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MORBIDITY AND MORTALITY WEEKLY REPORT

International Notes

Epidemic of Acute Illness—West Bank

The Centers for Disease Control received a request through the U.S. Department of State to provide a team of physicians to investigate a health problem on the West Bank. The following is a report of the findings.

From March 21 to April 3, 1983, 943 cases of an acute, non-fatal illness characterized by headache, dizziness, photophobia, blurred vision, abdominal pain, myalgia, weakness, difficulty breathing, fainting, mydriasis, and peripheral cyanosis occurred in residents of communities throughout the West Bank. Six hundred sixty (70%) of patients were school girls between the ages of 12 and 17 years. Clinical, epidemiologic, and toxicologic analyses indicated the illness was of psychogenic origin and was induced by stress. The outbreak, which began at a girls' secondary school, may have been triggered by the odor of low concentrations of hydrogen sulfide (H_2S) gas near the school.

To evaluate the clinical features of the illness and possible antecedent risk factors, a questionnaire interview of 124 patients and 57 age- and sex-matched controls from two affected villages was conducted. In the northern village of Arrabah, site of the initial outbreak, 58 (95%) of 61 affected school girls and four affected adults participated in the study; at Yattah, in the southern West Bank, 56 (64%) of 88 affected high school girls and six affected adults participated. The most frequently reported symptoms were headache (98%), dizziness (96%), and abdominal pain (76%)(Table 1). Patients reported no common exposures to food, drink, or agricultural chemicals. Eight (15%) of 54 patients at Arrabah and 50 (89%) of 56 at Yattah

TABLE 1. Reported incidence of symptoms of acute illness – Arrabah and Yattah, West Bank, March-April, 1983

	Number of patients	
Location	**Arrabah**	**Yattah**
Total patients	**62**	**62**
Symptoms		
Headache	60 (97)*	62 (100)
Dizziness	57 (92)	62 (100)
Abdominal pain	40 (65)	54 (87)
Blurred vision	38 (61)	42 (68)
Weakness of limbs	37 (60)	52 (84)
Myalgia	26 (42)	20 (32)
Loss of consciousness	18 (29)	23 (37)
Paralysis	9 (15)	7 (11)
Blindness	6 (10)	7 (11)

*Figure in parenthesis represents percentage of patients with symptoms.

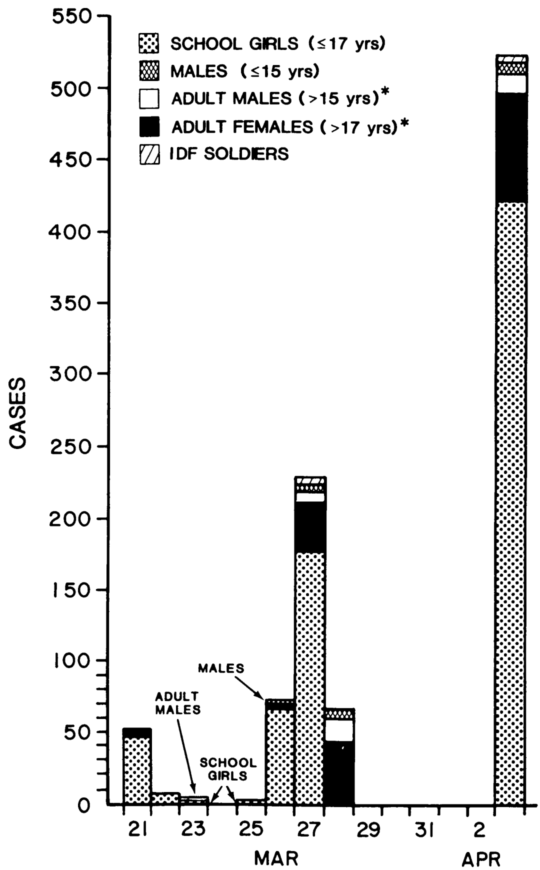
Acute Illness — Continued

reported having noted an unusual odor before onset of illness; the odor was most frequently described as resembling rotten eggs. Eight of 25 controls reported an odor. No differences were found between cases and controls in perceived antecedent health status, school performance, or frequency of school absenteeism.

Sinus tachycardia, mild hypertension, hyperventilation, mydriasis, and peripheral cynaosis were commonly observed in early stages of illness. Detailed general physical and neurological examinations performed 2-12 days after onset of illness on 20 patients with persistent symptoms showed no demonstrable abnormalities. Although all these patients had difficulty walking, none had muscle weakness, sensory abnormalities, or cerebellar dysfunction. Clinical laboratory determinations, including hematologic indices, serum electrolyte concentrations, liver- and kidney-function tests, serum cholinesterase activity, and muscle enzyme levels showed no consistent patterns of abnormal values. Electromyography was performed on four severely symptomatic patients and was within normal limits for all four.

Epidemiologic assessment indicated that cases had occurred in three waves (Figure 1). The first wave at Arrabah began at approximately 8:00 a.m. on March 21, when a 17-

FIGURE 1. Cases of acute illness, by date of onset — West Bank, March 21-April 3, 1983



*Includes teachers and neighbors

Acute Illness — Continued

year-old student experienced a sensation of throat irritation and had difficulty breathing shortly after entering her classroom. Subsequently, she developed headache, dizziness, and abdominal pain and was sent home. Over the next 2 hours, an additional six students in the tenth and eleventh grades and an eleventh-grade teacher developed similar symptoms. Two of these students reported having noticed an odor resembling rotten eggs. At 10:00 a.m., local public health authorities arrived at the school in response to an emergency call. On the basis of the students' reports of odor, they suspected the presence of a toxic gas and immediately instituted a widespread but unsuccessful search for the source of gas. During the search, an additional 17 students developed symptoms. At 11:00 a.m., the school was closed. Additional cases occurred during the afternoon of March 21 and over the next 3 days. Examination of the case incidence pattern at the Arrabah school showed no clustering of cases in any area of the building.

The second wave of illness occurred March 26-28 in the city of Jenin, northern West Bank, and in surrounding villages. Although the majority of these cases (246/367, [67%]) again occurred among school girls, cases also developed in persons of all age groups and both sexes in an area of east Jenin after local residents observed a car moving through the streets emitting a thick cloud of smoke. Another four cases occurred in Jenin among Israeli Defense Force soldiers. The third wave of illness occurred April 3. Most of those cases occurred in the area of Hebron, southern West Bank, and included the cases at Yattah. Following the April 3 outbreaks, schools were closed throughout the West Bank, and no additional cases were reported.

Environmental studies were performed to evaluate possible toxic etiologies. Air samples, collected at the school in Arrabah and at other outbreak sites, were analyzed for carbon monoxide, total airborne hydrocarbons, oxides of nitrogen, H_2S, sulfur dioxide, and methane. Low concentrations of H_2S (16-50 parts per billion [ppb]) were found in an outdoor latrine adjacent to the girls' school in Arrabah; H_2S concentrations in the subjacent percolating pit ranged from 200 to 350 ppb; methane and airborne hydrocarbons were also found there. No other airborne toxins were found. Soil and dust samples, screened at CDC by gas chromatography and bioassay, were analyzed chemically for the presence of organophosphates. No toxins were detected in any of these samples. Various objects, suspected by residents in affected villages as having possibly caused illness, were subjected to toxicologic study. A yellow powder from the schoolyard at Arrabah was identifed microscopically as pollen. Powder from a tin at the Yattah schoolyard was found to be calcium carbonate. Residue in a cola can from the school at Yattah was identified as cola. No toxins were detected in those or in other fomite samples. In addition, gas chromatographic, mass spectroscopic, and emission spectrographic analyses were performed at CDC on 34 serum, 10 whole blood, and five urine samples collected from patients and on 21 serum samples from controls. Although low concentrations of chlorinated hydrocarbon pesticides have been tentatively identified in sera of several patients, no consistent patterns of any environmental toxins were evident, and no consistent differences were found between cases and controls.

Reported by Div of Surveillance, Hazard Evaluations, and Field Studies, National Institute for Occupational Safety and Health, Div of Viral Diseases, Center for Infectious Diseases, Toxicology Br, Clinical Chemistry Div, Center for Environmental Health, CDC.

Editorial Note: Data collected in these investigations indicate that the West Bank epidemic was triggered either by psychological factors, or, more probably, by the odor of low, sub-toxic concentrations of H_2S gas escaping from a latrine at the secondary school in Arrabah. Subsequent propagation of the outbreak was mediated by psychological factors, occurred against a background of anxiety and stress, and may have been facilitated by newspaper and radio

Acute Illness — Continued

reports that described the symptoms in detail and suggested strongly that a toxic gas was the cause. The epidemic was probably terminated by the closing of West Bank schools.

Negative evidence in support of the diagnosis of stress-induced illness was provided by normal physical examinations, including those of patients in considerable distress, by normal results of clinical laboratory studies, and by negative findings of toxicologic analyses. All objectively demonstrable findings on physical examination—mydriasis, peripheral cyanosis, mild hypertension, and sinus tachycardia—were compatible with a state of stress-induced anxiety.

Positive support for the diagnosis of stress-induced disease was provided by clustering of cases among adolescent women. Although the underlying psychodynamics have not been adequately explored, such a skewed age-, sex-distribution has frequently been observed in epidemics of stress-induced illness (*1,2*). Also, the evolution of the pattern of illness was consistent with a diagnosis of stress-induced disease. Although patients in the first outbreak appeared to have been the most severely ill, their illnesses were less constant in pattern than those of patients affected later. For example, 15% of patients at Arrabah noted an odor, contrasted with 89% at Yattah. Previous studies of psychogenic illness outbreaks have emphasized that perception of strange odors or gases by affected individuals has frequently preceded onset of illness (*1*). Also at Arrabah, the outbreak proceeded in a rather leisurely fashion with a slow beginning, a short peak perhaps occasioned by excitement of the search for gas, and a long continuation phase. By contrast, at Yattah, virtually all cases developed in the span of 2 hours. Such patterns suggest the existence of a subconsciously learned response (*1*).

No evidence was encountered to indicate that patients had deliberately or consciously fabricated their symptoms. Evidence against malingering was provided by normal findings on physical examination. Also, despite numerous press reports that affected students would be rendered sterile, no evidence suggested that reproductive impairment would result from this epidemic.

References

1. Colligan MJ, Murphy LR. Mass psychogenic illness in organizations: an overview. Journal of Occupational Psychology 1979;52:77-90.
2. Small GW, Borus JF. Outbreak of illness in a school chorus: toxic poisoning or mass hysteria? N Engl J Med 1983;308(11):632-5.

Dracunculiasis Surveillance—India

The Indian Guinea Worm Eradication Program, conceived in early 1979, began in 1980 when India endorsed the recommendation of a Task Force on Eradication of Guinea Worm Disease in India. The National Institute of Communicable Disease (NICD) was asked to provide national leadership, planning, monitoring, and assistance in eradication efforts.

Before the first meeting of the task force in Delhi in November 1980, a preliminary assessment of the geographic extent of dracunculiasis was made through a questionnaire circulated to directors of each State's and Union territory's Health Services. Subsequent meetings of the task force* were held at Jaipur in March 1981 and at Bhopal in July 1981. The fourth meeting was conducted in conjunction with a World Health Organization (WHO) Workshop on Guinea Worm Eradication at Aurangabad (Maharashtra) April 27-30, 1982.

Preliminary assessment revealed that approximately 726 villages/hamlets in seven States and one Union territory, with a total population of 1.8 million, were affected. To delineate the

*Directors of the Health Services of the seven affected States, representatives of the Union Ministry of Health and Family Welfare, the NICD, the Central Public Health Environmental Engineering Organization, and the State Public Health Environmental Engineering Organization in the affected States.

Dracunculiasis Surveillance — Continued

affected areas more accurately, paramedical workers from Primary Health Centers in the endemic areas undertook a village-by-village search in May-June 1981. This active search, which also collected information on each village's drinking water, found that at least 7,533 villages/hamlets† in the seven States were affected, with a population of 5.9 million at risk. Investigation of the affected villages in the previously identified Union territory revealed no indigenous cases; the only reported case had been imported from an adjacent State in 1978. In October/November 1981, a second search of the seven endemic States reported 10,582 villages/ hamlets affected, with a population of 12.2 million at risk.

During the most recent active search in June 1982, 11,736 villages/hamlets were identified as affected by guinea worm, with a population of 12.6 million at risk. The increase in the number of affected villages revealed by the active searches undoubtedly reflects improved efficacy of the later searches, as well as the known seasonal variation in the incidence of the disease. Any village with a new case identified during 1980, 1981, or to June 1982 has been considered affected, even if no new case was reported in one or more of those years. In addition to determining the number of affected villages and the nature of their water sources, persons suffering from the disease were counted for the first time during the June 1982 search. The most extensively affected state was Rajasthan, where 14,905 persons residing in 6,104 villages harbored the infection to June 1982.

An indirect benefit of the searches was confirmation of the efficacy of anti-dracunculiasis efforts already in progress for many years in Tamil Nadu State. No cases were reported there from January to June 1982. However, the June 1982 search identified for the first time the presence of guinea worm disease in 423 villages of the known endemic States. A report on the nature of cases in these apparently newly affected areas is pending. An assessment of the quality of this latest search—by follow-up visits to two or three districts in each State—suggests the actual number of cases in the visited districts may have been underestimated by 10%-50%. Thus, dracunculiasis has been revealed to be endemic in slightly more than 2% of India's villages, including 18% of the villages in Rajasthan.

India has set a goal of eradicating dracunculiasis from the entire country within 5 years and is committing eight million rupees (approximately $1.2 million) as central assistance to the seven affected States. Steps for eradicating the disease include: 1) semi-annual searches of all 82 affected districts; 2) surveys of water sources in the affected villages to determine priorities for their improvement and means for providing safe water sources; 3) education of communities on the mode of dracunculiasis transmission and personal prophylaxis; 4) chemical disinfection of unsafe water sources with temophos (Abate), and 5) training of district level health officers, environmental engineers, and other staff involved in the program.

The most important features of India's Guinea Worm Eradication Program are: each of the affected States retains primary responsibility for all program activities in its areas (NICD provides only technical guidance and training); implementation of the program is conducted within the country's primary health care system by the existing health manpower in addition to their other responsibilities; and strategy for eradicating guinea worm disease is completely coordinated with the country's program of providing safe drinking water to all its rural population by the end of the International Drinking Water Supply and Sanitation Decade (1981-1990). The latter program is planned by the Central Public Health Environmental Engineering Organization at the national level and operated by the State Public Health Engineering Departments.

Other important accomplishments to date include development, publication, and distribu-

†Data from this and subsequent searches are cumulative and include villages/hamlets identified in previous searches.

Dracunculiasis Surveillance — Continued

tion to local workers of an Operational Manual on Guinea Worm Eradication; development of prototype health education materials for adaptation and use by the States; and organization of 4-day courses for training district level staff (physicians and engineers).[§]

Reported in WHO Weekly Epidemiologic Record *1983;58:(4):21-3.*

§This material can be obtained from Dr. C.K. Rao, National Institute of Communicable Diseases, 22 Shamnath Marg, New Delhi—110054, India.

Epidemiologic Notes and Reports

Interstate Importation of Measles Following Transmission in an Airport—California, Washington, 1982

Nine serologically confirmed measles cases in Washington State, with rash onsets from January 1 to January 26, 1982, were epidemiologically linked to an out-of-state importation from California.* The index case, a 27-year-old naval officer from San Diego, had rash onset

*No indigenous measles cases had been reported in Washington during the previous year, when a statewide active surveillance system for rash illnesses was in effect.

(Continued on page 215)

TABLE I. Summary—cases specified notifiable diseases, United States

Disease	16th Week Ending			Cumulative, 16th Week Ending		
	April 23, 1983	April 24, 1982	Median 1978-1982	April 23, 1983	April 24, 1982	Median 1978-1982
Aseptic meningitis	64	104	53	1,272	1,216	988
Encephalitis: Primary (arthropod-borne & unspec.)	11	20	13	257	251	188
Post-infectious	1	4	5	22	18	50
Gonorrhea: Civilian	14,076	17,509	17,712	266,856	283,793	287,750
Military	293	518	484	7,331	8,202	8,270
Hepatitis: Type A	350	406	466	7,257	6,954	8,301
Type B	371	409	314	6,616	6,230	4,891
Non A, Non B	65	56	N	983	625	N
Unspecified	137	166	166	2,379	2,592	3,105
Legionellosis	11	20	N	187	112	N
Leprosy	7	2	4	82	58	52
Malaria	4	7	11	194	227	227
Measles: Total	40	77	476	607	401	5,413
Indigenous	30	N	N	516	N	N
Imported*	10	N	N	91	N	N
Meningococcal infections: Total	74	81	69	1,040	1,120	1,086
Civilian	74	81	69	1,028	1,116	1,077
Military	-	-	-	12	4	9
Mumps	45	130	188	1,285	2,262	4,333
Pertussis	23	16	19	480	329	329
Rubella (German measles)	26	72	123	369	797	1,564
Syphilis (Primary & Secondary): Civilian	616	674	550	9,905	10,313	8,011
Military	5	9	5	145	125	110
Toxic-shock syndrome	7	N	N	127	N	N
Tuberculosis	381	566	572	6,681	7,417	7,731
Tularemia	5	2	2	52	30	30
Typhoid fever	8	6	4	107	119	119
Typhus fever, tick-borne (RMSF)	2	5	5	29	30	25
Rabies, animal	157	159	157	1,899	1,740	1,740

TABLE II. Notifiable diseases of low frequency, United States

	Cum. 1983		Cum. 1983
Anthrax	-	Plague	-
Botulism: Foodborne	8	Poliomyelitis: Total	1
Infant (Calif. 2)	22	Paralytic	1
Other	-	Psittacosis	25
Brucellosis (Tex. 2, Calif. 1)	34	Rabies, human	2
Cholera	-	Tetanus	13
Congenital rubella syndrome (Calif. 1)	9	Trichinosis (N.Y. City 1)	13
Diphtheria	-	Typhus fever, flea-borne (endemic, murine) (Tex. 1)	8
Leptospirosis	9		

*Six of the 40 reported cases for this week were imported from a foreign country or can be directly traceable to a known internationally imported case within two generations.

TABLE III. Cases of specified notifiable diseases, United States, weeks ending April 23, 1983 and April 24, 1982 (16th week)

Reporting Area	Aseptic Meningitis	Encephalitis		Gonorrhea (Civilian)		Hepatitis (Viral), by type				Legionellosis	Leprosy	Malaria
		Primary	Post-infectious			A	B	NA,NB	Unspecified			
	1983	Cum. 1983	Cum. 1983	Cum. 1983	Cum. 1982	1983	1983	1983	1983	1983	Cum. 1983	Cum. 1983
UNITED STATES	64	257	22	266,856	283,793	350	371	65	137	11	82	194
NEW ENGLAND	2	11	-	6,944	6,707	3	17	1	8	1	1	6
Maine	-	-	-	387	316	-	-	-	-	-	-	-
N.H.	-	1	-	189	240	-	-	-	-	-	1	-
Vt.	-	-	-	109	143	1	1	-	-	-	-	-
Mass.	-	6	-	3,055	3,052	-	5	-	8	-	-	2
R.I.	-	-	-	369	470	-	3	-	-	-	-	1
Conn.	2	4	-	2,835	2,486	2	8	1	-	1	-	3
MID ATLANTIC	9	33	4	34,282	33,977	29	61	4	15	2	12	34
Upstate N.Y.	2	11	-	5,043	5,537	10	33	4	1	-	-	11
N.Y. City	2	6	-	14,795	14,023	9	6	-	5	2	11	12
N.J.	5	6	-	6,457	6,271	10	22	-	9	-	-	8
Pa.	U	10	4	7,987	8,146	U	U	U	U	U	1	3
E.N. CENTRAL	11	47	4	34,526	40,913	31	46	9	7	3	3	9
Ohio	8	19	3	10,323	11,730	16	21	3	3	3	1	1
Ind.	1	5	1	4,125	4,862	5	4	3	-	-	-	-
Ill.	-	-	-	6,064	10,932	2	10	2	1	-	1	2
Mich.	2	22	-	10,533	9,610	8	11	1	3	-	1	6
Wis.	-	1	-	3,481	3,779	-	-	-	-	-	-	-
W.N. CENTRAL	2	36	4	13,093	13,026	11	9	5	4	1	1	9
Minn.	-	18	1	1,882	1,939	2	3	4	-	-	1	3
Iowa	1	16	-	1,390	1,463	1	3	1	-	-	-	2
Mo.	1	1	-	6,442	5,972	2	3	-	4	1	-	2
N. Dak.	-	-	-	124	185	-	-	-	-	-	-	1
S. Dak.	-	-	1	360	375	6	-	-	-	-	-	-
Nebr.	-	1	-	696	789	-	-	-	-	-	-	-
Kans.	-	-	2	2,199	2,303	-	-	-	-	-	-	1
S. ATLANTIC	6	39	4	68,097	72,986	34	83	8	9	1	3	26
Del.	-	-	-	1,247	1,144	-	3	-	1	-	-	-
Md.	4	7	-	8,587	9,450	4	16	-	1	-	-	3
D.C.	-	-	-	4,890	3,722	3	4	-	-	-	-	3
Va.	-	14	1	5,945	6,170	-	2	2	-	-	-	5
W. Va.	-	-	-	677	850	1	1	1	1	-	-	1
N.C.	-	7	-	9,916	11,684	4	7	-	3	-	-	1
S.C.	-	2	-	6,762	6,891	4	11	-	-	1	-	3
Ga.	-	1	-	14,973	12,687	3	15	2	-	-	1	1
Fla.	2	8	3	15,100	20,388	15	24	3	3	-	2	9
E.S. CENTRAL	4	9	2	23,334	23,585	27	23	3	6	-	-	3
Ky.	1	-	-	2,830	3,164	19	6	2	4	-	-	-
Tenn.	2	1	-	9,354	8,994	6	10	1	2	-	-	-
Ala.	-	8	2	7,203	7,057	-	5	-	-	-	-	1
Miss.	1	-	-	3,947	4,370	2	2	-	-	-	-	2
W.S. CENTRAL	5	26	-	38,109	39,508	82	37	3	59	1	6	18
Ark.	-	3	-	2,919	3,334	1	1	1	9	-	-	1
La.	-	3	-	6,164	7,026	8	7	2	9	-	-	-
Okla.	1	6	-	4,622	4,242	18	9	-	7	1	-	6
Tex.	4	14	-	24,404	24,906	55	20	-	34	-	6	11
MOUNTAIN	5	11	2	8,367	10,167	37	12	8	10	-	11	10
Mont.	1	-	-	400	444	-	-	-	3	-	-	-
Idaho	1	-	-	424	466	2	3	2	-	-	-	-
Wyo.	-	1	-	226	276	-	-	-	-	-	-	-
Colo.	2	2	-	2,429	2,759	7	2	1	1	-	2	4
N. Mex.	-	-	-	1,055	1,286	8	-	1	-	-	-	2
Ariz.	1	1	2	2,080	2,751	17	4	4	4	-	9	3
Utah	-	7	-	389	446	2	-	-	1	-	-	1
Nev.	-	-	-	1,364	1,739	1	3	-	1	-	-	-
PACIFIC	20	45	2	40,104	42,924	96	83	24	19	2	45	79
Wash.	1	3	-	2,829	3,622	4	7	5	-	1	4	2
Oreg.	-	-	-	2,051	2,377	18	9	3	-	-	1	4
Calif.	16	40	2	33,452	35,106	72	67	15	19	1	28	73
Alaska	-	-	-	947	1,073	1	-	-	-	-	-	-
Hawaii	3	2	-	825	746	1	-	1	-	-	12	-
Guam	U	-	-	33	42	U	U	U	U	U	-	-
P.R.	9	-	-	938	923	3	3	-	10	-	-	1
V.I.	-	-	-	89	67	-	2	-	-	-	-	-
Pac. Trust Terr.	U	-	-	-	137	U	U	U	U	U	-	-

N: Not notifiable U: Unavailable

TABLE III. (Cont.'d). Cases of specified notifiable diseases, United States, weeks ending April 23, 1983 and April 24, 1982 (16th week)

Reporting Area	Measles (Rubeola) Indigenous		Measles Imported*		Measles Total	Meningococcal Infections	Mumps			Pertussis			Rubella		
	1983	Cum. 1983	1983	Cum. 1983	Cum. 1982	Cum. 1983	1983	Cum. 1983	Cum. 1982	1983	Cum. 1983	Cum. 1982	1983	Cum. 1983	Cum. 1982
UNITED STATES	30	516	10	91	401	1,040	45	1,285	2,262	23	480	329	26	369	797
NEW ENGLAND	-	1	1	2	8	47	2	58	121	1	17	19	-	9	8
Maine	-	-	-	-	-	6	1	9	25	-	-	-	-	-	-
N.H.	-	-	-	-	1	2	1	13	12	-	2	4	-	2	8
Vt.	-	-	-	-	2	-	-	7	4	-	2	-	-	1	-
Mass.	-	1	-	-	2	15	-	13	61	-	11	6	-	6	-
R.I.	-	-	-	-	-	3	-	7	9	1	2	7	-	-	-
Conn.	-	-	1†	2	3	21	-	9	10	-	-	2	-	-	-
MID ATLANTIC	1	4	1	9	29	151	3	100	150	6	120	50	2	21	56
Upstate N.Y.	-	-	-	2	15	55	3	44	33	3	42	33	1	14	29
N.Y. City	1	4	1†	6	12	18	-	7	24	1	13	7	-	2	16
N.J.	-	-	-	1	-	23	-	15	26	2	10	4	1	2	11
Pa.	U	-	U	-	2	55	U	34	67	U	55	6	U	3	-
E.N. CENTRAL	9	300	1	39	25	172	18	612	1,312	5	123	112	5	52	88
Ohio	-	-	-	1	-	68	12	333	953	2	41	22	-	1	-
Ind.	-	229	-	-	1	24	1	16	23	-	10	9	2	8	14
Ill.	9	71	1†	33	15	32	4	63	71	3	60	51	1	21	24
Mich.	-	-	-	5	9	35	1	160	194	-	6	7	2	11	32
Wis.	-	-	-	-	-	13	-	40	71	-	6	23	-	11	18
W.N. CENTRAL	-	-	-	-	2	70	2	95	143	2	30	13	-	23	23
Minn.	-	-	-	-	-	11	-	15	75	-	9	4	-	3	2
Iowa	-	-	-	-	-	8	-	30	21	1	3	-	-	-	-
Mo.	-	-	-	-	2	36	1	8	7	-	5	5	-	-	15
N. Dak.	-	-	-	-	-	1	-	-	-	-	1	-	-	-	-
S. Dak.	-	-	-	-	-	2	-	-	1	1	2	2	-	-	1
Nebr.	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-
Kans.	-	-	-	-	-	12	1	42	39	-	10	1	-	20	5
S. ATLANTIC	10	114	3	16	26	231	1	83	151	3	65	34	5	39	19
Del.	-	-	-	-	-	-	-	5	3	-	-	3	-	-	-
Md.	-	-	-	2	2	25	-	12	12	-	8	-	-	1	5
D.C.	-	-	-	-	1	3	-	-	-	-	-	1	-	-	-
Va.	-	1	3§	11	14	31	-	19	22	-	24	5	-	1	8
W. Va.	-	-	-	-	1	1	1	14	68	-	2	3	-	-	1
N.C.	-	-	-	-	-	44	-	4	5	1	3	5	2	6	-
S.C.	-	-	-	3	-	25	-	2	9	2	5	4	-	-	1
Ga.	-	6	-	-	-	42	-	27	4	-	17	6	-	5	1
Fla.	10	107	-	-	8	60	-	-	28	-	6	7	3	26	3
E.S. CENTRAL	-	-	1	1	5	64	2	24	24	-	5	7	-	5	30
Ky.	-	-	1§	1	1	14	2	10	8	-	2	-	-	5	15
Tenn.	-	-	-	-	4	23	-	11	9	-	2	4	-	-	-
Ala.	-	-	-	-	-	19	-	-	4	-	-	-	-	-	-
Miss.	-	-	-	-	-	8	-	3	3	-	1	3	-	-	15
W.S. CENTRAL	-	32	-	11	5	123	3	100	82	3	44	19	5	65	43
Ark.	-	-	-	11	-	5	-	2	4	-	2	-	-	-	-
La.	-	-	-	-	-	21	-	-	1	-	2	-	-	9	-
Okla.	-	-	-	-	-	15	-	-	-	3	14	2	-	-	2
Tex.	-	32	-	-	5	82	3	98	77	-	26	17	5	56	41
MOUNTAIN	-	-	-	1	-	40	3	58	40	3	58	20	1	13	25
Mont.	-	-	-	-	-	1	-	2	3	-	1	-	-	3	3
Idaho	-	-	-	-	-	4	3	4	2	-	2	1	1	3	-
Wyo.	-	-	-	-	-	1	-	-	2	-	4	1	-	1	4
Colo.	-	-	-	1	-	18	-	5	9	-	35	5	-	-	1
N. Mex.	-	-	-	-	-	5	-	-	-	1	5	3	-	-	2
Ariz.	-	-	-	-	-	8	-	39	13	2	8	10	-	4	5
Utah	-	-	-	-	-	3	-	6	9	-	3	-	-	1	8
Nev.	-	-	-	-	-	-	-	2	2	-	-	-	-	1	2
PACIFIC	10	65	3	12	301	142	11	155	239	-	18	55	8	142	505
Wash.	1	2	-	-	15	22	1	23	39	-	1	11	5	6	16
Oreg.	-	5	-	-	-	21	-	-	-	-	3	7	-	9	2
Calif.	9	57	3†	12	284	96	7	112	193	-	14	37	3	127	480
Alaska	-	-	-	-	-	-	-	9	5	-	-	-	-	-	1
Hawaii	-	1	-	-	2	3	3	11	2	-	-	-	-	-	6
Guam	U	-	U	-	-	1	U	-	1	U	-	-	U	-	1
P.R.	22	48	-	-	50	7	7	63	23	-	3	11	-	1	3
V.I.	-	-	-	5	-	-	-	-	-	-	-	-	-	1	-
Pac. Trust Terr.	U	-	U	-	-	-	U	-	1	U	-	-	U	-	-

*For measles only, imported cases includes both out-of-state and international importations. U: Unavailable †International §Out-of-state

TABLE III. (Cont.'d). Cases of specified notifiable diseases, United States, weeks ending April 23, 1983 and April 24, 1982 (16th week)

Reporting Area	Syphilis (Civilian) (Primary & Secondary)		Toxic-shock Syndrome	Tuberculosis		Tula-remia	Typhoid Fever	Typhus Fever (Tick-borne) (RMSF)	Rabies, Animal
	Cum. 1983	Cum. 1982	1983	1983	Cum. 1983	Cum. 1983	Cum. 1983	Cum. 1983	Cum. 1983
UNITED STATES	9,905	10,313	7	381	6,681	52	107	29	1,899
NEW ENGLAND	243	196	-	7	170	-	5	1	2
Maine	7	1	-	2	13	-	-	-	2
N.H.	7	-	-	-	14	-	-	-	-
Vt.	4	-	-	-	2	-	-	-	-
Mass.	159	139	-	2	81	-	5	1	-
R.I.	6	12	-	-	16	-	-	-	-
Conn.	60	44	-	3	44	-	-	-	-
MID ATLANTIC	1,188	1,403	-	86	1,263	-	23	-	44
Upstate N.Y.	63	151	-	12	206	-	3	-	28
N.Y. City	731	864	-	52	503	-	11	-	-
N.J.	231	164	-	22	274	-	8	-	-
Pa.	163	224	U	U	280	-	1	-	16
E.N. CENTRAL	404	674	1	60	920	-	15	3	146
Ohio	159	105	-	11	143	-	3	1	19
Ind.	48	75	-	-	91	-	1	-	10
Ill.	95	361	-	20	406	-	5	-	77
Mich.	77	97	1	22	234	-	6	2	-
Wis.	25	36	-	7	46	-	-	-	40
W.N. CENTRAL	118	199	4	15	230	16	1	4	265
Minn.	51	33	3	3	41	-	-	-	57
Iowa	4	11	1	2	27	-	-	-	77
Mo.	42	121	-	9	121	11	1	3	32
N. Dak.	-	4	-	-	-	-	-	1	19
S. Dak.	-	-	-	-	17	-	-	-	32
Nebr.	7	7	-	-	7	2	-	-	21
Kans.	14	23	-	1	17	3	-	-	27
S. ATLANTIC	2,513	2,788	1	39	1,271	11	14	5	686
Del.	14	7	-	-	7	-	-	-	-
Md.	154	157	-	2	110	5	4	1	295
D.C.	106	178	-	6	55	-	-	-	1
Va.	190	199	-	14	119	1	3	1	250
W. Va.	8	8	-	1	51	-	2	1	50
N.C.	230	208	-	5	148	4	1	-	3
S.C.	168	136	1	11	121	-	1	1	7
Ga.	462	611	-	-	242	1	-	-	67
Fla.	1,181	1,284	-	-	418	-	3	1	13
E.S. CENTRAL	714	762	1	36	630	6	2	3	168
Ky.	39	37	-	10	171	-	-	-	36
Tenn.	199	204	-	15	187	4	1	1	115
Ala.	297	265	1	7	163	-	-	2	17
Miss.	179	256	-	4	109	2	1	-	-
W.S. CENTRAL	2,710	2,557	-	45	729	16	5	10	406
Ark.	72	73	-	3	64	10	-	2	76
La.	587	539	-	12	118	2	-	-	9
Okla.	77	54	-	7	83	4	-	3	40
Tex.	1,974	1,891	-	23	464	-	5	5	281
MOUNTAIN	229	271	-	14	186	1	7	2	69
Mont.	4	1	-	2	18	-	1	1	54
Idaho	3	16	-	1	11	-	-	1	-
Wyo.	3	9	-	-	3	-	-	-	1
Colo.	57	84	-	1	15	-	1	-	-
N. Mex.	75	54	-	-	33	1	-	-	2
Ariz.	52	59	-	10	79	-	3	-	12
Utah	8	10	-	-	18	-	1	-	-
Nev.	27	38	-	-	9	-	1	-	-
PACIFIC	1,786	1,463	-	79	1,282	2	35	1	113
Wash.	52	46	-	8	70	1	2	-	-
Oreg.	35	40	-	3	55	-	-	-	-
Calif.	1,665	1,337	-	56	1,055	1	32	1	106
Alaska	8	6	-	-	13	-	-	-	7
Hawaii	26	34	-	12	89	-	1	-	-
Guam	-	1	U	U	1	-	-	-	-
P.R.	287	188	-	3	142	-	-	-	14
V.I.	8	-	-	-	1	-	-	-	-
Pac. Trust Terr.	-	-	U	U	-	-	-	-	-

U: Unavailable

TABLE IV. Deaths in 121 U.S. cities,* week ending April 23, 1983 (16th week)

Reporting Area	All Causes, By Age (Years)						P&I** Total
	All Ages	≥65	45-64	25-44	1-24	<1	
NEW ENGLAND	704	492	141	37	14	20	55
Boston, Mass.	178	118	37	12	3	8	14
Bridgeport, Conn.	54	32	15	3	3	1	3
Cambridge, Mass.	21	17	3	1	-	-	3
Fall River, Mass.	30	24	4	2	-	-	1
Hartford, Conn.	88	57	17	9	3	2	2
Lowell, Mass.	31	22	7	1	-	1	2
Lynn, Mass.	16	12	3	-	-	1	1
New Bedford, Mass.	25	20	5	-	-	-	4
New Haven, Conn.	51	35	10	4	-	2	5
Providence, R.I.	75	60	11	1	1	2	12
Somerville, Mass.	10	7	3	-	-	-	1
Springfield, Mass.	33	22	8	2	-	1	5
Waterbury, Conn.	37	28	5	1	3	-	1
Worcester, Mass.	55	38	13	1	1	2	1
MID. ATLANTIC	2,533	1,723	534	165	64	47	116
Albany, N.Y.	40	24	10	1	2	3	2
Allentown, Pa.	15	12	2	-	1	-	-
Buffalo, N.Y.	119	83	29	1	4	2	12
Camden, N.J.	37	26	7	3	-	1	2
Elizabeth, N.J.	39	30	9	-	-	-	-
Erie, Pa.†	53	41	10	1	-	1	2
Jersey City, N.J.	52	35	14	1	1	1	-
N.Y. City, N.Y.	1,404	952	293	103	38	18	54
Newark, N.J.	70	34	19	10	4	3	5
Paterson, N.J.	31	26	4	-	1	-	1
Philadelphia, Pa.†	225	136	48	27	5	9	5
Pittsburgh, Pa.†	60	37	18	2	2	1	4
Reading, Pa.	30	22	6	-	1	1	6
Rochester, N.Y.	123	95	18	3	4	3	10
Schenectady, N.Y.	37	27	6	3	-	1	2
Scranton, Pa.†	39	30	7	1	-	1	1
Syracuse, N.Y.	68	45	15	5	1	2	2
Trenton, N.J.	39	28	7	4	-	-	1
Utica, N.Y.	15	14	1	-	-	-	2
Yonkers, N.Y.	37	26	11	-	-	-	5
E.N. CENTRAL	2,339	1,489	576	136	62	76	91
Akron, Ohio	59	35	16	2	2	4	-
Canton, Ohio	46	34	9	2	-	1	1
Chicago, Ill.	468	282	115	38	14	19	16
Cincinnati, Ohio	128	82	31	2	2	11	14
Cleveland, Ohio	176	109	47	10	7	3	1
Columbus, Ohio	181	106	55	15	4	1	2
Dayton, Ohio	101	70	24	-	2	5	3
Detroit, Mich.	269	164	62	27	8	8	2
Evansville, Ind.	39	31	7	1	-	-	2
Fort Wayne, Ind.	64	43	15	4	-	2	12
Gary, Ind.	18	11	6	-	1	-	-
Grand Rapids, Mich.	53	36	11	1	2	3	-
Indianapolis, Ind.	196	114	53	11	10	8	4
Madison, Wis.	35	24	9	2	-	-	7
Milwaukee, Wis.	170	122	32	8	1	7	6
Peoria, Ill.	44	26	15	1	2	-	5
Rockford, Ill.	37	27	6	2	1	1	2
South Bend, Ind.	77	52	20	1	3	1	4
Toledo, Ohio	121	82	31	5	1	2	10
Youngstown, Ohio	57	39	12	4	2	-	-
W.N. CENTRAL	712	488	146	32	21	25	45
Des Moines, Iowa	69	43	17	4	1	4	7
Duluth, Minn.	21	15	5	-	-	1	3
Kansas City, Kans.	33	26	3	3	1	-	-
Kansas City, Mo.	113	75	25	5	6	2	8
Lincoln, Nebr.	34	23	10	-	-	1	5
Minneapolis, Minn.	76	51	14	3	2	6	2
Omaha, Nebr.	68	48	14	1	4	1	7
St. Louis, Mo.	162	109	29	10	4	10	6
St. Paul, Minn.	75	52	21	2	-	-	1
Wichita, Kans.	61	46	8	4	3	-	6
S. ATLANTIC	1,282	800	336	73	28	44	56
Atlanta, Ga.	131	90	24	6	2	9	2
Baltimore, Md.	231	137	63	19	7	4	6
Charlotte, N.C.	64	38	16	6	-	4	3
Jacksonville, Fla.	110	71	28	5	5	1	4
Miami, Fla.	125	76	36	8	3	2	4
Norfolk, Va.	57	32	17	3	-	5	-
Richmond, Va.	95	55	31	7	1	1	12
Savannah, Ga.	25	21	2	1	1	-	4
St. Petersburg, Fla.	103	93	9	-	-	1	4
Tampa, Fla.	75	39	24	4	3	5	9
Washington, D.C.	205	109	65	13	6	12	6
Wilmington, Del.	61	39	21	1	-	-	2
E.S. CENTRAL	785	494	196	50	30	15	36
Birmingham, Ala.	132	78	33	9	7	5	1
Chattanooga, Tenn.	56	32	14	4	5	1	6
Knoxville, Tenn.	48	32	13	1	2	-	-
Louisville, Ky.	123	83	22	10	2	6	14
Memphis, Tenn.	181	121	43	11	6	-	6
Mobile, Ala.	82	49	29	3	1	-	4
Montgomery, Ala.	56	37	15	1	2	1	3
Nashville, Tenn.	107	62	27	11	5	2	2
W.S. CENTRAL	1,428	845	345	125	56	57	50
Austin, Tex.	41	29	6	4	1	1	4
Baton Rouge, La.	62	38	8	10	4	2	3
Corpus Christi, Tex.	54	34	16	2	2	-	-
Dallas, Tex.	232	146	49	13	14	10	8
El Paso, Tex.	57	31	17	3	2	4	1
Fort Worth, Tex.	67	40	14	10	2	1	1
Houston, Tex.	379	194	108	42	17	18	7
Little Rock, Ark.	80	46	27	4	3	-	9
New Orleans, La.	178	104	35	16	5	18	1
San Antonio, Tex.	150	104	33	9	4	-	10
Shreveport, La.	51	33	14	3	-	1	1
Tulsa, Okla.	77	46	18	9	2	2	5
MOUNTAIN	629	402	151	39	21	16	34
Albuquerque, N.Mex.	55	39	13	2	-	1	2
Colo. Springs, Colo.	28	19	6	1	1	1	3
Denver, Colo.	121	81	26	8	5	1	6
Las Vegas, Nev.	83	41	27	9	5	1	5
Ogden, Utah	24	16	7	1	-	-	4
Phoenix, Ariz.	170	107	41	10	4	8	6
Pueblo, Colo.	16	9	5	1	1	-	2
Salt Lake City, Utah	48	29	10	3	2	4	1
Tucson, Ariz.	84	61	16	4	3	-	5
PACIFIC	1,774	1,190	363	114	51	55	103
Berkeley, Calif.	25	20	4	-	-	1	-
Fresno, Calif.	93	62	21	5	2	3	5
Glendale, Calif.	15	12	2	-	1	-	1
Honolulu, Hawaii	68	37	25	2	2	2	8
Long Beach, Calif.	105	74	25	4	-	2	5
Los Angeles, Calif.	430	283	79	43	15	10	25
Oakland, Calif.	66	45	13	4	2	1	8
Pasadena, Calif.	33	28	1	2	-	2	1
Portland, Oreg.	124	83	29	4	2	6	4
Sacramento, Calif.	71	49	14	3	1	4	4
San Diego, Calif.	157	95	34	13	10	5	16
San Francisco, Calif.	141	87	32	10	4	8	5
San Jose, Calif.	160	105	39	11	3	2	11
Seattle, Wash.	153	110	29	5	6	3	1
Spokane, Wash.	60	48	7	2	-	3	4
Tacoma, Wash.	73	52	9	6	3	3	5
TOTAL	12,186††	7,923	2,788	771	347	355	586

* 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 4 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.

Measles — Continued

on December 21, 1981. He had acquired measles in San Diego from a 2-year-old child who was not a military dependent. The officer traveled to Washington on December 20 and returned to California on December 23. His illness was diagnosed at a San Diego naval base and was reported to the San Diego County Health Department. California health officials reported the case to Washington health officials.

Ultimately, nine other cases, reported from five counties in western Washington, were epidemiologically linked to this officer. The seven first-generation cases occurred among persons from 9 to 37 years of age; one case occurred in a 30-year-old woman who managed the Bachelor Officers' Quarters (BOQ) where the officer stayed. Another occurred in a passenger on the officer's return flight to California. The remaining five cases occurred among persons who were at the Seattle-Tacoma airport on December 23. On that day, the officer had been in many parts of the airport. These five persons with measles visited at least one of the three departure gates visited by the officer that day. Thus, of the seven first-generation cases, only the BOQ manager could identify face-to-face contact with the index case.

Reported by D Ramras, MD, S Ross, County of San Diego Dept of Health Svcs, L Dales, MD, J Chin, MD, State Epidemiologist, California Dept of Health Svcs; M O'Donnell, W Fisher, MD, Bremerton-Kitsap County Health Dept, S Garlick, MD, Clallam County Health Dept, K Johnson, C Nolan, MD, Seattle-King County Health Dept, K Carroll, C Hyatt, MD, Snohomish County Health Dept, E Peterson, R Nicola, MD, Tacoma-Pierce County Health Dept, K Cahill, J Kobayashi, MD, State Epidemiologist, Washington State Dept of Social and Health Svcs; Div of Immunization, Center for Prevention Svcs, CDC.

Editorial Note: Interstate transmission of measles can be recognized when indigenous transmission is very low or absent (*1*) and when suspected cases are investigated thoroughly. The investigation of this outbreak was facilitated by efficient communication at many levels. The index case was reported from a military base to the local health department and then to California health officials. Their report to Washington health officials made it possible to epidemiologically link a small number of cases from several counties. Thus, Washington health officials could identify a chain of transmission and advise all local health departments to intensify surveillance.

Although measles is generally considered most contagious before rash onset (*2*), this outbreak illustrates that some patients are infectious up to 3 days after rash onset. Face-to-face contact with the index case was documented only for one of the seven secondary cases, suggesting that an infectious aerosol at the airport might have been the mode of transmission to the others (*3,4*). However, it is also possible that the persons unknowingly came in close contact with the index case.

During this outbreak, high immunity levels against measles were confirmed by reviews of school and day-care-center records in the five Washington counties where the cases occurred. Active surveillance and investigation of rash illnesses were intensified throughout Washington during the outbreak, and all suspected cases were investigated rapidly while laboratory confirmation was pending. No measles cases occurred more than two generations after the importation from California. Importations usually cause little morbidity when immunization levels are high (*5*).

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Measles — Continued

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Current Trends

Results of Blood Lead Determinations among Workers Potentially Exposed to Lead — United States

Determinations of blood lead levels among adult workers in the United States were recently analyzed by the National Institute for Occupational Safety and Health (NIOSH) and the National Center for Health Statistics (NCHS); data were collected during the Second National Health and Nutrition Evaluation Survey (NHANES-II). Blood lead levels were significantly higher among adults working in occupations with potential exposure to lead than in occupations without such potential exposures. Cigarette smokers had consistently higher blood lead determinations than nonsmokers, and men had higher levels than women.

NHANES II, conducted by NCHS from 1976 to 1980, was a cross-sectional survey of a probability sample of 27,801 persons, aged 6 months to 74 years, who were selected as representative of the total non-institutionalized civilian population of the United States. The survey used medical histories, physicians' examinations, and laboratory tests to collect a broad range of information on health status, including measurements of lead concentrations in whole blood (*1*).

The NHANES-II blood lead determinations were compared with data previously collected during the National Occupational Hazard Survey (NOHS) (*2*), conducted by NIOSH from 1972 to 1974. NOHS collected information on potential exposures of workers to chemical and physical agents in a probability sample survey of approximately 5,000 workplaces across the United States. These data identified occupations with potential occupational exposure* to lead in the workplace.

The results of blood lead determinations among workers, aged 18-74 years, surveyed by NHANES II were divided into two groups: those for persons working in settings previously identified by NOHS as affording potential exposures to lead and those for persons working in settings without such potential exposures. Preliminary results of this comparison indicate that the mean of blood lead determinations for men in the United States with potential occupational exposures to lead (17.9 μg/dL) was significantly greater than that for men without potential occupational exposure to lead (15.5 μg/dL) ($p < 0.001$) (Table 2). Of the male workers with potential occupational exposure to lead, 5.8% had blood lead levels greater than 30 μg/dL. Of male workers without potential occupational exposure to lead, 1.2% had blood lead levels over 30 μg/dL. Hence, 92% of adult men in the United States found in 1976-1980 with blood

*Potential occupational exposure describes an assessment by an industrial hygienist of the relationship between workers and chemicals in workplaces surveyed by NOHS. Surveyors did not collect environmental samples but determined whether a chemical was in use or generated in a workplace. A worker was "potentially exposed" if opportunity for exposure to the chemical existed for at least 30 minutes per week at least 90% of the weeks worked in a year. Assessment rested on the surveyor's judgment of contact between worker and agent in one or more of its physical phases.

Blood Lead — Continued

lead levels over 30 μg/dL worked in occupations that were judged in 1972 to be associated with potential occupational exposure to lead.

Because NHANES-II also recorded information on the smoking status of examinees, it was possible to demonstrate that smokers have significantly higher blood lead levels than nonsmokers (Figure 2). This was true for adults of both sexes and for workers with and without potential occupational exposures to lead. Smoking appeared to have an additive effect to the potential occupational exposure to lead in producing elevated blood lead levels.

Reported by Surveillance Br, Div of Surveillance, Hazard Evaluations, and Field Studies, National Institute for Occupational Safety and Health, CDC.

Editorial Note: Lead poisoning has been recognized since antiquity as a hazard of working with lead (*3*). Present-day occupations associated with exposure to lead and the risk of lead poisoning include smelting, recovery of scrap, cutting of steel, and the manufacturing of batteries, lead pigment, and stained glass. The major route of lead absorption in the occupational setting is inhaling lead dust and fumes (*4*). Ingesting lead dust from fingers, food, and cigarettes (*5*) has also been shown to contribute to occupational exposure.

Chronic occupational exposure to lead has been shown to cause anemia and peripheral neuropathy, the extent and severity of these effects correlating with observed blood lead levels (*6*). Occupational lead exposure has also been associated with central nervous system dysfunction that may lead to premature senility (*7*) and with renal impairment resulting in elevated death rates from end-stage renal disease (*8*). Finally, lead is toxic to reproductive functions and may cause depressed sperm counts in workers (*9*).

It is not possible to establish a blood lead level below which symptoms are never found or to indicate a blood lead level at which symptoms will necessarily occur (*10*). Although various standards have been proposed for maximum blood lead levels and permissible exposure limits (*11,12*), the present analysis focuses on blood lead levels of 30 μg/dL as an indicator of the need for concern. Coincidentally, this level appears to be about two standard deviations above the average blood lead level observed in adults in NHANES II.

The data indicate that exposure in the workplace had and may continue to have a significant impact on blood lead levels of adults in the United States. Although blood lead levels among workers in the lead industries have declined in recent years, they are still significantly higher than among lead workers in the United Kingdom, Sweden, or Finland (*13*).

TABLE 2. Mean* blood lead levels for U.S. workers, 18-74 years of age, by sex and potential exposure to metallic lead, 1976-1980

Observed potential workplace-exposure to metallic lead	Sex	Average† blood lead level, μg/dL (SE)	Percentage† workers with blood lead levels > 30 μg/dL (SE)
Present	Male	17.9 (0.34)	5.8 (0.66)
	Female	12.3 (0.36)	1.1 (0.68)
Absent	Male	15.5 (0.36)	1.2 (0.51)
	Female	11.5 (0.28)	(-)§

*Data sources: The National Center for Health Statistics' National Health and Nutrition Examination Survey (1976-1980). The NIOSH National Occupational Hazard Survey was used to identify workers in types of workplaces with observed potential exposure to lead.

†The estimated standard errors (μg/dL) of the estimates are in parentheses next to the National estimated averages.

§This percentage and its standard error are estimated to be zero. The true percentage is more likely greater than zero.

Blood Lead — Continued

Methods of preventing occupational absorption of lead include: 1) replacing lead with less toxic materials; 2) enclosing work processes that produce exposure to lead; 3) adequately ventilating work areas; 4) altering work practices; 5) using personal protective equipment, such as coveralls and respirators; and 6) modifying personal hygiene practices. The first three measures, which tend to reduce airborne lead at its source, are the most effective.

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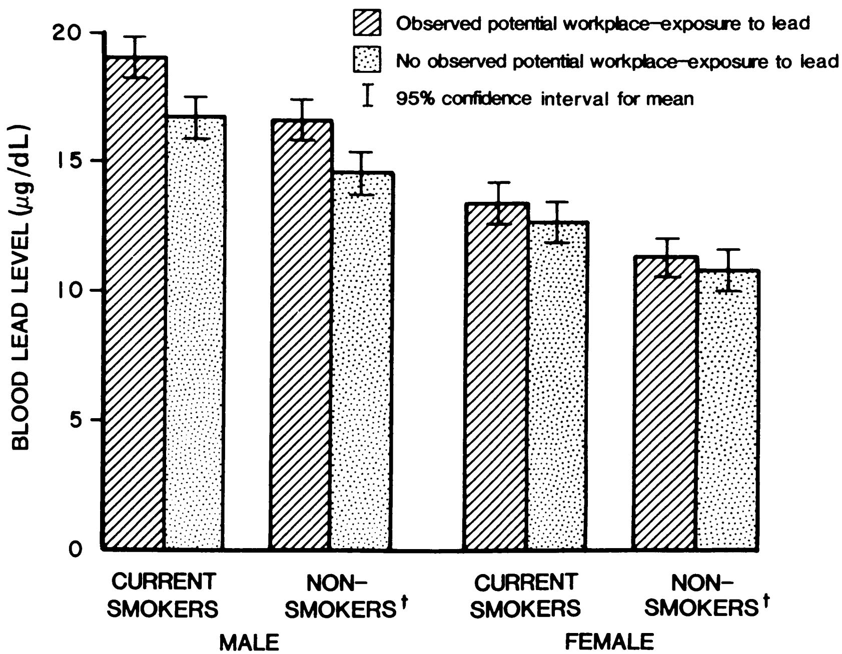
FIGURE 2. Mean* blood lead levels for workers 18-74 years of age, by potential occupational lead exposure, sex, and smoking status — United States, 1976-1980



*Data sources: The National Center for Health Statistics' National Health and Nutrition Examination Survey (1976-1980). The National Institute for Occupational Safety and Health's National Occupational Hazard Survey was used to identify those in types of workplaces with observed potential exposure to lead.

†Includes ex-smokers.

Blood Lead — Continued

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Erratum, Vol. 32, No. 14

p. 183. In the article, "Interstate Common-Source Outbreaks of Staphylococcal Food Poisoning—North Carolina, Pennsylvania," the credits on p. 184 should include WD Mashburn, MPH, Iredell County Health Dept, North Carolina.

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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: ATTN: Editor, *Morbidity and Mortality Weekly Report*, Centers for Disease Control, Atlanta, Georgia 30333.

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