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Measles on a Cruise Ship: Southeast Ports of Call

## Case Report

On August 19, 1993, a 23-year-old American tourist who had traveled to London during the preceding 2 weeks, boarded a cruise ship in Seward. During the voyage he developed fever, cough, and conjunctivitis, followed by a morbilliform rash which began on his head and spread to the rest of his body. The cruise ship followed its regular route, stopping in Juneau, Skagway, Ketchikan, and Vancouver, then returning to Alaska. Between September 4 and September 17, five additional crew members developed rash illnesses consistent with measles, while the ship was traveling Alaskan waters. The ship's doctor notified the Section of Epidemiology on Saturday, September 18. Blood specimens obtained from the first two ill crew members were positive for rubeola-specific IgM antibody.

The Centers for Disease Control and Prevention (CDC) recommended that the cruise ship company offer vaccination to all crew members and alert the passengers of possible exposure to measles. Most passengers were older adults and so were likely immune. The crew members were offered measles vaccination when the cruise ship docked in Vancouver, prior to traveling to Hawaii.

Surveillance for measles in the Alaska communities visited by the cruise ship was established by means of a measles alert to physicians, public health centers, and hospitals. During the next 2 weeks, three reports of rash illness in two Southeast Alaska communities were investigated. All suspect cases were tested for serologic evidence of acute measles -- all were negative. The Centers for Disease Control and Prevention did not conduct active surveillance of the passengers for acute cases, however, four cases in Wisconsin in September and October were traced to a passenger who was aboard the cruise ship during the outbreak.

The index case represents the second documented case of measles imported into Alaska during 1993. The first was an infant who flew to Anchorage from Guam in July and was diagnosed with measles by an alert Anchorage pediatrician. No known secondary cases occurred in Alaska from either case of measles, attesting to the high levels of immunization against measles (99.2% among school children; 79.5% among children aged 0-2 years).

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## Sign and Symptoms of Measles

Patients with measles usually present with a prodrome of conjunctivitis, cough, coryza and high fever followed by a maculopapular rash which begins on the face and spreads to involve the trunk and extremities. Patients are highly infectious during the prodromal phase and for up to 4 days after rash onset. The usual incubation period is 7-18 days (average, 10 days).

## Isolation Procedures

Patients with suspected measles or a febrile rash illness should be evaluated in such a way that other persons (patients, staff, etc.) will not be exposed to rubeola virus. If a parent or patient calls with a report of symptoms suggestive of measles, arrangements should be made to see the patient in their car, at the back door of the clinic, or in a private room which can be ventilated or left empty for 1 hour after the visit. No suspected case of measles should be allowed to wait in a waiting room with other patients. The key to containment of measles is isolation of an infectious case from potentially susceptible contacts.

## Laboratory Confirmation

Blood specimens for serologic confirmation should be drawn as soon as measles is suspected. Be aware that blood specimens may be falsely negative for rubeola IgM until the fourth day of rash. If at that time measles is still strongly suspected, a second blood specimen should be drawn after the fourth day of rash. The Section of Epidemiology can expedite the transport of any blood specimens to the State Public Health Laboratory for immediate testing free-of-charge.

**All suspected cases of measles should be reported immediately to the Section of Epidemiology (561-4406).  
Measles is considered a public health emergency.**

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