

MMR among vaccines that may be needed for patients with travel plans

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A U.S.-born 8-month-old who returned from a trip to Pakistan was brought to an emergency department (ED) in the southeastern United States for evaluation of four days of persistent fever, cough, rhinorrhea and irritability. Her mother informed the triage nurse that prior to leaving Pakistan, the infant had household contact with a relative who had a measles infection.

The pediatric infectious disease team subsequently was consulted and recommended immediate placement of the infant and her mother into an airborne infection isolation room (AIIR). Epidemiologists at the state and district health departments were consulted to coordinate the collection and delivery of specimens to the state health department laboratory. As the child was ill-appearing with poor oral intake, she was admitted for inpatient management, including rehydration and vitamin A supplementation.



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On the second hospital day, a morbilliform rash appeared at the infant's hairline and progressed caudally. She defervesced on hospital day five and was discharged on hospital day six and illness day eight. The clinical diagnosis of measles was confirmed by detection of measles virus from a nasal swab via

reverse transcription polymerase chain reaction. Serologies obtained on day four of illness revealed an equivocal measles immunoglobulin M and a negative measles immunoglobulin G titer.

Epidemiologists from local and state health departments in collaboration with the pediatric infectious disease service and hospital infection prevention team performed a contact investigation. Over 450 people (patients, accompanying family members and staff) were potentially exposed to the infant during her ED encounter before she was placed into an AIIR.

Non-immune and age- and condition-eligible exposed people received a measles, mumps and rubella (MMR) vaccine or intramuscular immunoglobulin. Exposed immunocompromised people received intravenous immunoglobulin. All exposed inpatients were cared for in AIIR during the incubation period. All hospital staff were verified as immune.

Two exposed children returned for medical evaluation after development of symptoms following receipt of post-exposure prophylaxis; neither presentation was deemed to be related to a measles infection or receipt of prophylaxis. There were no known secondary cases attributed to this exposure.

Overall, community expenditures related to this exposure were estimated to approach \$500,000.

This situation illustrates several opportunities. Pre-travel administration of an MMR vaccine to an infant 6 to 12 months of age may afford protection against measles, mumps and rubella infection until the child is age-eligible for the MMR series. In order for pre-travel prophylaxis to be administered optimally, communication between the traveling family and the pediatrician should occur prior to travel. Many pre-travel vaccinations should be administered at least two weeks prior to potential exposure to facilitate a protective immune response.

Infants receiving MMR vaccine before their first birthday will require two additional doses administered on or after 12 months of age with a 28-day or greater interval between doses.

Pediatricians should include pre-travel questions and discussions as part of their anticipatory guidance to families during well-child encounters, especially prior to and during the summer travel season. These discussions are especially important for people who may not consider travel to visit friends and relatives a risk factor for themselves and their children.

Malaria prophylaxis, hepatitis A, typhoid, yellow fever and rabies immunizations also should be administered to eligible travelers if travel to areas of risk will occur. Influenza immunization may be considered for travel to areas experiencing circulation of seasonal influenza viruses.

Obtaining a travel history and initiating the appropriate isolation to prevent inadvertent exposures and transmission are vital in any setting. Placement of a surgical mask over the mouth and nose of a symptomatic person and distancing will reduce the potential for transmission of numerous respiratory pathogens when an AIIR is unavailable.

Reception and triage staff should be provided with guidance for response to symptomatic returned travelers, including masking, isolation and notification of other staff who can further assess the child and obtain a complete travel history. Consultation with pediatric infectious disease physicians and local and state public health authorities is beneficial when a travel-related infection is suspected.

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Resources

- [Directory of clinics offering yellow fever vaccinations and travel-related immunizations](#)
- [Country-specific pre-travel guidance in the "Yellow Book"](#)