National Adult Immunization Update and Latest ACIP Recommendations

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Outline

- **2023 ACIP Adult Immunization Schedule**
- **Vaccine Recommendations**
  - COVID-19
  - Influenza
  - Polio
  - Zoster
  - Hepatitis B
  - Pneumococcal

2023 ACIP Adult Immunization Schedule

Recommended Adult Immunization Schedule
for ages 19 years or older

UNITED STATES
2023

How to use the adult immunization schedule

1 Determine recommended vaccinations by age **(Table 1)**

2 Assess need for additional recommended vaccinations by medical condition or other indication **(Table 2)**

3 Review vaccine types, dosing frequencies and intervals, and considerations for special situations **(Notes)**

4 Review contraindications and precautions for vaccine types **(Appendix)**

Vaccines in the Adult Immunization Schedule*

Vaccine	Abbreviation(s)	Trade name(s)
COVID-19 vaccine	1vCOV-mRNA	Comirnaty®/Pfizer-BioNTech COVID-19 Vaccine SPIKEVAX®/Moderna COVID-19 Vaccine
	2vCOV-mRNA	Pfizer-BioNTech COVID-19 Vaccine, Bivalent Moderna COVID-19 Vaccine, Bivalent
	1vCOV-aPS	Novavax COVID-19 Vaccine
Haemophilus influenzae type b vaccine	Hib	ActHIB® Hiberix® PedvaxHIB®
Hepatitis A vaccine	HepA	Havrix® Vaqta®
Hepatitis A and hepatitis B vaccine	HepA-HepB	Twinrix®
Hepatitis B vaccine	HepB	Engerix-B® Heplisav-B® PreHevbrio® Recombivax HB®
Human papillomavirus vaccine	HPV	Gardasil 9®
Influenza vaccine (inactivated)	IIV4	Many brands
Influenza vaccine (live, attenuated)	LAIV4	FluMist® Quadrivalent
Influenza vaccine (recombinant)	RIV4	Flublok® Quadrivalent
Measles, mumps, and rubella vaccine	MMR	M-M-R II® Priorix®
Meningococcal serogroups A, C, W, Y vaccine	MenACWY-D MenACWY-CRM MenACWY-TT	Menactra® Menveo® MenQuadfi®
Meningococcal serogroup B vaccine	MenB-4C MenB-FHbp	Bexsero® Trumenba®
Pneumococcal conjugate vaccine	PCV15 PCV20	Vaxneuvance™ Prevnar 20™
Pneumococcal polysaccharide vaccine	PPSV23	Pneumovax 23®
Poliovirus vaccine	IPV	IPOL®
Tetanus and diphtheria toxoids	Td	Tenivac® Tdvax™
Tetanus and diphtheria toxoids and acellular pertussis vaccine	Tdap	Adacel® Boostrix®
Varicella vaccine	VAR	Varivax®
Zoster vaccine, recombinant	RZV	Shingrix

*Administer recommended vaccines if vaccination history is incomplete or unknown. Do not restart or add doses to vaccine series if there are extended intervals between doses. The use of trade names is for identification purposes only and does not imply endorsement by the ACIP or CDC.

Recommended by the Advisory Committee on Immunization Practices (www.cdc.gov/vaccines/acip) and approved by the Centers for Disease Control and Prevention (www.cdc.gov), American College of Physicians (www.acponline.org), American Academy of Family Physicians (www.aafp.org), American College of Obstetricians and Gynecologists (www.acog.org), American College of Nurse-Midwives (www.midwife.org), American Academy of Physician Associates (www.aapa.org), American Pharmacists Association (www.pharmacist.com), and Society for Healthcare Epidemiology of America (www.shea-online.org).

Report
- Suspected cases of reportable vaccine-preventable diseases or outbreaks to the local or state health department
- Clinically significant postvaccination reactions to the Vaccine Adverse Event Reporting System at www.vaers.hhs.gov or 800-822-7967

Injury claims
All vaccines included in the adult immunization schedule except PPSV23, RZV, and COVID-19 vaccines are covered by the National Vaccine Injury Compensation Program (VICP). COVID-19 vaccines that are authorized or approved by the FDA are covered by the Countermeasures Injury Compensation Program (CICP). For more information, see www.hrsa.gov/vaccinecompensation or www.hrsa.gov/cicp.

Questions or comments
Contact www.cdc.gov/cdc-info or 800-CDC-INFO (800-232-4636), in English or Spanish, 8 a.m.–8 p.m. ET, Monday through Friday, excluding holidays.

Download the CDC Vaccine Schedules app for providers at www.cdc.gov/vaccines/schedules/hcp/schedule-app.html.

Helpful information
- Complete Advisory Committee on Immunization Practices (ACIP) recommendations: www.cdc.gov/vaccines/hcp/acip-recs/index.html
- *General Best Practice Guidelines for Immunization* (including contraindications and precautions): www.cdc.gov/vaccines/hcp/acip-recs/general-recs/index.html
- Vaccine information statements: www.cdc.gov/vaccines/hcp/vis/index.html
- Manual for the Surveillance of Vaccine-Preventable Diseases (including case identification and outbreak response): www.cdc.gov/vaccines/pubs/surv-manual
- Travel vaccine recommendations: www.cdc.gov/travel
- Recommended Child and Adolescent Immunization Schedule, United States, 2023: www.cdc.gov/vaccines/schedules/hcp/child-adolescent.html
- ACIP Shared Clinical Decision-Making Recommendations: www.cdc.gov/vaccines/acip/acip-scdm-faqs.html

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

Scan QR code for access to online schedule

CS310021-C

Table 1 Recommended Adult Immunization Schedule by Age Group, United States, 2023

Vaccine	19–26 years	27–49 years	50–64 years	≥65 years
COVID-19	2- or 3- dose primary series and booster (See Notes)			
Influenza inactivated (IIV4) or **Influenza recombinant** (RIV4)	1 dose annually			
or		or		
Influenza live, attenuated (LAIV4)	1 dose annually			
Tetanus, diphtheria, pertussis (Tdap or Td)	1 dose Tdap each pregnancy; 1 dose Td/Tdap for wound management (see notes)			
	1 dose Tdap, then Td or Tdap booster every 10 years			
Measles, mumps, rubella (MMR)	1 or 2 doses depending on indication (if born in 1957 or later)			For healthcare personnel, see notes
Varicella (VAR)	2 doses (if born in 1980 or later)		2 doses	
Zoster recombinant (RZV)	2 doses for immunocompromising conditions (see notes)		2 doses	
Human papillomavirus (HPV)	2 or 3 doses depending on age at initial vaccination or condition	27 through 45 years		
Pneumococcal (PCV15, PCV20, PPSV23)	1 dose PCV15 followed by PPSV23 OR 1 dose PCV20 (see notes)			See Notes
				See Notes
Hepatitis A (HepA)	2, 3, or 4 doses depending on vaccine			
Hepatitis B (HepB)	2, 3, or 4 doses depending on vaccine or condition			
Meningococcal A, C, W, Y (MenACWY)	1 or 2 doses depending on indication, see notes for booster recommendations			
Meningococcal B (MenB)	2 or 3 doses depending on vaccine and indication, see notes for booster recommendations			
	19 through 23 years			
***Haemophilus influenzae* type b** (Hib)	1 or 3 doses depending on indication			

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

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

Recommended vaccination based on shared clinical decision-making

No recommendation/ Not applicable

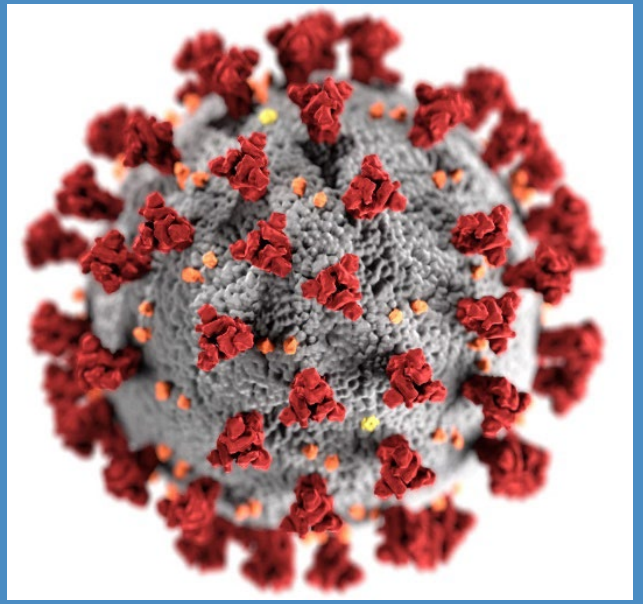
Table 2 Recommended Adult Immunization Schedule by Medical Condition or Other Indication, United States, 2023

Vaccine	Pregnancy	Immuno-compromised (excluding HIV infection)	HIV infection CD4 percentage and count		Asplenia, complement deficiencies	End-stage renal disease, or on hemodialysis	Heart or lung disease; alcoholism[a]	Chronic liver disease	Diabetes	Health care personnel[b]	Men who have sex with men
			<15% or <200 mm³	≥15% and ≥200 mm³							
COVID-19		See Notes									
IIV4 or RIV4	1 dose annually										
or										or	
LAIV4	Contraindicated					Precaution				1 dose annually	
Tdap or Td	1 dose Tdap each pregnancy	1 dose Tdap, then Td or Tdap booster every 10 years									
MMR	Contraindicated*	Contraindicated		1 or 2 doses depending on indication							
VAR	Contraindicated*	Contraindicated			2 doses						
RZV		2 doses at age ≥19 years			2 doses at age ≥50 years						
HPV	Not Recommended*	3 doses through age 26 years			2 or 3 doses through age 26 years depending on age at initial vaccination or condition						
Pneumococcal (PCV15, PCV20, PPSV23)		1 dose PCV15 followed by PPSV23 OR 1 dose PCV20 (see notes)									
HepA					2, 3, or 4 doses depending on vaccine						
HepB	3 doses (see notes)	2, 3, or 4 doses depending on vaccine or condition									
MenACWY	1 or 2 doses depending on indication, see notes for booster recommendations										
MenB	Precaution	2 or 3 doses depending on vaccine and indication, see notes for booster recommendations									
Hib		3 doses HSCT[c] recipients only			1 dose						

- Recommended vaccination for adults who meet age requirement, lack documentation of vaccination, or lack evidence of past infection
- Recommended vaccination for adults with an additional risk factor or another indication
- Recommended vaccination based on shared clinical decision-making
- Precaution–vaccination might be indicated if benefit of protection outweighs risk of adverse reaction
- Contraindicated or not recommended–vaccine should not be administered.
  *Vaccinate after pregnancy.
- No recommendation/ Not applicable

a. Precaution for LAIV4 does not apply to alcoholism. **b.** See notes for influenza; hepatitis B; measles, mumps, and rubella; and varicella vaccinations. **c.** Hematopoietic stem cell transplant.

COVID-19



COVID-19 Vaccine Definitions

There are 2 types of vaccine:

- **Monovalent vaccine:** The vaccine product includes the original strain of SARS-CoV-2

- **Bivalent vaccine:** The vaccine product based on BOTH the original strain of SARS-CoV-2 and Omicron variants of SARS-CoV-2

Interim Clinical Considerations for Use of COVID-19 Vaccines | CDC

COVID-19 Monovalent Vaccines (United States)

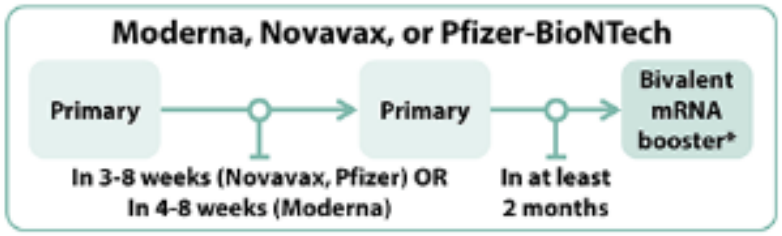
Name	Manufacturer	Abbreviation	Trade Name	Type	Authorized Ages
BTNT162b2	Pfizer-BioNTech	1vCOV-mRNA	Comirnaty	mRNA	6 m and older
mRNA 1273	Moderna	1vCOV-mRNA	Spikevax	mRNA	6 m and older
NVX-CoV2373	Novavax	1vCOV-aPS	---	protein subunit	12 y and older
Ad.62.CoV2.S	Janssen		---	vector	18 y and older

COVID-19 Bivalent Vaccines (United States)

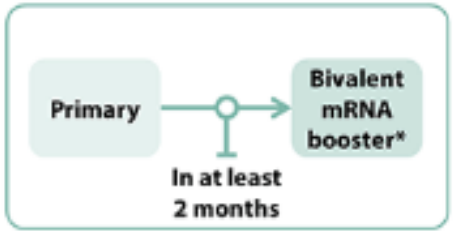
- **Pfizer – authorized for 6 months and older**
- **Moderna – authorized for 6 months and older**
- **Two strands of mRNA**
  - Ancestral: similar to monovalent
  - Omicron BA.4/5: strands of mRNA coding the spike protein for Omicron BA.4 and BA.5 (identical)
  - Each strand half the amount of mRNA in the monovalent Pfizer and Moderna vaccines

COVID-19 Vaccination Schedule for People who are NOT Moderately or Severely Immunocompromised

People ages 12 years and older



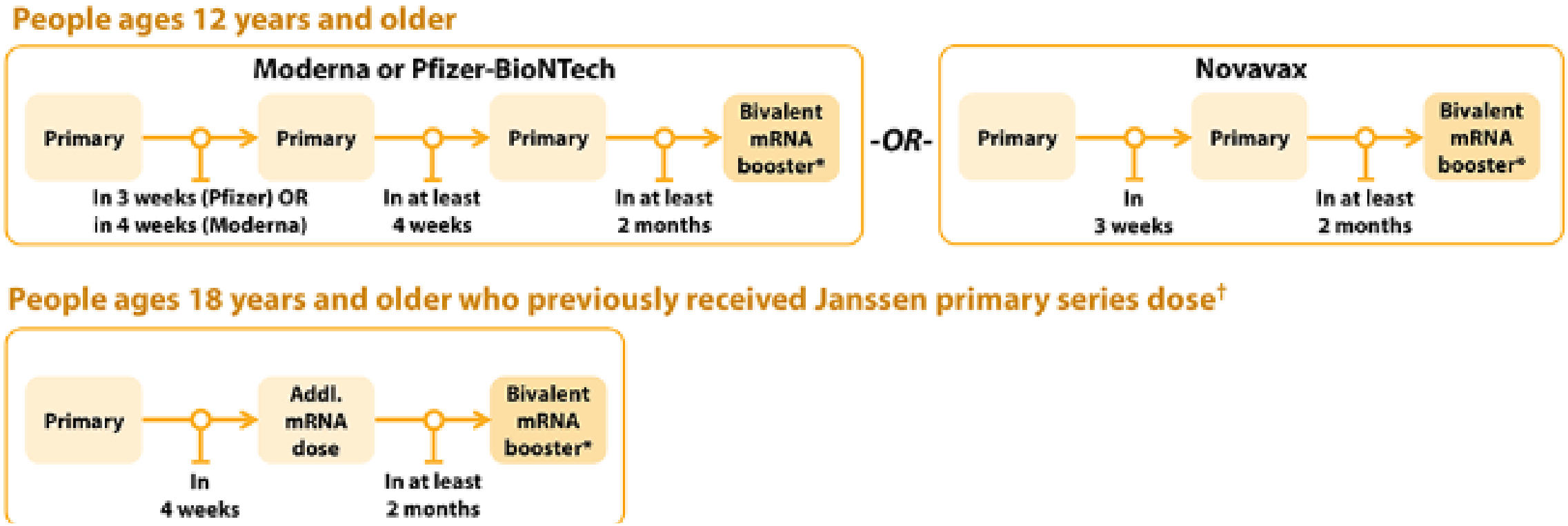
People ages 18 years and older who previously received Janssen primary series dose†

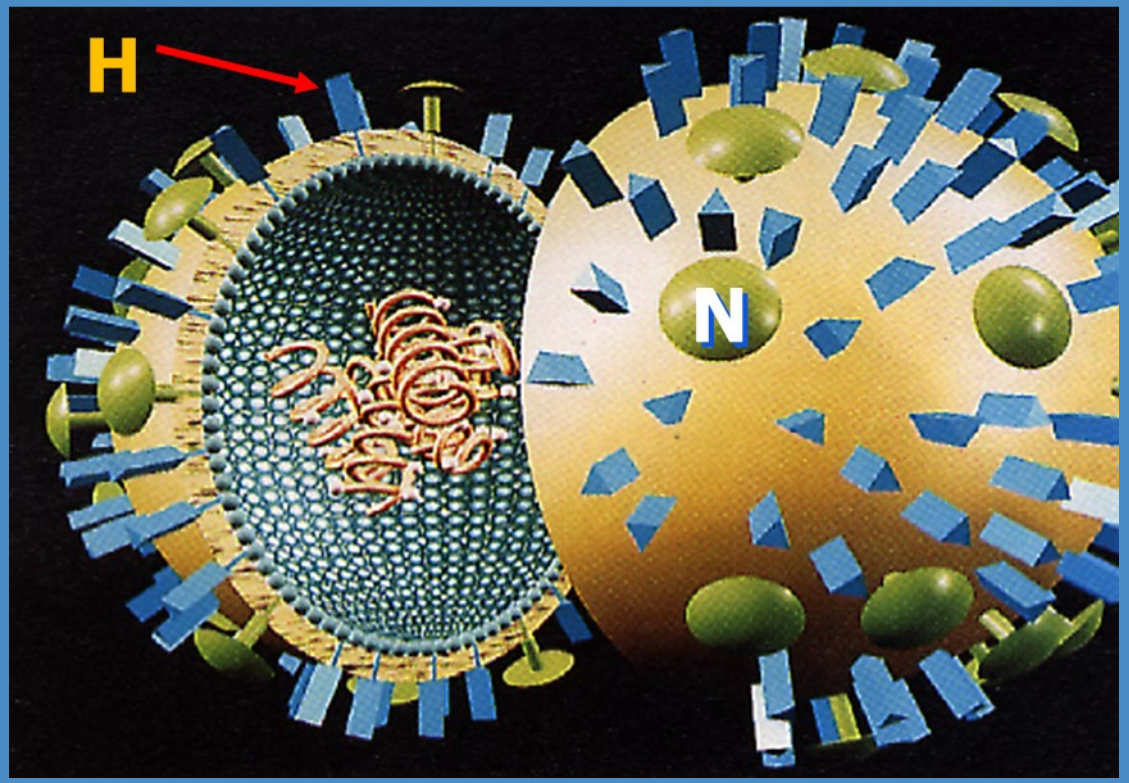


*Administer an age-appropriate mRNA bivalent booster (i.e., Pfizer-BioNTech for people age 5 years and either Pfizer-BioNTech or Moderna for people ages 6 years and older). For people who previously received a monovalent booster dose(s), the bivalent booster dose is administered at least 2 months after the last monovalent booster dose.

†Janssen COVID-19 Vaccine should only be used in certain limited situations. See: https://www.cdc.gov/vaccines/covid-19/clinical-considerations/interim-considerations-us-appendix.html#appendix-a

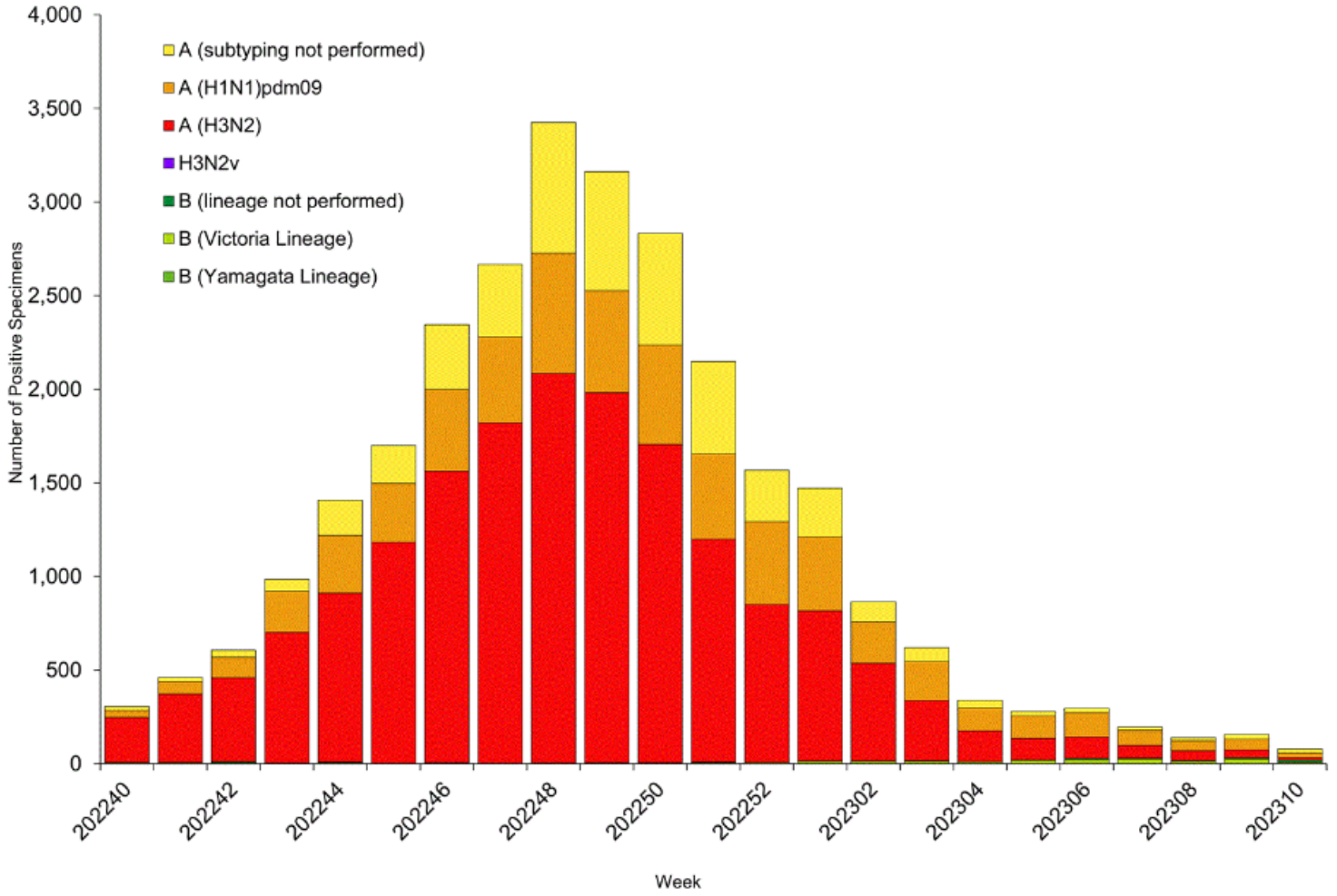
COVID-19 Vaccination Schedule for People who ARE Moderately or Severely Immunocompromised





Influenza

Influenza Positive Tests Reported to CDC by U.S. Public Health Laboratories, National Summary, October 2, 2022 – March 11, 2023



View Chart Data | View Full Screen

ACIP Recommendations for Influenza Vaccination: 2022-23

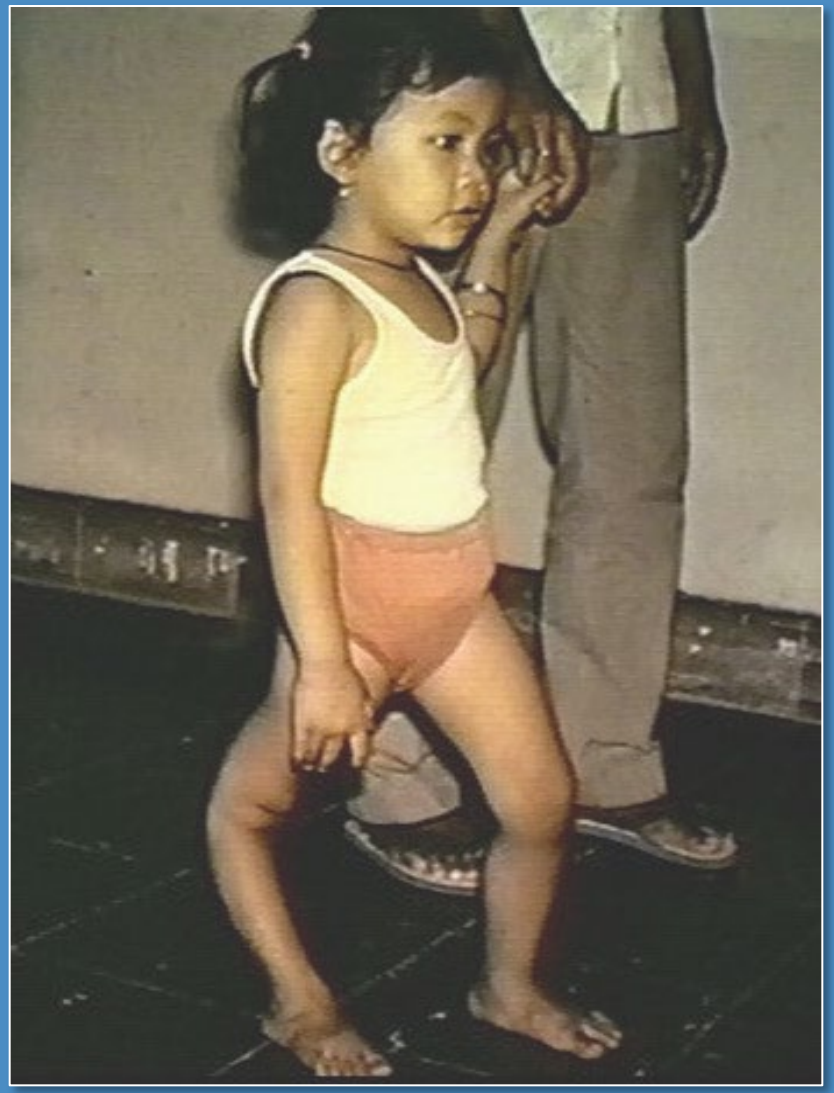
- **Influenza vaccine is recommended for all eligible persons 6 months of age and older**
- **Administer the correct product based on the recipient's age and health status**
  - For example, LAIV (Flumist) vaccine is approved for persons 2 through 49 years of age
- **All influenza vaccine is administered by intramuscular (IM) injection *except* LAIV which is administered intranasally**
- **Influenza vaccine can be administered at the same clinical visit as other vaccines (including pneumococcal and COVID-19 vaccines)**
  - Administer influenza vaccines associated with enhanced local reactions in separate limb from COVID-19 vaccine, if possible.

65 Years and Older: Higher Dose and Adjuvanted Vaccines

- **ACIP voted for preferential use of higher dose, recombinant, or adjuvanted influenza vaccines for persons 65 years old or older.**
- **Includes these vaccines:**
  - High-dose influenza vaccine (Fluzone High-Dose)
  - Recombinant Influenza Vaccine (Flublok)
  - Adjuvanted influenza vaccine (Fluad)
- **No preference between these three**

- **If none of the three are available, vaccinate with another age-appropriate influenza vaccine.**

Polio



ACIP Polio Immunization Adult Recommendations

- **Routine vaccination of U.S. residents age 18 years and older not previously recommended.**
- **Adults who are unvaccinated or have incomplete vaccination who are at increased risk for exposure should receive vaccination.**
  - Other adults who are unvaccinated or have incomplete vaccination should talk with their health care provider

ACIP Polio Immunization Adult Recommendations

- **Adults at increased risk of exposure**
  - Laboratory workers handling specimens that may contain polioviruses
  - Health care personnel treating patients who could have polio or have close contact with a person who could be infected with poliovirus
  - Travelers to areas where poliomyelitis is endemic or epidemic.
  - Unvaccinated or incompletely vaccinated adults whose children will be receiving oral poliovirus vaccine (for example, international adoptees or refugees).
  - Unvaccinated or incompletely vaccinated adults living or working in a community where poliovirus is circulating.

https://www.cdc.gov/vaccines/vpd/polio/public/index.html

ACIP Polio Immunization Adult Recommendations

- **Schedule for unvaccinated adults:**
  - The first dose at any time
  - The second dose 1 to 2 months later
  - The third dose 6 to 12 months after the second

  - Adults who have had one or two doses of polio vaccine in the past should receive the remaining one or two doses.

https://www.cdc.gov/vaccines/vpd/polio/public/index.html

ACIP Polio Immunization Adult Recommendations

- **Incomplete series**
  - Administer remaining doses in series based on immunization history
  - No need to restart a valid, documented series
    - Valid = minimum intervals met
- **Previously completed series**
  - Administer 1 dose of IPV to those at risk

Hepatitis B

Hepatitis B

- **The following should receive hepatitis B vaccines:**
  - All infants and children
  - Adults 19 through 59 years of age
  - Adults 60 years of age or older with risk factors for hepatitis B infection
- **Patients with diabetes older than 59 years (shared clinical decision-making)**
- **The following may receive hepatitis B vaccines:**
  - Adults 60 years of age or older without known risk factors for hepatitis B infection

Hepatitis B-Containing Vaccine Products*

Vaccine product	Age indications
Single-component vaccines	
Engerix-B	
Pediatric formulation	Birth–19 years
Adult formulation	20 years and older
Recombivax HB	
Pediatric formulation	Birth–19 years
Adult formulation	20 years and older
Heplisav-B	18 years and older
Prehevbrio	18 years and older
Combination vaccines	
Pediarix–DTaP, HepB, and IPV vaccines	6 weeks–6 years
Vaxelis–DTaP, IPV, Hib, and HepB vaccines	6 weeks–4 years
Twinrix–HepA and HepB vaccines	18 years and older

*ACIP does not state a preference

HepB Vaccine Schedule: Adult Recombivax HB, Engerix-B, or PreHevbrio

Dose	Routine Interval	Minimum Interval
Dose 1	0 month	---
Dose 2	1 month	4 weeks after Dose 1
Dose 3	6 months	8 weeks after Dose 2 and 16 weeks after Dose 1

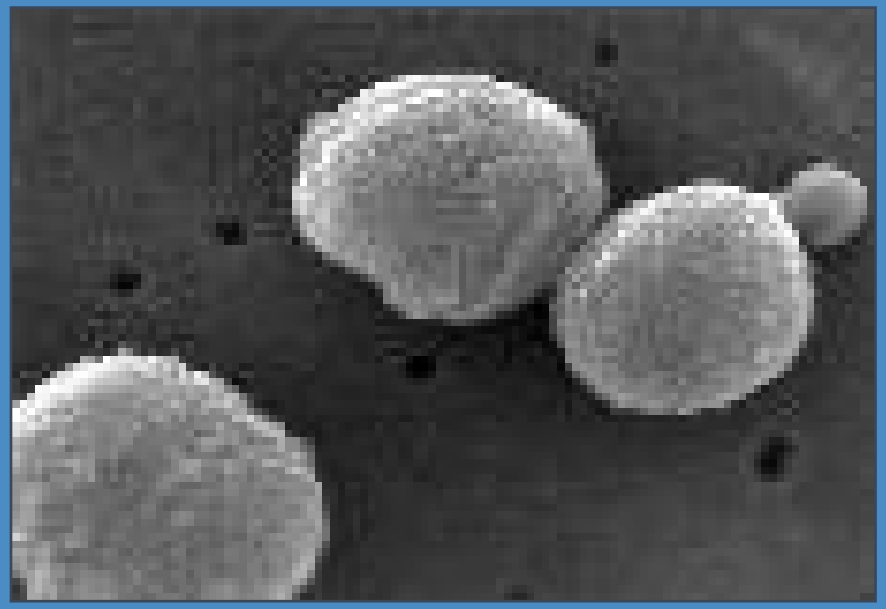
Pregnancy

- **Until safety data are available for Heplisav-B and Prehevbrio, providers should vaccinate pregnant people needing HepB vaccine with either:**
  - Engerix-B
  - Recombivax HB
  - Twinrix

Weng MK, Doshani M, Khan MA, et al. Universal Hepatitis B Vaccination in Adults Aged 19–59 Years: Updated Recommendations of the Advisory Committee on Immunization Practices — United States, 2022. MMWR Morb Mortal Wkly Rep 2022;71:477–483. DOI: http://dx.doi.org/10.15585/mmwr.mm7113a1external icon

Hepatitis B Serologic Testing

- **All adults are recommended to be screened:**
  - Anti-HBs
  - HBsAg
  - Total anti-HBc
- **Those who screen as susceptible should still follow ACIP recommendations for vaccination**



Pneumococcal

Pneumococcal Vaccines

- **1983**
  - 23-valent polysaccharide vaccine licensed (PPSV23)
- **2010**
  - 13-valent polysaccharide conjugate vaccine licensed (PCV13)
- **2021**
  - 20-valent polysaccharide conjugate vaccine licensed (PCV20) – PREVNAR20 - Pfizer
- **2021**
  - 15-valent polysaccharide conjugate vaccine licensed (PCV15) – VAXNEUVANCE – Merck

Pneumococcal Conjugate vs. Polysaccharide Vaccines

	PCV	PPSV23
Basic vaccine composition	Capsular polysaccharides conjugated to carrier protein	Capsular polysaccharide antigens
Mechanism of action	T-cell dependent	T-cell independent
Memory B cell production	Yes	No
Reduce pneumococcal carriage	Yes	No

Adapted from slide prepared by M. Kobayashi

Pneumococcal Vaccination Schedule: Adults

Vaccine	19–26 years	27–49 years	50–64 years	≥65 years
Pneumococcal (PCV15, PCV20, PPSV23)	1 dose PCV15 followed by PPSV23 OR 1 dose PCV20 (see notes)			See Notes See Notes

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

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

Recommended vaccination based on shared clinical decision-making

Notes and full schedule available at: https://www.cdc.gov/vaccines/schedules/hcp/imz/adult.html

Pneumococcal Risk Groups

- Chronic heart disease
- Chronic lung disease
- Diabetes mellitus
- Alcoholism
- Chronic liver disease
- Solid organ transplant
- Immunocompromise
- Chronic renal disease/nephrotic syndrome
- Anatomic and/or functional asplenia (e.g., sickle cell disease)
- Cerebrospinal fluid (CSF) leak
- Cochlear implant

Pneumococcal Vaccination Recommendations for Adults

- PCV15 or PCV20 recommended
  - PCV13 not recommended
- Routine vaccination for ages 65 years and older
- Risk-based vaccination for ages 19 through 64 years

Pneumococcal Vaccination Recommendations for Adults: *Ages 65+, Unvaccinated or Pneumo Unknown*

- Administer 1 dose of either PCV15 or PCV20
  - No preference
- If PCV15 is used, give 1 dose PPSV23 at least 1 year later
  - May consider at least 8 weeks if immunocompromising condition, chronic renal disease, anatomic and/or functional asplenia, cerebrospinal fluid leak, or cochlear implant

Pneumococcal Vaccination Recommendations for Adults: *Ages 19–64, Unvaccinated*

- Only recommended for those at increased risk

- 1 dose of either PCV15 or PCV20
  - No preference

- If PCV15 is used, give 1 dose PPSV23 at least 1 year later
  - May consider at least 8 weeks if immunocompromising condition, chronic renal disease, anatomic and/or functional asplenia, cerebrospinal fluid leak, or cochlear implant

Pneumococcal Vaccination Recommendations for Adults: *Ages 65+, Vaccinated*

- Previous **PCV13 AND PPSV23** but **no or unknown PPSV23 at or after age 65 years**
  - 1 dose PCV20 at least 5 years after last pneumo vaccine dose OR complete recommended PPSV23 series
- Previous **PCV13 AND PPSV23 (AND PPSV23** was received **at age 65 years or older)**
  - 1 dose of PCV20 at least 5 years after the last pneumo vaccine dose based on shared clinical decision making

Pneumococcal Vaccination Recommendations for Adults: *Ages 19–64, Vaccinated*

- Previous **PCV13 AND PPSV23** but **have not completed recommended series**
  - 1 dose PCV20 at least 5 years after last pneumo vaccine dose OR complete recommended PPSV23 series

Pneumococcal Vaccination Recommendations for Adults: *All ages, Vaccinated (Routine AND Risk-Based)*

- Previous **PPSV23 only**:
  - 1 dose PCV15 or PCV20 at least 1 year later

- Previous **PCV13 only**:
  - 1 dose PCV 20 at least 1 year later OR
  - Complete the recommended PPSV23 series (interval will vary)

Vaccines & Preventable Diseases Home

Vaccines by Disease

- Chickenpox (Varicella)
- Dengue
- Diphtheria
- Flu (Influenza)
- Hepatitis A
- Hepatitis B
- Hib
- Human Papillomavirus (HPV)
- Measles
- Meningococcal
- Mumps
- Pneumococcal
  - What Everyone Should Know
  - For Healthcare Professionals

PneumoRecs VaxAdvisor Mobile App for Vaccine Providers

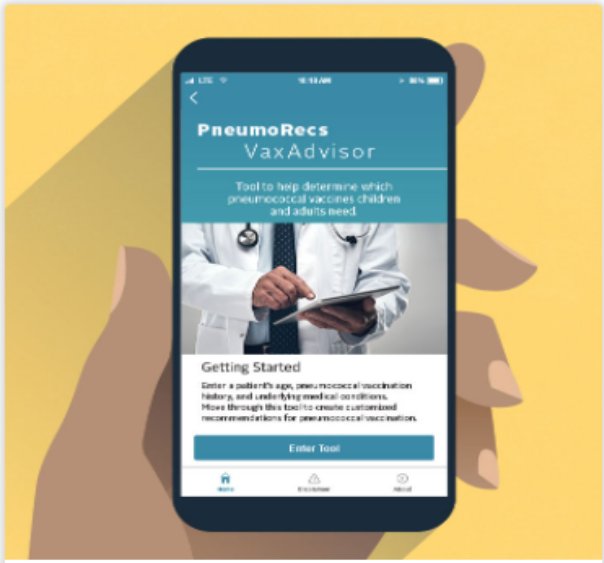
The PneumoRecs VaxAdvisor Mobile App was updated on February 9, 2022, to reflect CDC's new adult pneumococcal vaccination recommendations.

The ***PneumoRecs VaxAdvisor*** mobile app helps vaccination providers quickly and easily determine which pneumococcal vaccines a patient needs and when. The app incorporates recommendations for all ages so internists, family physicians, pediatricians, and pharmacists alike will find the tool beneficial.

Users simply:

- Enter a patient's age.
- Note if the patient has specific underlying medical conditions.
- Answer questions about the patient's pneumococcal vaccination history.

Then the app provides patient-specific guidance consistent with the immunization schedule recommended by the U.S. Advisory Committee on Immunization Practices (ACIP).



PneumoRecs VaxAdvisor is available for download on iOS and Android mobile devices.

Download the App Today

Download PneumoRecs VaxAdvisor for free:

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Zoster

Morbidity and Mortality Weekly Report

Use of Recombinant Zoster Vaccine in Immunocompromised Adults Aged ≥19 Years: Recommendations of the Advisory Committee on Immunization Practices — United States, 2022

Tara C. Anderson, DVM, PhD[1]; Nina B. Masters, PhD[1,2]; Angela Guo, MPH, MBA[1]; Leah Shepersky, MPH[1]; Andrew J. Leidner, PhD[3]; Grace M. Lee, MD[4]; Camille N. Kotton, MD[5]; Kathleen L. Dooling, MD[1]

Zoster Vaccine Recombinant, Adjuvanted (Shingrix, GlaxoSmithKline [GSK]) is a 2-dose (0.5 mL each) subunit vaccine containing recombinant glycoprotein E in combination with adjuvant ($AS01_B$) that was licensed in the United States for prevention of herpes zoster for adults aged ≥50 years by the Food and Drug Administration (FDA) and recommended for immunocompetent adults aged ≥50 years by the Advisory Committee on Immunization Practices (ACIP) in 2017* (*1*). On July 23, 2021, the FDA expanded the indication for recombinant zoster vaccine (RZV) to include adults aged ≥18 years who are or will be at increased risk for herpes zoster because of immunodeficiency or immunosuppression caused by known disease or therapy (*2*). On October 20, 2021, ACIP recommended 2 doses of RZV for the prevention of herpes zoster and related complications in adults aged ≥19 years† who are or will be immunodeficient or immunosuppressed because of disease or therapy. RZV is the first herpes zoster vaccine approved for use in immunocompromised persons. With moderate to high vaccine efficacy and an acceptable safety profile, RZV has the potential to prevent considerable herpes zoster incidence and related complications. This report updates previous ACIP recommendations for the prevention of herpes zoster (*1,3*).

Herpes zoster is a painful, cutaneous eruption, usually involving one to three adjacent dermatomes,§ resulting from reactivation of latent varicella-zoster virus. The incidence of herpes zoster and related complications (including the most common complication of postherpetic neuralgia) increase with age (*3–5*). The risk for herpes zoster and related complications is generally higher in immunocompromised compared with immunocompetent adults, although there is heterogeneity within and across immunocompromised groups (*6,7*). The risk for herpes zoster among younger adults with certain immunocompromising conditions can be comparable to or higher than that in the general adult population aged >50 years (*6,7*). Because immunosuppression and immunodeficiency were contraindications for the previously available vaccine, zoster vaccine live,¶ and RZV was originally recommended for immunocompetent adults aged ≥50 years, there has been an unmet need for vaccination against herpes zoster in immunocompromised adults.

During December 2017–October 2021, the ACIP Herpes Zoster Work Group participated in monthly or bimonthly teleconferences to review herpes zoster epidemiology and evidence for the efficacy and safety of RZV in immunocompromised adults. These topics were discussed during four ACIP meetings in 2021. To guide its deliberations, ACIP used the Evidence to Recommendations Framework and the Grading of Recommendations, Assessment, Development and Evaluation (GRADE) approach (*8*) to evaluate possible benefits (prevention of herpes zoster, postherpetic neuralgia, and herpes zoster-related hospitalizations) and harms (serious adverse events [SAEs],** immune-mediated disease, graft-versus-host-disease, graft rejection, and reactogenicity) associated with RZV.††

Prevention of herpes zoster and occurrence of SAEs were deemed critical outcomes by the work group. Five studies in four immunocompromised groups§§ evaluated herpes zoster as an outcome (*9–13*). Estimates of vaccine efficacy (VE) came from three studies, with VE of 68.2% (95% CI = 55.6%–77.5%) for autologous hematopoietic cell transplant recipients (*11*), and 87.2% (44.3%–98.6%) and 90.5% (73.5%–97.5%) in post hoc efficacy analyses for patients with hematologic malignancies (*12*) and potential immune-mediated diseases (*13*), respectively. SAEs were evaluated in seven studies (*9–15*) in six immunocompromised groups (2,541 RZV recipients).¶¶ Overall, rates of SAEs were

* This recommendation became official CDC policy in January 2018.
† On October 20, 2021 ACIP voted 15–0 in favor of the recommendation for use of RZV for the prevention of herpes zoster and related complications in adults aged ≥19 years (to align with the age range in the adult immunization schedule) who are or will be immunodeficient or immunosuppressed because of disease or therapy.
§ A dermatome is a cutaneous area of skin supplied by one spinal nerve.

¶ Zoster vaccine live is no longer available for use in the United States, as of November 18, 2020.
** Serious adverse event is defined as an undesirable experience associated with the vaccine that results in death, hospitalization, disability or requires medical or surgical intervention to prevent a serious outcome.
†† https://www.cdc.gov/vaccines/acip/recs/grade/recombinant-zoster-immunocompromised.html
§§ Autologous hematopoietic cell transplant recipients, patients with hematologic malignancies, patients living with HIV aged ≥18 years, and patients with potential immune-mediated diseases aged ≥50 years.
¶¶ Autologous hematopoietic cell transplant recipients, patients living with HIV, patients with hematologic malignancies, patients with solid tumors, renal transplant recipients aged ≥18 years, and patients with potential immune-mediated diseases aged ≥50 years.

Recombinant Zoster Vaccine (Shingrix)

- **Previous recommendation: immunocompetent persons 50 years old and older**
- **New recommendation: persons 19 years old and older with altered immunocompetence with evidence of immunity to varicella**
  - Persons with altered immunocompetence at higher risk of severe disease from zoster
  - RZV safety similar to vaccine in immunocompetent individuals
    - serious adverse events (0-1.6%)
    - Grade 3 adverse reactions (9.9 – 22.3%)
    - no increase in graft versus host diseases in HCT recipients
  - RZV effective in persons with altered immunocompetence
    - zoster efficacy: 68.2-87.2%
    - PHN effectiveness: 85-89%

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Herpes Zoster: Clinical Guidance, cont.

- **Consider delaying RZV until after pregnancy.**
  - No recommendation for pregnancy testing before vaccination.
- **Consider vaccination without regard to breastfeeding status if RZV is otherwise indicated.**
  - No known risk to mothers who are breastfeeding or their infants
- **Persons with a history of herpes zoster should receive RZV.**
  - Herpes zoster can recur.

E-mail Your Immunization Questions to Us

- NIPINFO@cdc.gov