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Clean Air Week — May 6–12, 1991

Since 1973, the American Lung Association (ALA) has sponsored Clean Air Week to educate the public about the effects of air pollution on respiratory health. The theme for Clean Air Week 1991 (May 6–12), "Clean Air Is Up to You!", challenges U.S. residents to take personal responsibility for reducing the level of indoor and outdoor air pollution. This issue of *MMWR* includes reports on noncancer health risks from toxic air pollutants, health effects from exposure to indoor paint containing bis(tributyltin) oxide, and the clean air national health objectives for the year 2000.

Respiratory illnesses associated with airborne pollutants include chronic bronchitis, pulmonary emphysema, lung cancer, and bronchial asthma (1). Although estimates of the total annual health costs attributable to exposure to air pollution are difficult to determine, the ALA suggests these costs range from \$40 to \$50 billion each year (2).

The ALA has designated May 9 as "Don't Drive Day/Don't Drive Alone Day." On that day, motorists are encouraged to use mass transit, carpools, or bicycles. Other activities during Clean Air Week will vary across the country; among them will be the Clean Air Challenge (a pledge-based bicycling event May 4 and 5) and educational activities for elementary and high school students on the health effects of indoor and outdoor air pollution. Additional information about Clean Air Week and related activities is available from local offices of the ALA; to contact the national offices, telephone (212) 315-8848.

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References

1. Public Health Service. Healthy people 2000: national health promotion and disease prevention objectives. Washington, DC: US Department of Health and Human Services, Public Health Service, 1990; DHHS publication no. (PHS)90-50212.
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Perspectives in Disease Prevention and Health Promotion

Toxic Air Pollutants and Noncancer Health Risks — United States

Previous evaluations of the health risks associated with chemical pollutants of ambient air have focused on the potential for carcinogenic effects (1). However, other potential health effects that may result from exposure to these pollutants include nonmalignant respiratory disease, hematopoietic abnormalities, neurotoxicity, renal toxicity, developmental toxicity, and reproductive toxicity. To address these concerns, the U.S. Environmental Protection Agency (EPA) conducted a national study to assess the noncancer risks of toxic air pollutants (EPA, unpublished data). This report summarizes the findings of this assessment.

United States

During 1987 and 1988, air monitoring data were used to examine exposure to individual and multiple pollutants. During 1987, ambient monitored data were obtained on 319 volatile organic compounds from 123,000 samples collected during 1980–1987 in 310 U.S. cities and, during 1988, on six trace metals monitored primarily during 1980–1988 across the country at more than 1500 sites. Average annual concentrations were estimated, or modeled, for 40 pollutants emitted from more than 3500 individual facility sites (e.g., factories and businesses). Information on potential health effects and estimated exposures were available for 143 (43%) of 334 pollutants.

For the 143 pollutants, the maximum and median concentrations monitored during a 24-hour period or the average modeled annual concentrations, as applicable, were compared to the lowest-observed-adverse-effect-level (LOAEL) and to the health reference level.*

For 54 (38%) of the 143 pollutants, air concentrations exceeded the health reference level at one or more sites; several pollutants exceeded the health reference level at more than 25% of the sites studied.[†] An estimated 50 million persons lived within 6¼ miles (10 km) of monitored sites or within 1¼ miles (2 km) of modeled facilities where the concentrations of one or more chemicals exceeded the health reference level. For the LOAEL, the comparable population estimate was 19 million persons. Typically, several pollutants were present simultaneously in ambient air. In evaluating the potential impact of exposure to chemical pollutant mixtures, this study concluded that combined exposures may pose risks for the respiratory, neurologic, and reproductive systems and a risk for adverse developmental effects.

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*LOAEL—the lowest dose or exposure level at which an adverse effect has been observed. Health reference level—the adjusted LOAEL divided by appropriate uncertainty factors (2) (i.e., to account for intra- and interspecies variations and differences between no effect and LOAEL).

[†]Chemicals for which more than 25% of sites had modeled or monitored levels that exceeded the associated health reference level in the United States: acetaldehyde, acrolein, arsenic, benzene, beryllium, carbon disulfide, carbon tetrachloride, chloroform, ethylene oxide, formaldehyde, hydrogen sulfide, methyl ethyl ketone, methyl isocyanate, methyl methacrylate, nitrobenzene, perchloroethylene, phenol, phthalic anhydride, styrene, tetramethyl lead, toluene diisocyanate, and vinyl chloride.

Toxic Air Pollutants – Continued

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Editorial Note: In 1988, the U.S. manufacturing sector emitted an estimated 2.4 billion lbs of toxic pollutants into the atmosphere (3). Although the data base available for assessing noncancer health risks is limited, the findings in this report underscore the need to focus attention on the noncancer health risks of toxic air pollution.

The 1970 Clean Air Act required the EPA to publish a list of hazardous air pollutants and develop a national emission standard for each.⁵ Under those provisions, only eight chemicals have been listed as hazardous air pollutants—in part because of the difficulties in determining risks to the public's health and developing appropriate standards. These difficulties, coupled with regulatory procedures, have prompted major changes in the strategies for controlling hazardous air pollutant emissions (4), as reflected in the Clean Air Act Amendments of 1990.[†] Under these provisions, the EPA has listed 189 substances as hazardous air pollutants. Initially, the EPA will develop and implement technology-based emission standards; the EPA will then evaluate the remaining emissions and associated residual risks. If warranted, the EPA will develop risk-based emission standards.

The 1990 provisions require that the EPA perform risk assessments throughout the 1990s. In addition, the act provides a basis for state and local agencies to perform risk assessments. For example, states are required to conduct public hearings on air-quality permit applications and emission-control decisions. At such hearings, the public may request information on the health risks posed by emissions from facilities requesting permits. Therefore, state and local health departments and air quality management agencies also have an important role in implementing the 1990 amendments.

The final report of the studies cited will be available from the Pollutant Assessment Branch, Emissions Standards Division, Office of Air Quality Planning and Standards, EPA, Research Triangle Park, NC 27711; telephone (919) 541-5346.

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3. Environmental Protection Agency. Toxics in the community: 1988 national and local perspectives. Washington, DC: US Environmental Protection Agency, 1990; publication no. EPA-560/4-90-017.
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⁵Public Law no. 91-604, §4(a) (42 U.S.C. §7412).

[†]Public Law no. 101-549, §301 (42 U.S.C. §7412).

Epidemiologic Notes and Reports

Acute Effect of Indoor Exposure to Paint Containing Bis(tributyltin) Oxide — Wisconsin, 1991

In January 1991, a woman in Wisconsin contacted her local public health department to report that she and her two children had become ill after her landlord painted the walls and ceilings of two rooms of her apartment. Reported symptoms included a burning sensation in the nose and forehead, headache, nose bleed, cough, loss of appetite, nausea, and vomiting. The woman, who was in the third trimester of pregnancy, also complained of a persistent odor from the paint and provided an empty bottle of a paint additive used for mildew control. The label indicated that this product contained 25% bis(tributyltin) oxide (TBTO) as its only active ingredient.

The family vacated the unit 1 week after the apartment was painted. Two days after the move, the Wisconsin Department of Health and Social Services collected an air sample in the painted apartment. Some areas of the apartment had been repainted, and the doorway to one of the two bedrooms had been sealed off by a sheet of particle board. The air sample from the second bedroom contained 0.002 mg/m³ of TBTO as tin.*

One day after moving out of the apartment, one of the children was treated at an emergency room for persistent vomiting. The other child developed a cough but did not require medical attention. Eight days after moving out of the apartment, the woman gave birth to a reportedly healthy infant. However, during a follow-up telephone call 12 weeks later, the woman reported having taken the baby to a pediatrician several times for evaluation of persistent vomiting, rashes, and respiratory difficulties. The woman had recurrent burning pain in her nose and forehead for at least 3 months after exposure. Both of the older children reportedly recovered without persistent symptoms.

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Editorial Note: TBTO is a fungicide manufactured for use in exterior paints and is the active biocide in at least two widely available commercial paint fungicides. The U.S. Environmental Protection Agency registrations for these commercial products permit their use in interior paints.

In animal studies, a variety of toxic responses have been associated with exposure to TBTO. Dietary exposure of experimental animals to the chemical has resulted in weight loss, immunosuppression, and microcytic anemia (2,3). A dose-related increase in the incidence of cleft palate occurred after exposure of pregnant mice (4). Inhalation exposure produced hemorrhagic and edematous lesions in the lungs of mice and guinea pigs (5).

In humans, dermal exposure produces irritant effects, including erythema, follicular inflammation, and pruritus (6). Industrial exposure to vapors or fumes of organotin compounds causes eye and throat irritation; workers so exposed have developed sore throats and coughs within several hours of exposure (7). Except for nose bleeds and persistent pain in the forehead, the acute symptoms reported by the

*The Occupational Safety and Health Administration's permissible exposure limit for organic tin compounds is 0.1 mg/m³ as an 8-hour, time-weighted average exposure for workers (1).

Bis(tributyltin) Oxide Exposure – Continued

family in Wisconsin are consistent with the acute effects associated with exposure to TBTO. However, because the air sample was collected following partial remediation, the actual level of exposure may have been underestimated. The effect of prenatal exposure to TBTO on the infant's health is unknown.

The label on the empty paint additive bottle from the family's apartment did not specify whether the product was appropriate for use in interior paints. According to its manufacturer, this bottle was produced before 1988, when the consumer product label was voluntarily changed to include the words "for exterior use only." The material safety data sheet (MSDS) for this product states that the product is toxic and not for interior use. The consumer product label on a second fungicide, which also contained 25% TBTO, indicated that the product could be used in interior and exterior paints; the MSDS for this product states that it is safe for use in indoor paints if mixed according to directions.

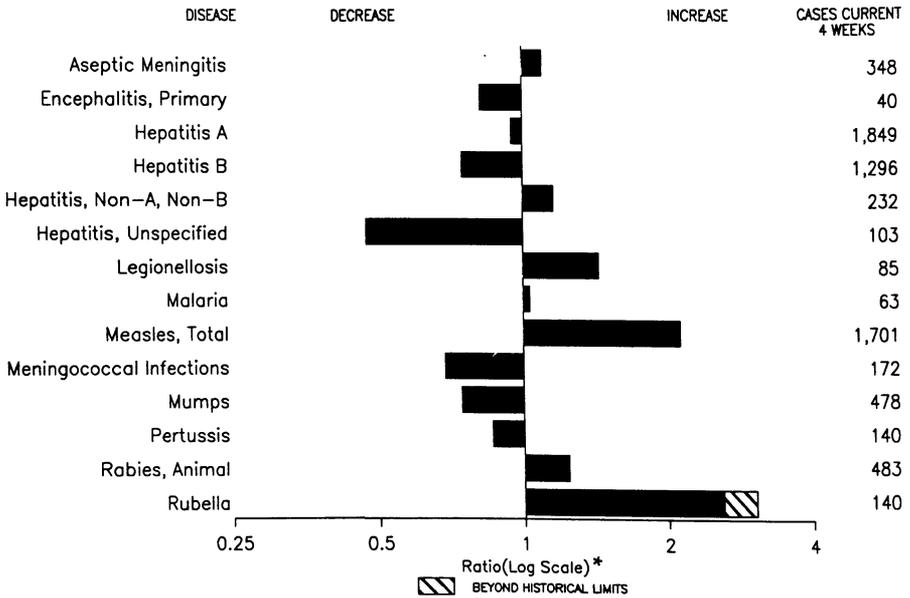
In February 1988, the Washington Department of Health issued a health advisory against using TBTO in interior paint, based on its investigation of six incidents of illness among persons who painted one or more walls with interior paint to which this fungicide had been added (Washington Department of Health, unpublished data). Complaints and reported symptoms included respiratory problems, sore throat, weakness, headache, and swollen glands. In July 1988, the Washington Department of Agriculture established regulations banning the sale of this product in the state for use in interior paint.

The investigation in Wisconsin suggests that the use of this product as an additive for interior paints represents a source of toxic, short-term exposure. The health effects of chronic, low-level exposure are unknown.

References

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FIGURE I. Notifiable disease reports, comparison of 4-week totals ending April 27, 1991, with historical data — United States



*Ratio of current 4-week total to 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 27, 1991 (17th Week)

	Cum. 1991		Cum. 1991
AIDS	13,547	Measles: imported	46
Anthrax	-	indigenous	3,646
Botulism: Foodborne	6	Plague	-
Infant	17	Poliomyelitis, Paralytic*	-
Other	4	Psittacosis	28
Brucellosis	16	Rabies, human	-
Cholera	-	Syphilis, primary & secondary	13,969
Congenital rubella syndrome	7	Syphilis, congenital, age < 1 year	9
Diphtheria	1	Tetanus	7
Encephalitis, post-infectious	23	Toxic shock syndrome	116
Gonorrhea	182,535	Trichinosis	7
<i>Haemophilus influenzae</i> (invasive disease)	1,234	Tuberculosis	6,335
Hansen Disease	35	Tularemia	23
Leptospirosis	25	Typhoid fever	96
Lyme Disease	1,329	Typhus fever, tickborne (RMSF)	22

*No cases of suspected poliomyelitis have been reported in 1991; none of the 6 suspected cases in 1990 have been confirmed to date. Five of 13 suspected cases in 1989 were confirmed and all were vaccine associated.

TABLE II. Cases of selected notifiable diseases, United States, weeks ending April 27, 1991, and April 28, 1990 (17th Week)

Reporting Area	AIDS	Aseptic Meningitis	Encephalitis		Gonorrhea		Hepatitis (Viral), by type				Legionellosis	Lyme Disease
			Primary	Post-infectious			A	B	NA,NB	Unspecified		
			Cum. 1991	Cum. 1991	Cum. 1991	Cum. 1991	Cum. 1991	Cum. 1990	Cum. 1991	Cum. 1991		
UNITED STATES	13,547	1,581	183	23	182,535	222,411	8,364	5,213	956	478	362	1,329
NEW ENGLAND	588	67	9	-	4,718	6,158	185	293	41	13	31	46
Maine	22	4	3	-	40	89	5	7	2	-	-	-
N.H.	16	4	-	-	117	80	15	8	4	-	1	3
Vt.	8	7	-	-	16	23	9	2	3	-	-	1
Mass.	349	22	4	-	1,902	2,333	102	229	25	11	29	31
R.I.	19	23	-	-	387	322	28	12	5	2	1	11
Conn.	174	7	2	-	2,256	3,311	26	35	2	-	-	-
MID. ATLANTIC	3,766	192	16	7	21,197	30,718	603	441	80	12	107	1,024
Upstate N.Y.	569	100	8	5	4,128	4,347	397	204	53	6	40	848
N.Y. City	2,070	9	-	-	6,879	13,174	25	6	-	-	3	-
N.J.	750	-	-	-	3,664	5,053	72	118	11	-	11	176
Pa.	377	83	8	2	6,526	8,144	109	113	16	6	53	-
E.N. CENTRAL	989	290	51	4	34,800	43,088	960	628	129	19	67	55
Ohio	204	98	14	1	10,846	13,023	152	153	69	8	35	34
Ind.	63	34	6	1	3,542	3,609	153	75	1	1	6	-
Ill.	456	51	11	2	11,018	13,377	389	80	12	1	2	-
Mich.	198	98	18	-	7,753	10,265	128	204	39	9	18	21
Wis.	68	9	2	-	1,641	2,814	138	116	8	-	6	-
W.N. CENTRAL	395	106	9	3	8,833	11,726	982	222	105	8	16	9
Minn.	92	21	5	-	923	1,416	128	20	7	1	4	2
Iowa	32	24	-	1	577	868	25	12	6	1	1	5
Mo.	208	42	2	2	5,348	6,893	233	159	88	4	6	-
N. Dak.	4	-	-	-	11	55	20	3	2	1	-	-
S. Dak.	-	4	2	-	124	71	405	2	-	-	3	-
Nebr.	18	7	-	-	623	569	142	11	1	-	2	-
Kans.	41	8	-	-	1,227	1,854	29	15	1	1	1	2
S. ATLANTIC	3,181	386	33	7	55,273	61,845	586	1,142	148	108	51	65
Del.	29	8	1	-	736	957	5	16	3	2	-	12
Md.	359	42	4	-	5,719	6,218	122	164	30	6	15	27
D.C.	201	12	-	-	3,393	3,549	37	40	1	1	-	-
Va.	276	67	10	-	5,408	5,985	64	78	9	82	4	10
W. Va.	10	2	1	-	400	448	9	27	1	3	-	3
N.C.	160	39	10	-	10,297	10,429	67	194	60	-	6	8
S.C.	107	10	-	-	4,110	5,171	19	273	15	2	7	1
Ga.	487	36	5	1	14,132	13,830	65	133	10	-	4	2
Fla.	1,552	170	2	6	11,078	15,258	198	217	19	12	15	2
E.S. CENTRAL	337	87	8	-	16,505	18,286	77	459	122	3	22	39
Ky.	55	22	2	-	1,674	2,165	9	64	5	2	11	14
Tenn.	105	18	4	-	6,401	6,022	49	341	112	-	6	21
Ala.	94	31	2	-	4,078	5,840	18	53	5	1	5	4
Miss.	83	16	-	-	4,352	4,259	1	1	-	-	-	-
W.S. CENTRAL	1,295	132	13	1	20,710	22,728	1,146	540	27	69	14	23
Ark.	56	27	1	-	2,129	3,029	124	36	1	2	2	7
La.	216	21	3	-	4,025	4,318	44	84	1	3	5	-
Okla.	48	1	3	-	2,047	2,071	120	84	15	8	4	15
Tex.	975	83	6	1	12,509	13,310	858	336	10	56	3	1
MOUNTAIN	392	61	9	1	3,478	4,722	1,481	347	44	75	29	3
Mont.	10	2	-	-	24	53	48	31	2	4	1	-
Idaho	9	-	-	-	55	33	25	32	-	-	3	-
Wyo.	6	-	-	-	42	58	75	5	-	-	-	3
Colo.	157	17	1	1	677	1,332	169	54	11	10	4	-
N. Mex.	39	8	-	-	394	387	472	67	6	25	1	-
Ariz.	73	18	8	-	1,448	1,831	455	73	5	30	10	-
Utah	19	8	-	-	115	140	112	16	9	6	4	-
Nev.	79	8	-	-	723	888	125	69	11	-	6	-
PACIFIC	2,604	260	35	-	17,021	23,140	2,344	1,141	260	171	25	65
Wash.	184	-	2	-	1,402	2,156	217	169	59	8	1	-
Oreg.	71	-	-	-	661	857	132	109	44	4	1	-
Calif.	2,276	233	31	-	14,470	19,570	1,916	832	146	158	22	65
Alaska	8	8	2	-	256	405	69	10	9	1	-	-
Hawaii	65	19	-	-	232	152	10	21	2	-	1	-
Guam	-	-	-	-	-	94	-	-	-	-	-	-
P.R.	490	83	-	1	205	347	40	146	45	18	-	-
V.I.	3	-	-	-	210	160	-	4	-	-	-	-
Amer. Samoa	-	-	-	-	-	42	-	-	-	-	-	-
C.N.M.I.	-	-	-	-	-	72	-	-	-	-	-	-

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 27, 1991, and April 28, 1990 (17th Week)

Reporting Area	Malaria		Measles (Rubeola)			Menin- gococcal Infections	Mumps		Pertussis			Rubella			
	Cum. 1991	1991	Indigenous		Imported*		Cum. 1990	Cum. 1991	1991	Cum. 1991	Cum. 1990	1991	Cum. 1991	Cum. 1990	
			1991	Cum. 1991	1991	Cum. 1991									
UNITED STATES	295	367	3,646	5	46	6,833	807	139	1,485	31	682	967	15	309	269
NEW ENGLAND	24	5	14	2	4	124	57	-	11	11	96	112	-	1	3
Maine	1	-	-	-	-	27	4	-	-	1	12	4	-	-	-
N.H.	2	-	-	-	-	8	6	-	3	-	11	10	-	1	-
Vt.	1	-	5	-	-	1	8	-	-	-	3	5	-	-	-
Mass.	13	5	5	2 [§]	2	5	30	-	-	10	64	84	-	-	-
R.I.	4	-	-	-	-	26	-	-	2	-	-	-	-	-	1
Conn.	3	-	4	-	2	57	9	-	6	-	6	9	-	-	2
MID. ATLANTIC	27	179	2,147	1	1	636	77	4	141	3	71	263	9	178	2
Upstate N.Y.	11	-	1	-	-	258	42	2	49	3	43	214	9	169	1
N.Y. City	3	100	825	-	-	76	2	-	-	-	-	-	-	-	-
N.J.	8	-	113	-	-	50	13	-	44	-	1	13	-	-	-
Pa.	5	79	1,208	1 [§]	1	252	20	2	48	-	27	36	-	9	1
E.N. CENTRAL	25	-	47	-	4	2,515	114	4	148	-	132	253	-	15	15
Ohio	6	-	-	-	1	210	38	-	27	-	63	48	-	-	-
Ind.	1	-	-	-	-	218	8	-	5	-	23	38	-	1	-
Ill.	9	-	20	-	-	1,059	35	-	65	-	19	92	-	3	14
Mich.	8	-	25	-	-	337	26	4	46	-	19	32	-	11	-
Wis.	1	-	2	-	3	691	7	-	5	-	8	43	-	-	1
W.N. CENTRAL	9	8	18	1	2	252	47	4	58	-	50	29	1	8	-
Minn.	2	-	3	1 [§]	2	39	10	1	5	-	16	-	-	4	-
Iowa	2	8	15	-	-	21	2	2	11	-	4	3	1	3	-
Mo.	4	-	-	-	-	59	21	1	15	-	18	20	-	1	-
N. Dak.	1	-	-	-	-	-	1	-	-	-	1	1	-	-	-
S. Dak.	-	-	-	-	-	12	1	-	-	-	1	1	-	-	-
Nebr.	-	-	-	-	-	83	3	-	3	-	4	1	-	-	-
Kans.	-	-	-	-	-	38	9	-	24	-	6	3	-	-	-
S. ATLANTIC	65	42	231	-	9	438	145	93	549	-	35	75	-	11	11
Del.	1	1	18	-	-	7	-	-	2	-	-	2	-	-	-
Md.	20	21	84	-	-	50	16	3	116	-	7	19	-	9	-
D.C.	4	-	-	-	-	8	-	5	17	-	-	5	-	-	1
Va.	10	-	15	-	3	27	13	-	19	-	4	8	-	-	-
W. Va.	1	-	-	-	-	6	5	-	10	-	6	8	-	-	-
N.C.	2	-	1	-	-	3	34	8	86	-	7	13	-	-	-
S.C.	5	-	12	-	-	1	20	76	159	-	-	3	-	-	-
Ga.	7	-	-	-	-	18	31	-	12	-	6	10	-	-	-
Fla.	15	20	101	-	6	318	26	1	128	-	5	7	-	2	10
E.S. CENTRAL	3	-	4	-	-	52	61	1	32	-	21	33	-	-	1
Ky.	1	-	-	-	-	3	23	-	-	-	-	-	-	-	-
Tenn.	1	-	4	-	-	19	19	1	17	-	10	12	-	-	1
Ala.	1	-	-	-	-	5	19	-	3	-	11	19	-	-	-
Miss.	-	-	-	-	-	25	-	-	12	-	-	2	-	-	-
W.S. CENTRAL	16	-	-	-	5	767	63	13	173	3	17	12	-	1	1
Ark.	1	-	-	-	5	11	10	-	23	-	-	1	-	1	1
La.	3	-	-	-	-	-	16	1	11	-	7	1	-	-	-
Okla.	1	-	-	-	-	123	8	1	6	3	10	10	-	-	-
Tex.	11	-	-	-	-	633	29	11	133	-	-	-	-	-	-
MOUNTAIN	12	24	184	-	10	346	36	2	89	6	93	81	-	1	22
Mont.	1	-	-	-	-	1	4	-	-	-	-	-	-	-	13
Idaho	1	-	-	-	2	19	7	-	5	-	18	10	-	-	6
Wyo.	-	-	-	-	-	-	1	-	3	-	3	-	-	-	-
Colo.	3	-	-	-	1	40	7	1	24	4	40	48	-	-	2
N. Mex.	1	2	79	-	3	68	5	N	N	2	14	4	-	-	-
Ariz.	5	22	93	-	-	123	8	1	40	-	8	10	-	-	-
Utah	1	-	2	-	4	-	-	-	11	-	10	5	-	-	-
Nev.	-	-	10	-	-	95	4	-	6	-	-	4	-	1	1
PACIFIC	114	109	1,001	1	11	1,703	207	18	284	8	167	109	5	94	214
Wash.	9	-	1	-	3	38	24	1	69	2	47	31	-	-	-
Oreg.	2	-	15	-	1	117	26	N	N	-	28	14	-	-	-
Calif.	101	109	983	1 [§]	7	1,471	150	16	202	6	63	52	-	93	209
Alaska	-	-	-	-	-	75	6	-	4	-	4	-	-	-	-
Hawaii	2	-	2	-	-	2	1	1	9	-	25	12	-	1	5
Guam	-	U	-	U	-	-	-	U	-	U	-	-	-	-	-
P.R.	1	20	26	-	1	698	15	-	7	-	12	4	U	-	-
V.I.	-	-	-	-	-	3	-	-	4	-	-	-	-	1	-
Amer. Samoa	-	U	-	U	-	-	-	U	-	U	-	-	-	-	-
C.N.M.I.	-	U	-	U	-	-	-	U	-	U	-	-	-	U	-

*For measles only, imported cases include both out-of-state and international importations.

N: Not notifiable U: Unavailable ¹International [§]Out-of-state

TABLE II. (Cont'd.) Cases of selected notifiable diseases, United States, weeks ending April 27, 1991, and April 28, 1990 (17th Week)

Reporting Area	Syphilis (Primary & Secondary)		Toxic- shock Syndrome	Tuberculosis		Tula- remia	Typhoid Fever	Typhus Fever (Tick-borne) (RMSF)	Rabies, Animal
	Cum. 1991	Cum. 1990	Cum. 1991	Cum. 1991	Cum. 1990	Cum. 1991	Cum. 1991	Cum. 1991	Cum. 1991
UNITED STATES	13,969	15,941	116	6,335	6,943	23	96	22	1,619
NEW ENGLAND	387	631	6	157	150	1	9	2	5
Maine	-	5	3	-	-	-	1	-	-
N.H.	10	32	1	-	3	-	-	-	1
Vt.	1	1	-	1	2	-	-	-	-
Mass.	193	224	2	85	73	1	8	2	-
R.I.	16	1	-	18	28	-	-	-	-
Conn.	167	368	-	53	44	-	-	-	4
MID. ATLANTIC	2,310	3,336	19	1,446	1,699	-	12	-	499
Upstate N.Y.	103	230	10	105	171	-	5	-	173
N.Y. City	1,122	1,592	-	872	1,018	-	2	-	-
N.J.	434	521	-	270	284	-	4	-	226
Pa.	651	993	9	199	226	-	1	-	100
E.N. CENTRAL	1,590	1,122	23	716	641	1	11	-	25
Ohio	197	160	15	108	78	-	2	-	4
Ind.	31	11	-	43	39	-	-	-	-
Ill.	786	423	4	387	338	-	3	-	5
Mich.	421	391	4	143	162	1	5	-	3
Wis.	155	137	-	35	24	-	1	-	13
W.N. CENTRAL	231	137	25	171	170	5	2	2	223
Minn.	25	32	7	33	28	-	2	-	84
Iowa	21	12	5	26	21	-	-	-	45
Mo.	151	67	6	76	78	5	-	2	4
N. Dak.	-	1	-	2	9	-	-	-	19
S. Dak.	1	1	1	12	4	-	-	-	46
Nebr.	6	4	1	6	11	-	-	-	8
Kans.	27	20	5	16	19	-	-	-	17
S. ATLANTIC	4,182	5,000	7	1,149	1,255	2	20	12	417
Del.	51	64	1	8	16	-	-	-	46
Md.	350	401	-	97	108	-	6	1	148
D.C.	256	304	-	67	39	-	1	-	5
Va.	376	286	2	111	104	-	3	-	87
W. Va.	10	6	-	31	22	-	1	-	25
N.C.	642	578	4	132	160	1	-	9	-
S.C.	498	295	-	130	149	-	-	-	33
Ga.	1,002	1,142	-	233	184	-	4	2	62
Fla.	997	1,924	-	340	473	1	5	-	11
E.S. CENTRAL	1,463	1,387	5	364	565	2	-	2	49
Ky.	30	26	2	98	136	1	-	1	13
Tenn.	537	582	3	42	178	1	-	-	18
Ala.	521	410	-	122	163	-	-	1	18
Miss.	375	369	-	102	88	-	-	-	-
W.S. CENTRAL	2,581	2,588	4	646	825	7	3	4	225
Ark.	179	167	2	63	78	4	-	-	14
La.	786	764	-	49	129	-	1	-	3
Okla.	48	72	2	42	70	3	-	4	68
Tex.	1,568	1,585	-	492	548	-	2	-	140
MOUNTAIN	217	284	13	181	136	4	4	-	33
Mont.	1	-	-	-	10	3	-	-	8
Idaho	3	5	-	2	3	-	-	-	1
Wyo.	1	1	-	2	1	1	-	-	17
Colo.	17	23	1	6	6	-	-	-	1
N. Mex.	50	18	5	35	31	-	-	-	1
Ariz.	126	188	3	85	64	-	3	-	5
Utah	3	2	4	25	3	-	-	-	-
Nev.	16	47	-	26	18	-	1	-	-
PACIFIC	1,008	1,456	14	1,505	1,502	1	35	-	143
Wash.	42	160	1	96	95	1	-	-	-
Oreg.	27	40	-	34	41	-	2	-	1
Calif.	933	1,240	13	1,292	1,288	-	32	-	138
Alaska	2	5	-	19	18	-	-	-	3
Hawaii	4	11	-	64	60	-	1	-	1
Guam	-	1	-	-	15	-	-	-	-
P.R.	150	150	-	71	29	-	-	-	11
V.I.	72	1	-	1	3	-	-	-	-
Amer. Samoa	-	-	-	-	11	-	-	-	-
C.N.M.I.	-	-	-	-	20	-	-	-	-

U: Unavailable

TABLE III. Deaths in 121 U.S. cities,* week ending
April 27, 1991 (17th Week)

Reporting Area	All Causes, By Age (Years)						P&I** Total	Reporting Area	All Causes, By Age (Years)						P&I** Total
	All Ages	≥65	45-64	25-44	1-24	<1			All Ages	≥65	45-64	25-44	1-24	<1	
NEW ENGLAND	556	377	114	48	7	10	39	S. ATLANTIC	1,476	896	325	143	59	53	65
Boston, Mass.	158	100	37	12	4	5	14	Atlanta, Ga.	179	111	34	18	4	12	7
Bridgeport, Conn.	43	24	13	5	-	1	3	Baltimore, Md.	191	112	40	21	7	11	11
Cambridge, Mass.	13	9	3	1	-	-	-	Charlotte, N.C.	121	81	28	9	-	3	3
Fall River, Mass.	21	19	1	1	-	-	1	Jacksonville, Fla.	115	60	29	14	10	2	9
Hartford, Conn.	60	50	5	2	2	1	4	Miami, Fla.	103	58	28	12	3	2	1
Lowell, Mass.	14	10	2	2	-	-	1	Norfolk, Va.	49	29	11	3	2	4	3
Lynn, Mass.	18	15	3	-	-	-	-	Richmond, Va.	88	48	20	8	3	9	6
New Bedford, Mass.	11	9	1	1	-	-	2	Savannah, Ga.	51	38	5	3	2	3	6
New Haven, Conn.	38	22	8	8	-	-	-	St. Petersburg, Fla.	67	45	18	1	2	1	-
Providence, R.I.	40	30	10	-	-	-	1	Tampa, Fla.	162	105	36	13	7	1	12
Somerville, Mass.	3	3	-	-	-	-	-	Washington, D.C.	322	190	69	40	19	4	7
Springfield, Mass.	50	22	17	10	-	1	3	Wilmington, Del.	28	19	7	1	-	1	-
Waterbury, Conn.	38	28	7	3	-	-	3	E.S. CENTRAL	896	585	191	64	33	23	46
Worcester, Mass.	49	36	7	3	1	2	7	Birmingham, Ala.	111	71	22	8	7	3	4
MID. ATLANTIC	2,761	1,807	513	284	81	75	164	Chattanooga, Tenn.	63	41	12	5	1	4	3
Albany, N.Y.	35	24	3	3	4	1	3	Knoxville, Tenn.	80	55	17	5	1	2	5
Allentown, Pa.	19	15	3	1	-	-	-	Louisville, Ky.	111	73	24	8	2	4	6
Buffalo, N.Y.‡	U	U	U	U	U	U	U	Memphis, Tenn.	166	111	38	7	9	1	5
Camden, N.J.	47	32	8	2	1	4	2	Mobile, Ala.	167	111	29	16	9	2	6
Elizabeth, N.J.	27	21	6	-	-	-	-	Montgomery, Ala.	51	31	14	2	-	4	5
Erie, Pa.†	42	37	3	-	2	-	2	Nashville, Tenn.	147	92	35	13	4	3	12
Jersey City, N.J.	49	28	10	10	1	-	-	W.S. CENTRAL	1,358	853	283	133	57	32	75
New York City, N.Y.	1,358	840	276	173	38	31	63	Austin, Tex.	60	43	13	3	1	-	3
Newark, N.J.	80	38	22	12	3	5	8	Baton Rouge, La.	43	33	8	-	1	1	3
Paterson, N.J.	34	19	2	3	1	9	1	Corpus Christi, Tex.	46	35	3	3	3	2	4
Philadelphia, Pa.	595	390	107	59	24	14	36	Dallas, Tex.	222	101	57	39	17	8	6
Pittsburgh, Pa.†	74	52	12	2	3	5	5	El Paso, Tex.	90	64	17	8	1	-	4
Reading, Pa.	45	40	3	2	-	-	10	Ft. Worth, Tex.	89	60	14	7	2	6	2
Rochester, N.Y.	109	77	22	7	1	2	9	Houston, Tex.	283	163	67	34	13	6	23
Schenectady, N.Y.	33	26	5	2	-	-	2	Little Rock, Ark.	88	62	17	7	2	-	5
Scranton, Pa.†	25	22	2	-	1	-	-	New Orleans, La.	90	55	21	9	2	3	-
Syracuse, N.Y.	102	79	17	2	1	3	11	San Antonio, Tex.	198	131	38	16	11	2	13
Trenton, N.J.	44	34	7	2	-	1	7	Shreveport, La.	37	26	7	-	2	2	3
Utica, N.Y.	17	9	3	4	1	-	2	Tulsa, Okla.	112	80	21	7	2	2	9
Yonkers, N.Y.	26	24	2	-	-	-	2	MOUNTAIN	715	469	134	65	29	18	28
E.N. CENTRAL	2,234	1,343	477	232	107	75	105	Albuquerque, N.M.	70	43	12	6	5	4	1
Akron, Ohio	70	46	10	4	1	9	-	Colo. Springs, Colo.	37	24	8	3	2	-	2
Canton, Ohio	39	26	10	2	-	1	3	Denver, Colo.	100	64	20	11	3	2	6
Chicago, Ill.	487	184	117	107	71	8	12	Las Vegas, Nev.	106	63	29	12	2	-	6
Cincinnati, Ohio	121	79	26	11	3	2	15	Ogden, Utah	23	18	1	3	-	1	1
Cleveland, Ohio	155	99	33	13	5	5	5	Phoenix, Ariz.	176	116	35	13	6	6	2
Columbus, Ohio	170	106	43	11	5	5	6	Pueblo, Colo.	19	14	3	2	-	-	-
Dayton, Ohio	120	77	28	6	2	7	5	Salt Lake City, Utah	33	20	6	1	3	3	4
Detroit, Mich.	215	114	49	30	8	14	4	Tucson, Ariz.	151	107	20	14	8	2	6
Evansville, Ind.	33	25	7	1	-	-	3	PACIFIC	2,077	1,375	364	216	64	49	143
Fort Wayne, Ind.	50	40	7	1	1	1	3	Berkeley, Calif.	24	17	4	3	-	-	3
Gary, Ind.	17	8	5	4	-	-	-	Fresno, Calif.	58	40	9	6	1	2	7
Grand Rapids, Mich.	69	48	14	3	2	2	3	Glendale, Calif.	34	24	5	2	1	1	5
Indianapolis, Ind.	191	139	31	11	3	7	13	Honolulu, Hawaii	86	56	18	6	1	5	9
Madison, Wis.	46	28	10	6	1	1	1	Long Beach, Calif.	79	52	17	5	4	1	10
Milwaukee, Wis.	148	109	27	5	2	5	9	Los Angeles, Calif.	646	406	104	75	43	10	26
Peoria, Ill.	50	37	10	1	1	1	1	Oakland, Calif.‡	U	U	U	U	U	U	U
Rockford, Ill.	51	35	10	3	-	3	10	Pasadena, Calif.	33	25	4	2	-	2	2
South Bend, Ind.	35	26	4	3	1	1	2	Portland, Ore.	132	100	23	7	1	1	11
Toledo, Ohio	88	61	21	4	1	1	9	Sacramento, Calif.	159	112	28	14	-	5	15
Youngstown, Ohio	79	56	15	6	-	2	2	San Diego, Calif.	180	107	36	28	5	4	17
W.N. CENTRAL	772	528	147	56	20	21	44	San Francisco, Calif.	159	84	38	31	3	3	1
Des Moines, Iowa	66	50	13	-	-	3	5	San Jose, Calif.	174	120	35	13	1	5	10
Duluth, Minn.	28	25	2	1	-	-	1	Seattle, Wash.	156	108	24	18	2	4	7
Kansas City, Kans.	25	14	6	3	2	-	4	Spokane, Wash.	71	59	8	1	-	3	9
Kansas City, Mo.	99	67	15	5	9	3	4	Tacoma, Wash.	86	65	11	5	2	3	11
Lincoln, Nebr.	30	20	8	1	1	-	1	TOTAL	12,845††	8,233	2,548	1,241	457	356	709
Minneapolis, Minn.	194	134	36	15	1	8	16								
Omaha, Nebr.	72	52	17	2	-	1	1								
St. Louis, Mo.	132	79	27	18	5	3	10								
St. Paul, Minn.	68	48	10	6	1	3	5								

*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.

‡Report for this week is unavailable (U).

Health Objectives for the Nation

Clean Air National Health Objective for the Year 2000

An important national health promotion and disease prevention objective for the nation for 1990 was that "virtually all communities should experience no more than one day per year when air quality exceeds an individual ambient air quality standard with respect to sulfur dioxide, nitrous dioxide, carbon monoxide, lead, hydrocarbon and particulate matter" (1). However, this objective was not achieved. In 1989, approximately 84 million U.S. residents lived in counties where one or more of the U.S. Environmental Protection Agency air quality standards had not been met (2).

One of the national health objectives for the year 2000 is to increase from 49.7% to 85.0% the proportion of persons who live in counties that have not exceeded any air quality standard during the previous 12 months (3). Collaboration of industries and other employers, community groups, individuals, and all levels of government are needed to achieve this objective.

Another objective for the year 2000 is a reduction in asthma morbidity, as measured by a reduction in hospitalizations for asthma, to no more than 160 per 100,000 persons (baseline: 188 per 100,000 in 1987) (3). Asthma affects approximately 10 million U.S. residents, and the reported prevalence of asthma is increasing. The report *Healthy People 2000* suggests that environmental factors (e.g., ozone and other air pollutants) may have contributed to the increasing morbidity and mortality. National progress in reducing air pollution should contribute to reductions in hospitalizations for asthma (3).

Reported by: Air Pollution and Respiratory Health Activity, Div of Environmental Hazards and Health Effects, Center for Environmental Health and Injury Control, CDC.

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Epidemiologic Notes and Reports

Cholera — New Jersey and Florida

Through April 30, 1991, epidemic cholera has been reported from five countries in South America: Brazil, Chile, Colombia, Ecuador, and Peru. In addition, in the United States a total of 10 confirmed cases of epidemic-associated cholera have been reported in Georgia (1), New Jersey, and Florida. This report summarizes information regarding the cases reported in New Jersey and Florida.

*Cholera – Continued***New Jersey**

From March 31 through April 3, eight residents of Hudson and Union counties developed profuse watery diarrhea after eating crab meat transported from South America. Five of the patients also reported vomiting, and at least three had severe leg cramps; five were hospitalized. Ingestion of the crab meat was statistically associated with illness; of the 11 persons who attended the two meals where the crab was served, all eight who ate the crab meat became ill; the three who did not remained well ($p < 0.01$). Each of the patients had onset of symptoms within 3 days of ingesting the crab meat. Stool samples from four of the eight patients yielded toxigenic *Vibrio cholerae* O1, serotype Inaba, biotype El Tor, the same serotype responsible for the epidemic in South America. In convalescent serum specimens obtained from the four patients who were culture negative, vibriocidal antibody titers were $\geq 1:1280$, indicating recent *V. cholerae* infection.

The crab was purchased in a fish market in Ecuador, then boiled, shelled, and wrapped in foil. On March 30, it was transported into the United States, unrefrigerated, in a plastic bag on an airplane. It was delivered to a private residence, refrigerated overnight, then served in a salad on March 31 and April 1. No crab meat was available for culture.

All eight patients have fully recovered. No cases of secondary transmission have been reported.

Florida

On April 6, a woman with severe watery diarrhea was admitted to a Dade County hospital on her return from Ecuador. Although stool cultures were negative for *V. cholerae* O1, testing of acute and convalescent blood samples detected a 32-fold rise in vibriocidal antibody titers, indicating recent infection with *V. cholerae* O1.

The patient had traveled in Ecuador from March 27 through April 6. She reported eating raw oysters in Salinas Beach, Ecuador, on March 29 and ceviche on March 30; she also consumed ice during her stay. On April 2, she developed watery diarrhea with 30–40 stools per day. On return to the United States, she was admitted to the hospital. The patient recovered, and no cases of secondary transmission have been identified.

Reported by: H Ragazzoni, DVM, K Mertz, MD, L Finelli, DrPH, C Genese, MBA, Div of Epidemiology, FJ Dunston, MD, State Commissioner of Health, New Jersey State Dept of Health. B Russell, MPH, W Riley, PhD, E Feller, MD, Baptist Hospital, Miami; MB Ares, MD, M Fernandez, MD, E Sfakianaki, MD, Dade County Public Health Unit; JA Simmons, MD, RS Hopkins, MD, State Epidemiologist, Florida Dept of Health and Rehabilitative Svcs. Enteric Diseases Br, Div of Bacterial and Mycotic Diseases, Center for Infectious Diseases, CDC.

Editorial Note: Epidemic cholera had not been reported in South America this century (2) until January 1991, when cholera appeared simultaneously in several coastal cities of Peru. As of April 29, 169,255 probable cholera cases and 1244 deaths in Peru had been reported to the Pan American Health Organization; cholera had also been reported in Ecuador (3898 cases and 140 deaths), Chile (26 cases), Colombia (176 cases), and Brazil (four cases). The cases reported in Florida and New Jersey bring to 10 the total number of confirmed cases in the United States associated with the epidemic in South America.

No reported cases of cholera have been linked to commercially imported food products. In New Jersey, the confirmed *V. cholerae* O1 infections resulted from consumption of noncommercial crab meat that had been grossly mishandled and illegally transported into the United States. Although it is unclear how the crab meat

Cholera – Continued

became contaminated, contamination may have occurred at harvest, at purchase, or after cooking. *V. cholerae* O1 can survive in contaminated crabs that are boiled for less than 10 minutes (3). Because *V. cholerae* biotype El Tor strains multiply rapidly at room temperature in cooked shellfish (4), the lack of refrigeration during transport may have permitted growth of vibrios.

Previous cases acquired in the United States have been associated with undercooked crabs or raw oysters harvested domestically in the Gulf of Mexico (3,5). In the United States, secondary transmission from imported or domestic cases is unlikely because of the availability of safe drinking water and proper treatment of sewage.

The risk for cholera to tourists in affected areas is considered extremely low (6). Although it cannot be determined whether the source of infection in the traveler to Ecuador was consumption of raw oysters, ceviche, or contaminated ice or some other vehicle of infection, this case illustrates the need for travelers to areas with epidemic cholera to follow scrupulously the precautions described for prevention of travelers' diarrhea (7). The general rule "boil it, cook it, peel it, or forget it" has been proposed for preventing travelers' diarrhea (8). In particular, travelers to Colombia, Ecuador, and Peru *should not* consume 1) unboiled or untreated water and ice made from such water; 2) food and beverages from street vendors; 3) raw or partially cooked fish and shellfish, including ceviche; and 4) uncooked vegetables. Travelers should eat only foods that are cooked and hot, or fruits they peel themselves. Carbonated bottled water and carbonated soft drinks are usually safe if no ice is added. *Cholera vaccination, which protects approximately 50% of vaccinated persons for 3–6 months, is not recommended for travelers and is not a substitute for scrupulously choosing food and drink.*

V. cholerae may not be isolated from stool samples of cholera patients if the samples are collected late in illness or after antimicrobial therapy is begun. Vibriocidal antibody titers peak 10–21 days after infection and can be used to confirm *V. cholerae* infection (9).

Travelers who develop severe watery diarrhea, or diarrhea and vomiting, during or within 1 week after travel to an area with known cholera should seek medical attention immediately. Physicians should request that specimens from suspected cases be cultured on media designed for isolation of *V. cholerae* and should report suspected cases of cholera to their local and state health departments.

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Notices to Readers

American College of Epidemiology Annual Meeting

The annual meeting of the American College of Epidemiology (ACE) will be held November 7–8, 1991, at CDC; the theme is "Morbidity/Mortality Gap: Is It Race or Racism?". The agenda will focus on disparities in health status between minority and nonminority populations as they relate to infant mortality, low birth weight, heart disease, stroke, cancer, injuries, cirrhosis, diabetes, acquired immunodeficiency syndrome, and sexually transmitted diseases. Other topics will include access to prevention and treatment, costs and other implications for society, prevention and intervention strategies, effects of community empowerment, and promotion of public health careers among minority students.

Information and guidelines for submitting abstracts are available from the Chair, ACE Program Committee, Office of the Director, Mailstop A-50, CDC, 1600 Clifton Road, NE, Atlanta, GA 30333; telephone (404) 639-3318; fax (404) 639-2195.

Proceedings of the Fourth National Environmental Health Conference

The proceedings from the Fourth National Environmental Health Conference, "Environmental Issues: Today's Challenge for the Future," have been published. This conference—cosponsored by the Agency for Toxic Substances and Disease Registry (ATSDR), CDC's Center for Environmental Health and Injury Control, and the Association of State and Territorial Health Officials—was held on June 20–23, 1989, in San Antonio, Texas. The volume contains presentations from the conference, which included epidemiology and laboratory methodologies, individual environmental hazards, ethical and legal issues, communication and risk assessment, psychosocial factors, and institutional programs.

Copies may be purchased from the U.S. Government Printing Office, Washington, DC 20402-9325; telephone (202) 783-3238; fax (202) 275-0019 (postage-paid cost: domestic—\$17.00; foreign—\$21.25).

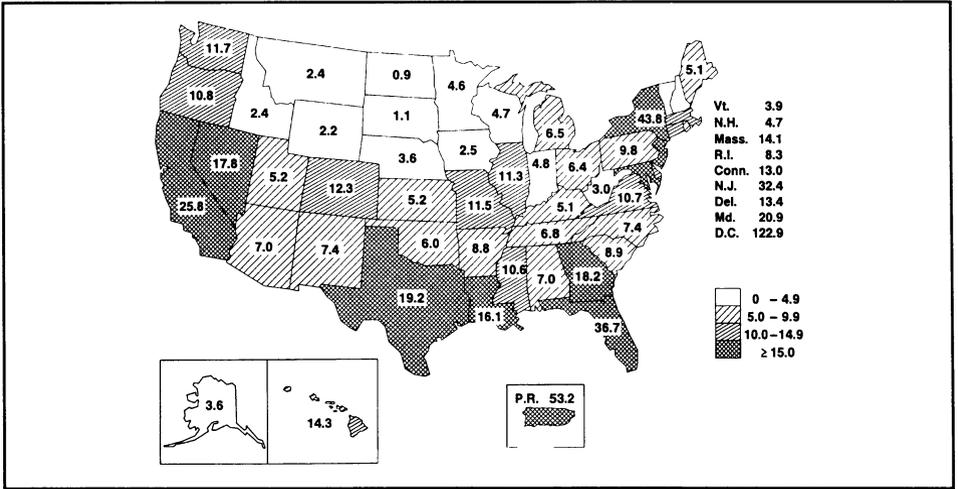
Single copies are available without charge to state and local government agencies from the Office of Policy and External Affairs, ATSDR, Mailstop E-28, 1600 Clifton Road, NE, Atlanta, GA 30333.

Quarterly AIDS Map

The following map provides information on the reported number of acquired immunodeficiency syndrome (AIDS) cases per 100,000 population by state of residence for April 1990 through March 1991. The map appears quarterly in the *MMWR*. More detailed information on AIDS cases is provided in the monthly *HIV/AIDS Surveillance Report*, single copies of which are available free from the National AIDS Information Clearinghouse, P.O. Box 6003, Rockville, MD 20850; telephone (800) 458-5231.

Quarterly AIDS Map – Continued

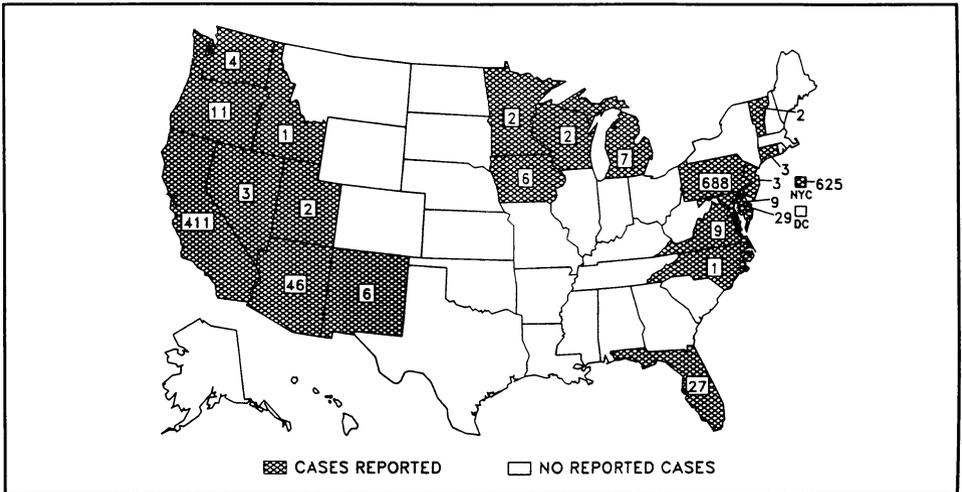
AIDS cases per 100,000 population – United States, April 1990–March 1991



Clarification: Vol. 40, No. 15

In the article "Elevated Intraoperative Blood Carboxyhemoglobin Levels in Surgical Patients—Georgia, Illinois, and North Carolina," the last sentence before the credits on page 248 should read "At hospital B, elevated levels of CO >1000 parts per million (ppm) were detected in some CO₂ absorbent canisters during the 10-month period when cases occurred."

Reported cases of measles, by state – United States, weeks 13–16, 1991



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

The data in this report are provisional, based on weekly reports to CDC by state health departments. The reporting week concludes at close of business on Friday; compiled data on a national basis are officially released to the public on the succeeding Friday. Accounts of interesting cases, outbreaks, environmental hazards, or other public health problems of current interest to health officials, as well as matters pertaining to editorial or other textual considerations should be addressed to: Editor, *Morbidity and Mortality Weekly Report*, Mailstop C-08, Centers for Disease Control, Atlanta, Georgia 30333; telephone (404) 332-4555.

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☆U.S. Government Printing Office: 1991-531-130/22066 Region IV

DEPARTMENT OF
HEALTH AND HUMAN SERVICES
Public Health Service
Centers for Disease Control
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HHS Publication No. (CDC) 91-8017

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