


Centers for Disease Control and Prevention
National Center for Immunization and Respiratory Diseases



Varicella (Chickenpox) Disease Varicella Vaccine

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Varicella Pathogenesis

- Respiratory transmission of virus
- Replication in nasopharynx and regional lymph nodes
- Primary viremia 4 to 6 days after infection
- Multiple tissues, including sensory ganglia, infected during viremia

MMWR 2007;56(RR-04)

Varicella Complications

- Bacterial infection of lesions
- Hemorrhagic varicella
- CNS manifestations
- Pneumonia (primary viral or secondary bacterial)
- Congenital varicella
- Perinatal varicella
- Prevacine era:
 - Hospitalization ~3 per 1,000 cases or 1,000/year
 - Death ~ 1 per 60,000 cases or 100/year

MMWR 2007;56(RR-04)

Increased Risk of Complications of Varicella

- Persons older than 15 years
- Infants younger than 1 year
- Immunocompromised persons
- Newborns of women with rash onset within 5 days before to 48 hours after delivery

MMWR 2007;56(RR-04)

Varicella Epidemiology

Reservoir Human

Transmission Person to person – respiratory tract secretions
Direct contact with lesions

Temporal Pattern Peak in late winter and spring (U.S.)

Communicability 1 to 2 days before until lesions have formed crusts
May be longer in immunocompromised

MMWR 2007;56(RR-04)

Vaccines for the Prevention of Varicella (Chickenpox)

| Product | ACIP Recommended Age Indications | ACIP Abbreviation |
|---------|----------------------------------|-------------------|
| Varivax | 12 months and older | VAR |

Acceptable Evidence of Varicella Immunity

- Written documentation of age-appropriate vaccination
- Laboratory evidence of immunity or laboratory confirmation of varicella disease
- U.S.-born before 1980*
- Health care provider diagnosis or verification of varicella disease
- History of herpes zoster based on health care provider diagnosis

*Birth year immunity criterion does not apply to health care personnel or pregnant women

MMWR 2007;56(RR-4):16-17

Varicella Vaccination and Adults

- All persons 13 years of age and older without evidence of varicella immunity
 - 2 doses separated by at least 4 weeks
- Do not repeat first dose because of extended interval between doses
- Second dose recommended for persons of any age who have only received 1 dose

Varicella Vaccine and Immunocompromised Persons

- Single-antigen varicella vaccine may be administered to persons with isolated humoral immunodeficiency
- Consider varicella vaccination for:
 - HIV-infected children with CD4 count of 15% or higher
 - HIV-infected older children with CD4 count of 200 or higher

Varicella Adverse Reactions

- **Local reactions (pain, erythema)**
 - Varicella:
 - 19% (children)
 - 24% (adolescents and adults)
 - Rash: 3%–4%
 - May be maculopapular rather than vesicular
 - Average 5 lesions
- **Systemic reactions not common**

MMWR 2007;56(RR-04)

Varicella Vaccine Contraindications

- **Severe allergic reaction to a vaccine component or following a prior dose**
- **Pregnancy or planned pregnancy within 4 weeks***
- **Immunosuppression**
- **Family history of altered immunocompetence**

*ACIP off-label recommendation
MMWR 2007;56(RR-04)
General Best Practice Guidelines for Immunization: Best Practices Guidance of the Advisory Committee on Immunization Practices (ACIP) Contraindications and Precautions section www.cdc.gov/vaccines/imz/immun/gbpi/gbpi/gbpi/contraindications.html, accessed 08/12/2018

Varicella Vaccine Precautions

- **Moderate or severe acute illness with or without fever**
- **Recent blood product**
 - Varicella or MMRV vaccines should not be administered for 3–11 months after receipt of antibody-containing blood products
- **Receipt of specific antiviral drugs (acyclovir, famciclovir, or valacyclovir) 24 hours before vaccination**
 - Avoid use of these antiviral drugs for 14 days after vaccination)
- **Use of aspirin or aspirin-containing products**

MMWR 2007;56(RR-04)
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Varicella Vaccines Precautions

- **MMRV only:** personal or family (i.e., sibling or parent) history of seizures of any etiology
- These children generally should be vaccinated with separate MMR and varicella vaccines

MMWR 2007;56(RR-04)

Varicella Vaccine

- **Storage:**
 - Lyophilized vaccine: In the freezer between -50°C and -15°C (-58°F and +5°F)
 - Diluent: At room temperature (68°F to 77°F, 20°C to 25°C) or in the refrigerator (36°F to 46°F, 2°C to 8°C)
- **Preparation: Reconstitute the vaccine with the diluent supplied by the manufacturer just before administering**

ProQuest package insert www.fda.gov/downloads/Biologics/Blood/Vaccines/Vaccines/ApprovedProducts/ucm142812.pdf accessed 8/12/2018
Varivax package insert www.fda.gov/downloads/Biologics/Blood/Vaccines/Vaccines/ApprovedProducts/ucm142812.pdf accessed 8/12/2018

Varicella Vaccine

- **Administration: Subcut injection**
 - Site: Fatty tissue of the anterolateral thigh or upper outer triceps of the arm
 - Needle length and gauge: 5/8-inch, 23- to 25-gauge needle

Questions?