

# Varicella

## Traveler Summary

### Key Points

- Varicella (chickenpox), a highly contagious viral infection that occurs worldwide, is acquired via inhalation or direct contact with secretions from infected persons.
- Risk exists for all unvaccinated children and young adults (born in 1980 or later in the US) who have not been previously infected.
- Symptoms are mild and include fever, malaise, and itchy, fluid-filled skin blisters that become scabs.
- Consequences of infection include bacterial infection of skin lesions in children, pneumonia in adults, and herpes zoster (shingles) in instances where the dormant varicella virus is reactivated many years later.
- Prevention includes observing good respiratory hygiene (cough and sneeze etiquette) and hand hygiene (frequent, thorough handwashing) and avoiding infected persons.
- Varicella vaccine is routinely given as 2 doses to children, 1 dose each at ages 12-15 months and 4-6 years. All persons (regardless of travel) 4 years and older, born in 1980 or later, and 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 varicella vaccine (spaced by at least 28 days).
- Vaccine side effects are most commonly injection-site reactions and fever; a localized or generalized varicella-like rash may occur.
- Duration of vaccine protection is unknown; however, long-term efficacy studies have demonstrated continued protection up to 10 years post 2-dose primary series vaccination in children. One dose in children provides protection for up to 6 years, which is adequate for travel. No booster dose after the 2-dose primary series is recommended.

### Introduction

Varicella (chickenpox) is an acute, highly contagious, globally distributed infection caused by varicella zoster virus (VZV). Humans are the only reservoir for VZV, and human-to-human transmission occurs via inhalation of or direct contact with infected secretions. Infection is usually mild and short-lived in healthy children. Serious secondary infections and other complications are more common in infants, adolescents, adults (particularly pregnant women), and persons with weakened immune systems. After primary infection as chickenpox, the virus becomes dormant in sensory nerve tissue and can reactivate at any time, causing herpes zoster (shingles).

### Risk Areas

Chickenpox occurs worldwide and is prevalent in most countries. Childhood vaccination is used routinely in Australia, Canada, Japan, New Zealand, the US, most countries in Central and South America and Europe, and some countries in the Middle East. In temperate climates, peak incidence among children occurs in the winter and early spring. In tropical countries, the highest incidence is in the dry, cool months, and the disease tends to be acquired later in childhood, resulting in increased susceptibility among adults.

### Transmission

Chickenpox is mainly transmitted from person to person via inhalation of aerosolized respiratory droplets (e.g., from coughs or sneezes) or blister fluid from infected persons, as well as by direct contact with blister fluid. About 85% of susceptible persons in close contact with an infected person will become infected with the virus after exposure. Transmission may also occur through the placenta, from an infected mother to her unborn child, with risk to the fetus and neonate being highest during the first 20 weeks of pregnancy and 1 week before and after delivery. Transmission of the varicella vaccine virus from a vaccinated person to varicella-susceptible persons may also occur.

### Risk Factors

Risk exists for anyone not protected against chickenpox, including travelers, regardless of destination. Persons at highest risk for severe infection or complications include newborns and premature infants; persons older than 15 years; children with leukemia or

lymphoma; pregnant women without laboratory evidence of previous infection or documented positive history of varicella; and persons who have weakened immune systems, HIV infection, or AIDS. Exposure to herpes zoster may also increase risk for varicella in susceptible persons.

## Symptoms

Symptoms most commonly appear 14 to 16 days (range: 10-21 days) following exposure and include an itchy rash starting on the head, chest, and back, before spreading to the rest of the body (including inside the mouth, eyelids, or genital area). The lesions progress to blisters before crusting over. Chickenpox is contagious from 2 days before symptom onset until the last lesion scabs over (typically 4-7 days after rash onset). Healthy children usually have a mild infection and often recover without serious complications. Adults may experience fever and malaise up to 2 days before the rash occurs and are at higher risk of severe disease.

Breakthrough varicella (a mild infection with wild-type VZV) can occur more than 42 days after varicella vaccination (1 or 2 doses) but is less contagious than varicella that occurs in unvaccinated persons.

## Consequences of Infection

The most common complications are bacterial infection of skin lesions in children and pneumonia (usually viral) in adults. Inflammation of the brain membranes, blood infection, or infection of a joint may also occur. Following infection, the varicella virus can reactivate at any time and cause shingles; see *Herpes Zoster*.

## Need for Medical Assistance

Susceptible persons (especially pregnant women and persons with weakened immune systems) who have been exposed to chickenpox should seek medical attention. Varicella vaccine, if given within 5 days of exposure, can prevent or reduce the severity of the illness. Varicella zoster immune globulin can be used for persons who cannot receive the vaccine. Antiviral therapy initiated within 24 hours of the onset of the varicella rash in persons at high risk of complications may lessen the severity of the illness.

## Prevention

### Nonvaccine

Observe good respiratory hygiene (cough and sneeze etiquette), hand hygiene (frequent, thorough handwashing), and social distancing (maintaining a distance of 2 m [6 ft] from persons with illness or skin lesions consistent with chickenpox or shingles).

### Vaccine

Varicella vaccine is given routinely as a childhood vaccination and to all nonimmune healthy persons, including health care workers, pregnant women after delivery, and persons who are considered high risk. For travelers, vaccination is recommended for persons 12 months of age and older, unless immune. Natural chickenpox infection provides life-long immunity. A combination vaccine (with measles, mumps, rubella) is also available.

### Side Effects

The most common vaccine side effects are mild and include injection-site reactions (pain, redness, warmth, and swelling), irritability, and fever. A localized or generalized varicella-like rash may occur around the injection site within 2 to 3 weeks of vaccination. Serious side effects are rare but can include severe allergic reactions, fluid retention, anemia, vascular disorders, lung tissue inflammation, and various neurological conditions.

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

### Timing

Varicella vaccine, regardless of travel, is given as follows:

- Routinely to children 1-6 years old: 2 doses, 1 dose each at ages 12-15 months and 4-6 years. Children 4 years and younger only need the first dose prior to travel; an early second dose is not recommended (but may be administered at least 28 days

after the first dose if needed).

- All persons 4 years and older, born in 1980 or later, and without history of disease or of 2 countable doses of live vaccine at any time during their lives: complete a lifetime total of 2 doses (spaced by at least 28 days).
- One dose before departure will provide protection for healthy persons.

Duration of vaccine protection is unknown; however, long-term efficacy studies have demonstrated continued protection up to 10 years post 2-dose primary series vaccination in children. One dose in children provides protection for 4 to 6 years, which is adequate for travel. No booster dose after a 2-dose primary series is recommended.

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