

# Measles, Mumps, Rubella

## Traveler Summary

### Key Points

- | Measles, mumps, and rubella are contagious viral infections that occur worldwide, acquired through inhalation of infected respiratory droplets or contact with infected saliva or contaminated surfaces.
- | Risk for measles, mumps, and rubella is high for unvaccinated or inadequately vaccinated travelers, especially in countries with low vaccination rates.
- | Symptoms for measles include cough, eye irritation, runny nose, spreading red rash, and white lesions in the mouth. Symptoms of mumps include swelling of salivary glands on both sides of the face, fever, headache, weakness and fatigue, muscle aches, and loss of appetite. Symptoms of rubella include rash, generalized swollen glands, eye irritation, joint pain, and fever.
- | Consequences of measles include severe pneumonia and brain inflammation, leading to death. Mumps acquired after puberty can cause painful swelling of the testicles. Rubella acquired during pregnancy can result in severe complications of the eyes, heart, ears, and nervous system in the baby.
- | Prevention includes observing good respiratory-hygiene (cough and sneeze etiquette) and hand-hygiene measures.
- | All individuals 12 months and older, born in 1957 or later, without history of disease or of 2 countable doses of live vaccine at any time during their lives should complete a lifetime total of 2 doses of measles, mumps, rubella (MMR) vaccine (spaced by at least 28 days). For travel or outbreak situations, infants aged 6-11 months should receive 1 dose of MMR vaccine (noncountable) followed by routine vaccination with MMR (2 additional age-appropriate doses).
- | Vaccine side effects are most commonly injection-site reactions, fever, and rash.
- | Duration of vaccine protection is lifelong; no booster is routinely recommended.

### Introduction

Measles (rubeola; red measles), mumps, and rubella (German measles) are contagious viral infections that occur worldwide and are spread from person to person through inhalation of or contact with infected respiratory droplets. These infections can have severe complications, and risk is greatest for unvaccinated travelers, especially for those exposed in countries with low vaccination rates.

### Risk Areas

Measles has been eliminated in Australia, Brunei, Cambodia, Hong Kong, Japan, Macau, New Zealand, Singapore, and South Korea, and the Western Pacific Region is approaching its elimination goal. However, large outbreaks continue to occur in Africa, the Eastern Mediterranean Region, South America, and Southeast Asia. In the U.S., about 370 cases are reported annually, mostly after international travel by unvaccinated travelers.

Mumps occurs worldwide and remains a common disease in many parts of the world. Large outbreaks continue to occur in North America and New Zealand.

Rubella occurs worldwide; however, the Americas has eliminated indigenous rubella. In the U.S., rubella virus transmission in the local population has been eliminated, but imported cases occur.

### Transmission

Measles, mumps, and rubella viruses are primarily transmitted person to person through inhalation of infected respiratory droplets or contact with infected saliva or contaminated surfaces.

### Risk Factors

Risk is increased for unvaccinated or inadequately vaccinated travelers, especially those going to countries with low vaccination rates.

## Symptoms

Symptoms of measles commonly appear about 7 to 21 days following exposure and include cough, eye irritation, runny nose, a red rash starting at the head and spreading to the trunk and limbs over 3 to 4 days, and white lesions in the mouth, which appear 1 to 2 days prior to the rash.

Symptoms of mumps develop about 12 to 25 days following exposure and include swelling of salivary glands on both sides of the face that may be preceded by several days of fever, headache, weakness and fatigue, muscle aches, and loss of appetite. Mumps infection can be very severe if contracted in adulthood.

Symptoms of rubella most commonly appear 12 to 23 days following exposure and include a rash, generalized swollen glands, eye irritation, joint pain, and slight fever.

## Consequences of Infection

Measles can result in severe pneumonia, diarrhea, and brain inflammation, leading to death. Painful swelling of the testicles commonly occurs with mumps acquired after puberty. Rubella acquired before birth is associated with severe complications involving the eyes, heart, ears, nervous system, and blood, as well as growth disturbances.

## Need for Medical Assistance

Persons who have been exposed to or develop symptoms of measles, mumps, or rubella should seek medical attention for evaluation of the need for postexposure prevention or treatment. MMR vaccine or immune globulin given for measles postexposure prevention (depending on the person's age and the time since exposure) may reduce the duration and severity of illness.

## Prevention

### Nonvaccine

Observe good respiratory-hygiene (cough and sneeze etiquette) and hand-hygiene measures.

### Vaccine

Vaccination is the best available tool for preventing measles, mumps, and rubella. MMR vaccine is given routinely as a childhood vaccination and is also given to individuals (especially travelers) born in 1957 or later (1970 or later in Canada and the U.K.; 1966 or later in Australia), without evidence of disease or of 2 countable doses of live vaccine at any time during their lives.

Duration of protection for measles and rubella is lifelong with 2 doses of MMR vaccine, whereas protection against mumps gradually declines.

### Side Effects

The most common side effects following MMR vaccination include injection-site reactions (pain, redness, or rash), fever, swollen lymph nodes, as well as an increased risk of seizure (due to fever) about 8 to 14 days after vaccination.

Persons with underlying medical conditions or who have concerns about the vaccine should speak to their health care provider before vaccine administration.

### Timing

MMR vaccine is given as follows:

- 1 Routine, regardless of travel for children 12 months and older: 2 doses, given at 12-15 months of age and 4-6 years of age.
- 1 Travelers 12 months and older without history of disease or of 2 countable doses of live vaccine at any time during their lives: 1 dose or 2 doses given at least 28 days apart prior to travel in order to complete a lifetime total of 2 doses.
- 1 Children 6-11 months of age: 1 dose prior to travel regardless of destination country or in outbreak situations. This dose is noncountable and the child will still need to receive 2 doses at the recommended ages (at least 28 days apart).
- 1 Two lifetime doses before departure will provide protection for healthy persons. A third dose may be given during specific

mumps outbreak situations.

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