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Poisonings Associated with Illegal Use of Aldicarb as a Rodenticide — New York City, 1994–1997

Although rodenticides historically have been among the most toxic substances available to the public and have been implicated as agents in both unintentional and suicidal exposures, the anticoagulant agents currently in use, such as coumadin and their long-acting derivatives (e.g., brodifacoum), are relatively safe. In 1995, most persons who reported exposure to anticoagulant rodenticides did not develop symptoms or require specific therapy. However, during 1994–1997, the New York City Poison Control Center (NYCPCC) was consulted about 25 patients, primarily persons who had emigrated from the Dominican Republic, who had manifestations consistent with the cholinergic toxidrome, which is not characteristic of poisoning by the anticoagulant rodenticides, after ingesting a rodenticide known as Tres Pasitos ("Three Little Steps"). In each case, the product had been purchased at a neighborhood store for use as a household rodenticide. The Environmental Investigation Unit of the New York State Department of Environmental Conservation (NYDEC) investigated the poisoning incidents. Laboratory analysis indicated that the product contained the carbamate pesticide aldicarb (2-methyl-2-(methylthio)-propionaldehyde O-(methylcarbamoyl) oxime), which is not registered for use as a rodenticide in the United States. This report presents a detailed description of two of these cases and a summary of the remaining cases.

Case Reports

Case 1. On May 5, 1994, an 18-year-old man who had recently emigrated from the Dominican Republic attempted suicide by ingesting a handful of granular Tres Pasitos. On presentation to the emergency department (ED), he was lethargic, tachycardic, and tachypneic with diffuse muscle fasciculations and profuse bronchorrhea. He was intubated and initially received 8 mg of atropine to control his secretions. Additional treatment included a continuous atropine infusion of 9 mg per hour for 5 days and a pralidoxime infusion (500 mg per hour) to a total of 26 g before ventilatory support could be discontinued. Although a plasma cholinesterase level was not detectable on admission, the patient's red blood cell cholinesterase level was normal when measured after completion of pralidoxime therapy. Convalescent cholinesterase levels could not be obtained.

Illegal Use of Aldicarb — Continued

Case 2. On May 12, 1997, a 2-year-old girl was observed by her parents eating several grains of rice mixed with Tres Pasitos, which her parents had recently placed in their home to control a rodent infestation. Shortly afterward, she began vomiting and became comatose. On arrival at the ED, she had miosis, muscle fasciculations, and pulmonary edema and required intubation for respiratory insufficiency. After an initial dose of 2 mg atropine, her clinical status improved rapidly. She was subsequently treated with a total of 9 mg of atropine and pralidoxime and was discharged from the hospital on May 16.

Summary Description

NYPCC received reports of poisoning cases in 23 additional patients. Of these, 20 presented to EDs with signs and symptoms consistent with cholinergic toxidrome, although the specific findings for each patient varied. The remaining five patients presented with nonspecific signs and symptoms. Symptoms typically resolved rapidly with atropine therapy.

Of the 25 patients, 22 were adults who had ingested the rodenticide while attempting suicide. The remaining three were children aged <4 years who had unintentionally ingested the rodenticide after it was placed in their homes. Seventeen of the 25 patients were female, and 24 patients had emigrated from the Dominican Republic.

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Editorial Note: This report presents the first known cases of poisonings resulting from the illegal use of aldicarb as a commercially prepared rodenticide in the United States. Aldicarb is a carbamate pesticide registered for use against insects, mites, and nematodes on field crops, certain vegetables and fruits, and ornamental plants in the United States; it is not registered for use as a rodenticide (*1*). The Environmental Protection Agency has classified aldicarb in its highest toxicity category (Category 1).

Previous similar episodes have been reported in Rio de Janeiro, where illegal rodenticides are sold widely by street vendors (*2*), and in Israel, where poisonings have been reported primarily among Arab Bedouins (*3*). In both of these instances and in the current report, poisoning resulted when the product was ingested inadvertently or with suicidal intent.

Tres Pasitos can be purchased legally in the Dominican Republic, where it is widely used as a rodenticide. In New York City, Tres Pasitos is sold in stores from large containers and is packaged in small, unlabeled plastic bags. The poisoning cases occurred primarily among emigrants from the Dominican Republic—probably because of the use of this product as a rodenticide in the Dominican Republic and continued use in the United States.

Investigators from NYDEC have attempted to remove Tres Pasitos from stores; however, the product often is replaced when investigators leave. In addition, NYCPCC and NYDEC have initiated community outreach at schools and other public institutions in neighborhoods where Tres Pasitos can be obtained to educate persons about the hazards of this product.

Illegal Use of Aldicarb — Continued

Physicians and poison control centers should be aware of the illegal use of Tres Pasitos as a source of poisoning. Although cholinergic toxicity is common after exposure to anticholinesterase pesticides, cholinergic symptoms are unexpected in patients who report ingesting a rodenticidal agent in the United States. Therapy for exposed patients should be guided by clinical toxicity and includes atropine, a muscarinic cholinergic antagonist. Pralidoxime, a cholinesterase reactivator, is important for patients with organophosphorus poisoning, but its usefulness in treating carbamate poisoning is inconclusive.

Health-care providers who identify cases of poisonings associated with exposures to this illegal rodenticide product should contact their local health departments to determine whether these cases are reportable. Health departments whose jurisdictions include emigrant populations from the Dominican Republic should be especially aware of this potential public health problem.

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Vaccination Coverage by Race/Ethnicity and Poverty Level Among Children Aged 19–35 Months — United States, 1996

The Childhood Immunization Initiative (CII), implemented in 1993, is an intensive program to increase vaccination coverage among preschool-aged children and to reduce or eliminate vaccine-preventable diseases (*1*). In 1996, national coverage goals were achieved for 2-year-old children for the most critical doses of each routinely recommended vaccine (*2*). Disparities in vaccination coverage have been documented previously among different racial/ethnic groups. This report presents findings from CDC's National Immunization Survey (NIS), which document progress toward achieving the 1996 CII vaccination coverage goals* by racial/ethnic group† and by level of poverty. The findings indicate that, for each of five racial/ethnic groups, most of the national CII vaccination coverage goals were met and that, based on poverty level, all the goals were met for children living at or above the poverty level, and two of the five goals were met for children living below the poverty level.

The NIS was implemented in 1994 and measures vaccination coverage among children aged 19–35 months (*3*). Race/ethnicity and poverty-related information are reported by the parent or caregiver through a random-digit–dialed telephone survey

*At least 90% coverage for one or more doses of measles-mumps-rubella vaccine and three doses each of diphtheria and tetanus toxoids and pertussis vaccine, oral poliovirus vaccine, and *Haemophilus influenzae* type b vaccine. For three or more doses of hepatitis B vaccine, the goals were set at 70% by 1996 and 90% by 1998. Children in this survey were born during February 1993–May 1995.

†Five groups were used: respondents were self-classified as non-Hispanic white, non-Hispanic black, Hispanic, non-Hispanic American Indian/Alaskan Native, and non-Hispanic Asian/Pacific Islander.

Vaccination Coverage — Continued

conducted in English, Spanish, and other languages. The health-care providers of the children in the survey are contacted to verify and/or complete vaccination information. An adjustment is made for households without telephones. Poverty level (i.e., above, at, or below the poverty level) is based on U.S. Bureau of the Census thresholds (*4*) for respondent-reported family income, household size, and number of children aged <18 years living in the household. In 1996, interviews were completed with the parents and caregivers of 33,305 children aged 19–35 months (median age: 27 months). Of these children, 20,839 (63%) were non-Hispanic white; 5891 (18%), non-Hispanic black; 4852 (15%), Hispanic; 1172 (4%), Asian/Pacific Islander; 462 (1%), American Indian/Alaskan Native; and 89 (<1%), other races.

Coverage by Race/Ethnicity

Most of the CII vaccination coverage goals for 1996 were met for individual vaccines for children in each of the five racial/ethnic groups (Table 1). The goals of 90% coverage with three or more doses of diphtheria and tetanus toxoids and pertussis vaccine (DTP) and of 70% coverage with three or more doses of hepatitis B vaccine were met or exceeded for all five groups. The goal of 90% coverage with three or more doses of poliovirus vaccine was met or exceeded in all groups except Hispanics (89%; 95% confidence interval [CI]=±1.2%) and American Indians/Alaskan Natives (89%; 95% CI=±3.8%). The goal of 90% coverage with three or more doses of *Haemophilus influenzae* type b vaccine (Hib) was met or exceeded for all groups except Hispanics (89%; 95% CI=±1.2%). The goal of 90% coverage with one or more doses of measles-containing vaccine (MCV) was exceeded for non-Hispanic whites and Asians/Pacific Islanders; coverage levels for non-Hispanic blacks, Hispanics, and American Indians/Alaskan Natives were <90% but were within three percentage points of the goal. Coverage levels for all the individual vaccines except hepatitis B vaccine and for both the 4:3:1 and 4:3:1:3 series[§] were significantly lower among non-Hispanic blacks and Hispanics than among non-Hispanic whites (Table 1).

Coverage by Poverty Level

Of the five 1996 CII coverage goals, three were not met for children living below the poverty level (levels for poliovirus vaccine, Hib, and MCV were 2, 2, and 3 percentage points below their corresponding goals, respectively) (Table 2). In comparison, all 1996 CII coverage goals were met or exceeded for children living at or above the poverty level.

In 1996, coverage levels for all vaccines and series of vaccines were lower among children living below the poverty level than among children living at or above the poverty level (Table 2). For children living below the poverty level, levels ranged from 4 to 11 percentage points lower for individual vaccines than for children at or above the poverty level. For children living below the poverty level, the coverage levels for the 4:3:1 and 4:3:1:3 series were 10 and 11 percentage points lower, respectively.

Coverage by Race/Ethnicity and Poverty Level

Among children living below the poverty level, only the goal for hepatitis B was met in all five racial/ethnic groups. The DTP goal was met for all groups except Asians/Pacific Islanders. In general, the goals for poliovirus, Hib, and MCV were not

[§]The 4:3:1 series is four or more doses of diphtheria and tetanus toxoids and pertussis vaccine/diphtheria and tetanus toxoids, three or more doses of poliovirus vaccine, and one or more doses of MCV. The 4:3:1:3 series is the 4:3:1 series plus three or more doses of Hib.

TABLE 1. Vaccination coverage levels among children aged 19–35 months, by selected vaccines and race/ethnicity — United States, National Immunization Survey, 1996*

Vaccine/Dose	Childhood Immunization Initiative 1996 goal	National estimates		Race/Ethnicity†									
				White, non-Hispanic		Black, non-Hispanic		Hispanic		American Indian/Alaskan Native		Asian/Pacific Islander	
		%	(95% CI§)	%	(95% CI)	%	(95% CI)	%	(95% CI)	%	(95% CI)	%	(95% CI)
DTP/DT¶													
≥3 Doses	90%	95	(±0.4)	96	(±0.3)	93	(±0.9)**	93	(±0.9)**	93	(±3.1)	96	(±1.6)
≥4 Doses	—	81	(±0.7)	83	(±0.6)	79	(±1.5)**	77	(±1.6)**	83	(±4.4)	84	(±2.8)
Poliovirus													
≥3 Doses	90%	91	(±0.5)	92	(±0.5)	90	(±1.1)**	89	(±1.2)**	89	(±3.8)	90	(±2.3)
Measles-containing vaccine (MCV)††													
≥1 Doses	90%	91	(±0.5)	92	(±0.5)	89	(±1.1)**	88	(±1.2)**	87	(±4.0)	94	(±1.8)
Haemophilus influenzae type b (Hib)													
≥3 Doses	90%	92	(±0.5)	93	(±0.4)	90	(±1.1)**	89	(±1.2)**	90	(±3.6)	92	(±2.1)
Hepatitis B													
≥3 Doses	70%	82	(±0.7)	82	(±0.6)	82	(±1.3)	80	(±1.5)	78	(±4.8)	84	(±2.8)
Combined series													
4 DTP/3 Polio/ 1 MCV§§	—	78	(±0.8)	80	(±0.7)	76	(±1.5)**	73	(±1.6)**	81	(±4.6)	81	(±3.0)
4 DTP/3 Polio/ 1 MCV/3 Hib¶¶	—	77	(±0.8)	79	(±0.7)	74	(±1.6)**	71	(±1.7)**	80	(±4.8)	78	(±3.1)

* Children in this survey were born during February 1993–May 1995.
† Five groups were used: respondents were self-classified as non-Hispanic white, non-Hispanic black, Hispanic, non-Hispanic American Indian/Alaskan Native, and non-Hispanic Asian/Pacific Islander.
§ Confidence interval.
¶ Diphtheria and tetanus toxoids and pertussis vaccine/diphtheria and tetanus toxoids.
** Difference in coverage level compared with non-Hispanic white children is statistically significant at the 0.05 level.
†† Goals are for measles-mumps-rubella vaccine; estimates are for MCV.
§§ Four of more doses of diphtheria and tetanus toxoids and pertussis vaccine (DTP), three or more doses of poliovirus vaccine, and one or more doses of MCV.
¶¶ Four or more doses of DTP, three or more doses of poliovirus vaccine, one or more doses of MCV, and three or more doses of Hib.

TABLE 2. Vaccination coverage levels among children aged 19–35 months, by selected vaccines, race/ethnicity,* and poverty level† — United States, National Immunization Survey, 1996§

Vaccine/ Dose	National estimates and poverty level				Race/Ethnicity and poverty level															
					White, non-Hispanic				Black, non-Hispanic				Hispanic				American Indian/ Alaskan Native			
	Below		At or above		Below		At or above		Below		At or above		Below		At or above		Below		At or above	
	%	(95% CI¶)	%	(95% CI)	%	(95% CI)	%	(95% CI)	%	(95% CI)	%	(95% CI)	%	(95% CI)	%	(95% CI)	%	(95% CI)	%	(95% CI)
DTP/DT**																				
≥3 Doses	92	(±0.9)	96	(±0.3)	92	(±1.5)	97	(±0.4)	91	(±1.7)	95	(±1.2)	92	(±1.7)	94	(±1.4)	93	(±5.9)	94	(±4.1)
≥4 Doses	73	(±1.4)	84	(±0.6)	72	(±2.4)	85	(±0.7)	75	(±2.5)	82	(±2.1)	73	(±2.8)	79	(±2.4)	84	(±8.2)	84	(±6.0)
Poliovirus																				
≥3 Doses	88	(±1.1)	92	(±0.5)	88	(±1.8)	93	(±0.5)	88	(±2.0)	92	(±1.5)	88	(±2.0)	90	(±1.8)	90	(±6.4)	88	(±5.2)
Measles-containing vaccine (MCV)																				
≥1 Doses	87	(±1.1)	92	(±0.5)	86	(±1.9)	93	(±0.5)	88	(±1.9)	91	(±1.6)	88	(±2.1)	89	(±1.8)	89	(±6.7)	87	(±5.6)
Haemophilus influenzae type b (Hib)																				
≥3 Doses	88	(±1.1)	93	(±0.4)	87	(±1.8)	94	(±0.5)	87	(±2.0)	92	(±1.5)	88	(±2.0)	90	(±1.7)	92	(±5.7)	90	(±5.0)
Hepatitis B																				
≥3 Doses	78	(±1.3)	83	(±0.6)	75	(±2.2)	83	(±0.7)	79	(±2.4)	86	(±1.9)	79	(±2.5)	82	(±2.2)	76	(±9.1)	80	(±6.4)
Combined series																				
4 DTP/ 3 Polio/ 1 MCV††	71	(±1.5)	81	(±0.7)	70	(±2.4)	82	(±0.7)	73	(±2.6)	80	(±2.2)	70	(±2.9)	75	(±2.5)	82	(±8.5)	81	(±6.3)
4 DTP/ 3 Polio/ 1 MCV/ 3 Hib§§	69	(±1.5)	80	(±0.7)	68	(±2.4)	81	(±0.8)	70	(±2.7)	78	(±2.3)	68	(±2.9)	74	(±2.6)	81	(±8.5)	80	(±6.4)

Vaccine/ Dose	Race/Ethnicity and poverty level							
	Asian/ Pacific Islander							
	Below		At or above					
	%	(95% CI)	%	(95% CI)				
DTP/DT**								
≥3 Doses	87	(±6.7)	97	(±1.6)				
≥4 Doses	77	(±8.6)	83	(±3.4)				
Poliovirus								
≥3 Doses	85	(±7.1)	90	(±2.9)				
Measles-containing vaccine (MCV)								
≥1 Doses	94	(±5.2)	93	(±2.4)				
Haemophilus influenzae type b (Hib)								
≥3 Doses	85	(±7.0)	93	(±2.4)				
Hepatitis B								
≥3 Doses	79	(±7.8)	87	(±3.2)				
Combined series								
4 DTP/ 3 Polio/ 1 MCV††	75	(±8.8)	80	(±3.7)				
4 DTP/ 3 Polio/ 1 MCV/ 3 Hib§§	73	(±8.9)	77	(±3.9)				

*Five groups were used: respondents were self-classified as non-Hispanic white, non-Hispanic black, Hispanic, non-Hispanic American Indian/Alaskan Native, and non-Hispanic Asian/Pacific Islander.
†Poverty level is based on family income and household size using Bureau of the Census poverty thresholds for 1996. Children for whom poverty level was not determined are excluded from this analysis.
§Children in this survey were born during February 1993–May 1995.
¶Confidence interval.
**Diphtheria and tetanus toxoids and pertussis vaccine/diphtheria and tetanus toxoids.
††Four or more doses of diphtheria and tetanus toxoids and pertussis vaccine (DTP), three or more doses of poliovirus vaccine, and one or more doses of MCV.
§§Four or more doses of DTP, three or more doses of poliovirus vaccine, one or more doses of MCV, and three or more doses of Hib.

Vaccination Coverage — Continued

met; however, the poliovirus and Hib goals were met for American Indians/Alaskan Natives, and the MCV goal was met for Asians/Pacific Islanders. In comparison, all goals were met or exceeded for children living at or above the poverty level, except for MCV for Hispanics and poliovirus vaccine and MCV for American Indians/Alaskan Natives.

For individual vaccines and by racial/ethnic group, the vaccination coverage levels of children living below the poverty level ranged from 2 percentage points higher to 13 percentage points lower than for children living at or above the poverty level. Similarly, for both the 4:3:1 and 4:3:1:3 series in individual racial/ethnic groups, the proportion of children who were series-complete was from 1 percentage point higher to 13 percentage points lower for children living below the poverty level (Table 2).

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Editorial Note: The NIS is the first national vaccination survey measuring vaccination coverage for five racial/ethnic groups. Data from the NIS presented in this report indicate that the 1996 national CII vaccination coverage goals were met or exceeded for most or all of the targeted vaccines for each of five racial/ethnic groups. However, for children living below the poverty level, vaccination coverage was substantially lower than for those living at or above the poverty level and, in most racial/ethnic groups, three of the five CII goals were not met.

In general, the differences in vaccination coverage with individual vaccines among racial/ethnic groups found in the 1996 NIS (range: 0–6%) are smaller than those reported in earlier surveys. From 1970 to 1985, in the United States Immunization Survey of children aged 1–4 years, differences in individual vaccine coverage between white children and children of other races ranged from seven to 26 percentage points for three or more doses of DTP and poliovirus vaccine and for one or more doses of MCV (*5*). During 1992–1994, the National Health Interview Survey reported coverage differences between black and white children (aged 19–35 months) of three to 12 percentage points (*6*). Despite methodologic differences that limit comparisons of findings from the three surveys, it is unlikely that these methodologic differences alone account for the narrowing of the gap in coverage between non-Hispanic white children and children of the other racial/ethnic groups found in the data.

The narrowing of the small differences in coverage for the individual vaccines among the racial/ethnic groups may reflect nationwide efforts to increase vaccination levels, including activities following the resurgence of measles during 1988–1991 and those prompted by the CII since 1993 (*1*). State and local health departments and community and professional organizations have implemented multifaceted efforts in some major urban areas to improve vaccination levels among racial/ethnic minority populations. Strategies that avoid missed opportunities must be sustained and expanded (e.g., assessment of vaccination at service sites of the Special Supplemental Food Program for Women, Infants, and Children [WIC] [*7*], measuring and ranking vaccination coverage levels with feedback and incentives for providers [*8*], and reminder and recall). In particular, the WIC program serves approximately 44% of each annual birth cohort in the United States and is the single largest means of making contact with low-income preschool-aged children. Therefore, efforts to expand and strengthen the WIC/immunization linkage should be among the highest priority activities in improving coverage for children living below the poverty level.

Vaccination Coverage — Continued

The 1996 NIS findings suggest that socioeconomic differences account for a substantial proportion of the racial/ethnic group-specific differences in vaccination coverage. This conclusion is based especially on the similarities in vaccination coverage among children of different racial/ethnic groups living below the poverty level. However, the proportion of children aged <5 years living below the poverty level (with corresponding lower levels of coverage) varies widely by race (i.e., 13.8% for whites, 17.5% for Asians/Pacific Islanders, 33.4% for Hispanics, 44.0% for blacks, and 44.4% for American Indians/Eskimos/Aleutians) (*9*). Some race-specific differences in coverage persisted despite adjusting for poverty: for children living above the poverty level, some vaccine-specific coverage levels differed by racial/ethnic groups, and within the groups, the apparent effect of poverty varied.

The NIS findings described in this report indicate substantial progress toward achieving most of the 1996 CII goals for racial/ethnic groups. Despite this progress, efforts to increase vaccination coverage must be intensified to achieve coverage goals for all children, particularly children of racial/ethnic minority groups living in poverty. In particular, achievement of the year 2000 national health objective of 90% coverage of all U.S. children with the vaccines in the basic vaccination series (*10*) will require a fully functional vaccine-delivery system and sustained participation of communities, health-care providers, government officials, and private-sector partners (*2*). The elimination of vaccine-preventable diseases in the United States requires the achievement and maintenance of uniformly high vaccination coverage levels for preschool children in all communities. CDC will continue using the NIS to monitor progress toward meeting national health objectives for the year 2000 by race/ethnicity and by other factors associated with undervaccination.

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Vaccination Coverage — Continued

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As part of its continuing commemoration of CDC's 50th anniversary in July 1996, MMWR *is reprinting selected* MMWR *articles of historical interest to public health, accompanied by current editorial notes. Reprinted below is the report published June 29, 1974, that documented an association between the use of the Dalkon Shield intrauterine device and increased incidence of complicated pregnancies in women.*

CURRENT TRENDS
IUD SAFETY: REPORT OF A NATIONWIDE PHYSICIAN SURVEY

In an attempt to determine the morbidity and mortality associated with IUD use nationwide, the Family Planning Evaluation Division, CDC, in conjunction with the Committee on Maternal and Child Care of the American Medical Association (AMA) and the American Osteopathic Association (AOA), began a physician survey in June 1973.

From their master files, AMA and AOA provided the names of 34,544 physicians in the United States and Puerto Rico – virtually all physicians who had a primary, secondary, or tertiary interest in obstetrics or gynecology, or a primary interest in family practice, public health, or general preventive medicine. In the last week of June 1973, CDC sent a questionnaire to all physicians on the list inquiring about women who had been hospitalized or had died with possible complications related to the use of an IUD in the preceding 6 months. Physicians were asked to check 1 or more of 8 diagnostic categories for their patients such as complicated pregnancy, uterine perforation, and hemorrhage. After a second mailing of the same questionnaire to physicians who had not responded by August 1, a total of 16,994 responses (49.2%) were received by January 2, 1974. Subsequently, a 1% probability sample was drawn from the 17,550 non-respondents; field officers were successful in obtaining information about IUD complications from 173 of 176 practices by telephone and personal interviews.

Physicians responding by mail provided 3,502 net, unduplicated case reports of women hospitalized in the first 6 months of 1973. After correction for the non-respondent physicians, approximately 7,900 IUD-associated hospitalizations were estimated to have occurred in this period. Using an estimate by the Family Planning Evaluation Division of approximately 3.2 million IUD wearers in early 1973, the calculated rate of IUD-related hospitalizations was 5 per 1,000 woman-years of IUD use.

While the small number of IUD-related deaths is insufficient to demonstrate an increased mortality rate associated with any specific type of device, the overall rate of IUD-related mortality appears to be low compared with the mortality rates associated with pregnancy and other forms of contraception *(1)*. Five fatalities were reported in the 6-month study period by the 16,994 physicians who responded by mail and the documenting details of each of these cases supported the suggestion that an IUD had contributed to the death. Four of the 5 terminal illnesses involved severe infection; 2 of these 4 infections involved a pregnancy. The devices used by these women were

IUD Safety — Continued

2 Lippes Loops*, 2 Saf-T-Coils*, and 1 Dalkon Shield*. These 5 reports imply a minimum IUD-related mortality rate of approximately 3 per million woman-years of use.

Of the 3,473 reports which included diagnoses, 2,932 also specified the type of IUD involved. A relative excess of Dalkon Shield IUDs was observed among case reports carrying the diagnosis of "complicated pregnancy" (Table 1). The crude odds ratio** for all the cases in Table 1 is 2.1 ($p<.001$). Separate stratifications by the patient's age, race, and geographic region show a comparable elevation of the same odds ratio for each group. When the case reports were stratified by the size of IUD, the odds ratio for the 180 women with nulliparous-sized IUDs was not significantly different from 1.0, but was 2.0 and 2.2 for the parous (standard) and unknown sizes, respectively, both statistically significant.

Table 1
Association Between the Dalkon Shield and Complicated Pregnancies Among Women Hospitalized for IUD-Related Complications*

	Type of IUD					
Diagnosis of Complication	**Dalkon Shield**		**All Other IUDs (incl. Unknown)**		**Total**	
Pregnancy Related	538	(53.9%)	461	(46.1%)	**999**	**(100.0%)**
Not Pregnancy Related	887	(35.9%)	1,587	(64.1%)	**2,474**	**(100.0%)**
Total	**1,425**	**(41.0%)**	**2,048**	**(59.0%)**	**3,473**	**(100.0%)**

*Table excludes 29 case reports with unknown diagnosis.

The 1% sample of non-respondent physicians who were interviewed in person or by phone furnished 60 unduplicated case reports. The crude odds ratio for these reports was 8.3 ($p=.0049$), establishing that a statistical association between the Dalkon Shield and complicated pregnancies also existed in the experience of these physicians.

Since the use prevalence of the various IUD types in early 1973 is unknown, it is impossible to draw any firm conclusion about the morbidity rates associated with each device. The magnitude of the odds ratio is influenced not only by the relatively large number of Dalkon Shields involved in complicated pregnancies (numerator of the odds ratio) but also by the relatively small number of Dalkon Shields involved in complications in non-pregnant women (denominator of the odds ratio). If the Dalkon Shield accounted for more than 41% (Table 1) of the IUDs in use early in 1973, then the observed elevation in the odds ratio might be better explained by a relatively low rate

*Inclusion of trade names does not imply endorsement by the Public Health Service or the U.S. Department of Health, Education, and Welfare.

$$** \quad Odds\ Ratio = \frac{\left(\frac{Dalkon\ Shield}{All\ Other\ IUDs}\right)\ pregnancy\ related}{\left(\frac{Dalkon\ Shield}{All\ Other\ IUDs}\right)\ not\ pregnancy\ related}$$

IUD Safety — Continued

of hospitalizations for non-pregnant complications associated with this type of IUD. Such a high use prevalence of the Dalkon Shield is very unlikely based on CDC's review of sales data furnished by the major IUD manufacturers. The relative excess of women hospitalized with complicated pregnancies associated with the standard-sized Dalkon Shield could possibly be explained by an elevated rate of pregnancy with this device, by an increased rate of complications once a pregnancy is established, or by a combination of these postulated factors.

(Reported by the Committee on Maternal and Child Care of the American Medical Association; the American Osteopathic Association; and the Family Planning Evaluation Division, Bureau of Epidemiology, CDC.)

Reference

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Editorial Note—1997: Since the mid-19th century when Ignaz Semmelweiss, Oliver Wendell Holmes, and others showed that puerperal fever was both contagious and preventable, epidemiology has been useful as an effective tool to assist in improving reproductive health. CDC first applied epidemiology to family-planning evaluation and reproductive health in the early 1960s when new female fertility-control measures had become available. Oral contraceptives and plastic intrauterine contraceptive devices (IUDs) provided promising new opportunities for family planning. CDC leaders, especially Alexander D. Langmuir, M.D., Chief Epidemiologist, had both enthusiasm and concern about these opportunities. Evidence for the effectiveness of the new methods of contraception was emerging, but potential adverse effects remained largely unevaluated. Of specific concern to Langmuir was the possible relation between IUD use and pelvic infection. Therefore, in 1964, CDC assigned Nicholas Wright, M.D., an officer in CDC's Epidemic Intelligence Service (EIS) program, to Grady Memorial Hospital, a public institution in Atlanta, Georgia, with a large ambulatory-care clinic and approximately 1000 beds, to investigate the safety of the IUD. Work by Wright and others determined that women with IUDs had pelvic infections at a higher rate than expected but that most of these women could be treated effectively and without serious complications.

A decade later, the *MMWR* of June 29, 1974, raised questions about the safety of the Dalkon Shield, an IUD marketed during 1970–1974. Both the AMA and the AOA collaborated with CDC to conduct this survey of physicians in June 1973. Analysis of the case reports supplied by the survey respondents showed an excess risk for complicated pregnancies among Dalkon Shield users, compared with users of other IUDs (*1*). In 1974, the manufacturer withdrew the device from the marketplace.

In 1975, CDC reported that Dalkon Shield users were more likely than users of other IUDs to die from spontaneous abortions (*2*). Reports of mid-trimester septic abortions associated with the Dalkon Shield hastened the passage of the Medical Device Amendments of 1976, which gave the Food and Drug Administration (FDA) greater control over medical devices. In 1983, CDC reported that Dalkon Shield users had a greater risk for pelvic inflammatory disease than users of other types of IUDs and non-IUD users (*3*). In that same year, CDC and FDA recommended that women still using Dalkon Shield IUDs have them removed. The experience with the Dalkon Shield has had a dramatic negative impact on the further use of IUDs in the United States and

IUD Safety — Continued

has affected the pharmaceutical industry, physicians, and women who otherwise might find the IUD an acceptable method of contraception (*4,5*).

IUDs, first used in Germany and Japan in the early 1900s, showed great promise after their reintroduction in 1960 as biologically inert plastic devices (*6*). Thereafter, a large variety of devices were produced as manufacturers attempted to identify the ideal device. The most important recent advance was the development of the medicated devices, particularly the copper-bearing IUDs (*7*). The most commonly used IUD in the United States today—the Copper T380A—has a low rate of side effects and is perhaps the most effective IUD in use internationally, with a pregnancy rate of ≤1% per year (*8*). In Europe, the levonorgestrel-releasing device also is associated with few side effects, very low failure rates, and reduced menstrual blood flow because of intrauterine progestin effect (*9*). This device has not been introduced into the United States. As a result, the only progesterone-releasing device available in the United States requires change of the device annually and is rarely used in this country.

During the 1980s, the noncopper-bearing devices popular in the 1960s and 1970s were withdrawn from the market for economic reasons (*4*). In 1986, manufacturers also removed copper-bearing devices from the market—not because of new information about risks, but because of the heavy financial burdens imposed on the manufacturers by issues related to liability (*4*).

The major safety concern associated with the use of IUDs has been the risk for developing pelvic inflammatory disease (*10*). Recent studies have suggested, however, that most cases of pelvic infection that occur with an IUD in place are attributable to sexually transmitted diseases (STDs) (*11,12*) and that women at low risk for STDs also are at low risk for pelvic infection while they are using an IUD. Further evidence that the IUD is associated with low risk for pelvic infection is documented by a study of infertility in which IUD users with one sexual partner were at no greater risk for infertility than nonusers of the IUD (*13*). Most IUD-attributable infections appear to be related to insertion of the device (*12*); some of these infections probably are preventable with proper infection-control measures, and trials of the effectiveness of administering prophylactic antibiotics at the time of insertion are in progress.

The 1974 *MMWR* and subsequent reports by CDC identified an increased risk for infectious morbidity related to use of an IUD that is no longer marketed. Subsequent epidemiologic studies of the safety of currently available devices indicate that women at low risk for STDs are at low risk for pelvic infection with IUD use.

In the United States, nearly 60% of pregnancies are unintended (*14*), and many women wanting to prevent unintended pregnancy are appropriate candidates for IUD use. Despite evidence that the long-term effectiveness of the Copper T380A device is similar to that of tubal sterilization (*15,16*), <1% of women using contraceptives in 1995 were using this device (*17*). Among the small number of women using IUDs, however, acceptance of this method is high: in 1992, for example, 96% of IUD users viewed their method favorably, compared with 94% of oral contraceptive users, 93% of those who chose male or female sterilization, 76% of diaphragm users, and 74% of rhythm methods users (*18*). Women desiring long-term effective contraception and their clinicians should be aware that currently marketed IUDs are highly effective and acceptable and are associated with a low risk for complications in women at low risk for STDs.

IUD Safety — Continued

In addition to highlighting the commemoration of CDC's 50th anniversary, reprinting this 1974 *MMWR* coincides with and highlights the 30th anniversary of CDC's Division of Reproductive Health. In 1967, the Family Planning Evaluation Activity (FPEA)—which authored the 1974 report—was established in CDC's Bureau of Epidemiology, becoming one of CDC's earliest noninfectious disease program areas. The FPEA began with only four staff members; today, the staff consists of 160 members in what is now the Division of Reproductive Health, part of CDC's National Center for Chronic Disease Prevention and Health Promotion. In 1970, the FPEA became the Family Planning Evaluation Division, and the division quickly became a focus of excellence within CDC, helping to introduce and disseminate further the concepts of analytic epidemiology eventually adapted by acute/infectious disease programs. From 1967 (when the division first assigned EIS officers to evaluate family-planning programs in state health departments) to the present, the links between the division and the EIS have been crucial at CDC in helping to introduce CDC's methods of applied/field epidemiology to the challenges of reproductive health, both nationally and internationally. The three decades of history of the division reflect the creative and effective use of epidemiology for the promotion of reproductive health.

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Erratum: Vol. 46, No. 38

In the article "Chronic Interstitial Lung Disease in Nylon Flocking Industry Workers—Rhode Island, 1992–1996," on page 900, in the first line of the credits a name was misspelled. The name should be *A Nayer, MD*.

Errata: Vol. 46, No. 39

In the report, "Pneumococcal and Influenza Vaccination Levels Among Adults Aged ≥65 Years—United States, 1995," an error appears in the footnotes of Tables 1 and 2 on pages 915–917. In the second sentence of the ¶ footnote of Table 1 and of the § footnote of Table 2, the word "weighted" should be deleted before the words "sample size."

In the article "Missed Opportunities for Pneumococcal and Influenza Vaccination of Medicare Pneumonia Inpatients—12 Western States, 1995," on page 921, the title of Table 1 gave incorrect dates. The correct title should be "TABLE 1. Pneumococcal vaccination* coverage levels among Medicare pneumonia patients admitted to hospitals, by age group—12 western states,† October 1994–September 1995."

Erratum: Vol. 46, No. 40

In the report, "Self-Reported Use of Mammography Among Women Aged ≥40 Years—United States, 1989 and 1995," on page 939, the "All women" line in Table 1 should be deleted.

Quarterly Immunization Table

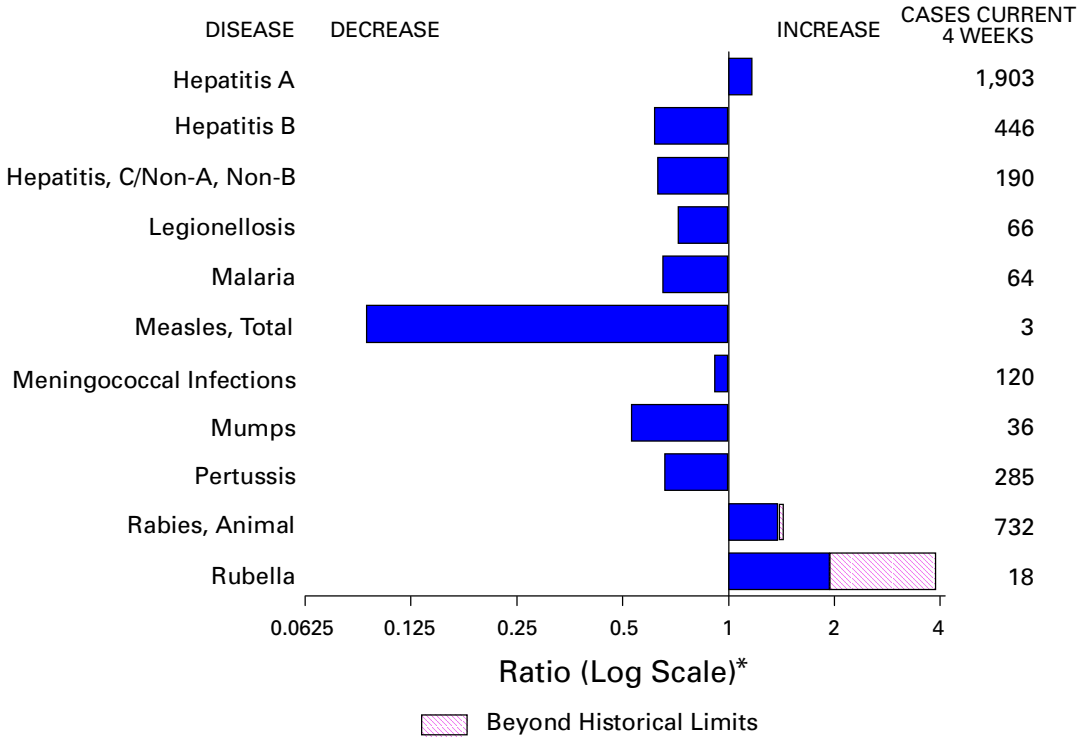
To track progress toward achieving the goals of the Childhood Immunization Initiative (CII), CDC publishes quarterly a tabular summary of the number of cases of nationally notifiable diseases preventable by routine childhood vaccination reported during the previous quarter and year-to-date (provisional data). In addition, the table compares provisional data with final data for the previous year and highlights the number of reported cases among children aged <5 years, who are the primary focus of CII. Data in the table are reported through the National Electronic Telecommunications System for Surveillance (NETSS).

Number of reported cases of nationally notifiable diseases preventable by routine childhood vaccination — United States, July–September 1997 and January–September 1996 and 1997*

Disease	No. cases, July–September 1997	Total cases January–September 1996	Total cases January–September 1997	No. cases among children aged <5 years† January–September 1996	No. cases among children aged <5 years† January–September 1997
Congenital rubella syndrome	1	**1**	**4**	1	4
Diphtheria	0	**1**	**5**	0	1
Haemophilus influenzae§	207	**800**	**813**	192	183
Hepatitis B¶	1996	**7222**	**6379**	48	150
Measles	38	**465**	**111**	121	46
Mumps	99	**534**	**435**	114	95
Pertussis	1221	**4202**	**3813**	2013	1717
Poliomyelitis, paralytic**	0	**2**	**0**	1	0
Rubella	53	**216**	**141**	15	12
Tetanus	9	**24**	**32**	0	0

*Data for 1996 are final; data for 1997 are provisional.
†For 1996 and 1997, age data were available for ≥97% cases.
§Invasive disease; *H. influenzae* serotype is not routinely reported to the National Notifiable Diseases Surveillance System. Of 183 cases among children aged <5 years, serotype was reported for 97 cases, and of those, 39 were type b, the only serotype of *H. influenzae* preventable by vaccination.
¶Because most hepatitis B virus infections among infants and children aged <5 years are asymptomatic (although likely to become chronic), acute disease surveillance does not reflect the incidence of this problem in this age group or the effectiveness of hepatitis B vaccination in infants.
**Five suspected cases with onset in 1996 have been confirmed; all were vaccine-associated. Two cases with onset in 1997 are under investigation.

FIGURE I. Selected notifiable disease reports, comparison of provisional 4-week totals ending October 11, 1997, with historical data — United States



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

TABLE I. Summary — provisional cases of selected notifiable diseases, United States, cumulative, week ending October 11, 1997 (41st Week)

	Cum. 1997		Cum. 1997
Anthrax	-	Plague	2
Brucellosis	60	Poliomyelitis, paralytic	-
Cholera	7	Psittacosis	38
Congenital rubella syndrome	4	Rabies, human	2
Cryptosporidiosis*	1,338	Rocky Mountain spotted fever (RMSF)	327
Diphtheria	6	Streptococcal disease, invasive Group A	1,125
Encephalitis: California*	79	Streptococcal toxic-shock syndrome*	28
eastern equine*	6	Syphilis, congenital¶	354
St. Louis*	8	Tetanus	34
western equine*	-	Toxic-shock syndrome	99
Hansen Disease	78	Trichinosis	7
Hantavirus pulmonary syndrome*†	15	Typhoid fever	260
Hemolytic uremic syndrome, post-diarrheal*	46	Yellow fever	-
HIV infection, pediatric*§	182		

-:no reported cases
*Not notifiable in all states.
†Updated weekly from reports to the Division of Viral and Rickettsial Diseases, National Center for Infectious Diseases (NCID).
§Updated monthly to the Division of HIV/AIDS Prevention–Surveillance and Epidemiology, National Center for HIV, STD, and TB Prevention (NCHSTP), last update October 5, 1997.
¶Updated from reports to the Division of STD Prevention, NCHSTP.

TABLE II. Provisional cases of selected notifiable diseases, United States, weeks ending October 11, 1997, and October 12, 1996 (41st Week)

Reporting Area	AIDS		Chlamydia		*Escherichia coli* O157:H7		Gonorrhea		Hepatitis C/NA,NB	
					NETSS†	PHLIS§				
	Cum. 1997*	Cum. 1996	Cum. 1997	Cum. 1996	Cum. 1997	Cum. 1997	Cum. 1997	Cum. 1996	Cum. 1997	Cum. 1996
UNITED STATES	44,447	51,390	348,650	337,172	1,845	1,168	219,267	248,053	2,464	2,767
NEW ENGLAND	1,903	2,055	13,731	13,530	157	90	4,517	5,055	51	84
Maine	46	32	797	732	16	-	54	50	-	-
N.H.	29	66	614	585	9	12	75	129	8	7
Vt.	31	18	326	307	7	2	43	42	2	22
Mass.	646	995	5,733	5,459	82	67	1,703	1,733	34	49
R.I.	119	128	1,566	1,517	8	-	347	408	7	6
Conn.	1,032	816	4,695	4,930	35	9	2,295	2,693	-	-
MID. ATLANTIC	13,720	14,208	47,645	47,714	111	40	29,050	32,389	272	239
Upstate N.Y.	2,137	1,853	N	N	73	-	4,727	5,924	201	192
N.Y. City	7,308	7,847	24,825	23,652	10	6	11,151	11,333	-	3
N.J.	2,667	2,881	7,043	9,803	28	22	5,525	6,869	-	-
Pa.	1,608	1,627	15,777	14,259	N	12	7,647	8,263	71	44
E.N. CENTRAL	3,255	4,026	52,312	67,486	346	214	32,430	46,369	426	387
Ohio	683	870	15,105	16,389	92	48	9,373	11,935	16	30
Ind.	447	463	7,106	7,509	58	33	4,712	5,002	10	8
Ill.	1,356	1,800	8,299	19,428	60	-	4,057	13,826	69	75
Mich.	564	682	14,800	15,780	136	95	11,198	11,716	331	274
Wis.	205	211	7,002	8,380	N	38	3,090	3,890	-	-
W.N. CENTRAL	859	1,203	18,928	24,604	428	344	8,800	11,972	133	79
Minn.	157	225	U	4,017	195	185	U	1,881	3	2
Iowa	86	71	3,407	3,435	99	63	895	906	27	37
Mo.	392	619	9,249	9,665	41	54	5,781	6,582	89	21
N. Dak.	13	11	546	652	11	9	37	25	2	-
S. Dak.	8	10	1,080	1,155	26	23	118	147	-	-
Nebr.	83	83	1,757	2,154	39	-	695	835	2	6
Kans.	120	184	2,889	3,526	17	10	1,274	1,596	10	13
S. ATLANTIC	10,879	13,028	71,287	39,300	167	118	69,916	73,125	229	155
Del.	184	230	1,276	1,148	4	4	956	1,147	-	1
Md.	1,695	1,950	5,583	U	19	9	10,340	8,791	14	2
D.C.	767	1,007	N	N	2	-	3,436	3,497	-	-
Va.	879	894	8,953	9,053	N	40	6,466	7,447	23	13
W. Va.	92	88	2,316	1,707	N	1	718	622	16	9
N.C.	680	678	14,482	U	60	30	14,293	14,440	41	41
S.C.	631	663	9,936	U	8	7	9,221	8,594	35	25
Ga.	1,267	1,870	9,803	9,315	35	-	11,389	14,685	U	-
Fla.	4,684	5,648	18,938	18,077	38	27	13,097	13,902	100	64
E.S. CENTRAL	1,561	1,741	26,047	24,263	84	34	26,180	25,806	278	455
Ky.	290	307	5,048	5,308	27	-	3,268	3,310	12	27
Tenn.	638	640	10,033	10,568	41	34	8,689	9,417	196	326
Ala.	384	470	6,789	6,691	13	-	9,485	10,625	10	4
Miss.	249	324	4,177	1,696	3	-	4,738	2,454	60	98
W.S. CENTRAL	4,694	5,107	42,966	42,999	57	16	28,649	30,016	350	306
Ark.	180	205	2,068	1,426	9	5	3,379	3,216	3	8
La.	797	1,164	7,453	5,935	6	3	7,242	6,192	178	181
Okla.	240	191	5,864	5,999	8	5	3,844	3,859	7	1
Tex.	3,477	3,547	27,581	29,639	34	3	14,184	16,749	162	116
MOUNTAIN	1,277	1,527	19,587	20,411	210	117	6,878	6,031	356	463
Mont.	35	33	776	980	22	-	34	25	20	13
Idaho	41	31	1,216	1,213	28	13	105	86	50	94
Wyo.	13	5	455	490	16	12	43	37	167	143
Colo.	299	404	1,896	2,551	72	53	1,782	1,182	33	48
N. Mex.	141	139	2,437	3,082	7	5	961	677	44	69
Ariz.	323	461	9,627	8,493	N	24	3,211	2,951	24	58
Utah	104	142	1,325	1,234	54	-	214	242	4	19
Nev.	321	312	1,855	2,368	11	10	528	831	14	19
PACIFIC	6,299	8,494	56,147	56,865	285	195	12,847	17,290	369	599
Wash.	532	539	7,132	7,520	84	54	1,526	1,644	21	46
Oreg.	248	359	3,830	4,250	67	78	588	665	3	6
Calif.	5,434	7,426	42,772	42,715	123	56	10,067	14,277	217	371
Alaska	37	28	1,185	949	11	1	305	344	-	3
Hawaii	48	142	1,228	1,431	N	6	361	360	128	173
Guam	2	4	86	309	N	-	9	51	-	6
P.R.	1,511	1,785	U	U	32	U	470	519	119	130
V.I.	80	17	N	N	N	U	-	-	-	-
Amer. Samoa	-	-	-	-	N	U	-	-	-	-
C.N.M.I.	1	-	N	N	N	U	17	11	2	-

N: Not notifiable U: Unavailable -: no reported cases C.N.M.I.: Commonwealth of Northern Mariana Islands

*Updated monthly to the Division of HIV/AIDS Prevention–Surveillance and Epidemiology, National Center for HIV, STD, and TB Prevention, last update October 5, 1997.

†National Electronic Telecommunications System for Surveillance.

§Public Health Laboratory Information System.

TABLE II. (Cont'd.) Provisional cases of selected notifiable diseases, United States, weeks ending October 11, 1997, and October 12, 1996 (41st Week)

Reporting Area	Legionellosis		Lyme Disease		Malaria		Syphilis (Primary & Secondary)		Tuberculosis		Rabies, Animal
	Cum. 1997	Cum. 1996	Cum. 1997	Cum. 1996	Cum. 1997	Cum. 1996	Cum. 1997	Cum. 1996	Cum. 1997	Cum. 1996	Cum. 1997
UNITED STATES	705	753	7,963	12,293	1,325	1,301	6,224	9,259	13,329	15,043	6,208
NEW ENGLAND	62	42	2,419	3,524	70	49	111	140	341	334	938
Maine	2	2	8	44	1	7	-	-	11	18	167
N.H.	7	3	33	42	8	2	-	1	13	11	31
Vt.	11	4	8	20	2	4	-	-	5	1	101
Mass.	18	24	263	216	25	20	54	64	201	168	214
R.I.	7	9	343	423	5	6	2	2	30	27	26
Conn.	17	N	1,764	2,779	29	10	55	73	81	109	399
MID. ATLANTIC	142	191	4,442	7,397	338	395	298	423	2,419	2,788	1,329
Upstate N.Y.	42	58	1,802	3,412	54	73	31	62	331	322	984
N.Y. City	7	16	51	340	195	236	69	121	1,232	1,452	U
N.J.	20	13	1,200	1,720	70	60	110	138	504	597	138
Pa.	73	104	1,389	1,925	19	26	88	102	352	417	207
E.N. CENTRAL	211	229	76	373	110	153	541	1,365	1,295	1,598	156
Ohio	95	82	50	22	17	13	167	505	228	235	103
Ind.	39	42	22	25	15	14	127	172	105	141	11
Ill.	7	31	4	8	31	74	58	392	642	843	16
Mich.	59	37	-	6	36	37	111	142	230	296	26
Wis.	11	37	U	312	11	15	78	154	90	83	-
W.N. CENTRAL	48	40	99	152	46	38	129	273	421	382	388
Minn.	1	4	69	58	19	17	U	34	114	87	43
Iowa	11	8	6	18	10	2	7	18	45	50	129
Mo.	16	12	17	43	8	9	94	189	178	154	20
N. Dak.	2	-	-	-	3	1	-	-	10	6	62
S. Dak.	2	2	1	-	1	-	-	-	10	17	62
Nebr.	12	11	2	3	1	2	5	10	14	15	2
Kans.	4	3	4	30	4	7	23	22	50	53	70
S. ATLANTIC	100	109	592	591	280	237	2,586	3,022	2,593	2,848	2,496
Del.	9	11	34	167	5	3	17	34	18	34	47
Md.	19	24	424	277	77	68	732	553	253	235	452
D.C.	4	7	7	3	14	7	90	107	75	110	5
Va.	19	16	50	43	62	39	185	338	220	234	538
W. Va.	N	N	7	11	-	5	3	9	45	50	76
N.C.	13	9	31	62	16	25	577	818	335	396	738
S.C.	7	5	2	5	16	11	310	305	242	288	155
Ga.	-	3	1	1	28	23	425	550	495	510	260
Fla.	28	34	36	22	62	56	247	308	910	991	225
E.S. CENTRAL	37	43	65	67	29	30	1,382	1,997	974	1,073	239
Ky.	6	6	8	23	8	7	112	119	138	179	27
Tenn.	25	19	37	19	7	13	605	655	349	370	129
Ala.	2	4	8	7	10	3	361	449	331	337	78
Miss.	4	14	12	18	4	7	304	774	156	187	5
W.S. CENTRAL	14	18	63	95	20	41	779	1,443	1,794	1,733	255
Ark.	-	1	17	21	5	-	124	196	153	157	27
La.	3	1	3	2	12	7	293	420	183	20	5
Okla.	3	6	13	20	3	-	101	148	136	132	88
Tex.	8	10	30	52	-	34	261	679	1,322	1,424	135
MOUNTAIN	50	36	18	8	61	51	195	124	411	489	164
Mont.	1	1	-	-	2	7	-	-	7	15	43
Idaho	2	-	3	1	-	-	1	4	9	7	-
Wyo.	1	3	4	3	2	7	-	2	2	6	31
Colo.	16	7	5	-	27	20	12	24	68	70	19
N. Mex.	2	2	1	1	8	2	52	7	53	67	12
Ariz.	12	15	2	-	10	6	116	71	201	183	46
Utah	9	3	1	1	3	4	5	2	25	39	5
Nev.	7	5	2	2	9	5	9	14	46	102	8
PACIFIC	41	45	189	86	371	307	203	472	3,081	3,798	243
Wash.	6	6	8	14	19	21	9	8	221	214	-
Oreg.	-	-	17	18	18	20	9	8	125	134	14
Calif.	34	34	162	53	329	256	183	454	2,545	3,243	206
Alaska	-	1	2	-	3	3	1	-	61	59	23
Hawaii	1	4	-	1	2	7	1	2	129	148	-
Guam	-	1	-	-	-	-	2	3	13	55	-
P.R.	-	-	-	-	5	2	204	178	164	130	58
V.I.	-	-	-	-	-	-	-	-	-	-	-
Amer. Samoa	-	-	-	-	-	-	-	-	-	-	-
C.N.M.I.	-	-	-	-	-	-	9	1	2	-	-

N: Not notifiable U: Unavailable -: no reported cases

TABLE III. Provisional cases of selected notifiable diseases preventable by vaccination, United States, weeks ending October 11, 1997, and October 12, 1996 (41st Week)

Reporting Area	*H. influenzae*, invasive		Hepatitis (Viral), by type				Measles (Rubeola)					
			A		B		Indigenous		Imported†		Total	
	Cum. 1997*	Cum. 1996	Cum. 1997	Cum. 1996	Cum. 1997	Cum. 1996	1997	Cum. 1997	1997	Cum. 1997	Cum. 1997	Cum. 1996
UNITED STATES	833	822	21,541	22,090	6,585	7,618	-	63	1	50	113	456
NEW ENGLAND	49	28	504	311	110	170	-	11	-	6	17	16
Maine	5	-	51	17	6	2	-	-	-	1	1	-
N.H.	7	11	23	12	12	14	-	1	-	-	1	-
Vt.	3	1	11	8	5	11	-	-	-	-	-	2
Mass.	30	14	191	155	41	63	-	10	-	4	14	12
R.I.	2	2	123	15	14	9	-	-	-	-	-	-
Conn.	2	-	105	104	32	71	U	-	U	1	1	2
MID. ATLANTIC	107	170	1,465	1,531	998	1,134	-	14	-	8	22	37
Upstate N.Y.	28	43	250	351	218	274	-	2	-	3	5	11
N.Y. City	27	44	537	471	350	400	-	5	-	2	7	11
N.J.	39	46	220	292	179	224	-	2	-	-	2	3
Pa.	13	37	458	417	251	236	-	5	-	3	8	12
E.N. CENTRAL	133	144	2,126	2,008	698	872	-	7	-	3	10	20
Ohio	76	80	262	630	61	103	-	-	-	-	-	5
Ind.	14	10	236	256	78	111	-	-	-	-	-	-
Ill.	29	40	492	603	175	283	-	6	-	1	7	3
Mich.	13	8	1,017	348	346	299	-	-	-	2	2	3
Wis.	1	6	119	171	38	76	-	1	-	-	1	9
W.N. CENTRAL	41	37	1,756	1,933	356	404	-	12	-	5	17	22
Minn.	27	23	156	108	32	50	-	3	-	5	8	18
Iowa	6	4	383	289	36	56	-	-	-	-	-	-
Mo.	4	7	880	980	246	235	-	1	-	-	1	3
N. Dak.	-	-	10	100	4	2	-	-	-	-	-	-
S. Dak.	2	1	19	41	1	5	-	8	-	-	8	-
Nebr.	1	1	80	114	12	29	-	-	-	-	-	-
Kans.	1	1	228	301	25	27	-	-	-	-	-	1
S. ATLANTIC	135	149	1,519	1,077	1,014	1,031	-	1	-	10	11	11
Del.	-	2	26	15	5	8	-	-	-	-	-	1
Md.	48	53	186	187	149	132	-	-	-	2	2	2
D.C.	-	5	17	35	27	29	-	-	-	1	1	-
Va.	12	8	182	136	102	113	-	-	-	1	1	3
W. Va.	3	7	10	13	14	21	-	-	-	-	-	-
N.C.	20	22	162	136	202	266	-	-	-	2	2	2
S.C.	4	4	92	44	85	72	-	-	-	1	1	-
Ga.	26	32	391	148	108	30	-	-	-	1	1	2
Fla.	22	16	453	363	322	360	-	1	-	2	3	1
E.S. CENTRAL	42	23	474	1,053	524	685	-	-	-	-	-	2
Ky.	5	5	64	43	32	64	-	-	-	-	-	-
Tenn.	25	9	295	678	346	381	-	-	-	-	-	2
Ala.	12	8	71	153	59	58	-	-	-	-	-	-
Miss.	-	1	44	179	87	182	-	-	-	-	-	-
W.S. CENTRAL	42	34	4,317	4,352	751	944	-	3	1	5	8	26
Ark.	1	-	197	362	43	69	-	-	-	-	-	-
La.	11	3	195	158	124	120	-	-	-	-	-	-
Okla.	27	27	1,216	1,877	37	24	-	-	1	1	1	-
Tex.	3	4	2,709	1,955	547	731	-	3	-	4	7	26
MOUNTAIN	81	43	3,579	3,536	738	918	-	6	-	2	8	156
Mont.	-	1	66	97	8	13	-	-	-	-	-	-
Idaho	1	1	113	178	33	77	-	-	-	-	-	1
Wyo.	4	-	32	29	29	35	-	-	-	-	-	1
Colo.	12	12	337	367	133	111	-	-	-	-	-	7
N. Mex.	8	9	310	315	219	328	-	-	-	-	-	16
Ariz.	30	13	1,876	1,380	173	205	-	5	-	-	5	8
Utah	3	7	491	825	79	80	-	-	-	1	1	118
Nev.	23	-	354	345	64	69	-	1	-	1	2	5
PACIFIC	203	194	5,801	6,289	1,396	1,460	-	9	-	11	20	166
Wash.	5	3	486	448	56	76	-	1	-	1	2	38
Oreg.	29	25	310	734	87	88	-	-	-	-	-	13
Calif.	156	158	4,868	5,003	1,227	1,273	-	6	-	8	14	40
Alaska	6	6	26	39	18	11	-	-	-	-	-	63
Hawaii	7	2	111	65	8	12	-	2	-	2	4	12
Guam	-	-	-	7	1	1	U	-	U	-	-	-
P.R.	-	2	231	179	1,142	742	-	-	-	-	-	2
V.I.	-	-	-	30	-	30	U	-	U	-	-	-
Amer. Samoa	-	-	-	-	-	-	U	-	U	-	-	-
C.N.M.I.	6	10	1	1	34	5	U	1	U	-	1	-

N: Not notifiable U: Unavailable -: no reported cases

*Of 189 cases among children aged <5 years, serotype was reported for 100 and of those, 39 were type b.

†For imported measles, cases include only those resulting from importation from other countries.

TABLE III. (Cont'd.) Provisional cases of selected notifiable diseases preventable by vaccination, United States, weeks ending October 11, 1997, and October 12, 1996 (41st Week)

Reporting Area	Meningococcal Disease		Mumps			Pertussis			Rubella		
	Cum. 1997	Cum. 1996	1997	Cum. 1997	Cum. 1996	1997	Cum. 1997	Cum. 1996	1997	Cum. 1997	Cum. 1996
UNITED STATES	2,563	2,500	8	449	563	41	3,945	4,630	2	155	218
NEW ENGLAND	164	108	-	8	1	12	713	1,018	-	1	26
Maine	17	10	-	-	-	-	6	35	-	-	-
N.H.	14	5	-	-	-	5	103	96	-	-	-
Vt.	4	3	-	-	-	1	196	96	-	-	2
Mass.	79	42	-	2	1	6	373	734	-	1	20
R.I.	17	13	-	5	-	-	16	30	-	-	-
Conn.	33	35	U	1	-	U	19	27	U	-	4
MID. ATLANTIC	241	266	-	43	76	-	275	386	-	29	12
Upstate N.Y.	55	69	-	7	21	-	96	210	-	2	4
N.Y. City	40	38	-	3	18	-	56	36	-	27	5
N.J.	55	55	-	5	4	-	9	28	-	-	2
Pa.	91	104	-	28	33	-	114	112	-	-	1
E.N. CENTRAL	375	361	5	52	108	3	342	560	-	5	3
Ohio	141	128	4	24	39	2	128	191	-	-	-
Ind.	44	51	1	8	7	-	45	52	-	-	-
Ill.	119	101	-	9	20	-	61	140	-	2	1
Mich.	43	38	-	11	40	1	43	34	-	-	2
Wis.	28	43	-	-	2	-	65	143	-	3	-
W.N. CENTRAL	185	194	-	14	16	2	333	316	-	-	-
Minn.	29	25	-	5	5	-	210	243	-	-	-
Iowa	40	40	-	7	1	1	46	16	-	-	-
Mo.	83	74	-	-	7	1	52	32	-	-	-
N. Dak.	2	3	-	-	2	-	2	1	-	-	-
S. Dak.	5	10	-	-	-	-	4	4	-	-	-
Nebr.	8	18	-	2	-	-	6	7	-	-	-
Kans.	18	24	-	-	1	-	13	13	-	-	-
S. ATLANTIC	460	394	2	61	91	3	378	480	2	83	91
Del.	5	2	-	-	-	-	1	21	-	-	-
Md.	40	52	-	4	31	1	107	175	-	1	-
D.C.	-	5	-	-	-	-	3	1	-	1	1
Va.	44	48	-	10	12	-	42	73	-	1	2
W. Va.	15	13	-	-	-	-	6	2	-	-	-
N.C.	80	65	-	9	19	1	105	76	2	59	77
S.C.	51	48	-	10	5	-	24	36	-	19	1
Ga.	91	114	-	8	3	-	11	19	-	-	-
Fla.	134	47	2	20	21	1	79	77	-	2	10
E.S. CENTRAL	203	187	1	22	20	2	100	183	-	-	2
Ky.	42	25	-	3	-	-	36	136	-	-	-
Tenn.	76	51	-	5	1	-	33	19	-	-	-
Ala.	67	65	1	8	4	2	23	19	-	-	2
Miss.	18	46	-	6	15	-	8	9	-	-	N
W.S. CENTRAL	240	272	-	45	39	1	164	116	-	4	8
Ark.	30	30	-	1	1	-	25	5	-	-	-
La.	46	49	-	12	13	1	18	8	-	-	1
Okla.	33	31	-	-	-	-	27	8	-	-	-
Tex.	131	162	-	32	25	-	94	95	-	4	7
MOUNTAIN	154	150	-	54	22	13	970	407	-	6	6
Mont.	9	7	-	-	-	-	16	29	-	-	-
Idaho	10	22	-	3	-	-	546	100	-	1	2
Wyo.	2	3	-	1	-	-	7	5	-	-	-
Colo.	42	31	-	3	4	6	253	146	-	-	2
N. Mex.	23	22	N	N	N	7	83	51	-	-	-
Ariz.	41	34	-	32	1	-	33	28	-	5	1
Utah	12	15	-	8	3	-	16	18	-	-	-
Nev.	15	16	-	7	14	-	16	30	-	-	1
PACIFIC	541	568	-	150	190	5	670	1,164	-	27	70
Wash.	67	80	-	14	20	5	306	501	-	5	15
Oreg.	104	101	N	N	N	-	17	55	-	-	1
Calif.	361	375	-	111	140	-	321	573	-	14	51
Alaska	2	8	-	4	2	-	14	3	-	-	-
Hawaii	7	4	-	21	28	-	12	32	-	8	3
Guam	1	4	U	1	8	U	-	-	U	-	-
P.R.	10	11	-	7	1	-	1	2	-	-	-
V.I.	-	-	U	-	1	U	-	-	U	-	-
Amer. Samoa	-	-	U	-	-	U	-	-	U	-	-
C.N.M.I.	-	-	U	4	-	U	-	-	U	-	-

N: Not notifiable U: Unavailable -: no reported cases

TABLE IV. Deaths in 122 U.S. cities,* week ending October 11, 1997 (41st Week)

Reporting Area	All Causes, By Age (Years)						P&I† Total
	All Ages	>65	45-64	25-44	1-24	<1	
NEW ENGLAND	487	374	60	34	14	5	49
Boston, Mass.	113	80	17	10	5	1	10
Bridgeport, Conn.	40	31	4	3	2	-	6
Cambridge, Mass.	19	18	1	-	-	-	3
Fall River, Mass.	26	20	4	1	-	1	1
Hartford, Conn.	U	U	U	U	U	U	U
Lowell, Mass.	24	21	2	1	-	-	3
Lynn, Mass.	17	12	4	1	-	-	-
New Bedford, Mass.	27	23	2	1	1	-	3
New Haven, Conn.	35	25	5	4	1	-	2
Providence, R.I.	37	28	4	1	3	1	4
Somerville, Mass.	8	5	2	1	-	-	-
Springfield, Mass.	56	42	7	4	1	2	2
Waterbury, Conn.	25	18	2	5	-	-	2
Worcester, Mass.	60	51	6	2	1	-	13
MID. ATLANTIC	2,333	1,612	446	188	47	40	105
Albany, N.Y.	43	28	12	2	1	-	1
Allentown, Pa.	24	20	4	-	-	-	-
Buffalo, N.Y.	69	52	9	4	2	2	2
Camden, N.J.	33	24	4	1	3	1	-
Elizabeth, N.J.	19	15	3	-	1	-	-
Erie, Pa.	43	36	-	6	1	-	-
Jersey City, N.J.	45	26	11	4	2	2	1
New York City, N.Y.	1,125	771	231	91	14	18	38
Newark, N.J.	60	20	15	18	5	2	3
Paterson, N.J.	15	8	3	4	-	-	-
Philadelphia, Pa.	400	270	79	34	14	3	26
Pittsburgh, Pa.§	65	47	9	5	-	4	6
Reading, Pa.	44	33	8	3	-	-	8
Rochester, N.Y.	132	96	22	7	1	6	14
Schenectady, N.Y.	15	14	1	-	-	-	-
Scranton, Pa.	37	31	5	-	1	-	-
Syracuse, N.Y.	98	73	20	3	1	1	3
Trenton, N.J.	16	13	1	1	-	1	-
Utica, N.Y.	20	15	5	-	-	-	1
Yonkers, N.Y.	30	20	4	5	1	-	2
E.N. CENTRAL	1,944	1,329	365	157	38	54	104
Akron, Ohio	41	36	3	2	-	-	2
Canton, Ohio	47	38	8	-	-	1	3
Chicago, Ill.	413	248	94	51	10	10	23
Cincinnati, Ohio	68	45	15	3	2	3	8
Cleveland, Ohio	130	87	23	14	3	3	3
Columbus, Ohio	181	136	30	7	1	7	13
Dayton, Ohio	144	103	26	9	2	4	11
Detroit, Mich.	197	110	47	27	6	6	6
Evansville, Ind.	47	38	6	2	1	-	3
Fort Wayne, Ind.	7	7	-	-	-	-	1
Gary, Ind.	16	9	2	2	3	-	-
Grand Rapids, Mich.	66	45	11	3	2	5	5
Indianapolis, Ind.	167	103	38	13	3	10	10
Lansing, Mich.	37	26	6	5	-	-	1
Milwaukee, Wis.	109	80	17	8	1	3	6
Peoria, Ill.	40	28	8	4	-	-	1
Rockford, Ill.	31	23	5	1	2	-	4
South Bend, Ind.	54	46	4	3	-	1	-
Toledo, Ohio	93	72	18	2	1	-	2
Youngstown, Ohio	56	49	4	1	1	1	2
W.N. CENTRAL	743	506	128	56	20	21	32
Des Moines, Iowa	48	33	5	4	2	4	3
Duluth, Minn.	22	18	2	-	1	1	6
Kansas City, Kans.	24	13	6	4	1	-	-
Kansas City, Mo.	97	53	19	8	2	3	2
Lincoln, Nebr.	32	20	8	4	-	-	1
Minneapolis, Minn.	150	110	28	6	5	1	10
Omaha, Nebr.	84	57	15	8	2	2	4
St. Louis, Mo.	111	79	14	9	2	7	-
St. Paul, Minn.	96	73	15	5	2	1	5
Wichita, Kans.	79	50	16	8	3	2	1
S. ATLANTIC	1,251	796	253	137	40	24	54
Atlanta, Ga.	147	80	42	20	5	-	-
Baltimore, Md.	178	110	34	29	3	2	8
Charlotte, N.C.	91	53	26	6	3	3	4
Jacksonville, Fla.	115	82	15	14	-	4	1
Miami, Fla.	117	73	21	13	8	1	2
Norfolk, Va.	46	27	7	8	3	1	4
Richmond, Va.	78	59	8	8	3	-	6
Savannah, Ga.	43	26	14	1	2	-	5
St. Petersburg, Fla.	41	32	5	3	-	1	5
Tampa, Fla.	179	128	30	14	2	5	15
Washington, D.C.	200	110	51	21	11	7	4
Wilmington, Del.	16	16	-	-	-	-	-
E.S. CENTRAL	804	522	164	61	22	34	48
Birmingham, Ala.	164	107	31	11	6	8	11
Chattanooga, Tenn.	65	49	7	9	-	-	7
Knoxville, Tenn.	62	44	10	2	4	2	1
Lexington, Ky.	64	44	16	2	-	2	10
Memphis, Tenn.	187	111	42	15	5	14	9
Mobile, Ala.	70	44	13	4	5	4	1
Montgomery, Ala.	46	32	10	4	-	-	4
Nashville, Tenn.	146	91	35	14	2	4	5
W.S. CENTRAL	1,260	785	265	126	57	27	80
Austin, Tex.	58	35	11	10	2	-	2
Baton Rouge, La.	38	25	10	2	1	-	2
Corpus Christi, Tex.	36	26	8	2	-	-	4
Dallas, Tex.	165	98	24	23	11	9	4
El Paso, Tex.	65	40	13	6	4	2	6
Ft. Worth, Tex.	116	77	26	8	2	3	6
Houston, Tex.	377	209	88	50	24	6	34
Little Rock, Ark.	62	30	18	8	4	2	1
New Orleans, La.	U	U	U	U	U	U	U
San Antonio, Tex.	189	140	38	8	1	2	13
Shreveport, La.	64	46	13	3	2	-	1
Tulsa, Okla.	90	59	16	6	6	3	7
MOUNTAIN	891	635	152	51	26	27	56
Albuquerque, N.M.	103	70	19	8	5	1	2
Boise, Idaho	40	28	10	-	2	-	-
Colo. Springs, Colo.	68	53	7	1	3	4	7
Denver, Colo.	105	69	21	7	3	5	10
Las Vegas, Nev.	144	98	33	8	4	1	9
Ogden, Utah	18	13	3	2	-	-	1
Phoenix, Ariz.	162	115	25	12	5	5	9
Pueblo, Colo.	29	23	4	2	-	-	-
Salt Lake City, Utah	98	68	12	8	3	7	7
Tucson, Ariz.	124	98	18	3	1	4	11
PACIFIC	950	688	155	71	19	17	82
Berkeley, Calif.	25	20	2	2	-	1	1
Fresno, Calif.	53	43	4	4	-	2	6
Glendale, Calif.	U	U	U	U	U	U	U
Honolulu, Hawaii	82	57	16	7	-	2	3
Long Beach, Calif.	64	46	12	4	1	1	12
Los Angeles, Calif.	U	U	U	U	U	U	U
Pasadena, Calif.	19	17	1	1	-	-	5
Portland, Oreg.	U	U	U	U	U	U	U
Sacramento, Calif.	U	U	U	U	U	U	U
San Diego, Calif.	190	137	31	16	3	3	21
San Francisco, Calif.	82	57	13	11	-	1	10
San Jose, Calif.	162	117	29	11	4	1	14
Santa Cruz, Calif.	U	U	U	U	U	U	U
Seattle, Wash.	135	95	25	7	6	2	1
Spokane, Wash.	47	33	9	3	-	2	2
Tacoma, Wash.	91	66	13	5	5	2	7
TOTAL	10,663¶	7,247	1,988	881	283	249	610

U: Unavailable -: no reported cases

*Mortality data in this table are voluntarily reported from 122 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 this Pennsylvania city, these numbers are partial counts for the current week. Complete counts will be available in 4 to 6 weeks.

¶Total includes unknown ages.

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