



# Zoster Vaccination

## **Pink Book Web-on-Demand Series** **September 20, 2022**

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**LCDR, U.S. Public Health Service**

**NCIRD, CDC**

# Learning Objectives

- **Describe the Advisory Committee on Immunization Practices General Best Practice Guidelines on Immunization.**
- **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.**
- **Implement disease detection and prevention health care services (e.g., smoking cessation, weight reduction, diabetes screening, blood pressure screening, immunization services) to prevent health problems and maintain health.**

# Continuing Education Information

- CE credit, go to: <https://tceols.cdc.gov/>
- Search course number: **WD4564-092022**
- CE credit expires: **July 1, 2024**
- CE instructions are available on the **Pink Book Web-on-Demand Series** web page
- Questions and additional help with the online CE system, e-mail [CE@cdc.gov](mailto:CE@cdc.gov)

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Below the text is a row of four small images: a woman smiling at a child, a man in a suit looking thoughtful, a doctor in a white coat holding a dog, and a woman sitting at a desk working on a laptop.

Below the images, the text "Welcome to TCEO" is displayed, followed by a small line of text: "Training and Continuing Education Online (TCEO) is a system that provides access to CDC educational activities for continuing education (CE). Use TCEO to search for CE opportunities, complete course..."

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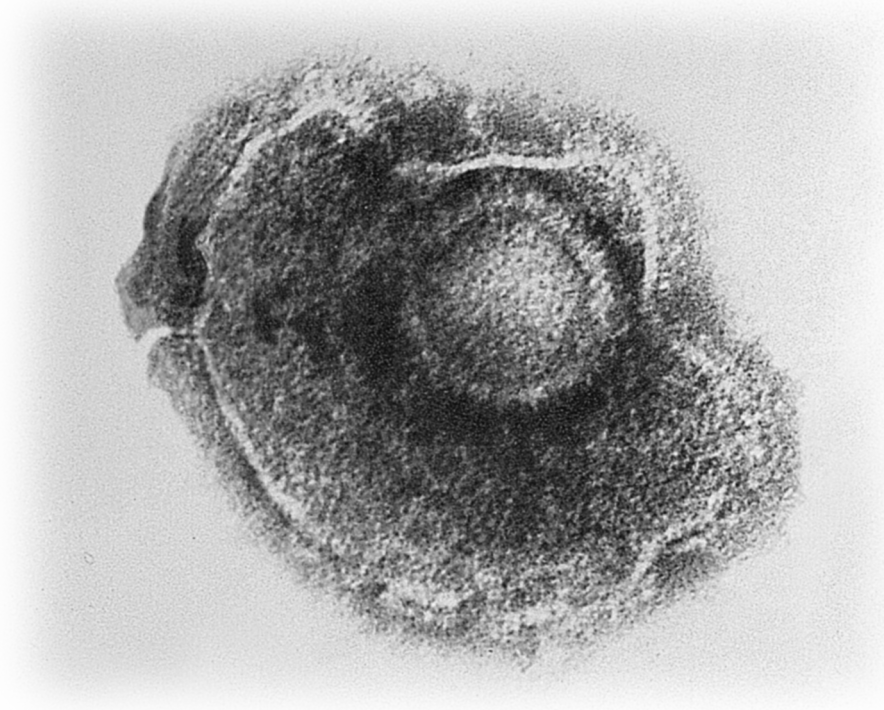
**The findings and conclusions in this presentation are those of the authors and do not necessarily represent the official position of the Centers for Disease Control and Prevention.**

1

**Zoster  
Disease**

# Herpes Zoster (Shingles)

- **Reactivation of varicella-zoster virus**

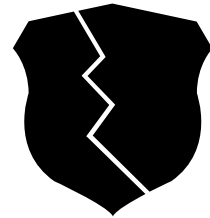


# Herpes Zoster (Shingles)

- Associated with:



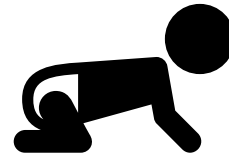
Aging



Immunosuppression



Intrauterine exposure



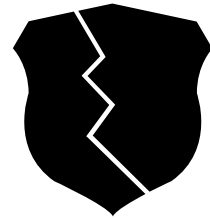
Varicella in the first year of life

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Varicella in the first year of life

# Herpes Zoster (Shingles)



- **Blisters**
  - Scab in 7–10 days
  - Clears 2–4 weeks
  - “Burning” pain
  
- **Cover the lesions to prevent VZV transmission**

# Complications of Herpes Zoster



- **Postherpetic neuralgia (PHN)**
- Herpes zoster ophthalmicus
- Dissemination with generalized skin eruptions and involvement of the central nervous system, lungs, liver, and pancreas

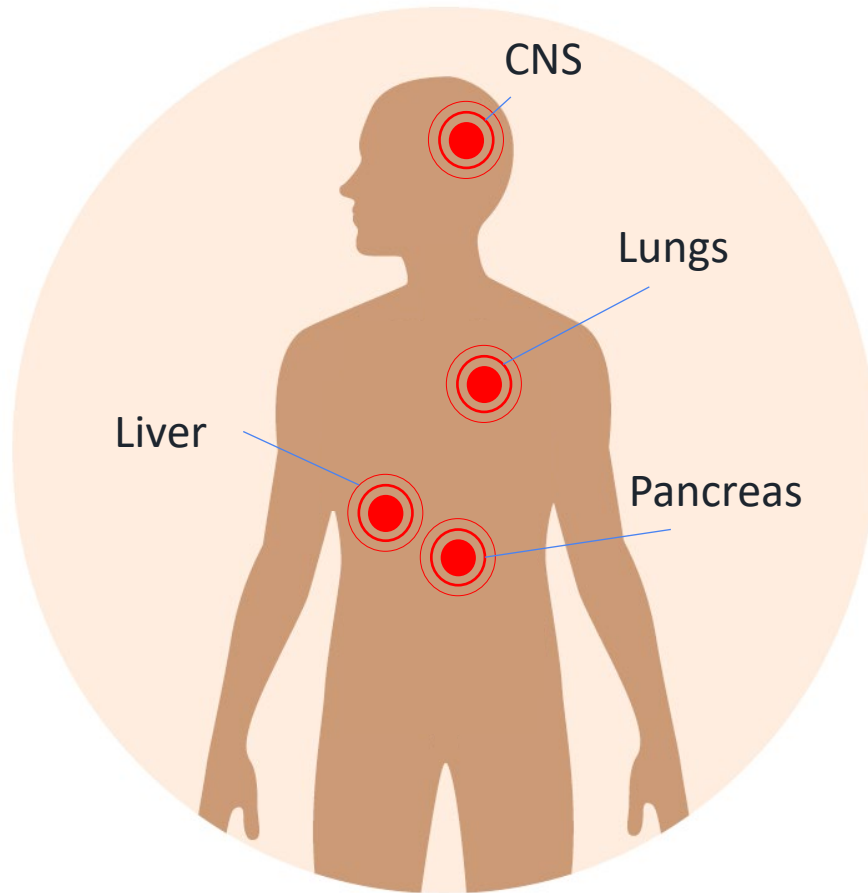


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- 50% of persons living until age 85 will develop zoster

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# Important Takeaway Clinical Pearls

- People who never had chickenpox or never received any varicella-containing vaccine, **cannot** get shingles.
  - Remember: Shingles is a **reactivation** of latent VZV
- Zoster risk increases with age and with immunocompromised status.
  - Half of all cases occur in people aged  $\geq 60$  years!
- Most people who have zoster will only have one episode. Risk of recurrence is low especially among those who are immunocompetent.
- Risk of zoster is much lower among persons vaccinated against varicella, compared to persons who previously had natural VZV infection.



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2

**Zoster  
Vaccine**

# Vaccine for Prevention of Zoster (Shingles)

Product (ACIP Abbreviation)	Type
Shingrix <sup>®</sup> (RZV)	Recombinant, adjuvanted

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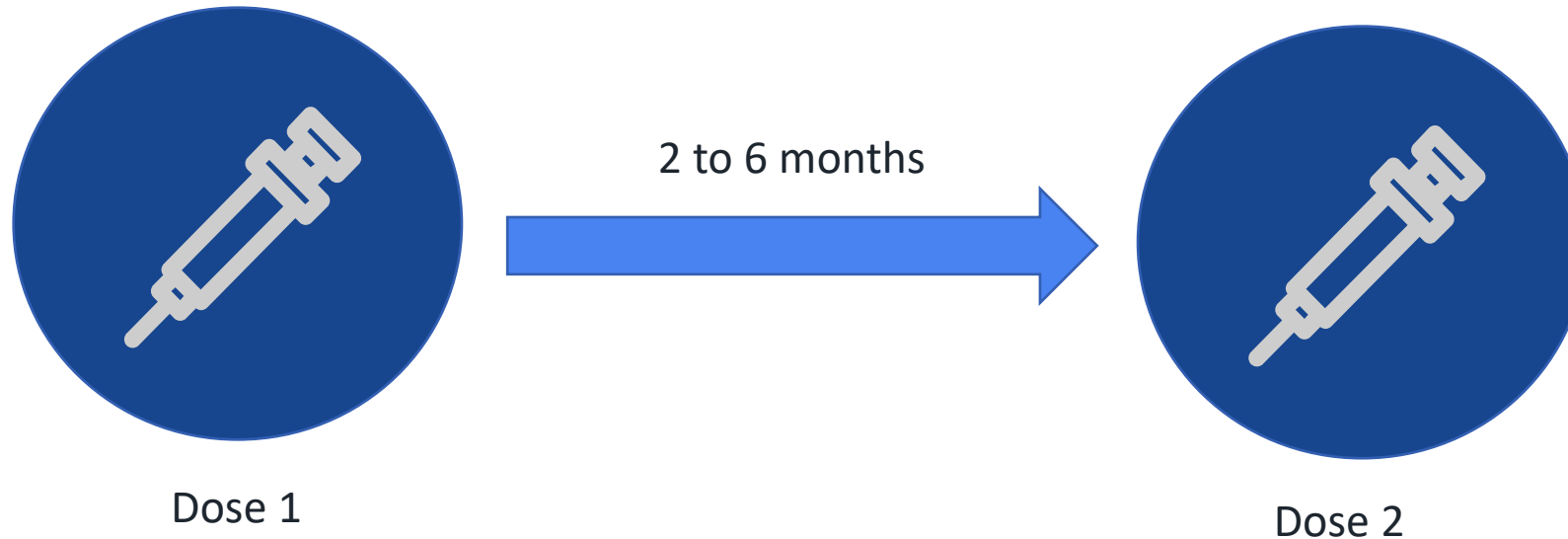
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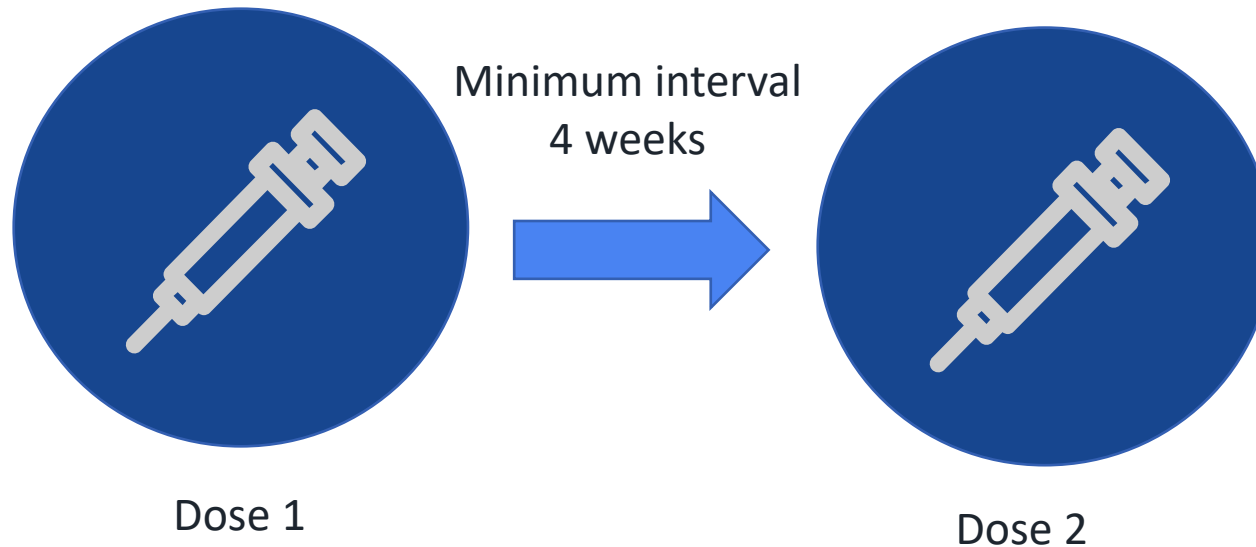
# Zoster Vaccine: Shingrix (RZV)

- **Schedule: 2 doses, 2 to 6 months apart**



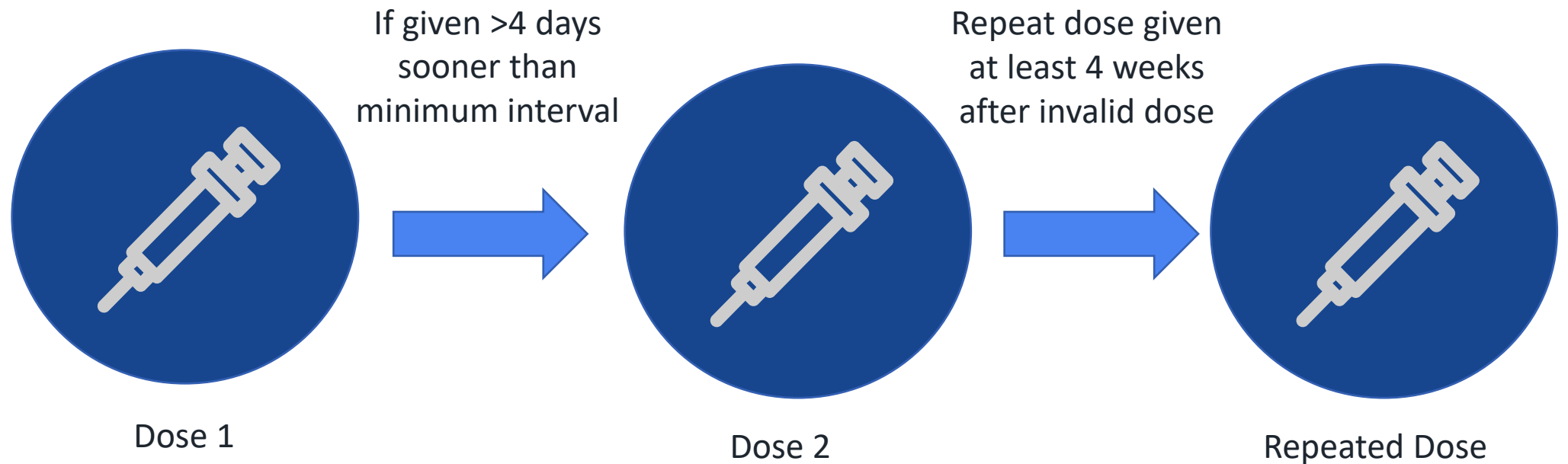
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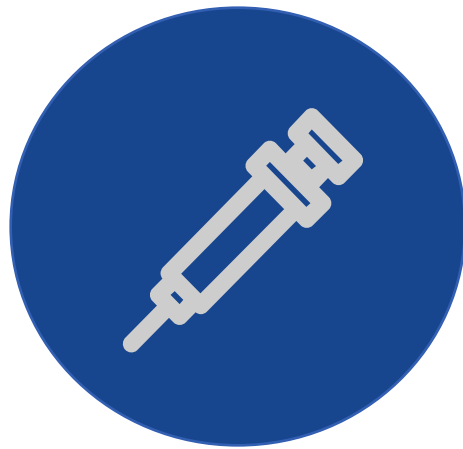
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# Zoster Vaccine: Shingrix (RZV)

- **Schedule: 2 doses, 2 to 6 months apart**



Dose 1

If >6 months have elapsed since the first dose, administer the second dose as soon as possible.



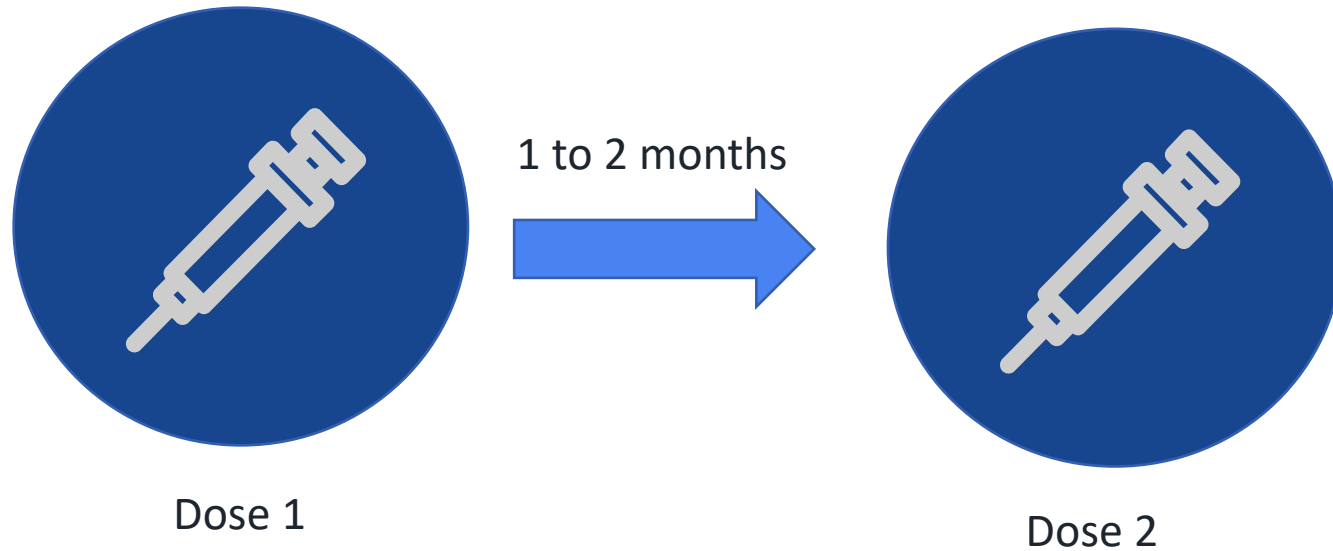
Do **NOT** restart the series.



Dose 2

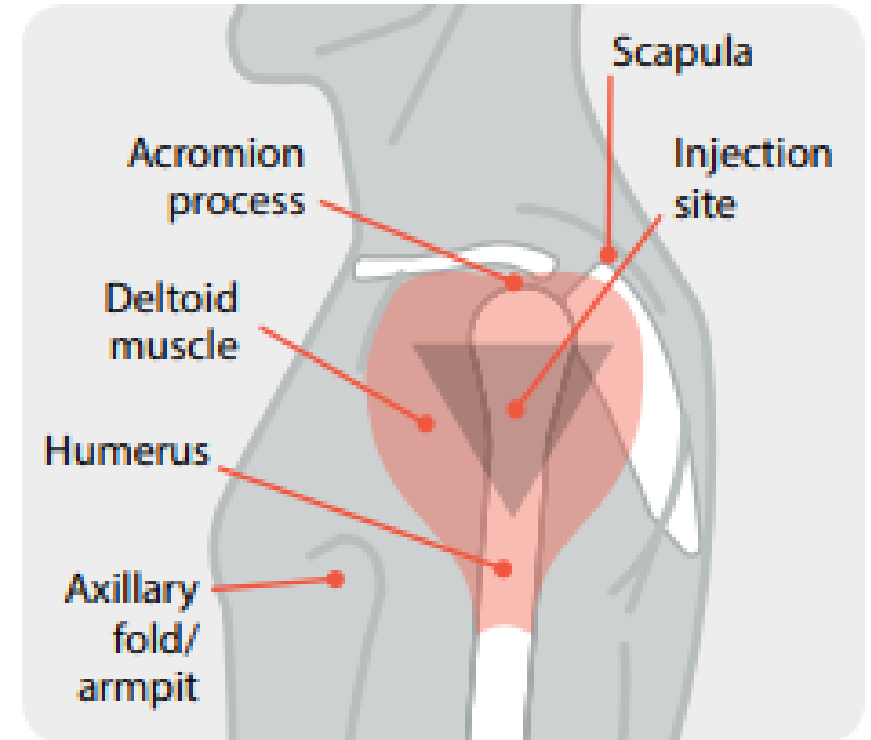
# Zoster Vaccine: Shingrix (RZV)

- Potential alternate schedule for **immunocompromised patients**:  
2 doses, 1-2 months apart



# Zoster Vaccine: Shingrix (RZV)

- **Route: IM Injection**
  - Site: Deltoid or the thigh may be used if necessary
  - Needle gauge and length: 23- to 25-gauge needle, length varies by age/weight
  - Subcutaneous doses would count, even though it is a vaccine administration error
- **RZV may be administered during the same clinical encounter as other vaccines**



# Zoster Vaccine: Shingrix (RZV)

- **Administer 2 doses of Shingrix regardless of previous history of:**
  - Vaccination with varicella-containing vaccines—Varivax or Zostavax
  - Varicella disease
  - Zoster disease
- **Separate varicella-containing vaccines and Shingrix by at least 8 weeks**

# Shingrix (RZV) vaccine efficacy

	50 to 69 years	70 years and older
Preventing Shingles	97%	91%
Preventing PHN	91%	89%

- In people 70 years and older who had healthy immune systems, Shingrix immunity remained high throughout **7 years** following vaccination
- Among immunocompromised adults, Shingrix was between **68% to 91%** effective in preventing shingles

# Zoster Vaccine Recommendations

## Immunization Schedules



### For Healthcare Providers

#### Child and Adolescent Schedule

Recommended vaccination schedule for ages 18 years or younger

[Birth to 18 Years](#)

#### Adult Schedule

Recommended vaccination schedule for ages 19 years or older

[19 Years or Older](#)

#### Clinical Vaccination Resources

[Download Schedule App for Healthcare Providers](#)

[Order Hard Copies of the Schedules](#)

[Vaccination Resources for Healthcare Providers](#)

#### Interim COVID-19 Immunization Schedule for Ages 5+


Guidance for COVID-19 vaccination schedules based on age and medical condition


[COVID-19 Vaccination Schedule](#)

<https://www.cdc.gov/vaccines/schedules/index.html>

# Zoster Adult Vaccination Schedule


Vaccine	19–26 years	27–49 years	50–64 years	≥65 years
Zoster recombinant (RZV)	2 doses for immunocompromising conditions (see notes)		2 doses	


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

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

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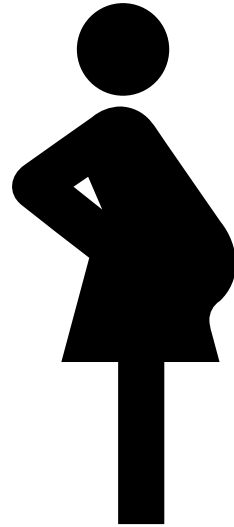
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If a patient is expected to become immunosuppressed due to therapy, administer RZV vaccine **before** patient becomes immunosuppressed. Consider using minimum intervals between the two doses.

# Zoster Adult Vaccination Schedule



There is **NO** recommendation for RZV use in pregnancy.  
Consider delaying RZV until after pregnancy.

# Zoster Adult Vaccination Schedule



If RZV vaccination is indicated for a breastfeeding mother, then RZV may be given

# Q&A

- **A 64-year-old woman who previously received Zostavax is wondering if she should be vaccinated against Zoster using Shingrix. Should she receive Shingrix vaccination?**
  - A. Yes
  - B. No



# Q&A

- A 64-year-old woman who previously received Zostavax is wondering if she should be vaccinated against Zoster using Shingrix. Should she receive Shingrix vaccination?
  - **A. Yes!**



# Q&A

- **A 4-year-old child was supposed to receive varicella vaccination, but instead accidentally received Shingrix. Does the Shingrix dose “count” for her varicella vaccine?**
  - A. Yes
  - B. No



# Q&A

- A 4-year-old child was supposed to receive varicella vaccination, but instead accidentally received Shingrix. Does the Shingrix dose “count” for her varicella vaccine?
  - **B. No**



3

**Clinical  
Considerations**



Does zoster vaccination  
protect against varicella?



# No!

- RZV is **not indicated** for the prevention of varicella
- There are limited data on the use of RZV in persons without a history of varicella or varicella vaccination.
- If RZV was inadvertently administered to a patient when varicella vaccination was indicated, administer the varicella vaccine as soon as possible (no minimum interval).

Do we need to ask about  
prior chickenpox or shingles,  
or test for serologic evidence  
of prior varicella before  
zoster vaccination?



# No!

- Serologic evidence of prior varicella is **not necessary** for zoster vaccination.
  - More than 99% of Americans born before 1980 have had varicella, even if they don't remember it
  - ACIP considers people born in the United States prior to 1980 as immune to varicella, EXCEPT for:
    - Immunocompromised persons
    - Healthcare personnel
    - Pregnant women
- If serologic evidence of varicella susceptibility does become available, providers should follow ACIP guidelines for varicella vaccination first.

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# Zoster Vaccine and Serology

- **If tested and varicella-negative:**
  - Administer 2 doses of single-antigen varicella vaccine (Varivax) separated by at least 4 weeks
  - Followed by 2 doses of RZV, separated by 2–6 months
    - Separate the 2<sup>nd</sup> (last) dose of varicella and 1<sup>st</sup> dose of RZV by at least 8 weeks

What if my patient is immunocompromised and has never had varicella or varicella vaccination before? Can they still receive RZV vaccination?



# It Depends...

- Every effort needs to be made to determine if an immunocompromised patient has evidence of prior immunity to varicella. Evidence of immunity for immunocompromised persons include:
  - Documented receipt of 2 doses of varicella vaccine,
  - Laboratory evidence of immunity,
  - Laboratory confirmation of disease,
  - Diagnosis or verification of history of varicella or herpes zoster by a healthcare provider

# It Depends...

- U.S. birth before 1980 does **NOT** constitute acceptable evidence of immunity for
  - Immunocompromised persons
  - Healthcare workers
  - Pregnant women
- For immunocompromised adults with no documented history of varicella, varicella vaccination, or herpes zoster, providers should refer to the ACIP varicella vaccine recommendations for further guidance, including postexposure prophylaxis guidance.
  - <https://www.cdc.gov/mmwr/preview/mmwrhtml/rr5604a1.htm>

What if my patient had zoster before? Can they still be vaccinated?



# Yes!

- Patients who previously had an episode of zoster can be vaccinated.

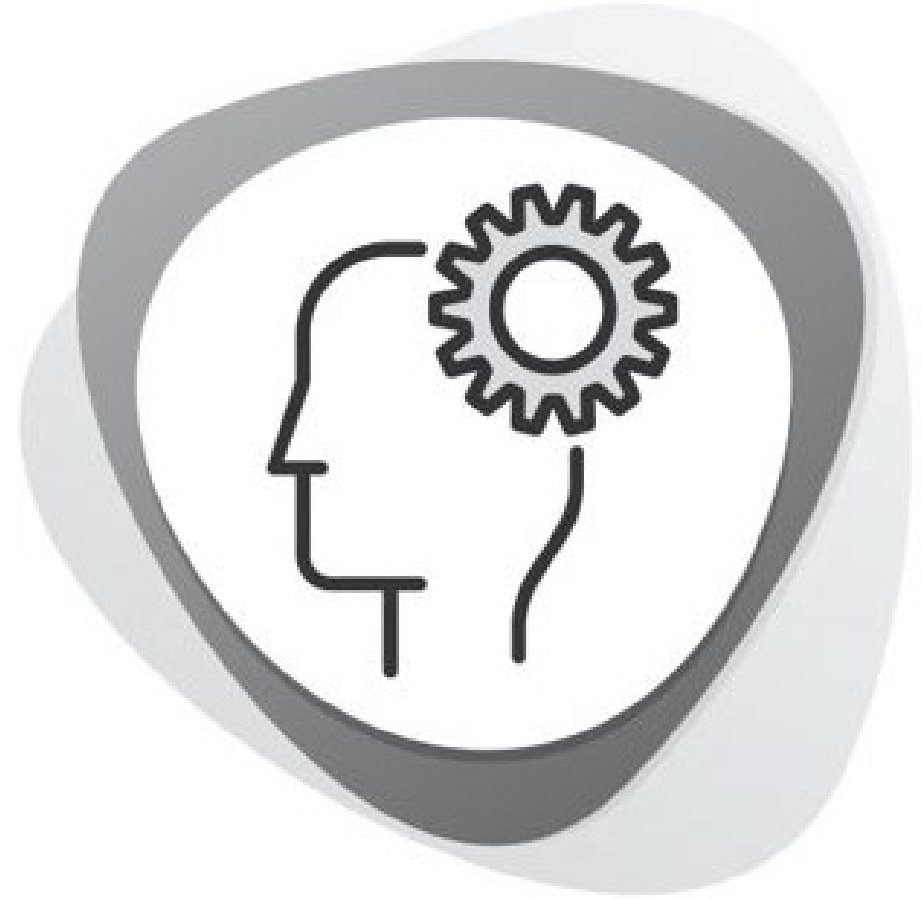
# Q&A

- **A 25-year-old patient who had chickenpox as a child has experienced multiple episodes of shingles. Is this patient able to receive the Shingrix vaccine?**
  - A. Yes
  - B. No



# Q&A

- A 25-year-old patient who had chickenpox as a child has experienced multiple episodes of shingles. Is this patient able to receive the Shingrix vaccine?
  - **B. No**





# Q&A

- **A 53-year-old attending physician is transferring jobs and is going to start working in your hospital system in a few weeks. Since this physician was born before 1980, can you presume that this physician is immune to varicella and vaccinate with RZV now?**
  - A. Yes
  - B. No



# Q&A

- **A 50-year-old attending physician is transferring jobs and is going to start working in your hospital system in a few weeks. Since this physician was born before 1980, can you presume that this physician is immune to varicella and vaccinate with RZV now?**
- **B. No**



4

**Safety**

# Contraindications

## **RZV (Shingrix)**

Severe allergic reaction (e.g., anaphylaxis) after a previous dose or to a vaccine component

# Precautions

## RZV (Shingrix)

Moderate or severe acute illness with or without fever

# RZV (Shingrix) Adverse Reactions

- **Local reactions are VERY common**
  - Pain, redness and swelling
- **Systemic reactions**
  - Fatigue, headache, shivering, fever, nausea
- **Symptoms resolve in 2-3 days**
- **Guillain-Barré syndrome (GBS) has been reported very rarely**

# Adverse Reactions after Shingrix

- **Educate patients regarding:**
  - Potential adverse reactions, including injection site and systemic reactions
  - **The need for a second dose—even if s/he has an adverse reaction**
- **Offer comfort measures and strategies**



5

**Storage &  
Handling**



# RZV Storage and Handling

- Store between 2°C and 8°C (36°F and 46°F)
  - Store vaccine AND diluent in the refrigerator
- Vaccine should be administered immediately after reconstitution or stored in the refrigerator and used within 6 hours
- Do not freeze

## RZV (Shingrix)

**Ages:** Adults 50 years and older

Adults 19 years and older who are or will be immunodeficient or immunosuppressed because of disease or therapy

**Use for:** Any dose in the series

**Route:** Intramuscular (IM) injection

**Refrigerate both components; do NOT freeze**

**Reconstitute lyophilized varicella zoster component with manufacturer-supplied adjuvant suspension**

**Beyond Use Time: Discard reconstituted vaccine if not used within 6 hours.**

## Q&A

- **While giving a dose of Shingrix the syringe came loose from the needle and part of the dose leaked out. Will the patient be protected with this partial dose, or does it need to be repeated?**
  - A. Dose should not be repeated
  - B. Dose should be repeated immediately
  - C. Wait 6 weeks to administer dose



## Q&A

- While giving a dose of Shingrix the syringe came loose from the needle and part of the dose leaked out. Will the patient be protected with this partial dose, or does it need to be repeated?
- **B. Dose should be repeated immediately**



# 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.imzuntizo.org/vi](http://www.imzuntizo.org/vi).  
Hojas de información sobre vacunas están disponibles en español y en muchos otros idiomas. Visite [www.imzuntizo.org/vi](http://www.imzuntizo.org/vi).

**1 Why get vaccinated?**      **2 MMRV Vaccine**

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 a high fever, runny nose, and red, watery eyes, commonly called a "rash" that covers the whole body.  
• Measles can lead to ear infections, diarrhea, and lung (pneumonia). Rarely, measles can cause brain damage.

**Mumps**  
• Mumps virus causes fever, headache, muscle aches, loss of appetite, and swollen and tender salivary glands on one or both sides.

• Mumps can lead to deafness, swelling of the brain and spinal cord covering (encephalitis or meningitis), pain in the testicles or ovaries, and, very rarely, death.

**Rubella (also known as German Measles)**  
• Rubella virus causes fever, sore throat, rash, and joint irritation.

• Rubella can cause arthritis in up to half of teenage women.

• If a woman gets rubella while she is pregnant, she miscarriage or her baby could be born with serious birth defects.

**Varicella (also known as Chickenpox)**  
• Chickenpox causes an itchy rash that usually lasts 5 to 7 days. In addition to fever, tiredness, loss of appetite, and sore throat, chickenpox can lead to skin infections, infection (pneumonia), inflammation of blood vessels, and brain and/or spinal cord covering (encephalitis or meningitis) and infections of the blood, bones, or joints. Rarely, it 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 even without personal contact. You can get chickenpox by entering a room that a person with measles left up before.

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

VACCINE INFORMATION STATEMENT

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**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 concern that MMRV is an over-vaccination. Vaccine Information Statements are available in Spanish and other languages. See [www.imzuntizo.org/vi](http://www.imzuntizo.org/vi).  
Hojas de información sobre vacunas están disponibles en español y en muchos otros idiomas. Visite [www.imzuntizo.org/vi](http://www.imzuntizo.org/vi).

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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.imzuntizo.org/vi](http://www.imzuntizo.org/vi).  
Hojas de información sobre vacunas están disponibles en español y en muchos otros idiomas. Visite [www.imzuntizo.org/vi](http://www.imzuntizo.org/vi).

**1 Why get vaccinated?**

Shingles (also called herpes zoster, or just zoster) is a painful skin rash, often with blisters. Shingles is caused by the varicella zoster virus, the same virus that causes chickenpox. After you have chickenpox, the virus stays in your body and can cause shingles later in life.

You can't catch shingles from another person. However, a person who has never had chickenpox (or chickenpox vaccine) could get chickenpox from someone with shingles.

A shingles rash usually appears on one side of the face or body and heals within 2 to 4 weeks. Its main symptom is pain, which can be severe. Other symptoms can include fever, headache, chills, and upset stomach. Very rarely, a shingles infection can lead to pneumonia, hearing problems, blindness, brain inflammation (encephalitis), or death.

Tell your vaccine provider if you:

- **Has any severe allergies.** A person who has ever had a life-threatening allergic reaction after a dose of recombinant shingles vaccine, or has a severe allergy to any component of this vaccine, may be advised not to be vaccinated. Ask your health care provider if you want information about vaccine components.
- **Are pregnant or breastfeeding.** There is not much information about use of recombinant shingles vaccine in pregnant or nursing women. Your healthcare provider might recommend delaying vaccination.
- **Are not feeling well.** If you have a mild illness, such as a cold, you can probably get the vaccine today. If you are moderately or severely ill, you should probably wait until you recover. Your doctor can advise you.

For about 1 person in 5, severe pain can continue even long after the rash has cleared up. This long-lasting pain is called post-herpetic neuralgia (PHN).

Shingles is far more common in people 50 years of age and older than in younger people, and the risk increases with age. It is also more common in people whose immune system is weakened because of a disease such as cancer, or by drugs such as steroids or chemotherapy.

At least 1 million people a year in the United States get shingles.

**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.

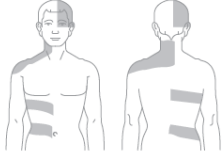
Two doses, 2 to 6 months apart, are recommended for adults 50 and older.

This vaccine is also recommended for people who have already gotten the live shingles vaccine (Zostavax). There is no live virus in this vaccine.

**3 Some people should not get this vaccine**

Tell your vaccine provider if you:

- **Has any severe, life-threatening allergies.** A person who has ever had a life-threatening allergic reaction after a dose of recombinant shingles vaccine, or has a severe allergy to any component of this vaccine, may be advised not to be vaccinated. Ask your health care provider if you want information about vaccine components.
- **Are pregnant or breastfeeding.** There is not much information about use of recombinant shingles vaccine in pregnant or nursing women. Your healthcare provider might recommend delaying vaccination.
- **Are not feeling well.** If you have a mild illness, such as a cold, you can probably get the vaccine today. If you are moderately or severely ill, you should probably wait until you recover. Your doctor can advise you.

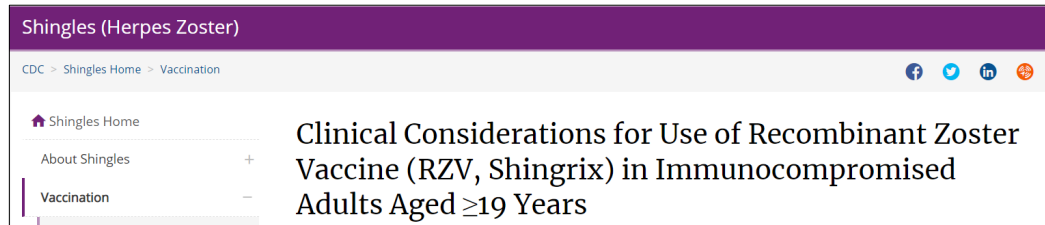


- There is a VIS for:
  - RZV (Shingrix)
- Give the appropriate VIS for the product that will be administered

# Shingrix Vaccine Administration Errors

- **Vaccine administration errors reported to VAERS include:**
  - **Wrong route:** Subcutaneous route rather than IM
  - **Wrong vaccine:** Shingrix instead of varicella (Varivax) vaccine
  - **Improper storage:** Administered after frozen storage
  - **Wrong preparation:** Administered the adjuvanted diluent only
  - **Wrong schedule:** Interval violations between doses of Shingrix or a previous dose of varicella-containing vaccine
- **Other errors we have heard about:**
  - Staff unaware of the need for a second dose

# Zoster Vaccine Resources and References



Shingles (Herpes Zoster)

CDC > Shingles Home > Vaccination

Shingles Home

About Shingles +

Vaccination -

Clinical Recommendations for Shingrix in Adults

For Health Care Providers

Laboratory

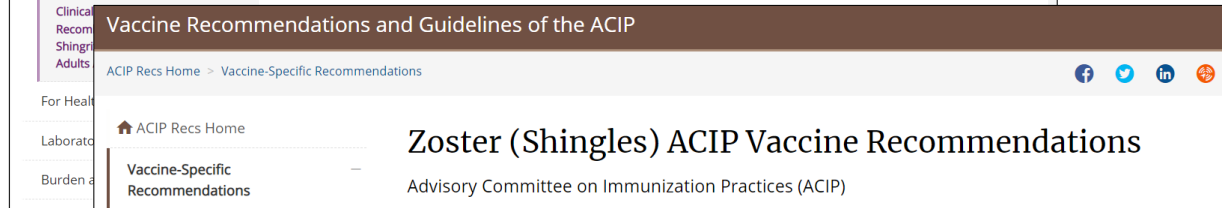
Burden of Disease

Resources

Multimedia

## Clinical Considerations for Use of Recombinant Zoster Vaccine (RZV, Shingrix) in Immunocompromised Adults Aged $\geq 19$ Years

<https://www.cdc.gov/shingles/vaccination/immunocompromised-adults.html>



Vaccine Recommendations and Guidelines of the ACIP

ACIP Recs Home > Vaccine-Specific Recommendations

ACIP Recs Home

Vaccine-Specific Recommendations -

Advisory Committee on Immunization Practices (ACIP)

## Zoster (Shingles) ACIP Vaccine Recommendations

<https://www.cdc.gov/vaccines/hcp/acip-recs/vacc-specific/shingles.html>



Vaccines and Preventable Diseases

Vaccines & Preventable Diseases Home > Vaccines by Disease > Shingles

Vaccines & Preventable Diseases Home

Vaccines by Disease -

Chickenpox (Varicella)	+
Dengue	+
Diphtheria	+
Flu (Influenza)	+
Hepatitis A	+
Hepatitis B	+
Hib	+
Human Papillomavirus (HPV)	+
Measles	+

## Shingles (Herpes Zoster) Vaccination Information for Healthcare Providers

**Shingrix Recommendations**  
CDC vaccination recommendations, and the contraindications and precautions for Shingrix vaccination

**About the Vaccine**  
Information about Shingrix vaccine composition, dosage, and administration, and vaccine efficacy, duration of protection, reactogenicity

**Frequently Asked Questions About Shingrix**  
Answers to commonly asked questions about the new shingles vaccine

**Storage and Handling**  
Information about Shingrix vaccine storage and handling

<https://www.cdc.gov/vaccines/vpd/shingles/hcp/index.html>

# Continuing Education Information

- CE credit, go to: <https://tceols.cdc.gov/>
- Search course number: **WD4564-092022**
- CE credit expires: **July 1, 2024**
- CE instructions are available on the **Pink Book Web-on-Demand Series** web page
- Questions and additional help with the online CE system, e-mail [CE@cdc.gov](mailto:CE@cdc.gov)

The screenshot shows the TCEO website interface. At the top, there is a blue header with the text "Training and Continuing Education Online (TCEO)". Below this is the TCEO logo, which consists of the letters "TCEO" in a bold, blue font, with a green circular arrow icon to the right. Underneath the logo, the text "TRAINING AND CONTINUING EDUCATION ONLINE" is displayed in a smaller, blue font. On the left side, there is a vertical navigation menu with several blue buttons: "TCEO Home", "Search Courses", "Create Account", "9 Simple Steps to Earn CE", "Frequently Asked Questions", and "Contact TCEO". The main content area on the right has a white background and contains the following text:

**New to TCEO?**  
Visit [Create Account](#). Once your account has been created, you will be able to search for courses and complete requirements to receive CE.

**Already have a TCEO account from the previous system?**  
To move your account to the new system please sign in above using your existing TCEO username and password. Once signed in, follow the prompts to verify and update your account. After your account is updated forward you will use this email address and password to sign in.

**Not sure how to get started?**  
Follow these [9 Simple Steps](#) to earn continuing education for the courses you have taken or conferences you have attended!

Below the text is a row of four small images: a woman smiling at a child, a man in a suit looking thoughtful, a doctor in a white coat holding a dog, and a woman sitting at a desk working on a laptop.

Below the images, the text "Welcome to TCEO" is displayed, followed by a small line of text: "Training and Continuing Education Online (TCEO) is a system that provides access to CDC educational activities for continuing education (CE). Use TCEO to search for CE opportunities, complete course e..."

# E-mail Your Immunization Questions to Us

- [NIPINFO@cdc.gov](mailto:NIPINFO@cdc.gov)





# Thank You From Atlanta!

