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Blastomycosis — Wisconsin, 1986–1995

Blastomycosis is a disease of humans and animals caused by inhalation of airborne spores from *Blastomyces dermatitidis,* a dimorphic fungus found in soil. The spectrum of clinical manifestations of blastomycosis includes acute pulmonary disease, subacute and chronic pulmonary disease (most common presentations), and disseminated extrapulmonary disease (cutaneous manifestations are most common, followed by involvement of the bone, the genitourinary tract, and central nervous system) (*1*). Although the disease is not nationally notifiable, it was designated a reportable condition in Wisconsin in 1984 following two large outbreaks. This report summarizes information about cases of blastomycosis reported in Wisconsin during 1986–1995 and highlights the importance of surveillance for blastomycosis in areas with endemic disease.

In Wisconsin, cases of blastomycosis are reported to the Division of Health (DOH), Wisconsin Department of Health and Social Services. A confirmed case is defined as isolation of *B. dermatitidis* or visualization of characteristic broad-based budding yeast from a clinical specimen obtained from a person with clinically compatible illness (e.g., subacute pneumonia or characteristic skin lesions).

During 1986–1995, a total of 670 cases of blastomycosis were reported to DOH, representing a statewide mean annual incidence rate of 1.4 cases per 100,000 persons. Of these, 636 (95%) were confirmed. Twenty-five (3.7%) cases were associated with two outbreaks that occurred in 1990 and 1993, with 10 and 15 reported cases, respectively. The median age of all case-patients was 46 years (range: 4 months–95 years); most cases occurred among males (60%) and among adults aged 25–44 years (40%). The mean annual incidence was higher for males than females in all age-groups; the group-specific rate was highest for males aged 45–64 years (2.5 cases per 100,000 population). Of the total reported cases, 29 were fatal (case-fatality rate: 4.3%), and case-fatality rates increased with age (≤11 years, 0; 12–24 years, 1.6%; 25–44 years, 1.8%; 45–64 years, 3.4%; and ≥65 years, 12.5%). The number of reported cases was similar by month.

Supplemental clinical data were obtained for 378 (72%) of the 522 case-patients with onset during 1989–1995: a total of 287 (76%) had primary pulmonary disease without extrapulmonary manifestations, 68 (18%) had extrapulmonary infection without recognized pulmonary manifestations, and 23 (6%) had both pulmonary and extrapulmonary manifestations. Manifestations among persons with pulmonary disease

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included fever, cough, weight loss, night sweats, and pleuritic pain. The most frequently involved extrapulmonary sites were the skin, spleen, and genitourinary systems. Supplemental clinical data were available for 27 of the 29 decedents; all primarily presented with acute or chronic pulmonary disease.

A total of 294 (44%) cases occurred in residents of 10 counties in the northern half of the state (mean annual incidence: 5.1–41.9 per 100,000). Four of these counties (all north-central) accounted for 28% of all cases statewide (mean annual incidence: 10.4–41.9 per 100,000).

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Editorial Note: In the United States, most reported cases of blastomycosis have occurred in the Ohio and Mississippi river valleys and in the southeastern states (*2*). Although a review of death records for 1992 indicated blastomycosis was the reported underlying cause of death for 44 persons in the United States (*3*), epidemiologic patterns for this disease have not been fully characterized because blastomycosis is not nationally notifiable.

Blastomycosis should be considered in the differential diagnosis of subacute lobar or segmental pneumonia, especially in residents of or visitors to areas with endemic blastomycosis. This disease should be considered especially in patients with histories of outdoor recreational activities and with manifestations of pneumonitis refractory to initial antibiotic treatment. Diagnosis of blastomycosis may be based on isolation of *B. dermatitidis* from specimens obtained from sputum, skin, or tissue biopsy (cultures should be held for at least 4 weeks), or the demonstration of characteristic broad-based budding yeast cells by direct microscopic examination of wet unstained clinical specimens, cytology preparations, or histopathology slides (*4*). *B. dermatitidis* colonies can be identified early using recently developed DNA probes (*5*) and exoantigen technology. There is no skin test for blastomycosis, and available serologic tests (complement fixation and immunodiffusion) lack adequate sensitivity (*6*). WI-1 antigen, a recently described yeast cell-wall protein, has been used in a radioimmunoassay to diagnose blastomycosis in an area with endemic disease (*7*); with further development, this test may be useful to diagnose blastomycosis. The treatment of choice is ketoconazole or itraconazole for mild or moderate disease and amphotericin B for patients with central nervous system involvement, patients who are severely immunocompromised, or patients who do not respond to azole therapy (*1*).

Although the epidemiologic characterization of blastomycosis is based primarily on findings of outbreak investigations, most reported cases are sporadic. Analysis of information regarding sporadic case reports suggests the risk for disease may be greater among middle-aged (i.e., 35–55 years) men who have had outdoor exposures during work or recreation (e.g., forestry workers or hunters) (*1,2*). Exposure to soil has been the most commonly identified factor associated with risk for infection during outbreaks. Because the incubation period can range from 3 weeks to 3 months, month of onset does not consistently indicate month of exposure or initial infection. Understanding of the ecologic niche of *B. dermatitidis* is based on the infrequent isolation of the fungus during outbreaks (*8,9*), which suggests that geographic (e.g., proximity

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to waterways) and physical factors (e.g., acid pH and high organic content) are conducive to growth of the fungus. These geographic and physical factors characterize northern Wisconsin and may account for the increased incidence in that region.

Development of both sensitive and specific serologic tests for diagnosing blastomycosis will assist in more accurate estimations of disease prevalence and incidence. Similarly, improving methods to detect *B. dermatitidis* in nature will increase understanding of the ecology and epidemiology of blastomycosis and may assist in developing better prevention measures.

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Measles Pneumonitis Following Measles-Mumps-Rubella Vaccination of a Patient with HIV Infection, 1993

The Advisory Committee on Immunization Practices (ACIP) recommends measles-mumps-rubella vaccine (MMR) for all persons asymptomatically infected with human immunodeficiency virus (HIV) and recommends that MMR be considered for all symptomatic HIV-infected persons who would otherwise be eligible for measles vaccine, because measles virus infection can cause severe illness and death in such persons (*1,2*). Serious or unusual adverse events in HIV-infected persons after receiving MMR have not been reported previously (*1,2*). This report summarizes the investigation of a case of progressive vaccine-associated measles pneumonitis in a person with acquired immunodeficiency syndrome and provides interim recommendations for the use of measles-containing vaccine among HIV-infected persons.

On September 3, 1992, a 20-year-old man with hemophilia A and HIV infection received MMR to fulfill a college prematriculation vaccination requirement for a second dose of measles-containing vaccine. He had received a previous dose of measles vac-

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cine in 1973. His CD4+ T-lymphocyte count was reported as "too few to enumerate" in January, March, and August 1992. At the time of vaccination, he did not have HIV-related symptoms and was not taking antiretroviral therapy or prophylactic treatment for *Pneumocystis carinii* pneumonia (PCP).

On October 2, the patient was hospitalized because of increasing shortness of breath and dyspnea on exertion, and on October 5, PCP was diagnosed by methenamine silver stain following bronchoscopy with bronchoalveolar lavage. Therapy with intravenous pentamidine was initiated, and on October 8 the patient was discharged to complete treatment as an outpatient. His pulmonary symptoms resolved, and he was followed as an outpatient through November 1992, when he was lost to follow-up.

On July 30, 1993, he visited his physician and reported onset of night sweats, chills, and a nonproductive cough. Chest radiograph demonstrated lingular and left lower lobe infiltrates. Outpatient treatment with atovaquone for presumptive PCP was initiated and continued until August 20 without improvement. On August 31, he was hospitalized because of worsening dyspnea, fever, nonproductive cough, and weight loss. Chest radiography revealed patchy infiltrates in the left lung and pleural effusion. Despite empiric treatment for PCP, fungal infection, *Mycobacterium avium* complex (MAC) disease, and other bacterial infections, he remained febrile without clinical improvement. Bronchoscopy with bronchoalveolar lavage and transbronchial biopsy on September 2 and September 23 did not provide a specific diagnosis, and cultures of pleural fluid were negative for bacterial, fungal, mycobacterial, and viral pathogens.

On October 6, an open-lung biopsy was performed. Biopsy specimens revealed numerous multinucleate giant cells, some of which contained both intranuclear and cytoplasmic eosinophilic inclusions suggestive of viral infection. A presumptive diagnosis of measles pneumonia was made, and therapy with intravenous gamma globulin was started. On October 22, measles virus was identified from tissue-culture cells inoculated with the lung biopsy tissue, and ribavirin therapy was initiated on October 23. The patient's condition stabilized, and he was discharged on October 29.

On November 12, he was hospitalized because of nausea and vomiting, increasing shortness of breath, and left upper quadrant abdominal pain. Chest radiograph demonstrated a right-sided nodular infiltrate and a left pneumothorax with effusion. The patient received treatment for presumptive MAC disease and esophageal candidiasis, and prophylaxis for PCP. A chest drainage catheter was placed and then removed before the patient was discharged on November 23.

On November 27, when he was hospitalized because of nausea, vomiting, and dehydration, chest radiograph demonstrated residual pneumothorax. Parenteral nutrition was initiated, and he was treated for presumptive MAC infection. Subsequent chest radiography demonstrated increased bilateral pulmonary infiltrates. Following the onset of encephalopathic changes on December 13, he died on December 17. No autopsy was performed.

The reported immediate cause of death was cytomegalovirus (CMV) encephalitis; pulmonary measles and MAC infection were listed as contributing causes. The diagnoses of CMV and MAC infection were based on clinical findings without laboratory confirmation.

The measles virus isolate recovered on October 22 from the patient's lung biopsy tissue was propagated in tissue-culture cells. Selected regions of the viral genome

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RNA were reverse transcribed, amplified by polymerase chain reaction, and subjected to sequence analysis, revealing a high degree of similarity to the Moraten measles vaccine virus strain. In 1995, the genomes of both the patient's virus isolate and the Moraten vaccine virus strain were completely sequenced and differed by only two nucleotides, each encoding an amino acid change. The essential identity of these two measles virus strains confirmed Moraten vaccine strain as the source of the virus isolated from the lung biopsy specimen. CDC was notified of these findings in March 1996, and supplemental sequence studies performed at CDC support the conclusion that Moraten vaccine was the source for the measles virus isolate.

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Editorial Note: This report is the first known case of a serious adverse event following the documented administration of a measles-containing vaccine to a severely immunocompromised person with HIV infection. Serious adverse events after receipt of measles vaccine by persons with severe immunosuppression attributable to causes other than HIV infection have been reported previously (*3*), and measles vaccination is contraindicated in such persons. The case described in this report also is unusual because the patient did not have clinical onset of measles pneumonitis until almost 1 year after vaccination—a finding also not previously reported.

ACIP recommends the routine administration of MMR at age 12–15 months and a second dose at ages 4–6 years or 11–12 years (*4*). Adults without evidence of measles immunity should receive at least one dose of measles-containing vaccine (preferably MMR) unless otherwise contraindicated (*5*). Persons can be considered immune to measles if they 1) were born before 1957; 2) have documentation of physician-diagnosed measles; 3) have laboratory evidence of immunity to measles; or 4) have documentation of adequate vaccination (*5*).

Because of the increased risk for severe complications associated with measles infection and the absence of serious adverse events after measles vaccination among HIV-infected persons (*1,2*), ACIP has recommended that MMR be administered to all asymptomatic HIV-infected persons and that MMR be considered for administration to all symptomatic HIV-infected persons who would otherwise be eligible for measles vaccine—even though the immune response may be attenuated in such persons (*1,2,5*). There is a theoretical risk for an increase (probably transient) in HIV viral load following MMR vaccination because such effects have been observed with other vaccines (*6*). Specific studies of the effect, if any, of MMR vaccination on viral load are needed. Because of the case described in this report and other evidence indicating a diminished antibody response to measles vaccination among severely immunocompromised persons (*7*), ACIP is reevaluating the recommendations for vaccination of severely immunocompromised persons with HIV infection. In the interim, it may be prudent to withhold MMR or other measles containing vaccines from HIV-infected persons with evidence of severe immunosuppression, defined as 1) CD4+ T-lymphocyte counts <750 for children aged <12 months, <500 for children aged 1–5 years, or

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<200 for persons aged ≥6 years; or 2) CD4+ T-lymphocytes constituting <15% of total lymphocytes for children aged <13 years (*8,9*).

ACIP continues to recommend MMR for HIV-infected persons without evidence of measles immunity (*5*) who are not severely immunocompromised (*8,9*). Severely immunocompromised HIV-infected patients who are exposed to measles should receive immune globulin (IG), regardless of prior vaccination status (*1*). In addition, health-care providers should weigh the risks and benefits of measles vaccination or IG prophylaxis for severely immunocompromised HIV-infected patients who are at risk for measles exposure because of outbreaks or international travel.

Because the immunologic response to both live and killed antigen vaccines may decrease as HIV disease progresses (*1,10*), vaccination early in the course of HIV infection may be more likely to induce an immune response. Therefore, HIV-infected infants without severe immunosuppression should routinely receive MMR as soon as possible after their first birthday. Evaluation and testing of asymptomatic persons to identify HIV infection are not necessary before deciding to administer MMR or other measles-containing vaccine (*1*).

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Biopsy-Confirmed Hypersensitivity Pneumonitis in Automobile Production Workers Exposed to Metalworking Fluids — Michigan, 1994–1995

In 1994, union and management officials and local physicians in southeastern Michigan noted the occurrence among automobile production workers of respiratory illness consistent with hypersensitivity pneumonitis (HP). Local and national health authorities reviewed medical records, and in June 1994, individual employees and the union requested that CDC's National Institute for Occupational Safety and Health

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(NIOSH) evaluate potential occupational exposures associated with these illnesses. This report summarizes preliminary findings of the evaluation, including detailed information about one HP case and a summary description of the six biopsy-confirmed cases among automobile production workers from three different plants (plants A, B, and C) in southeastern Michigan; all six workers had jobs that entailed frequent exposure to metalworking fluids (MWFs). The findings suggest the need for further evaluation of a possible association of occupational exposure to MWFs with HP.

Case Report

In February 1994, a 57-year-old man (patient 1) was evaluated for a 7-month history of wheezing, dyspnea, weight loss, fever, and productive cough. He had worked as a toolmaker at plant A for 11 years and had not smoked cigarettes for the preceding 28 years. His symptoms were temporally related to working in an area of the plant where soluble machining oils—a type of MWF—were used. The worker's respiratory illness progressed, and in May, he was hospitalized for acute respiratory failure. Findings on admission included basilar inspiratory crackles, and a chest radiograph indicated bilateral interstitial infiltrates. Oxygen tension on room air at rest was 53 torr (normal: 80–100 torr) with 82% saturation; a white blood cell count was 11,900 (normal: 4800–10,800) with a normal differential. Fiberoptic bronchoscopy and examination of tissue specimens obtained by transbronchial biopsies demonstrated multiple noncaseating granulomas with lymphocytic infiltration of the alveolar septa—findings consistent with HP.

Following diagnosis of HP, the patient was treated with oral corticosteroids and was removed from work for medical reasons. Pulmonary function tests (PFTs) obtained in May indicated a forced vital capacity of 3.8 L (75% of predicted; normal: >80% predicted), total lung capacity (TLC) of 5.7 L (79% of predicted; normal: >80% predicted), and diffusing capacity for carbon monoxide (DL_{CO}) of 18.79 (67% of predicted; normal: >80% predicted). Subsequent PFTs obtained in March 1995 showed a normal TLC (6.9 L [93% of predicted]) and DL_{CO} (24.85 [89% of predicted]).

Case Summaries

During 1994–1995, physicians at two local pulmonary and occupational medicine clinics in Michigan reported four cases of biopsy-confirmed HP (including patient 1) among workers from three different automotive plants. A subsequent review of the medical records of plant employees who had sought medical attention identified two additional biopsy-confirmed cases. In addition, 14 probable cases (not biopsy-confirmed) were identified.

All six persons with biopsy-confirmed cases (Table 1) were nonsmokers for at least 12 years preceding illness. All except one reported recurrent respiratory and systemic symptoms that were temporally related to working in areas of their respective plants in which MWFs were used: the symptoms of one worker (patient 3) resolved after he was permanently removed from the workplace for medical reasons; the symptoms did not recur. MWFs were the only potential exposures previously associated with HP to be identified by the investigation. One worker (patient 5) had a 1½-year history of interstitial lung disease and work-related symptoms of dyspnea and cough; this worker died as a result of acute myocardial infarction, and autopsy findings indicated the presence of chronic granulomatous lung disease. Serum precipitins to a standard commercial antigen panel (including bacteria, fungi, and avian proteins that have

TABLE 1. Clinical findings for six automobile production workers* with hypersensitivity pneumonitis — production plants A, B and C, Michigan, 1994–1995

Patient§	Plant	Job title	Work-related symptoms¶	Physical examination	Initial pulmonary function (% predicted)†				Biopsy
					CXR/HRCT**	FEV_1	FVC	TLC	DL_{CO}	
1††	A	Toolmaker	Wheeze, dyspnea, cough/sputum, and weight loss	Basilar crackles	Bilateral interstitial infiltrates	76	75	79	67	Noncaseating granulomas
2	B	Machining supervisor	Dyspnea, chills, fatigue, diaphoresis, and cough	Clear	Interstitial process/ pulmonary fibrosis	79	74	85	41	Granulomas, lymphocytic infiltrate
3	B	Grinder	Cough/sputum and chills	Basilar crackles	Ground glass opacification	45	61	210	90	Noncaseating granulomas, interstitial pneumonitis
4	B	Metal machine repair	Dyspnea, myalgias, chills, and headache	Basilar crackles	Decreased lung volumes; increased bronchovascular markings	D§§	D	D	NA¶¶	Granulomatous interstitial pneumonitis
5	C	Machinist	Dyspnea	Clear	Interstitial pattern; thickening of interlobular septa	72	94	80	44	Granulomas at autopsy
6	C	Carpenter	Cough/sputum, dyspnea, and weight loss	Basilar crackles	Basilar interstitial pattern	83	81	84	60	Granulomatous pneumonitis

* All workers exposed to water-based metalworking fluid aerosols during work.
† FEV_1=forced expiratory volume at one second (normal: >80% predicted); FVC=forced vital capacity (normal: >80% predicted); TLC=total lung capacity (normal: >80% predicted); DL_{CO}=diffusion capacity for carbon monoxide (normal: >80% predicted).
§ Workers were aged 35–60 years; all were nonsmokers for at least the previous 12 years.
¶ Symptoms temporally related to the workplace.
** Chest radiograph and/or high-resolution computed tomography scan of lungs.
†† Patient described in text.
§§ Test result recorded only as "decreased."
¶¶ Records not available.

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been associated with HP in other settings) were negative in the two workers who were tested. Pulmonary function abnormalities among the six workers included decreased DL_{CO} (patients 2, 5, and 6) and spirometric patterns consistent with restrictive defects (patients 1 and 2) or mixed restrictive/obstructive defects (patients 3 and 5).* Following removal from exposure to MWFs and other medical treatment, pulmonary function improved in all six workers.

Investigators are continuing evaluation of the workers at these plants, including further follow-up of the workers in whom HP was diagnosed, additional case finding, exposure assessments, and a prospective evaluation of respiratory and systemic symptoms among workers exposed to MWFs.

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Editorial Note: HP (also known as extrinsic allergic alveolitis) is a diffuse interstitial granulomatous lung disease thought to involve an immunologic reaction of the lung to repeated inhalation of foreign antigens. Numerous antigens have been associated with HP, including many types of bacteria and fungi, animal proteins, and low molecular weight chemicals (*1*). Farmer's lung, a prototypical form of HP, has been associated with exposure to thermophilic bacteria and several fungal species. Because the presence of precipitating antibodies in serum reflects past exposure to the corresponding antigens, testing serum for precipitating antibodies against suspected antigens may be included in the diagnostic evaluation for HP.

Although the findings in this report suggest a link between occupational exposure to MWFs and HP, the ability to assess a causal association is subject to at least four limitations. First, these cases may not be representative of all HP cases among workers at the three plants because cases were not identified systematically from a defined population, diagnosis of HP is difficult, and symptoms of HP mimic those of other more commonly diagnosed diseases (e.g., bronchitis or pneumonia). Second, actual exposures to MWFs were not measured. Third, this analysis did not estimate HP prevalences and incidences at the three manufacturing plants; such estimates have been calculated in specific occupationally exposed populations, but overall rates are unknown. Finally, no specific antigen(s) has been associated with these cases. Precipitating antibodies were absent in the two workers who were tested; however, this may reflect the complexity of microbial species contamination or an antigen profile in MWFs that differs from those included in standard testing panels.

NIOSH estimates that approximately 1 million U.S. workers are potentially exposed to MWFs (*2*). These fluids are used in a variety of industries to reduce friction between cutting tools and work surfaces and to remove material residue and heat from work surfaces during cutting or machining operations. MWFs are categorized into three major classes: straight (insoluble) oils, soluble (emulsified) oils, and synthetic fluids. The water-based fluids (soluble oils and synthetic fluids) are prone to high levels of microbial contamination, and routine use of MWFs can result in the generation of respirable aerosols (*3*). Exposure to MWF aerosols previously has been associated with cross-shift (i.e., during or after a work shift) decrements in airflow (a sign of reversible air-

*Available information was insufficient to characterize the PFT results for patient 4.

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way obstruction) and with cases of work-related asthma, although the precise pathophysiologic mechanisms for these associations remain unclear (*4–6*). HP-like illnesses associated with exposure to MWFs previously have been reported in the United Kingdom (*7*) and among U.S. automobile-manufacturing workers exposed to water-based MWF aerosols (*8*).†

The diagnosis of HP should be considered in persons with recurrent "pneumonia" or with recurrent or persistent episodes of unexplained respiratory and systemic symptoms§. Although no one factor has been identified that predicts clinical outcome, recurrent episodes of acute HP can lead to progressive, irreversible lung impairment. The primary treatment for HP is avoidance of continued antigen exposure. The severity of illness in the workers in this report, including the progression to respiratory failure in one case, emphasizes the importance of early recognition and treatment of this illness.

This report highlights the need for ongoing medical surveillance and exposure assessment for workers potentially exposed to MWFs to better characterize the suspected association between occupational exposure to MWFs and HP. The ongoing investigation of these cases includes further assessment of occupational exposures to MWFs, the nature of the inhaled antigens in workplaces in which MWFs are used, and the prevalence and natural history of HP in workers exposed to MWF aerosols.

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†These workers were diagnosed with HP based on a combination of work-related symptoms, chest radiographic findings, and lung-function studies; none underwent lung biopsy to confirm the diagnosis.

§When sufficient clinical criteria for a definitive diagnosis of HP are lacking, lung biopsy may be indicated (*9,10*); in addition, because transbronchial biopsy may sample unrepresentative areas of the lung, thoracoscopic or open-lung biopsy may be required.

Update: Outbreaks of *Cyclospora cayetanensis* Infection — United States and Canada, 1996

Since May 1996, CDC has received reports of clusters and sporadic cases of infection with the parasite *Cyclospora cayetanensis* that occurred in May and June in the United States and Canada (*1*). This report describes preliminary findings of an investigation by the New Jersey Department of Health and Senior Services (NJDHSS) and updates the findings of other ongoing investigations.

New Jersey

During June 17–26, 1996, NJDHSS received reports of 42 sporadic cases of laboratory-confirmed *Cyclospora* infection (by light microscopic examination of a stool specimen) among New Jersey residents. To assess possible risk factors for infection among persons with sporadic cases, NJDHSS conducted a case-control study. A case was defined as laboratory-confirmed *Cyclospora* infection and symptoms of gastroenteritis (e.g., diarrhea) with onset during May 1–June 20, 1996, in a New Jersey resident aged ≥18 years. Two age-matched (±10 years) controls (aged ≥18 years) were selected by random-digit dialing; to be eligible, controls could not have had loose stools during the 2-week period before onset of symptoms for the referent case-patient (i.e., the period of interest). In addition, case-patients and matched controls must have been in New Jersey during the period of interest and not have traveled outside the United States or Canada during the month before symptom onset. Investigators interviewed 30 case-patients and 60 controls by telephone and used a standardized questionnaire that asked about possible exposures (including consumption of 17 fruits and 15 vegetables, water and soil exposures, and animal contact) during the period of interest.

Case-patients and controls were similar by age (median age of case-patients: 47.5 years [range: 20–81 years]), sex, and educational level. Twenty (69%) of 29 case-patients and four (7%) of 60 controls had eaten raspberries. In multivariate conditional logistic regression analysis, only consumption of raspberries was significantly associated with illness (odds ratio and 95% confidence interval were undefined because of a denominator of 0, $p<0.001$ [computed using the score test]). Consumption of strawberries was not significantly associated with illness.

Other Investigations

Approximately 850 cases of laboratory-confirmed *Cyclospora* infection in persons residing in the United States and Canada whose onset of illness was in May and June 1996 have been reported to CDC and Health Canada. Approximately 14% of all cases have been reported from Ontario, Canada; nearly all (approximately 99%) of the other cases have been reported from states east of the Rocky Mountains. Fourteen states, the District of Columbia, and Ontario are each investigating clusters of cases related to specific events (e.g., a luncheon) and/or at least 30 sporadic cases (i.e., not related to any identified event). Six other states have each reported ≤10 sporadic cases. Most sporadic and event-related cases have occurred in immunocompetent adults. Fifteen case-patients have been hospitalized, but no deaths have been reported. The most recent event associated with cases occurred on June 8 (i.e., exposure date), and the most recent laboratory-confirmed sporadic case occurred in a person with onset of symptoms on June 27.

Cyclospora cayetanensis *infection — Continued*

With the possible exception of a few events for which limited information is available, raspberries were served at the 42 events under investigation. For 12 (29%) of the events, raspberries were either the only berry served or were served separately from other berries. Initial investigations of three events that occurred in May had attributed risk for *Cyclospora* infection to consumption of strawberries; however, further investigation indicated that raspberries and other berries also were served (one event) or may have been served (two events). Preliminary findings of case-control studies by health departments in Florida and New York City also indicate an association between consumption of raspberries and risk for *Cyclospora* infection.

The Food and Drug Administration (FDA), CDC, and other health and food-safety agencies in the United States and Canada are tracing the sources of the raspberries that were served at the events. Findings from the first 21 tracebacks completed by CDC and state agencies indicate that raspberries grown in some regions of Guatemala either definitely were or could have been served at each of these events; for 17 of these 21 events, the only source of raspberries was Guatemala. Efforts are ongoing to identify the specific source(s) of the raspberries and possible modes of contamination.

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Editorial Note: The multistate outbreak of infection with the emerging pathogen *Cyclospora* has been investigated by state and local health departments, CDC, health officials in Canada, and other organizations. Although the findings of these investigations have demonstrated consistent associations between risk for *Cyclospora* infection and antecedent consumption of raspberries, some case-patients have not reported raspberry consumption; this finding may reflect poor recall and, for some persons with cases not related to events, different sources of infection.

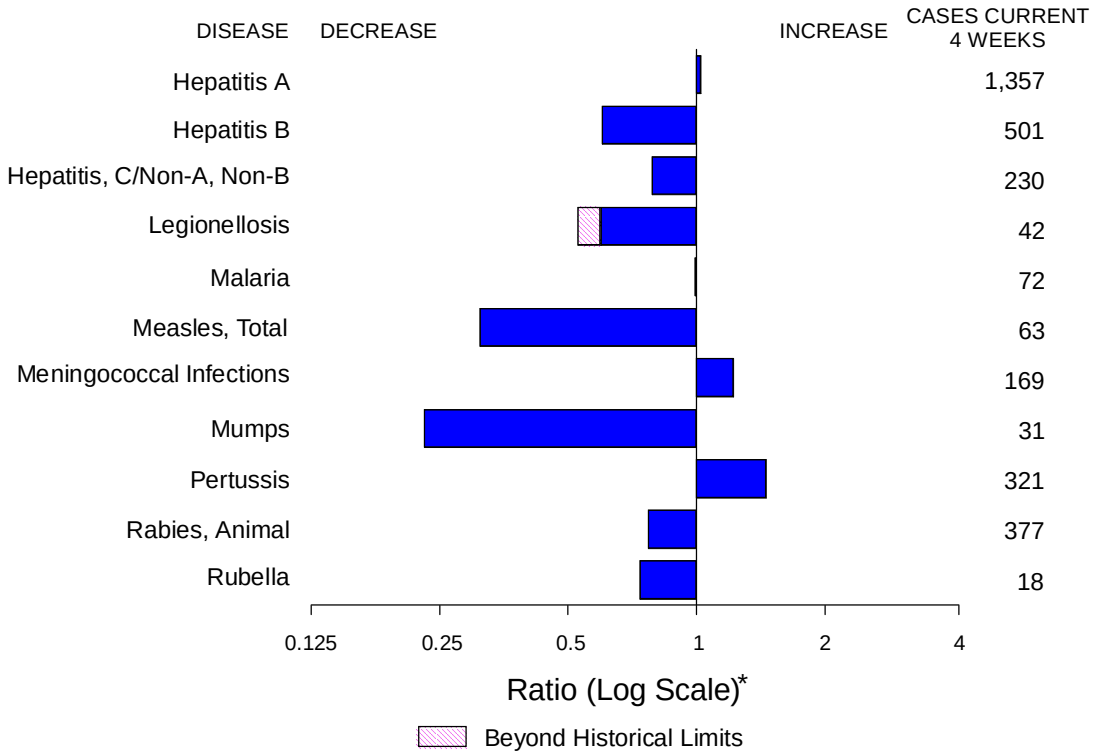
The preliminary investigations indicate that some regions of Guatemala were the most likely sources of the epidemiologically implicated raspberries. The growing season in Guatemala is ending, and recent imports of raspberries from that country have markedly decreased. The specific mode of contamination of the raspberries and whether contamination occurred in Guatemala or after the raspberries had been shipped from the country have not yet been determined. CDC, FDA, the government of Guatemala, growers, exporters, and trade associations are collaborating in ongoing investigations to evaluate these issues. Since the latter half of June, FDA has begun to examine shipments of raspberries from Guatemala for *Cyclospora*. *Cyclospora* oocysts have not been found on any of the raspberries that have been tested to date. FDA, CDC, and others are developing standardized methods for such testing and are evaluating their sensitivity.

As always, produce should be thoroughly washed before it is eaten. This practice should decrease but may not eliminate the risk for transmission of *Cyclospora*. Health departments that identify cases of *Cyclospora* infection should contact CDC's Division of Parasitic Diseases, National Center for Infectious Disease, telephone (770) 488-7760.

Reference

1. CDC. Outbreaks of *Cyclospora cayetanensis* infection—United States, 1996. MMWR 1996; 45:549–51.

FIGURE I. Selected notifiable disease reports, comparison of 4-week totals ending July 13, 1996, with historical data — United States



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

TABLE I. Summary — cases of selected notifiable diseases, United States, cumulative, week ending July 13, 1996 (28th Week)

	Cum. 1996		Cum. 1996
Anthrax	-	HIV infection, pediatric*§	138
Brucellosis	43	Plague	-
Cholera	2	Poliomyelitis, paralytic¶	-
Congenital rubella syndrome	1	Psittacosis	19
Cryptosporidiosis*	855	Rabies, human	-
Diphtheria	1	Rocky Mountain spotted fever (RMSF)	219
Encephalitis: California*	1	Streptococcal toxic-shock syndrome*	10
eastern equine*	1	Syphilis, congenital**	-
St. Louis*	-	Tetanus	11
western equine*	-	Toxic-shock syndrome	72
Hansen Disease	56	Trichinosis	11
Hantavirus pulmonary syndrome*†	8	Typhoid fever	171

-: 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, National Center for HIV, STD, and TB Prevention (NCHSTP), last update June 25, 1996.
¶ Three suspected cases of polio with onset in 1996 has been reported to date.
**Updated quarterly from reports to the Division of STD Prevention, NCHSTP. First quarter 1996 is not yet available.

TABLE II. Cases of selected notifiable diseases, United States, weeks ending July 13, 1996, and July 15, 1995 (28th Week)

Reporting Area	AIDS*		Chlamydia	*Escherichia coli* O157:H7		Gonorrhea		Hepatitis C/NA,NB		Legionellosis	
				NETSS†	PHLIS§						
	Cum. 1996	Cum. 1995	Cum. 1996	Cum. 1996	Cum. 1996	Cum. 1996	Cum. 1995	Cum. 1996	Cum. 1995	Cum. 1996	Cum. 1995
UNITED STATES	34,213	35,320	153,096	784	328	142,754	206,165	1,914	2,103	379	631
NEW ENGLAND	1,391	1,762	8,964	98	21	3,887	3,985	58	65	18	13
Maine	22	72	-	4	-	24	42	-	-	1	4
N.H.	42	53	389	10	5	77	69	3	11	-	1
Vt.	10	13	-	9	6	33	25	24	6	2	-
Mass.	648	793	3,509	39	10	1,157	1,424	28	47	9	7
R.I.	94	134	1,079	5	-	278	266	3	1	6	1
Conn.	575	697	3,987	31	-	2,318	2,159	-	-	N	N
MID. ATLANTIC	9,450	9,096	20,459	61	26	15,529	23,683	197	222	78	90
Upstate N.Y.	1,164	1,118	N	43	12	3,109	4,665	169	113	25	29
N.Y. City	5,299	4,481	8,875	-	-	4,635	9,545	1	1	1	2
N.J.	1,796	2,208	2,222	18	5	2,443	2,226	-	90	7	17
Pa.	1,191	1,289	9,362	N	9	5,342	7,247	27	18	45	42
E.N. CENTRAL	2,777	2,871	20,954	218	95	22,398	41,261	252	170	108	190
Ohio	622	609	10,763	58	33	7,832	13,507	10	5	50	88
Ind.	393	257	5,278	28	19	3,584	4,643	7	1	26	45
Ill.	1,202	1,271	569	92	16	8,931	10,309	43	51	2	20
Mich.	407	562	-	40	27	-	9,298	192	113	24	21
Wis.	153	172	4,344	N	-	2,051	3,504	-	-	6	16
W.N. CENTRAL	820	844	14,894	152	78	7,380	9,220	66	35	23	45
Minn.	157	203	-	47	38	U	1,668	-	2	2	-
Iowa	57	44	1,951	35	23	504	798	33	5	4	14
Mo.	402	339	6,807	23	-	4,387	6,097	20	11	6	13
N. Dak.	8	4	2	8	6	1	16	-	4	-	2
S. Dak.	8	9	689	7	-	95	103	-	1	2	-
Nebr.	55	71	885	10	2	159	538	3	9	7	11
Kans.	133	174	4,560	22	9	2,234	U	10	3	2	5
S. ATLANTIC	8,571	9,004	28,939	44	13	52,823	57,784	133	120	66	103
Del.	167	163	-	-	1	762	1,092	1	-	3	1
Md.	1,026	1,297	3,334	N	3	6,845	6,832	-	6	9	17
D.C.	591	576	N	-	-	2,374	2,454	-	-	3	4
Va.	546	640	5,801	N	2	5,104	5,871	8	5	12	8
W. Va.	64	43	-	N	2	254	467	7	26	1	3
N.C.	464	491	-	10	2	9,888	12,667	29	28	5	21
S.C.	443	450	-	6	3	5,989	6,643	15	12	4	20
Ga.	1,288	1,094	6,923	12	-	11,652	10,760	-	15	1	14
Fla.	3,982	4,250	12,881	12	-	9,955	10,998	73	28	28	15
E.S. CENTRAL	1,136	1,105	15,409	22	14	16,286	21,436	368	638	29	37
Ky.	174	156	3,570	3	2	2,150	2,415	17	20	3	8
Tenn.	444	435	6,657	9	12	5,717	7,160	299	616	13	15
Ala.	325	296	4,367	5	-	6,867	9,028	3	2	2	5
Miss.	193	218	U	5	-	1,552	2,833	49	-	11	9
W.S. CENTRAL	3,320	3,104	6,844	28	5	10,114	28,941	253	143	3	12
Ark.	145	136	-	8	2	2,179	2,860	2	3	-	5
La.	787	496	3,725	4	2	4,122	6,425	110	93	-	2
Okla.	138	155	3,119	3	-	1,985	2,871	66	26	3	3
Tex.	2,250	2,317	-	13	1	1,828	16,785	75	21	-	2
MOUNTAIN	984	1,120	6,224	59	26	3,979	4,757	352	259	23	72
Mont.	14	9	-	6	-	14	39	10	9	1	4
Idaho	23	26	832	15	5	56	70	85	33	-	2
Wyo.	3	7	340	-	2	16	28	108	109	3	6
Colo.	301	373	-	22	5	950	1,587	30	40	7	27
N. Mex.	56	107	-	2	-	479	546	35	33	1	4
Ariz.	287	298	3,255	N	11	2,018	1,651	38	18	7	6
Utah	104	69	800	10	-	156	113	38	8	2	8
Nev.	196	231	997	4	3	290	723	8	9	2	15
PACIFIC	5,764	6,414	30,409	102	50	10,358	15,098	235	451	31	69
Wash.	383	490	4,904	23	5	1,079	1,356	35	116	3	11
Oreg.	266	223	2,804	33	17	259	430	4	31	-	-
Calif.	5,013	5,514	21,498	43	23	8,600	12,615	86	294	28	53
Alaska	14	46	553	3	-	237	374	2	1	-	-
Hawaii	88	141	650	N	5	183	323	108	9	-	5
Guam	4	-	114	N	-	26	66	1	4	-	1
P.R.	1,057	1,489	N	13	U	149	310	66	116	-	-
V.I.	14	21	N	N	U	-	23	-	-	-	-
Amer. Samoa	-	-	-	N	U	-	13	-	-	-	-
C.N.M.I.	-	-	N	N	U	11	29	-	5	-	-

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, National Center for HIV, STD, and TB Prevention, last update June 25, 1996.
†National Electronic Telecommunications System for Surveillance.
§Public Health Laboratory Information System.

TABLE II. (Cont'd.) Cases of selected notifiable diseases, United States, weeks ending July 13, 1996, and July 15, 1995 (28th Week)

Reporting Area	Lyme Disease		Malaria		Meningococcal Disease		Syphilis (Primary & Secondary)		Tuberculosis		Rabies, Animal	
	Cum. 1996	Cum. 1995	Cum. 1996	Cum. 1995	Cum. 1996	Cum. 1995	Cum. 1996	Cum. 1995	Cum. 1996	Cum. 1995	Cum. 1996	Cum. 1995
UNITED STATES	2,784	3,964	572	590	2,008	1,894	5,583	8,705	9,398	10,508	2,933	3,971
NEW ENGLAND	573	699	26	24	82	92	89	202	218	254	325	864
Maine	7	3	4	2	11	6	-	2	4	11	-	-
N.H.	7	15	1	1	3	16	1	1	8	8	40	99
Vt.	3	5	2	-	3	6	-	-	1	2	95	118
Mass.	58	28	8	8	30	31	40	37	101	134	55	300
R.I.	78	132	3	2	7	3	1	1	23	23	28	162
Conn.	420	516	8	11	28	30	47	161	81	76	107	185
MID. ATLANTIC	1,874	2,639	134	155	173	244	231	472	1,629	2,272	434	1,136
Upstate N.Y.	1,110	1,374	39	29	53	67	38	45	192	261	241	660
N.Y. City	165	192	58	78	25	29	68	205	892	1,331	-	-
N.J.	90	581	28	35	45	61	73	106	365	371	75	213
Pa.	509	492	9	13	50	87	52	116	180	309	118	263
E.N. CENTRAL	28	145	50	86	262	280	754	1,504	1,056	1,012	34	35
Ohio	22	11	8	5	97	81	270	476	158	156	4	3
Ind.	6	7	7	11	41	39	126	158	103	88	1	5
Ill.	-	11	8	50	71	76	259	599	589	545	6	6
Mich.	-	1	18	12	29	51	-	158	156	186	12	16
Wis.	U	115	9	8	24	33	99	113	50	37	11	5
W.N. CENTRAL	52	54	14	13	150	114	209	433	223	320	300	203
Minn.	9	-	5	3	16	17	27	26	47	71	15	11
Iowa	9	7	2	2	29	22	11	27	34	40	147	70
Mo.	14	27	5	4	65	44	149	373	89	125	14	20
N. Dak.	-	-	-	-	3	1	-	-	3	1	32	20
S. Dak.	-	-	-	1	7	5	-	-	13	13	76	55
Nebr.	-	4	-	3	13	8	6	7	13	17	3	1
Kans.	20	16	2	-	17	17	16	-	24	53	13	26
S. ATLANTIC	143	288	131	112	449	297	2,013	2,230	1,671	1,912	1,442	1,169
Del.	31	30	2	1	2	4	22	8	20	33	38	66
Md.	54	187	27	29	43	27	315	230	166	215	347	236
D.C.	1	1	5	9	7	2	92	65	73	57	7	10
Va.	10	21	19	22	35	36	237	337	149	136	309	228
W. Va.	5	13	2	1	11	5	1	8	29	49	56	59
N.C.	29	22	10	8	52	50	571	626	249	214	362	265
S.C.	2	8	7	-	41	39	227	340	40	181	46	75
Ga.	-	5	11	14	103	60	334	412	351	348	161	162
Fla.	11	1	48	28	155	74	214	204	594	679	116	68
E.S. CENTRAL	32	29	15	11	112	123	1,395	1,667	722	720	105	141
Ky.	10	6	2	1	20	34	76	102	133	157	26	12
Tenn.	11	15	6	4	13	39	517	438	222	236	39	53
Ala.	1	1	3	5	40	27	292	326	240	202	38	73
Miss.	10	7	4	1	39	23	510	801	127	125	2	3
W.S. CENTRAL	37	59	12	15	233	229	571	1,727	1,202	1,305	36	136
Ark.	11	5	-	2	27	22	105	270	102	107	12	29
La.	1	2	2	1	42	32	308	584	U	120	13	22
Okla.	3	22	-	-	22	24	84	102	35	-	11	21
Tex.	22	30	10	12	142	151	74	771	1,006	1,078	-	64
MOUNTAIN	4	3	29	37	115	141	67	135	326	341	69	74
Mont.	-	-	3	3	4	2	-	3	14	10	11	26
Idaho	1	-	-	1	16	6	1	-	5	8	-	-
Wyo.	2	2	2	-	3	5	2	-	3	1	17	19
Colo.	-	-	14	17	20	38	21	76	44	25	18	-
N. Mex.	-	-	1	4	20	26	1	5	50	48	2	3
Ariz.	-	-	3	6	32	42	37	20	133	168	16	20
Utah	1	-	4	4	11	10	2	4	34	19	2	5
Nev.	-	1	2	2	9	12	3	27	43	62	3	1
PACIFIC	41	48	161	137	432	374	254	335	2,351	2,372	188	213
Wash.	3	4	12	12	61	63	3	9	118	145	-	4
Oreg.	7	6	12	8	80	68	5	18	47	61	-	1
Calif.	30	38	131	108	285	236	246	307	2,059	2,024	180	201
Alaska	-	-	2	1	4	5	-	1	37	47	8	7
Hawaii	1	-	4	8	2	2	-	-	90	95	-	-
Guam	-	-	-	1	1	2	3	4	35	67	-	-
P.R.	-	-	-	1	4	14	77	159	63	85	28	30
V.I.	-	-	-	2	-	-	-	2	-	-	-	-
Amer. Samoa	-	-	-	-	-	-	-	-	-	3	-	-
C.N.M.I.	-	-	-	1	-	-	1	1	-	23	-	-

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

TABLE III. Cases of selected notifiable diseases preventable by vaccination, United States, weeks ending July 13, 1996, and July 15, 1995 (28th Week)

Reporting Area	*H. influenzae*, invasive		Hepatitis (viral), by type				Measles (Rubeola)			
			A		B		Indigenous		Imported†	
	Cum. 1996*	Cum. 1995	Cum. 1996	Cum. 1995	Cum. 1996	Cum. 1995	1996	Cum. 1996	1996	Cum. 1996
UNITED STATES	661	670	14,009	14,605	4,871	5,288	10	273	-	21
NEW ENGLAND	16	27	167	130	94	122	-	8	-	3
Maine	2	3	12	17	2	6	-	-	-	-
N.H.	7	7	9	7	8	13	-	-	-	-
Vt.	-	1	4	4	5	2	-	1	-	-
Mass.	6	8	84	51	26	39	-	6	-	3
R.I.	1	3	7	17	6	8	-	-	-	-
Conn.	-	5	51	34	47	54	-	1	-	-
MID. ATLANTIC	98	91	796	923	700	746	-	14	-	5
Upstate N.Y.	31	23	227	210	195	192	-	-	-	-
N.Y. City	16	22	332	452	332	238	-	5	-	3
N.J.	32	11	133	129	98	189	U	-	U	-
Pa.	19	35	104	132	75	127	-	9	-	2
E.N. CENTRAL	99	127	1,176	1,820	498	596	-	6	-	3
Ohio	56	64	477	1,050	64	69	-	2	-	-
Ind.	7	17	167	86	91	117	-	-	-	-
Ill.	25	29	228	360	113	158	-	2	-	1
Mich.	6	15	217	205	199	209	-	1	-	2
Wis.	5	2	87	119	31	43	-	1	-	-
W.N. CENTRAL	25	42	1,107	963	221	336	-	16	-	1
Minn.	12	18	56	96	23	28	-	13	-	1
Iowa	5	1	221	54	44	25	-	-	-	-
Mo.	5	16	515	683	120	242	-	2	-	-
N. Dak.	-	-	28	15	-	3	-	-	-	-
S. Dak.	1	1	37	21	-	2	-	-	-	-
Nebr.	1	3	130	24	11	16	-	-	-	-
Kans.	1	3	120	70	23	20	-	1	-	-
S. ATLANTIC	157	137	633	595	771	715	-	3	-	3
Del.	1	-	6	8	3	6	-	1	-	-
Md.	37	49	111	103	166	140	-	2	-	-
D.C.	5	-	18	16	27	13	-	-	-	-
Va.	5	18	84	97	81	49	-	-	-	2
W. Va.	4	6	12	11	14	29	-	-	-	-
N.C.	18	21	73	65	188	173	-	-	-	-
S.C.	3	-	30	22	45	32	-	-	-	-
Ga.	67	40	41	50	7	62	-	-	-	1
Fla.	17	3	258	223	240	211	-	-	-	-
E.S. CENTRAL	16	5	836	852	402	519	-	-	-	-
Ky.	4	1	17	32	33	49	-	-	-	-
Tenn.	6	-	570	714	242	403	-	-	-	-
Ala.	5	4	104	51	29	67	-	-	-	-
Miss.	1	-	145	55	98	-	-	-	-	-
W.S. CENTRAL	30	35	2,860	1,619	653	575	6	10	-	2
Ark.	-	5	271	178	42	27	-	-	-	-
La.	3	1	84	49	59	105	-	-	-	-
Okla.	25	17	1,158	401	58	86	-	-	-	-
Tex.	2	12	1,347	991	494	357	6	10	-	2
MOUNTAIN	69	76	2,228	2,229	595	461	-	82	-	1
Mont.	-	-	68	57	6	15	-	-	-	-
Idaho	1	2	137	214	64	51	-	1	-	-
Wyo.	33	4	23	69	22	13	-	-	-	-
Colo.	7	9	214	273	69	70	-	5	-	1
N. Mex.	8	11	257	442	200	179	-	5	-	-
Ariz.	9	18	906	635	151	67	-	8	-	-
Utah	6	9	501	452	61	41	U	58	U	-
Nev.	5	23	122	87	22	25	-	5	-	-
PACIFIC	151	130	4,206	5,474	937	1,218	4	134	-	3
Wash.	2	5	301	389	58	94	-	45	-	-
Oreg.	21	19	540	1,393	38	77	-	4	-	-
Calif.	125	103	3,293	3,566	829	1,029	4	21	-	2
Alaska	1	-	27	23	5	7	-	63	-	-
Hawaii	2	3	45	103	7	11	-	1	-	1
Guam	-	-	2	3	-	4	U	-	U	-
P.R.	1	2	44	50	155	316	U	7	U	-
V.I.	-	-	-	5	-	14	U	-	U	-
Amer. Samoa	-	-	-	5	-	-	U	-	U	-
C.N.M.I.	10	10	1	18	5	7	U	-	U	-

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

*Of 153 cases among children aged <5 years, serotype was reported for 33 and of those, 10 were type b.

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

TABLE III. (Cont'd.) Cases of selected notifiable diseases preventable by vaccination, United States, weeks ending July 13, 1996, and July 15, 1995 (28th Week)

Reporting Area	Measles (Rubeola), cont'd. Total		Mumps			Pertussis			Rubella		
	Cum. 1996	Cum. 1995	1996	Cum. 1996	Cum. 1995	1996	Cum. 1996	Cum. 1995	1996	Cum. 1996	Cum. 1995
UNITED STATES	294	235	10	348	515	101	1,718	1,578	7	109	80
NEW ENGLAND	11	5	-	-	10	3	335	246	-	12	34
Maine	-	-	-	-	4	2	13	17	-	-	-
N.H.	-	-	-	-	1	-	20	23	-	-	1
Vt.	1	-	-	-	-	-	7	30	-	2	-
Mass.	9	2	-	-	2	1	292	166	-	8	6
R.I.	-	2	-	-	-	-	-	-	-	-	-
Conn.	1	1	-	-	3	-	3	10	-	2	27
MID. ATLANTIC	19	5	2	53	78	5	127	138	-	4	10
Upstate N.Y.	-	-	1	16	18	4	71	68	-	3	2
N.Y. City	8	-	-	13	8	-	18	27	-	1	6
N.J.	-	5	U	-	13	U	-	6	U	-	2
Pa.	11	-	1	24	39	1	38	37	-	-	-
E.N. CENTRAL	9	13	2	68	84	9	184	203	-	3	2
Ohio	2	1	1	28	26	3	85	52	-	-	-
Ind.	-	-	-	5	5	4	19	18	-	-	-
Ill.	3	1	-	18	25	2	61	34	-	1	-
Mich.	3	5	1	16	28	-	14	32	-	2	2
Wis.	1	6	-	1	-	-	5	67	-	-	-
W.N. CENTRAL	17	2	1	5	32	10	80	94	-	1	-
Minn.	14	-	1	2	2	9	52	27	-	-	-
Iowa	-	-	-	-	8	-	2	5	-	1	-
Mo.	2	1	-	1	18	-	16	29	-	-	-
N. Dak.	-	-	-	2	-	-	1	6	-	-	-
S. Dak.	-	-	-	-	-	-	2	7	-	-	-
Nebr.	-	-	-	-	4	1	3	5	-	-	-
Kans.	1	1	-	-	-	-	4	15	-	-	-
S. ATLANTIC	6	3	2	52	76	33	209	136	7	30	6
Del.	1	-	-	-	-	-	9	6	-	-	-
Md.	2	-	-	14	25	4	66	18	-	-	1
D.C.	-	-	-	-	-	-	-	3	-	1	-
Va.	2	-	2	7	14	3	23	8	-	2	-
W. Va.	-	-	-	-	-	-	2	-	-	-	-
N.C.	-	-	-	11	16	-	36	68	7	16	-
S.C.	-	-	-	5	7	2	13	13	-	1	-
Ga.	1	2	-	2	4	4	13	5	-	-	-
Fla.	-	1	-	13	10	20	47	15	-	10	5
E.S. CENTRAL	-	-	1	17	7	2	51	44	-	2	-
Ky.	-	-	-	-	-	-	26	8	-	-	-
Tenn.	-	-	-	2	-	1	15	8	-	-	-
Ala.	-	-	-	3	4	1	5	28	-	2	-
Miss.	-	-	1	12	3	-	5	-	N	N	N
W.S. CENTRAL	12	19	2	16	37	5	52	101	-	2	6
Ark.	-	2	-	-	5	-	3	16	-	-	-
La.	-	17	1	11	8	1	5	7	-	1	-
Okla.	-	-	-	-	-	-	5	16	-	-	-
Tex.	12	-	1	5	24	4	39	62	-	1	6
MOUNTAIN	83	68	-	20	23	4	179	332	-	6	4
Mont.	-	-	-	-	1	-	6	3	-	-	-
Idaho	1	-	-	-	2	-	69	79	-	2	-
Wyo.	-	-	-	-	-	-	1	1	-	-	-
Colo.	6	26	-	2	-	3	31	53	-	2	-
N. Mex.	5	31	N	N	N	1	33	48	-	-	-
Ariz.	8	10	-	1	2	-	11	120	-	1	3
Utah	58	-	U	2	10	U	7	15	U	-	1
Nev.	5	1	-	15	8	-	21	13	-	1	-
PACIFIC	137	120	-	117	168	30	501	284	-	49	18
Wash.	45	17	-	17	10	14	213	45	-	1	-
Oreg.	4	1	N	N	N	-	28	20	-	1	-
Calif.	23	100	-	82	142	16	249	187	-	44	15
Alaska	63	-	-	2	12	-	2	-	-	-	-
Hawaii	2	2	-	16	4	-	9	32	-	3	3
Guam	-	-	U	3	3	U	-	2	U	-	1
P.R.	7	2	U	1	2	U	1	1	U	-	-
V.I.	-	-	U	-	3	U	-	1	U	-	-
Amer. Samoa	-	-	U	-	-	U	-	-	U	-	-
C.N.M.I.	-	-	U	-	-	U	-	-	U	-	-

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

TABLE IV. Deaths in 121 U.S. cities,* week ending July 13, 1996 (28th Week)

Reporting Area	All Causes, By Age (Years)						P&I† Total
	All Ages	>65	45-64	25-44	1-24	<1	
NEW ENGLAND	559	386	98	54	13	8	22
Boston, Mass.	133	85	28	16	2	2	1
Bridgeport, Conn.	36	27	5	4	-	-	-
Cambridge, Mass.	16	15	1	-	-	-	2
Fall River, Mass.	35	22	11	-	1	1	-
Hartford, Conn.	44	28	6	8	2	-	1
Lowell, Mass.	32	25	2	3	2	-	3
Lynn, Mass.	18	13	4	1	-	-	1
New Bedford, Mass.	24	19	2	2	-	1	1
New Haven, Conn.	33	19	7	6	-	1	1
Providence, R.I.	60	42	14	-	2	2	1
Somerville, Mass.	4	2	1	1	-	-	-
Springfield, Mass.	39	27	7	3	1	1	2
Waterbury, Conn.	27	21	4	2	-	-	1
Worcester, Mass.	58	41	6	8	3	-	8
MID. ATLANTIC	2,272	1,501	442	249	47	32	84
Albany, N.Y.	36	22	5	8	1	-	2
Allentown, Pa.	9	7	2	-	-	-	-
Buffalo, N.Y.	102	62	27	10	2	1	4
Camden, N.J.	35	20	8	1	3	3	2
Elizabeth, N.J.	16	11	2	3	-	-	-
Erie, Pa.§	40	27	7	3	2	1	4
Jersey City, N.J.	44	29	6	8	-	1	2
New York City, N.Y.	1,150	750	231	132	24	13	37
Newark, N.J.	75	37	15	20	2	1	3
Paterson, N.J.	21	8	5	5	1	2	3
Philadelphia, Pa.	299	179	77	33	5	5	12
Pittsburgh, Pa.§	60	49	6	3	1	1	3
Reading, Pa.	12	5	3	3	1	-	-
Rochester, N.Y.	144	114	21	8	1	-	5
Schenectady, N.Y.	36	27	4	5	-	-	-
Scranton, Pa.§	29	26	2	1	-	-	1
Syracuse, N.Y.	69	54	10	2	3	-	2
Trenton, N.J.	48	38	3	3	-	3	3
Utica, N.Y.	22	16	4	1	-	1	-
Yonkers, N.Y.	25	20	4	-	1	-	1
E.N. CENTRAL	2,237	1,509	407	180	72	68	120
Akron, Ohio	49	35	8	2	1	3	-
Canton, Ohio	42	36	5	-	1	-	3
Chicago, Ill.	397	236	87	44	14	15	23
Cincinnati, Ohio	74	51	11	7	1	4	1
Cleveland, Ohio	163	99	37	19	5	3	4
Columbus, Ohio	217	135	41	19	10	12	14
Dayton, Ohio	118	74	28	10	3	3	10
Detroit, Mich.	231	143	45	21	15	7	9
Evansville, Ind.	43	28	11	1	1	2	2
Fort Wayne, Ind.	62	48	7	4	3	-	1
Gary, Ind.	27	14	5	4	2	2	2
Grand Rapids, Mich.	66	50	6	3	-	7	4
Indianapolis, Ind.	220	157	38	13	9	3	20
Madison, Wis.	53	41	6	4	2	-	1
Milwaukee, Wis.	133	101	21	8	-	3	4
Peoria, Ill.	38	28	9	-	-	1	2
Rockford, Ill.	52	35	11	5	1	-	2
South Bend, Ind.	60	48	6	4	1	1	6
Toledo, Ohio	111	89	13	7	1	1	9
Youngstown, Ohio	81	61	12	5	2	1	3
W.N. CENTRAL	662	464	108	45	21	12	36
Des Moines, Iowa	35	22	8	3	1	1	4
Duluth, Minn.	26	18	5	1	1	1	1
Kansas City, Kans.	17	12	1	3	-	1	-
Kansas City, Mo.	75	43	12	7	1	-	3
Lincoln, Nebr.	32	26	3	2	1	-	-
Minneapolis, Minn.	149	112	23	11	-	3	11
Omaha, Nebr.	94	60	16	8	7	3	11
St. Louis, Mo.	120	83	24	7	5	1	-
St. Paul, Minn.	58	45	9	2	1	1	2
Wichita, Kans.	56	43	7	1	4	1	4

Reporting Area	All Causes, By Age (Years)						P&I† Total
	All Ages	>65	45-64	25-44	1-24	<1	
S. ATLANTIC	1,410	868	301	151	42	40	58
Atlanta, Ga.	230	135	53	29	7	6	9
Baltimore, Md.	172	101	44	18	6	3	8
Charlotte, N.C.	139	95	26	12	3	3	5
Jacksonville, Fla.	149	97	30	15	4	3	3
Miami, Fla.	95	51	26	14	3	1	-
Norfolk, Va.	67	44	13	5	1	4	4
Richmond, Va.	103	61	14	11	4	5	3
Savannah, Ga.	U	U	U	U	U	U	U
St. Petersburg, Fla.	54	40	8	5	-	1	4
Tampa, Fla.	190	132	35	11	4	8	16
Washington, D.C.	192	100	50	26	10	6	6
Wilmington, Del.	19	12	2	5	-	-	-
E.S. CENTRAL	689	442	153	55	21	18	29
Birmingham, Ala.	121	79	28	7	3	4	3
Chattanooga, Tenn.	39	31	5	1	1	1	1
Knoxville, Tenn.	53	36	10	6	1	-	1
Lexington, Ky.	73	46	20	5	2	-	4
Memphis, Tenn.	131	76	30	16	8	1	8
Mobile, Ala.	86	57	19	4	1	5	1
Montgomery, Ala.	49	36	8	1	1	3	1
Nashville, Tenn.	137	81	33	15	4	4	10
W.S. CENTRAL	1,567	964	322	174	67	40	62
Austin, Tex.	50	34	8	3	4	1	2
Baton Rouge, La.	106	66	18	11	8	3	2
Corpus Christi, Tex.	48	40	5	1	-	2	1
Dallas, Tex.	192	103	43	29	11	6	6
El Paso, Tex.	51	38	9	2	1	1	2
Ft. Worth, Tex.	100	64	21	6	2	7	2
Houston, Tex.	420	237	103	57	15	8	24
Little Rock, Ark.	80	48	20	6	2	4	8
New Orleans, La.	175	109	33	22	8	3	-
San Antonio, Tex.	195	127	37	20	9	2	3
Shreveport, La.	19	8	3	5	2	1	2
Tulsa, Okla.	131	90	22	12	5	2	10
MOUNTAIN	923	594	180	96	33	18	54
Albuquerque, N.M.	94	69	15	8	2	-	4
Colo. Springs, Colo.	43	28	10	3	2	-	1
Denver, Colo.	104	62	25	11	3	3	8
Las Vegas, Nev.	174	102	41	18	7	4	6
Ogden, Utah	41	28	8	4	-	1	4
Phoenix, Ariz.	192	116	37	24	7	8	9
Pueblo, Colo.	29	22	5	2	-	-	4
Salt Lake City, Utah	115	73	18	14	8	2	7
Tucson, Ariz.	131	94	21	12	4	-	11
PACIFIC	1,751	1,178	314	167	52	39	148
Berkeley, Calif.	19	8	5	2	-	4	-
Fresno, Calif.	114	74	19	12	7	2	7
Glendale, Calif.	29	21	5	3	-	-	3
Honolulu, Hawaii	74	46	17	9	-	1	7
Long Beach, Calif.	80	54	13	10	1	2	7
Los Angeles, Calif.	653	438	112	66	26	11	31
Pasadena, Calif.	U	U	U	U	U	U	U
Portland, Oreg.	129	85	26	11	4	3	13
Sacramento, Calif.	U	U	U	U	U	U	U
San Diego, Calif.	154	104	34	12	2	2	26
San Francisco, Calif.	130	83	24	20	2	1	19
San Jose, Calif.	167	120	24	12	6	5	17
Santa Cruz, Calif.	32	23	6	2	1	-	6
Seattle, Wash.	U	U	U	U	U	U	U
Spokane, Wash.	66	48	12	4	1	1	3
Tacoma, Wash.	104	74	17	4	2	7	9
TOTAL	12,070¶	7,906	2,325	1,171	368	275	613

U: Unavailable -: no reported cases

*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.

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