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Epidemiologic Notes and Reports

Cercarial Dermatitis Outbreak at a State Park – Delaware, 1991

On October 28, 1991, an employee of the Division of Public Health (DPH), Delaware Department of Health and Social Services, reported that her son and at least 10 other persons who had recently participated in a high school biology class field trip to Cape Henlopen State Park had contracted pruritic dermatitis. The Delaware Health Monitoring and Program Consultation Section conducted an investigation to confirm the reported presumptive diagnosis of cercarial dermatitis and to assess the extent of this outbreak.

On October 19, 1991, 37 students aged 13–16 years (median: 14.6 years) and their teacher spent 1.2–6.0 hours (median: 2.8 hours) wading at low tide in a shellfishing area. The weather was sunny and unseasonably warm; the air temperature was 80 F (27 C), the highest recorded in October 1991. During October 20–28, 29 students developed pruritic dermatitis; 11 visited their physicians for treatment.

On November 7, all of the students and their teacher were examined and interviewed by staff from the DPH. A case was defined as pruritic papular or papulovesicular dermatitis that developed in a person ≥12 hours after seawater exposure. Of 37 (97%) persons who had had contact with seawater, 30 (81%) met the case definition (Table 1). Lesions were restricted to the parts of the body exposed to seawater (i.e., legs, arms, and abdomen); the incubation period ranged from 14 hours to 14 days. Pustules on four persons represented secondary bacterial infections that probably resulted from scratching of vesicles.

Cases occurred among five of 11 persons who wore long pants, compared with 25 (96%) of 26 who wore shorts (relative risk = 0.5; 95% confidence interval = 0.3–0.9). Promptly drying the skin with a towel did not alter the risk for dermatitis. The only person who was not exposed to seawater did not develop dermatitis.

Two persons were treated with oral prednisone; in one, manifestations recurred after completion of a 1-week course, indicating persistence of cercarial antigen in the skin.

Cercarial Dermatitis — Continued

On November 7 and 8, mud-flat snails (*Nassarius obsoletus*) were collected from the site of the field trip. Snails were isolated in culture dishes and examined after 24 hours for the presence of released cercariae. Two specimens of a brevifurcate apharyngeate cercaria were found in a dish containing two snails. Their morphology was consistent with *Microbilharzia variglandis*, an avian schistosome implicated as a causative agent of cercarial dermatitis. Shedding of *M. variglandis* was not observed in 936 snails examined at CDC. An additional 300 snails were then crushed and examined for trematode infections; two (0.7%) were infected with *M. variglandis*, each with more than 1000 mature cercariae and other cercariae in various stages of development.

Although 10 other groups were identified who had exposure to seawater at the same location during August 8–October 31, 1991, none reported illness. Two of 18 physicians who were contacted in Kent and Sussex counties reported having diagnosed and/or treated 12 cases during 1991 that were not related to this outbreak; however, the location of exposure to seawater was unknown for these patients.

The DPH recommended to park officials that they advise persons wading in the shellfishing area to wear protective clothing (e.g., long pants, hip boots, and waders) and that this advisory should remain in effect until December 31, when cold water temperatures would reduce unprotected water contacts.

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Editorial Note: Cercarial dermatitis (i.e., swimmer's itch) is a cutaneous inflammatory response associated with penetration of the skin by cercariae, the free-swimming larval stage of bird schistosomes. Cercarial dermatitis can occur worldwide; in North America, cases have been reported from numerous localities in the United States, Canada, and Mexico. The distinct aspects of cercarial-induced dermatitis (*1*) that differentiate it from a dermatitis of bacterial etiology were observed in this park-associated outbreak. Symptoms include reddening and itching of exposed skin in the water or immediately after emerging, indicating initial penetration of cercariae through the skin, and delayed onset of pruritic raised papules that may become vesicular.

TABLE 1. Clinical features in 30 persons with cercarial dermatitis* — Delaware, October 1991

Clinical features	No.	(%)
During exposure or within 2 hours of exposure		
Itching	24	(80)
Macular rash	6	(20)
≥12 hours after exposure		
Itching	30	(100)
Papular lesions	30	(100)
Vesicular lesions	25	(83)
Clear halo around lesions	6	(20)
Secondary infected lesions	4	(13)
Generalized rash	1	(3)

*Defined as pruritic papular or papulovesicular dermatitis that developed in a person ≥12 hours after seawater exposure.

Cercarial Dermatitis — Continued

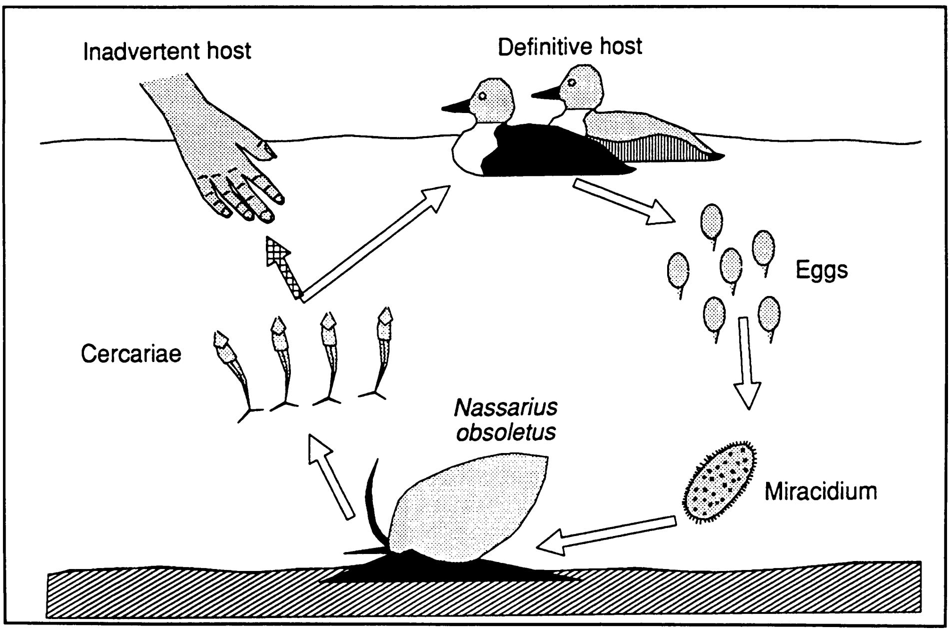
Typically, hosts of avian schistosomes are migratory waterbirds, including shorebirds, ducks, and geese. Adult worms found in the blood vessels of the avian hosts produce eggs that are passed in feces. On exposure to water, the eggs hatch and liberate a miracidium that infects a suitable molluscan intermediate host. The parasite develops in the snail to produce cercariae that are released under appropriate conditions and penetrate the skin of birds to complete the cycle (Figure 1). Humans are inadvertent hosts; cercariae penetrate the skin but do not develop further. A number of species of dermatitis-producing cercariae have been described from both freshwater and saltwater environments, and exposure to either type of cercariae will sensitize persons to both (*2*).

Previous contact with cercariae leads to a more immediate and intense immune response. This sensitization phenomenon explains the wide range of incubation periods reported in cercarial dermatitis outbreaks (*1*). Symptomatic treatment of the dermatitis includes antihistaminic and antipruritic topical medications.

In this investigation, the low infection rate of *M. variglandis* in the mud-flat snails suggests few snails were infected as a result of the fall bird migration (*3*). However, trematode life cycles of the type exemplified by *M. variglandis* include amplification of parasite larvae in the snail host that results in the release of thousands of cercariae from a single snail on a daily basis.

Environmental conditions reported to be associated with shedding of *M. variglandis* include low tide, calm water, and sunny weather during the colder months of the year (*2*). The mechanism by which these conditions trigger release of cercariae of *M. variglandis* from infected snails is not well understood; however, all these conditions were present at the time of the Delaware outbreak.

FIGURE 1. Life cycle of *Microbilharzia variglandis*



Cercarial Dermatitis — Continued

Focal mollusciciding, an established control measure in freshwater, is not effective in marine settings that are subject to wave action and/or tidal movement. Control and prevention of this condition in marine environments involve recognizing areas in which dermatitis-producing cercariae may be encountered. Although the Delaware outbreak appears to have been restricted to a limited area, outbreaks can occur over larger areas, such as one that occurred on the southwestern shore of Connecticut in September 1983 (Connecticut State Department of Health Services, unpublished data, 1983).

Outbreaks of cercarial dermatitis occur unpredictably, and routine surveillance for cases and outbreaks is impracticable. A timely public health response depends on early recognition of cases by local physicians who diagnose or suspect cercarial dermatitis. Appropriate preventive measures include the posting of signs that warn of the risk for contracting cercarial dermatitis in the affected area and recommendations to curtail water-related activities and wear protective clothing.

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HIV Infection in Two Brothers Receiving Intravenous Therapy for Hemophilia

In January 1992, a state health department notified CDC about a 4-year-old boy with hemophilia who had become infected with human immunodeficiency virus (HIV). The virus was genetically similar to that of his 8-year-old brother, who had been previously infected with HIV through receipt of unscreened blood products for his hemophilia. This report summarizes the epidemiologic and laboratory findings of the investigation, which strongly suggest that the younger child became infected following exposure to needles or syringes used to provide intravenous therapy and that had been contaminated with his brother's blood.

From 1983 to 1985, the older brother, who has severe factor VIII deficiency (hemophilia A), received cryoprecipitate and factor VIII concentrate made from plasma that was not screened for HIV antibody. In 1986, HIV antibody was detected in his serum. In April 1991, his CD4+ T-lymphocyte count declined to 162 cells/µL, and zidovudine therapy was initiated.

The younger brother also has severe hemophilia A. In 1987, he received 5 bags of cryoprecipitate from five HIV-seronegative donors. Since November 1987, he has received treatment with heat-treated factor VIII concentrate. The only other blood product he has received was a transfusion of packed red blood cells from an HIV-seronegative donor in April 1988. During routine testing in April and August 1990, his serum was negative for HIV antibody by enzyme immunoassay (EIA); in December 1991, however, it was positive for HIV antibody by EIA and Western blot (WB). Three subsequent specimens sent to three different laboratories, including CDC, were also positive by EIA and WB.

Nucleotide sequencing of HIV-1 DNA performed by CDC on lymphocyte specimens from each boy indicated that the HIV-1 strains from the two brothers were genetically

HIV Infection — Continued

similar. A 345-base–pair region from the C2-V3 domains encoding part of the HIV-1 envelope glycoprotein (gp120) was amplified by polymerase chain reaction and directly sequenced.* The nucleotide sequences were identical for the HIV-1 strains from the two boys at 340 (98.6%) of the 345-base–pair locations analyzed. Identical results (with the same five nucleotide differences) were obtained from four aliquots of specimens taken from each child on each of two blood draws.

Both boys have required frequent intravenous factor replacement to treat hemarthroses, bruising, or intramuscular or external hemorrhages. The boys' mother administered factor concentrate infusions at home to the older brother beginning in May 1990, and to the younger brother beginning January–March 1991. Although she did not keep treatment records, she estimates that through December 1991, she administered approximately 100 treatments to the older brother and approximately 25 to the younger brother. The boys' mother was the only person who administered these infusion treatments at home, and all equipment used was disposable. On approximately 15 occasions, the mother treated the two boys in immediate succession but in no particular order. During sessions when she treated both boys, she placed used needles and other infusion paraphernalia in an open paper or plastic bag within reach of the child being treated until infusion was complete for both children. She did not recall any episodes of reuse of infusion paraphernalia and was unaware of any needlestick injuries or other exposure of the younger child to the older brother's blood.

From February 1990 through December 1991 (the period when the younger child was likely to have become infected†), on 14 occasions, treatments of factor concentrate were administered to both boys by the same health-care provider at approximately the same time—one time in an emergency department and 13 times in a hematology clinic. During this period, the two brothers were hospitalized together for a total of 15 days. While hospitalized, they received factor concentrate administered by the same health-care provider at approximately the same time on two occasions. There was no indication that the younger child was exposed to his brother's blood in any of these settings.

From February 1990 through December 1991, the older brother had two episodes of external bleeding. In July 1990, he was hospitalized for gum bleeding for 11 days; in October 1991, he had an episode of gum bleeding that was easily controlled and lasted less than 1 hour. Although the children may have played together during these episodes, caretakers recalled no specific incidents when the younger child was exposed to his brother's blood. The younger brother was not known to have had cuts or dermatitis at the time of the older brother's bleeding episodes.

The two boys did not bleed as a result of fighting or play with sharp objects. There was no evidence of exposures to other persons with HIV infection. The boys lived with their mother and two young siblings who do not have hemophilia. In addition to their mother, they sometimes received care from their maternal grandparents, maternal aunt, and maternal uncle. Serum samples from each of these family members were negative for antibody to HIV.

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*Such direct nucleotide sequencing provides the most common nucleotide at each genetic position for the several HIV-1 strains that may infect a person.

†This interval is defined by the period that begins 6 months before the last HIV-seronegative specimen was obtained and ends at the time the first HIV-seropositive specimen was obtained. In general, 95% of persons infected with HIV will develop antibody within 6 months of infection.

HIV Infection — Continued

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Editorial Note: Two findings from this investigation indicate that the 4-year-old child was almost certainly infected with HIV originating from his older brother. First, the younger brother had no other documented exposures to HIV. During the period when he most likely became infected with HIV, he received only a treated factor VIII product that has not been associated with HIV infection among the approximately 10,000 persons with clotting factor disorders who are being monitored by the National Hemophilia Foundation in cooperation with CDC and the Food and Drug Administration. Second, the concordance of DNA sequences between HIV strains from the two brothers was high and comparable to what has been reported for known epidemiologically linked infections (*1–3*).

The details of this case and accumulated knowledge about the risk for HIV transmission strongly suggest that the younger child became infected through intravenous or percutaneous exposure to his brother's blood, although no specific exposure incidents were documented. Several opportunities occurred for intravenous or percutaneous exposure to the older brother's blood (e.g., intravenous injection through inadvertent reuse of HIV-contaminated infusion paraphernalia or percutaneous inoculation through an unwitnessed needlestick injury).

The younger child theoretically could have been infected through unrecognized exposure of his mucous membrane or nonintact skin to his brother's blood (*4*). However, the risk for infection associated with such exposure appears to be small; a study following up more than 1000 mucous membrane and 2700 cutaneous exposures among health-care workers did not detect transmission of HIV (*5*).

The younger child was unlikely to have been infected as a result of casual household contact with his brother. Although suggested in one report (*6*), the possibility of HIV transmission by casual household contact has not been documented. In addition, all other household contacts of the older brother in this case were HIV-seronegative, and several studies involving a cumulative total of more than 1000 nonsexual household contacts of other persons with HIV infection (including siblings, parents, and children) have not identified evidence of transmission (*7,8*).

This case highlights the need for careful adherence to published guidelines to prevent transmission of HIV and other bloodborne pathogens in settings where health care is provided[§] (*9*). Because of social, medical, and economic benefits, parenteral therapy for HIV infection and other conditions is being administered at home more often; therefore, appropriate infection-control practices need to be emphasized in the home as well as in health-care facilities (*10*). In particular, disposal of needles and other injection equipment in a puncture-resistant container immediately after use can prevent inadvertent reuse of such equipment and reduce the risk for inadvertent needlestick injuries. The risk for skin and mucous-membrane exposure to blood can be reduced by using protective barriers (e.g., gloves) and by immediate and thorough washing of skin surfaces if contact with blood occurs. Additionally, persons providing medical and nursing care in the home should receive training in infection-control practices; have adequate supplies of gloves, needles, and

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[§]Single copies of this report will be available free until April 10, 1993, from the CDC National AIDS Clearinghouse, P.O. Box 6003, Rockville, MD 20849-6003; telephone (800) 458-5231.

HIV Infection — Continued

puncture-resistant containers; and take precautions to exclude young children from situations where exposure to blood or sharp objects is likely (e.g., during medical procedures performed on others).¶

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¶Information about infection control for persons providing home health care is included in the brochure "Caring for Someone with AIDS: Information for Friends, Relatives, Household Members, and Others Who Care for a Person with AIDS at Home." Single copies of this brochure are available from the CDC National AIDS Clearinghouse.

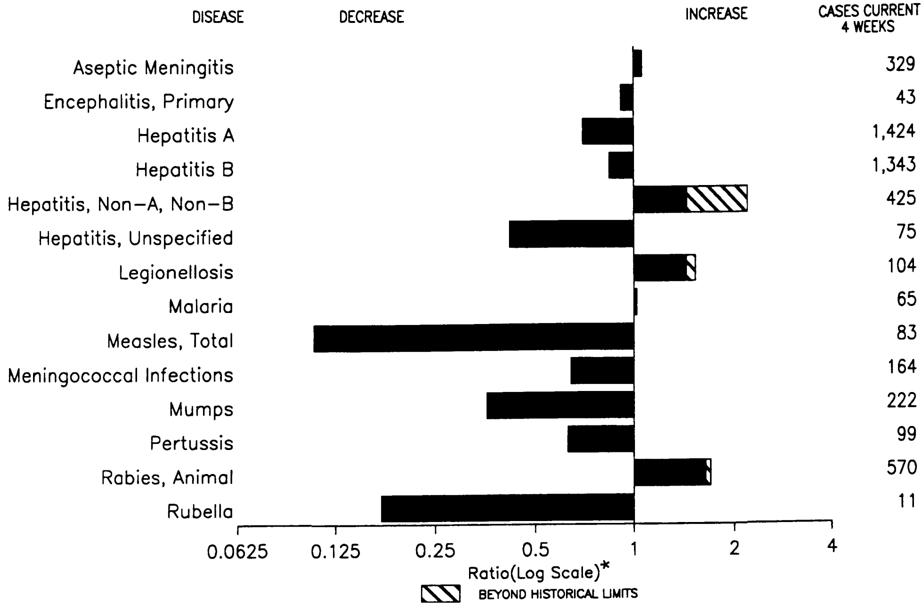
Current Trends

Selected Behaviors that Increase Risk for HIV Infection Among High School Students — United States, 1990

From January 1987 through December 1991, the cumulative number of acquired immunodeficiency syndrome (AIDS) cases among adolescents aged 13–19 years in the United States increased from 127 (*1*) to 789 (*2*), and in 1989, AIDS became the sixth leading cause of death for persons aged 15–24 years (*3*). Because the median incubation period between infection with human immunodeficiency virus (HIV) and onset of AIDS is nearly 10 years (*4*), many 20–29-year-olds with AIDS may have been infected during adolescence. Surveillance of selected sexual and injecting-drug–use (IDU) behaviors among adolescents can provide critical information about the risk for HIV infection among this group. This article presents self-reported data from 1990 about HIV-risk behaviors among U.S. high school students and describes strategies to reduce HIV infection among adolescents.

(Continued on page 237)

FIGURE I. Notifiable disease reports, comparison of 4-week totals ending April 4, 1992, with historical data — United States



*Ratio of current 4-week total to the mean of 15 4-week totals (from previous, comparable, and subsequent 4-week periods for the past 5 years). The point where the hatched area begins is based on the mean and two standard deviations of these 4-week totals.

TABLE I. Summary — cases of specified notifiable diseases, United States, cumulative, week ending April 4, 1992 (14th Week)

	Cum. 1992		Cum. 1992
AIDS	12,770	Measles: imported	47
Anthrax	-	indigenous	328
Botulism: Foodborne	7	Plague	-
Infant	14	Poliomyelitis, Paralytic*	-
Other	-	Psittacosis	12
Brucellosis	3	Rabies, human	-
Cholera	20	Syphilis, primary & secondary	9,273
Congenital rubella syndrome	3	Syphilis, congenital, age < 1 year	-
Diphtheria	1	Tetanus	4
Encephalitis, post-infectious	21	Toxic shock syndrome	73
Gonorrhea	129,767	Trichinosis	2
Haemophilus influenzae (invasive disease)	438	Tuberculosis	4,531
Hansen Disease	29	Tularemia	16
Leptospirosis	7	Typhoid fever	81
Lyme Disease	986	Typhus fever, tickborne (RMSF)	41

*Nine suspected cases of poliomyelitis have been reported in 1991; 4 of the 8 suspected cases in 1990 were confirmed, and all were vaccine associated.

TABLE II. Cases of selected notifiable diseases, United States, weeks ending April 4, 1992, and April 6, 1991 (14th Week)

Reporting Area	AIDS	Aseptic Meningitis	Encephalitis		Gonorrhea		Hepatitis (Viral), by type				Legionellosis	Lyme Disease
			Primary	Post-infectious			A	B	NA,NB	Unspecified		
	Cum. 1992	Cum. 1992	Cum. 1992	Cum. 1992	Cum. 1992	Cum. 1991	Cum. 1992	Cum. 1992	Cum. 1992	Cum. 1992	Cum. 1992	Cum. 1992
UNITED STATES	12,770	1,160	141	21	129,767	152,398	4,587	3,815	1,040	165	349	986
NEW ENGLAND	430	92	11	-	2,866	4,076	186	180	20	14	25	62
Maine	18	6	-	-	28	34	21	8	2	-	2	-
N.H.	13	4	2	-	-	80	14	15	6	-	3	5
Vt.	3	3	1	-	6	16	2	3	1	-	1	1
Mass.	246	34	5	-	1,037	1,663	88	129	8	14	11	18
R.I.	25	45	3	-	236	310	41	12	3	-	8	24
Conn.	125	-	-	-	1,559	1,973	20	13	-	-	-	14
MID. ATLANTIC	2,671	150	9	3	10,544	19,090	407	572	120	8	113	769
Upstate N.Y.	407	61	-	-	1,715	3,304	120	122	70	3	46	544
N.Y. City	1,203	18	1	-	3,476	7,569	102	46	2	-	1	-
N.J.	698	4	-	-	1,064	2,765	68	172	35	-	19	78
Pa.	363	67	8	3	4,289	5,452	117	232	13	5	47	147
E.N. CENTRAL	1,345	173	43	3	21,628	27,785	552	517	55	9	77	22
Ohio	264	57	18	-	7,573	8,983	125	84	34	-	40	18
Ind.	155	15	2	-	2,349	3,028	162	146	-	2	4	3
Ill.	516	29	8	-	8,089	7,049	96	30	6	1	3	-
Mich.	341	69	14	3	2,943	6,869	39	166	4	6	20	1
Wis.	69	3	1	-	674	1,856	130	91	11	-	10	-
W.N. CENTRAL	362	80	3	4	6,868	7,757	531	215	78	5	12	20
Minn.	35	5	1	-	770	808	165	12	2	1	1	-
Iowa	27	16	-	2	532	533	11	12	-	-	2	6
Mo.	192	30	-	-	3,961	4,704	114	168	74	4	1	13
N. Dak.	1	1	-	-	-	19	16	1	-	-	1	-
S. Dak.	3	3	-	1	52	110	133	-	-	-	-	-
Nebr.	14	6	-	1	3	579	41	10	-	-	7	1
Kans.	90	19	2	-	1,550	1,004	51	12	2	-	-	-
S. ATLANTIC	2,945	267	24	7	48,379	45,692	310	664	107	27	50	48
Del.	28	9	3	-	446	622	8	61	-	1	5	16
Md.	366	39	6	-	4,388	4,394	69	111	11	5	8	5
D.C.	188	4	-	-	2,276	2,906	5	36	-	-	6	-
Va.	155	50	4	2	4,917	4,353	26	51	8	12	6	19
W. Va.	15	-	1	-	247	331	2	22	-	5	-	1
N.C.	174	39	8	-	6,253	8,859	23	110	33	-	9	4
S.C.	118	5	-	-	3,079	3,489	9	17	-	-	12	-
Ga.	338	33	1	-	14,935	11,678	39	86	36	-	-	1
Fla.	1,563	88	1	5	11,838	9,060	129	170	19	4	4	2
E.S. CENTRAL	429	63	6	-	12,437	13,523	78	312	339	1	16	11
Ky.	48	28	4	-	1,217	1,442	24	23	-	-	7	4
Tenn.	127	14	1	-	3,809	5,303	31	255	335	-	7	7
Ala.	169	14	-	-	4,350	3,245	11	34	4	1	2	-
Miss.	85	7	1	-	3,061	3,533	12	-	-	-	-	-
W.S. CENTRAL	1,226	46	10	1	12,219	17,100	259	257	17	23	2	7
Ark.	59	7	7	-	2,350	1,908	33	29	4	3	-	1
La.	248	4	-	-	1,752	3,491	24	36	-	1	-	-
Okla.	94	-	1	1	1,326	1,719	65	75	12	2	2	5
Tex.	825	35	2	-	6,791	9,982	137	117	1	17	-	1
MOUNTAIN	335	33	7	1	2,749	3,110	650	166	52	19	23	-
Mont.	2	-	1	-	21	21	24	16	7	-	2	-
Idaho	6	3	-	-	36	43	15	21	1	-	1	-
Wyo.	1	-	-	-	12	35	-	2	5	-	1	-
Colo.	130	11	3	1	978	836	177	32	21	11	2	-
N. Mex.	32	5	2	-	248	290	54	33	2	3	1	-
Ariz.	87	11	1	-	909	1,196	317	25	8	1	11	-
Utah	30	-	-	-	51	102	41	3	4	4	-	-
Nev.	47	3	-	-	494	587	22	34	4	-	5	-
PACIFIC	3,027	256	28	2	12,077	14,265	1,614	932	252	59	31	47
Wash.	130	-	-	-	997	1,263	144	73	28	1	2	1
Oreg.	82	-	-	-	401	526	104	78	19	1	-	-
Calif.	2,755	221	25	1	10,194	12,070	1,328	777	204	56	28	46
Alaska	7	2	3	-	204	206	6	3	1	1	-	-
Hawaii	53	33	-	1	281	200	32	1	-	-	1	-
Guam	-	-	-	-	35	-	4	2	-	2	-	1
P.R.	107	40	-	-	15	162	5	73	4	4	1	-
V.I.	2	-	-	-	29	168	5	3	-	-	-	-
Amer. Samoa	-	-	-	-	10	14	-	-	-	-	-	-
C.N.M.I.	-	-	-	-	24	2	-	-	-	-	-	-

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

TABLE II. (Cont'd.) Cases of selected notifiable diseases, United States, weeks ending April 4, 1992, and April 6, 1991 (14th Week)

Reporting Area	Malaria	Measles (Rubeola)					Menin-gococcal Infections	Mumps		Pertussis			Rubella		
		Indigenous		Imported*		Total									
	Cum. 1992	1992	Cum. 1992	1992	Cum. 1992	Cum. 1991	Cum. 1992	1992	Cum. 1992	1992	Cum. 1992	Cum. 1991	1992	Cum. 1992	Cum. 1991
UNITED STATES	178	20	328	1	47	3,061	671	47	731	32	304	575	3	44	249
NEW ENGLAND	8	-	2	-	5	10	43	-	-	-	32	71	-	4	1
Maine	-	-	-	-	-	-	3	-	-	-	2	3	-	-	-
N.H.	1	-	-	-	-	-	4	-	-	-	13	11	-	-	1
Vt.	-	-	-	-	-	4	1	-	-	-	-	3	-	-	-
Mass.	4	-	2	-	3	-	19	-	-	-	16	48	-	-	-
R.I.	1	-	-	-	-	-	-	-	-	-	-	-	-	4	-
Conn.	2	-	-	-	2	6	16	-	-	-	1	6	-	-	-
MID. ATLANTIC	55	1	59	-	6	1,821	68	5	54	9	48	67	1	4	150
Upstate N.Y.	8	-	-	-	1	53	30	1	24	-	17	38	1	3	142
N.Y. City	23	1	25	-	1	225	5	-	4	2	2	-	-	-	-
N.J.	16	-	33	-	1	505	14	-	7	-	8	4	-	1	-
Pa.	8	-	1	-	3	1,038	19	4	19	7	21	25	-	-	8
E.N. CENTRAL	8	-	6	-	2	55	103	2	78	-	20	110	-	5	7
Ohio	1	-	2	-	1	1	25	-	25	-	5	27	-	-	-
Ind.	1	-	4	-	-	-	4	-	3	-	7	20	-	-	1
Ill.	1	-	-	-	-	24	40	-	21	-	3	28	-	5	3
Mich.	4	-	-	-	-	25	27	2	27	-	1	20	-	-	3
Wis.	1	-	-	-	1	5	7	-	2	-	4	15	-	-	-
W.N. CENTRAL	12	-	5	-	-	11	29	1	17	1	20	47	1	2	5
Minn.	5	-	3	-	-	2	5	-	1	-	2	20	-	-	4
Iowa	2	-	-	-	-	5	3	-	4	-	1	4	-	-	-
Mo.	3	-	1	-	-	-	9	-	9	1	12	16	-	-	1
N. Dak.	-	U	-	U	-	-	-	U	-	U	2	1	U	-	-
S. Dak.	1	-	-	-	-	-	-	-	-	-	1	1	-	-	-
Nebr.	-	U	-	U	-	-	3	U	1	U	2	4	U	-	-
Kans.	1	-	1	-	-	4	9	1	2	-	-	1	1	2	-
S. ATLANTIC	35	4	58	-	3	179	128	30	365	1	40	31	-	3	1
Del.	2	-	-	-	-	15	2	-	-	-	-	-	-	-	-
Md.	12	-	1	-	2	56	13	2	31	-	14	5	-	-	-
D.C.	2	-	-	-	-	-	-	-	2	-	-	-	-	1	-
Va.	6	-	4	-	1	18	21	-	18	-	2	4	-	-	-
W. Va.	-	-	-	-	-	-	10	1	12	-	-	6	-	-	-
N.C.	6	4	19	-	-	-	25	-	68	-	6	7	-	-	-
S.C.	-	-	-	-	-	12	10	-	44	-	8	-	-	-	-
Ga.	2	-	-	-	-	-	16	-	18	-	2	6	-	-	-
Fla.	5	-	34	-	-	78	31	27	172	1	8	3	-	2	1
E.S. CENTRAL	4	6	152	-	17	1	50	-	18	1	3	17	-	2	-
Ky.	-	6	150	-	-	-	21	-	-	-	-	-	-	-	-
Tenn.	1	-	-	-	1	1	12	-	12	1	1	9	-	2	-
Ala.	3	-	-	-	-	-	17	-	4	-	2	8	-	-	-
Miss.	-	-	2	-	16	-	-	-	2	-	-	-	-	-	-
W.S. CENTRAL	2	-	-	-	-	5	36	-	77	2	13	14	-	-	1
Ark.	-	-	-	-	-	5	8	-	4	2	7	-	-	-	1
La.	-	-	-	-	-	-	4	-	8	-	-	7	-	-	-
Okla.	2	-	-	-	-	-	6	-	1	-	6	7	-	-	-
Tex.	-	-	-	-	-	-	18	-	64	-	-	-	-	-	-
MOUNTAIN	8	-	1	-	-	169	37	3	38	6	41	78	-	-	2
Mont.	-	-	-	-	-	-	7	-	-	-	-	-	-	-	-
Idaho	-	-	-	-	-	1	5	-	1	-	8	14	-	-	-
Wyo.	-	-	1	-	-	-	2	-	-	-	-	3	-	-	-
Colo.	5	-	-	-	-	1	6	1	4	6	18	31	-	-	-
N. Mex.	2	-	-	-	-	82	3	N	N	-	10	12	-	-	1
Ariz.	1	-	-	-	-	72	8	2	27	-	-	8	-	-	-
Utah	-	-	-	-	-	4	1	-	3	-	5	10	-	-	-
Nev.	-	-	-	-	-	9	5	-	3	-	-	-	-	-	1
PACIFIC	46	9	45	1	14	810	177	6	84	12	87	140	1	24	82
Wash.	2	-	-	-	7	4	25	-	5	9	22	34	-	-	-
Oreg.	6	1	3	-	-	7	31	N	N	3	9	27	-	1	-
Calif.	35	8	34	1†	6	797	113	6	77	-	52	55	1	21	81
Alaska	-	-	8	-	1	-	4	-	-	-	-	5	-	-	-
Hawaii	3	-	-	-	-	2	4	-	2	-	4	19	-	2	1
Guam	-	U	1	U	3	-	-	U	3	U	-	-	U	-	-
P.R.	-	-	5	-	-	4	3	-	-	1	6	7	-	-	-
V.I.	-	-	-	-	-	2	-	-	9	-	-	-	-	-	-
Amer. Samoa	-	-	-	-	-	24	-	-	-	26	121	-	-	-	-
C.N.M.I.	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-

*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 selected notifiable diseases, United States, weeks ending April 4, 1992, and April 6, 1991 (14th Week)

Reporting Area	Syphilis (Primary & Secondary)		Toxic-shock Syndrome	Tuberculosis		Tula-remia	Typhoid Fever	Typhus Fever (Tick-borne) (RMSF)	Rabies, Animal
	Cum. 1992	Cum. 1991	Cum. 1992	Cum. 1992	Cum. 1991	Cum. 1992	Cum. 1992	Cum. 1992	Cum. 1992
UNITED STATES	9,273	11,136	73	4,531	5,052	16	81	41	1,786
NEW ENGLAND	178	305	4	92	134	-	10	2	183
Maine	-	-	-	20	16	-	-	-	-
N.H.	-	3	3	-	-	-	-	-	-
Vt.	1	1	-	-	1	-	-	-	-
Mass.	78	159	1	44	57	-	7	1	-
R.I.	13	14	-	10	16	-	-	1	-
Conn.	86	128	-	18	44	-	3	-	183
MID. ATLANTIC	1,237	1,880	11	978	1,139	-	27	1	517
Upstate N.Y.	68	103	4	6	82	-	4	-	367
N.Y. City	705	949	-	638	716	-	8	-	-
N.J.	67	322	-	150	219	-	11	-	90
Pa.	397	506	7	184	122	-	4	1	60
E.N. CENTRAL	1,125	1,054	21	446	577	-	2	4	24
Ohio	159	155	7	86	88	-	1	3	1
Ind.	68	27	2	38	36	-	-	-	-
Ill.	576	405	3	257	316	-	-	-	4
Mich.	177	329	9	43	105	-	1	-	1
Wis.	145	138	-	22	32	-	-	1	18
W.N. CENTRAL	346	202	9	91	146	3	-	1	366
Minn.	23	21	2	22	23	-	-	-	99
Iowa	10	20	3	7	23	-	-	-	47
Mo.	266	120	1	37	59	3	-	1	2
N. Dak.	-	-	1	1	3	-	-	-	14
S. Dak.	-	1	-	10	11	-	-	-	28
Nebr.	1	1	2	2	5	-	-	-	2
Kans.	46	39	-	12	22	-	-	-	174
S. ATLANTIC	2,755	3,420	9	959	867	3	8	12	408
Del.	60	41	2	5	7	-	-	-	77
Md.	212	283	1	69	71	2	1	-	150
D.C.	141	200	-	41	52	-	1	-	5
Va.	199	280	1	97	89	1	-	-	57
W. Va.	5	8	-	16	26	-	1	-	11
N.C.	658	531	2	129	94	-	-	10	2
S.C.	350	409	1	103	104	-	-	-	29
Ga.	606	833	1	194	181	-	-	-	72
Fla.	524	835	1	305	243	-	5	2	5
E.S. CENTRAL	1,418	1,194	-	243	392	4	2	-	33
Ky.	42	25	-	91	83	1	-	-	19
Tenn.	313	461	-	4	119	3	-	-	-
Ala.	689	398	-	115	105	-	-	-	14
Miss.	374	310	-	33	85	-	2	-	-
W.S. CENTRAL	1,615	2,046	-	311	486	6	1	19	103
Ark.	267	115	-	33	50	3	-	6	11
La.	660	656	-	8	20	-	-	-	-
Okla.	71	41	-	25	36	3	-	13	77
Tex.	617	1,234	-	245	380	-	1	-	15
MOUNTAIN	133	153	5	132	136	-	1	1	26
Mont.	2	1	-	-	-	-	-	-	1
Idaho	1	3	1	7	2	-	1	-	-
Wyo.	-	1	-	-	2	-	-	-	10
Colo.	19	21	2	5	6	-	-	-	-
N. Mex.	16	8	-	20	5	-	-	-	1
Ariz.	59	116	1	59	83	-	-	-	14
Utah	2	3	1	19	19	-	-	1	-
Nev.	34	-	-	22	19	-	-	-	-
PACIFIC	466	882	14	1,279	1,175	-	30	1	126
Wash.	20	45	-	80	71	-	2	-	-
Oreg.	14	26	-	28	29	-	-	-	-
Calif.	419	808	14	1,139	997	-	27	1	118
Alaska	1	2	-	13	22	-	-	-	8
Hawaii	12	1	-	19	56	-	1	-	-
Guam	1	-	-	10	-	-	1	-	-
P.R.	61	110	-	40	46	-	-	-	13
V.I.	16	30	-	1	1	-	-	-	-
Amer. Samoa	-	-	-	-	1	-	-	-	-
C.N.M.I.	2	-	-	8	4	-	1	-	-

U: Unavailable

TABLE III. Deaths in 121 U.S. cities,* week ending April 4, 1992 (14th Week)

Reporting Area	All Causes, By Age (Years)						P&I†
	All Ages	≥65	45-64	25-44	1-24	<1	Total
NEW ENGLAND	582	421	81	56	10	14	35
Boston, Mass.	160	99	26	27	4	4	5
Bridgeport, Conn.	39	31	4	2	-	2	2
Cambridge, Mass.	28	24	2	2	-	-	3
Fall River, Mass.	30	27	3	-	-	-	-
Hartford, Conn.	51	39	4	8	-	-	3
Lowell, Mass.	27	17	7	2	1	-	1
Lynn, Mass.	11	7	3	1	-	-	-
New Bedford, Mass.	28	22	3	3	-	-	1
New Haven, Conn.	40	32	6	1	-	1	5
Providence, R.I.	47	40	3	1	1	2	4
Somerville, Mass.	5	3	-	2	-	-	-
Springfield, Mass.	35	25	6	2	1	1	4
Waterbury, Conn.	29	21	4	4	-	-	3
Worcester, Mass.	52	34	10	1	3	4	4
MID. ATLANTIC	2,646	1,737	482	304	67	55	152
Albany, N.Y.	50	35	11	2	1	1	4
Allentown, Pa.	21	17	4	-	-	-	2
Buffalo, N.Y.	100	78	10	8	4	-	3
Camden, N.J.	26	18	4	3	-	1	2
Elizabeth, N.J.	28	23	-	5	-	-	-
Erie, Pa.§	50	31	12	5	1	1	2
Jersey City, N.J.	44	26	7	8	-	3	1
New York City, N.Y.	1,382	870	258	188	35	31	69
Newark, N.J.	77	34	20	15	2	5	5
Paterson, N.J.	23	15	3	3	1	1	3
Philadelphia, Pa.	391	255	79	36	15	6	28
Pittsburgh, Pa.§	83	58	12	9	3	1	3
Reading, Pa.	43	39	2	2	-	-	8
Rochester, N.Y.	119	81	26	8	2	2	8
Schenectady, N.Y.	37	28	6	1	1	1	-
Scranton, Pa.§	32	24	7	1	-	-	2
Syracuse, N.Y.	74	55	13	4	-	2	5
Trenton, N.J.	18	11	2	5	-	-	4
Utica, N.Y.	17	14	2	-	1	-	3
Yonkers, N.Y.	31	25	4	1	1	-	-
E.N. CENTRAL	2,145	1,347	424	198	115	61	104
Akron, Ohio	46	35	6	2	1	2	-
Canton, Ohio	24	15	8	1	-	-	2
Chicago, Ill.	505	227	109	83	70	16	24
Cincinnati, Ohio	117	76	30	4	2	5	11
Cleveland, Ohio	157	104	29	15	4	5	-
Columbus, Ohio	179	127	35	8	4	5	12
Dayton, Ohio	118	90	19	7	2	-	8
Detroit, Mich.	229	136	50	26	9	8	5
Evansville, Ind.	18	15	1	2	-	-	-
Fort Wayne, Ind.	47	34	6	3	4	-	3
Gary, Ind.	15	11	1	3	-	-	-
Grand Rapids, Mich.	64	47	7	5	1	4	7
Indianapolis, Ind.	185	119	44	8	7	7	8
Madison, Wis.	38	23	8	5	1	1	2
Milwaukee, Wis.	123	94	18	8	1	2	9
Peoria, Ill.	41	27	8	3	3	-	1
Rockford, Ill.	34	20	8	2	2	2	3
South Bend, Ind.	32	21	3	3	1	4	5
Toledo, Ohio	99	67	22	7	3	-	3
Youngstown, Ohio	74	59	12	3	-	-	1
W.N. CENTRAL	729	530	104	60	12	23	39
Des Moines, Iowa	71	51	10	7	3	-	5
Duluth, Minn.	33	27	6	-	-	-	1
Kansas City, Kans.	23	20	3	-	-	-	2
Kansas City, Mo.	96	63	15	9	2	7	4
Lincoln, Nebr.	35	27	5	3	-	-	3
Minneapolis, Minn.	153	118	17	11	3	4	11
Omaha, Nebr.	73	49	11	9	2	2	1
St. Louis, Mo.	128	93	15	11	2	7	6
St. Paul, Minn.	43	36	5	2	-	-	4
Wichita, Kans.	74	46	17	8	-	3	2
S. ATLANTIC	1,292	777	281	150	54	30	71
Atlanta, Ga.	167	89	41	24	8	5	8
Baltimore, Md.	267	163	63	32	7	2	19
Charlotte, N.C.	94	53	25	5	9	2	8
Jacksonville, Fla.	112	75	20	9	5	3	8
Miami, Fla.	108	72	23	11	2	-	-
Norfolk, Va.	48	30	10	4	3	1	4
Richmond, Va.	79	44	19	6	4	6	6
Savannah, Ga.	45	26	8	8	3	-	2
St. Petersburg, Fla.	58	29	11	13	3	2	-
Tampa, Fla.	168	117	32	15	1	3	12
Washington, D.C.	129	68	24	22	9	6	4
Wilmington, Del.	17	11	5	1	-	-	-
E.S. CENTRAL	780	545	158	49	15	13	66
Birmingham, Ala.	89	56	23	3	1	6	4
Chattanooga, Tenn.	69	47	16	4	2	-	5
Knoxville, Tenn.	69	53	8	7	1	-	7
Louisville, Ky.	85	58	14	5	6	2	4
Memphis, Tenn.	220	160	40	15	4	1	33
Mobile, Ala.	82	56	18	7	1	-	6
Montgomery, Ala.	39	24	11	2	-	2	1
Nashville, Tenn.	127	91	28	6	-	2	6
W.S. CENTRAL	1,373	854	286	139	53	39	77
Austin, Tex.	65	42	14	7	1	1	6
Baton Rouge, La.	50	38	9	3	-	-	4
Corpus Christi, Tex.	45	26	13	6	-	-	4
Dallas, Tex.	219	130	51	21	9	8	6
El Paso, Tex.	60	41	9	5	4	1	-
Ft. Worth, Tex.	124	75	22	18	4	5	7
Houston, Tex.	299	158	74	46	15	6	23
Little Rock, Ark.	52	42	3	4	2	1	6
New Orleans, La.	144	93	34	6	5	4	-
San Antonio, Tex.	167	110	26	13	9	9	12
Shreveport, La.	52	33	8	5	2	4	6
Tulsa, Okla.	96	66	23	5	2	-	3
MOUNTAIN	772	512	140	72	27	19	69
Albuquerque, N.M.	108	73	18	13	1	2	9
Colo. Springs, Colo.	37	27	6	3	1	-	7
Denver, Colo.	114	78	14	13	5	4	12
Las Vegas, Nev.	149	90	35	16	6	2	6
Ogden, Utah	26	20	4	-	1	1	2
Phoenix, Ariz.	101	66	19	6	4	5	15
Pueblo, Colo.	22	13	6	2	-	1	5
Salt Lake City, Utah	82	48	16	10	5	3	3
Tucson, Ariz.	133	97	22	9	4	1	10
PACIFIC	1,819	1,227	306	174	66	41	115
Berkeley, Calif.	23	12	6	3	-	2	-
Fresno, Calif.	91	59	16	5	7	4	8
Glendale, Calif.	25	16	7	1	1	-	1
Honolulu, Hawaii	84	59	14	7	3	1	6
Long Beach, Calif.	74	49	12	10	-	3	11
Los Angeles, Calif.	433	285	67	56	19	1	19
Pasadena, Calif.	21	18	2	-	-	1	3
Portland, Oreg.	118	91	14	-	8	5	6
Sacramento, Calif.	158	104	31	17	4	2	12
San Diego, Calif.	172	114	31	14	6	7	17
San Francisco, Calif.	167	103	25	35	3	1	4
San Jose, Calif.	150	100	29	13	3	5	14
Santa Cruz, Calif.	29	23	6	-	-	-	5
Seattle, Wash.	138	96	20	8	8	6	2
Spokane, Wash.	45	33	9	1	-	2	3
Tacoma, Wash.	91	65	17	4	4	1	4
TOTAL	12,138¶	7,950	2,262	1,202	419	295	728

*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.

U: Unavailable

Risk for HIV Infection — Continued

The national school-based Youth Risk Behavior Survey is a component of CDC's Youth Risk Behavior Surveillance System (*5*) that periodically measures the prevalence of priority health-risk behaviors among youth through representative national, state, and local surveys. A three-stage sample design was used to obtain a representative sample of 11,631 students in grades 9–12 in the 50 states, the District of Columbia, Puerto Rico, and the Virgin Islands. Students were asked: "How old were you the first time you had sexual intercourse?"; "With how many persons have you had sexual intercourse in your life?"; "The last time you had sexual intercourse, did you or your partner use a condom to prevent sexually transmitted diseases such as genital herpes, genital warts, gonorrhea, syphilis, clap, drip, or AIDS/HIV infection?"; and "During your life, have you ever injected (shot up) any drug not prescribed by a doctor, such as steroids, cocaine, amphetamines, or heroin?"

Of all students in grades 9–12, the median age* of reported first intercourse was 16.1 years (95% confidence interval [CI] = ±0.1) for male students and 16.9 years (95% CI = ±0.1) for female students. About one third (33.5%) of male students and 20.0% of female students initiated sexual intercourse before age 15 years. Nearly two thirds (64.8%) of male students and 52.4% of female students initiated sexual intercourse before age 17 years.

Of all students, 19.0% reported having had four or more sex partners during their lifetime (Table 1). Male students (26.7%) were significantly more likely than female students (11.8%) to report having had four or more sex partners. Black male students (60.4%) were most likely to report having had four or more sex partners. The percentage of students who had four or more sex partners increased significantly by grade from 9th (12.4%) and 10th (14.8%) to 12th (28.6%) grade.

Among students who reported sexual intercourse during the 3 months preceding the survey (i.e., currently sexually active), 44.9% reported that they or their partners had used a condom at last sexual intercourse (Table 2). Male students (49.4%) were significantly more likely than female students (40.0%) to report condom use at last sexual intercourse. Students who had four or more sex partners were significantly

*Estimates calculated using standard life-table procedures and includes all students.

TABLE 1. Percentage of high school students who reported having had sexual intercourse with four or more sex partners in their lifetime, by sex, race/ethnicity, and grade — United States, Youth Risk Behavior Survey, 1990*

	Female		Male		Total	
Category	**%**	**(95% CI†)**	**%**	**(95% CI)**	**%**	**(95% CI)**
Race/Ethnicity						
White	10.7	(±2.0)	21.1	(±4.1)	**15.8**	**(±2.0)**
Black	19.5	(±4.3)	60.4	(±6.5)	**37.8**	**(±4.7)**
Hispanic	7.8	(±2.9)	26.5	(±4.1)	**16.5**	**(±3.1)**
Grade						
9th	6.8	(±1.6)	18.9	(±4.1)	**12.4**	**(±2.5)**
10th	9.3	(±2.0)	20.6	(±3.7)	**14.8**	**(±2.2)**
11th	14.6	(±2.5)	26.8	(±5.9)	**20.3**	**(±2.9)**
12th	17.0	(±2.9)	38.5	(±6.7)	**28.6**	**(±4.1)**
Total	**11.8**	**(±1.4)**	**26.7**	**(±3.7)**	**19.0**	**(±2.0)**

*Unweighted sample size = 11,631 students.
†Confidence interval.

Risk for HIV Infection — Continued

less likely to have used a condom at last sexual intercourse (40.6%) than were students with fewer lifetime sex partners (48.3%).

Of all students in grades 9–12, 1.5% reported IDU[†] (Table 3). Male students (2.3%) were significantly more likely than female students (0.7%) to report IDU. Students with four or more sex partners were significantly more likely to report IDU (5.1%) than were students with fewer lifetime sex partners.

Reported by: Div of Epidemiology and Prevention Research, National Institute on Drug Abuse, Alcohol, Drug Abuse, and Mental Health Administration. Div of Adolescent and School Health and Div of Reproductive Health, National Center for Chronic Disease Prevention and Health Promotion, CDC.

Editorial Note: Although the risk for HIV infection is decreased by correct use of condoms and reduction of the number of sex partners, these approaches do not completely eliminate risk. The most effective means of preventing HIV infection are refraining from sexual intercourse, maintaining monogamous sexual relationships with an uninfected sex partner, and avoiding IDU. The findings in this report and previous reports from the United States and Italy (*6,7*) indicate that a substantial proportion of students engage in behaviors that place them at risk for HIV infection.

[†]Students were classified as injecting-drug users only if they 1) reported IDU not prescribed by a physician and 2) answered affirmatively to either of these questions: "During your life, on how many occasions have you used cocaine in any form (including powder, crack, or freebase)?" or "During your life, on how many occasions have you used any other type of illegal drug such as LSD, PCP, MDMA, 'ecstasy,' mushrooms, speed, or heroin?" An additional 3.9% of students reported IDU but no lifetime use of cocaine or other illegal drugs. These students were not classified as injecting-drug users because of this inconsistency. Based on examination of other factors these students appear most similar to students who did not use injecting drugs, cocaine, or other illegal drugs.

TABLE 2. Percentage of currently sexually active* high school students who reported having used a condom at last sexual intercourse, by sex, race/ethnicity, grade, and lifetime number of sex partners — United States, Youth Risk Behavior Survey, 1990[†]

	Female		Male		Total	
Category	**%**	**(95% CI[§])**	**%**	**(95% CI)**	**%**	**(95% CI)**
Race/Ethnicity						
White	41.7	(±3.3)	50.0	(±4.5)	**45.9**	**(±3.1)**
Black	36.7	(±7.8)	54.5	(±3.8)	**47.1**	**(±4.9)**
Hispanic	28.1	(±7.8)	46.8	(±6.5)	**38.4**	**(±5.1)**
Grade						
9th	46.0	(±6.6)	54.1	(±9.0)	**50.8**	**(±6.3)**
10th	43.2	(±5.1)	52.5	(±8.5)	**47.9**	**(±4.9)**
11th	37.1	(±5.9)	51.4	(±6.7)	**44.1**	**(±4.7)**
12th	38.0	(±6.0)	44.5	(±5.7)	**41.6**	**(±4.7)**
Lifetime no. of sex partners						
1–3	44.3	(±3.6)	54.2	(±3.7)	**48.3**	**(±3.1)**
≥4	29.2	(±5.1)	45.6	(±3.9)	**40.6**	**(±3.1)**
Total	**40.0**	**(±3.0)**	**49.4**	**(±3.3)**	**44.9**	**(±2.5)**

*Students who reported having had sexual intercourse during the 3 months preceding the survey.
[†]Unweighted sample size = 4322 students.
[§]Confidence interval.

Risk for HIV Infection — Continued

CDC is working with national, state, and local health and education agencies to help decrease the proportion of 9th–12th-grade students who have initiated sexual intercourse; decrease the proportion of sexually active 9th–12th-grade students who are currently sexually active; increase the proportion of currently sexually active 9th–12th-grade students who used a condom at last sexual intercourse; and decrease the proportion of 9th–12th-grade students who use injecting drugs. (Related national health objectives for the year 2000 include objectives 5.4, 5.5, 18.3, 18.4, 19.9, and 19.10 [*8,9*].)

Strategies to address these risk behaviors should include 1) using public health surveillance data to assist agencies in reducing HIV-risk behaviors among adolescents; 2) enhancing the capacity of state and local health and education agencies and national organizations to implement effective HIV-prevention education within comprehensive school health education programs; 3) using research to identify effective HIV-risk behavior interventions and applying these interventions through training centers; and 4) combining the efforts of numerous groups and organizations (e.g., families, public health agencies, schools, community and religious organizations, and media) to prevent HIV-risk behaviors among adolescents (*9*).

TABLE 3. Percentage of high school students who reported injecting-drug use (IDU),* by sex, race/ethnicity, grade, and lifetime number of sex partners — United States, Youth Risk Behavior Survey, 1990†

	Female		Male		Total	
Category	**%**	**(95%CI§)**	**%**	**(95%CI)**	**%**	**(95%CI)**
Race/Ethnicity						
White	0.6	(±0.4)	2.2	(±0.8)	**1.4**	**(±0.5)**
Black	0.3	(±0.3)	0.8	(±0.6)	**0.5**	**(±0.3)**
Hispanic	0.8	(±0.5)	3.7	(±1.9)	**2.2**	**(±0.9)**
Grade						
9th	0.6	(±0.5)	2.1	(±1.1)	**1.2**	**(±0.6)**
10th	0.8	(±0.6)	2.3	(±1.4)	**1.5**	**(±0.9)**
11th	0.7	(±0.5)	2.3	(±1.0)	**1.4**	**(±0.5)**
12th	0.3	(±0.3)	2.2	(±1.1)	**1.3**	**(±0.6)**
Lifetime no. of sex partners						
0	0.2	(±0.2)	0.2	(±0.3)	**0.2**	**(±0.2)**
1–3	0.4	(±0.4)	1.0	(±0.6)	**0.7**	**(±0.4)**
≥4	2.6	(±1.4)	6.2	(±2.7)	**5.1**	**(±1.9)**
Total	**0.7**	**(±0.3)**	**2.3**	**(±0.7)**	**1.5**	**(±0.4)**

*Students were classified as injecting-drug users only if they 1) reported IDU not prescribed by a physician and 2) answered affirmatively to either of these questions: "During your life, on how many occasions have you used cocaine in any form (including powder, crack, or freebase)?" or "During your life, on how many occasions have you used any other type of illegal drug such as LSD, PCP, MDMA, 'ecstacy,' mushrooms, speed, or heroin?"

†Unweighted sample size = 11,631 students.

§Confidence interval.

Risk for HIV Infection — Continued

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9. Public Health Service. Healthy people 2000: national health promotion and disease prevention objectives—full report, with commentary. Washington, DC: US Department of Health and Human Services, Public Health Service, 1991; DHHS publication no. (PHS)91-50212.

Tuberculosis Morbidity — United States, 1991

In 1991, health departments in all 50 states, New York City, and the District of Columbia reported to CDC 26,283 cases of tuberculosis through the Report of a Verified Case of Tuberculosis surveillance system—an increase of 582 cases (2.3%) from 25,701 cases reported in 1990 (*1*). The tuberculosis incidence rate for 1991 was 10.4 per 100,000 population, compared to 10.3 per 100,000 in 1990.

Further analysis will be published in an issue of *CDC Surveillance Summaries.*

Reported by: Div of Tuberculosis Elimination, National Center for Prevention Svcs, CDC.

Reference
1. CDC. Tuberculosis morbidity in the United States: final data, 1990. MMWR 1991;40 (no. SS-3):23–7.

Surveillance Summaries

Publication of *CDC Surveillance Summaries*

Since 1983, CDC has published the *CDC Surveillance Summaries* under separate cover as part of the *MMWR* series. Each report published in the *CDC Surveillance Summaries* focuses on public health surveillance; surveillance findings are reported for a broad range of risk factors and health conditions.

Summaries for each of the reports published in the most recent (March 1992) issue of the *CDC Surveillance Summaries* (*1*) are provided below; this issue focuses on international topics in public health surveillance. All subscribers to *MMWR* receive the *CDC Surveillance Summaries*, as well as the *MMWR Recommendations and Reports*, as part of their subscriptions.

Surveillance Summaries — *Continued*

SURVEILLANCE FOR DRACUNCULIASIS, 1981–1991

In 1986 the World Health Organization (WHO) designated dracunculiasis (guinea worm disease) as the next disease scheduled to be eradicated (by 1995) after smallpox. Dramatic improvement in national and international surveillance has played a key role in the global eradication campaign, which was initiated at CDC in 1980. About 3 million persons are still affected by the disease annually, with adverse effects on their health as well as on agricultural production and education. Over 100 million persons are at risk of having the disease in more than 20,000 villages in India, Pakistan, and 17 African countries. At least one nationwide, village-by-village search to detect all villages with endemic dracunculiasis and count cases is recommended at the outset of each national campaign, followed by monthly reporting by village-based health workers in the targeted villages during the implementation phase. Rapid dissemination of the results of the surveillance is critical. Intensive case detection and containment—with rewards for reporting of cases—are most appropriate near the end of each campaign. Cameroon, Ghana, India, Nigeria, and Pakistan have pioneered the various surveillance methods for this disease in recent years. Methods to conduct surveillance of dracunculiasis and other important diseases must continue to be developed and improved as newly post-endemic countries prepare to apply to WHO for certification of elimination of dracunculiasis.

Authors: *Donald R. Hopkins, M.D., M.P.H., Global 2000, Inc., The Carter Center of Emory University, and Collaborating Center for Research, Training, and Eradication of Dracunculiasis, World Health Organization; Ernesto Ruiz-Tiben, Ph.D., Collaborating Center for Research, Training, and Eradication of Dracunculiasis, World Health Organization, and Division of Parasitic Diseases, National Center for Infectious Diseases, CDC.*

INJURY SURVEILLANCE IN DEVELOPING COUNTRIES

In both developed and developing countries, injuries have a substantial effect on the public's health and on quality of life. Although epidemiologic data regarding the occurrence of injuries in developing countries are limited, recent studies have documented substantial injury-related morbidity and mortality in some of these countries. For example, recent studies in rural Papua New Guinea showed that injuries are the leading cause of death for persons ages 15–44 years. Similarly, injuries are the leading cause of hospitalization in Indonesia and Egypt. Surveillance of injuries is necessary in order for public health practitioners and planners in developing countries to direct and allocate scarce resources appropriately.

Author: *Philip L. Graitcer, D.M.D., M.P.H., Division of Injury Control, National Center for Environmental Health and Injury Control, CDC.*

THE SURVEILLANCE CHALLENGE: FINAL STAGES OF ERADICATION OF POLIOMYELITIS IN THE AMERICAS

Current levels of surveillance have contributed to substantial reductions in morbidity and mortality due to poliomyelitis in the Americas. Despite the success of the poliomyelitis eradication initiative, it has become critical that surveillance be intensified so that the absence of wild poliovirus circulation can be verified with confidence in countries not reporting confirmed cases of poliomyelitis. Cases of acute flaccid paralysis continue to be classified as compatible with poliomyelitis, because investigations of such patients do not provide sufficient information to rule out wild poliovirus as the cause of paralysis. At this stage of the eradication initiative, the presence of compatible cases in some countries in Latin America indicates a failure of the surveillance system. The greatest challenge for the eradication initiative may be

Surveillance Summaries — *Continued*

correcting the remaining deficiencies of the existing surveillance system that hinder efforts to verify that wild poliovirus is no longer being transmitted in the Americas.

Authors: *Jon K. Andrus, M.D., Division of Immunization, National Center for Prevention Services, CDC; Ciro A. de Quadros, M.D., M.P.H., Jean-Marc Olive, M.D., M.P.H., Expanded Program on Immunization, Pan American Health Organization, Regional Office of the World Health Organization.*

SURVEILLANCE FOR EPIDEMIC CHOLERA IN THE AMERICAS: AN ASSESSMENT

In January 1991, epidemic cholera appeared in Peru and quickly spread to many other Latin American countries. Because reporting of cholera cases was often delayed in some areas, the scope of the epidemic was unclear. An assessment of the conduct of surveillance for cholera in several countries identified some recurrent problems involving surveillance case definitions, laboratory surveillance, surveillance methods, national coordination, and data management. A key conclusion is that a simple, well-communicated cholera surveillance system in place during an epidemic will facilitate prevention and treatment efforts. The following measures are recommended: a) simplify case definitions for cholera; b) focus on laboratory surveillance of patients with diarrhea primarily in the initial stage of the epidemic; c) use predominantly the "suspect" case definition when the number of "confirmed" cases rises; d) transmit weekly the numbers of cases, hospitalized patients, and deaths to regional and central levels; e) analyze data frequently and distribute a weekly or biweekly summary; and f) report the number of cholera cases promptly to the World Health Organization.

Authors: *Duc J. Vugia, M.D., M.P.H., Jane E. Koehler, D.V.M., M.P.H., Allen A. Ries, M.D., M.P.H., Enteric Diseases Branch, Division of Bacterial and Mycotic Diseases, National Center for Infectious Diseases, CDC.*

THE NATIONAL SURVEILLANCE SYSTEM FOR SEXUALLY TRANSMITTED DISEASES IN ITALY

Sexually transmitted diseases (STDs) have increased in importance in recent decades as a result of their wider dissemination, the emergence of new etiologic agents, and changes in sexual behaviors. In Italy, gonorrhea and syphilis are among the 71 diseases for which reporting is legally mandated. Despite these legal requirements, however, considerable underreporting has been documented. The need for more reliable data has led to the establishment of a formal sentinel surveillance system for STDs. The Italian National STD Surveillance Network, which involves 47 reporting centers, was established in 1990. A total of 5049 patients were reported during the pilot study and the first 6 months of surveillance. For men, the most frequently reported diseases were genital warts and nongonococcal urethritis; for women, the most frequent diagnoses were nonspecific vaginitis and genital warts. The objectives of this system are threefold: a) to obtain a rapid and accurate picture of the occurrence and spread of STDs; b) to identify trends in disease occurrence; and c) to monitor changes over time by geographic area.

Authors: *Barbara Suligoi, M.D., Massimo Giuliani, Dott., the STD Surveillance Working Group, Istituto Superiore di Sanitá, Rome, Italy; Nancy Binkin, M.D., M.P.H., International Branch, Division of Field Epidemiology, Epidemiology Program Office, CDC.*

Reference

1. CDC. CDC surveillance summaries. MMWR 1992;41(no. SS-1).

Notice to Readers

Availability of Streptomycin and Para-Aminosalicylic Acid — United States

Since the fall of 1991, streptomycin (SM) and para-aminosalicylic acid (PAS) (antimicrobial agents used to treat tuberculosis [TB]) have been unavailable in the United States.

Beginning April 13, 1992, for an interim period, a limited supply of these drugs manufactured outside the United States will be available through CDC under an investigational new drug agreement. These drugs will initially be made available only for patients with active TB that is resistant to both isoniazid (INH) and rifampin (RIF) or, if susceptibility testing results are not yet available, for patients with active TB in outbreaks where the predominant strains of *Mycobacterium tuberculosis* are known to be resistant to INH and RIF.

The Food and Drug Administration has identified U.S. companies that have agreed to manufacture SM and PAS. These drugs are expected to be commercially available later this year.

Clinicians interested in obtaining SM or PAS for their patients should be able to provide an abbreviated medical history and for SM, a recent creatinine serum level measurement. Requests should be directed to CDC's Clinical Research Branch, Division of Tuberculosis Elimination, National Center for Prevention Services, telephone (404) 639-2530.

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

The data in the weekly *MMWR* 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. Inquiries about the *MMWR* Series, including material to be considered for publication, should be directed to: Editor, *MMWR* Series, Mailstop C-08, Centers for Disease Control, Atlanta, GA 30333; telephone (404) 332-4555.

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