Transmission of Measles Among a Highly Vaccinated School Population—Anchorage, Alaska, 1998

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(1 figure omitted)

DURING AUGUST 10-NOVEMBER 23, 1998, 33 confirmed* measles cases were reported to the Anchorage Department of Health and Human Services and the Alaska Department of Health and Social Services (ADHSS). Of these, 26 cases were confirmed by positive rubella IgM antibody test, and seven met the clinical case definition. This was the largest outbreak of measles in the United States since 1996.1,2 This report summarizes results of the epidemiologic investigation conducted by ADHSS and underscores the importance of second-dose requirements for measles vaccine.

On August 10, a 4-year-old child (index case) visiting from Japan had rash onset of measles while in Anchorage. The child was hospitalized for 1 day, and measles was diagnosed by positive rubella IgM enzyme-linked immunosorbent assay. No measles virus cultures were obtained. No cases were reported during the following 3 weeks, when secondary cases would have been expected. On September 5, 26 days after rash onset of the imported case, a 16-year-old high school student developed measles, confirmed by IgM testing. Subsequently, 15 other students and one teacher at the same high school developed measles during September 14-October 4; 12 cases were laboratory confirmed. In addition, four laboratory-confirmed cases and two clinical cases occurred at six other Anchorage schools; one case-patient attended two schools while infectious (from 7 days before to 4 days after rash onset). Eight other confirmed cases occurred among young adults not associated with schools, and one case occurred in a 2-year-old child.

The 33 case-patients ranged in age from 2 to 28 years (median: 16 years). Twenty-nine case-patients had received at least one dose of measles-containing vaccine (MCV) at or after age 12 months; one person with laboratory-confirmed measles had received two appropriately spaced doses of measles-mumps-rubella vaccine (MMR). No serious complications or deaths were reported.

At the high school where the 17 cases occurred, based on school records, only one of 2186 students had not received at least one dose of MCV before the outbreak; 1057 (49%) had received one dose of MCV, and 1112 (51%) had received two or more doses. Estimated vaccine efficacy for two or more doses of MCV was 100%.

Sequence analysis was conducted on the region coding for the COOH terminus of the nucleoprotein for measles virus cultured from three outbreak cases. All three isolates had identical sequences and were classified as genotype D5.3 This strain was almost identical to wild measles virus strains circulating in Japan in 1998 and was not related to the strain isolated from an outbreak in Juneau in 1996, the most recent isolate available from Alaska.4

Before 1996, all students attending public and private schools in Alaska were required to have documentation of a single dose of MCV (or a valid medical or religious exemption). Beginning in September 1996, all students entering kindergarten or first grade were required to have two doses of MCV. As a result, school records indicate that virtually all students in kindergarten through third grade as of fall 1998 had received two doses of MMR. However, the proportion of students in grades 4-12 that had two doses was unknown.

In response to the outbreak, ADHSS issued an emergency order requiring that all Anchorage schoolchildren have two doses of MCV by November 16, 1998. Subsequently, the order was expanded to require all students in the state to have two doses of MCV by January 4, 1999. Students were vaccinated by their health-care providers and at special clinics conducted in Anchorage schools. By November 17, 98.6% of 49,346 Anchorage School District students had provided documentation of two doses of MCV to their schools.

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CDC Editorial Note: The occurrence of this outbreak primarily in one school, despite the extremely high one-dose measles vaccine coverage, demonstrates the importance of school requirements for a second dose of MCV. MCV is highly effective; <5% of children who receive one dose fail to develop immunity. However, most children respond to a second dose, and >99% of persons aged ≥12 months receiving two or more doses at least 28 days apart develop immunity.

The Advisory Committee on Immunization Practices and the American Academy of Pediatrics recommend that all students from grades kindergarten through 12 have two doses of MCV by 2001.3,5 As of the 1998-99 school year, state school requirements for two-dose measles vaccination have covered approximately 53% of U.S. schoolchildren (CDC, unpublished data, 1998). The vigorous response by public health and school officials in Anchorage to this outbreak in accelerating second-dose measles vaccination among schoolchildren may have limited the extent of this outbreak and will help prevent future outbreaks in Alaska schools.

Monitoring of viral genotypes is an important component of measles surveil-
Preemptive State Tobacco-Control Laws—United States, 1982-1998

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Cigarette smoking is the leading preventable cause of death in the United States.1 Environmental and policy interventions, particularly tobacco-control laws and regulations, are an important means to prevent and reduce tobacco use.2 For this study, preemptive legislation was defined as legislation that prevents any local jurisdiction from enacting restrictions that are more stringent than the state law or restrictions that may vary from the state law. One of the national health objectives for 2000 is to reduce to zero the number of states with preemptive smokefree indoor air laws (objective 3.25)3; a proposed objective for 2010 is to reduce the number of states with any preemptive tobacco-control laws to zero. To document trends in preemptive tobacco-control legislation at the state level, CDC identified state preemptive provisions and their effective dates from June 1982 (the oldest provision currently in effect) to September 1998. This report summarizes the results of this analysis, which indicate an increase in the number of preemptive provisions from 1982 to 1996; no preemptive provisions in tobacco-control laws have been enacted since 1996.

CDC gathered data about state tobacco-control laws from an online legal research database to monitor such laws in four primary areas: smokefree indoor air, minors’ access, marketing, and excise taxes. Data included the preemptive provisions of these laws. For this study, preemptive provisions are presented in three categories: smokefree indoor air (applying to restrictions on government or private worksites or restaurants), minors’ access (addressing restrictions on sales to youth, vending machines, or distribution), and marketing (including restrictions on tobacco product sampling, display, promotion, or labeling). A multistep process was used to identify the month and year the preemptive provisions of these laws took effect. The process included identifying the history of the law by finding the records of each state’s legislative session in a given year and analyzing the session laws to determine the effective date of the law’s provision.

From 1982 through September 1998, 31 states incorporated preemptive provisions in their tobacco-control laws. Maine was the only state to repeal its preemptive provision (on tobacco displays, product placement, and time of sale) during the study period. Some preemptive provisions are very narrow. For example, in New York, the state government has precedence over local government restrictions on the free distribution of samples of tobacco products. Other provisions are broad. For example, in Tennessee, minors’ access laws preempt local legislation of all tobacco-control areas.

The number of preemptive provisions included in state tobacco-control laws increased from 1982 through 1996 but has leveled off since 1996. The results of a linear regression analyzing the number of preemptive provisions per law and the years they became effective indicated a significant increase in the number of provisions from 1993 through 1996. During the 1980s, nine states passed 11 preemptive laws covering 21 provisions. From 1993 to June 1996, 20 states passed 24 preemptive laws covering 82 different provisions. Since July 1996, no preemptive tobacco-control laws have been enacted.

Eighteen states preempt at least one provision of smokefree indoor air restrictions (e.g., government worksites, private worksites, and restaurants); since 1985, 13 states have preempted smokefree indoor air laws in all three areas. Except in South Carolina, all preemptive laws that became effective since 1990 have covered all three areas.

Twenty-one states preempt at least one provision of minors’ access restrictions (e.g., sales to youths, vending machines, and distribution). Ten states preempt all three components of minors’ access laws. Of 21 states with provisions preempting local minors’ access laws, 76% became effective during July 1993-July 1996.

Seventeen states preempt localities from promulgating their own laws restricting the marketing of tobacco products. Three states (Illinois, Michigan, and West Virginia) specifically preempt restrictions on smokeless tobacco warning labels on billboards; all three of these preemptive provisions became effective during July 1987-September 1988. Fourteen states preempt laws on tobacco display, promotion, or sampling; in 93% of these states, the preemptions became effective during January 1993-July 1996.

Reported by: Office on Smoking and Health, National Center for Chronic Disease Prevention and Health Promotion, CDC.

CDC Editorial Note: The findings in this report indicate that most states have preemptive tobacco-control laws. Of the 30 states with such laws, 18 have preemptive provisions for smokefree indoor air. As a result, achievement of the 2000 objective is unlikely.

Tobacco-control policy occurs at the federal, state, and local levels. Laws enacted by higher-level jurisdictions benefit the public health by implementing widespread standards. Unless they contain preemptive provisions, legislation at higher levels set minimum requirements and allow the continued passage and
enforcement of local ordinances that may establish a greater level of protection of public health. However, legislation that preempts lower-level action removes control from localities by preventing them from enacting more stringent laws or tailoring laws to address community-specific issues. In addition, preemptive laws deter debate over local ordinances; such debate can educate the community about tobacco, potentially altering social norms about tobacco use. Preemptive state laws also can be a barrier to local enforcement because communities not involved in the decision-making process may be less compliant.

A 1991 Smokeless Tobacco Council memorandum outlines a strategy to oppose local ordinances and advance statewide antitobacco bills that contain preemption clauses. In addition, a Tobacco Institute priority for 1993 was to “encourage and support statewide legislation preempting local laws, including smoking, advertising, sales, and vending restrictions.” A potential reason for this strategy is the passage of strong tobacco-control laws at the local level and the logistical difficulties of the tobacco industry to devote resources toward multiple local jurisdictions.

One limitation of this report is that legislative language is subject to interpretation. Although a law may have been considered preemptive by the definition used in this study, it may not have been implemented as preemptive in a particular state.

Nevertheless, during 1993-1996, the number of tobacco-control laws with preemptive provisions increased significantly. The 1992 federal Synar Amendment, which required states to enact and enforce minors’ access laws, resulted in the passage of new laws (many of which included preemptive provisions) in several states. This, coupled with the Tobacco Institute’s 1993 stated priority to promote tobacco-control laws with preemptive provisions, may have contributed to this increase. However, since 1996, no preemptive tobacco-control laws have been passed, possibly because of an increased community awareness of the potential harmful effects of preemption and a shift in industry priorities from state to federal restrictions and ongoing litigation.

The importance of laws and policies as a component of comprehensive tobacco-control interventions has resulted in their inclusion in surveillance efforts. CDC will continue to monitor progress toward achieving national health objectives for 2000 to reduce tobacco-related morbidity and mortality.

REFERENCES

Update: Multistate Outbreak of Listeriosis—United States, 1998-1999

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From early August 1998 through January 6, 1999, at least 50 illnesses caused by a rare strain of the bacterium Listeria monocytogenes, serotype 4b, have been reported to CDC by 11 states. Six adults have died and two pregnant women have had spontaneous abortions. Reported illness onset dates were during August 2-December 13, 1998. CDC and state and local health departments have identified the vehicle for transmission as hot dogs and possibly deli meats produced under many brand names by one manufacturer.

This report updates the investigation of this outbreak.

On December 22, the manufacturer, Bil Mar Foods, voluntarily recalled specific production lots of hot dogs and deli meats that might be contaminated. CDC later isolated the outbreak strain of L. monocytogenes from an opened and previously unopened package of hot dogs manufactured at the company’s plant in Zeeland, Michigan. In addition, a different strain of L. monocytogenes was isolated from unopened packages of deli meats produced at the same plant.

Recalled products bear the establishment numbers EST P261 or EST 6911. The establishment number appears on the outer edge of all packages. The affected products included hot dogs and deli meats with the brand names Ball Park, Bil Mar, Bryan Bunszie, Bryan 3-lb Club Pack, Grillmaster, Hygrade, Mr. Turkey, Sara Lee Deli Meat, and Sara Lee Home Roast brands. Institutions may have received recalled product under other brand names. Packages for the above brand names that carry other establishment numbers are not affected by the recall. Other Sara Lee products that are not meat also are not affected.

Reported by: Ohio Dept of Health, New York State Dept of Health; Food Safety Laboratory, Cornell Univ, New York City Dept of Health, Tennessee Dept of Health, Massachusetts Dept of Public Health, West Virginia Dept of Health and Human Resources, Michigan Dept of Community Health, Connecticut Dept of Public Health, Health Div, Oregon Dept of Human Resources, Vermont Dept of Health, Div of Public Health, Georgia Div of Human Resources, Minnesota Dept of Community Health, Foodborne and Diarrheal Diseases Br, Div of Bacterial and Mycotic Diseases, National Center for Infectious Diseases; and EIS officers, CDC.

CDC Editorial Note: Healthy persons rarely develop severe illness from Listeria. The illness primarily occurs in pregnant women, newborns, and persons with impaired immunity caused by serious illness, such as acquired immunodeficiency syndrome or cancer. Listeria infections during pregnancy may cause an influenza-like illness with fever and chills, and may lead to loss of the fetus. In other persons, early symptoms can include fever, severe headache, and stiff neck. Illness can begin 2-8 weeks after eating the contaminated food.

Consumers who have the affected product should not eat it, but rather should discard it or return it to the point of purchase. The risk for developing Listeria infection after eating a contaminated product is low. Persons who have eaten a contaminated product and do not have any symptoms do not need any special medical evaluation or treatment, even if they are in high-risk groups. However, persons in high-risk groups who have eaten the contaminated product, and within 2 months become ill with fever or influenza-like illness, should inform their physicians about this exposure. Because of this long incubation period, cases may continue to occur and be reported for several weeks after an effective recall.

Consumers who have questions about the recall or the products involved should contact Bil Mar Foods, telephone (800)
During August 1996-June 1998, 74 patients at two hospitals in Arizona had cultures positive for Burkholderia cepacia. Most isolates were from the respiratory tracts of patients in intensive-care units (ICUs). Because of the large number of B. cepacia isolates, personnel at both hospitals requested the Arizona Department of Health Services assist in an investigation. This report summarizes the results of the investigation.

A case of infection or colonization was defined as a positive culture for B. cepacia from the respiratory tract of any ICU patient at these hospitals during August 31, 1996-June 12, 1998 (epidemic period). Hospital microbiology records were reviewed to identify all isolates of B. cepacia during the pre-epidemic (January 1, 1994-August 30, 1996) and epidemic periods. Case-patient medical records, respiratory therapy procedures, and ICU nursing procedures were reviewed.

A total of 69 patients had positive cultures and had illness that met the case definition, compared with one ICU patient during the pre-epidemic period. Case-patients ranged in age from 17 to 87 years (median: 73 years), and 36 (52%) were male. Case-patients were admitted to the ICU with various diagnoses. None had medical conditions associated with infection with B. cepacia (e.g., cystic fibrosis or chronic granulomatous disease). Hospital clinicians identified 33 (48%) case-patients as having infections and 36 case-patients as having B. cepacia respiratory tract colonization.

All case-patients had been intubated and mechanically ventilated during their ICU stay. All mechanically ventilated patients had received routine oral care that included swabbing with an alcohol-free mouthwash (Kentron Alcohol Free Mouthwash and Gargle™, product #711-04, manufactured for Kentron Health Care, Inc., Phoenix Cosmetics, Holbrook, New York). The active ingredient in this product is cetyl pyridium chloride; the formulation does not contain alcohol. This product was produced only during 1994-1995 and was distributed throughout the United States. The extent of use of this product in ICU patients at other hospitals is unknown.

Cultures of unopened 4-oz. bottles of the mouthwash grew B. cepacia, Alcaligenes xylosoxidans, and Pseudomonas fluorescens putida group. B. cepacia isolates from case-patients and mouthwash were similar by pulsed-field gel electrophoresis. Other potential reservoirs (e.g., lotion, povidone-iodine solution, water supplies, and a name-brand mouthwash) were culture-negative for B. cepacia.

On June 12, the two hospitals discontinued use of the product, and no further respiratory isolates of B. cepacia have occurred in their ICU patients. On June 16, the Kentron company initiated a voluntary recall of this product.

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References

CDC Editorial Note: B. cepacia (formerly Pseudomonas cepacia) is a motile aerobic gram-negative bacillus commonly found in liquid reservoirs and moist environments. B. cepacia is a well-known nosocomial pathogen that is intrinsically resistant to aminoglycosides and first- and second-generation cephalosporins; it is responsible for 0.6% of all ventilator-associated pneumonias (2; CDC, unpublished data, 1994). Numerous outbreaks of B. cepacia infection have been reported among cystic fibrosis patients. In December 1995, a similar outbreak involving B. cepacia in respiratory cultures from patients without cystic fibrosis was traced to intrinsically contaminated alcohol-free mouthwash prepared by a different manufacturer. An investigation by the Food and Drug Administration (FDA) suggested an association with the deionization procedure of the water used to prepare the product (R. Johnson, FDA, personal communication, 1998).

Potential pathogens may be present in low numbers in many nonsterile products used in hospitals. Mechanically ventilated patients are vulnerable to pathogens in their mouths and upper airways because of their inability to maintain the mucociliary and cough mechanisms that normally protect the lower respiratory tract. These outbreaks of B. cepacia related to mouthwash highlight the increased risk for respiratory colonization and infection among patients on ventilators. Hospital surveillance and investigation of unusual clusters are crucial to promptly identifying unexpected sources of these pathogens and protecting patients at risk.

Clinicians who detect ventilator-associated pneumonia or respiratory colonization with B. cepacia associated with the use of nonalcohol containing mouthwash are encouraged to report such episodes to local and state health departments to CDC’s Hospital Infections Program, National Center for Infectious Diseases, telephone (404) 639-6413; fax (404) 639-6459; and to MedWatch, the FDA Medical Products Reporting Program, telephone (800) 332-1088.

References

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