CENTERS FOR DISEASE CONTROL

MMWR

MORBIDITY AND MORTALITY WEEKLY REPORT

November 17, 1989 / Vol. 38 / No. 45

Epidemiologic Notes and Reports

Eosinophilia-Myalgia Syndrome – New Mexico

On October 30, 1989, the New Mexico Department of Health and Environment (NMDHE) was notified of three patients with eosinophilia and severe myalgia who had been taking oral preparations of the amino acid L-tryptophan (LT). Even though the patients had undergone extensive clinical evaluation and testing, their illnesses were not consistent with any known diagnostic entity. Public announcement of the cluster led rapidly to reports of similar cases. Using a provisional case definition of eosinophil count of $\geq$2000 cells per mm^3 and absence of documentation in the clinical record of any known cause of eosinophilia (e.g., parasitic or fungal infection, end-stage renal disease, leukemia, allergic disorder, and drug reactions), NMDHE initiated an active search for additional cases through review of laboratory records of eosinophil counts.

As of November 13, 1989, 30 potential cases had been identified. Most cases were reported in Albuquerque and Santa Fe, but cases were also reported in other parts of the state. The 17 female patients ranged in age from 20 to 80 years (mean: 42 years), and the 13 males, from 4 to 78 years (mean: 48 years). Reported eosinophil counts ranged from 2064 to 12,100 cells per mm^3 (mean: 2300 cells per mm^3) (normal: 50–350 cells per mm^3 [*1*]).

Fifteen of the 30 patients were hospitalized. Detailed clinical histories were available for 14 patients, each of whom reported myalgia; for 11 (79%) the myalgias were incapacitating. Other clinical findings included subjective weakness (11 [79%] of patients), fever 99.7–105 F (11 [79%]), arthralgia (11 [79%]), shortness of breath (nine [64%]), rash (eight [57%]), edema in the extremities (eight [57%]), and clinical pneumonia (five [36%]).

Eleven of these 14 patients are known to have been users of LT. Multiple brands and dosages were involved. To further assess a possible association between use of LT and this syndrome, a case-control study is under way.

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Eosinophilia-Myalgia Syndrome — Continued

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Editorial Note: Although the syndrome described in patients from New Mexico shares some features with previous case reports (*2–4*), it has not been described in epidemic form. In addition, the illness in New Mexico closely parallels the intermediate and chronic phases of toxic-oil syndrome (TOS), which occurred in epidemic form in Spain in 1981. In that epidemic, patients also had severe myalgia and intense eosinophilia, as well as other manifestations (*5,6*). However, the full range of clinical findings and the severity of illness described for TOS are not apparent in this outbreak.

By November 15, following media publicity and contact by NMDHE with other state health departments concerning the New Mexico cases, CDC had received reports of a total of 154 potential cases of a similar illness from public health agencies, physicians, and the general public in 17 states and the District of Columbia. The extent of this epidemic is unknown. Most of the patients in New Mexico had onset after July 1989. However, reports from other states suggest that illness in some patients occurred before that time.

LT is an essential amino acid that is normally ingested as a constituent of dietary protein. LT supplements are used by some persons for disorders such as insomnia, depression, and premenstrual syndrome (*7*). On November 11, the Food and Drug Administration (FDA) advised consumers to discontinue use of LT-containing tablets, capsules, and caplets pending further evaluation of their potential adverse effects. FDA is investigating the composition and sources of these products. To date, at least four states (California, Minnesota, New Mexico, and Oregon) have made recommendations or taken action to suspend the sale of LT products within their states.

Because this syndrome represents an apparently new clinical entity, diagnostic criteria have not yet been established. Many of the potential cases reported to CDC had initially been diagnosed as other illnesses, such as eosinophilic myositis, eosinophilic fasciitis, polyarteritis nodosa, and suspected trichinosis. For surveillance purposes, CDC recommends defining a case of eosinophilia-myalgia syndrome (EMS) as an illness characterized by all of the following: 1) eosinophil count $\geq$1000 cells per mm^3; 2) generalized myalgia (at some point during the course of illness) of severity sufficient to affect a patient's ability to pursue his or her usual daily activities; 3) one or both of the following: a) exclusion of trichinosis by serologic tests performed at an appropriate interval after onset of symptoms and/or b) muscle biopsy that does not show trichinella larvae but does show an inflammatory infiltrate including eosinophils; and 4) absence of any infection or neoplasm that could account for 1 or 2 above. However, the physician's clinical judgment will continue to be important in diagnosing the syndrome in specific patients, and a variety of different case definitions may be appropriate for specific epidemiologic investigations and research studies.

The surveillance case definition should be considered provisional and subject to change as knowledge of EMS evolves. Since the potentially causal relationship between LT use and EMS remains the subject of active investigation, a patient's use or nonuse of LT should not influence case reporting.

CDC is working with state health departments to develop state-based surveillance of EMS using a uniform case report form with standardized instructions. CDC requests, therefore, that possible cases be reported to state health departments.

Eosinophilia-Myalgia Syndrome — Continued

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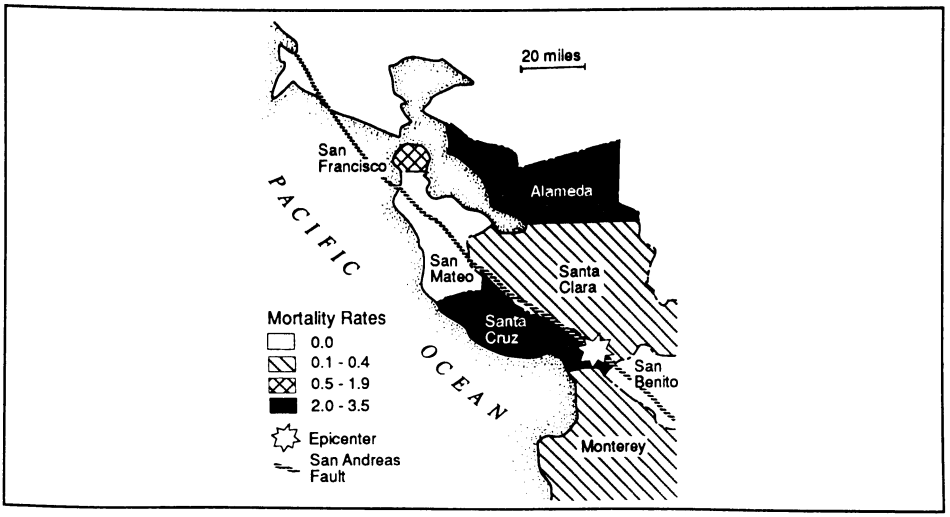
Earthquake-Associated Deaths — California

On October 17, 1989, at 5:04 p.m. Pacific daylight time, an earthquake registering 7.1 on the Richter scale, with an epicenter in the Loma Prieta section of the San Andreas fault, occurred in northern California (Figure 1). The earthquake released seismic energy equivalent to a 7-megaton nuclear explosion, generated lateral acceleration forces exceeding 60% of the earth's gravitational pull, and caused an estimated $5.6 billion in property damage (excluding damage to highways, bridges, and state office buildings) in the seven disaster counties (Alameda, Monterey, San Benito, San Francisco, San Mateo, Santa Clara, and Santa Cruz [combined January 1, 1989, resident population approximately 4,672,300] [*1*]).

FIGURE 1. Mortality rates per 100,000 resident population, by county — California earthquake area, 1989



Earthquake-Associated Deaths — Continued

Using contact information in *Medical Examiner and Coroner Jurisdictions in the United States* (*2*), public health officials asked county medical examiners and coroners (ME/Cs) in the disaster counties to report 1) the number of earthquake-related deaths investigated in their jurisdictions from October 17 through October 31 and 2) information about the demographic characteristics, cause, and circumstance of each death. There is no universally accepted definition of an "earthquake-related death"; for this report, the determination was made by each county ME/C.

County ME/Cs in the disaster area reported 63 earthquake-related deaths (60 directly related and three indirectly related). Of the 60 directly related deaths, 57 (95%) resulted from injuries sustained within 2 minutes of the earthquake; three resulted from injuries sustained within 8 hours of the earthquake (Table 1). Three deaths

TABLE 1. Earthquake-related deaths, by circumstance and county — California, October 17–31, 1989

Circumstance	County of death	No. deaths	Age range (yrs)	No. male/female
Collapse of elevated freeway section*	Alameda	41	5–72	25/16
Brick wall collapse onto automobiles*	San Francisco	5	22–41	3/2
Brick wall collapse*	Santa Cruz	3	21–75	1/2
	Monterey†	1	44	0/1
Dwelling collapse*	San Francisco	3	0.3–48	2/1
Fall on stairway§¶	San Francisco	2	59, 68	1/1
Fall from tower*	Santa Clara	1	24	1/0
	Monterey	1	46	1/0
Landslide on coastal highway*	Santa Cruz	1	41	1/0
Smoke inhalation from gas fire¶	San Francisco	1	28	0/1
Gunshot wound while directing traffic**	San Francisco	1	37	1/0
Motor vehicle collision with damaged bridge section*	San Francisco	1	23	0/1
Motor vehicle collision with horse on highway**	Santa Cruz	1	27	1/0
Carbon monoxide inhalation from emergency generator**	Alameda	1	34	1/0
Total		**63**	**0.3–75**	**38/25**

*Occurred within 2 minutes of the earthquake.
†One person injured in Santa Cruz County died in Monterey County (death reported by the Monterey coroner's office).
§Preliminary determination for one of the deaths.
¶Occurred within 8 hours of the earthquake.
**Presumed indirectly earthquake related.

Earthquake-Associated Deaths — Continued

occurring within 24 hours of the earthquake were indirectly related (Table 1). The highest county-specific mortality rate for all earthquake-related deaths occurred in Alameda County (3.4 per 100,000 population) (Figure 1, Table 2).

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Editorial Note: An earthquake's magnitude (measured with the logarithmic Richter scale [*3*]) is one of the most important factors influencing the extent of earthquake-related destruction and mortality. Other contributing factors include population density, proximity to the epicenter, local geology, building codes and compliance with them, building materials, number of stories and age of structures, and capabilities of local emergency medical services (*4*).

As with Hurricane Hugo (*5,6*), ME/Cs, who are responsible for investigating deaths related to trauma and violence, rapidly determined the extent of earthquake-related mortality and provided detailed information on circumstances of death, as well as demographic information on decedents. Mortality associated with the California earthquake was lower than for recent earthquakes of similar magnitude. Potentially responsible factors include local geology and building patterns; incorporation of aseismic (earthquake-resistant) engineering features in buildings in the densely populated downtown sections of Oakland, San Francisco, and San Jose; and absence of major, widespread fires following the earthquake. The lower mortality in the recent earthquake also contrasts with the mortality in the 1906 earthquake in San Francisco (approximately 667 deaths per 100,000 population) (*7*).

TABLE 2. Number of deaths, population, and mortality rate, by county — California earthquake area, October 17–October 31, 1989

County of death*	No. deaths	Population†	Mortality rate§
Alameda	42	1,252,400	3.4
Santa Cruz	5	229,900	2.2
San Francisco	13	731,700	1.8
Monterey	2	349,300	0.6
Santa Clara	1	1,440,900	0.1
San Benito	0	35,300	0
San Mateo	0	632,800	0
Total	**63**	**4,672,300**	**1.3**

*County of death may differ from county/country of residence.
†Estimated January 1, 1989, resident population (*1*).
§Per 100,000 population.

Earthquake-Associated Deaths — Continued

The California Emergency Medical Service Authority and the California Department of Health Services, in cooperation with the Region IX Office of the Public Health Service and CDC, have developed comprehensive plans for an emergency medical/public health response to a catastrophic earthquake. These plans established state and federal support mechanisms to enhance local governments' ability to respond. This support includes the National Disaster Medical System; coordination of procurement and distribution of medical supplies; provision of medical personnel, equipment, and public health services; and, if necessary, establishment of field hospitals and evacuation of casualties.

Following the earthquake, initial reports indicate that local medical and public health resources were generally adequate. State and federal assistance was provided as needed; however, the catastrophic earthquake response plans were not activated. Local, state, and federal agencies are reviewing the response to this event; the California Department of Health Services is investigating additional public health aspects of the earthquake, including cause-specific morbidity and mortality, public preparedness, and the adequacy of emergency response.

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Elemental Mercury Vapor Poisoning — North Carolina, 1988

In July 1988, the Environmental Epidemiology Section, North Carolina Department of Environment, Health, and Natural Resources (DEHNR), investigated chronic mercury poisoning diagnosed in a 3-year-old boy from North Carolina. The patient's clinical manifestations included hypersalivation, myalgia and tremor in the hands, myalgia and weakness in both lower extremities, diaphoresis, irritability, insomnia, and anorexia. Analysis of a random urine sample detected a mercury level of 160 μg/L (normal: <25 μg/L). Results of 24-hour urine specimens for mercury collected from both the patient and his parents were: patient, 360 μg/L; mother, 230 μg/L; and father, 145 μg/L.

Although the family reported no known mercury exposures, in April 1988, they had moved into a house whose previous owner had collected elemental mercury. Several containers of mercury reportedly had been spilled in the house during the previous owner's occupancy. As a result of the determination that the house was the probable source of exposure, the family temporarily relocated.

In July 1988, DEHNR conducted an extensive investigation of the house. A mercury vapor analyzer detected a mercury concentration of 20 $\mu g/m^3$–60 $\mu g/m^3$ in five rooms and two bathrooms. The average mercury concentration in the patient's bedroom

Mercury Poisoning – Continued

was 55 μg/m³ (range: 30 μg/m³–140 μg/m³). In the vacuum cleaner filter bag, the mercury concentration for air exceeded the range of the analyzer (1000 μg/m³). A dust sample from the vacuum cleaner bag had an elemental mercury concentration of 4400 ppm, and carpet samples had concentrations of 0.8 ppm–638 ppm.

Urine mercury screening was carried out for two children of the previous occupant and for seven persons who had frequently visited them The two children had urine mercury levels of 98 μg/L and 49 μg/L; the seven other persons had levels <25 μg/L.

Corrective measures included removal of the carpets, decontamination of the house (i.e., several cleanings of floors, walls, and solid surfaces with a product containing a metallic-mercury-sulphide–converting powder, a chelating compound, and a dispersing agent), and application of a polyurethane coating to all floor surfaces. Subsequent analysis indicated that the mercury concentration was <1 μg/m³ throughout the house.

Over a 2-month period, the urine mercury levels of the family decreased to normal. The patient, who had been treated with penicillamine, recovered without neurologic sequelae. In August 1988, the family returned to the house. Because the patient's parents and the children of the previous owner remained asymptomatic, they were not treated.

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Editorial Note: Reported cases of nonoccupational elemental mercury vapor poisoning are relatively rare (*1*). Acute cases usually result from inhalation of high concentrations of mercury vapor, which is produced when the metal is heated in an enclosed space (*1*). The North Carolina investigation and other reported cases indicate that chronic elemental mercury vapor poisoning can also occur in the home (*2*).

In this report, the patient developed many of the symptoms typical of chronic elemental mercury vapor poisoning (*3*). In addition, the patient's urine mercury concentration was >150 μg/L, the level associated with the earliest neurologic effects in adults (*4*). The 8-hour time-weighted average air concentration of elemental mercury vapor associated with the earliest neurologic effects in adult workers has been estimated at 50 μg/m³ (*4*). This concentration was detected throughout the house; higher concentrations were recorded in the patient's bedroom.

The concentrations of elemental mercury found in the vacuum cleaner bag dust sample and the carpet samples indicate that the carpets were heavily contaminated. Vacuuming the mercury-contaminated carpet may have resulted in dispersal of particles and vapor throughout the house. Vaporization probably increased with the spread of the mercury and the onset of warmer weather (*5*).

The Environmental Protection Agency's suggested ambient air concentration for mercury is <1 μg/m³ (*6*). Although this level exceeds those found in pristine environments (*6*)—and presumably in uncontaminated homes—it is below the accepted exposure concentrations for occupational settings (*7*). In addition, a concentration of 1 μg/m³ has been considered an obtainable goal for decontamination in other cases of residential mercury contamination (*8*).

Mercury Poisoning — Continued

Elemental mercury should not be stored in residences, particularly those with carpeted surfaces. If spilled, mercury should be removed before it can be dispersed. However, a contaminated carpet or rug should be vacuumed only with a specialized industrial mercury vacuum. A contaminated carpet or rug that cannot be adequately cleaned should be considered a substantial health risk and removed promptly. If necessary, decontamination procedures should be undertaken to reduce the ambient mercury vapor concentration in the house to <1 $\mu g/m^3$.

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

Disease	45th Week Ending			Cumulative, 45th Week Ending		
	Nov. 11, 1989	Nov. 12, 1988	Median 1984-1988	Nov. 11, 1989	Nov. 12, 1988	Median 1984-1988
Acquired Immunodeficiency Syndrome (AIDS)	708	U*	253	30,229	26,657	11,567
Aseptic meningitis	150	197	206	8,540	6,025	9,075
Encephalitis: Primary (arthropod-borne & unspec)	16	15	25	762	719	1,072
Post-infectious	1	-	1	73	109	103
Gonorrhea: Civilian	9,293	12,423	15,584	599,871	603,902	728,211
Military	227	241	478	9,497	10,178	14,486
Hepatitis: Type A	577	596	508	30,140	22,519	19,730
Type B	300	418	503	19,492	19,447	22,364
Non A, Non B	23	28	67	2,011	2,203	3,088
Unspecified	29	39	91	1,951	1,964	3,807
Legionellosis	19	22	17	939	859	706
Leprosy	3	7	6	143	144	195
Malaria	9	20	18	1,096	893	892
Measles: Total†	84	125	21	13,198	2,599	2,627
Indigenous	84	121	20	12,560	2,330	2,330
Imported	-	4	1	638	269	303
Meningococcal infections	31	44	44	2,278	2,452	2,322
Mumps	92	50	50	4,694	4,013	4,013
Pertussis	95	57	57	3,075	2,598	2,598
Rubella (German measles)	-	1	8	383	187	482
Syphilis (Primary & Secondary): Civilian	406	574	581	36,202	33,231	24,199
Military	12	3	1	218	139	143
Toxic Shock syndrome	3	5	6	324	316	316
Tuberculosis	341	310	388	18,289	18,317	18,412
Tularemia	1	-	3	134	170	170
Typhoid Fever	9	3	9	433	340	322
Typhus fever, tick-borne (RMSF)	8	4	5	593	569	658
Rabies, animal	62	59	85	4,027	3,764	4,702

TABLE II. Notifiable diseases of low frequency, United States

	Cum. 1989		Cum. 1989
Anthrax	-	Leptospirosis (Upstate N. Y. 1)	84
Botulism: Foodborne	24	Plague	4
Infant (Ohio 1)	17	Poliomyelitis, Paralytic	-
Other	4	Psittacosis	86
Brucellosis	75	Rabies, human	1
Cholera	-	Tetanus	41
Congenital rubella syndrome	2	Trichinosis	17
Congenital syphilis, ages < 1 year	165		
Diphtheria	3		

*Because AIDS cases are not received weekly from all reporting areas, comparison of weekly figures may be misleading.

TABLE III. Cases of specified notifiable diseases, United States, weeks ending November 11, 1989 and November 12, 1988 (45th Week)

Reporting Area	AIDS	Aseptic Meningitis	Encephalitis		Gonorrhea (Civilian)		Hepatitis (Viral), by type				Legionellosis	Leprosy
			Primary	Post-infectious			A	B	NA,NB	Unspecified		
	Cum. 1989	Cum. 1989	Cum. 1989	Cum. 1989	Cum. 1989	Cum. 1988	Cum. 1989	Cum. 1989	Cum. 1989	Cum. 1989	Cum. 1989	Cum. 1989
UNITED STATES	30,229	8,540	762	73	599,871	603,902	30,140	19,492	2,011	1,951	939	143
NEW ENGLAND	1,159	470	21	2	17,695	18,816	639	934	65	75	60	9
Maine	58	29	5	-	233	349	21	51	6	1	5	-
N.H.	38	51	-	-	150	229	58	52	8	4	2	-
Vt.	13	40	4	-	60	104	37	69	7	-	2	-
Mass.	629	155	7	2	6,976	6,365	188	515	25	53	39	7
R.I.	69	88	-	-	1,287	1,745	48	71	5	10	12	1
Conn.	352	107	5	-	8,989	10,024	287	176	14	7	-	1
MID. ATLANTIC	8,505	1,152	34	5	84,703	96,058	3,606	3,015	188	211	230	21
Upstate N.Y.	1,264	494	28	4	14,541	13,379	846	593	70	11	80	4
N.Y. City	4,364	150	3	1	33,223	41,410	374	1,181	32	172	35	15
N.J.	1,898	-	3	-	13,010	13,514	409	532	27	5	39	1
Pa.	979	508	-	-	23,929	27,755	1,977	709	59	23	76	1
E.N. CENTRAL	2,391	1,699	282	9	113,066	103,131	1,799	2,291	228	85	269	4
Ohio	429	567	116	4	30,462	23,208	368	403	38	20	115	-
Ind.	324	232	42	3	8,424	7,886	193	360	27	30	55	1
Ill.	1,084	326	54	2	36,897	30,701	776	586	93	21	17	3
Mich.	443	467	46	-	28,768	32,537	255	579	43	14	41	-
Wis.	111	107	24	-	8,515	8,799	207	363	27	-	41	-
W.N. CENTRAL	710	431	32	4	28,677	25,678	1,252	882	106	25	34	1
Minn.	154	49	3	1	3,205	3,470	147	102	20	4	2	-
Iowa	53	73	13	-	2,449	1,933	140	40	14	5	6	-
Mo.	351	192	3	-	17,493	14,655	639	602	43	10	15	-
N. Dak.	6	12	1	-	114	171	4	22	4	2	1	-
S. Dak.	4	12	4	-	238	434	13	10	9	-	2	-
Nebr.	32	18	5	-	1,360	1,383	86	25	3	2	2	1
Kans.	110	75	3	3	3,818	3,632	223	81	13	2	6	-
S. ATLANTIC	6,309	1,690	153	23	162,518	169,480	3,142	3,799	302	316	122	2
Del.	74	72	1	-	2,814	2,667	67	131	5	8	11	-
Md.	640	211	18	2	19,530	17,748	928	639	25	29	27	-
D.C.	464	23	-	-	9,359	12,702	8	27	2	-	1	-
Va.	377	353	37	3	14,147	12,457	297	266	64	184	8	-
W. Va.	48	92	82	-	1,268	1,179	25	88	10	9	-	-
N.C.	491	189	8	2	24,563	24,011	401	922	81	-	31	1
S.C.	307	34	1	-	14,525	13,198	74	537	3	11	7	-
Ga.	969	124	2	1	31,616	32,091	334	366	11	8	24	-
Fla.	2,939	592	4	15	44,696	53,427	1,008	823	101	67	13	1
E.S. CENTRAL	701	627	46	2	49,046	48,237	362	1,408	143	12	59	-
Ky.	111	200	19	1	4,779	4,867	110	357	47	5	9	-
Tenn.	250	119	5	-	16,702	16,652	138	723	33	-	35	-
Ala.	198	215	19	-	15,554	14,512	75	216	55	3	13	-
Miss.	142	93	3	1	12,011	12,206	39	112	8	4	2	-
W.S. CENTRAL	2,609	852	72	7	63,449	64,597	3,379	1,936	131	464	46	19
Ark.	65	43	8	-	7,378	6,420	236	67	15	10	3	-
La.	427	69	18	1	13,670	12,897	238	326	15	2	8	-
Okla.	130	75	12	4	5,493	6,149	418	172	33	33	26	-
Tex.	1,987	665	34	2	36,908	39,131	2,487	1,371	68	419	9	19
MOUNTAIN	993	287	13	4	12,685	12,971	4,428	1,299	188	125	53	3
Mont.	17	6	-	-	165	367	86	41	6	3	3	1
Idaho	21	2	-	1	153	298	153	115	12	3	2	-
Wyo.	14	6	-	-	93	178	48	8	2	-	-	-
Colo.	336	140	3	1	2,678	2,905	455	145	50	53	4	-
N. Mex.	83	12	1	-	1,134	1,290	580	186	31	3	5	1
Ariz.	291	93	3	-	5,107	4,707	2,345	497	48	52	25	1
Utah	65	19	1	2	402	471	441	100	25	4	7	-
Nev.	166	9	5	-	2,953	2,755	320	207	14	7	7	-
PACIFIC	6,852	1,332	109	17	68,032	64,934	11,533	3,928	660	638	66	84
Wash.	463	-	5	1	5,663	6,180	2,698	837	175	55	23	7
Oreg.	212	-	-	-	2,707	2,805	2,056	453	70	14	2	1
Calif.	5,991	1,212	90	16	58,323	54,491	6,043	2,508	401	554	38	63
Alaska	16	31	11	-	881	927	575	55	6	5	1	-
Hawaii	170	89	3	-	458	531	161	75	8	10	2	13
Guam	1	5	1	-	82	135	4	-	-	6	-	1
P.R.	1,266	85	2	1	951	1,125	170	206	17	19	-	8
V.I.	27	-	-	-	555	389	-	8	-	-	-	-
Amer. Samoa	-	-	-	-	19	74	22	-	1	-	-	3
C.N.M.I.	-	-	-	-	58	46	2	7	-	1	-	1

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

TABLE III. (Cont'd.) Cases of specified notifiable diseases, United States, weeks ending November 11, 1989 and November 12, 1988 (45th Week)

Reporting Area	Malaria	Measles (Rubeola)					Menin-gococcal Infections	Mumps		Pertussis			Rubella		
		Indigenous		Imported*		Total									
	Cum. 1989	1989	Cum. 1989	1989	Cum. 1989	Cum. 1988	Cum. 1989	1989	Cum. 1989	1989	Cum. 1989	Cum. 1988	1989	Cum. 1989	Cum. 1988
UNITED STATES	1,096	84	12,560	-	638	2,599	2,278	92	4,694	95	3,075	2,598	-	383	187
NEW ENGLAND	80	5	303	-	38	113	167	1	77	7	340	285	-	6	9
Maine	-	-	-	-	1	7	16	-	-	-	25	24	-	-	-
N.H.	2	-	8	-	7	88	16	-	15	-	16	47	-	4	5
Vt.	3	-	1	-	2	-	8	-	2	-	6	4	-	1	-
Mass.	44	5	47	-	21	4	93	1	51	7	264	171	-	1	3
R.I.	19	-	38	-	3	-	1	-	-	-	11	17	-	-	1
Conn.	12	-	209	-	4	14	33	-	9	-	18	22	-	-	-
MID. ATLANTIC	206	-	758	-	178	932	344	5	420	3	266	177	-	78	14
Upstate N.Y.	33	-	54	-	98	37	122	3	157	-	109	103	-	63	2
N.Y. City	80	-	105	-	16	52	40	-	19	-	11	5	-	15	7
N.J.	57	-	393	-	6	300	68	-	180	-	32	8	-	-	3
Pa.	36	-	206	-	58	543	114	2	64	3	114	61	-	-	2
E.N. CENTRAL	76	67	4,017	-	102	198	301	38	533	12	375	279	-	25	31
Ohio	11	42	1,516	-	35	34	111	29	147	-	68	49	-	3	1
Ind.	11	25	103	-	-	57	29	2	46	12	31	70	-	-	-
Ill.	32	-	1,836	-	1	72	76	-	165	-	113	52	-	20	26
Mich.	14	-	311	-	23	31	61	7	134	-	43	34	-	1	4
Wis.	8	-	251	-	43	4	24	-	41	-	120	74	-	1	-
W.N. CENTRAL	32	-	727	-	11	14	69	1	397	1	169	122	-	6	2
Minn.	9	-	17	-	-	11	16	-	2	-	46	48	-	-	-
Iowa	4	-	12	-	1	-	2	1	42	-	15	29	-	1	-
Mo.	11	-	458	-	-	3	17	-	60	-	92	22	-	4	-
N. Dak.	2	-	-	-	-	-	-	-	-	-	3	11	-	-	-
S. Dak.	1	-	-	-	-	-	7	-	-	-	2	5	-	-	-
Nebr.	2	-	108	-	2	-	18	-	5	1	7	-	-	-	-
Kans.	3	-	132	-	8	-	9	-	288	-	4	7	-	1	2
S. ATLANTIC	188	8	585	-	75	402	393	23	849	12	328	237	-	10	17
Del.	7	-	42	-	1	-	2	-	1	-	1	7	-	-	-
Md.	35	4	67	-	36	16	70	18	424	6	73	45	-	2	1
D.C.	10	-	36	-	4	-	15	-	127	-	2	1	-	-	-
Va.	39	-	20	-	3	206	46	3	124	-	33	21	-	-	11
W. Va.	2	-	53	-	-	6	13	-	14	-	32	8	-	-	-
N.C.	20	-	187	-	3	5	55	-	37	1	69	65	-	1	-
S.C.	10	-	15	-	-	-	29	-	37	-	-	1	-	-	-
Ga.	12	1	2	-	16	-	65	2	43	4	48	36	-	-	2
Fla.	53	3	163	-	12	169	98	-	42	1	70	53	-	7	3
E.S. CENTRAL	15	-	239	-	4	69	76	1	223	-	132	99	-	5	2
Ky.	1	-	40	-	4	35	41	-	9	-	1	12	-	-	-
Tenn.	5	-	148	-	-	-	9	1	74	-	52	29	-	4	2
Ala.	6	-	50	-	-	-	21	-	29	-	74	54	-	1	-
Miss.	3	-	1	-	-	34	5	N	N	-	5	4	-	-	-
W.S. CENTRAL	63	4	3,230	-	75	17	162	17	1,485	12	363	200	-	50	10
Ark.	-	-	3	-	19	1	13	5	167	-	29	23	-	-	3
La.	2	4	85	-	-	-	38	-	643	7	26	17	-	5	-
Okla.	8	-	126	-	-	8	24	5	197	5	58	62	-	1	1
Tex.	53	-	3,016	-	56	8	87	7	478	-	250	98	-	44	6
MOUNTAIN	26	-	365	-	54	149	65	6	206	10	617	720	-	36	6
Mont.	1	-	12	-	1	33	2	-	4	1	39	2	-	1	-
Idaho	2	-	2	-	8	1	2	1	21	-	64	329	-	32	-
Wyo.	1	-	-	-	-	-	-	-	8	-	-	2	-	2	-
Colo.	6	-	79	-	18	115	21	-	36	-	82	31	-	-	2
N. Mex.	4	-	16	-	15	-	2	N	N	-	30	48	-	-	-
Ariz.	9	-	141	-	4	-	25	5	114	9	380	279	-	-	-
Utah	-	-	114	-	-	-	5	-	16	-	21	28	-	-	3
Nev.	3	-	1	-	8	-	8	-	7	-	1	1	-	1	1
PACIFIC	410	-	2,336	-	101	705	701	-	504	38	485	479	-	167	96
Wash.	31	-	31	-	18	7	77	-	42	1	182	107	-	-	-
Oreg.	20	-	12	-	48	8	47	N	N	2	13	46	-	3	-
Calif.	348	-	2,272	-	23	676	564	-	443	35	264	260	-	142	65
Alaska	3	-	1	-	-	2	11	-	2	-	1	8	-	-	-
Hawaii	8	-	20	-	12	12	2	-	17	-	25	58	-	22	31
Guam	3	U	-	U	-	1	-	U	4	U	1	-	U	-	1
P.R.	1	-	560	-	-	226	6	-	8	-	4	15	-	8	3
V.I.	-	U	4	U	-	-	-	U	17	U	-	-	U	-	-
Amer. Samoa	-	U	-	U	-	-	-	U	2	U	-	-	U	-	-
C.N.M.I.	-	U	-	U	-	-	-	U	6	U	-	-	U	-	-

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

TABLE III. (Cont'd.) Cases of specified notifiable diseases, United States, weeks ending November 11, 1989 and November 12, 1988 (45th Week)

Reporting Area	Syphilis (Civilian) (Primary & Secondary)		Toxic-shock Syndrome	Tuberculosis		Tula-remia	Typhoid Fever	Typhus Fever (Tick-borne) (RMSF)	Rabies, Animal
	Cum. 1989	Cum. 1988	Cum. 1989	Cum. 1989	Cum. 1988	Cum. 1989	Cum. 1989	Cum. 1989	Cum. 1989
UNITED STATES	36,202	33,231	324	18,289	18,317	134	433	593	4,027
NEW ENGLAND	1,460	1,020	17	547	472	2	38	8	9
Maine	13	12	4	25	20	-	-	-	2
N.H.	11	6	2	24	9	-	-	-	2
Vt.	1	3	-	8	4	-	-	-	-
Mass.	438	376	5	300	276	2	25	4	2
R.I.	28	30	2	55	38	-	6	1	-
Conn.	969	593	4	135	125	-	7	3	3
MID. ATLANTIC	7,592	6,728	56	3,808	3,736	2	123	63	665
Upstate N.Y.	809	514	12	296	480	1	36	13	54
N.Y. City	3,424	4,184	4	2,193	2,073	-	53	3	-
N.J.	1,232	874	12	719	581	-	26	27	21
Pa.	2,127	1,156	28	600	602	1	8	20	590
E.N. CENTRAL	1,667	1,041	54	1,837	2,022	3	47	59	114
Ohio	150	89	17	322	387	-	10	30	10
Ind.	54	49	8	132	205	1	4	19	2
Ill.	745	464	12	847	882	-	22	7	28
Mich.	583	386	17	426	457	1	6	3	28
Wis.	135	53	-	110	91	1	5	-	46
W.N. CENTRAL	284	211	39	480	454	51	7	78	529
Minn.	51	17	11	97	76	-	2	-	122
Iowa	31	22	6	44	48	-	2	4	110
Mo.	148	137	10	228	224	38	2	56	57
N. Dak.	2	2	-	13	15	-	-	1	55
S. Dak.	1	-	4	26	31	6	-	5	94
Nebr.	23	27	5	18	13	3	-	1	44
Kans.	28	6	3	54	47	4	1	11	47
S. ATLANTIC	12,156	12,423	24	3,857	3,856	6	42	213	1,205
Del.	188	91	1	38	37	-	2	1	29
Md.	722	606	1	336	370	2	9	19	335
D.C.	697	605	1	148	169	-	2	-	2
Va.	499	369	4	314	355	4	7	16	235
W. Va.	15	36	-	64	66	-	-	2	47
N.C.	964	709	6	494	418	-	2	109	7
S.C.	728	639	4	437	414	-	2	39	183
Ga.	2,099	2,220	3	618	620	-	6	23	215
Fla.	6,244	7,148	4	1,408	1,407	-	12	4	152
E.S. CENTRAL	2,632	1,722	9	1,402	1,509	7	3	63	323
Ky.	50	58	2	338	327	1	1	14	128
Tenn.	1,149	735	4	426	452	5	1	34	83
Ala.	797	500	2	401	456	-	1	6	108
Miss.	636	429	1	237	274	1	-	9	4
W.S. CENTRAL	5,324	3,758	24	2,234	2,327	41	15	81	555
Ark.	329	204	2	246	259	30	-	19	81
La.	1,353	753	-	292	299	-	1	1	12
Okla.	108	133	13	191	213	11	1	48	88
Tex.	3,534	2,668	9	1,505	1,556	-	13	13	374
MOUNTAIN	728	739	42	425	530	16	12	24	244
Mont.	1	3	-	16	19	1	-	14	70
Idaho	1	2	3	23	19	-	-	4	11
Wyo.	6	1	2	-	5	3	-	2	74
Colo.	60	97	9	19	97	3	2	3	21
N. Mex.	26	46	5	76	94	2	1	1	21
Ariz.	286	144	10	215	212	-	8	-	27
Utah	15	15	9	37	29	6	1	-	8
Nev.	333	431	4	39	55	1	-	-	12
PACIFIC	4,359	5,589	59	3,699	3,411	6	146	4	383
Wash.	386	210	4	200	200	-	9	-	-
Oreg.	209	266	-	120	129	4	6	1	-
Calif.	3,743	5,072	54	3,176	2,905	2	122	3	317
Alaska	8	14	-	44	40	-	-	-	66
Hawaii	13	27	1	159	137	-	9	-	-
Guam	4	3	-	45	26	-	1	-	-
P.R.	472	595	-	257	208	-	9	-	65
V.I.	8	1	-	4	6	-	1	-	-
Amer. Samoa	-	-	-	2	4	-	2	-	-
C.N.M.I.	7	1	-	12	24	-	-	-	-

U: Unavailable

TABLE IV. Deaths in 121 U.S. cities,* week ending November 11, 1989 (45th Week)

Reporting Area	All Causes, By Age (Years)						P&I**
	All Ages	≥65	45-64	25-44	1-24	<1	Total
NEW ENGLAND	607	414	118	43	12	20	54
Boston, Mass.	179	116	34	19	4	6	22
Bridgeport, Conn.	49	36	8	3	1	1	2
Cambridge, Mass.	12	10	2	-	-	-	1
Fall River, Mass.	39	29	4	3	1	2	-
Hartford, Conn.	57	36	10	6	2	3	4
Lowell, Mass.	30	17	9	1	2	1	3
Lynn, Mass.	12	8	3	1	-	-	1
New Bedford, Mass.	28	25	3	-	-	-	2
New Haven, Conn.	42	26	11	2	2	1	3
Providence, R.I.	45	32	8	2	-	3	2
Somerville, Mass.	11	7	4	-	-	-	2
Springfield, Mass.	27	20	3	1	-	3	2
Waterbury, Conn.	26	15	8	3	-	-	6
Worcester, Mass.	50	37	11	2	-	-	4
MID. ATLANTIC	2,453	1,574	475	266	65	73	133
Albany, N.Y.	46	28	5	8	2	3	-
Allentown, Pa.	20	15	3	2	-	-	-
Buffalo, N.Y.§	101	68	19	9	2	3	5
Camden, N.J.	34	16	8	5	-	5	-
Elizabeth, N.J.	20	14	3	3	-	-	4
Erie, Pa.†	29	22	2	3	2	-	4
Jersey City, N.J.	41	24	6	8	1	2	3
N.Y. City, N.Y.	1,336	831	271	159	38	37	62
Newark, N.J.	73	33	23	12	3	2	8
Paterson, N.J.	22	13	5	3	1	-	1
Philadelphia, Pa.	300	184	65	31	6	14	12
Pittsburgh, Pa.†	41	29	7	2	1	2	1
Reading, Pa.	33	27	2	3	-	1	4
Rochester, N.Y.	123	89	24	4	5	1	12
Schenectady, N.Y.	39	33	5	1	-	-	3
Scranton, Pa.†	26	21	1	3	1	-	1
Syracuse, N.Y.	88	64	13	8	2	1	4
Trenton, N.J.	33	23	7	1	-	2	2
Utica, N.Y.§	21	15	4	1	1	-	3
Yonkers, N.Y.	27	25	2	-	-	-	4
E.N. CENTRAL	2,064	1,415	386	143	49	71	90
Akron, Ohio	34	29	3	1	1	-	-
Canton, Ohio	41	28	10	2	-	1	5
Chicago, Ill.§	564	362	125	45	10	22	16
Cincinnati, Ohio	125	94	19	9	1	2	18
Cleveland, Ohio	148	99	28	13	4	4	2
Columbus, Ohio	150	102	28	4	12	4	-
Dayton, Ohio	80	53	14	8	1	4	6
Detroit, Mich.	162	96	32	21	5	8	4
Evansville, Ind.§	41	32	7	2	-	-	2
Fort Wayne, Ind.	60	46	6	4	3	1	1
Gary, Ind.	13	6	5	1	1	-	1
Grand Rapids, Mich.	49	34	7	3	-	5	5
Indianapolis, Ind.	172	106	38	12	5	11	5
Madison, Wis.	28	19	4	4	1	-	2
Milwaukee, Wis.	140	112	23	4	1	-	5
Peoria, Ill.	28	18	7	-	-	3	1
Rockford, Ill.	47	40	4	1	2	-	5
South Bend, Ind.	36	26	7	1	-	2	3
Toledo, Ohio	90	69	11	5	2	3	3
Youngstown, Ohio§	56	44	8	3	-	1	6
W.N. CENTRAL	724	519	119	48	20	18	36
Des Moines, Iowa	64	43	14	3	3	1	5
Duluth, Minn.	25	21	4	-	-	-	2
Kansas City, Kans.§	81	61	14	5	1	-	2
Kansas City, Mo.	97	62	15	9	5	6	6
Lincoln, Nebr.	30	20	7	3	-	-	-
Minneapolis, Minn.	130	108	11	5	4	2	11
Omaha, Nebr.	63	40	13	4	3	3	3
St. Louis, Mo.§	142	98	23	12	3	6	4
St. Paul, Minn.	54	41	10	2	1	-	1
Wichita, Kans.	38	25	8	5	-	-	2
S. ATLANTIC	1,303	782	291	147	41	40	59
Atlanta, Ga.	163	93	35	21	10	4	4
Baltimore, Md.	295	175	66	33	13	8	16
Charlotte, N.C.	94	59	24	6	1	4	8
Jacksonville, Fla.	97	59	25	11	2	-	4
Miami, Fla.	101	59	20	14	1	7	1
Norfolk, Va.	47	23	18	4	-	2	3
Richmond, Va.	80	41	26	8	1	4	8
Savannah, Ga.	45	34	8	2	1	-	4
St. Petersburg, Fla.	74	56	7	6	1	4	2
Tampa, Fla.	67	44	12	5	2	2	4
Washington, D.C.§	211	115	46	37	8	5	5
Wilmington, Del.	29	24	4	-	1	-	-
E.S. CENTRAL	719	474	142	59	21	23	47
Birmingham, Ala.	116	75	23	11	1	6	5
Chattanooga, Tenn.	55	44	6	2	3	-	5
Knoxville, Tenn.	87	58	16	7	4	2	10
Louisville, Ky.	99	62	22	8	2	5	2
Memphis, Tenn.	160	113	27	11	5	4	15
Mobile, Ala.	66	43	18	4	1	-	-
Montgomery, Ala.	40	18	13	3	3	3	4
Nashville, Tenn.	96	61	17	13	2	3	6
W.S. CENTRAL	1,650	1,008	361	174	56	51	59
Austin, Tex.	45	26	12	4	2	1	6
Baton Rouge, La.	53	37	9	5	-	2	2
Corpus Christi, Tex.	35	24	9	1	-	1	1
Dallas, Tex.	178	99	45	17	7	10	2
El Paso, Tex.§	67	39	16	6	3	3	5
Fort Worth, Tex	103	60	23	12	4	4	5
Houston, Tex.§	734	436	169	89	24	16	18
Little Rock, Ark.	55	39	11	2	1	2	5
New Orleans, La.	105	61	26	10	6	2	-
San Antonio, Tex.	142	102	13	19	4	4	8
Shreveport, La.	40	25	6	4	1	4	3
Tulsa, Okla.	93	60	22	5	4	2	4
MOUNTAIN	638	412	114	65	21	26	28
Albuquerque, N. Mex.	72	45	10	11	5	1	2
Colo. Springs, Colo.	50	32	7	6	2	3	5
Denver, Colo.	100	69	15	10	2	4	6
Las Vegas, Nev.	101	64	21	13	-	3	4
Ogden, Utah	15	12	1	1	-	1	1
Phoenix, Ariz.	113	67	25	12	4	5	5
Pueblo, Colo.	27	21	5	-	1	-	1
Salt Lake City, Utah	52	32	8	3	3	6	-
Tucson, Ariz.	108	70	22	9	4	3	4
PACIFIC	1,696	1,132	289	171	49	44	87
Berkeley, Calif.	22	17	2	2	-	1	1
Fresno, Calif.	80	59	13	4	1	3	5
Glendale, Calif.	23	18	3	1	-	-	1
Honolulu, Hawaii	36	23	10	2	1	-	6
Long Beach, Calif.	74	52	7	10	2	3	12
Los Angeles Calif.	453	300	82	40	19	5	14
Oakland, Calif.	77	44	16	13	3	-	3
Pasadena, Calif.	16	12	3	1	-	-	2
Portland, Oreg.	143	109	23	8	-	3	3
Sacramento, Calif.	128	82	17	14	6	7	14
San Diego, Calif.	148	96	24	22	2	4	7
San Francisco, Calif.	156	84	34	29	3	6	4
San Jose, Calif.	129	85	24	13	4	3	8
Seattle, Wash.	121	78	24	8	6	5	2
Spokane, Wash.	49	41	2	3	1	2	4
Tacoma, Wash.	41	32	5	1	1	2	1
TOTAL	11,854††	7,730	2,295	1,116	334	366	593

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

**Pneumonia and influenza.

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

††Total includes unknown ages.

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

Mercury Poisoning — Continued

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Current Trends

Pap Smear Screening — Behavioral Risk Factor Surveillance System, 1988

Data from the 1988 Behavioral Risk Factor Surveillance System (BRFSS) were used to characterize knowledge and prevalence of use of the Papanicolaou (Pap) smear—a primary screening test for cervical cancer—among women in 15 states and the District of Columbia. The 16 participating health departments* used standard questions and methods to conduct monthly random-digit–dialed telephone interviews of adults ≥18 years of age (*1*). Respondents were asked whether they knew about Pap smear tests, whether they had ever had a Pap smear, and how long it had been since their last test.

The sample for this analysis included 8741 black women and white non-Hispanic women aged ≥18 years who had not undergone a hysterectomy. Almost all (99.8%) women interviewed knew of the Pap smear, and 98.8% had had at least one such test. The frequency of Pap smear screening varied by age, income level, and race (Table 1). Women aged 18–39 years were 1.6 times more likely to have had a Pap smear within the preceding year than were women aged ≥60 years. Also, 75% of women with incomes ≥$20,000 reported having had the test within the preceding year, compared with 65% of women with incomes <$10,000.

For all age groups combined, a higher percentage of black women (82%; 95% CI ±3.5) than white women (71%; 95% CI ±1.6) reported receiving a Pap smear in the preceding year. These differences by race occurred within each of the eight geographic areas with a sufficient number of black respondents to allow race-specific comparisons.

Reported by: The following BRFSS coordinators: L Parker, California; M Rivo, District of Columbia; B Steiner, Illinois; K Bramblett, Kentucky; R Schwartz, Maine; A Weinstein, Maryland; R Thurber, Nebraska; K Zaso, New Hampshire; L Pendley, New Mexico; H Bzduch, New York; C Washington, North Carolina; N Hann, Oklahoma; D Lackland, South Carolina; K Tollestrup, Washington; R Anderson, West Virginia; M Soref, Wisconsin. Div of Chronic Disease Control and Community Intervention and Office of Surveillance and Analysis, Center for Chronic Disease Prevention and Health Promotion, CDC.

*California, District of Columbia, Illinois, Kentucky, Maine, Maryland, Nebraska, New Hampshire, New Mexico, New York, North Carolina, Oklahoma, South Carolina, Washington, West Virginia, and Wisconsin.

Pap Smear Screening — Continued

Editorial Note: In 1986, approximately 5000 U.S. women died from invasive cervical cancer, a disease that can be prevented by early detection and treatment (*2*). Incidence and mortality rates of invasive cervical cancer vary by socioeconomic

TABLE 1. Percentage of women in participating areas who reported having had a Pap smear, by race, income, age, and time since last Pap smear — Behavioral Risk Factor Surveillance System, 1988

Category	Sample size	Time since last Pap smear			Never had a Pap smear (%)
		<1 yr (%)	1–5 yrs (%)	>5 yrs (%)	
White					
Age (yrs)					
18–39	3936	80	16	3	1
40–59	1982	66	26	7	1
≥60	1718	51	30	16	3
Total	7636	71	22	7	1
Income					
<$10,000	1185	61	23	13	3
$10,000–$19,999	1694	67	22	9	2
≥$20,000	3888	74	21	4	1
Total	6767	71	22	6	1
Black					
Age					
18–39	679	88	9	3	1
40–59	259	77	16	7	0
≥60	167	59	23	12	6
Total	1105	82	12	5	1
Income					
<$10,000	280	77	12	8	3
$10,000–$19,999	285	83	14	2	0
≥$20,000	392	84	11	5	0
Total	957	82	12	5	1
Total					
Age					
18–39	4615	81	15	3	1
40–59	2241	67	25	7	1
≥60	1885	52	30	16	3
Total*	8741	72	20	6	1
Income					
<$10,000	1465	65	20	12	3
$10,000–$19,999	1979	69	21	8	1
≥$20,000	4280	75	20	4	1
Total*	7724	72	21	6	1

*Totals may vary because of participant nonresponse.

Pap Smear Screening — Continued

factors, and unequal access to medical services may contribute to delayed diagnosis and death (*3–5*). The BRFSS finding that black women are more likely than white women to have had a recent Pap smear is consistent with data from the 1985 and 1987 National Health Interview Survey (NHIS) (*6,7*), even though overall NHIS estimates of yearly Pap smear screening frequency are lower than those produced by BRFSS (*8*).

Although National Cancer Institute data show that cervical cancer incidence and mortality rates increase with age (*9*), Pap smear screening decreases with age. Therefore, improving cervical cancer screening among older women should be emphasized. The American Cancer Society recommends annual Pap tests beginning with the onset of sexual activity; after three negative Pap tests, less frequent tests may be recommended by the woman's physician (*10*).

Despite higher rates of yearly Pap smears for black women in 1988, the age-adjusted incidence rate for invasive cervical cancer for blacks was twice that for whites in 1986, the last year for which data are available (*9*); the age-adjusted mortality rate for cervical cancer that year was nearly three times higher for blacks than for whites. NHIS data show black women have increasingly used this screening since 1973 (60% of black women, compared with 64% of white women, had had a Pap smear within the past 2 years in 1973 [*6*]), so recent changes in screening by race may not be directly related to invasive cervical cancer incidence and mortality patterns.

Medical-care delivery to underserved populations may be an especially challenging problem, since screening is only one of several key components to prevention. Other factors influencing incidence and mortality trends include prompt notification of Pap smear results, adequate patient follow-up, and appropriate treatment. To reduce undetected progression to invasive cervical cancer, comprehensive examination of Pap smear screening, follow-up, and treatment patterns is needed—especially for minorities, low-income groups, and older women (*2*).

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Urine Testing for Drug Use Among Male Arrestees — United States, 1989

Since 1986, the Drug Use Forecasting (DUF) program of the National Institute of Justice (NIJ) has monitored drug use among recently arrested persons in selected cities. Every 3 months, DUF staff obtain voluntary, anonymous urine specimens from a sample of arrestees in booking facilities.* The findings in this report reflect drug use among male arrestees from 14 cities during January–March 1989.

Urine specimens were screened by Enzyme Multiplied Immune Test (EMIT™)† for the following drugs and/or their metabolites: opiates, cocaine, phencyclidine (PCP), marijuana, amphetamines, methadone, barbiturates, propoxyphene, benzodiazepine, and methaqualone. Specimens positive for amphetamines were tested by gas chromatography to eliminate false-positive reactions by related drugs, such as ephedrine. Positive screening tests for other drugs were not confirmed.

Preference for enrollment in the program was given to persons charged with serious nondrug-related offenses. Attempts were made to limit the percentage of participants charged with sale or possession of drugs to ≤25%. Persons charged with traffic offenses or vagrancy were excluded.

Each arrestee was asked to participate in a brief, anonymous, and confidential interview regarding drug use, drug-treatment history, needle-sharing behaviors, and availability of new drugs "on the street." Following the interview, the arrestee was asked to provide a urine specimen. Of arrestees contacted, ≥90% agreed to be interviewed; 80%–96% of those interviewed provided a urine specimen (Table 1).

Urine tests were positive for cocaine most commonly in arrestees in New York (76%), Philadelphia (74%), and the District of Columbia (65%), and least likely in the smaller cities of Indianapolis (26%) and San Antonio (24%) (Figure 1). In nine of the 14 cities, <10% of the arrestees had positive urine tests for opiates. Eighty-one percent of persons who tested positive for opiates also tested positive for cocaine. In five cities, no arrestee had a positive test for amphetamines, and the percentage of positive tests was >7% in only one city, San Diego (35%).

Drug injection at some time during their lives was reported by 15%–38% of the male arrestees in each city (Table 2). Cocaine and heroin were the most frequently reported injected drugs. In 10 of the 14 cities, cocaine was more frequently reported to be injected than heroin. In eight cities, injection of amphetamines was reported by ≥40% of the arrestees who injected drugs. In 11 cities, ≥20% of injectors reported sharing needles.

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*The DUF system is presently operating in 22 cities. For further information on DUF contact Dr. Eric Wish, National Institute of Justice, 633 Indiana Avenue, N.W., Washington, DC 20531; telephone (202) 272-6127.

†Use of trade names is for identification only and does not imply endorsement by the Public Health Service or the U.S. Department of Health and Human Services.

Drug Use — Continued

District of Columbia Pretrial Services Agency. National Institute on Drug Abuse, Alcohol, Drug Abuse, and Mental Health Administration. Office of the Director, Center for Prevention Svcs, CDC.

Editorial Note: In 1987, 3,460,960, persons—or 1.9% of the adult population—were supervised by the correctional system in the United States (*1*). In 1988, there were 13.8 million arrests in the United States (*2*). The DUF program permits objective measurement of recent drug use among a sample of persons arrested in selected U.S. cities. Urine tests for cocaine, opiates, and amphetamines give positive results for as long as 3 days, 2 days, and 2 days, respectively, after the last use of the drugs (*3*). Therefore, DUF results measure drug use only for the 2–3 days before arrest. Because some persons who are charged with drug offenses are excluded from participation (even though they are more likely to be test-positive at the time of arrest), DUF data probably underestimate actual drug use among arrestees.

The prevalence of recent cocaine use (≥50%) among arrestees in seven of the 14 cities is striking. DUF reports for 1984–1986 documented the increasing proportion of arrestees testing positive for cocaine in that period (*4,5*). For 1987–1989, DUF data for New Orleans indicate that the near doubling of positive urine tests for cocaine coincided with substantial increases in reported use of crack (NIJ, unpublished data).

Because conditions in booking facilities make systematic random sampling difficult, convenience samples were taken with preferences given to persons charged with serious nondrug-related offenses. Screening for cocaine and opiates was based

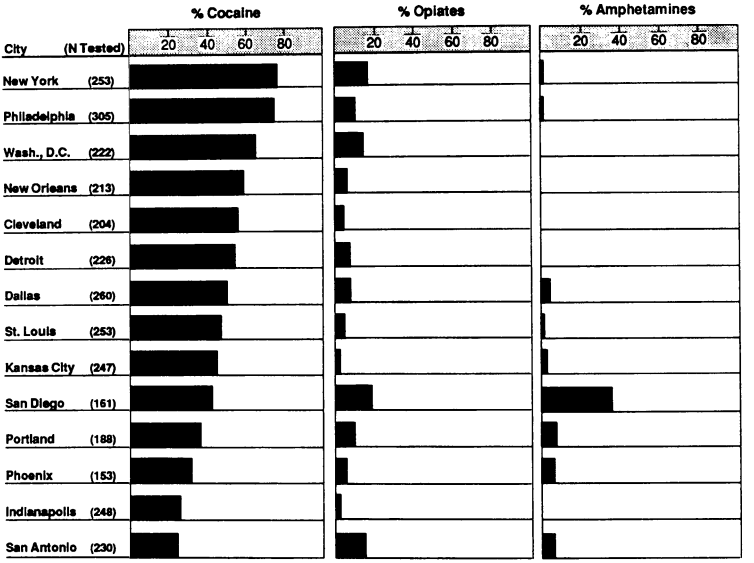
TABLE 1. Number and percentage of male arrestees who agreed to be interviewed and provide urine specimens for drug testing — selected U.S. cities, January–March 1989

City	No. eligible	Arrestees interviewed		Arrestees interviewed who gave specimen	
		No.	(%)	No.	(%)
Cleveland	247	235	(95)	207	(88)
Dallas	320	314	(98)	260	(83)
Detroit	NA*	NA		NA	
District of Columbia	305	274	(90)	245	(89)
Indianapolis	309	292	(94)	249	(85)
Kansas City	332	312	(94)	250	(80)
New Orleans	230	221	(96)	213	(96)
New York	277	270	(97)	255	(94)
Philadelphia	375	373	(99)	307	(82)
Phoenix	151	151	(100)	140	(93)
Portland	204	202	(99)	192	(95)
San Antonio	287	276	(96)	233	(84)
San Diego	203	201	(99)	169	(84)
St. Louis	294	290	(99)	256	(88)
Total	**3534**	**3411**	**(97)**	**2976**	**(87)**

*Data not available.

Drug Use — Continued

FIGURE 1. Male arrestees positive by urine test — selected U.S. cities, January–March 1989



Source: Drug Use Forecasting Program, National Institute of Justice.

TABLE 2. Self-reported drug injection and needle sharing in male arrestees — selected U.S. cities, January–March 1989

City	% Ever injected	% Injectors who ever injected:			% Injectors who currently share needles
		Cocaine	Heroin	Amphetamines	
Cleveland	17	74	71	15	15
Dallas	15	67	46	51	36
Detroit	19	60	95	5	10
District of Columbia	19	78	78	5	22
Indianapolis	17	81	44	46	26
Kansas City	18	66	39	61	16
New Orleans	18	80	69	5	33
New York	21	91	89	19	30
Philadelphia	19	83	64	44	24
Phoenix	25	89	57	43	20
Portland	30	71	64	70	29
San Antonio	24	68	76	36	48
San Diego	38	57	70	49	34
St. Louis	18	91	64	40	24

Drug Use — Continued

on the EMIT™, which can yield a positive result for opiates after a variety of legal medicines (e.g., cough medicines containing codeine or dextromethorphan) and foods containing poppy seeds are consumed. Because positive screens were not confirmed, the rates of opiate positives may overestimate the use of heroin and other illegally used opiates. The reliability of the opiate findings is supported by the fact that most (81%) of arrestees with positive opiate tests also had positive cocaine tests. False-positive screening tests for cocaine are unlikely.

At least two aspects of the procedures used by interviewers in recruiting participants in the booking facilities may limit the generalizability of the DUF findings. First, the participants are not a random sample of the arrestees. Second, the findings could be biased if selection methods increased the likelihood of selecting persons who had recently used drugs or if arrestees who had recently used drugs were more likely to give a urine specimen.

The finding that ≥20% of the drug injectors in 11 cities reported sharing needles indicates that a substantial proportion of the arrestees engage in behaviors that put them at increased risk for transmission of human immunodeficiency virus (HIV) and other bloodborne infections (*6*).

Previous studies have identified the criminal justice system as a good setting for promoting HIV/acquired immunodeficiency syndrome (AIDS) prevention programs among intravenous-drug users (*7*). In the 1989 DUF study, 47%–95% of needle-sharing arrestees reported changing their injection practices because of concern about AIDS (*8*). Therefore, provision of counseling and education for arrestees should help prevent the transmission of HIV and other sexually transmitted diseases in this high-risk population.

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

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

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