CENTERS FOR DISEASE CONTROL

MMWR

MORBIDITY AND MORTALITY WEEKLY REPORT

May 25, 1990 / Vol. 39 / No. 20

Current Trends

Injuries Associated with Horseback Riding — United States, 1987 and 1988

Each year in the United States, an estimated 30 million persons ride horses (*1*). The rate of serious injury per number of riding hours is estimated to be higher for horseback riders than for motorcyclists and automobile racers (*2*). The following report uses data from the National Electronic Injury Surveillance System (NEISS) to describe the epidemiology of horseback-riding–associated injuries in the United States during 1987 and 1988.

NEISS is an emergency-room based active injury surveillance program of the U.S. Consumer Products Safety Commission. NEISS records the most severe diagnosis listed on the emergency room record. Reports from NEISS can be used to develop national estimates of the number of persons with product-related injuries treated in hospital emergency rooms.*

During 1987 and 1988, an estimated 92,763 emergency room visits were made in the United States for injuries related to horseback riding. Although the greatest number of injuries occurred in the 25–44-year age group, injury rates were highest for 5–24-year-olds, especially for females (Table 1).

Nearly half the injuries occurred at home or on a farm (Table 2). Soft tissue injury (e.g., laceration, contusion, or abrasion) was the most common diagnosis, followed by fracture or dislocation, strain or sprain, and concussion (Table 2). Most injuries to the extremities and trunk involved soft tissue, fractures and dislocations, and strains and sprains. Head and neck injuries were mainly soft tissue (56.9%), concussions (18.5%), and fractures or dislocations (11.0%). The 14,120 fractures to upper extremities represented the single most common site and type of injury.

*Sixty-two hospitals with emergency rooms located throughout the United States contributed to this data base each month in 1987, 61 contributed data from January through March 1988, and 62 provided data from April through December 1988. The NEISS code used for horseback riding injuries is product code 1239, "Horseback riding (activity, apparel, or equipment)."

Horseback-Riding Injuries — Continued

Of the injured persons, 9.9% required hospitalization. More than two thirds of hospitalized persons had head and neck (42.2%) or trunk injuries (25.2%). The most common diagnoses for these patients were fractures or dislocations (55.1%) and concussions (17.2%).

Reported by: DB Hammett, MD, American Medical Equestrian Association, Waynesville, North Carolina. Unintentional Injuries Section, Epidemiology Br, Div of Injury Control, Center for Environmental Health and Injury Control, CDC.

Editorial Note: Estimates of the number of persons in the United States who ride horses each year are broad, and demographic data are unavailable. The lack of specific denominators for horseback riders requires the use of census data to determine rates. However, the rates in this report may inaccurately estimate the risks for injury. For example, one possible explanation for the higher rates in 5–24-year-olds is that persons in this group are more likely to ride horses.

The risks for severe injury to the head, trunk, abdomen, and pelvis associated with horseback riding are well defined (*3–5*). Although no national estimates exist for the number of fatal injuries associated with horseback riding, a review of state medical examiner records from 27 states for 1976–1987 identified 205 such deaths (*6*); head injuries were associated with more than 60% of these deaths.

Although falls account for most horseback-riding–associated injuries (*4,6*), in one study, fewer than 20% of riders had worn a helmet at the time of the fall (*3*). Even when riders wear headgear, the headgear may be decorative or improperly secured, thereby providing limited or no protection (*2,5,7*). Because of the potentially severe sequelae of head injury (*8,9*), horseback riders should wear a properly secured hard shell helmet lined with expanded polystyrene or similar material. Helmet use has been endorsed by several medical and trade organizations, and national performance standards for helmets are available (*10–13*).

Horseback riders can also be injured when they collide with fixed objects; are dragged along the ground with a foot caught in a stirrup; are crushed between the horse and ground; or are trampled, kicked, or bitten (*2*). Equipment problems associated with injuries include improper boot-stirrup fit; broken reins, bridles, or stirrup straps; and malfunctions of the stirrup-release mechanism (*2,10*).

To reduce injuries, riders should wear properly fitting heeled boots and nonskid gloves, avoid loose-fitting clothing, regularly maintain and inspect equipment, replace worn parts, and use appropriately sized stirrups (*2,10*). Safety practices of

TABLE 1. Horseback-riding–associated injuries, by patient age and sex — United States, 1987 and 1988

	Male		Female		Total		
Age (yrs)	No.	Rate*	No.	Rate*	No.	(%)	Rate*
0–4	928	4.9	686	3.8	1,614	(1.7)	4.4
5–14	7,672	21.8	11,915	35.5	19,588	(21.1)	28.5
15–24	9,899	25.9	15,518	41.5	25,418	(27.4)	33.6
25–44	18,585	23.9	17,603	22.4	36,187	(39.0)	23.1
45–64	6,046	13.8	2,292	4.8	8,338	(9.0)	9.1
≥65	1,469	6.0	150	0.4	1,619	(1.7)	2.7
Total	**44,599**	**18.7**	**48,164**	**19.2**	**92,763**	**(100.0)**	**19.0**

*Rate for the 2-year period per 100,000 population.

Horseback-Riding Injuries — Continued

horseback riders may improve when they are trained by experienced instructors who have successfully completed a horse-safety course from an accredited organization, who emphasize safe riding techniques, and who themselves wear helmets while riding. In addition, riding safety may improve for riders who use appropriate techniques to stop, start, and turn a horse and to perform a rapid (emergency) dismount (*14*).

References

1. Bixby-Hammett DM. Accidents in equestrian sports. Am Fam Physician 1987;36:209–14.
2. Firth JL. Equestrian injuries. In: Schneider RC, Kennedy JC, Plant ML, eds. Sports injuries: mechanism, prevention, and treatment. Baltimore: Williams and Wilkins, 1985:431–9.
3. Grossman JA, Kulund DN, Miller CW, et al. Equestrian injuries: results of a prospective study. JAMA 1978;240:1881–2.
4. Gierup J, Larsson M, Lennquist S. Incidence and nature of horse-riding injuries: a one-year prospective study. Acta Chir Scand 1976;142:57–61.
5. Barber HM. Horseplay: survey of accidents and horses. Br J Med 1973;3:532–4.
6. Bixby-Hammett D, Brooks WH. Common injuries in horseback riding. Sports Med 1990; 9:36–47.

TABLE 2. Emergency room visits for horseback-riding–associated injuries, by setting, diagnosis, and site — United States, 1987 and 1988

Characteristic	No.*	(%)
Place injured		
Home†	22,693	(24.5)
Farm§	19,232	(20.7)
Sports or recreation setting	13,195	(14.2)
Other property	8,612	(9.3)
Street	1,466	(1.6)
School	204	(0.2)
Unknown	27,363	(29.5)
Diagnosis		
Soft tissue¶	42,382	(45.7)
Fracture or dislocation	25,610	(27.6)
Strain or sprain	17,067	(18.4)
Concussion	3,249	(3.5)
Internal injury	1,953	(2.1)
Other**	2,504	(2.7)
Injury location		
Upper extremity	28,048	(30.2)
Lower extremity	21,631	(23.3)
Trunk	20,733	(22.4)
Head and neck	17,518	(18.9)
Multiple sites	4,835	(5.2)

*Numbers in each category may not total 92,763 because of rounding.
†Includes injuries occurring in a yard, garden, sidewalk, driveway, or farmhouse (not farm-related).
§Includes injuries occurring on farmland, pasture, forest, woods, barn, or other outbuilding.
¶Includes puncture wounds, hematomas, avulsions, contusions, abrasions, and lacerations.
**Includes 102 patients for whom the diagnosis was unknown.

Horseback-Riding Injuries — Continued

7. Mahaley MS, Seabar AV. Accident and safety considerations of horseback riding. In: Proceedings of 18th American Medical Association Conference on the Medical Aspects of Sports. Chicago: American Medical Association, 1976:37–45.
8. Kraus JF. Epidemiology of head injury. In: Cooper PR, ed. Head injury. 2nd ed. Baltimore: Williams and Wilkins, 1986:1–19.
9. Levin HS. Neurobehavioral sequelae of head injury. In: Cooper PR, ed. Head injury. 2nd ed. Baltimore: Williams and Wilkins, 1986:442–63.
10. Brooks WH, Bixby-Hammett DM. Prevention of neurologic injuries in equestrian sports. Physician Sports Med 1988;16:84–6,88,90,93–5.
11. Bixby-Hammett DM. Head injuries in the equestrian sports. Physician Sports Med 1983; 11:82–6.
12. National Highway Transportation Safety Administration. A report to Congress on the effect of motorcycle helmet use law repeal: a case for helmet use. Washington DC: US Department of Transportation, 1980; publication no. DOT HS 805-312.
13. American Society for Testing and Materials. Standard specification for headgear used in horse sports and horse-back riding (F1163-88). In: Annual book of ASTM standards. Philadelphia: American Society for Testing and Materials, 1988.
14. DeBenedette V. People and horses: the risks of riding. Physician Sports Med 1989;17:250–4.

Alcohol Use and Aquatic Activities — Massachusetts, 1988

More than 8000 drowning fatalities occur in the United States each year, making drowning the third most common cause of death from unintentional injury in the United States (*1,2*). Although 25%–50% of adult and adolescent drowning victims had consumed alcohol near the time of death (*3*), information regarding drinking behaviors during aquatic activities is limited. In September 1988, the Boston University School of Public Health surveyed Massachusetts adults aged ≥20 years to determine in what settings and how often they consumed alcoholic beverages on or near the water during their most recent aquatic activity in August 1988.

A statewide probability sample was conducted through a random-digit-dialing procedure (*4*). Of 306 adults called, 294 (96%) participated in the survey. A total of 221 (75%; 107 [79%] men, 114 [72%] women) respondents reported a mean of 13 days of aquatic activities during August 1988. The most frequently reported aquatic activity was swimming (169 [76%]), followed by boating (55 [25%]), and fishing from shore (31 [14%]). The most frequently reported site of activity was the ocean (120 [54%]), followed by lakes or ponds (57 [26%]), pools (38 [17%]), rivers (five [2%]), and other settings (1 [<1%]).

Of persons reporting aquatic activities, 38 (36%) men and 13 (11%) women reported that they had consumed alcohol on the last occasion. Among alcohol users, 15 (29%) reported having consumed ≥4 drinks from 2 hours before until completion of the activity. Men who drank reported consuming more (mean: 3.5 drinks) than women (mean: 2.4 drinks) in an aquatic setting. The proportion of drinking did not vary substantially by location or activity. Respondents aged ≥50 years were less likely than younger respondents to report drinking on the last occasion on or near the water (Table 1).

Reported by: J Howland, PhD, R Hingson, ScD, S Levenson, MPH, M Winter, Boston Univ School of Public Health; T Mangione, PhD, Center for Survey Research, Univ of Massachusetts at Boston. Unintentional Injuries Section, Epidemiology Br, Div of Injury Control, Center for Environmental Health and Injury Control, CDC.

Alcohol Use and Aquatic Activities — Continued

Editorial Note: The relationship between alcohol use and water recreation fatalities has been documented in a variety of settings (*1,5,6*). For example, the National Transportation Safety Board estimated that alcohol use was associated with 32%–64% of recreational boating deaths in 1983 (*7,8*). In a North Carolina study of drownings from 1980 through 1984, 399 (46%) of 869 drowning victims ≥15 years of age tested positive for blood alcohol, and 286 (33%) had blood alcohol concentrations (BACs) of >0.1 g/dL (*1*).

The ratio of male-to-female drowning rates in the United States is approximately 12:1 for drownings associated with boating and approximately 5:1 for other drownings (*9*); the gender difference in drowning rates does not change with age (*10–12*). The Massachusetts data suggest that differences by sex in aquatic-activity–related morbidity and mortality may be associated with differences in behaviors (e.g., use of alcohol, use of personal flotation devices, and participation in different types of water activities [*13*]) rather than exposure to aquatic environments. Men are more likely than women to drink alcohol on or near the water.

TABLE 1. Number and percentage of 221 surveyed adults who drank alcohol during their most recent aquatic activity, by sex, age group, location, and activity — Massachusetts, August 1988

Characteristic	No. reporting aquatic activity	Consuming alcohol		
		No.	(%)	95% CI*
Sex				
Male	107	38	(36)	27–45
Female	114	13	(11)	5–17
Age group (yrs)				
20–29	72	20	(28)	18–38
30–39	61	14	(23)	12–32
40–49	45	13	(29)	17–43
50–59	21	1	(5)	0–18
60–64	8	0		
≥65	12	2	(17)	0–38
Location				
River	5	2	(40)	25–47
Lake/pond	57	17	(30)	17–41
Pool	38	8	(21)	15–29
Ocean	120	24	(20)	13–27
Activity				
Power boating	55	17	(31)	19–43
Sailing	20	5	(25)	8–46
Swimming	169	44	(26)	19–33
Fishing from shore	31	7	(23)	8–38
Sun bathing	162	38	(23)	17–29
Fishing from boat	25	5	(20)	6–38
Total	**221**	**51**	**(23)**	

*Confidence interval.

Alcohol Use and Aquatic Activities — Continued

In the United States, more than 50 million persons engage in various recreational (noncommercial) boating activities on at least 8 days per year (*5,6*), and 90% of all deaths from recreational boating result from drowning. The prevalence of alcohol use during aquatic activities in Massachusetts was high when compared with the estimated prevalence of alcohol exposure among weekend nighttime drivers, who have the highest overall estimate known among U.S. drivers (8.3% of a 1983 U.S. driver sample had BACs of ≥0.1 g/dL) (*2*). This information suggests the need to 1) strengthen education about the risks of drowning in all aquatic environments and 2) clarify the relationship between alcohol use, drowning, and other water recreation injuries.

References

1. Patetta MJ, Biddinger PW. Characteristics of drowning deaths in North Carolina. Public Health Rep 1988;103:406–11.
2. Brooks JG. Near drowning. Pediatr Rev 1988;10:5–10.
3. Howland J, Hingson R. Alcohol as a risk factor for drowning: a review of the literature (1950–1985). Accid Anal Prev 1988;20:19–25.
4. Waksberg J. Sampling methods for random digit dialing. J Am Stat Assoc 1978;73:40–6.
5. CDC. Recreational boating fatalities—Ohio, 1983–1986. MMWR 1987;36:321–4.
6. Smith GS, Kraus JF. Alcohol and residential, recreational and occupational injuries: a review of the epidemiologic evidence. Annu Rev Public Health 1988;9:99–121.
7. Wright SJ. SOS: alcohol, drugs and boating. Alcohol Health and Research World 1985; 9:28–33.
8. National Transportation Safety Board. Safety study: recreational boating safety and alcohol. Washington, DC: National Transportation Safety Board, 1983; publication no. NTSB no. SS-83-02.
9. Baker SP, O'Neill B, Karpf RS. The injury fact book. Lexington, Massachusetts: DC Heath and Co, 1984:156.
10. O'Carroll PW, Alkon E, Weiss B. Drowning mortality in Los Angeles County, 1976 to 1984. JAMA 1988;260:380–3.
11. Quan L, Gore EJ, Wentz K, Allen J, Novack AH. Ten-year study of pediatric drownings and near-drownings in King County, Washington: lessons in injury prevention. Pediatrics 1989;83:1035–40.
12. Wintemute GJ, Kraus JF, Teret SP, Wright MA. The epidemiology of drownings in adulthood: implications for prevention. Am J Prev Med 1988;4:343–8.
13. Gulaid JA, Sattin RW. Drownings in the United States, 1978–1984. In: Public health surveillance of 1990 injury control objectives for the nation. MMWR 1988;37(no. SS-1): 27–33.

Aeromonas Wound Infections Associated with Outdoor Activities — California

Aeromonas species are associated with gastroenteritis and with wound infections, particularly wounds incurred in outdoor settings. On May 1, 1988, isolates of *Aeromonas* became reportable in California, the first state to mandate reporting of isolates of and infections with these organisms. Surveillance data for 1988 and 1989 represent the first population-based estimates of both the occurrence and public health impact of *Aeromonas* infections in the United States and provide a basis for assessing the need for further surveillance of these organisms.

From May 1, 1988, through April 30, 1989, clinicians and clinical laboratories in California reported 225 *Aeromonas* isolates from 219 patients. Cases were reported on Confidential Morbidity Report cards to local health departments, which then

Aeromonas *Wound Infections — Continued*

conducted case investigations and forwarded their reports to the California Department of Health Services. Of the 225 isolates, 178 (79.1%) were recovered from stool, 19 (8.4%) from wounds, 11 (4.9%) from blood, and 17 (7.6%) from other sites. *A. caviae* was recovered from seven stool cultures; *A. sobria* was recovered from two stool cultures and one vaginal culture. All other cultures were reported as *A. hydrophila* or *Aeromonas* unspecified.

Based on reported cases, the incidence of *Aeromonas* wound infections in California was 0.7 per million population. Of the 19 patients with wound infections, 13 were injured outdoors (Table 1). Six of these patients required hospitalization for their injuries and/or infections. One patient had a mixed infection including *Aeromonas*, *Proteus*, and *Pseudomonas* species. The number of infections peaked in the summer months with three cases each in July and August. The cases reported among persons aged 30–39 years represented the highest incidence rate for all age groups (1.4 per million).

Reported by: SB Werner, MD, Infectious Disease Br, GW Rutherford, III, MD, State Epidemiologist, California Dept of Health Svcs. Div of Field Svcs, Epidemiology Program Office; Enteric Diseases Br, Div of Bacterial Diseases, and Epidemiology Br, Hospital Infections Program, Center for Infectious Diseases, CDC.

Editorial Note: *Aeromonas* species are gram-negative, facultatively anaerobic bacteria found in soil and fresh and brackish water worldwide (*1*). Although *Aeromonas* species were recognized in 1891 as colonizers and pathogens of cold-blooded animals, especially fish (*2*), they were not identified as human pathogens until 1968 (*3*). Since then, they have been associated with a wide spectrum of human diseases (especially in immunocompromised patients), most commonly gastroenteritis (*4*) and soft tissue infections (*5*).

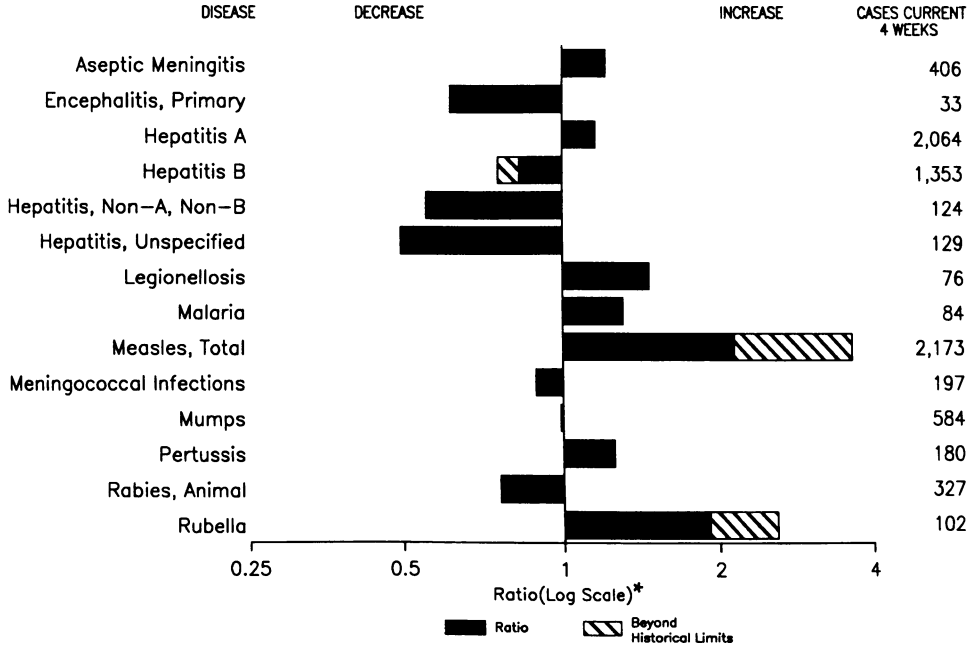
The taxonomy of *Aeromonas* species requires further clarification. Three species, *A. hydrophila*, *A. sobria*, and *A. caviae*, have been associated with human disease (*4*), but DNA hybridization analyses support seven or more distinct genotypes (*6*). Because many clinical laboratories are unable to perform precise identification, many aeromonad isolates are reported as *A. hydrophila* or *A. hydrophila* complex.

(Continued on page 341)

TABLE 1. Patients with *Aeromonas*-positive wound infections associated with outdoor activities — California, May 1, 1988–April 30, 1989

Nature of wound	Age (yrs)	Sex
Foot laceration on lakeside dock	11	Male
Puncture wound from nail	17	Female
Hip puncture wound from motor vehicle crash	20	Male
Crushed hand from squid cleaning machine	23	Male
Scalp laceration	29	Male
Puncture wound from stick	30	Male
Crushed thumb while cutting down tree	33	Male
Head injury while rafting; person with AIDS	35	Male
Superficial wound while swimming; dialysis patient	38	Male
Scalp laceration	38	Male
Laceration from electrical apparatus	39	Male
Thigh wound while swimming	43	Female
Fish hook caught in hand	65	Male

FIGURE I. Notifiable disease reports, comparison of 4-week totals ending May 19, 1990, with historical data — United States



*Ratio of current 4-week total to mean of 15 4-week totals (from comparable, previous, and subsequent 4-week periods for past 5 years).

TABLE I. Summary — cases of specified notifiable diseases, United States, cumulative, week ending May 19, 1990 (20th Week)

	Cum. 1990		Cum. 1990
AIDS	16,928	Plague	-
Anthrax	-	Poliomyelitis, Paralytic*	-
Botulism: Foodborne	1	Psittacosis	54
Infant	17	Rabies, human	-
Other	2	Syphilis: civilian	18,545
Brucellosis	14	military	105
Cholera	1	Syphilis, congenital, age < 1 year	-
Congenital rubella syndrome	1	Tetanus	20
Diphtheria	1	Toxic shock syndrome	136
Encephalitis, post-infectious	37	Trichinosis	13
Gonorrhea: civilian	252,918	Tuberculosis	7,486
military	3,528	Tularemia	17
Leprosy	71	Typhoid fever	133
Leptospirosis	15	Typhus fever, tickborne (RMSF)	57
Measles: imported	546		
indigenous	7,112		

*Two cases of suspected poliomyelitis have been reported in 1990; none of 13 suspected cases in 1989 have been confirmed to date. Nine of 14 suspected cases in 1988 were confirmed and all were vaccine-associated.

TABLE II. Cases of specified notifiable diseases, United States, weeks ending May 19, 1990, and May 20, 1989 (20th Week)

Reporting Area	AIDS	Aseptic Meningitis	Encephalitis		Gonorrhea (Civilian)		Hepatitis (Viral), by type				Legionellosis	Leprosy
			Primary	Post-infectious			A	B	NA,NB	Unspecified		
	Cum. 1990	Cum. 1990	Cum. 1990	Cum. 1990	Cum. 1990	Cum. 1989	Cum. 1990	Cum. 1990	Cum. 1990	Cum. 1990	Cum. 1990	Cum. 1990
UNITED STATES	16,928	1,796	239	37	252,918	255,268	11,259	7,864	743	676	417	71
NEW ENGLAND	669	75	8	-	7,037	7,458	229	393	22	32	19	5
Maine	22	2	1	-	93	109	4	17	3	1	1	-
N.H.	36	7	-	-	80	69	5	21	2	2	2	-
Vt.	7	9	2	-	27	24	2	25	3	-	4	-
Mass.	376	25	1	-	2,759	2,926	166	255	9	28	8	4
R.I.	29	20	-	-	402	537	24	21	-	1	4	1
Conn.	199	12	4	-	3,676	3,793	28	54	5	-	-	-
MID. ATLANTIC	5,099	229	15	3	35,129	41,700	1,676	1,291	90	50	102	13
Upstate N.Y.	798	99	14	1	5,264	6,007	374	268	14	17	43	1
N.Y. City	2,796	49	1	-	14,801	18,047	213	435	15	20	14	9
N.J.	1,011	-	-	-	5,480	5,359	182	277	23	-	10	2
Pa.	494	81	-	2	9,584	12,287	907	311	38	13	35	1
E.N. CENTRAL	1,121	283	61	6	49,175	44,354	822	1,051	46	52	103	-
Ohio	280	73	15	2	15,456	11,676	98	196	13	7	35	-
Ind.	94	53	2	2	3,993	3,057	70	259	5	17	19	-
Ill.	490	50	21	2	14,900	13,683	358	155	13	13	6	-
Mich.	154	93	21	-	12,114	12,136	172	276	13	15	30	-
Wis.	103	14	2	-	2,712	3,802	124	165	2	-	13	-
W.N. CENTRAL	411	77	18	1	13,606	11,394	620	350	38	14	23	-
Minn.	57	8	9	1	1,700	1,191	99	41	12	-	-	-
Iowa	20	10	2	-	1,006	980	146	30	2	2	2	-
Mo.	252	33	1	-	7,967	6,675	220	217	12	10	16	-
N. Dak.	-	5	-	-	47	58	5	4	2	1	-	-
S. Dak.	1	3	2	-	78	103	34	4	1	-	-	-
Nebr.	23	9	3	-	687	671	41	16	2	-	3	-
Kans.	58	9	1	-	2,121	1,716	75	38	7	1	2	-
S. ATLANTIC	3,795	437	57	12	70,469	69,367	1,325	1,434	110	100	64	3
Del.	33	11	1	-	1,182	1,089	48	33	2	1	4	-
Md.	387	63	7	1	7,334	7,715	544	199	16	5	19	1
D.C.	255	2	-	-	3,432	4,309	10	24	4	-	-	-
Va.	337	70	21	2	6,576	5,747	106	93	14	74	6	-
W. Va.	24	7	5	-	518	506	9	37	3	1	1	-
N.C.	261	38	17	-	11,640	10,236	257	416	51	-	11	1
S.C.	141	7	-	-	5,850	6,420	18	229	8	6	8	-
Ga.	539	55	3	1	15,942	13,723	115	164	3	6	11	-
Fla.	1,818	184	3	8	17,995	19,622	218	239	9	7	4	1
E.S. CENTRAL	377	138	21	-	21,730	20,299	139	590	45	3	34	-
Ky.	79	38	5	-	2,265	1,940	38	199	15	2	15	-
Tenn.	123	30	12	-	7,137	6,397	64	313	18	-	10	-
Ala.	80	50	4	-	7,264	6,662	36	74	10	-	9	-
Miss.	95	20	-	-	5,064	5,300	1	4	2	1	-	-
W.S. CENTRAL	1,759	127	9	4	25,086	26,728	1,115	621	63	95	29	17
Ark.	145	5	-	-	3,388	2,767	207	31	3	9	7	-
La.	280	17	3	-	5,100	5,709	57	113	-	2	9	-
Okla.	97	11	1	4	2,333	2,280	245	52	13	9	10	-
Tex.	1,237	94	5	-	14,265	15,972	606	425	47	75	3	17
MOUNTAIN	432	77	6	-	4,710	5,161	1,821	574	57	56	23	-
Mont.	4	1	-	-	64	81	48	33	2	3	1	-
Idaho	14	-	-	-	42	82	35	33	8	-	3	-
Wyo.	2	1	1	-	71	47	21	7	1	-	-	-
Colo.	107	21	1	-	1,081	1,232	112	75	16	20	3	-
N. Mex.	40	3	-	-	468	543	265	59	2	1	2	-
Ariz.	160	27	3	-	2,074	1,783	1,067	177	15	25	8	-
Utah	42	14	-	-	164	171	119	32	10	2	1	-
Nev.	63	10	1	-	746	1,222	154	158	3	5	5	-
PACIFIC	3,265	353	44	11	25,976	28,807	3,512	1,560	272	274	20	33
Wash.	229	-	3	1	2,240	2,419	588	242	51	9	4	2
Oreg.	127	-	-	-	965	1,112	390	180	17	5	-	-
Calif.	2,844	319	37	9	22,216	24,753	2,421	1,087	197	257	15	25
Alaska	16	6	3	-	407	334	73	27	3	-	-	-
Hawaii	49	28	1	1	148	189	40	24	4	3	1	6
Guam	1	-	-	-	71	54	3	1	-	5	-	-
P.R.	660	30	4	-	347	431	58	84	-	19	-	-
V.I.	5	-	-	-	169	244	-	6	-	-	-	-
Amer. Samoa	-	1	-	-	26	11	12	-	-	-	-	5
C.N.M.I.	-	-	-	-	57	35	3	2	-	-	-	1

N: Not notifiable U: Unavailable C.N.M.I.: Commonwealth of the Northern Mariana Islands

TABLE II. (Cont'd.) Cases of specified notifiable diseases, United States, weeks ending May 19, 1990, and May 20, 1989 (20th Week)

Reporting Area	Malaria	Measles (Rubeola)					Menin-gococcal Infections	Mumps		Pertussis			Rubella		
		Indigenous		Imported*		Total									
	Cum. 1990	1990	Cum. 1990	1990	Cum. 1990	Cum. 1989	Cum. 1990	1990	Cum. 1990	1990	Cum. 1990	Cum. 1989	1990	Cum. 1990	Cum. 1989
UNITED STATES	370	338	7,112	7	546	5,484	1,161	189	2,430	34	1,061	816	24	340	137
NEW ENGLAND	39	-	107	-	13	243	74	-	18	7	141	100	-	4	4
Maine	-	-	27	-	-	-	8	-	-	-	4	4	-	-	-
N.H.	4	-	-	-	8	1	2	-	6	-	10	5	-	1	2
Vt.	4	-	-	-	1	1	5	-	1	1	6	5	-	-	1
Mass.	22	-	4	-	1	32	39	-	6	6	112	81	-	-	1
R.I.	3	-	27	-	3	37	4	-	3	-	-	2	-	1	-
Conn.	6	-	49	-	-	172	16	-	2	-	9	3	-	2	-
MID. ATLANTIC	81	2	495	-	128	549	178	4	149	1	278	50	-	2	10
Upstate N.Y.	16	-	155	-	101	104	70	2	63	1	225	25	-	1	2
N.Y. City	29	-	43	-	15	43	23	-	-	-	-	2	-	-	6
N.J.	21	-	22	-	5	326	33	-	30	-	11	19	-	-	2
Pa.	15	2	275	-	7	76	52	2	56	-	42	4	-	1	-
E.N. CENTRAL	17	43	2,081	-	138	1,125	164	11	256	-	208	104	9	23	18
Ohio	4	-	213	-	2	435	56	-	47	-	54	1	-	-	3
Ind.	-	10	229	-	1	17	17	5	14	-	31	8	-	-	-
Ill.	5	-	846	-	8	651	37	-	79	-	63	40	-	14	14
Mich.	5	33	265	-	125	5	36	6	87	-	33	19	9	9	-
Wis.	3	-	528	-	2	17	18	-	29	-	27	36	-	-	1
W.N. CENTRAL	5	35	303	-	12	459	38	1	71	-	27	21	1	2	4
Minn.	1	-	120	-	3	3	9	-	-	-	-	-	-	-	-
Iowa	-	1	22	-	-	1	1	-	11	-	4	8	1	1	-
Mo.	4	-	49	-	-	292	13	-	36	-	17	11	-	-	3
N. Dak.	-	-	-	-	-	-	-	-	-	-	1	-	-	1	-
S. Dak.	-	-	7	-	8	-	2	-	-	-	1	1	-	-	-
Nebr.	-	-	26	-	1	87	5	-	2	-	1	-	-	-	-
Kans.	-	34	79	-	-	76	8	1	22	-	3	1	-	-	1
S. ATLANTIC	81	18	446	2	76	266	216	118	934	2	102	72	-	12	5
Del.	2	-	6	-	2	32	1	-	-	-	1	-	-	-	-
Md.	22	11	66	1§	12	12	22	51	531	-	26	6	-	1	2
D.C.	6	6	8	1§	7	9	11	4	20	-	13	-	-	1	-
Va.	18	1	48	-	2	3	25	10	55	-	9	4	-	-	-
W. Va.	1	-	6	-	-	-	7	-	38	-	9	9	-	-	-
N.C.	6	-	3	-	1	159	33	52	105	-	18	16	-	-	1
S.C.	-	-	3	-	-	-	15	-	17	1	5	-	-	-	-
Ga.	7	-	6	-	12	-	45	-	56	-	14	9	-	-	-
Fla.	19	-	300	-	40	51	57	1	112	1	7	28	-	10	2
E.S. CENTRAL	11	2	66	-	2	53	64	5	57	8	50	34	-	1	1
Ky.	2	1	4	-	-	2	19	-	-	-	-	1	-	-	-
Tenn.	6	1	30	-	-	22	23	3	27	6	22	14	-	1	1
Ala.	3	-	6	-	2	29	20	1	9	2	26	16	-	-	-
Miss.	-	-	26	-	-	-	2	N	N	-	2	3	-	-	-
W.S. CENTRAL	12	63	1,160	4	53	2,040	75	25	459	-	21	23	-	1	11
Ark.	-	8	8	4§	15	-	7	6	110	-	1	10	-	1	-
La.	-	-	10	-	-	6	19	8	77	-	2	4	-	-	5
Okla.	5	4	136	-	-	7	9	-	96	-	18	9	-	-	1
Tex.	7	51	1,006	-	38	2,027	40	11	176	-	-	-	-	-	5
MOUNTAIN	9	34	389	1	58	86	33	11	198	11	101	303	1	25	2
Mont.	-	-	-	-	1	13	7	-	-	1	4	-	-	13	1
Idaho	2	-	15	-	5	1	3	4	106	9	21	39	-	7	-
Wyo.	-	-	-	-	2	-	-	-	2	-	-	-	-	-	-
Colo.	1	7	43	1†	28	31	10	1	15	-	47	18	-	3	-
N. Mex.	1	6	69	-	8	27	3	N	N	1	7	4	-	-	-
Ariz.	5	-	123	-	11	14	2	6	60	-	13	236	-	-	-
Utah	-	2	4	-	-	-	4	-	4	-	5	5	1	1	-
Nev.	-	19	135	-	3	-	4	-	11	-	4	1	-	1	1
PACIFIC	115	141	2,065	-	66	663	319	14	288	5	133	109	13	270	82
Wash.	9	-	7	-	38	33	37	-	21	1	33	23	-	-	-
Oreg.	4	-	-	-	-	4	34	N	N	-	3	4	-	-	1
Calif.	100	139	1,980	-	25	614	240	14	263	4	81	80	12	263	64
Alaska	1	1	75	-	2	-	6	-	-	-	-	-	-	-	-
Hawaii	1	1	3	-	1	12	2	-	4	-	16	2	1	7	17
Guam	1	U	-	U	-	1	-	U	-	U	-	1	U	-	-
P.R.	-	U	808	U	-	326	6	U	3	U	4	2	U	-	4
V.I.	-	U	-	U	-	4	-	U	5	U	-	-	U	-	-
Amer. Samoa	-	U	-	U	-	-	-	U	-	U	-	-	U	-	-
C.N.M.I.	-	U	-	U	-	-	-	U	5	U	-	-	U	-	-

*For measles only, imported cases includes both out-of-state and international importations.
N: Not notifiable U: Unavailable †International §Out-of-state

TABLE II. (Cont'd.) Cases of specified notifiable diseases, United States, weeks ending May 19, 1990, and May 20, 1989 (20th Week)

Reporting Area	Syphilis (Civilian) (Primary & Secondary)		Toxic-shock Syndrome	Tuberculosis		Tula-remia	Typhoid Fever	Typhus Fever (Tick-borne) (RMSF)	Rabies, Animal
	Cum. 1990	Cum. 1989	Cum. 1990	Cum. 1990	Cum. 1989	Cum. 1990	Cum. 1990	Cum. 1990	Cum. 1990
UNITED STATES	18,545	15,691	136	7,486	7,485	17	133	57	1,415
NEW ENGLAND	748	643	10	189	183	-	10	-	2
Maine	5	5	2	-	3	-	-	-	-
N.H.	32	2	1	3	12	-	-	-	2
Vt.	1	-	-	2	2	-	-	-	-
Mass.	277	194	6	101	95	-	9	-	-
R.I.	5	14	-	30	26	-	-	-	-
Conn.	428	428	1	53	45	-	1	-	-
MID. ATLANTIC	4,048	3,258	13	1,844	1,512	1	38	3	320
Upstate N.Y.	301	307	4	24	131	-	8	-	14
N.Y. City	1,902	1,330	4	1,179	874	-	21	-	-
N.J.	589	514	-	342	230	1	8	3	84
Pa.	1,256	1,107	5	299	277	-	1	-	222
E.N. CENTRAL	1,215	589	39	787	822	-	19	4	31
Ohio	201	38	19	101	164	-	5	2	3
Ind.	12	25	2	39	72	-	-	-	-
Ill.	463	276	4	398	360	-	10	-	10
Mich.	400	219	14	217	182	-	3	2	4
Wis.	139	31	-	32	44	-	1	-	14
W.N. CENTRAL	161	122	16	195	210	5	-	6	218
Minn.	39	8	-	37	45	-	-	-	89
Iowa	20	16	2	23	27	-	-	-	10
Mo.	78	67	11	90	81	4	-	5	7
N. Dak.	1	1	-	10	9	-	-	-	31
S. Dak.	1	-	-	4	12	-	-	-	55
Nebr.	6	16	2	10	9	1	-	-	3
Kans.	16	14	1	21	27	-	-	1	23
S. ATLANTIC	5,811	5,700	6	1,482	1,580	3	11	18	411
Del.	76	68	1	17	19	-	-	-	5
Md.	443	299	-	137	145	-	6	-	156
D.C.	294	342	-	39	67	-	-	-	-
Va.	323	211	-	123	137	1	-	-	77
W. Va.	6	7	-	27	33	-	-	-	11
N.C.	678	357	3	176	163	1	-	14	2
S.C.	317	298	1	171	169	1	-	3	51
Ga.	1,500	1,205	-	224	223	-	1	1	83
Fla.	2,174	2,913	1	568	624	-	4	-	26
E.S. CENTRAL	1,629	986	5	618	623	2	-	6	66
Ky.	27	23	-	149	150	-	-	-	24
Tenn.	675	410	3	178	148	2	-	5	7
Ala.	511	334	2	203	193	-	-	1	35
Miss.	416	219	-	88	132	-	-	-	-
W.S. CENTRAL	2,942	2,010	7	908	854	5	3	18	189
Ark.	179	129	-	96	94	3	-	1	11
La.	921	450	1	78	109	-	-	1	-
Okla.	85	30	6	79	75	2	1	14	51
Tex.	1,757	1,401	-	655	576	-	2	2	127
MOUNTAIN	337	267	16	166	187	1	7	1	60
Mont.	-	-	-	10	5	-	-	-	17
Idaho	5	-	1	4	7	-	-	-	-
Wyo.	-	-	1	-	-	-	-	-	26
Colo.	20	49	5	6	16	-	-	-	-
N. Mex.	18	11	4	34	33	1	-	1	4
Ariz.	226	70	5	79	85	-	5	-	11
Utah	4	9	-	10	19	-	-	-	-
Nev.	64	128	-	23	22	-	2	-	2
PACIFIC	1,654	2,116	24	1,297	1,514	-	45	1	118
Wash.	146	160	3	108	72	-	1	-	-
Oreg.	50	113	-	49	50	-	-	-	-
Calif.	1,447	1,836	20	1,062	1,304	-	42	1	102
Alaska	5	2	-	17	25	-	-	-	16
Hawaii	6	5	1	61	63	-	2	-	-
Guam	1	3	-	14	30	-	-	-	-
P.R.	263	209	-	29	91	-	-	-	19
V.I.	1	1	-	3	3	-	-	-	-
Amer. Samoa	-	-	-	6	2	-	-	-	-
C.N.M.I.	-	3	-	12	7	-	4	-	-

U: Unavailable

TABLE III. Deaths in 121 U.S. cities,* week ending May 19, 1990 (20th Week)

Reporting Area	All Causes, By Age (Years)						P&I**
	All Ages	≥65	45-64	25-44	1-24	<1	Total
NEW ENGLAND	616	424	117	49	15	11	57
Boston, Mass.	176	108	39	21	5	3	21
Bridgeport, Conn.	41	34	4	2	1	-	3
Cambridge, Mass.	20	16	4	-	-	-	2
Fall River, Mass.	26	21	3	2	-	-	-
Hartford, Conn.	51	34	12	4	1	-	9
Lowell, Mass.	23	13	7	2	1	-	1
Lynn, Mass.	11	7	4	-	-	-	2
New Bedford, Mass.	30	22	5	2	1	-	1
New Haven, Conn.	51	36	8	4	1	2	2
Providence, R.I.	52	41	8	-	-	3	5
Somerville, Mass.	10	7	3	-	-	-	1
Springfield, Mass.	33	23	5	2	2	1	3
Waterbury, Conn.	38	24	5	6	2	1	1
Worcester, Mass.	54	38	10	4	1	1	6
MID. ATLANTIC	2,736	1,747	567	294	59	69	160
Albany, N.Y.	36	24	9	2	1	-	2
Allentown, Pa.	18	16	2	-	-	-	-
Buffalo, N.Y.	100	70	20	6	1	3	4
Camden, N.J.	30	18	8	1	-	3	-
Elizabeth, N.J.	24	14	6	3	1	-	1
Erie, Pa.†	31	25	4	2	-	-	5
Jersey City, N.J.§	62	40	14	5	-	3	1
N.Y. City, N.Y.	1,300	797	265	179	33	26	62
Newark, N.J.	83	30	24	15	8	6	4
Paterson, N.J.	32	16	9	7	-	-	2
Philadelphia, Pa.	500	328	102	44	8	18	30
Pittsburgh, Pa.†	122	82	25	10	-	5	8
Reading, Pa.	45	38	6	1	-	-	7
Rochester, N.Y.	111	80	24	5	1	1	17
Schenectady, N.Y.	33	19	12	1	1	-	-
Scranton, Pa.†	28	24	2	-	2	-	1
Syracuse, N.Y.	99	65	22	7	2	3	6
Trenton, N.J.	42	30	7	3	1	1	7
Utica, N.Y.	18	13	4	1	-	-	-
Yonkers, N.Y.	22	18	2	2	-	-	3
E.N. CENTRAL	2,254	1,493	447	175	56	83	105
Akron, Ohio	25	22	3	-	-	-	-
Canton, Ohio	34	22	10	1	1	-	2
Chicago, Ill.§	564	362	125	45	10	22	16
Cincinnati, Ohio	162	111	32	11	5	3	21
Cleveland, Ohio	143	74	41	15	8	5	3
Columbus, Ohio	172	118	24	12	4	14	3
Dayton, Ohio	105	77	15	9	1	3	7
Detroit, Mich.	237	132	50	35	7	13	9
Evansville, Ind.	46	38	4	2	-	2	3
Fort Wayne, Ind.	63	51	6	4	1	1	6
Gary, Ind.	16	10	2	2	2	-	1
Grand Rapids, Mich.	51	44	4	1	2	-	2
Indianapolis, Ind.	183	117	39	14	7	6	6
Madison, Wis.	32	22	5	2	1	2	2
Milwaukee, Wis.	121	84	25	8	2	2	3
Peoria, Ill.	48	31	12	3	1	1	5
Rockford, Ill.	44	29	10	3	-	2	3
South Bend, Ind.	48	40	5	-	-	3	3
Toledo, Ohio	105	74	21	4	4	2	6
Youngstown, Ohio	55	35	14	4	-	2	4
W.N. CENTRAL	685	476	109	55	22	23	41
Des Moines, Iowa	61	37	9	11	1	3	3
Duluth, Minn.	27	22	4	-	1	-	2
Kansas City, Kans.	50	31	9	6	4	-	4
Kansas City, Mo.	112	77	17	8	7	3	6
Lincoln, Nebr.	42	30	12	-	-	-	3
Minneapolis, Minn.	108	80	15	8	-	5	9
Omaha, Nebr.	74	45	18	6	2	3	5
St. Louis, Mo.	123	87	16	12	4	4	7
St. Paul, Minn.	52	40	3	4	1	4	1
Wichita, Kans.	36	27	6	-	2	1	1
S. ATLANTIC	1,173	658	257	133	59	64	69
Atlanta, Ga.	169	82	50	22	6	9	10
Baltimore, Md.	118	72	25	13	4	4	8
Charlotte, N.C.	82	46	18	8	7	3	7
Jacksonville, Fla.	109	68	21	14	5	1	9
Miami, Fla.	113	56	23	19	7	7	-
Norfolk, Va.	58	31	9	6	8	4	2
Richmond, Va.	72	45	16	7	4	-	13
Savannah, Ga.	71	44	16	6	3	2	5
St. Petersburg, Fla.	65	49	6	3	1	6	5
Tampa, Fla.	76	38	17	13	3	5	3
Washington, D.C.	222	116	50	22	11	22	7
Wilmington, Del.	18	11	6	-	-	1	-
E.S. CENTRAL	898	600	181	64	25	25	35
Birmingham, Ala.	149	87	33	17	7	5	3
Chattanooga, Tenn.	69	46	17	4	2	-	8
Knoxville, Tenn.	87	60	19	5	1	2	6
Louisville, Ky.	129	94	21	6	4	4	7
Memphis, Tenn.	191	137	36	14	3	1	-
Mobile, Ala.	88	62	14	4	3	2	1
Montgomery, Ala.§	50	36	10	3	-	1	4
Nashville, Tenn.	135	78	31	11	5	10	6
W.S. CENTRAL	1,834	1,111	400	204	74	45	67
Austin, Tex.	68	44	14	5	2	3	4
Baton Rouge, La.	69	40	20	8	-	1	2
Corpus Christi, Tex.	44	27	7	9	1	-	1
Dallas, Tex.	228	122	55	31	10	10	3
El Paso, Tex.	51	28	17	3	2	1	3
Fort Worth, Tex	64	44	13	1	6	-	4
Houston, Tex.§	734	436	169	89	24	16	18
Little Rock, Ark.	68	45	14	4	3	2	4
New Orleans, La.	174	90	35	28	16	5	-
San Antonio, Tex.	199	138	34	17	7	3	14
Shreveport, La.	47	29	11	4	2	1	7
Tulsa, Okla.	88	68	11	5	1	3	7
MOUNTAIN	728	487	136	64	20	20	32
Albuquerque, N. Mex.	88	61	12	9	2	3	2
Colo. Springs, Colo.	34	21	8	1	2	2	4
Denver, Colo.	130	80	27	17	3	3	4
Las Vegas, Nev.	129	79	36	10	2	2	5
Ogden, Utah	16	14	1	1	-	-	1
Phoenix, Ariz.	170	115	27	17	4	7	4
Pueblo, Colo.	33	27	2	2	2	-	4
Salt Lake City, Utah	33	22	3	1	4	3	2
Tucson, Ariz.	95	68	20	6	1	-	6
PACIFIC	1,941	1,256	365	194	66	50	112
Berkeley, Calif.	16	12	2	1	-	1	1
Fresno, Calif.	90	59	13	7	6	5	11
Glendale, Calif.	27	21	5	1	-	-	-
Honolulu, Hawaii	85	58	17	6	1	3	5
Long Beach, Calif.	78	53	10	9	2	4	13
Los Angeles Calif.	611	366	128	74	25	8	28
Oakland, Calif.	61	34	14	3	5	5	4
Pasadena, Calif.	42	29	7	3	2	1	1
Portland, Oreg.	122	86	22	7	3	4	3
Sacramento, Calif.	140	87	27	17	6	3	15
San Diego, Calif.	120	86	18	11	3	2	11
San Francisco, Calif.	145	83	24	29	4	5	3
San Jose, Calif.	157	113	28	10	3	3	8
Seattle, Wash.	131	85	32	7	2	5	2
Spokane, Wash.	57	39	8	7	2	1	3
Tacoma, Wash.	59	45	10	2	2	-	4
TOTAL	12,865††	8,252	2,579	1,232	396	390	678

*Mortality data in this table are voluntarily reported from 121 cities in the United States, most of which have populations of 100,000 or more. A death is reported by the place of its occurrence and by the week that the death certificate was filed. Fetal deaths are not included.

**Pneumonia and influenza.

†Because of changes in reporting methods in these 3 Pennsylvania cities, these numbers are partial counts for the current week. Complete counts will be available in 4 to 6 weeks.

††Total includes unknown ages.

§Data not available. Figures are estimates based on average of past available 4 weeks.

Aeromonas *Wound Infections — Continued*

Although the California surveillance data provide limited information about the morbidity of the wound infections reported, they suggest that the public health impact of these soft tissue infections is low and may be determined more by the nature of the underlying injury than by the presence of *Aeromonas* organisms.

The California data do not provide information on case management. However, one reported case series (*7*) suggests that surgical debridement is an important component of treatment and has enabled resolution of the infection when either no antibiotics or ineffective antibiotics (i.e., antibiotics to which the organisms were resistant) were used. These findings, as well as the occurrence of *Aeromonas* organisms in mixed infections, suggest that in some cases *Aeromonas* species may be colonizers in wounds rather than pathogens.

References

1. Von Graevenitz A. *Aeromonas* and *Plesiomonas*. In: Lennette EH, Ballows A, Hausler WJ, Shadomy HJ, ed. Manual of clinical microbiology. Washington, DC: American Society for Microbiology, 1985:278–81.
2. Ewing WH, Hugh R, Johnson JG. Studies on the *Aeromonas* group. Atlanta, Georgia: US Department of Health, Education, and Welfare, Public Health Service, Communicable Disease Center, 1961.
3. Von Graevenitz A, Mensch AH. The genus *Aeromonas* in human bacteriology: report of 30 cases and review of the literature. N Engl J Med 1968;278:245–9.
4. Holmberg SD, Schell WL, Fanning GR, et al. *Aeromonas* intestinal infections in the United States. Ann Intern Med 1986;105:683–9.
5. Janda JM, Duffey PS. Mesophilic Aeromonads in human disease: current taxonomy, laboratory identification and infectious disease spectrum. Rev Infect Dis 1988;10:980–97.
6. Popoff MY, Coynault C, Kiredjian M, Lemelin M. Polynucleotide sequence relatedness among motile *Aeromonas* species. Curr Microbiol 1981;5:109–14.
7. Isaacs RD, Paviour SD, Bunker DE, Land SDR. Wound infection with aerogenic *Aeromonas* strains: a review of twenty-seven cases. Eur J Clin Microbiol Infect Dis 1988;7:355–60.

Progress in Chronic Disease Prevention

Malignant Melanoma of the Skin — New Jersey, 1979–1985

Each year, several thousand New Jersey residents are diagnosed with skin cancer. Although most types of skin cancer can be treated successfully, one—malignant melanoma—has a high mortality rate. This report summarizes a study by the New Jersey State Department of Health (NJSDH) that examined the incidence and mortality rates for malignant melanoma in New Jersey residents from 1979 through 1985 and compared those rates with U.S rates for the same period (*1*).

Incidence data were obtained from the New Jersey State Cancer Registry (NJSCR) and analyzed by the NJSDH's Data Applications Program. The melanoma incidence data include all cases reported to the NJSCR from hospitals, laboratories, and private practitioners and cases identified through New Jersey death certificate matching. The mortality data were extracted from the state's vital statistics mortality data tapes and included cases of malignant melanoma of the skin (*International Classification of Diseases, Ninth Revision*, rubrics 172.0–172.9) listed as the underlying cause of death. Incidence and mortality rates were age-adjusted to the 1970 U.S. population. National incidence rates were obtained from the Surveillance, Epidemiology, and End Results

Malignant Melanoma — Continued

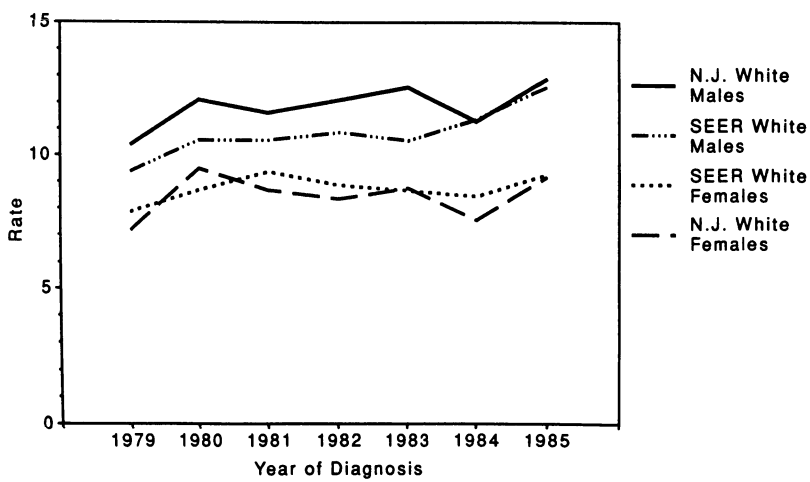
(SEER) Program of the National Cancer Institute.* The mortality rates include the entire United States, age-adjusted to the 1970 U.S. population. Because incidence and mortality rates for blacks in New Jersey were low, they were not included in this analysis.

From 1979 through 1985, an average of 381 males and 324 females were diagnosed annually in New Jersey with malignant melanoma, and an average of 111 males and 79 females died each year from the disease. White males had the highest average incidence rate for the 7-year period (11.9 cases per 100,000, compared with 10.9 per 100,000 from SEER data) (Figure 1). The incidence rate for white females was 8.5 per 100,000 (compared with 8.8 per 100,000 from SEER) (Figure 1). Mortality rates for whites were higher for males than for females; the age-adjusted mortality rates for both sexes in New Jersey were higher than the national rates. The mortality rate was 3.4 per 100,000 for New Jersey males and 1.6 per 100,000 for New Jersey females; national mortality rates were 3.0 per 100,000 for males and 1.6 per 100,000 for females (*3*). In New Jersey, 73% of the melanomas were staged as local, compared with 78% in the SEER Program. The most common site for melanoma of the skin in white males was the trunk (47.9%), followed by the arm and shoulder (22.7%), face (12.3%), leg and hip (10.4%), and scalp and neck (6.7%). For white females, the most common site was the leg and hip (38.1%), followed by the arm and shoulder (24.0%), trunk (23.5%), face (10.1%), and scalp and neck (4.3%).

In response to this study, the NJSDH and the Medical Society of New Jersey are preparing a press release to the public and health-care community before the summer season emphasizing the dangers of excessive sun exposure, which has been linked to malignant melanoma (*5*). The NJSDH has advised all persons to follow the guidelines set by the National Institutes of Health (NIH) to prevent and reduce the risk for malignant melanoma and to take precautions against excessive sun exposure (*2*).

*The SEER Program comprises cases from nine population-based cancer registries throughout the United States.

FIGURE 1. Age-adjusted incidence rates* for melanoma of the skin – New Jersey and Surveillance, Epidemiology, and End Results (SEER) Program, 1979–1985



*Per 100,000 population, adjusted to the 1970 U.S. standard population.

Malignant Melanoma — Continued

Reported by: WE Parkin, DVM, ME Petrone, MD, DM Harlan, MS, BA Kohler, MPH, HC Lewis, MPH, Div of Epidemiology and Disease Control, Cancer Registry and Data Applications Programs, K Mertz, MD, K Spitalny, MD, State Epidemiologist, New Jersey State Dept of Health.

Editorial Note: Since the 1970s, the incidence and mortality rates for malignant melanoma of the skin have increased steadily in the United States. From 1973 to 1985, the national mortality rate for melanoma of the skin rose 25.9%, a greater percentage increase for any neoplasm except lung cancer (*3*). During the same period, the mortality rate for white males in the United States increased 34.1%, the highest percentage increase of any cancer for this population (*3*). In 1989, an estimated 27,000 new cases of malignant melanoma will occur in the United States, and 6000 persons will die from the disease (*4*).

Melanoma has been associated with intermittent exposure to high-intensity ultraviolet radiation (*5–7*). The emphasis on suntanning and outdoor recreation in the United States may account for the high rate of increase in melanoma cases (*4*).

To minimize the risk for melanoma, persons should follow the NIH guidelines (*2*), which recommend 1) minimizing exposure to the sun between 10 a.m. and 3 p.m., when the sun's rays are most intense; 2) wearing a hat that protects the head and face and clothing that protects the back and shoulders from sunburn; 3) using a waterproof sunscreen with a sun protection factor of ≥15 on exposed skin; and 4) consulting with a physician about medications that can increase sensitivity to ultraviolet light.

References

1. Mertz K, Lewis HC Jr, Meinert LA. Malignant melanoma of the skin. NJ Med 1990;87:401–7.
2. National Institutes of Health. Sunlight, ultraviolet radiation and the skin: Consensus Development Conference statement. Bethesda, Maryland: National Institutes of Health, 1989.
3. National Institutes of Health. 1987 Annual cancer statistics review. Bethesda, Maryland: US Department of Health and Human Services, Public Health Service, 1988; NIH publication no. 88-2789.
4. American Cancer Society. Cancer facts and figures—1989. Atlanta: American Cancer Society, 1989.
5. Mackie RM. The role of sunlight in the etiology of cutaneous malignant melanoma. Clin Exper Dermatol 1981;6:407–10.
6. Armstrong BK, Holman CD. Malignant melanoma of the skin. Bull WHO 1987;65:245–52.
7. Armstrong BK. Epidemiology of malignant melanoma: intermittent or total accumulated exposure to the sun? J Dermatol Surg Oncol 1988;14:853–7.

Epidemiologic Notes and Reports

Swimming-Associated Cryptosporidiosis — Los Angeles County

From July 13 through August 14, 1988, 44 persons in five separate swimming groups developed a gastrointestinal illness after using a swimming pool in Los Angeles County. The outbreak began several days after an unintentional human defecation in the pool during the first week of July. When the outbreak was reported to the Los Angeles County Department of Health Services (LACDHS) in early August, LACDHS initiated an epidemiologic investigation.

The affected groups had repeated pool contact in July and included a high school water polo team, a SCUBA class, a "masters" group, an elementary school group,

Swimming-Associated Cryptosporidiosis — Continued

and the pool lifeguards. Sixty (73%) of 82 persons from the five groups were interviewed. A case was defined as any person with watery diarrhea or diarrhea plus cramping and/or fever during July or August.

The overall attack rate was 73% (44/60) and ranged from 47% to 100% by group (Table 1). Illness was characterized by watery diarrhea (88%), abdominal cramps (86%), and fever (60%) and was often protracted (median duration: 5 days; range: 1–30 days). Two persons, both from the SCUBA class, were hospitalized. *Cryptosporidium* was identified in stool specimens by modified acid-fast staining from seven of 11 patients tested. Results of other laboratory examinations, including bacterial culturing for *Salmonella, Shigella,* and *Campylobacter* and testing for ova and parasites, were negative. Assessment for viral agents was not performed.

For all persons with pool contact during the outbreak period, the attack rate was highest among those with extensive (>3 total hours) water exposure ($p<0.01$, Fisher's exact test; relative risk = 2.2; 95% confidence interval = 1.1–4.4). No other common exposures or risk factors were identified. Review of surveillance data revealed no increase of cryptosporidiosis or diarrheal illness during July or August in Los Angeles County or the community affected by the outbreak. Pool water was not tested for *Cryptosporidium,* and the person who fecally contaminated the pool was not examined for *Cryptosporidium* infection.

The pool implicated in this outbreak is a 100,000-gallon pool at a school in Los Angeles County. Inspection of the pool during the outbreak period confirmed adequate chlorine levels (2 ppm) but detected a 30% diminished filtration flow rate and established that one of three diatomaceous earth (DE) filters was inoperative. The filtration system was repaired on August 3, and no additional cases of diarrhea were subsequently identified among newly exposed swimmers.

Reported by: FJ Sorvillo, MPH, K Fujioka, PhD, M Tormey, MPH, R Kebabjian, RS, W Tokushige, L Mascola, MD, S Schweid, M Hillario, SH Waterman, MD, Los Angeles County Dept of Health Svcs. Parasitic Diseases Br, Div of Parasitic Diseases, Center for Infectious Diseases, CDC.

Editorial Note: Outbreaks of giardiasis, Norwalk gastroenteritis, and adenovirus types 3 and 4 associated with swimming pool contact have been reported (*1–4*). In each outbreak, inadequate pool maintenance was an important contributing factor.

The clinical features and laboratory findings in this investigation are consistent with an outbreak of cryptosporidiosis. Moreover, the investigation suggests that *Cryptosporidium* may be acquired through recreational water contact. Resistance of *Cryptosporidium* to chlorination (*5*), an inadequately maintained filtration system, and repeated and prolonged exposure may have contributed to the size and extent of

TABLE 1. Swimming-associated cryptosporidiosis, by swimming group and patient age — Los Angeles County, July 13–August 14, 1988

Swimming group	No. interviewed	Age (yrs) Range	Age (yrs) Median	Ill No.	Ill (%)
SCUBA class	13	16–34	27	13	(100)
"Masters" group	13	20–57	27	11	(85)
Pool lifeguards	4	14–20	18	3	(75)
Water polo team	11	13–16	15	8	(73)
Elementary school group	19	5–39	6	9	(47)
Total	**60**	**5–57**		**44**	**(73)**

Swimming-Associated Cryptosporidiosis — Continued

this outbreak. Continued pool use and possible ongoing contamination by infected persons, many of whom continued to swim despite their illness, could also have sustained transmission.

Cryptosporidium oocysts are resistant to chlorine. Because *Cryptosporidium* oocysts are small (4–6 μ), rapid sand filters commonly used in swimming pools may not be effective in filtering oocysts. However, evidence suggests that a well-maintained, fine-grade DE filtration system may remove *Cryptosporidium* (*6*). Further study is needed to assess the capability of different filtration devices to remove *Cryptosporidium* oocysts from swimming pool water.

Recommendations for managing swimming pools that have been fecally contaminated include prohibition of swimming until the chlorine level and contact time are sufficient to kill *Giardia* cysts (*1*). Given the ineffectiveness of chlorine against *Cryptosporidium*, greater consideration should be given to control strategies that use effective filtration (e.g., DE filters) or to draining the pool and replacing contaminated filter media in filters not considered effective against *Cryptosporidium*. In systems that use DE filters, one option may be to close contaminated pools until relatively complete filtration has occurred (typically three turnovers or approximately 1 day).

References

1. Porter JD, Ragazzoni HP, Buchanon JD, Waskin HA, Juranek DD, Parkin WE. *Giardia* transmission in a swimming pool. Am J Public Health 1988;78:659–62.
2. Kappus KF, Marks JS, Holman RC, et al. An outbreak of Norwalk gastroenteritis associated with swimming in a pool and secondary person-to-person transmission. Am J Epidemiol 1982;116:834–9.
3. Martone WJ, Hierholzer JC, Keenlyside RA, Fraser DA, D'Angelo LJ, Winkler WG. An outbreak of adenovirus type 3 disease at a private recreation center swimming pool. Am J Epidemiol 1980;111:229–37.
4. D'Angelo LJ, Hierholzer JC, Keenlyside RA, Anderson LJ, Martone WJ. Pharyngoconjunctival fever caused by adenovirus type 4: report of a swimming pool-related outbreak with recovery of virus from pool water. J Infect Dis 1979;140:42–7.
5. Campbell I, Tzipori AS, Hutchison G, Angus KW. Effect of disinfectants on survival of *Cryptosporidium* oocysts. Vet Rec 1982;11:414–5.
6. Lange KP, Bellamy WD, Hendricks DW, Logsdon GS. Diatomaceous earth filtration of *Giardia* cysts and other substances. Journal of the American Water Works Association 1986:76–84.

[redacted]

The *Morbidity and Mortality Weekly Report* is prepared by the Centers for Disease Control, Atlanta, Georgia, and available on a paid subscription basis from the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402, (202) 783-3238.

The data in this report are provisional, based on weekly reports to CDC by state health departments. The reporting week concludes at close of business on Friday; compiled data on a national basis are officially released to the public on the succeeding Friday. The editor welcomes accounts of interesting cases, outbreaks, environmental hazards, or other public health problems of current interest to health officials. Such reports and any other matters pertaining to editorial or other textual considerations should be addressed to: Editor, *Morbidity and Mortality Weekly Report*, Centers for Disease Control, Atlanta, Georgia 30333; telephone (404) 332-4555.

☆U.S. Government Printing Office: 1990-731-103/02075 Region IV

HHS Publication No. (CDC) 90-8017