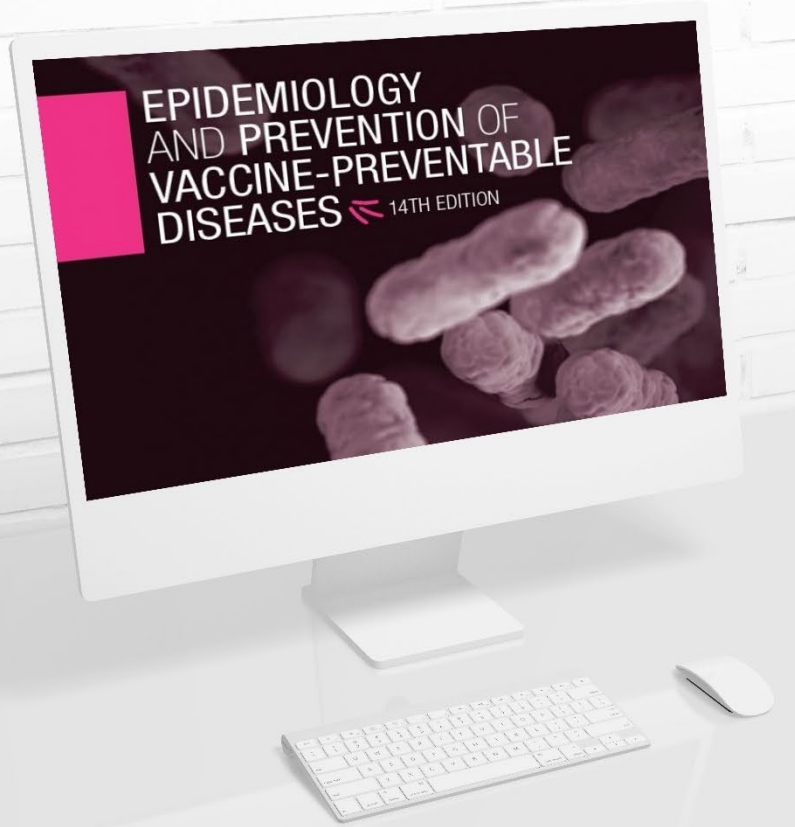
National Center for Immunization and Respiratory Diseases

Varicella (Chickenpox) Vaccines



Pink Book Web-on-Demand Series

Bindu Mayi, MSc., PhD, MPH
Health Education Specialist
Immunization Services Division

Learning Objectives

- Describe the fundamental principles of the immune response.
- Describe immunization best practices.
- Describe an emerging immunization issue.
- For each vaccine-preventable disease, identify those for whom routine immunization is recommended.
- For each vaccine-preventable disease, describe characteristics of the vaccine used to prevent the disease.
- Locate current immunization resources to increase knowledge of team's role in program implementation for improved team performance.

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Disclosure Statements

The findings and conclusions in this presentation are those of the authors and do not necessarily represent the official position of the Centers for Disease Control and Prevention.

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Varicella Disease

Varicella-Zoster Virus

- **Varicella-Zoster virus (VZV) is a herpesvirus (DNA).**
- **Primary infection results in varicella (chickenpox).**
- **Reactivation of latent infection results in herpes zoster (shingles).**
- **Short survival in environment**

Prevention of Varicella: Recommendations of the Advisory Committee on Immunization Practices (ACIP) (cdc.gov)

Varicella Pathogenesis

- **Respiratory transmission of virus**
  - Inhalation of aerosolized VZV from the skin lesions of patients with varicella or herpes zoster
  - Possibly through infected respiratory tract secretions that also may be aerosolized
- **Replication at the site of entry**
  - In nasopharynx and regional lymph nodes
- **Primary viremia 4–6 days after infection**
  - Disseminates virus to multiple organs and tissues (liver, spleen, sensory ganglia)
- **Further replication leads to secondary viremia and viral infection of skin.**

Prevention of Varicella: Recommendations of the Advisory Committee on Immunization Practices (ACIP) (cdc.gov) and Chapter 22: Varicella | Pink Book | CDC

Varicella Epidemiology

Reservoir	• Human
Transmission	• Person-to-person – Inhalation of aerosols from vesicular fluid of skin lesions of patients with varicella or herpes zoster – Direct contact with lesions – Possibly by inhalation of aerosolized infected respiratory tract secretions
Temporal Pattern	• Peak in late winter and spring (U.S.) – pre-vaccine
Communicability	• 1–2 days before rash onset until lesions have formed crusts (4–7 days) • May be longer in immunocompromised persons

Chapter 22: Varicella | Pink Book | CDC

Varicella (Chickenpox) Clinical Features

- **Incubation period 14–16 days (range 10-21 days)**
  - May be prolonged in immunocompromised patients and those who received postexposure treatment with a varicella antibody-containing product
- **Mild prodrome for 1–2 days**
  - Primarily among adults
- **In children, rash is often first symptom**

Chapter 22: Varicella | Pink Book | CDC

Varicella (Chickenpox) Rash

- **Rash generally appears first on the head or trunk, then spreads to extremities; most concentrated on the trunk**
  - Lesions are usually 1 to 4 millimeters in diameter, superficial, delicate, and contain clear fluid.
  - Vesicles may rupture or become purulent before they dry and crust.
- **Successive crops over several days, with lesions present in several stages of development at the same time**

Chapter 22: Varicella | Pink Book | CDC and Photos of Chickenpox | Chickenpox (Varicella) | CDC

Varicella Complications

- **Varicella can lead to secondary bacterial infections.**
  - Can be very severe or even fatal
  - Especially dangerous when group A streptococcus is involved
- **Without antibiotic treatment, skin lesions can progress deep enough to involve underlying fascia.**
  - Rare
  - Requires surgical debridement and extended courses of antibiotics

Chapter 22: Varicella | Pink Book | CDC

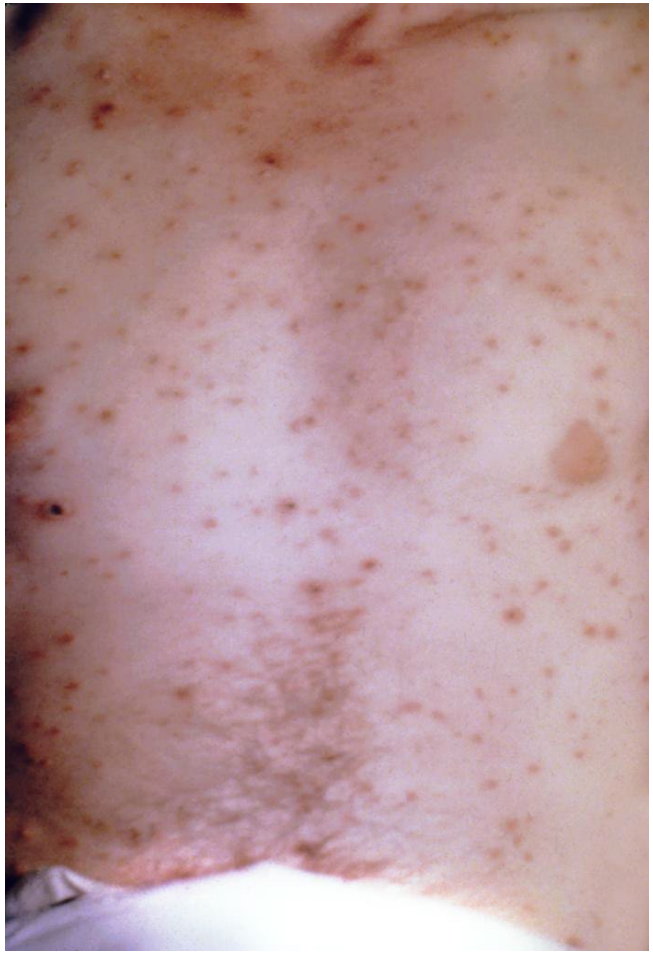
Increased Risk for Varicella Complications

- **Infants younger than 1 year**
  - **Highest risk:**
    - Newborn infants whose mothers develop varicella rash from 5 days before to 2 days after delivery
    - Premature infants exposed to varicella or herpes zoster
- **Persons older than 15 years**
- **Immunocompromised persons**
- **Pregnant persons**

Chapter 22: Varicella | Pink Book | CDC and Clinical Guidance for People at Risk for Severe Varicella | Chickenpox (Varicella) | CDC

Varicella (Chickenpox) in Adults

- **Compared with children:**
  - Rash may not be first symptom and instead occur after 1 to 2 days of fever and malaise.
  - More likely to have severe disease requiring hospitalization.
  - More frequently experience complications (e.g., primary varicella pneumonia, central nervous system involvement)



Chapter 22: Varicella | Pink Book | CDC and Photos of Chickenpox | Chickenpox (Varicella) | CDC

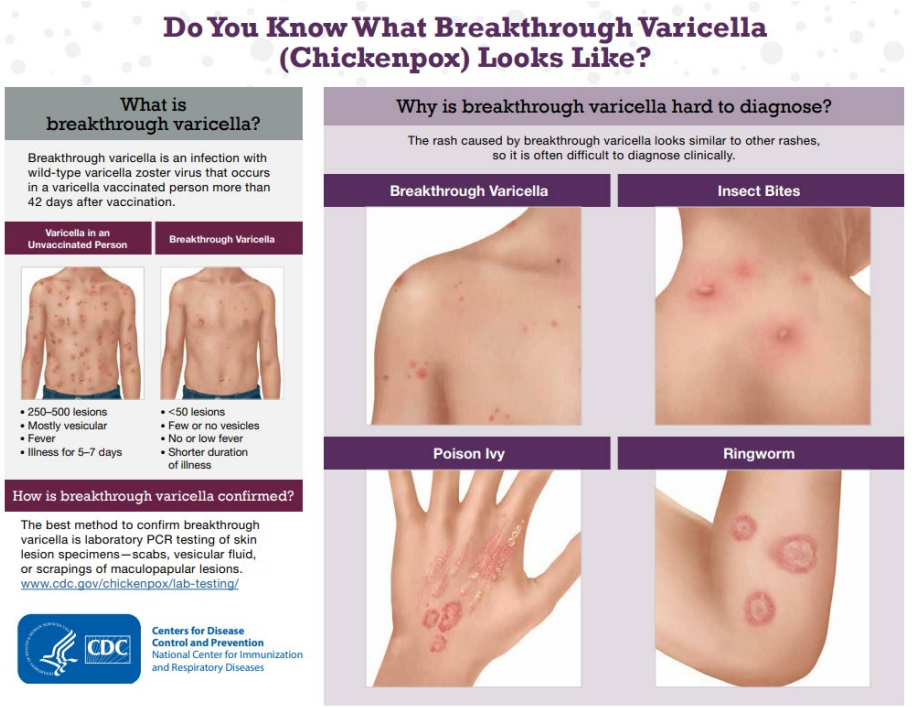
Varicella in Vaccinated People (Breakthrough Varicella)

- **Infection with wild-type VZV more than 42 days after vaccination with either the 1st or the 2nd dose of varicella vaccine**
  - Occurs less frequently among those who have received two doses of varicella vaccine compared with those who have received only one dose.
- **Risk of breakthrough varicella 2.5 times higher if varicella vaccine administered less than 30 days following MMR**
- **No increased risk if varicella vaccine given simultaneously or more than 30 days after MMR**

Chapter 22: Varicella | Pink Book | CDC, Clinical Features of Chickenpox (Varicella) | Chickenpox (Varicella) | CDC

Clinical Features of Breakthrough Varicella

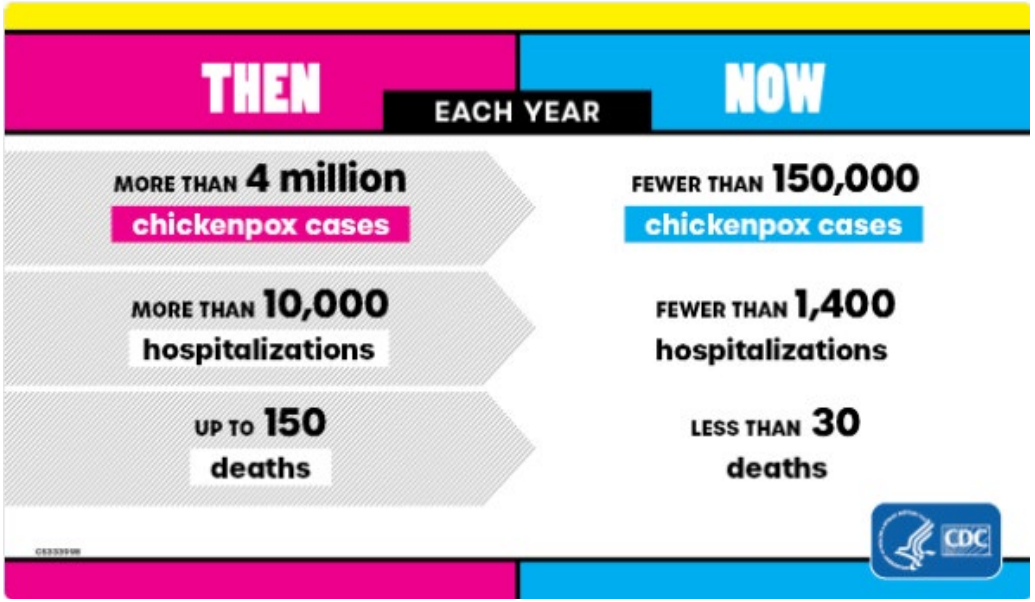
- **Usually mild with either no or low fever, and fewer than 50 skin lesions**
- **Duration of illness usually shorter compared to varicella in unvaccinated people**
- **Rash is predominantly maculopapular.**
  - Still transmissible
- **Clinical diagnosis is challenging.**
- **Laboratory confirmation is important.**



Clinical Features of Chickenpox (Varicella) | Chickenpox (Varicella) | CDC, Do You Know What Breakthrough Varicella (Chickenpox) Looks Like? (cdc.gov)

Impact of U.S. Varicella Vaccination Program

- **Since 1995, the U.S. Varicella vaccination program has**
  - Reduced chickenpox cases 97%.
  - Prevented more than 91 million varicella cases, 238,000 hospitalizations, and almost 2,000 deaths.
  - Achieved more than $23 billion in net societal savings.



Clinical Overview of Chickenpox (Varicella) | Chickenpox (Varicella) | CDC

Varicella Laboratory Diagnosis

		Varicella Tests	When to Collect?
Acute Disease	PCR	1. Material from vesicles or scabs 2. Scrapings of maculopapular lesions 	**Rash present:** Vesicular swabs or scrapings if vesicles are present. If no vesicles, scrapings of maculopapular lesions obtained by abrading the lesion with a slide. **Rash has resolved:** Scabs from crusted lesions, are also excellent samples for PCR detection of VZV DNA.
Immunity	IgG	Serum 	After acute illness (3 or more weeks after rash onset)

Test Types Typically Available to Clinicians and Descriptions for Measles, Mumps, Rubella and Varicella (cdc.gov)

Varicella Antiviral Therapy (1)

- **AAP recommendation**:
  - Oral acyclovir/valacyclovir for at increased risk for moderate-to-severe varicella
    - Healthy people older than 12 years of age
    - People with chronic cutaneous or pulmonary disorders
    - People on long-term salicylate therapy
    - People on short, intermittent, or aerosolized courses of corticosteroids
- **Oral acyclovir or valacyclovir therapy is *not recommended* by AAP for use in otherwise healthy children with typical varicella without complications.**

Clinical Guidance for People at Risk for Severe Varicella | Chickenpox (Varicella) | CDC

Varicella Antiviral Therapy (2)

- **Intravenous acyclovir recommended for:**
  - Pregnant people with viral-mediated complications of varicella such as pneumonia
  - Immunocompromised patients
  - People with severe disease such as disseminated VZV, pneumonia, encephalitis, thrombocytopenia, and severe hepatitis

Clinical Guidance for People at Risk for Severe Varicella | Chickenpox (Varicella) | CDC

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Varicella Vaccines

Vaccines for the Prevention of Varicella (Chickenpox)

Vaccine Product	Component(s)	FDA-approved Age Indication
Varivax (**VAR**)	**Varicella**	12 months and older
ProQuad (**MMRV**)	**MMR**, **Varicella**	12 months–12 years

Live, attenuated vaccines

- Unless the caregiver expresses preference for MMRV, CDC recommends separate MMR vaccine and varicella vaccine for the 1st dose in children 12–47 months of age.

Chapter 22: Varicella | Pink Book | CDC

VAR and MMRV Vaccine Contents

- ✗ No adjuvants
- ✗ No preservatives
- ✗ No thimerosal
- ✓ Neomycin (antibiotic)
- ✓ Gelatin

Chapter 22: Varicella | Pink Book | CDC

Vaccine Preparation

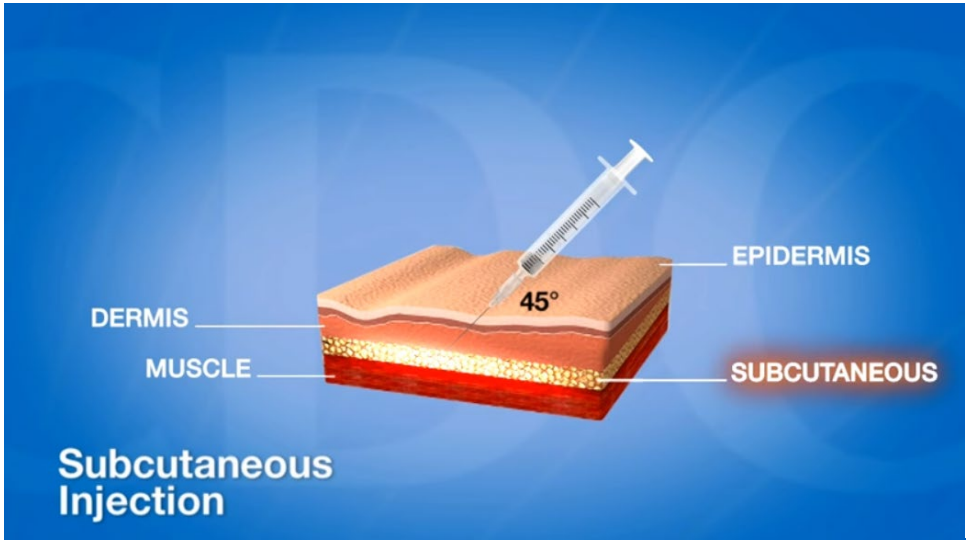
- **Both VAR and MMRV must be reconstituted.**
- **Use only the diluent supplied with the vaccine.**
- **Follow the package insert to reconstitute the vaccine.**

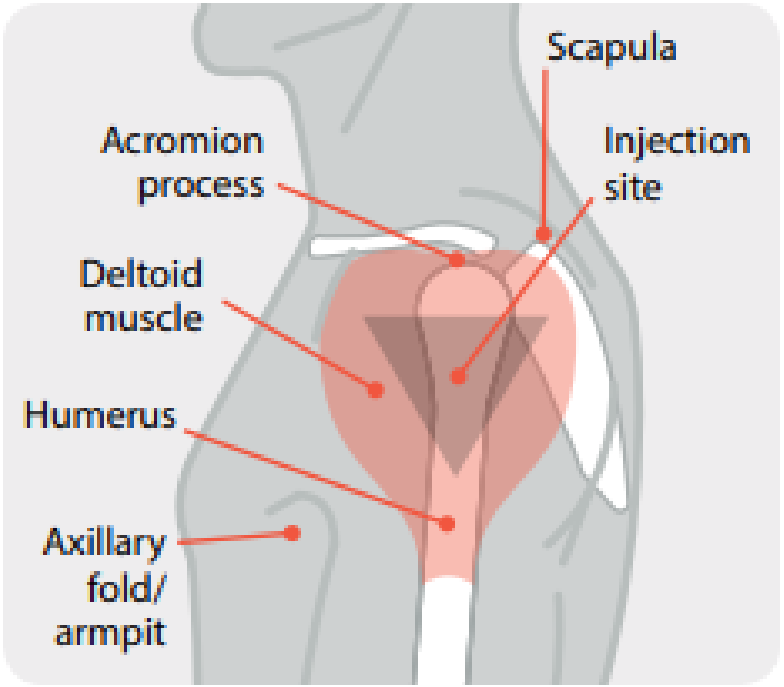
Chapter 22: Varicella | Pink Book | CDC

Discard reconstituted vaccine if not used within 30 minutes!

Vaccine Administration

- **Administered *subcutaneously* or by *intramuscular* injection**





Intramuscular injection

Chapter 22: Varicella | Pink Book | CDC, Administering the Vaccine for Varicella | CDC; and Vaccine Administration Route and Site | CDC

Varicella Vaccines Are Highly Effective

Pre-licensure clinical trial (efficacy):

98% Effective at preventing all varicella

100% Effective against severe varicella

Post-licensure studies (effectiveness):

92% Effective at preventing all varicella

About the Varicella Vaccine | CDC

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Varicella Vaccination Schedule

Varicella Vaccination Schedule in Children and Adolescents

Table 1 Recommended Child and Adolescent Immunization Schedule for Ages 18 Years or Younger, United States, 2024

These recommendations must be read with the notes that follow. For those who fall behind or start late, provide catch-up vaccination at the earliest opportunity as indicated by the green bars.
To determine minimum intervals between doses, see the catch-up schedule (Table 2).

Vaccine and other immunizing agents	Birth	1 mo	2 mos	4 mos	6 mos	9 mos	12 mos	15 mos	18 mos	19–23 mos	2–3 yrs	4–6 yrs	7–10 yrs	11–12 yrs	13–15 yrs	16 yrs	17–18 yrs
Varicella (VAR)							◄----- 1st dose -----►					2nd dose					

Range of recommended ages for all children

Range of recommended ages for catch-up vaccination

Child and Adolescent Immunization Schedule by Age (Addendum updated June 27, 2024) | Vaccines & Immunizations | CDC

Varicella Vaccination Schedule in Adults (1)

Table 1 Recommended Adult Immunization Schedule by Age Group, United States, 2024

Vaccine	19–26 years	27–49 years	50–64 years	≥65 years
Varicella (VAR)	2 doses (if born in 1980 or later)		2 doses	

Recommended vaccination for adults who meet age requirement, lack documentation of vaccination, or lack evidence of immunity

Recommended vaccination for adults with an additional risk factor or another indication

Adults born 1980 or later:

- **If no evidence of immunity to varicella and no prior receipt of varicella-containing vaccine** (**VAR or MMRV for children**): 2-doses separated by 4–8 weeks
- **If received 1 dose of a varicella-containing vaccine** (**VAR or MMRV for children**): 1 dose at least 4 weeks after first dose

Adult Immunization Schedule by Age (Addendum updated June 27, 2024) | Vaccines & Immunizations | CDC

Varicella Vaccination Schedule in Adults (2)

Table 2 Recommended Adult Immunization Schedule by Medical Condition or Other Indication, United States, 2024

Always use this table in conjunction with Table 1 and the Notes that follow. Medical conditions or indications are often not mutually exclusive. If multiple medical conditions or indications are present, refer to guidance in all relevant columns. See Notes for medical conditions or indications not listed.

VACCINE	Pregnancy	Immunocompromised (excluding HIV infection)	HIV infection CD4 percentage and count		Men who have sex with men	Asplenia, complement deficiency	Heart or lung disease	Kidney failure, End-stage renal disease or on dialysis	Chronic liver disease; alcoholism[a]	Diabetes	Healthcare Personnel[b]
			<15% or <200mm³	≥15% and ≥200mm³							
MMR	*										
VAR	*			See Notes							

Contraindicated or not recommended
*Vaccinate after pregnancy, if indicated

Recommended for all adults who lack documentation of vaccination, **OR** lack evidence of immunity

Adult Immunization Schedule by Age (Addendum updated June 27, 2024) | Vaccines & Immunizations | CDC

Varicella Vaccination Schedule: Routine and Catch-up (1)

Minimum age, dose 1:
12 months

Minimum age, dose 2:
15 months

Minimum interval
if younger than age 13 years:
3 months

Special grace period:
2 months

Minimum interval
if 13 years of age or older:
4 weeks

Chapter 22: Varicella | Pink Book | CDC

Varicella Vaccination Schedule: Routine and Catch-up (2)

Minimum age, dose 1: 12 months	**Minimum age, dose 2:** 15 months	**Minimum interval** *if younger than age 13 years:* 3 months	**Special grace period:** 2 months	**Minimum interval** *if 13 years of age or older:* 4 weeks

Chapter 22: Varicella | Pink Book | CDC

Varicella Vaccination Schedule: Routine and Catch-up (3)

Minimum age, dose 1:
12 months

Minimum age, dose 2:
15 months

Minimum interval
if younger than age 13 years:
3 months

Special grace period:
2 months

Minimum interval
if 13 years of age or older:
4 weeks

Chapter 22: Varicella | Pink Book | CDC

Varicella Vaccination Schedule: Routine and Catch-up (4)

Minimum age, dose 1:	Minimum age, dose 2:	**Minimum interval** *if younger than age 13 years:*	Special grace period:	Minimum interval *if 13 years of age or older:*
12 months	15 months	3 months	2 months	4 weeks

Chapter 22: Varicella | Pink Book | CDC and Prevention of Varicella: Recommendations of the Advisory Committee on Immunization Practices (ACIP) (cdc.gov)

Varicella Vaccination Schedule: Routine and Catch-up (5)

Minimum age, dose 1	Minimum age, dose 2	Minimum interval *if younger than age 13 years:*	Special grace period	Minimum interval *if 13 years of age or older:*
12 months	15 months	3 months	2 months*	4 weeks

*This interval should ***not*** be used to schedule the 2nd dose of vaccine. It can be applied retrospectively, when assessing whether previous doses can be counted.

Prevention of Varicella: Recommendations of the Advisory Committee on Immunization Practices (ACIP) (cdc.gov)

Varicella Vaccination Schedule: Routine and Catch-up (6)

Minimum age, dose 1:	Minimum age, dose 2:	Minimum interval *if younger than age 13 years:*	Special grace period:	Minimum interval *if 13 years of age or older:*
12 months	15 months	3 months	2 months	4 weeks

Chapter 22: Varicella | Pink Book | CDC

4

Clinical Considerations

MMRV Vaccine (1)

- **Two options for Dose 1 of MMR and VAR vaccines at age 12–47 months of age:**
  - Separate MMR and VAR vaccines (preferred) *or*
  - MMRV vaccine
- **Providers considering administering MMRV vaccine should discuss the benefits and risks of both vaccination options with parents or caregivers.**
  - Compared to MMR and VAR administered separately, higher risk for febrile seizures when MMRV administered as Dose 1 to children 12-23 months of age
- **Unless the caregiver expresses preference for MMRV, CDC recommends separate MMR and VAR vaccines for Dose 1 in children 12–47 months of age.**

MMRV Questions and Answers for Healthcare Providers | CDC

MMRV Vaccine (2)

- **Administer MMRV:**
  - For Dose 2 of MMR and VAR vaccines at age 15 months through 12 years
  - For Dose 1 at age 48 months or older
  - If the caregiver expresses a preference for Dose 1 at 12–47 months of age
- **Considerations for use of MMRV should include**
  - Provider assessment: injections needed, vaccine availability, likelihood of improved coverage, likelihood of patient return, storage, cost
  - Patient preference
  - Potential for adverse events

MMRV Questions and Answers for Healthcare Providers | CDC

Acceptable Evidence of Varicella Immunity (1)

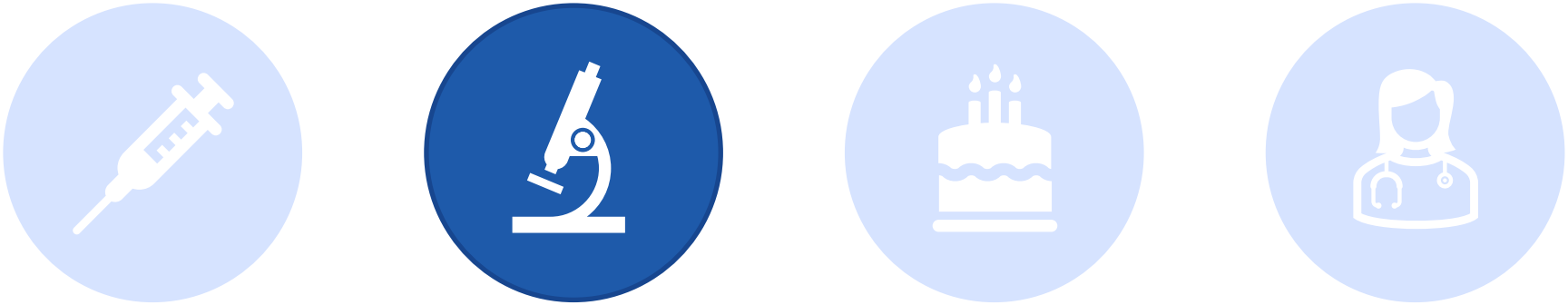



Acceptable Evidence of Varicella Immunity (2)

Written documentation of age-appropriate vaccination

Chapter 22: Varicella | Pink Book | CDC

Acceptable Evidence of Varicella Immunity (3)



Laboratory evidence of immunity, or laboratory confirmation of varicella disease

Chapter 22: Varicella | Pink Book | CDC

Acceptable Evidence of Varicella Immunity (4)

Birth in the U.S. before 1980

Chapter 22: Varicella | Pink Book | CDC

Acceptable Evidence of Varicella Immunity (5)

Birth in the U.S. before 1980

Except:

- Health care personnel
- Immunocompromised people
- Pregnant people

Chapter 22: Varicella | Pink Book | CDC

Acceptable Evidence of Varicella Immunity (6)

Diagnosis or verification of history of varicella or herpes zoster by health care provider

Chapter 22: Varicella | Pink Book | CDC

Acceptable Evidence of Varicella Immunity (7)

Written documentation of age-appropriate vaccination

Lab evidence of immunity, or laboratory confirmation of varicella disease

Birth in the U.S. before 1980
(with exceptions)

Diagnosis or verification of history of varicella or herpes zoster by health care provider

Chapter 22: Varicella | Pink Book | CDC

ACIP Immunization Recommendations: Adults

- **Adults born 1980 or later without acceptable evidence of immunity:**
  - Vaccinate unless contraindicated
  - 2 doses separated by at least 28 days

Varicella Vaccine Recommendations | Chickenpox (Varicella) | CDC

ACIP Immunization Recommendations: Pregnant Persons

- **Do not vaccinate pregnant people.**
- **Counsel if pregnant within 4 weeks of vaccination**
- **Pregnant person with no evidence of immunity:**
  - 1 dose VAR before discharge *after* pregnancy complete
  - Finish series in 4–8 weeks

Varicella Vaccine Recommendations | Chickenpox (Varicella) | CDC

ACIP Immunization Recommendations: Adults

- **Adults born in the United States before 1980 presumed immune to varicella, *except*:**
  - Pregnant people
  - Immunosuppressed people
  - Health care providers

Chapter 22: Varicella | Pink Book | CDC

Varicella Vaccine and Immunocompromised Persons

- **Live vaccine**
  - Should not be administered to immunocompromised persons
  - Be aware of exceptions
- **Single-antigen varicella vaccine (VAR) 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 persons 8 years of age and older and adults with CD4 count of 200 or higher
- **Household contacts of immunocompromised persons should be vaccinated.**

Chapter 22: Varicella | Pink Book | CDC and Varicella Vaccine Recommendations | Chickenpox (Varicella) | CDC

Knowledge Check

An 18-month-old child received their first dose of VAR at 13 months of age. A second dose was administered at a different clinic at 15 months of age. Does this child need another dose of VAR?

A. Yes
B. No

Answer

An 18-month-old child received their first dose of VAR at 13 months of age. A second dose was administered at a different clinic at 15 months of age. Does this child need another dose of VAR?

A. Yes

B. No ⟵

Varicella Vaccination and Health Care Personnel

- **Recommended for all HCP who lack evidence of immunity**
  - 2 doses, 4 weeks apart
- **Prevaccination serologic screening worth considering**
- **Postvaccination testing *not recommended***
- **Documented receipt of 2 doses of varicella vaccine supersedes subsequent serologic results.**

Chapter 22: Varicella | Pink Book | CDC

Knowledge Check

A nursing student had VAR titers done before she started school. Her titers came back negative. She has 2 documented doses of VAR after 1 year of age, separated by more than 4 weeks. How many doses of VAR should we administer?

A. One
B. Two
C. None

Answer

A nursing student had VAR titers done before she started school. Her titers came back negative. She has 2 documented doses of VAR after 1 year of age, separated by more than 4 weeks. How many doses of VAR should we administer?

A. One
B. Two
C. None 

Varicella Postexposure Prophylaxis: Vaccination

- **Varicella vaccine recommended as postexposure prophylaxis (PEP) for:**
  - Ages 12 months or older
  - Without evidence of varicella immunity
  - Within 3 through 5 days after exposure
- **70%–100% effective when given within 3 days of exposure**
  - Possibly up to 5 days

Chapter 22: Varicella | Pink Book | CDC

Varicella PEP: Varicella-Zoster Immune Globulin (VariZIG)

- **PEP with VariZIG recommended for:**
  - Immunocompromised persons without evidence of immunity to varicella
  - Neonates whose mothers have signs or symptoms of varicella around time of delivery
  - Hospitalized preterm infants born at 28 weeks' gestation or later whose mothers do not have evidence of immunity
  - Hospitalized preterm infants born earlier than 28 weeks' gestation or who weigh 1,000 grams or less at birth, regardless of maternal history of varicella disease or vaccination
  - Pregnant people without evidence of immunity to varicella
- **VariZIG should be administered as soon as possible and within 10 days of exposure to VZV.**

Chapter 22: Varicella | Pink Book | CDC and Updated Recommendations for Use of VariZIG — United States, 2013 (cdc.gov)

5

Safety

Varicella Vaccine Contraindications (1)

- **Severe allergic reaction (e.g., anaphylaxis) to a vaccine component (e.g., neomycin, gelatin) or following a prior dose**
- **Pregnancy, current or planned within 4 weeks**
- **Immunosuppression due to**
  - Leukemia
  - Lymphoma
  - Generalized malignancy
  - Immune deficiency disease
  - Immunosuppressive therapy

Chapter 22: Varicella | Pink Book | CDC

Varicella Vaccine Contraindications (2)

- **MMRV *should not be administered* to HIV-infected persons of any age.**
  - Separate MMR and VAR vaccines:
    - **Should be considered** for HIV-infected children with CD4 count of 15% or higher.
    - **May be considered** for HIV-infected persons ages 8 years of age and older with CD4 count of 200 or higher.
- **Hematopoietic stem cell transplant (wait 24 months)**
- **Family history of congenital or hereditary immunodeficiency in first-degree relatives, unless immune competence clinically substantiated or laboratory verified**

Chapter 22: Varicella | Pink Book | CDC

Varicella Vaccine Precautions

- **Moderate or severe acute illness**
- **Receipt of antibody-containing blood products**
  - Wait 3 to 11 months to vaccinate
- **Receipt of specific antiviral drugs (acyclovir, famciclovir, or valacyclovir)**
  - 24 hours **before** vaccination
  - 14 days **after** vaccination
- **Simultaneous use of aspirin or aspirin-containing products**
  - Especially in children
- **Personal or family history of seizures of any etiology**
  - Precaution to MMRV, not separate VAR and MMR vaccines

Chapter 22: Varicella | Pink Book | CDC

Varicella Vaccine Adverse Reactions

- **Common side effects:**
  - Sore arm from the injection
  - Redness or swelling at injection site
  - Fever
  - Rash at injection site
- **More serious reactions very rare, can include:**
  - Pneumonia
  - Aseptic meningitis and encephalitis
  - Febrile seizures
- **Vaccinated person can develop a varicella-like rash**

Chapter 22: Varicella | Pink Book | CDC

Adverse Reactions: MMRV vs. MMR + VAR

- **Pre-licensure studies of MMRV in children 12–23 months of age**
  - Fever 5–12 days after 1st vaccine dose more common with MMRV
  - MMRV (21.5%), MMR + VAR (14.9%)
- **Post-licensure studies of MMRV in children 12–23 months of age**
  - Compared to MMR + VAR, 1 additional febrile seizure per 2,300–2,600 children who received the 1st MMRV dose
    - Rate: 9 per 10,000 when vaccinated with MMRV
    - Rate: 4 per 10,000 when vaccinated with MMR + VAR at the same visit
- **Post-licensure studies of MMRV in children 4–6 years of age**
  - No increased risk of febrile seizures after 2nd vaccine dose seen among children whose 1st dose was MMRV

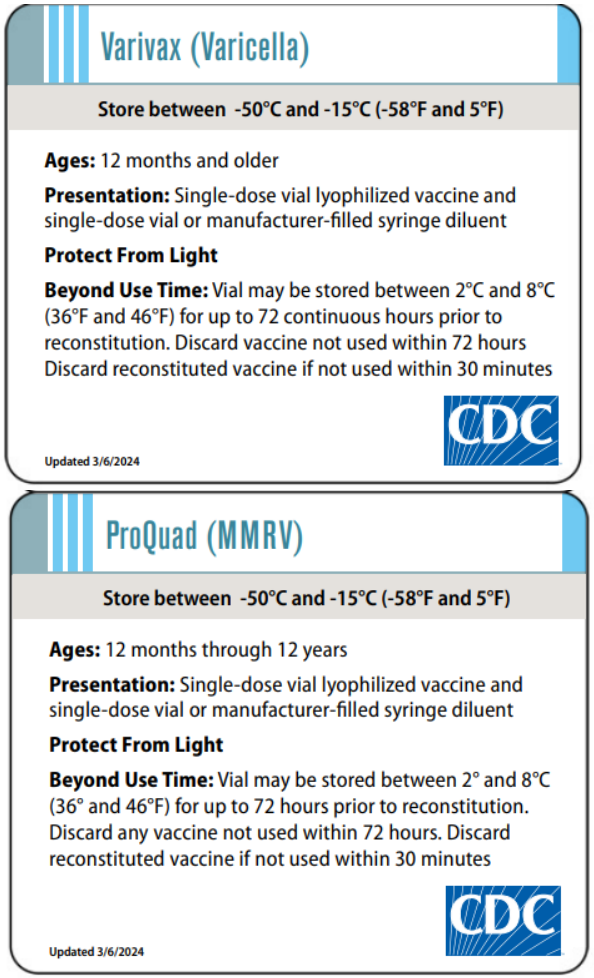
Use of Combination Measles, Mumps, Rubella, and Varicella Vaccine (cdc.gov)

6

Storage & Handling

Varicella Vaccines: Storage and Handling

- **Store between -50°C and -15°C (-58°F and 5°F)**
  - Must be kept at freezing temperatures
  - Keep VAR (varicella) and MMRV vaccine vials in their original closed boxes to protect the vaccine from light.
  - Do not tear off end flaps or cover.
- **Keep diluent at room temperature.**
  - Do not freeze diluent.
  - Can be refrigerated



Varivax (Varicella)

Store between -50°C and -15°C (-58°F and 5°F)

Ages: 12 months and older

Presentation: Single-dose vial lyophilized vaccine and single-dose vial or manufacturer-filled syringe diluent

Protect From Light

Beyond Use Time: Vial may be stored between 2°C and 8°C (36°F and 46°F) for up to 72 continuous hours prior to reconstitution. Discard vaccine not used within 72 hours Discard reconstituted vaccine if not used within 30 minutes

CDC

Updated 3/6/2024

ProQuad (MMRV)

Store between -50°C and -15°C (-58°F and 5°F)

Ages: 12 months through 12 years

Presentation: Single-dose vial lyophilized vaccine and single-dose vial or manufacturer-filled syringe diluent

Protect From Light

Beyond Use Time: Vial may be stored between 2° and 8°C (36° and 46°F) for up to 72 hours prior to reconstitution. Discard any vaccine not used within 72 hours. Discard reconstituted vaccine if not used within 30 minutes

CDC

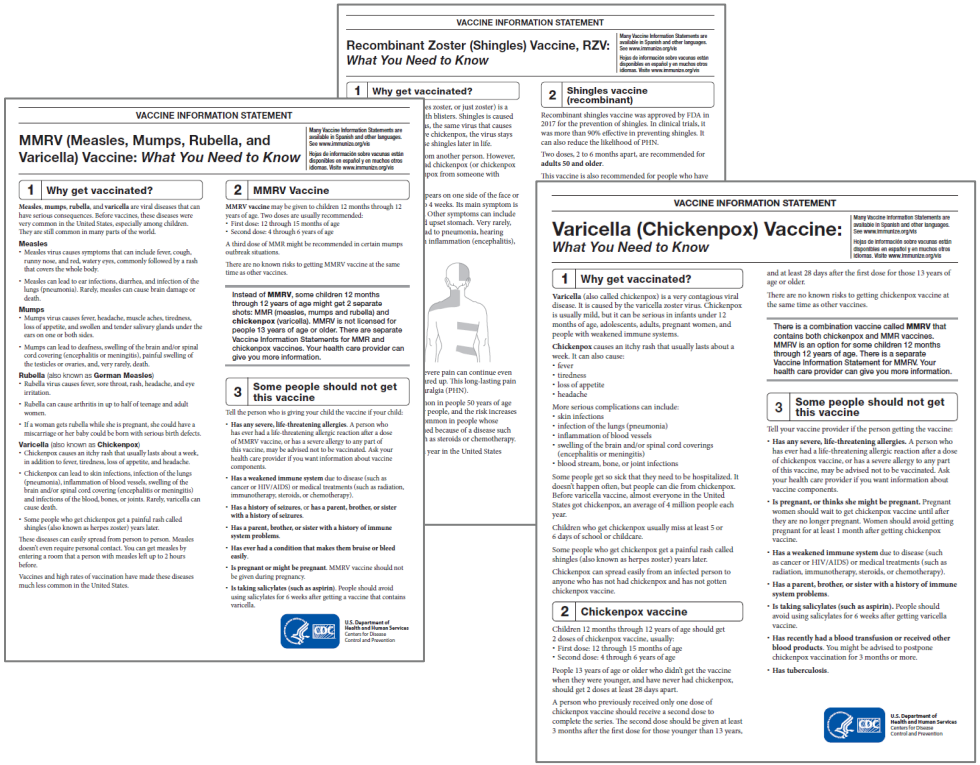
Updated 3/6/2024

Varicella Vaccine Storage and Handling | CDC and Vaccine Labels: Storage and Beyond-Use Date Tracking (cdc.gov)

7

Varicella Resources

Vaccine Information Statements



VACCINE INFORMATION STATEMENT

MMRV (Measles, Mumps, Rubella, and Varicella) Vaccine: *What You Need to Know*

Many Vaccine Information Statements are available in Spanish and other languages. See www.immunize.org/vis

Hojas de información sobre vacunas están disponibles en español y en muchos otros idiomas. Visite www.immunize.org/vis

1 Why get vaccinated?

Measles, mumps, rubella, and **varicella** are viral diseases that can have serious consequences. Before vaccines, these diseases were very common in the United States, especially among children. They are still common in many parts of the world.

Measles

- Measles virus causes symptoms that can include fever, cough, runny nose, and red, watery eyes, commonly followed by a rash that covers the whole body.
- Measles can lead to ear infections, diarrhea, and infection of the lungs (pneumonia). Rarely, measles can cause brain damage or death.

Mumps

- Mumps virus causes fever, headache, muscle aches, tiredness, loss of appetite, and swollen and tender salivary glands under the ears on one or both sides.
- Mumps can lead to deafness, swelling of the brain and/or spinal cord covering (encephalitis or meningitis), painful swelling of the testicles or ovaries, and, very rarely, death.

Rubella (also known as **German Measles**)

- Rubella virus causes fever, sore throat, rash, headache, and eye irritation.
- Rubella can cause arthritis in up to half of teenage and adult women.
- If a woman gets rubella while she is pregnant, she could have a miscarriage or her baby could be born with serious birth defects.

Varicella (also known as **Chickenpox**)

- Chickenpox causes an itchy rash that usually lasts about a week, in addition to fever, tiredness, loss of appetite, and headache.
- Chickenpox can lead to skin infections, infection of the lungs (pneumonia), inflammation of blood vessels, swelling of the brain and/or spinal cord covering (encephalitis or meningitis) and infections of the blood, bones, or joints. Rarely, varicella can cause death.
- Some people who get chickenpox get a painful rash called shingles (also known as herpes zoster) years later.

These diseases can easily spread from person to person. Measles doesn't even require personal contact. You can get measles by entering a room that a person with measles left up to 2 hours before.

Vaccines and high rates of vaccination have made these diseases much less common in the United States.

2 MMRV Vaccine

MMRV vaccine may be given to children 12 months through 12 years of age. Two doses are usually recommended:

- First dose: 12 through 15 months of age
- Second dose: 4 through 6 years of age

A third dose of MMR might be recommended in certain mumps outbreak situations.

There are no known risks to getting MMRV vaccine at the same time as other vaccines.

Instead of MMRV, some children 12 months through 12 years of age might get 2 separate shots: MMR (measles, mumps and rubella) and chickenpox (varicella). MMRV is not licensed for people 13 years of age or older. There are separate Vaccine Information Statements for MMR and chickenpox vaccines. Your health care provider can give you more information.

3 Some people should not get this vaccine

Tell the person who is giving your child the vaccine if your child:

- **Has any severe, life-threatening allergies.** A person who has ever had a life-threatening allergic reaction after a dose of MMRV vaccine, or has a severe allergy to any part of this vaccine, may be advised not to be vaccinated. Ask your health care provider if you want information about vaccine components.
- **Has a weakened immune system** due to disease (such as cancer or HIV/AIDS) or medical treatments (such as radiation, immunotherapy, steroids, or chemotherapy).
- **Has a history of seizures, or has a parent, brother, or sister with a history of seizures.**
- **Has a parent, brother, or sister with a history of immune system problems.**
- **Has ever had a condition that makes them bruise or bleed easily.**
- **Is pregnant or might be pregnant.** MMRV vaccine should not be given during pregnancy.
- **Is taking salicylates (such as aspirin).** People should avoid using salicylates for 6 weeks after getting a vaccine that contains varicella.

U.S. Department of Health and Human Services
Centers for Disease Control and Prevention

VACCINE INFORMATION STATEMENT

Recombinant Zoster (Shingles) Vaccine, RZV: *What You Need to Know*

Many Vaccine Information Statements are available in Spanish and other languages. See www.immunize.org/vis

Hojas de información sobre vacunas están disponibles en español y en muchos otros idiomas. Visite www.immunize.org/vis

1 Why get vaccinated?

es zoster, or just zoster) is a
th blisters. Shingles is caused
, the same virus that causes
e chickenpox, the virus stays
e shingles later in life.

om another person. However,
ed chickenpox (or chickenpox
pox from someone with

ears on one side of the face or
4 weeks. Its main symptom is
Other symptoms can include
d upset stomach. Very rarely,
ad to pneumonia, hearing
inflammation (encephalitis),

vere pain can continue even
ired up. This long-lasting pain
ralgia (PHN).

ion in people 50 years of age
people, and the risk increases
mmon in people whose
ed because of a disease such
h as steroids or chemotherapy.

year in the United States

2 Shingles vaccine (recombinant)

Recombinant shingles vaccine was approved by FDA in 2017 for the prevention of shingles. In clinical trials, it was more than 90% effective in preventing shingles. It can also reduce the likelihood of PHN.

Two doses, 2 to 6 months apart, are recommended for **adults 50 and older.**

This vaccine is also recommended for people who have

VACCINE INFORMATION STATEMENT

Varicella (Chickenpox) Vaccine: *What You Need to Know*

Many Vaccine Information Statements are available in Spanish and other languages. See www.immunize.org/vis

Hojas de información sobre vacunas están disponibles en español y en muchos otros idiomas. Visite www.immunize.org/vis

1 Why get vaccinated?

Varicella (also called chickenpox) is a very contagious viral disease. It is caused by the varicella zoster virus. Chickenpox is usually mild, but it can be serious in infants under 12 months of age, adolescents, adults, pregnant women, and people with weakened immune systems.

Chickenpox causes an itchy rash that usually lasts about a week. It can also cause:

- fever
- tiredness
- loss of appetite
- headache

More serious complications can include:

- skin infections
- infection of the lungs (pneumonia)
- inflammation of blood vessels
- swelling of the brain and/or spinal cord coverings (encephalitis or meningitis)
- blood stream, bone, or joint infections

Some people get so sick that they need to be hospitalized. It doesn't happen often, but people can die from chickenpox. Before varicella vaccine, almost everyone in the United States got chickenpox, an average of 4 million people each year.

Children who get chickenpox usually miss at least 5 or 6 days of school or childcare.

Some people who get chickenpox get a painful rash called shingles (also known as herpes zoster) years later.

Chickenpox can spread easily from an infected person to anyone who has not had chickenpox and has not gotten chickenpox vaccine.

2 Chickenpox vaccine

Children 12 months through 12 years of age should get 2 doses of chickenpox vaccine, usually:

- First dose: 12 through 15 months of age
- Second dose: 4 through 6 years of age

People 13 years of age or older who didn't get the vaccine when they were younger, and have never had chickenpox, should get 2 doses at least 28 days apart.

A person who previously received only one dose of chickenpox vaccine should receive a second dose to complete the series. The second dose should be given at least 3 months after the first dose for those younger than 13 years, and at least 28 days after the first dose for those 13 years of age or older.

There are no known risks to getting chickenpox vaccine at the same time as other vaccines.

There is a combination vaccine called MMRV that contains both chickenpox and MMR vaccines. MMRV is an option for some children 12 months through 12 years of age. There is a separate Vaccine Information Statement for MMRV. Your health care provider can give you more information.

3 Some people should not get this vaccine

Tell your vaccine provider if the person getting the vaccine:

- **Has any severe, life-threatening allergies.** A person who has ever had a life-threatening allergic reaction after a dose of chickenpox vaccine, or has a severe allergy to any part of this vaccine, may be advised not to be vaccinated. Ask your health care provider if you want information about vaccine components.
- **Is pregnant, or thinks she might be pregnant.** Pregnant women should wait to get chickenpox vaccine until after they are no longer pregnant. Women should avoid getting pregnant for at least 1 month after getting chickenpox vaccine.
- **Has a weakened immune system** due to disease (such as cancer or HIV/AIDS) or medical treatments (such as radiation, immunotherapy, steroids, or chemotherapy).
- **Has a parent, brother, or sister with a history of immune system problems.**
- **Is taking salicylates (such as aspirin).** People should avoid using salicylates for 6 weeks after getting varicella vaccine.
- **Has recently had a blood transfusion or received other blood products.** You might be advised to postpone chickenpox vaccination for 3 months or more.
- **Has tuberculosis.**

U.S. Department of Health and Human Services
Centers for Disease Control and Prevention

- **VISs**:
  - VAR (Varicella)
  - MMRV (ProQuad)
- **Give patient or parent the appropriate VIS before administration of the product.**

[Vaccine Information Statements (VISs) | CDC]

CDC Clinical Resources

- **www.cdc.gov/vaccines/**
  - Advisory Committee on Immunization Practices (ACIP) Vaccine Recommendations and Guidelines
  - Recommended Immunization Schedules
  - Vaccine Storage and Handling Toolkit
  - Vaccine Information Statements
- **www.cdc.gov/chickenpox/hcp/clinical-overview/index.html**

Pink Book Training Materials

Continuing Education Information

- To claim continuing education (CE) for this course, please follow the steps below by July 1, 2026.
- Search and register for course WD4810-082024 in CDC TRAIN.
- Pass the post-assessment at 80%.
- Complete the evaluation.
- Visit “Your Learning” to access your certificates and transcript.
- If you have any questions, contact CDC TRAIN at train@cdc.gov or CE Coordinator, Melissa Barnett, at MBarnett2@cdc.gov

Home - CDC TRAIN - an affiliate of the TRAIN Learning Network powered by the Public Health Foundation

Email Us Your Immunization Questions

nipinfo@cdc.gov

Thank You From Atlanta!

For more information, contact CDC
1-800-CDC-INFO (232-4636)
TTY: 1-888-232-6348 www.cdc.gov

The findings and conclusions in this report are those of the authors and do not necessarily represent the official position of the Centers for Disease Control and Prevention.