



Bulletin No. 7

March 6, 1990

Measles (Rubeola) Outbreak in Ketchikan

On February 14, 1990, a Public Health Nurse called to report a possible case of measles in an unimmunized, pregnant 22-year-old woman who had been admitted to Ketchikan General Hospital with fever and bacteriuria on February 10. She subsequently developed coryza, cough, conjunctivitis, photophobia, and a morbilliform rash. Measles was suspected, but this information was not reported to public health authorities. The mother of the patient, during a visit to the Ketchikan Health Center, mentioned her daughter's illness to a nurse, who made the report.

Discussions with hospital personnel and Ketchikan physicians on February 15 yielded four additional cases--all young children--of febrile rash illness consistent with rubeola; two of those children were currently hospitalized. Section of Epidemiology staff flew to Ketchikan on February 16 to conduct an investigation.

During the first two days of the investigation, Epidemiology staff identified a total of 9 suspected cases of measles. All were associated with a single daycare center (DCC). Eight had rash onset on either February 12 (2 cases) or February 14 (6 cases).

The index case is believed to have been a 9-month-old child who became ill in late January, with rash onset on February 1. This child had no recent history of travel outside Ketchikan and no known exposure to measles. He had attended the DCC during the prodrome of his illness. Of the 8 secondary cases, seven were children who attended the DCC, and one was an adult employee of the DCC. Five of these children were 5-13 months of age; the two others were 5-year-old children, one of whom had received MMR vaccine after 15 months of age. Seven of these 9 cases, including the index case and the unimmunized 5-year-old child, have now been serologically confirmed (rubeola IgM-antibody-positive by immune adherence hemagglutination).

Contacts of these cases were identified and their immunization records reviewed. All unimmunized contacts were offered MMR vaccine. Immune globulin (IG) was recommended for unimmunized contacts who were pregnant women, immunosuppressed persons, or children under one year of age if it could be administered within 6 days of exposure to measles.

Immunization records of all children enrolled in DCCs or in Ketchikan's public and private schools were examined by Epidemiology staff. Seventy-eight (14%) of approximately 550 children 15 months of age or older enrolled in 12 Ketchikan DCCs had no documentation of measles vaccination. MMR vaccine was recommended for unimmunized DCC attendees 6 months of age or older. Of approximately 2,850 children enrolled in grades K-12 in Ketchikan, 36 (1.3%) had no record of measles vaccination in their school files as required by Alaska law. These children were excluded from school until they received measles (MMR) vaccine or produced written documentation of measles vaccination. All quickly complied with the requirements of Alaska's school immunization law. Eight children had religious-belief or medical exemptions from immunization. Four hundred thirty (430) school children (16.6% of the total) had been immunized after their first birthday but before their fifteenth month; an additional dose of vaccine was recommended for these students.

Four of the serologically confirmed measles cases were hospitalized in Ketchikan in mid-February. Eight individuals possibly exposed to these patients in the hospital have subsequently developed febrile rash illnesses. Two of these persons, serologically confirmed as measles cases, were a 31-year-old hospital nurse and a 36-year-old hospital nurse's aide.

As of March 5, a total of 14 cases have been serologically confirmed, and 18 other persons with febrile rash illnesses are being investigated. **This is the largest outbreak of measles in Alaska since 1979. It is unlikely that the route of introduction of wild measles virus into Alaska will be identified. Although during 1989 only one case of measles is known to have occurred in Alaska, more than 14,000 cases were reported in the rest of the United States, an increase of more than 400% over the number reported in 1988. Large numbers of unimmunized, urban, preschool-aged children have been the source of recent outbreaks in the Lower 48.**

Measles is characterized by fever, conjunctivitis, coryza, cough, and Koplik spots on the buccal mucosa. A red, blotchy rash appears on the third to seventh day, beginning on the face, becoming generalized, and lasting 4 to 7 days. It is transmitted by respiratory droplet spread or by direct contact with nasal or throat secretions of infected persons. The incubation period from exposure until appearance of rash is about 14 days. The period of communicability is from slightly before the beginning of the prodromal period to 4 days after appearance of the rash.

Two observations about this outbreak should be emphasized: 1) To date, there has been no evidence of measles transmission in areas of Alaska other than Ketchikan. 2) To date, there have been no confirmed measles cases among school children in Ketchikan. This attests to the effectiveness of measles vaccination and of Alaska's school immunization law.

RECOMMENDATIONS:

- Surveillance is critical in outbreak containment. Health care workers throughout Alaska should report suspected measles cases to the Section of Epidemiology (561-4406) immediately.
- The occurrence of a measles case in a DCC is not a reason to close the center; such an action would result in the dispersion of children possibly incubating measles to other centers. Unimmunized children 6 months of age or older in affected DCCs should be offered MMR vaccine.
- No special mass vaccination program is needed in areas outside Ketchikan. Children 15 months of age or older are eligible for routine measles vaccination.
- Rapid serologic testing for measles antibody is available through the State Public Health Laboratories; 2 cc of serum is the minimum needed for testing.

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