369	262	4	5	211	303
0	0	0	0	0	1	0	0	0	0	31	49	12	12	0	0	0	0
0	0	2	0	0	0	0	0	0	0	36	14	7	3	0	0	0	0
0	0	0	1	0	0	0	1	21	13	104	99	38	30	0	1	24	8
0	0	1	1	0	0	0	0	0	0	143	160	41	40	1	2	0	0
0	0	2	0	0	0	0	0	3	0	260	153	75	55	1	0	0	0
0	0	1	1	0	0	12	6	1	6	144	159	94	60	0	2	36	33
0	0	1	0	0	1	2	3	0	2	232	172	26	14	0	1	0	0
0	0	1	1	0	1	2	0	2	2	195	167	85	91	0	18	3	0
1	1	2	5	0	0	0	0	5	1	352	286	163	134	2	0	0	0
0	0	1	0	3	0	0	0	7	6	242	333	88	51	2	6	0	0
0	0	0	0	0	0	0	0	0	0	32	41	7	13	0	0	0	0
0	0	1	4	0	0	1	1	4	4	148	161	122	97	1	0	186	204
1	0	3	6	0	1	0	1	3	0	332	430	53	76	0	1	136	123
0	0	0	0	0	0	2	5	0	0	41	32	5	4	0	0	0	0
0	0	0	1	0	0	2	1	0	2	61	64	4	10	0	0	0	0
0	0	4	6	1	1	3	1	0	0	283	369	86	91	0	0	0	0
14	9	3	2	3	2	26	9	14	12	777	672	144	169	14	3	0	1
0	0	17	24	4	0	14	15	2	3	77	332	22	16	3	15	0	0
37	41	51	71	19	14	94	53	132	77	6211	7059	1979	1942	42	67	774	1034

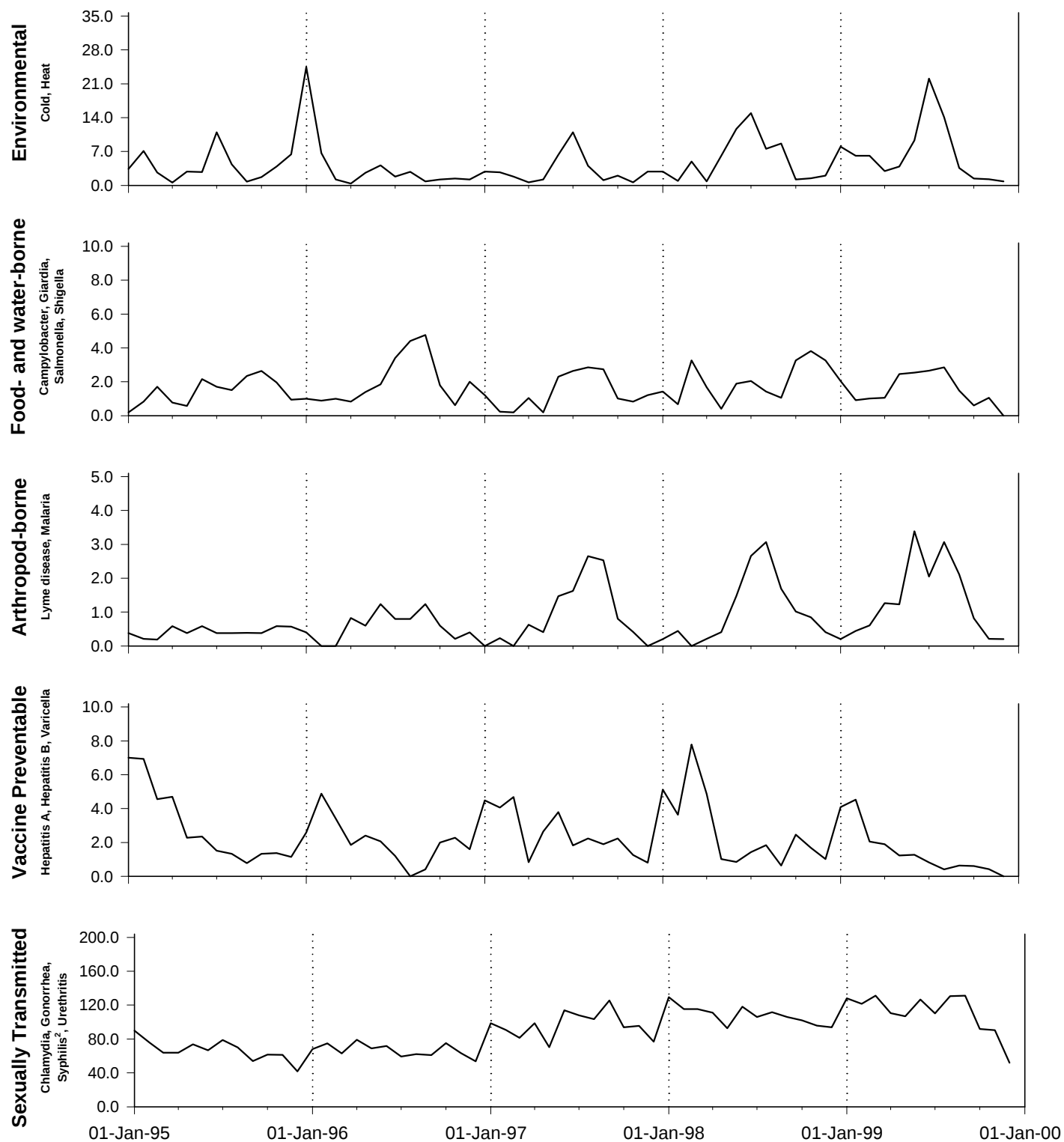
4. Primary and Secondary.

Note: Completeness and timeliness of reporting varies by facility.

Source: Army Reportable Medical Events System.

**Figure I. Sentinel reportable events (grouped), active duty soldiers,
January 1995 - December 1999¹**

Cases / 10,000 person-years



1. Events reported by January 7, 2000
2. Primary and Secondary

Source: Army Reportable Medical Events System

Surveillance Trends

Incidence of Renal Stone Disease, US Military, 1998

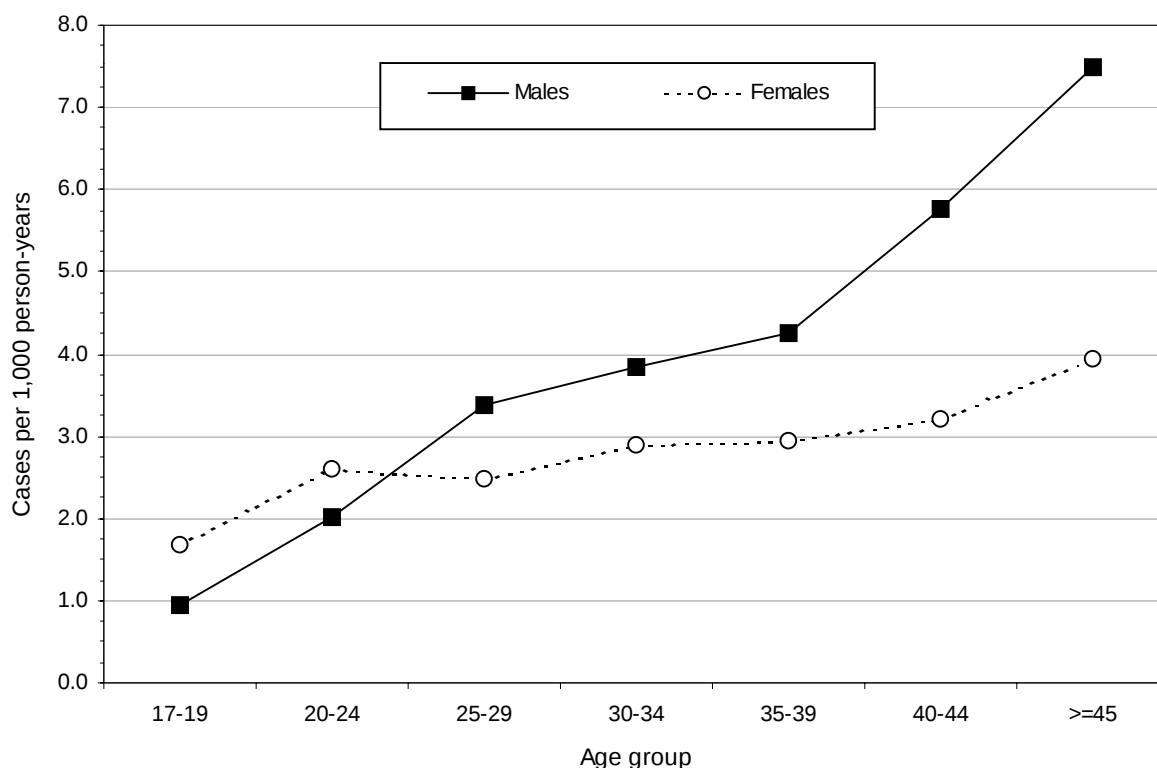
The unpredictable nature, sudden onset, and debilitating effects of renal stone disease may diminish readiness for, and disrupt the conduct of, military operations. Factors related to geography, climate, occupation, exercise, sex, age, diet, hydration status, and family history have been associated with risks of renal stone formation.¹⁻⁶ However, little is known about specific risk factors for developing renal stone disease in military populations and settings. This study was conducted to assess relationships between geographic and occupational exposures, demographic characteristics, and renal stone disease risk among US military servicemembers.

Methods. All data for the study were taken from the Defense Medical Surveillance System (DMSS). An incident case was defined as the first inpatient or outpatient primary diagnosis of “calculus of kidney or ureter” (ICD-9-CM code: 592) or “calculus of the lower urinary tract” (ICD-9-CM code: 594) in an active duty servicemember during 1998. Because

the study was designed to assess initial rather than recurrent kidney stone risk, servicemembers with renal stone diagnoses prior to January 1998 were excluded. Incidence rates were calculated by dividing the number of incident cases of urolithiasis during 1998 by the person-years of active military service during the year. Confidence intervals were calculated using estimates of standard errors based on the Poisson distribution.⁷

For geographic assessments, the United States was divided into eight regions: Northeast, North Central, Northwest, Southeast, South Central, Southwest, Alaska, Hawaii. Home of record regions were assigned based on locations of residence prior to military service. Current assignment regions were assigned based on unit assignment locations during 1998. Occupation categories were assigned based on Department of Defense military occupation codes (*DoD Occupational Conversion Index: DoD 1312.1-1, March 1997*). For the analysis, DoD occupations were further grouped into outdoor, indus-

Figure 1. Renal stone incidence, active duty servicemembers, US Armed Forces, 1998



trial, science/health care, administrative, or 'other' categories.

Results, general. In 1998, there were 4,387 incident cases of renal stone disease among active duty US servicemembers (table 1). The overall incidence rate was 3.16 per 1,000 person-years. The incidence rate was higher among males than among females (3.24 per 1,000 person-years versus 2.62 per 1,000 person-years). However, among servicemembers younger than 25, rates were higher among females. Rates among males increased more rapidly with age than rates among females (figure 1, page 7).

Results, age adjusted. After adjusting for age, the lowest incidence rates were among black non-Hispanic servicemembers (figure 2). Rates were higher among married servicemembers than those who were unmarried. Among occupational groups, health care and science workers had the highest incidence rates, and outdoor workers the lowest. Among the services, Air Force personnel had the highest incidence rates and Marines the lowest (table 1).

Finally, there was little variability in renal stone incidence rates in relation to regions of residence prior to service. In contrast, age-adjusted rates among

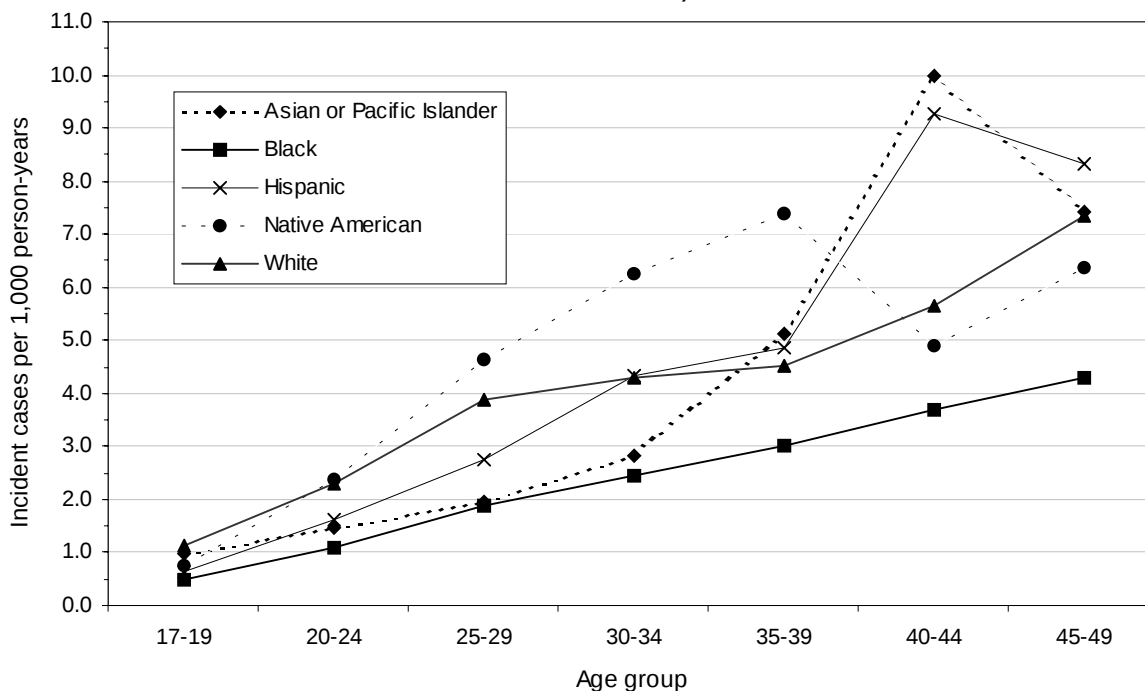
servicemembers based in the South Central and Southeast regions of the US were 64% and 49% higher, respectively, than those based in the Northeast (figure 3, page 10).

Editorial comment. Among US servicemembers, renal stone disease incidence rates were higher among men than women, increased with age (especially among men), and were lower among blacks than members of other racial/ethnic groups. These findings are generally consistent with those from studies in US civilian populations.¹

In the US, renal stone risks vary across geographic regions. Other studies have generally found that rates are highest in the south and east.¹⁻⁴ Several factors, including temperature, sunlight, dietary patterns, and water quality, have been suggested to account for these geographic differences.^{1,4-6} Among US servicemembers, there was little difference in risk related to where servicemembers resided prior to military service, but there were substantial variations related to where they were assigned. Not surprisingly, risks were highest among servicemembers assigned in the South Central and Southeast regions. These findings suggest that geographically linked causal factors act with relatively short lead times but have transient effects.

Continued on page 10

Figure 2. Incidence rates of renal stones, by race/ethnicity, active duty servicemembers, US Armed Forces, 1998



**Table 1. Renal stone disease, incidence rates, active duty servicemembers,
US Armed Forces, 1998**

Characteristic	Males				Females			
	Incident cases	Cases/1,000 person-years	Age-adjusted rate	95% CI	Incident cases	Cases/1,000 person-years	Age-adjusted rate	95% CI
Total	3,878	3.24	-	3.13, 3.34	509	2.62	-	2.36, 2.81
Age group								
17-19	100	0.96	-	0.78, 1.16	36	1.68	-	1.18, 2.33
20-24	714	2.02	-	1.87, 2.16	170	2.61	-	2.23, 3.03
25-29	841	3.37	-	3.15, 3.61	103	2.49	-	1.96, 2.94
30-34	781	3.85	-	3.58, 4.12	81	2.90	-	2.31, 3.61
35-39	756	4.26	-	3.93, 4.54	67	2.94	-	2.28, 3.74
40-44	435	5.77	-	5.18, 6.27	35	3.21	-	2.23, 4.46
45-49	178	6.91	-	5.64, 7.67	10	2.83	-	1.36, 5.21
50-54	62	9.29	-	7.12, 11.91	7	10.39	-	4.17, 21.40
Race/ethnicity								
Asian/Pacific Islander	136	3.38	3.08	2.46, 3.50	10	1.61	1.63	0.78, 2.99
Black	434	2.01	2.01	1.81, 2.19	105	1.71	1.71	1.33, 1.98
Hispanic	244	2.85	3.50	3.02, 3.91	28	2.17	2.36	1.57, 3.41
Native American	32	3.68	4.35	2.98, 6.14	4	2.08	1.81	0.49, 4.63
White	2,966	3.60	3.60	3.46, 3.72	351	3.26	3.26	2.92, 3.61
Other	66	3.20	3.17	2.45, 4.03	11	2.86	2.92	1.46, 5.22
Marital status								
Married	2,899	4.10	4.10	3.94, 4.24	276	3.05	3.05	2.64, 3.37
Single	979	2.00	3.41	3.17, 3.60	233	2.25	2.48	2.14, 2.79
Education level								
High school or less	2,217	3.01	3.01	2.88, 3.13	282	2.72	2.72	2.39, 3.03
Some college	950	4.01	3.28	3.07, 3.50	146	2.88	2.79	2.25, 3.16
Bachelor degree	397	3.09	2.11	1.87, 2.29	58	2.53	2.27	1.72, 2.93
Masters degree or higher	314	3.98	1.03	0.91, 1.14	23	1.69	0.49	0.31, 0.73
Service								
Army	1,309	3.22	3.22	3.02, 3.37	194	2.75	2.75	2.32, 3.10
Air Force	1,124	3.75	3.44	3.23, 3.63	171	2.62	2.63	2.23, 3.03
Marine Corps	342	2.11	2.61	2.33, 2.89	17	1.78	1.90	1.10, 3.04
Navy	1,103	3.36	3.26	3.06, 3.45	127	2.62	2.57	2.01, 2.90
Occupation, enlisted								
Administrative	516	3.81	2.97	2.69, 3.20	144	2.66	2.50	2.04, 2.87
Health care/science	275	4.92	4.19	3.64, 4.64	95	3.46	3.10	2.50, 3.79
Industrial	1,846	3.29	2.93	2.79, 3.06	169	2.69	2.55	2.05, 2.82
Outdoor	515	2.60	2.60	2.36, 2.81	14	1.62	1.62	0.88, 2.71
Other	73	1.38	2.16	1.69, 2.72	15	1.51	2.09	1.17, 3.45
Occupation, officer								
Administrative	105	3.62	3.32	2.57, 3.85	11	1.66	1.81	0.90, 3.24
Health care/science	154	4.50	3.38	2.78, 3.86	50	3.37	3.55	2.63, 4.68
Outdoor	344	3.06	3.06	2.71, 3.36	8	1.08	1.08	0.46, 2.13
Other	50	2.96	3.55	2.63, 4.68	3	1.56	1.42	0.29, 4.15

Continued from page 8

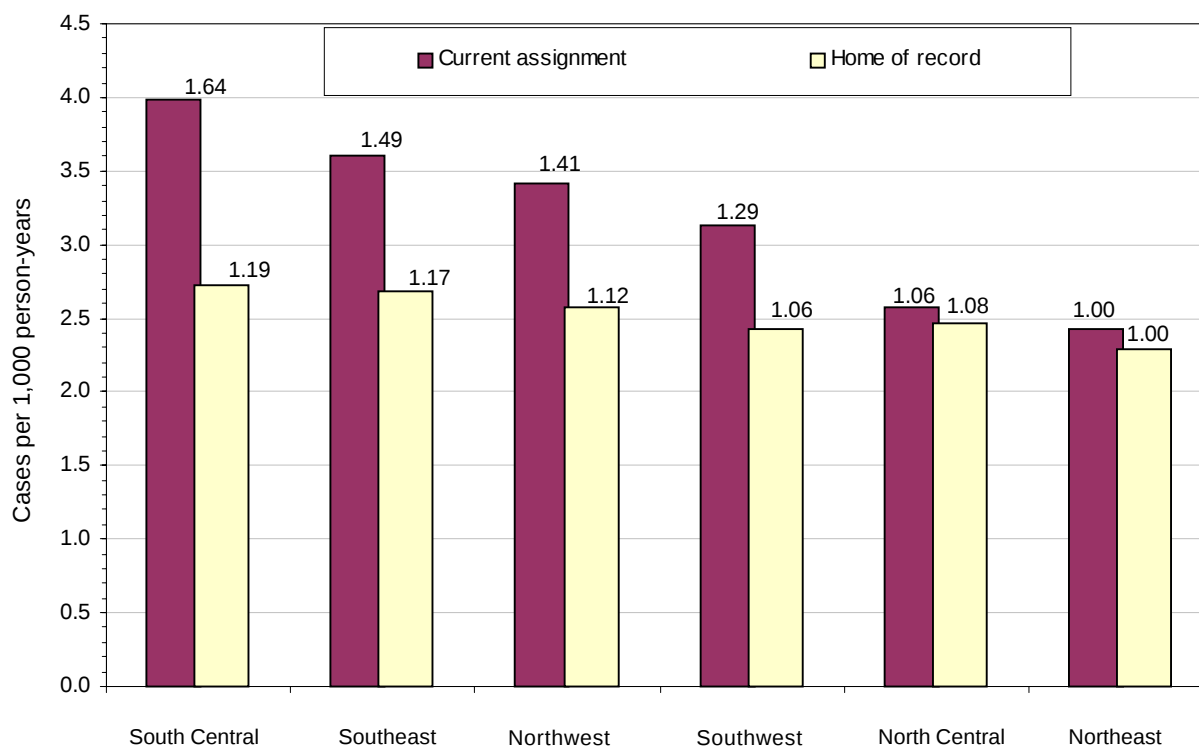
Several studies have related occupational and environmental exposures to renal stone risks.^{1,5,6} For example, investigators have suggested that sunlight exposure increases vitamin D production, calcium absorption, and renal stone risk; that physical activity protects against renal stone formation; and that workers exposed to heat stresses on the job (e.g., machinists) have higher rates of renal stones than others. In this analysis, military occupations associated with rigorous physical activities and/or frequent outdoor exposures (e.g., infantrymen, gun crews, seamanship specialists) had lower renal stone rates than others. Occupations categorized as industrial for this analysis were associated with intermediate rates, while more sedentary occupations, such as administrator/office worker, had even higher rates. A portion of the higher rates seen in health care workers may be attributable to accessibility bias.

Analysis and report by Samuel C. Washington, MPH, Analysis Group, Army Medical Surveillance Activity.

References

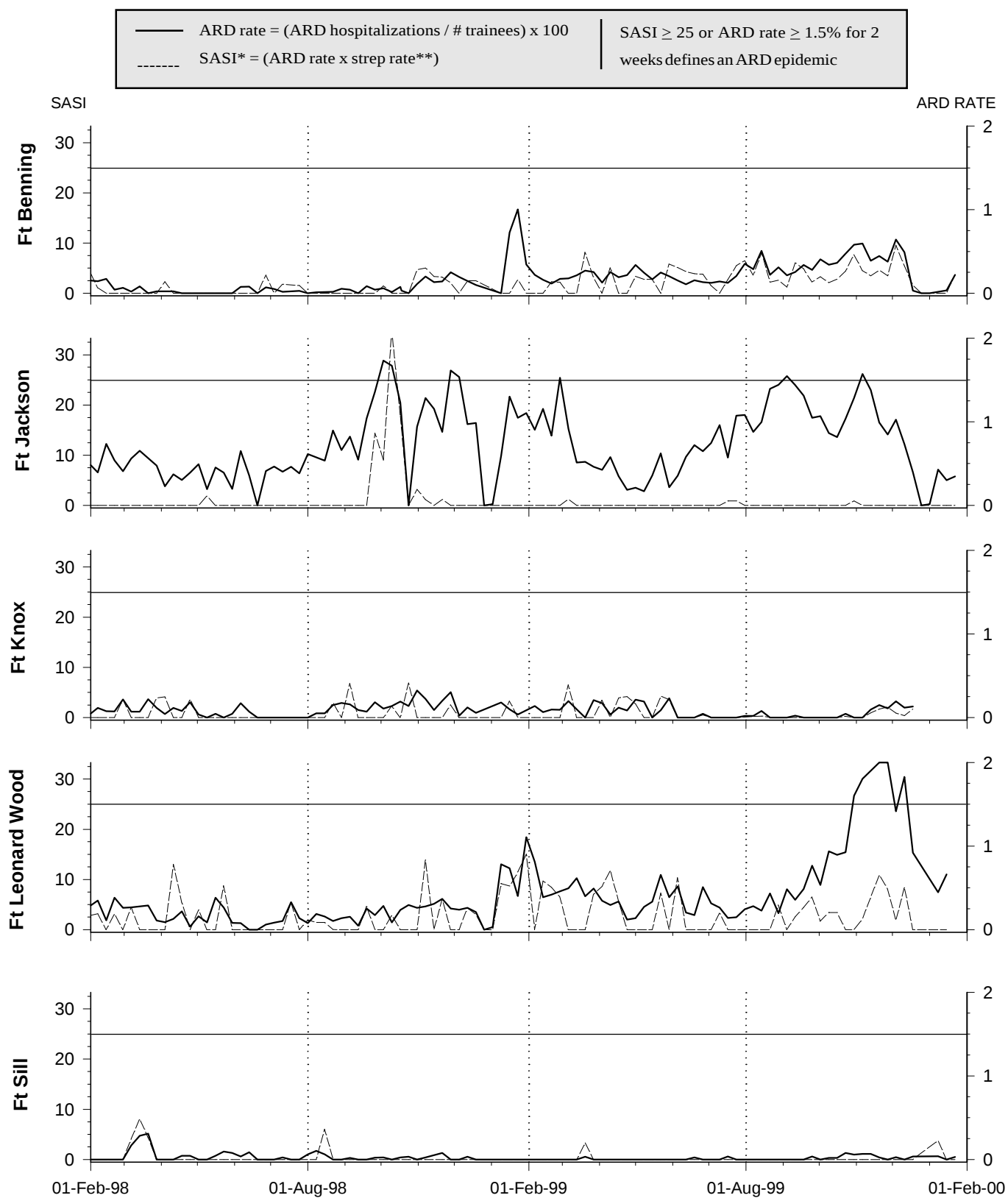
1. Soucie, JM, Thun, MJ, Coates, RJ, McClellan, W, Austin, H. Demographic and geographic variability of kidney stones in the United States. *Kidney Int*, 1994 Sep;46(3):893-9.
2. Borghi, L, Meschi, T, Amato, F, Novarini, A, Romanelli, A, Cigalo, F. Hot occupation and nephrolithiasis. *J Urology*, 1993, 150, 1757-60.
3. Curhan, GC, Rimm, EB, Willett, WC, Stampfer, MJ. Regional variation in nephrolithiasis incidence and prevalence among United States men. *J Urol*, 1994, 151, 838-41.
4. Soucie, JM, Coates, RJ, McClellan, W, Austin, H, Thun, M. Relation between geographic variability in kidney stone prevalence and risk factors for stones. *Am J Epidemiol*, 1996, 143(5), 487-95.
5. Bellizzi, V, De Nicola, L, Minutolo, R, Russo, D, Cianciaruso, B, Andreucci, M, Conte G, Andreucci, VE. Effects of water hardness on urinary risk factors for kidney stones in patients with idiopathic nephrolithiasis. *Nephron*, 1999;81 Suppl 1:66-70.
6. Popovtzer, MM, Stein, P, Rubinger, D, Friedlaender, MM. Kidney stones and drinking water. *N Engl J Med*, 1984, 310(11), 721.
7. Hirsch R. *Statistical Operations*. Blackwell Science, 1996, 225-232.

Figure 3. Incidence rates of renal stones, by current assignment versus home of record, active duty servicemembers, US Armed Forces, 1998*



*Numbers above bars indicate rate ratios (versus Northeast region) for each geographic variable.

**Figure II. Acute respiratory disease (ARD) surveillance update
US Army initial entry training centers**



* SASI (Strep ARD Surveillance Index) is a reliable predictor of serious strep-related morbidity

** Strep rate = (Group A beta-hemolytic strep(+) / # cultures) x 100

**Table S1. Reportable events,¹ cumulative events for all beneficiaries,
January - December 1999²**

Diagnosis ³	Jan-Mar 1999	Apr-Jun 1999	Jul-Sep 1999	Oct-Dec 1999	Diagnosis ³	Jan-Mar 1999	Apr-Jun 1999	Jul-Sep 1999	Oct-Dec 1999
All reportable events	3355	2946	3352	1952	Listeriosis	-	1	1	-
Amebiasis	1	1	-	-	Lyme disease	2	18	14	7
Anthrax	-	-	-	-	Malaria, falciparum	2	3	1	1
Biological warfare agent exposure	-	-	-	-	Malaria, malariae	-	-	-	-
Botulism	-	-	-	-	Malaria, ovale	1	-	-	-
Brucellosis	-	-	-	-	Malaria, unspecified	1	2	1	-
Campylobacter	23	35	42	15	Malaria, vivax	5	22	31	5
Carbon monoxide poisoning	-	-	-	4	Measles	-	3	-	-
Chemical agent exposure	-	-	-	-	Meningococcal meningitis	4	-	1	2
Chlamydia	2007	1786	1999	1217	Meningococcal septicemia	-	-	-	-
Cholera	-	-	-	-	Mumps	3	-	-	-
Coccidioidomycosis	1	1	-	-	Pertussis	3	-	1	-
Cold weather, frostbite	67	2	-	13	Plague	-	1	-	-
Cold weather, hypothermia	11	-	-	1	Pneumococcal pneumonia	11	5	3	1
Cold weather, immersion type	6	-	-	-	Poliomyelitis	-	-	-	-
Cold weather, unspecified	2	-	-	-	Q fever	-	-	-	-
Cryptosporidiosis	1	-	-	-	Rabies, human	-	-	-	-
Cyclospora	-	-	-	-	Relapsing fever	-	-	-	-
Dengue fever	-	1	2	-	Rheumatic fever, acute	-	-	-	-
Diphtheria	-	-	-	-	Rift valley fever	-	-	-	-
E. Coli 0157:H7	1	3	3	5	Rocky mountain spotted fever	-	2	2	-
Ehrlichiosis	-	1	1	-	Rubella	3	-	-	-
Encephalitis	-	-	-	-	Salmonellosis	24	51	63	27
Filariasis	-	1	-	-	Schistosomiasis	-	-	-	-
Giardiasis	17	15	32	12	Shigellosis	10	57	40	15
Gonorrhea	604	463	495	368	Smallpox	-	-	-	-
H. influenzae, invasive	1	1	1	3	Streptococcus, group A, invasive	1	-	-	-
Hantavirus infection	-	1	-	1	Syphilis, congenital	-	-	2	-
Heat exhaustion	8	50	192	4	Syphilis, latent	7	6	9	5
Heat stroke	5	35	34	1	Syphilis, primary/secondary	21	22	12	9
Hemorrhagic fever	-	-	-	-	Syphilis, tertiary	6	2	3	3
Hepatitis A	4	6	3	1	Tetanus	-	-	-	-
Hepatitis B	31	10	11	1	Toxic shock syndrome	-	-	-	-
Hepatitis C	12	3	11	2	Trichinosis	-	-	-	-
Influenza	173	13	8	17	Trypanosomiasis	-	-	-	-
Lead poisoning	-	-	-	1	Tuberculosis, pulmonary	9	5	2	3
Legionellosis	1	2	1	1	Tularemia	-	-	-	-
Leishmaniasis, cutaneous	1	1	1	-	Typhoid fever	-	-	-	-
Leishmaniasis, mucocutaneous	-	-	-	-	Typhus fever	-	-	1	-
Leishmaniasis, unspecified	-	-	-	-	Urethritis, non-gonococcal	215	293	312	201
Leishmaniasis, visceral	-	-	-	-	Vaccine, adverse event	7	6	5	1
Leprosy	-	-	-	-	Varicella, active duty only	43	16	12	5
Leptospirosis	-	-	-	-	Yellow fever	-	-	-	-

1. Main and satellite clinics.

2. Events reported by January 7, 2000.

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.

Table S2. Reportable events,¹ by patient category, calendar years 1998 and 1999²

Diagnosis ³	1998		1999		Diagnosis ³	1998		1999	
	AD	Other	AD	Other		AD	Other	AD	Other
All reportable events	7051	3517	7693	3912	Listeriosis	-	-	-	2
Amebiasis	2	3	1	1	Lyme disease	9	28	13	28
Anthrax	-	-	-	-	Malaria, falciparum	-	2	4	3
Biological warfare agent exposure	-	-	-	-	Malaria, malariae	-	-	-	-
Botulism	-	1	-	-	Malaria, ovale	1	1	-	1
Brucellosis	-	-	-	-	Malaria, unspecified	6	1	3	1
Campylobacter	37	73	48	67	Malaria, vivax	38	2	60	3
Carbon monoxide poisoning	5	2	2	2	Measles	-	8	-	3
Chemical agent exposure	-	1	-	-	Meningococcal meningitis	1	1	2	5
Chlamydia	4004	2224	4451	2558	Meningococcal septicemia	1	2	-	-
Cholera	-	1	-	-	Mumps	1	3	2	1
Coccidioidomycosis	1	2	1	1	Pertussis	-	10	-	4
Cold weather, frostbite	50	1	79	3	Plague	-	-	-	1
Cold weather, hypothermia	3	3	12	-	Pneumococcal pneumonia	1	5	18	2
Cold weather, immersion type	8	1	6	-	Poliomyelitis	-	-	-	-
Cold weather, unspecified	5	-	2	-	Q fever	-	-	-	-
Cryptosporidiosis	1	3	-	1	Rabies, human	-	-	-	-
Cyclospora	-	-	-	-	Relapsing fever	-	-	-	-
Dengue fever	3	3	3	-	Rheumatic fever, acute	1	1	-	-
Diphtheria	-	-	-	-	Rift valley fever	-	-	-	-
E. Coli 0157:H7	2	1	2	10	Rocky mountain spotted fever	-	5	-	4
Ehrlichiosis	2	-	1	1	Rubella	-	-	1	2
Encephalitis	-	-	-	-	Salmonellosis	74	145	24	141
Filariasis	-	-	-	1	Schistosomiasis	-	-	-	-
Giardiasis	27	47	16	60	Shigellosis	14	76	17	105
Gonorrhea	1471	515	1389	541	Smallpox	-	-	-	-
H. influenzae, invasive	-	1	4	2	Streptococcus, group A, invasive	1	-	1	-
Hantavirus infection	1	-	1	1	Syphilis, congenital	-	1	1	1
Heat exhaustion	185	25	217	37	Syphilis, latent	16	13	14	13
Heat stroke	75	11	71	4	Syphilis, primary/secondary	26	16	37	27
Hemorrhagic fever	-	-	-	-	Syphilis, tertiary	1	14	6	8
Hepatitis A	8	11	3	11	Tetanus	1	-	-	-
Hepatitis B	56	38	33	20	Toxic shock syndrome	1	3	-	-
Hepatitis C	26	26	11	17	Trichinosis	-	-	-	-
Influenza	69	58	71	140	Trypanosomiasis	-	-	-	-
Lead poisoning	-	4	-	1	Tuberculosis, pulmonary	4	15	7	12
Legionellosis	-	-	1	4	Tularemia	-	-	-	-
Leishmaniasis, cutaneous	4	-	3	-	Typhoid fever	-	-	-	-
Leishmaniasis, mucocutaneous	-	-	-	-	Typhus fever	-	-	-	1
Leishmaniasis, unspecified	-	-	-	-	Urethritis, non-gonococcal	698	76	977	44
Leishmaniasis, visceral	-	1	-	-	Vaccine, adverse event	7	5	16	3
Leprosy	-	-	-	-	Varicella, active duty only	104	28	62	14
Leptospirosis	-	-	-	-	Yellow fever	-	-	-	-

1. Main and satellite clinics.

2. Events reported by January 7, 2000.

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.

Table S3. Active duty force strength by MTF, United States Army, September, 1999¹

MTF/Post ²	Males							Females							All
	< 20	20-24	25-29	30-34	35-39	>= 40	Total M	< 20	20-24	25-29	30-34	35-39	>= 40	Total F	
NORTH ATLANTIC RMC															
Walter Reed AMC, DC	108	3003	2102	1776	1925	3157	12071	37	830	743	505	549	623	3287	15358
Aberdeen Prov. Ground, MD	627	595	293	346	369	361	2591	55	95	75	61	43	42	371	2962
FT Belvoir, VA	9	194	280	304	350	400	1537	4	74	126	79	78	88	449	1986
FT Bragg, NC	1960	11549	8099	5987	4301	2358	34254	270	1738	1164	666	456	237	4531	38785
FT Drum, NY	578	3839	2412	1429	1088	522	9868	67	483	247	166	104	59	1126	10994
FT Eustis, VA	735	1745	1284	1011	945	803	6523	162	516	330	185	165	116	1474	7997
FT Knox, KY	2807	3337	1857	1460	1419	816	11696	43	240	209	145	117	69	823	12519
FT Lee, VA	828	1005	646	556	472	384	3891	433	481	235	159	132	92	1532	5423
FT Meade, MD	68	652	872	842	663	841	3938	31	275	297	221	174	140	1138	5076
West Point, NY	18	227	241	592	483	532	2093	2	61	63	97	75	68	366	2459
GREAT PLAINS RMC															
Brooke AMC	242	694	956	993	831	960	4676	172	374	401	348	288	302	1885	6561
Wm Beaumont AMC	491	2440	1864	1339	1240	1127	8501	137	678	444	215	189	167	1830	10331
FT Carson, CO	628	4575	3424	2036	1558	855	13076	140	716	456	218	166	89	1785	14861
FT Hood, TX	1680	13551	8881	5611	4054	2231	36008	385	2480	1541	907	665	362	6340	42348
FT Huachuca, AZ	432	1107	966	682	577	438	4202	109	370	214	116	107	107	1023	5225
FT Leavenworth, KS	37	273	237	556	830	600	2533	13	75	51	78	93	61	371	2904
FT Leonard Wood, MO	2828	1833	1232	1194	984	550	8621	1162	590	323	217	133	93	2518	11139
FT Polk, LA	393	2596	1632	1311	814	371	7117	78	462	266	152	86	68	1112	8229
FT Riley, KS	570	3664	2236	1360	941	501	9272	55	431	249	147	101	57	1040	10312
FT Sill, OK	2880	3922	2387	1643	1274	764	12870	552	559	364	218	135	68	1896	14766
SOUTHEAST RMC															
Eisenhower AMC	1156	1943	1486	1148	1148	1180	8061	240	582	459	331	299	251	2162	10223
FT Benning, GA	6137	5278	3430	2122	1481	762	19210	84	536	374	235	181	75	1485	20695
FT Campbell, KY	1179	7556	5558	3521	2446	1177	21437	187	1075	706	369	227	102	2666	24103
FT Jackson, SC	2756	1634	905	910	755	468	7428	1935	990	473	340	193	96	4027	11455
FT Rucker, AL	138	746	1001	613	507	443	3448	63	193	146	71	49	33	555	4003
FT Stewart, GA	912	6290	4155	2450	1868	963	16638	173	1096	671	391	243	147	2721	19359
WESTERN RMC															
Madigan AMC	762	4894	3491	2349	1895	1252	14643	151	833	590	327	240	198	2339	16982
FT Irwin, CA	179	1423	976	719	545	275	4117	31	192	138	75	55	23	514	4631
FT Wainwright, AK	332	1852	1627	827	545	305	5488	54	325	244	137	110	53	923	6411
OTHER LOCATIONS															
Tripler AMC	630	4007	3418	1979	1457	881	12372	121	836	712	382	266	193	2510	14882
Europe	1555	14215	13321	8422	6101	3971	47585	405	2890	2302	1317	943	576	8433	56018
Korea	1873	6508	5077	3666	3015	1977	22116	338	1197	907	628	480	286	3836	25952
Other/Unknown	1153	2265	3456	6167	5829	4031	22901	344	593	673	724	635	444	3413	\$26327
Total	36855	119727	90137	66277	53158	36685	402839	8059	22940	16250	10289	7826	5437	70801	473653

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

§ Includes unknown age groups and unknown gender.

2. Includes any subordinate catchment areas not listed separately.

Source: Defense Manpower Data Center.

DEPARTMENT OF THE ARMY
U.S. Army Center for Health Promotion
and Preventive Medicine
Aberdeen Proving Ground, MD 21010-5422

OFFICIAL BUSINESS
MCHB-DC-EDM

BULK RATE
U.S. POSTAGE
PAID
APG, MD
PERMIT NO. 1