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International Notes

Emergency Public Health Surveillance in Response to Food and Energy Shortages — Armenia, 1992

Living conditions in Armenia have deteriorated since 1988 as a result of an economic blockade related to a territorial conflict between Armenia and a neighboring country. The effects of this blockade—a drastic reduction in available food, heating fuel, gasoline, electricity, health services, drugs, and vaccines—have placed residents of Armenia at increased risk for morbidity and mortality from nutritional deficiencies, infectious diseases, and hypothermia. To assess and monitor the current health and nutritional status of residents of Armenia, the Armenian National Institute of Health, the U.S. Agency for International Development (USAID), and CDC have developed the Emergency Public Health Information Surveillance System (EPHISS). This report summarizes preliminary results for 1992.

Although existing data collection systems maintained by the Ministry of Health (MOH) of Armenia monitor many health indicators, these systems do not monitor nutritional status or market indicators that might serve as early warning signs of food shortages. The EPHISS was designed to retrospectively and prospectively monitor these indicators.

EPHISS staff collected anthropometric (i.e., height and weight) data from medical records for children born in July and August of 1990, 1991, and 1992 from selected pediatric clinics in the capital, Yerevan. The comparison of data from each of these years in two pilot clinics indicated that the nutritional status of infants and young children had deteriorated: the prevalence of wasting (weight-for-height <2 standard deviations below the median of CDC's National Center for Health Statistics/World Health Organization growth reference) was 5.3% during the last half of 1992, compared with less than 1% during the previous 2 years (*1*).

To assess food security among elderly pensioners living on a fixed income, EPHISS staff repeated a nutritional needs survey in December for comparison with results obtained in a similar survey in April 1992 (*2*). Among the elderly, 308 (89%) of 347 pensioners surveyed reported having insufficient money to buy food; 291 (84%), insuf-

Armenia — Continued

ficient food; 279 (80%), no savings; and 71 (21%), less than 1 day's food supply at home. The survey suggested that conditions had deteriorated since the previous survey: increases were noted in the percentage of persons who reported selling personal possessions to buy food (from 18% to 37%) and the percentage with weight loss of 5 kg or more during the previous 6 months (from 45% to 62%) (Table 1).

Data from the MOH were used to assess communicable disease occurrence and crude and infant mortality rates. From April through October 1992, the MOH reported that monthly incidence rates of measles had increased by 60%, diarrheal illness by 61%, viral hepatitis by 163%, and tuberculosis by 75%. During 1991, the infant mortality rate was 17.9 deaths per 1000 live births; data for 1992 are not yet available.

Data on economic and environmental indicators, including the market cost of a standard 1-month basket of food items, and other key items (e.g., cost of gasoline and ruble/dollar exchange rate), indicated an overall inflation rate of 360% from April through December 1992. In comparison, the monthly pension for the elderly increased by 250%, reflecting a loss of real purchasing power. As of December 1992, the monthly pension in Armenia was 1200 Soviet Union rubles (SUR), while the cost of a 1-month basket of food items was 23,000 SUR.

Surveillance data on the health of refugees, including nutritional markers, will be gathered in collaboration with the International Committee of Red Cross during distribution of relief supplies.

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TABLE 1. Characteristics related to nutrition assessment among the elderly — Armenia, April and December 1992

	April 1992 (n=381)		December 1992 (n=347)	
Characteristic	**%**	**(95% CI*)**	**%**	**(95% CI)**
Food security				
Insufficient money for food	76	(71.1–80.3)	89	(85.7–92.3)
Insufficient food to eat	62	(57.1–66.9)	84	(80.1–87.9)
<1 day's food supply in home	11	(7.9–14.1)	21	(16.7–25.3)
Health status				
≥5 kg weight loss during past 6 months	45	(40.0–49.9)	62	(56.9–67.1)
Savings				
0 SUR†	NA§	—	80	(75.8–84.2)
<500 SUR	71	(66.4–75.6)	82	(77.9–86.0)
Coping strategies				
Selling personal possessions to buy food	18	(14.1–21.9)	37	(31.9–42.1)
Pension income (per month)				
Mean (SUR/U.S. dollar)	340/$3.40		1233/$2.74	
(Range [SUR])	(133–448)		(600–2775)	

*Confidence interval.
†Soviet Union ruble. At the time of the April 1992 survey, the exchange rate was approximately 100 SUR=$1 U.S.; in December 1992, approximately 450 SUR=$1 U.S.
§Not available.

Armenia — Continued

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Editorial Note: The 15 republics of the former Soviet Union are undergoing extraordinary economic and political change. The instability of the ruble, coupled with shifts to privatization of land and businesses, have imposed severe hardships on the populations of all 15 republics (*3*). Armenia is particularly vulnerable because of an ongoing territorial dispute that has resulted in an influx of approximately 300,000 ethnic Armenian refugees from Azerbaijan and because of the economic blockade imposed by neighboring republics, which has effectively terminated any substantive importation of fuel and food.

As of December 1992, no fuel oil had been received in Armenia for 3 months, and the fuel supply for the power system was adequate for only 8 days. The shortage of fuel also prevents distribution of commodities and cooking. Power blackouts of 12 hours or more per day throughout the country have reduced availability of running water and, by compromising sanitation, increased the risk of certain infectious diseases (e.g., hepatitis A, enterovirus, giardiasis, and shigellosis). These conditions also may result in adverse health effects related to nutritional deficiencies, cold exposure, inadequate vaccination levels, and inadequate drinking water supplies.

The monthly EPHISS public health bulletin reports critical markers of health and nutritional status that have an impact on the health of persons residing in Armenia and the condition of refugees. The bulletin describes trends in “leading” and “intermediate” indicators of changes in economic, social, and environmental factors that anticipate the evolution of food shortages and famine. Detection and reporting of such changes can trigger early interventions aimed at ensuring adequate food supplies for the population (*4*). Although a surveillance system based on population-based “sanitary epidemiology” stations has existed since 1922 in republics of the former Soviet Union, reporting of data lacks timeliness (CDC, unpublished data, 1993). Because of critical deficiencies in transportation and communications networks in Armenia, selected simple data-gathering techniques have been identified to enable timely, accurate reporting. Targeting selected communicable diseases allows prioritization of scarce resources among competing health needs (e.g., vaccine-preventable diseases and provision of safe drinking water).

This collaborative surveillance effort is promoting the prompt dissemination of information of public health importance during this period of profound change in Armenia. With USAID support and CDC technical assistance, ministries of health in other republics (i.e., Krgyzstan, Russia, and Uzbekistan) are also working to strengthen dissemination of essential public health information.

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3. Chen LE, Rohde JE, Jolly R. A looming crisis: health in the Central Asian Republics. Lancet 1992;339:1465–7.
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Epidemiologic Notes and Reports

Capnocytophaga canimorsus Sepsis Misdiagnosed as Plague — New Mexico, 1992

Since 1961, 200 human isolates of *Capnocytophaga canimorsus*—a gram-negative bacterium—have been sent to CDC for identification. Infections with this organism may result in a spectrum of manifestations ranging from self-limiting cellulitis to fatal septicemia; most fatal infections have occurred in persons with a history of asplenia, alcoholism, or hematologic malignancy. In most (77%) cases, infection is preceded by a bite or other exposure to dogs (*1*). This report summarizes the investigation by the New Mexico Health and Environment departments and CDC of a fatal case of *C. canimorsus* infection in a resident of New Mexico. This case was initially misdiagnosed as human plague.

On June 4, 1992, a 50-year-old man developed epigastric pain, nausea, fever, chills, and a rash. On June 5, he developed rectal bleeding and was evaluated in an emergency room and hospitalized. On admission, his temperature was 92.8 F (33.8 C); other findings included petechiae and ecchymoses, epigastric rebound tenderness, and bright red blood in the rectum. The hematocrit was 28.4%; white blood cell count, 10,400 cells per mm^3 with 53% bands; and platelet count, 16,000 cells per mm^3. A Wright stain of the peripheral blood smear revealed rare intracellular rods within polymorphonuclear cells. The presumptive diagnosis was gram-negative sepsis and disseminated intravascular coagulation secondary to a mesenteric bowel infarction. He received multiple transfusions and was treated with intravenous antibiotics and an experimental monoclonal antiendotoxin antibody. An exploratory laparotomy on June 5 was normal; however, the patient developed acute renal failure and acute respiratory distress syndrome, and he died on June 7.

A postmortem examination performed by the New Mexico Office of the Medical Investigator revealed diffuse internal hemorrhage consistent with gram-negative sepsis. There was no evidence of underlying causes of immunosuppression. Because of the possibility of septicemic plague (sepsis due to *Yersinia pestis*), an aliquot of serum obtained on admission was tested on June 8 at New Mexico Health Department's Scientific Laboratory Division (SLD); the hemagglutination antiplague titer was 2048 (normal: <16). However, confirmatory testing of the buffy coat for plague immunofluorescent antibody (IFA) and of autopsy specimens was negative at the SLD and at CDC's plague laboratory in Fort Collins, Colorado. On June 9, blood cultures collected on admission grew a gram-negative rod that was identified as *C. canimorsus* on June 17. On June 23, SLD repeated the plague serologic testing of the original serum sample with new reagents; results were negative (titer=0).

An investigation indicated that on May 24 the man had been hiking in the mountains near his home but had no known history of insect or animal bites. He reported owning several dogs and consuming 4–6 alcoholic drinks per day. Additional history from the family indicated the man had a swollen, possibly infected, thumb at the time of admission; however, records from the postmortem examination did not indicate an infection of the thumb.

Capnocytophaga canimorsus — *Continued*

Because of the possibility of pneumonic plague, 15 hospital staff members received plague prophylaxis during the week following the presumptive diagnosis of human plague. An investigation by the New Mexico Environment Department did not identify plague-infected fleas on the man's dogs or in rodents living in the mountains where he had been hiking.

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Editorial Note: *C. canimorsus*, previously classified as CDC Group Dysgonic Fermenter-2 (DF-2), is a slow-growing, gram-negative bacterium that requires carbon dioxide for growth (*2*). This organism has been isolated from the saliva of healthy dogs and cats as a component of the normal flora; it is susceptible to many antibiotics (e.g., penicillin, amoxicillin, erythromycin, tetracycline, cefoxitin, and clindamycin). The clinical course in severe infections is marked by disseminated intravascular coagulation, with a case-fatality rate of 25% (*1*). Some experts recommend that persons with risk factors such as a history of asplenia, alcoholism, or hematologic malignancy receive antibiotic prophylaxis following animal bites (*3*). Although this investigation did not establish a specific source of infection, evidence that the patient's thumb may have been infected, coupled with his dog ownership, suggests the sepsis resulted from a cellulitis associated with exposure to his dogs.

Plague is endemic in New Mexico; four human cases were diagnosed in 1992 and four in 1991. In this case, the decision to administer plague prophylaxis to contacts was based on the presumptive, postmortem diagnosis of plague, a compatible clinical history and high antiplague serology, and the possibility of pneumonic plague.

The cause of the false-positive plague serology remains unknown. The initial testing of the patient's serum was done with positive- and negative-control serum, but retesting of the serum with fresh reagents did not confirm the initial positive result. This false-positive plague seroreactivity may have been caused by a subtle deterioration of the reagents coupled with unusual properties of the patient's serum specimens.

This report underscores the importance of confirming positive plague serologic tests, preferably with a different lot of reagents and with cultures, in patients with clinical syndromes compatible with plague but who lack other laboratory evidence (e.g., a positive plague IFA and/or culture) of plague. Laboratory confirmation of infection with *Y. pestis* by serologic testing or by culture can be obtained from CDC's Bacterial Zoonoses Branch, National Center for Infectious Diseases, Fort Collins, Colorado, telephone (303) 221-6453.

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Current Trends

Approaches to Improving Adherence to Antituberculosis Therapy — South Carolina and New York, 1986–1991

Patients with tuberculosis (TB) who fail to complete a standard course of antituberculosis (anti-TB) therapy are at increased risk for treatment failure and may play a role in both the emergence of drug-resistant strains of *Mycobacterium tuberculosis* and further spread of TB. During 1986–1991, the South Carolina Department of Health and Environmental Control and the New York City Department of Health (NYCDH) attempted to improve patient adherence to anti-TB therapy by employing a combination of strategies that included incentives, directly observed therapy (DOT) (i.e., health-care worker observation of the patient ingesting each dose of medication), court-ordered DOT, and commitment for inpatient management. This report describes the experiences of selected strategies in South Carolina and New York City and provides recommendations for improving patient adherence to anti-TB therapy.

South Carolina

From 1980 through 1985, South Carolina reported approximately 500 new patients with TB annually; 93.9% of these patients completed therapy. Since 1985, most county health departments have routinely used incentives (e.g., food, clothing, or books) and enablers (e.g., free transportation to clinics) to ensure completion of anti-TB therapy. Since 1985, DOT has been administered to 1521 patients with TB in South Carolina who did not adhere to anti-TB therapy; these patients represented 43% of the 3465 patients with TB during that period. Patients who fail to keep appointments for DOT are notified by the local health department that if they do not comply with this recommended therapy they will be required to take the prescribed medications under the supervision of a public health nurse at an appointed time and place under court order. Twenty-three (85%) of 27 such patients completed court-ordered DOT. Four patients who did not complete court-ordered DOT were committed to a secured, long-term–care facility. The average length of stay in the facility was 68 days.

Since 1989, additional efforts between the South Carolina Tuberculosis Control Program and several local county alcohol- and drug-abuse commissions have produced joint treatment programs to treat patients with TB who have alcohol- and/or substance-abuse problems. From 1986 through 1991, by using a combination of these strategies, South Carolina increased the overall completion of anti-TB therapy from 93.9% to 96.5% and decreased the number of new TB cases from 593 in 1986 to 410 in 1991.

The cost to the South Carolina Department of Health and Environmental Control for each strategy has been $0.95–$20 per treatment for patient incentives and enablers; $653 per patient for DOT and court-ordered DOT; $450 (including shelter, food, and dual treatment for TB and for alcohol/substance abuse) per patient in halfway houses; and approximately $10,700 per patient for those requiring commitment to a long-term–care facility.

Antituberculosis Therapy — Continued

New York City

In New York City, approximately 3700 TB cases are reported annually; 30% of persons with TB are injecting-drug users, and approximately 25% are homeless. Patients who do not adhere to anti-TB therapy are offered residential treatment; however, some patients with histories of repeated nonadherence may be committed for inpatient management. To assess the effectiveness of inpatient commitment, NYCDH evaluated all patients who were committed from January 1, 1988, through April 30, 1991. During this period, TB was diagnosed in 9200 persons citywide; of these, 33 (<1%) patients had histories of repeated failure to complete therapy and were committed to 19 voluntary and municipal hospitals. Commitment was continued until three consecutive sputum specimens smear-negative for acid-fast bacilli were obtained from each patient. Of these 33 patients, 17 (52%) had histories of substance abuse (e.g., alcohol, injecting-drug use, and/or crack cocaine use); and 24 (73%) had *M. tuberculosis* isolates resistant to one or more anti-TB medications. Mean duration of commitment was 62 days (range: 2–308 days).

Nine months after initial commitment, 10 (30%) patients had successful outcomes (i.e., they were either cured [one patient] or were taking medication and were being followed on a monthly basis as outpatients [nine patients]); 11 (33%) patients were lost to follow-up; eight (24%) did not complete TB therapy and were rehospitalized for TB; and four (12%) died.

Patients were more likely to have a successful outcome if the length of commitment for inpatient management was more than 62 days (eight [62%] of 13 patients versus two [10%] of 20 with less than 62 days [relative risk (RR)=6.2; 95% confidence interval (CI)=1.5–24.5]) and if patients were domiciled (eight [50%] of 16 versus two [12%] of 17 homeless [RR=4.3; 95% CI=1.1–17.1]). Neither abusing substances nor having an isolate resistant to anti-TB medications was associated with a lower likelihood of a successful outcome.

The NYCDH reviewed the status of the 10 patients with successful outcomes 1–25 months after initial commitment; two patients were cured, four were still under care, and the remaining four had unsuccessful outcomes (i.e., one died, one was rehospitalized for TB, and two were lost to follow-up). Estimated expenditures for treatment of patients requiring commitment for inpatient management were approximately $66,000 per patient.

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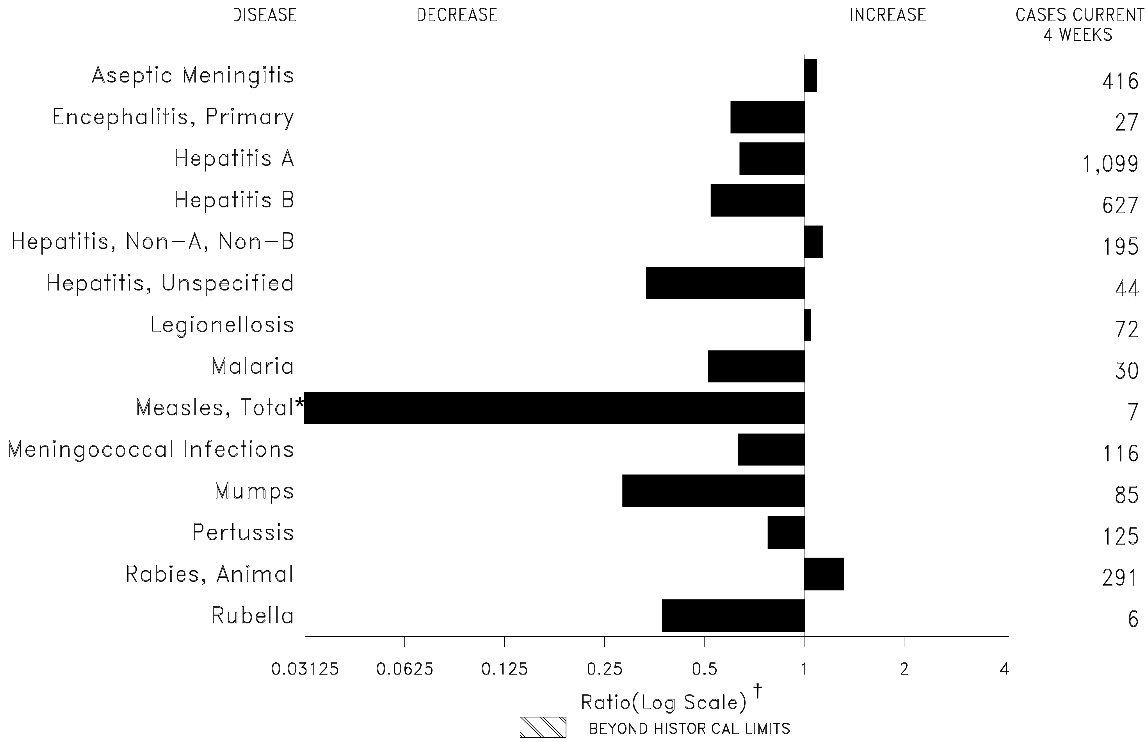
Editorial Note: The paramount goal of TB-control programs is to ensure that TB patients complete their prescribed course of therapy. Among patients who have not completed unsupervised therapy, DOT has been the most cost-effective method of increasing adherence (*1–3*). In South Carolina, the completion rate for TB treatment (96.6% in 1991) exceeded the national completion rate (79% in 1990) (CDC, unpublished data). In addition, the experience in South Carolina indicates that most patients who are chronically nonadherent can be cost-effectively treated using a variety of approaches other than commitment for inpatient management (*4*).

Homelessness and illicit drug use are barriers to completion of therapy. The findings from New York City indicate that even an approach as intense as commitment

(Continued on page 81)

FIGURE I. Notifiable disease reports, comparison of 4-week totals ending January 30, 1993, with historical data — United States



*The large apparent decrease in reported cases of measles(total) reflects dramatic fluctuations in the historical baseline. (Ratio (log scale) for week four is 0.02151).

†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 January 30, 1993 (4th Week)

	Cum. 1993		Cum. 1993
AIDS*	4,278	Measles: imported	3
Anthrax	-	indigenous	7
Botulism: Foodborne	-	Plague	-
Infant	4	Poliomyelitis, Paralytic§	-
Other	-	Psittacosis	3
Brucellosis	2	Rabies, human	-
Cholera	-	Syphilis, primary & secondary	1,904
Congenital rubella syndrome	1	Syphilis, congenital, age < 1 year	-
Diphtheria	-	Tetanus	1
Encephalitis, post-infectious	6	Toxic shock syndrome	11
Gonorrhea	27,242	Trichinosis	2
Haemophilus influenzae (invasive disease)†	74	Tuberculosis	991
Hansen Disease	10	Tularemia	4
Leptospirosis	-	Typhoid fever	39
Lyme Disease	107	Typhus fever, tickborne (RMSF)	10

*Updated monthly; last update January 30, 1993.
†Of 65 cases of known age, 30 (46%) were reported among children less than 5 years of age.
§No cases of suspected poliomyelitis have been reported in 1993; 4 cases of suspected poliomyelitis were reported in 1992; 6 of the 9 suspected cases with onset in 1991 were confirmed; all were vaccine associated.

TABLE II. Cases of selected notifiable diseases, United States, weeks ending January 30, 1993, and January 25, 1992 (4th Week)

Reporting Area	AIDS*	Aseptic Menin-gitis	Encephalitis: Primary	Encephalitis: Post-in-fectious	Gonorrhea		Hepatitis (Viral), by type: A	B	NA,NB	Unspeci-fied	Legionel-losis	Lyme Disease
	Cum. 1993	Cum. 1993	Cum. 1993	Cum. 1993	Cum. 1993	Cum. 1992	Cum. 1993	Cum. 1993	Cum. 1993	Cum. 1993	Cum. 1993	Cum. 1993
UNITED STATES	4,278	465	35	6	27,242	34,565	1,434	692	230	45	78	107
NEW ENGLAND	195	11	2	-	542	754	66	44	1	1	3	24
Maine	8	1	-	-	5	1	3	-	-	-	1	-
N.H.	8	1	-	-	5	-	2	9	-	-	-	5
Vt.	3	1	-	-	4	1	1	-	-	-	-	-
Mass.	102	6	2	-	305	332	39	30	1	1	2	10
R.I.	4	2	-	-	41	62	17	5	-	-	-	7
Conn.	70	-	-	-	182	358	4	-	-	-	-	2
MID. ATLANTIC	948	34	-	-	1,668	2,330	68	59	11	1	10	55
Upstate N.Y.	160	8	-	-	272	11	22	6	3	-	1	11
N.Y. City	677	5	-	-	-	1,339	10	1	-	-	-	-
N.J.	100	-	-	-	421	421	25	28	5	-	3	5
Pa.	11	21	-	-	975	559	11	24	3	1	6	39
E.N. CENTRAL	333	79	8	2	4,727	6,517	258	160	59	-	26	2
Ohio	85	38	4	-	1,227	2,376	44	22	1	-	13	2
Ind.	59	14	2	-	540	655	185	98	3	-	4	-
Ill.	118	4	-	-	1,617	2,266	9	1	-	-	-	-
Mich.	51	23	2	2	1,148	963	20	39	55	-	9	-
Wis.	20	-	-	-	195	257	-	-	-	-	-	-
W.N. CENTRAL	86	19	1	-	1,634	1,679	238	40	11	-	3	7
Minn.	19	2	1	-	221	176	14	2	-	-	-	-
Iowa	13	4	-	-	148	69	1	1	1	-	-	-
Mo.	39	5	-	-	802	1,113	185	30	8	-	-	-
N. Dak.	-	-	-	-	5	6	3	-	-	-	-	-
S. Dak.	1	-	-	-	17	11	2	-	-	-	-	-
Nebr.	3	1	-	-	-	3	15	-	2	-	3	-
Kans.	11	7	-	-	441	301	18	7	-	-	-	7
S. ATLANTIC	977	92	4	2	8,792	12,863	45	46	17	6	11	9
Del.	15	1	-	-	114	99	1	4	13	-	2	6
Md.	142	9	3	-	1,118	1,311	-	3	-	-	4	-
D.C.	106	1	-	-	667	599	-	3	-	-	3	1
Va.	13	8	-	-	391	1,339	4	3	-	1	-	-
W. Va.	3	2	1	-	57	86	-	2	-	3	-	1
N.C.	60	3	-	-	2,393	630	-	5	-	-	-	-
S.C.	55	1	-	-	970	1,015	2	5	-	-	-	-
Ga.	131	7	-	-	1,098	5,574	9	2	1	-	2	-
Fla.	452	60	-	2	1,984	2,210	29	19	3	2	-	1
E.S. CENTRAL	195	42	-	-	3,280	2,690	25	57	37	-	6	-
Ky.	16	24	-	-	378	346	18	7	-	-	2	-
Tenn.	107	2	-	-	989	969	4	42	36	-	2	-
Ala.	57	13	-	-	1,171	635	1	6	1	-	-	-
Miss.	15	3	-	-	742	740	2	2	-	-	2	-
W.S. CENTRAL	603	10	1	-	3,494	2,955	41	10	3	2	3	1
Ark.	16	4	-	-	380	-	6	2	-	-	-	-
La.	140	-	-	-	1,098	624	3	4	-	-	-	-
Okla.	38	-	-	-	253	300	1	-	3	1	3	1
Tex.	409	6	1	-	1,763	2,031	31	4	-	1	-	-
MOUNTAIN	103	16	3	1	645	901	239	45	13	11	9	-
Mont.	-	-	-	-	10	5	10	-	-	-	-	-
Idaho	2	1	-	-	7	5	7	2	-	-	1	-
Wyo.	1	-	-	-	4	2	1	-	1	-	2	-
Colo.	4	5	1	-	242	282	95	3	4	9	-	-
N. Mex.	10	6	1	1	67	71	25	23	5	-	-	-
Ariz.	31	2	1	-	175	362	56	11	2	2	2	-
Utah	17	-	-	-	4	5	42	-	-	-	-	-
Nev.	38	2	-	-	136	169	3	6	1	-	4	-
PACIFIC	838	162	16	1	2,460	3,876	454	231	78	24	7	9
Wash.	26	-	-	-	268	243	17	2	3	-	-	-
Oreg.	23	-	-	-	108	86	35	17	1	-	-	-
Calif.	776	155	15	1	2,010	3,431	338	212	66	23	7	9
Alaska	3	-	1	-	38	77	53	-	-	-	-	-
Hawaii	10	7	-	-	36	39	11	-	8	1	-	-
Guam	-	-	-	-	-	10	-	-	-	-	-	-
P.R.	127	2	-	-	28	1	-	14	1	-	-	-
V.I.	30	-	-	-	10	3	-	1	-	-	-	-
Amer. Samoa	-	-	-	-	3	5	-	-	-	-	-	-
C.N.M.I.	-	2	-	-	6	-	-	-	-	-	-	-

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

*Updated monthly; last update January 30, 1993.

TABLE II. (Cont'd.) Cases of selected notifiable diseases, United States, weeks ending January 30, 1993, and January 25, 1992 (4th Week)

Reporting Area	Malaria	Measles (Rubeola) Indigenous		Imported*		Total	Menin-gococcal Infections	Mumps		Pertussis			Rubella		
	Cum. 1993	1993	Cum. 1993	1993	Cum. 1993	Cum. 1992	Cum. 1993	1993	Cum. 1993	1993	Cum. 1993	Cum. 1992	1993	Cum. 1993	Cum. 1992
UNITED STATES	46	1	7	2	3	37	158	27	90	52	139	58	2	6	13
NEW ENGLAND	7	1	4	-	-	1	15	-	1	12	49	-	-	-	4
Maine	-	-	-	-	-	-	2	-	-	-	3	-	-	-	-
N.H.	1	-	-	-	-	-	4	-	-	11	44	-	-	-	-
Vt.	-	1	1	-	-	-	2	-	-	1	1	-	-	-	-
Mass.	5	-	-	-	-	-	6	-	-	-	-	-	-	-	-
R.I.	1	-	-	-	-	-	-	-	1	-	1	-	-	-	4
Conn.	-	-	3	-	-	1	1	-	-	-	-	-	-	-	-
MID. ATLANTIC	6	-	-	-	-	8	18	7	10	6	16	16	-	-	1
Upstate N.Y.	4	-	-	-	-	1	6	1	2	4	6	2	-	-	1
N.Y. City	2	-	-	-	-	-	3	-	-	-	-	-	-	-	-
N.J.	-	-	-	-	-	7	4	-	-	-	-	14	-	-	-
Pa.	-	-	-	-	-	-	5	6	8	2	10	-	-	-	-
E.N. CENTRAL	5	-	-	-	-	1	36	6	21	1	14	10	-	-	3
Ohio	2	-	-	-	-	-	6	-	10	-	7	-	-	-	-
Ind.	1	-	-	-	-	-	24	-	-	-	2	5	-	-	-
Ill.	1	-	-	-	-	-	4	-	-	-	-	1	-	-	3
Mich.	1	-	-	-	-	-	2	6	11	1	5	1	-	-	-
Wis.	-	-	-	-	-	1	-	-	-	-	-	3	-	-	-
W.N. CENTRAL	-	-	-	-	-	-	4	-	5	1	5	9	-	-	1
Minn.	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-
Iowa	-	-	-	-	-	-	1	-	2	-	-	1	-	-	-
Mo.	-	-	-	-	-	-	-	-	3	-	3	4	-	-	-
N. Dak.	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-
S. Dak.	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-
Nebr.	-	-	-	-	-	-	-	-	-	1	1	2	-	-	-
Kans.	-	-	-	-	-	-	3	-	-	-	-	-	-	-	1
S. ATLANTIC	3	-	1	1	2	5	30	3	11	-	2	5	-	-	-
Del.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Md.	1	-	-	-	1	-	1	-	2	-	2	5	-	-	-
D.C.	1	-	-	-	-	-	1	-	-	-	-	-	-	-	-
Va.	-	-	-	1†	1	-	4	3	4	-	-	-	-	-	-
W. Va.	-	-	-	-	-	-	-	-	2	-	-	-	-	-	-
N.C.	-	-	-	-	-	-	2	-	-	-	-	-	-	-	-
S.C.	-	-	-	-	-	-	4	-	1	-	-	-	-	-	-
Ga.	1	-	-	-	-	-	13	-	-	-	-	-	-	-	-
Fla.	-	-	1	-	-	5	5	-	2	-	-	-	-	-	-
E.S. CENTRAL	1	-	-	-	-	20	10	-	4	2	5	1	-	-	-
Ky.	-	-	-	-	-	20	2	-	-	-	1	-	-	-	-
Tenn.	-	-	-	-	-	-	3	-	3	-	1	-	-	-	-
Ala.	-	-	-	-	-	-	3	-	1	2	3	1	-	-	-
Miss.	1	-	-	-	-	-	2	-	-	-	-	-	-	-	-
W.S. CENTRAL	1	-	-	-	-	-	1	1	11	1	3	2	-	-	-
Ark.	-	-	-	-	-	-	1	-	-	-	-	2	-	-	-
La.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Okla.	1	-	-	-	-	-	-	-	2	1	3	-	-	-	-
Tex.	-	-	-	-	-	-	-	1	9	-	-	-	-	-	-
MOUNTAIN	1	-	-	-	-	-	10	3	10	5	8	8	1	1	-
Mont.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Idaho	-	-	-	-	-	-	-	1	2	-	-	3	-	-	-
Wyo.	-	-	-	-	-	-	1	-	-	-	1	-	-	-	-
Colo.	1	-	-	-	-	-	-	1	1	-	-	3	-	-	-
N. Mex.	-	-	-	-	-	-	-	N	N	5	6	2	-	-	-
Ariz.	-	-	-	-	-	-	9	-	4	-	1	-	-	-	-
Utah	-	-	-	-	-	-	-	1	3	-	-	-	1	1	-
Nev.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
PACIFIC	22	-	2	1	1	2	34	7	17	24	37	7	1	5	4
Wash.	-	-	-	-	-	-	2	2	3	1	1	-	-	-	-
Oreg.	-	-	-	-	-	-	6	N	N	-	-	1	-	1	-
Calif.	22	-	1	-	-	2	26	5	13	23	33	6	1	3	4
Alaska	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-
Hawaii	-	-	1	1†	1	-	-	-	-	-	3	-	-	1	-
Guam	-	U	-	U	-	3	-	U	-	U	-	-	U	-	-
P.R.	-	-	-	-	-	4	-	-	-	-	-	1	-	-	-
V.I.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Amer. Samoa	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
C.N.M.I.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

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

N: Not notifiable U: Unavailable † International § Out-of-state

TABLE II. (Cont'd.) Cases of selected notifiable diseases, United States, weeks ending January 30, 1993, and January 25, 1992 (4th Week)

Reporting Area	Syphilis (Primary & Secondary)		Toxic-Shock Syndrome	Tuberculosis		Tula-remia	Typhoid Fever	Typhus Fever (Tick-borne) (RMSF)	Rabies, Animal
	Cum. 1993	Cum. 1992	Cum. 1993	Cum. 1993	Cum. 1992	Cum. 1993	Cum. 1993	Cum. 1993	Cum. 1993
UNITED STATES	1,904	1,832	11	991	1,197	4	39	10	347
NEW ENGLAND	45	47	-	13	4	-	2	2	82
Maine	-	-	-	2	-	-	-	-	-
N.H.	-	4	-	-	-	-	-	-	2
Vt.	-	-	-	-	-	-	-	-	2
Mass.	29	20	-	1	1	-	2	2	17
R.I.	1	1	-	-	-	-	-	-	-
Conn.	15	22	-	10	3	-	-	-	61
MID. ATLANTIC	119	223	2	164	251	-	15	1	137
Upstate N.Y.	8	-	1	33	29	-	-	-	94
N.Y. City	84	141	-	85	177	-	2	-	-
N.J.	20	32	-	21	21	-	-	1	43
Pa.	7	50	1	25	24	-	13	-	-
E.N. CENTRAL	289	310	5	86	74	1	2	-	2
Ohio	91	51	3	14	19	-	2	-	-
Ind.	17	16	1	5	7	-	-	-	-
Ill.	114	148	-	67	26	-	-	-	-
Mich.	58	30	1	-	19	1	-	-	-
Wis.	9	65	-	-	3	-	-	-	2
W.N. CENTRAL	141	66	1	15	37	-	-	-	19
Minn.	9	5	-	-	23	-	-	-	7
Iowa	12	-	-	2	3	-	-	-	-
Mo.	120	60	-	8	10	-	-	-	1
N. Dak.	-	-	-	-	1	-	-	-	1
S. Dak.	-	-	-	-	-	-	-	-	-
Nebr.	-	1	-	2	-	-	-	-	-
Kans.	-	-	1	3	-	-	-	-	10
S. ATLANTIC	577	643	1	133	157	-	3	2	90
Del.	11	7	-	-	1	-	-	-	8
Md.	28	59	-	39	35	-	1	-	-
D.C.	24	58	-	6	7	-	-	-	3
Va.	44	52	-	-	8	-	-	-	33
W. Va.	4	1	-	4	5	-	-	-	4
N.C.	149	110	-	22	6	-	-	2	2
S.C.	95	88	-	22	17	-	-	-	6
Ga.	106	155	-	40	10	-	-	-	34
Fla.	116	113	1	-	68	-	2	-	-
E.S. CENTRAL	303	281	-	35	61	1	-	2	7
Ky.	30	11	-	13	14	-	-	1	-
Tenn.	90	63	-	-	-	-	-	-	-
Ala.	83	127	-	17	24	1	-	-	7
Miss.	100	80	-	5	23	-	-	1	-
W.S. CENTRAL	416	197	-	4	-	-	-	3	4
Ark.	36	-	-	4	-	-	-	-	2
La.	159	114	-	-	-	-	-	-	-
Okla.	47	13	-	-	-	-	-	3	2
Tex.	174	70	-	-	-	-	-	-	-
MOUNTAIN	6	54	-	10	2	-	-	-	5
Mont.	-	-	-	-	-	-	-	-	-
Idaho	-	1	-	-	2	-	-	-	-
Wyo.	-	-	-	-	-	-	-	-	2
Colo.	3	10	-	-	-	-	-	-	-
N. Mex.	1	2	-	-	-	-	-	-	1
Ariz.	2	20	-	7	-	-	-	-	2
Utah	-	-	-	-	-	-	-	-	-
Nev.	-	21	-	3	-	-	-	-	-
PACIFIC	8	11	2	531	611	2	17	-	1
Wash.	-	8	-	12	15	-	-	-	-
Oreg.	7	3	-	3	-	-	-	-	-
Calif.	-	-	2	499	579	2	17	-	-
Alaska	-	-	-	-	6	-	-	-	1
Hawaii	1	-	-	17	11	-	-	-	-
Guam	-	1	-	-	10	-	-	-	-
P.R.	36	2	-	-	-	-	-	-	2
V.I.	5	4	-	-	1	-	-	-	-
Amer. Samoa	-	-	-	-	-	-	-	-	-
C.N.M.I.	-	-	-	-	3	-	-	-	-

U: Unavailable

TABLE III. Deaths in 121 U.S. cities,* week ending January 30, 1993 (4th Week)

Reporting Area	All Causes, By Age (Years)						P&I† Total
	All Ages	≥65	45-64	25-44	1-24	<1	
NEW ENGLAND	593	425	102	38	12	16	51
Boston, Mass.	159	97	35	14	2	11	18
Bridgeport, Conn.	42	29	10	-	3	-	5
Cambridge, Mass.	24	21	1	1	-	1	1
Fall River, Mass.	24	20	2	2	-	-	2
Hartford, Conn.	59	40	9	6	3	1	3
Lowell, Mass.	19	16	3	-	-	-	3
Lynn, Mass.	16	10	5	1	-	-	1
New Bedford, Mass.	25	19	6	-	-	-	-
New Haven, Conn.	53	39	7	3	3	1	3
Providence, R.I.	36	30	5	1	-	-	1
Somerville, Mass.	9	9	-	-	-	-	-
Springfield, Mass.	46	31	7	6	-	2	5
Waterbury, Conn.	32	23	6	2	1	-	2
Worcester, Mass.	49	41	6	2	-	-	7
MID. ATLANTIC	2,810	1,881	506	312	59	52	135
Albany, N.Y.	52	35	7	3	2	5	4
Allentown, Pa.	33	26	7	-	-	-	-
Buffalo, N.Y.	107	74	23	5	2	3	7
Camden, N.J.	36	19	9	5	2	1	6
Elizabeth, N.J.	29	20	7	2	-	-	1
Erie, Pa.§	55	45	6	3	-	1	6
Jersey City, N.J.	50	33	6	9	-	2	2
New York City, N.Y.	1,478	950	269	199	33	27	56
Newark, N.J.	64	23	17	18	4	2	3
Paterson, N.J.	40	19	13	4	2	2	2
Philadelphia, Pa.	394	286	60	36	7	5	19
Pittsburgh, Pa.§	76	54	16	5	1	-	5
Reading, Pa.	14	8	3	2	1	-	2
Rochester, N.Y.	105	79	19	5	1	1	8
Schenectady, N.Y.	32	26	5	1	-	-	2
Scranton, Pa.§	24	18	5	1	-	-	2
Syracuse, N.Y.	102	78	16	4	2	2	3
Trenton, N.J.	65	51	6	7	-	1	6
Utica, N.Y.	24	15	7	1	1	-	-
Yonkers, N.Y.	30	22	5	2	1	-	1
E.N. CENTRAL	2,392	1,520	467	227	112	66	142
Akron, Ohio	66	51	9	3	3	-	-
Canton, Ohio	39	28	7	3	-	1	8
Chicago, Ill.	478	213	102	79	64	20	28
Cincinnati, Ohio	138	99	25	6	4	4	12
Cleveland, Ohio	170	107	29	21	7	6	-
Columbus, Ohio	203	129	40	22	7	5	11
Dayton, Ohio	131	90	27	6	3	5	9
Detroit, Mich.	248	157	46	30	7	8	8
Evansville, Ind.	51	37	10	1	2	1	5
Fort Wayne, Ind.	67	45	13	6	1	2	7
Gary, Ind.	23	13	5	4	-	1	-
Grand Rapids, Mich.	92	68	17	3	-	4	8
Indianapolis, Ind.	177	117	41	16	2	1	9
Madison, Wis.	69	41	15	6	4	3	9
Milwaukee, Wis.	143	103	31	6	1	2	10
Peoria, Ill.	44	29	11	2	2	-	4
Rockford, Ill.	52	39	8	2	1	2	5
South Bend, Ind.	41	31	7	2	-	1	1
Toledo, Ohio	107	84	14	7	2	-	7
Youngstown, Ohio	53	39	10	2	2	-	1
W.N. CENTRAL	902	701	125	52	11	13	59
Des Moines, Iowa	48	40	6	1	1	-	9
Duluth, Minn.	42	30	6	6	-	-	1
Kansas City, Kans.	22	15	5	2	-	-	-
Kansas City, Mo.	129	102	15	7	3	2	5
Lincoln, Nebr.	30	27	2	1	-	-	3
Minneapolis, Minn.	268	222	28	12	2	4	29
Omaha, Nebr.	98	74	19	3	-	2	8
St. Louis, Mo.	146	105	24	11	3	3	-
St. Paul, Minn.	58	42	10	4	1	1	3
Wichita, Kans.	61	44	10	5	1	1	1

Reporting Area	All Causes, By Age (Years)						P&I† Total
	All Ages	≥65	45-64	25-44	1-24	<1	
S. ATLANTIC	1,338	884	206	145	48	54	78
Atlanta, Ga.	197	114	36	30	7	10	9
Baltimore, Md.	268	173	46	33	8	8	27
Charlotte, N.C.	94	66	15	9	1	3	2
Jacksonville, Fla.	172	129	23	10	4	6	10
Miami, Fla.	U	U	U	U	U	U	U
Norfolk, Va.	70	48	10	6	5	1	5
Richmond, Va.	98	62	19	10	3	4	4
Savannah, Ga.	69	54	11	1	1	2	6
St. Petersburg, Fla.	84	63	5	9	2	5	-
Tampa, Fla.	146	101	24	13	6	1	13
Washington, D.C.	105	47	14	20	11	13	2
Wilmington, Del.	35	27	3	4	-	1	-
E.S. CENTRAL	970	653	193	66	21	37	61
Birmingham, Ala.	154	105	24	13	5	7	5
Chattanooga, Tenn.	116	92	18	2	1	3	6
Knoxville, Tenn.	92	64	18	5	1	4	6
Lexington, Ky.	80	47	23	8	-	2	11
Memphis, Tenn.	195	130	40	13	6	6	10
Mobile, Ala.	99	69	19	6	1	4	2
Montgomery, Ala.	66	43	9	3	3	8	3
Nashville, Tenn.	168	103	42	16	4	3	18
W.S. CENTRAL	1,617	987	329	176	72	51	119
Austin, Tex.	65	39	10	11	3	2	4
Baton Rouge, La.	21	12	3	3	3	-	1
Corpus Christi, Tex.	63	40	13	7	1	2	5
Dallas, Tex.	234	142	45	32	7	8	8
El Paso, Tex.	116	67	27	11	4	7	6
Ft. Worth, Tex.	124	75	24	12	11	2	9
Houston, Tex.	408	229	87	58	20	14	48
Little Rock, Ark.	103	63	24	8	4	4	10
New Orleans, La.	85	54	18	2	6	3	-
San Antonio, Tex.	215	133	47	20	10	5	10
Shreveport, La.	66	49	12	3	1	1	9
Tulsa, Okla.	117	84	19	9	2	3	9
MOUNTAIN	897	587	174	86	29	21	67
Albuquerque, N.M.	100	67	21	6	3	3	3
Colo. Springs, Colo.	39	27	7	3	1	1	2
Denver, Colo.	127	75	30	14	3	5	9
Las Vegas, Nev.	158	94	42	10	11	1	11
Ogden, Utah	21	17	3	1	-	-	1
Phoenix, Ariz.	180	116	25	25	7	7	17
Pueblo, Colo.	26	20	4	1	-	1	1
Salt Lake City, Utah	93	63	12	13	2	3	9
Tucson, Ariz.	153	108	30	13	2	-	14
PACIFIC	2,099	1,430	355	183	69	51	152
Berkeley, Calif.	U	U	U	U	U	U	U
Fresno, Calif.	47	30	13	2	1	1	6
Glendale, Calif.	25	18	4	2	-	-	1
Honolulu, Hawaii	97	67	22	2	2	4	9
Long Beach, Calif.	U	U	U	U	U	U	U
Los Angeles, Calif.	460	307	76	47	17	3	27
Pasadena, Calif.	36	26	4	2	1	3	3
Portland, Oreg.	229	159	39	18	6	7	11
Sacramento, Calif.	191	135	32	13	3	8	19
San Diego, Calif.	167	109	29	15	13	1	22
San Francisco, Calif.	215	128	40	42	2	3	2
San Jose, Calif.	211	145	33	15	9	9	23
Santa Cruz, Calif.	43	35	4	3	1	-	4
Seattle, Wash.	184	125	31	14	10	4	6
Spokane, Wash.	73	55	13	-	1	4	7
Tacoma, Wash.	121	91	15	8	3	4	12
TOTAL	13,618¶	9,068	2,457	1,285	433	361	864

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

†Pneumonia and influenza.

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

¶Total includes unknown ages.

U: Unavailable.

Antituberculosis Therapy — Continued

does not ensure that patients will be cured. Those findings also suggest that commitment for periods less than the full course of therapy may be ineffective.

To increase completion of anti-TB therapy, local and state health departments are encouraged to 1) employ the full range of TB-therapy strategies according to individual patient needs; 2) provide accessible clinical TB services and anti-TB medications at no cost to patients; 3) monitor adherence among patients; and 4) develop working relations with other agencies that provide social services, treatment for drug and alcohol abuse, and residential facilities for patients who need them (*5,6*).

CDC and the American Thoracic Society recommend that consideration be given to treating all TB patients with DOT (*5*). Commitment for inpatient management is indicated for patients who, after receiving a range of less restrictive treatment options, remain nonadherent and who pose a substantial risk to the health of their community. In some cases, nonadherent patients may need to be committed until the full course of therapy is completed. Commitment should be instituted with careful consideration of appropriate local, state, and federal laws and regulations regarding the patient's civil liberties (*7*).

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Epidemiologic Notes and Reports

Measles — Duval County, Florida, 1991–1992

An outbreak of measles occurred in northeastern Florida (Bradford, Clay, Duval, Nassau, Putnam, and St. Johns counties) in 1991 and early 1992. A total of 193 confirmed cases of measles were reported to the Florida Department of Health and Rehabilitative Services (FDHRS). This report summarizes an investigation of the outbreak in Duval County (1990 population: 676,556), which reported 146 (76%) of the cases.

The outbreak in Duval County began in April 1991 and peaked in October 1991. The last case was reported in January 1992 (Figure 1). Seventy-five (51%) cases were reported from three inner-city zip code areas in Jacksonville. The overall incidence of measles in Duval County was 22 cases per 100,000 population. The age-specific incidence was highest for children aged <5 years (205 cases per 100,000). Of the 146

Measles — Continued

reported measles cases, 111 (76%) occurred among children aged <5 years, including 42 (29%) among children aged <12 months. Transmission between mother and infant was documented in 12 cases (six mother-infant pairs). School-aged children (aged 5–19 years) and adults aged ≥20 years accounted for 15% and 9% of cases, respectively.

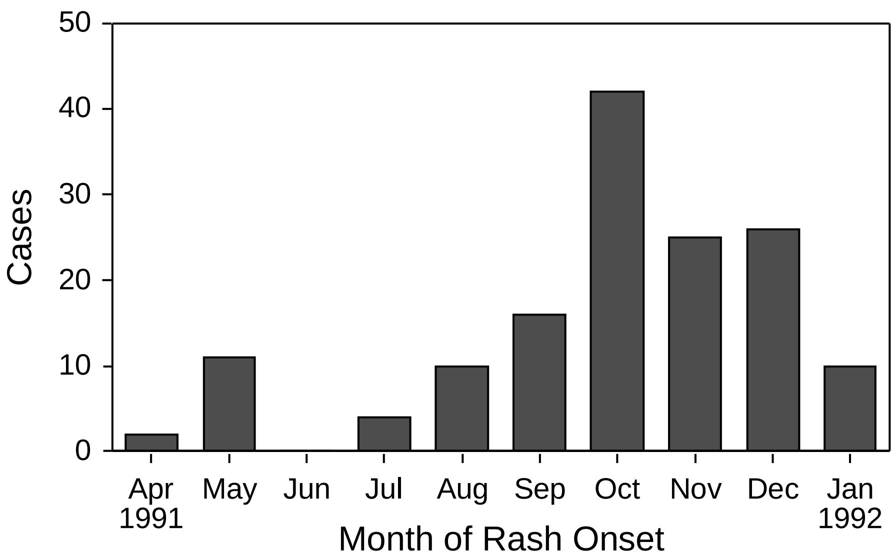
Ninety-seven (66%) reported cases occurred among non-Hispanic blacks for a race-specific incidence of 58 per 100,000 population. The race-specific incidence for non-Hispanic whites was nine per 100,000. One case was reported in a Hispanic child. The highest age- and race-specific incidence was for non-Hispanic black children aged <5 years (462 per 100,000), more than six times higher than the incidence for non-Hispanic white children aged <5 years (75 per 100,000).

Overall, 27 (18%) case-patients were appropriately vaccinated; 119 (82%) were unvaccinated. Among children aged 16 months–4 years, 19% were appropriately vaccinated. In contrast, 77% of school-aged children were appropriately vaccinated. Of all reported cases, 47% occurred among children younger than the routine age for vaccination (i.e., 16 months).

Seventy-five (51%) case-patients were reported to have one or more complications of measles, including 69 (47%) with otitis media and 12 (8%) with pneumonia. Thirty-four (23%) required hospitalization for a total of 274 hospital days (median: 4 days; range 1–195 days). Seventy-nine percent of those hospitalized were aged <2 years. A 26-year-old who developed pneumonia was hospitalized for 195 days and required mechanical ventilation for 129 days.

Medical settings, particularly pediatric emergency rooms (ERs), and a pediatric ward were important sources of exposure during this outbreak. These settings were identified as the likely source of infection for 17 (12%) persons. In one case, a patient presented to an ER with a temperature of 105 F (40.6 C), generalized rash, cough, coryza, and conjunctivitis and was released with a diagnosis of viral exanthem. This patient was the source of infection for 13 other persons, including four relatives, one

FIGURE 1. Measles cases, by month of rash onset — Duval County, Florida, 1991–1992



Measles — Continued

of whom was later hospitalized with severe measles-related complications. Two persons who acquired measles in medical settings were health-care workers aged 37 and 38 years.

Outbreak-control measures included reducing the age for measles vaccination to 6 months; targeting measles vaccination programs to high-incidence residential areas; educating the community on the importance of vaccination through schools and the media; ensuring availability of vaccination on demand at Duval County public health clinics; and encouraging measles vaccination of children seen in the emergency department of the public hospital.

Reported by: ANK Cope, MS, PF Frank, J Montgomery, MPH, J Ripka, V Nguyen, MD, A Vroon, MD, Duval County Public Health Unit; M Rathore, MD, Univ of Florida Health Sciences Center, Gainesville; R Scavetto, H Janowski, MPH, Florida Dept of Health and Rehabilitative Svcs. Div of Immunization, National Center for Prevention Svcs, CDC.

Editorial Note: The measles outbreak in Duval County is similar to others reported among preschool-aged children in 1989–1991, which have typically involved unvaccinated black and Hispanic children living in inner-city areas (*1–4*). This outbreak emphasizes that measles transmission can be sustained for periods of several months, even in a relatively small urban area. Measles vaccination coverage levels among preschool-aged children in Duval County are not known. However, a 1991 retrospective school-enterer survey indicated that only 71% of Florida children were vaccinated against measles by their second birthday (H. Janowski, FDHRS, personal communication, 1992); coverage levels are likely to be lower in inner-city areas. Only increasing age-appropriate vaccination coverage will prevent outbreaks among preschool-aged children.

The Duval County outbreak also illustrates the importance of medical settings as a source of infection. Measles transmission in pediatric ERs can play a prominent role in propagating measles outbreaks (*5*). Assurance of measles immunity among health-care workers and consideration of measles vaccination programs during outbreaks can help decrease the risk of measles transmission in these settings (*6,7*). Administration of measles vaccine in ERs can provide postexposure prophylaxis and may increase overall vaccination levels in the community.

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Current Trends

Adult Blood Lead Epidemiology and Surveillance — United States, Third Quarter, 1992

In September 1992, CDC's National Institute for Occupational Safety and Health (NIOSH) began quarterly reporting of adult elevated blood lead level (BLL) data from state-based surveillance programs. To support these efforts, NIOSH has established the Adult Blood Lead Epidemiology and Surveillance (ABLES) program.

In the previous report, 12 states* provided summary data on elevated BLLs (≥25 µg/dL of whole blood) (*1*). In this report, five additional states (Colorado, Michigan, New Hampshire, South Carolina, and Utah) have contributed to the surveillance effort, bringing to 17 the total number of states participating in quarterly reporting (Table 1). Twenty-one states collect BLL information on adults, and five states are developing the capacity to do so.

NIOSH surveillance research recently identified excessive lead exposures in the construction industry among bridge workers (*2,3*), workers conducting home paint removal (*4*), and workers performing paint removal on commercial superstructures such as water tanks (*5*). In October 1992, the U.S. Department of Labor was directed by Congress to issue an interim final regulation covering occupational exposures to lead in the construction industry†; this interim standard is to be published in April 1993. In addition to setting standards for construction workers, the regulation directs the U.S. Environmental Protection Agency, the U.S. Department of Housing and Urban Development, CDC, and other federal agencies to ensure that workers engaged in lead paint removal are properly trained and that contractors engaged in such activities are certified.

Reported by: B Harrell, MPA, Div of Epidemiology; CH Woernle, MD, State Epidemiologist, Alabama Dept of Public Health. A Osorio, MD, Occupational Health Surveillance and Evaluation Program, California Dept of Health Svcs. J McCammon, MS, Epidemiology Div, Colorado Dept of Health. CJ Dupuy, Connecticut State Dept of Health Svcs. M Lehnherr, Occupational Disease

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*Alabama, California, Connecticut, Illinois, Iowa, Maryland, Massachusetts, New Jersey, New York, Oregon, Texas, and Wisconsin.

†Housing and Community Development Act, Title X, Residential Lead-Based Paint Hazard Reduction Act (Public Law 102-550).

TABLE 1. Number of reports of elevated blood lead levels (BLLs) in adults — 17 states,* third quarter, 1992

Reported BLL (µg/dL)	Third quarter, 1992	Cumulative, 1992	Cumulative, 1991†
25–39	3,048	9,384	—
40–49	709	2,245	—
50–59	234	614	—
≥60	128	319	—
Total	**4,119**	**12,562**	**13,290**

*Alabama, California, Colorado, Connecticut, Illinois, Iowa, Maryland, Massachusetts, Michigan, New Hampshire, New Jersey, New York, Oregon, South Carolina, Texas, Utah, and Wisconsin.

†Data stratified by BLL not available for 1991. Cumulative through third quarter, 1991.

Adult Blood Lead Epidemiology and Surveillance — Continued

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Epidemiologic Notes and Reports

Preliminary Report: Foodborne Outbreak of *Escherichia coli* O157:H7 Infections from Hamburgers — Western United States, 1993

During January 1–29, 1993, 230 persons with culture-confirmed infection with *Escherichia coli* O157:H7 resulting in bloody diarrhea and, in some cases, hemolytic uremic syndrome (HUS) were reported in the state of Washington. Culture results are pending for 80 others with similar illnesses. Preliminary investigations by public health agencies linked cases to consumption of hamburgers from one fast-food restaurant chain. *E. coli* O157:H7 has been isolated from epidemiologically implicated lots of ground beef; an interstate recall was initiated by the restaurant on January 18. Meat from the same lots of ground beef had been distributed to at least three other western states in which increased numbers of cases of bloody diarrhea have been reported. CDC, the U.S. Department of Agriculture, state and county health departments, and state agriculture investigators are investigating whether cases of bloody diarrhea in the other states are linked to consumption of meat from the same lots of ground beef and are determining the possible sources of the contaminated meat.

Reported by: Enteric Diseases Br, Div of Bacterial and Mycotic Diseases, National Center for Infectious Diseases; Div of Field Epidemiology, Epidemiology Program Office, CDC.

Foodborne Outbreak — Continued

Editorial Note: *E. coli* O157:H7 is an emerging infectious agent first linked to human illness in 1982; its importance as a human pathogen appears to be increasing (*1,2*). Infection with *E. coli* O157:H7 may result in a spectrum of illnesses, including mild diarrhea, severe bloody diarrhea (hemorrhagic colitis), HUS often leading to acute renal failure requiring dialysis, and death (*3*). Infection with this organism has been associated with consumption of contaminated beef and raw milk and through person-to-person transmission by the fecal-oral route (*2*). Measures to prevent transmission include thorough cooking of beef, pasteurization of milk, and careful handwashing with soap. In particular, ground beef should be cooked until it is no longer pink. Diagnosis of *E. coli* O157:H7 infection in the clinical laboratory setting requires specific culture of stool specimens for the organism on modified MacConkey medium containing sorbitol (*4*).

Physicians who have patients with severe bloody diarrhea of unknown etiology or HUS should consider infection with *E. coli* O157:H7 and should request the appropriate cultures be done. This outbreak illustrates how surveillance with rapid reporting and prompt investigation of cases can lead to timely public health action. Physicians and laboratories are encouraged to report cases of *E. coli* O157:H7 infection to their county and state health departments.

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Notices to Readers

Publication of Death Investigation Practices

CDC's National Center for Environmental Health has released *Death Investigation in the United States and Canada, 1992* (*1*) to state registrars and attorneys general, medical examiners and coroners, and other persons who conduct research or develop public policy pertaining to violent, unnatural, or unexpected deaths. This document contains information about death investigation laws, contact persons for death investigation jurisdictions, and the names of vital registrars and attorneys general for the United States, U.S. territories, and Canadian provinces.

Copies of the publication are available free of charge from CDC's Surveillance and Programs Branch, Division of Environmental Hazards and Health Effects, National Center for Environmental Health, Mailstop F-35, 1600 Clifton Road, NE, Atlanta, GA 30341-3724; telephone (404) 488-7060.

Reference

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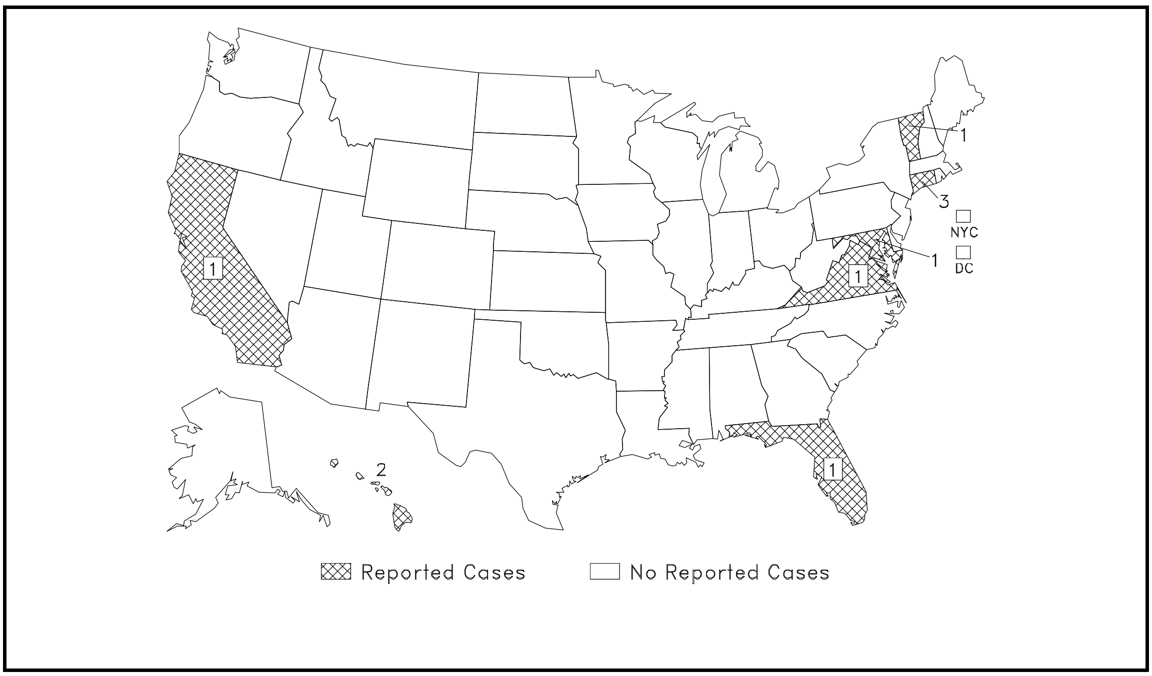
Notices to Readers — Continued

Epidemiology in Action Course

CDC and Emory University will cosponsor a course designed for practicing state and local health department professionals. This course, “Epidemiology in Action,” will be held at CDC May 17–28, 1993. It emphasizes the practical application of epidemiology of public health problems and will consist of lectures, workshops, classroom exercises (including actual epidemiologic problems), roundtable discussions, computer training, and an on-site community survey. There is a tuition charge.

Applications must be received by March 15. Additional information and applications are available from Department PSB, Emory University, School of Public Health, 1599 Clifton Road, NE, Atlanta 30329; telephone (404) 727-3485 or (404) 727-0199.

Reported cases of measles, by state — United States, weeks 1–4, 1993



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

The data in the weekly *MMWR* are provisional, based on weekly reports to CDC by state health departments. The reporting week concludes at close of business on Friday; compiled data on a national basis are officially released to the public on the succeeding Friday. Inquiries about the *MMWR* Series, including material to be considered for publication, should be directed to: Editor, *MMWR* Series, Mailstop C-08, Centers for Disease Control and Prevention, Atlanta, GA 30333; telephone (404) 332-4555.

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