

Updated March 2024

### EPIC<sup>®</sup> is presented by:

**Georgia Chapter - American Academy of Pediatrics** 

Ga. Dept. of Public Health/Immunization Program

*In Cooperation with:* 

Georgia Academy of Family Physicians

Georgia Chapter - American College of Physicians

Georgia OB/Gyn Society

#### Faculty Disclosure Information

In accordance with ACCME\* and ANCC-COA\*\* Standards, all faculty members are required to disclose to the program audience any real or apparent conflict of interest to the content of their presentation.

This presentation will include the most current ACIP recommendations for frequently used vaccines but is not a comprehensive review of all available vaccines.

Some ACIP recommendations for the use of vaccines have not currently been approved by the FDA.

Detailed information regarding all ACIP Recommendations is available at www.cdc.gov/vaccines/acip/recs/index.html

### Objectives

- At the end of this presentation, you will be able to:
- Recall the role vaccines have played in preventing diseases
- Discuss the importance of vaccines for adults
- Summarize the most recent CDC recommendations for storage and handling of vaccines
- List at least 2 reliable sources for immunization information

#### Vaccines Work!

CDC Statistics demonstrate dramatic declines in vaccinepreventable diseases when compared with the prevaccine era

#### https://www.immunize.org/catg.d/p4037.pdf

### Vaccines Work!

CDC statistics demonstrate dramatic declines in vaccine-preventable diseases when compared with the pre-vaccine era

DISEASE	PRE-VACCINE ERA ESTIMATED ANNUAL MORBIDITY <sup>1</sup>	MOST RECENT REPORTS OR ESTIMATES OF U.S. CASES	PERCENT DECREASE
Diphtheria	21,053	<b>2</b> <sup>2</sup>	>99%
H. influenzae (invasive, <5 years of age)	20,000	14 <sup>2,3</sup>	>99%
Hepatitis A	117,333	(est) 24,900 <sup>4</sup>	79%
Hepatitis B (acute)	66,232	(est) 21,600 <sup>4</sup>	67%
Measles	530,217	1,287 <sup>2</sup>	>99%
Meningococcal disease (all serotypes)	2,8865	329 <sup>2</sup>	89%
Mumps	162,344	3,509²	98%
Pertussis	200,752	15,662 <sup>2</sup>	92%
Pneumococcal disease (invasive, <5 years of age)	16,069	1,7007	93%
Polio (paralytic)	16,316	<b>O</b> <sup>2</sup>	100%
Rotavirus (hospitalizations, <3 years of age)	62,500 <sup>8</sup>	30,625 <sup>9</sup>	51%
Rubella	47,745	<b>4</b> <sup>2</sup>	>99%
Congenital Rubella Syndrome	152	0 <sup>2</sup>	100%
Smallpox	29,005	0 <sup>2</sup>	100%
Tetanus	580	19 <sup>2</sup>	96%
Varicella	4,085,120	102,128 <sup>10</sup>	>98%

#### P4037 (8/22) Update

### Advisory Committee on Immunization Practices (ACIP)

15 voting members with expertise in one or more of the following:

- Vaccinology
- Immunology
- Infectious diseases
- Pediatrics
- Internal Medicine
- Preventive medicine
- Public health
- Consumer perspectives and/or social and community aspects of immunization programs

ACIP develops recommendations and schedules for the use of licensed vaccines



### **Community Immunity**

Formerly known as "Herd Immunity"\*



\* Presentation from Immunize Georgia, September 9, 2016 by Walt A. Orenstein, MD Professor of Medicine Global, Health, Epidemiology and Pediatrics, Emory Department of Medicine, Associate Director, Emory Vaccine Center Director Vaccine Policy and Development, Emory University, Atlanta, GA

### **COMMUNITY IMMUNITY THRESHOLDS**



#### SOURCES:

Funk, Centre for the Nathematical Hodeling of Infectious Diseases London School of Hyglene & Tropical Heddine - presentation to WHO. https://www.who.int/immunization/ sage/meetings/2010/october/2\_target\_immunity\_jevets\_FUNK.pdf Accessed 16 February 2021. Fine DEM. Herd Immunity, Marcy theory, practice, Epidamoli Rev 15265-302, 1983. STATE OF THE MUNION

https://vaccinateyourfamily.org/why-vaccinate/vaccine-benefits/community-immunity/







#### Tetanus

### Diphtheria







#### **Tdap for Adults**

- For adults 19 through 64 years, either brand of Tdap may be used.
- For adults 65 years and older Boostrix should be used, when feasible. If only Adacel is available, the ACIP recommends giving it to adults aged  $\geq$  65 years.
- Either Tdap or Td can be used for routine decennial (every 10 year) booster.
- Either can be used for tetanus prophylaxis for wound management.

#### <u>There is no minimum interval between doses of Td and Tdap.</u>

### Tdap for Pregnant People

ACIP recommends:

 One dose of Tdap during <u>each</u> pregnancy, regardless of a prior history of receiving Tdap.

Optimal timing:

- Between 27- and 36-weeks gestation.
- Vaccinating earlier in the 27 through 36-week window will maximize passive antibody transfer to the infant.
- This has been shown to be 80%-91% effective.
- If Tdap is not given during pregnancy, then administer Tdap immediately postpartum.

MMWR, January 24, 2020/ Vol.69/No. 3 and https://www.cdc.gov/mmwr/volumes/67/rr/rr6702a1.htm?s cid=rr6702a1 w and https://www.cdc.gov/vaccines/pubs/pinkbook/tetanus.html

# New: One Td vaccine brand (production discontinued) – February 2024

At the February 2024 ACIP meeting, it was noted that:

- Production of one tetanus and diphtheria (Td) vaccine, TdVax<sup>™</sup>, has been discontinued.
- Sanofi is taking steps to augment their available U.S. supply of Tenivac<sup>®</sup> (the other Td vaccine).
   As a result, CDC anticipates that the supply of Td vaccine in the U.S. market will be constrained during 2024.
   There are NO supply constraints with Tdap vaccines at this time.

CDC has developed guidance to help vaccination providers:

•Transition to use of Tdap vaccine in lieu of Td vaccine whenever possible while Td vaccine supplies are constrained.

•Tdap vaccine **is an acceptable alternative** to Td vaccine, including when a tetanus booster is indicated for wound management.

•Tdap vaccine **isn't an acceptable alternative** only when a person has a <u>specific contraindication to pertussis</u>-<u>containing vaccines</u>, which is very rare.

### MEASLES

- Incubation period---11 to 12 days from exposure to onset of symptoms
- Symptoms: fever, cough, coryza, conjunctivitis, maculopapular rash and Koplik spots
- Complications: otitis media, pneumonia, croup, diarrhea, encephalitis and death
- Subacute sclerosing panencephalitis (SSPE) is a progressive neurological disorder that is rare but always fatal. It usually occurs 7-10 years after measles infection.



#### Measles, Mumps, Rubella

#### Measles (M)





Source: American Academy of Pediatrics Red Book On Line Visual Library

#### Rubella (R)





#### Mumps (M)



Source: Creative Commons



Congenital Rubella (R)

### Measles cases

As of March 14, 2024, a total of 58 measles cases were reported by 17 jurisdictions: Arizona, California, Florida, Georgia, Illinois, Indiana, Louisiana, Maryland, Michigan, Minnesota, Missouri, New Jersey, New York City, Ohio, Pennsylvania, Virginia, and Washington.

Among the 58 cases reported in 2024, 54 (93%) were linked to international travel. Most cases reported in 2024 have been among children aged 12 months and older who had not received measles-mumps-rubella (MMR) vaccine. Many countries, including travel destinations such as Austria, the Philippines, Romania, and the United Kingdom, are experiencing measles outbreaks.

#### Number of measles cases reported by week

2023-2024\* (as of March 14, 2024)



Week Start Date

Increase in Global and Domestic Measles Cases and Outbreaks: Ensure Children in the United States and Those Traveling Internationally 6 Months and Older are Current on MMR Vaccination



11/9/2023



Distributed via the CDC Health Alert Network March 18, 2024, 12:30 PM ET CDCHAN-00504

#### **MMR** Vaccine

ACIP recommendations for adults:

- At least 1 dose MMR for unvaccinated adults
- 2 doses MMR (at least 4 weeks apart) for students entering colleges, universities, technical and vocational schools, and other post-high-school educational institutions, without evidence of immunity
- For healthcare personnel without evidence of immunity:
  - 2 doses MMR for measles and mumps protection and at least 1 dose MMR for rubella protection
- Travelers to foreign countries should be appropriately immunized with MMR before leaving U.S.
- A 3<sup>rd</sup> MMR may be recommended in the instance of a public health-declared mumps outbreak.
- MMR or MMRV vaccines are contraindicated in pregnancy. After pregnancy, person who has no evidence of rubella immunity may receive 1 dose MMR

#### **MMR** Vaccine

- Antibodies develop in approximately 95% of children vaccinated at age 12 months
- 99% of persons who receive 2 doses develop evidence of measles immunity
- Immunity is long-term and probably lifelong in most persons

Evidence of Immunity: Generally, persons can be considered immune to measles if they were: • born before 1957,

- have serologic evidence of measles immunity (equivocal test results should be considered negative),
- laboratory confirmation of disease,
- have documentation of adequate vaccination for measles.

Healthcare providers and health departments should not accept verbal reports of vaccination without written documentation as presumptive evidence of immunity.

### Measles Containing Vaccines

#### •<u>MMR-II</u>

- •PRIORIX (GSK). ACIP Recommended June 2022
  - Contains equivalent vaccine virus strains as MMR II (Merck)
  - PRIORIX and M-M-R II are fully interchangeable.
  - Doses in a series should come from the same manufacturer
    - Vaccination should not be deferred if the first dose is unknown
  - PRIORIX is safe and immunogenic when administered as a second dose after M-M-R II
- •<u>MMRV (recommended for ages 12 months through 12 years old)</u>

#### Measles Vaccine Contraindications

Contraindication

- Severe allergic reaction to vaccine component or following a prior dose
- Severe immunocompromise
- Systemic high-dose corticosteroid therapy for 14 days or more
- HIV infection, regardless of immunocompetence status applies to MMRV. For use of MMR in persons with HIV infection, see speaker notes.
- Family history of congenital or heredity immunodeficiency in first-degree relatives
- Pregnancy

#### Herpes Zoster

- Herpes zoster (HZ), or shingles, occurs through reactivation of latent varicella-zoster virus
- Typically characterized by prodromal pain and an acute vesicular eruption (rash) accompanied by moderate to severe pain
- One in three persons will develop zoster during their lifetime
- Post-herpetic neuralgia PHN is defined as nerve pain persisting longer than 3 mos. after disappearance of the rash.
- Risk for zoster and PHN increases with age





### Shingrix<sup>®</sup> (RZV) from GSK\*

- As of November 18, 2020, Zostavax (ZVL) is no longer available for use in the United States
- Shingrix (RZV) is the only currently licensed Zoster vaccine in the United States

#### **Efficacy**

- > 91% efficacy in preventing zoster in all vaccinated persons in licensed age groups
- > 88% efficacy in preventing PHN in adults 50 years and older
- At least 84% vaccine efficacy >7 years post-vaccination in immunocompetent persons 70 years and older

#### Shingrix<sup>®</sup> (RZV) from GSK\*

- Two doses of RZV are recommended, regardless of prior history of herpes zoster disease or previous receipt of zoster vaccine live vaccine (ZVL).
- RSV is recommended for immunocompetent adults 50 years and older who previously received ZVL and immunocompromised adults 19 years and older.
- People who have received ZVL should be revaccinated with a 2-dose series of RZV vaccine.
- RZV may be administered to patients:
  - who previously received varicella vaccine.
  - while patients are taking antiviral medications.
  - at the same visit as other vaccines

### Shingrix<sup>®</sup> (RZV) from GSK



Store at appropriate *refrigerator* temperatures



2 doses given <u>IM</u>, 2-6 months apart

Shorter intervals may be used in some persons (including immunodeficient/immunosuppressed)



After reconstitution/mixing, Give only 0.5 ml, not full contents of the vial.

### Pneumococcal Conjugate Vaccine (PCV15, PCV20) ACIP Recommendations

- Adults 65 years or older
  - (PCV15 or PCV20) for all adults 65 years or older who have never received any pneumococcal conjugate vaccine or whose previous vaccination history is unknown
  - For further details see: <u>https://www.cdc.gov/vaccines/vpd/pneumo/hcp/recommendations.html</u>
- On October 20, 2021, the Advisory Committee on Immunization Practices recommended 15-valent PCV (PCV15) or 20-valent PCV (PCV20) for PCV–naïve adults who are either aged ≥65 years or aged 19–64 years with certain underlying conditions.
  - Adults 19 through 64 years old who have certain chronic medical conditions or other risk factors are recommended to receive pneumococcal vaccination. For details see: <u>https://www.cdc.gov/vaccines/vpd/pneumo/hcp/who-when-to-vaccinate.html</u>

### Pneumococcal Polysaccharide Vaccine (PPSV23)

- CDC recommends PCV15 or PCV20 for all adults 65 years or older who have never received any
  pneumococcal conjugate vaccine or whose previous vaccination history is unknown <u>AND</u> for adults
  19 through 64 years old with certain risk conditions, regardless of risk condition:
  - Give 1 dose of PCV15 or PCV20
    - If PCV15 is used, this should be followed by a dose of PPSV23 one year later. (The minimum interval is 8 weeks and can be considered in adults with an immunocompromising condition, cochlear implant, or cerebrospinal fluid leak)
    - If PCV20 is used, a dose of PPSV23 is NOT indicated

See the Summary of recommendations of PPSV23 and timing at:

https://www.cdc.gov/vaccines/vpd/pneumo/hcp/who-when-to-vaccinate.html

#### PneumoRecs VaxAdvisor Mobile App for Vaccine Providers

#### <u>Print</u>

The PneumoRecs VaxAdvisor Mobile App was updated on February 9, 2023, to reflect CDC's new adult pneumococcal vaccination recommendations including for those who previously received PCV13.

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).

#### Download the mobile app or use the



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

#### Pneumococcal Vaccine Timing for Adults

Make sure your patients are up to date with pneumococcal vaccination.

#### Adults ≥65 years old

**Complete pneumococcal vaccine schedules** 

Prior vaccines	Option A	Option B
None*	PCV20	PCV15 ≥1 year <sup>t</sup> PPSV23
PPSV23 only at any age	≥1 year PCV20	≥1 year PCV15
PCV13 only at any age	≥1 year PCV20	≥1 year <sup>†</sup> PPSV23
PCV13 at any age & PPSV23 at <65 yrs	≥5 years PCV20	≥5 years <sup>§</sup> PPSV23

\* Also applies to people who received PCV7 at any age and no other pneumococcal vaccines

<sup>†</sup> Consider minimum interval (8 weeks) for adults with an immunocompromising condition, cochlear implant, or cerebrospinal fluid leak (CSF) leak

<sup>§</sup> For adults with an immunocompromising condition, cochlear implant, or CSF leak, the minimum interval for PPSV23 is ≥8 weeks since last PCV13 dose and ≥5 years since dose; for others, the minimum interval for PPSV23 is ≥1 year since last PCV13 dose and ≥5 years since last PPSV23 dose

#### Shared clinical decision-making for those who already completed the series with PCV13 and

Prior vaccines	ccines Shared clinical decision-making option					
Complete series: PCV13 at any age & PPSV23 at ≥65 yrs	≥5 years	PCV20	Together, with the patient, vaccine providers <b>may choose</b> to administer PCV20 to adults $\ge$ 65 years already received PCV13 (but not PCV15 or PCV20) at any age and PPSV23 at or after the age of 65 years).			

www.cdc.gov/pneumococcal/vaccination.html



#### Adults 19–64 years old with specified immunocompromising conditions Complete pneumococcal vaccine schedules

Prior vaccines	Option A	Option B
None*	PCV20	PCV15 ≥8 weeks PPSV23
PPSV23 only	≥1 year PCV20	≥1 year PCV15
PCV13 only	≥1 year PCV20	≥8 weeks <b>PPSV23</b> ≥5 years <b>PPSV23</b> Review pneumococcal vaccine recommendations again when your patient turns 65 years old.
PCV13 and 1 dose of PPSV23	≥5 years PCV20	≥5 years† PPSV23 Review pneumococcal vaccine recommendations again when your patient turns 65 years old.
PCV13 and 2 doses of PPSV23	≥5 years PCV20	<b>No vaccines</b> recommended at this time. Review pneumococcal vaccine recommendations again when your patient turns 65 years old.
Immunocompromising conditions	<ul> <li>Chronic renal failure</li> <li>Congenital or acquired asplenia</li> <li>Congenital or acquired</li> <li>Congenital or acquired</li> <li>Iatrogenic immunos immunodeficiency<sup>§</sup></li> <li>Generalized malignancy</li> <li>Lymphoma</li> </ul>	Multiple myeloma     Nephrotic syndrome     Sickle cell disease/other     hemoglobinopathies     Solid organ transplant

\* Also applies to people who received PCV7 at any age and no other pneumococcal vaccines

<sup>↑</sup> The minimum interval for PPSV23 is ≥8 weeks since last PCV13 dose and ≥5 years since last PPSV23 dose

<sup>6</sup> Includes B- (humoral) or T-lymphocyte deficiency, complement deficiencies (particularly C1, C2, C3, and C4 deficiencies), and phagocytic disorders (excluding chronic granulomatous disease)

<sup>1</sup> Includes diseases requiring treatment with immunosuppressive drugs, including long-term systemic corticosteroids and radiation therapy

## FDA Recommended Influenza Antigens for 2023-2024 Season in the U.S.

Egg-based influenza vaccines	Cell culture-based inactivated (ccIIV4) and recombinant (RIV4) influenza vaccines
<ul> <li>influenza A/Victoria/4897/2022</li></ul>	<ul> <li>influenza A/Wisconsin/67/2022</li></ul>
(H1N1)pdm09-like virus <li>an influenza A/Darwin/9/2021</li>	(H1N1)pdm09-like virus <li>an influenza A/Darwin/6/2021</li>
(H3N2)-like virus <li>an influenza</li>	(H3N2)-like virus <li>an influenza</li>
B/Austria/1359417/2021 (Victoria	B/Austria/1359417/2021 (Victoria
lineage)-like virus <li>an influenza B/Phuket/3073/2013</li>	lineage)-like virus <li>an influenza B/Phuket/3073/2013</li>
(Yamagata lineage)-like virus	(Yamagata lineage)-like virus

ACIP recommends annual influenza vaccine for all persons 6 months of age and older who do not have contraindications.

#### Influenza Vaccines for 2023-2024 Season

		Fluzone Quadrivalent	0.5-mL PFS <sup>††</sup>		≥6 mo	os <sup>††</sup>	Mercupy 15 μg/0.5 mL			IM¶	-		
(manufacturer)	Presentation	(Salion Fasteur)	0.5-mL S	DV <sup>††</sup>	≥6 mo	os <sup>††</sup>	15 <i>µ</i> g/0.5 mL			IM¶	_		
IV4 (standard-dose, egg-	-based vaccines <sup>†</sup> )		5.0-mL N	DV <sup>††</sup>	≥6 mo	os <sup>††</sup>	7.5 µg/0.25 n 15 µg/0.5 ml	nL		IM¶	25		
Afluria Quadrivalent 0.5-mL Pf (Seqirus) 5.0-mL M	0.5-mL PFS <sup>§</sup>	ccllV4 (standard-dose, cel	l culture–bas	Flublok Quadrivalent 0.5-mL F		0.5-mL PFS	≥18 yrs		45 μg/0.5 mL		١M٩	_	
	5.0-mL MDV <sup>§</sup>	Flucelvax Quadrivalent	0.5-mL P	0.5-mL PF									
		(Seqirus)	5.0-mL N	FluMist Quadrivalent		0.2-mL prefilled s	single-use	2 through 49 yrs	10 <sup>6.5–7</sup>	7.5 fluore:	scent focus units/0.2 mL	NAS	_
luarix Quadrivalent	0.5-mL PFS	HD-IIV4 (high-dose, egg-b	(AstraZeneca) intranasal sprayer										
luLaval Quadrivalent GlaxoSmithKline)	0.5-mL PFS	Fluzone High-Dose Quadrivalent (Sanofi Pasteur)	0.7-mL P	Abbreviations: ACIP = Advisory Committee on Immunization Practices; HA = hemagglutinin; IIV4 = inactivated influenza vaccine, quadrivalent; IM = intramuscular; L Ive attenuated influenza vaccine, quadrivalent; MDV = multidose vial; PFS = prefilled syringe; RIV4 = recombinant influenza vaccine, quadrivalent; SDV = single-dos * Manufacturer package inserts and updated CDC and ACIP guidance should be consulted for additional information concerning, but not limited to, indications, contraindications, warnings, and precautions. Package inserts for U.Slicensed vaccines are available at https://www.fda.gov/vaccines-blood-biologics/vaccines/va							intramuscular; LAIV4 SDV = single-dose via o, indications, gics/vaccines/vaccine		
luzono Quadrivalent	0.5-mL PFS <sup>††</sup>	allV4 (standard-dose, egg	-based vaccir	licensed-use-united-sta text of this report.	ites 🗹 .	Availability and ch	naracteristics of	specific products and p	resentatio	ns might	change or differ from what	t is described	l in this table and in th
Sapofi Pastour)				<ul> <li><sup>†</sup> Although a history of severe allergic reaction (e.g., anaphylaxis) to egg is a labeled contraindication to the use of egg-based IIV4s and LAIV4, ACIP recommen</li> <li><sup>p</sup> persons aged ≥6 months with egg allergy should receive influenza vaccine and that any influenza vaccine (egg based or nonegg based) that is otherwise appr the recipient's age and health status can be used (see Persons with a History of Egg Allergy).</li> </ul>									
Sanofi Pasteur)		Fluad Quadrivalent (Seqirus)	0.5-mL P	persons aged ≥6 month the recipient's age and	ns with of health s	allergic reaction (e egg allergy should status can be used	.g., anaphylaxis) l receive influenz d (see Persons w	to egg is a labeled cont za vaccine and that any ith a History of Egg Alle	traindicatio influenza v rgy).	on to the vaccine (	use of egg-based IIV4s an egg based or nonegg base	d) that is othe	recommends that all rwise appropriate for
Sanofi Pasteur)		Fluad Quadrivalent (Seqirus) <b>RIV4 (recombinant HA vac</b>	0.5-mL P	<sup>s</sup> The approved dose vo syringes are no longer	health solume fo availabl	allergic reaction (e egg allergy should status can be used or Afluria Quadriva e. For children ago	.g., anaphylaxis) l receive influenz d (see Persons w alent is 0.25 mL ed 6 through 35	to egg is a labeled cont za vaccine and that any ith a History of Egg Alle for children aged 6 thro months, a 0.25-mL doso	traindicatio influenza v rgy). ough 35 mo e must be	on to the vaccine ( onths an obtained	e use of egg-based IIV4s an egg based or nonegg base d 0.5 mL for persons aged d from a multidose vial.	d) that is othe ≥3 years. How	recommends that all rwise appropriate for vever, 0.25-mL prefille
Sanofi Pasteur)		Fluad Quadrivalent (Seqirus) <b>RIV4 (recombinant HA vac</b> Flublok Quadrivalent	0.5-mL P c <b>cine)</b> 0.5-mL P	<sup>1</sup> Although a history of a persons aged ≥6 month the recipient's age and <sup>§</sup> The approved dose vo syringes are no longer <sup>¶</sup> IM-administered influ alternatively be given b	health s health s blume fo availabl enza va y the Ph	allergic reaction (e egg allergy should status can be used or Afluria Quadriva e. For children ag ccines should be narmaJet Stratis je	.g., anaphylaxis) l receive influenz d (see Persons w alent is 0.25 mL ed 6 through 35 administered by t injector for per	to egg is a labeled cont za vaccine and that any ith a History of Egg Alle for children aged 6 thro months, a 0.25-mL dose needle and syringe onl rsons aged 18 through 6	traindicatio influenza v rgy). ough 35 mo e must be y, with the 64 years or	on to the vaccine ( onths an obtained exception nly. For c	e use of egg-based IIV4s an egg based or nonegg base d 0.5 mL for persons aged d from a multidose vial. on of the MDV presentation older children and adults, t	d) that is other ≥3 years. How of Afluria Que recommer	recommends that all erwise appropriate for vever, 0.25-mL prefille uadrivalent, which ma nded site for IM influer
Sanofi Pasteur)		Fluad Quadrivalent (Seqirus) <b>RIV4 (recombinant HA vac</b> Flublok Quadrivalent	0.5-mL P ccine) 0.5-mL P	Persons aged ≥6 month the recipient's age and <sup>§</sup> The approved dose vo syringes are no longer <sup>¶</sup> IM-administered influ alternatively be given b vaccination is the delto selection and needle le recs/general-recs/index	health solume for health solume for availabl enza va y the Ph id musc ngth for <u>c.html</u> .	allergic reaction (e egg allergy should status can be used or Afluria Quadriva e. For children age ccines should be narmaJet Stratis je cle. The preferred r IM administratio	.g., anaphylaxis) I receive influenz d (see Persons w alent is 0.25 mL ed 6 through 35 administered by it injector for per site for infants a n is available in t	to egg is a labeled cont za vaccine and that any ith a History of Egg Alle for children aged 6 thro months, a 0.25-mL dose needle and syringe only rsons aged 18 through 6 nd young children is the the General Best Practio	traindicatio influenza v rgy). ough 35 mo e must be y, with the 64 years or e anterolat ce Guidelin	on to the vaccine ( onths an obtained exception nly. For o teral asp nes for In	e use of egg-based IIV4s an egg based or nonegg base d 0.5 mL for persons aged d from a multidose vial. on of the MDV presentation older children and adults, t ect of the thigh. Additional nmunization available at <u>h</u>	d) that is other ≥3 years. How n of Afluria Qua he recomment specific guid tps://www.co	recommends that all erwise appropriate for vever, 0.25-mL prefille uadrivalent, which ma nded site for IM influe ance regarding site lc.gov/vaccines/hcp/ac

#### Influenza Vaccine Products for the 2023-2024 Influenza Season

Manufacturer	Trade Name	How Supplied	Mercury Content	Age Range	CVX	Vaccine Product Billing Code <sup>2</sup>
	(vaccine appreviation)*		(mcg Hg/0.5mL)		Coue	CPT
AstraZeneca	FluMist (LAIV4)	0.2 mL (single-use nasal spray)	0	2 through 49 years	hrough 49 years 149 90672	
	Fluarix (IIV4)	0.5 mL (single-dose syringe)	0	6 months & older <sup>3</sup>	150	90686
GSK	FluLaval (IIV4)	0.5 mL (single-dose syringe)	0	6 months & older <sup>3</sup>	150	90686
	Flublok (RIV4)	0.5 mL (single-dose syringe)	0	18 years & older	185	90682
	Fluzone (IIV4)	0.5 mL (single-dose syringe)	0	6 months & older <sup>3</sup>	150	90686
Sanofi		0.5 mL (single-dose vial)	0	6 months & older <sup>3</sup>	150	90686
		5.0 mL multi-dose vial (0.25 mL dose)	25	6 through 35 months <sup>3</sup>	158	90687
		5.0 mL multi-dose vial (0.5 mL dose)	25	6 months & older	158	90688
	Fluzone High-Dose (IIV4-HD)	0.7 mL (single-dose syringe)	0	65 years & older	197	90662
Seqirus		5.0 mL multi-dose vial (0.25 mL dose)	24.5	6 through 35 months <sup>3</sup>	158	90687
	Afluria (IIV4)	5.0 mL multi-dose vial (0.5 mL dose)	24.5	3 years & older	158	90688
		0.5 mL (single-dose syringe)	0	3 years & older <sup>3</sup>	150	90686
	Fluad (allV4)	0.5 mL (single-dose syringe)	0	65 years & older	205	90694
	Elucolyay (ccll)(4)	0.5 mL (single-dose syringe)	0	6 months & older <sup>3</sup>	171	90674
	Fluceivax (CCIIV4)	5.0 mL multi-dose vial (0.5 mL dose)	25	6 months & older <sup>3</sup>	186	90756

#### NOTES

 IIV4 = egg-based quadrivalent inactivated influenza vaccine (injectable); where necessary to refer to cell culture-based vaccine, the prefix "cc" is used (e.g., cclIV4); RIV4 = quadrivalent recombinant hemagglutinin influenza vaccine (injectable); aIIV4 = adjuvanted quadrivalent inactivated influenza vaccine.

 An administration code should always be reported in addition to the vaccine product code. Note: Third party payers may have specific policies and guidelines that might require providing additional information on their claim forms.

3. Dosing for infants and children age 6

- through 35 months:
- Afluria 0.25 mL
- Fluarix 0.5 mL
- Flucelvax 0.5 mL
   FluLaval 0.5 mL
- Fluzone 0.25 mL or 0.5 mL

 Afluria is approved by the Food and Drug Administration for intramuscular administration with the PharmaJet Stratis Needle-Free Injection System for persons age 18 through 64 years.

#### **O** Immunize.org

FOR PROFESSIONALS www.immunize.org / FOR THE PUBLIC www.vaccineinformation.org

www.immunize.org/catg.d/p4072.pdf



### Live, Attenuated Influenza Vaccine (LAIV4)\*

#### FluMist<sup>®</sup> MedImmune (Nasal Spray)

Contraindications to LAIV include:

- Children 2-4 yrs. diagnosed with asthma
- Persons receiving aspirin-containing medications potential risk for Reye syndrome
- Persons who are Immunocompromised, have a CSF leak or cochlear implant, or asplenia
- Close contacts and caregivers of severely immunosuppressed persons
- Persons who have received influenza antiviral medications within the previous days (dependent on antiviral)
- Persons with a cranial CSF leak; people with cochlear implants
- Persons with a severe allergic reaction to any component of the vaccine or to a previous dose of any influenza vaccine (exception for allergy to egg)
- Pregnancy

# History of egg allergy and egg-based Influenza vaccines (updated 2023-24 season)

- ACIP recommends that all persons aged ≥6 months with egg allergy should receive influenza vaccine.
- Any influenza vaccine (egg based or nonegg based) appropriate for the recipient's age and health status can be used.
- New recommendations for those with egg allergies It is no longer recommended that persons who have had an allergic reaction to egg involving symptoms other than urticaria should be vaccinated in an inpatient or outpatient medical setting supervised by a health care provider who is able to recognize and manage severe allergic reactions if an egg-based vaccine is used.

### History of egg allergy and egg-based Influenza vaccines (2)



Egg allergy alone necessitates no additional safety measures for influenza vaccination



All vaccines should be administered in settings in which personnel and equipment needed for rapid recognition and treatment of acute hypersensitivity reactions are available

#### Co-administration

- Inactivated influenza vaccines (IIV4s) and RIV4 may be administered simultaneously or sequentially with other inactivated vaccines (including COVID-19 vaccines) or live vaccines
   Injectable vaccines that are given concomitantly should be administered at separate anatomic sites
- LAIV4 can be administered simultaneously with other live or inactivated vaccines
  - If two live vaccines are not given simultaneously, then at least 4 weeks should pass between vaccines
- •Providers should be aware of the potential for increased reactogenicity with coadministration with COVID-19 vaccines and should consult the CDC guidance as more information becomes available (more likely with the adjuvanted or high dose IIV4s recommended in persons 65+ years)

#### Influenza Vaccines Preference 2023-24 for Older Adults

ACIP recommends that adults aged ≥65 years preferentially receive any one of the following higher dose or adjuvanted influenza vaccines:

- quadrivalent high-dose inactivated influenza vaccine (HD-IIV4),
- quadrivalent recombinant influenza vaccine (RIV4), or
- quadrivalent adjuvanted inactivated influenza vaccine (allV4).

If none of these three vaccines is available at an opportunity for vaccine administration, then any other age-appropriate influenza vaccine should be used.

No preference is expressed for any one of these three vaccines.

#### Timing of Influenza Vaccination

- Influenza vaccines may be available in July or August, but vaccination is recommended during September or October
- Vaccination should continue as long as influenza viruses are circulating, and unexpired vaccine is available (through the Spring)
- Vaccination in July or August may be considered for: Pregnant persons in the third trimester


# Inequities in Flu Vaccine Uptake





# 80%

Flu hospitalization rates were nearly 80% higher among Black adults than White adults from 2009– 2022.

#### Vital Signs

### Inequities in Flu Vaccine Uptake

More Vaccination Needed for People from Some Racial/Ethnic Groups

1 in 2

Only 1 in 2 Americans got a flu vaccine during the 2021–2022 flu season.



Less than 43% of Black, Hispanic, and American Indian/Alaska Native adults were vaccinated during the 2021–2022 flu season.

37

# FDA Recommended Influenza Antigens for 2023-2024 Season in the U.S. and plans for the 2024-2025 season

The 2023-2024 season U.S. flu vaccines contain an updated influenza A(H1N1)pdm09 component:

•A/Victoria/4897/2022 (H1N1)pdm09-like virus for egg-based vaccines and
•A/Wisconsin/67/2022 (H1N1)pdm09-like virus for cell-based or recombinant vaccines.

### For the 2024-25 season – going back to trivalent vaccines.

B/Yamagata flu viruses have not circulated in the population since March 2020, so protection from trivalent and quadrivalent flu vaccines is expected to be similar. All flu vaccines for the 2024-2025 season are anticipated to be trivalent in the United States.

# ACIP recommends annual influenza vaccine for all persons 6 months of age and older who do not have contraindications.

# Hepatitis A Vaccine Recommendations for Adults

- Adults aged 19 years or older with risk factors should receive the adult formulation of HepA vaccine. (2 or 3 dose series depending on brand)
- Persons at increased risk for HAV infection, or who are at increased risk for severe disease from HAV infection, should be routinely vaccinated.
- Some risk factors include:
  - Persons with HIV
  - Those traveling or working in countries with high or intermediate endemicity of infection
  - Persons experiencing homelessness
  - Persons with chronic liver disease
  - U. S. Adopters of adoptees from countries with high rates of hepatitis should receive the first dose of the 2-dose series as soon as adoption is planned.

## Hepatitis B Vaccine Recommendations for adults

- All unvaccinated adults, 19 years and older, are recommended to receive the Hep B vaccine series.
- Hepatitis B vaccine is also recommended for adults 60 years or older with risk factors for hepatitis B virus infection
  - Adults 60 years and older who choose to get protection, regardless of risk, may also receive the Hep B vaccine series.
- Risk factors for hepatitis B virus infection include:
  - Chronic liver disease
  - Patients on dialysis
  - HIV infection
  - Sexual exposure risk
  - Current or recent injection drug use
  - Percutaneous or mucosal risk for exposure to blood
  - Persons who are Incarcerated
  - International travelers
  - Persons with Hep C infection

• Persons who have completed a HepB vaccination series at any point or who have a history of HBV infection should not receive additional HepB vaccination, although there is no evidence that receiving additional vaccine doses is harmful

# Meningococcal Disease (caused by N. meningitidis)

- Usually presents as meningitis, bacteremia or both
  - Transmitted through direct contact with respiratory tract secretions from patients and asymptomatic carriers
  - Nasopharyngeal carriage rate is highest in adolescents and young adults in the U.S.
  - Incidence of meningococcal disease declined during 2020–2021, but increased in 2022
  - Recent outbreaks in the US (people experiencing homelessness, men who have sex with men)
  - New strains emerging in the US Predominantly affecting racial and ethnic minority groups Unclear how this will change overall epidemiology
  - More complete 2021 and 2022 data are needed
  - More years of data needed to understand post-COVID-19 epidemiology



Trends in Meningococcal Disease Incidence by Serogroup – United States, 2006–2022\*



Year

Source: NNDSS data with additional serogroup data from Active Bacterial Core surveillance (ABCs) and state health departments \*2021 and 2022 data are preliminary

8

Average Annual Meningococcal Disease Incidence by Age-Group and Serogroup—United States, 2020–2022\*



## Signs and Symptoms of Meningococcal Disease

## Symptoms of meningitis

- Sudden onset of fever
- Headache
- Stiff neck
- Photophobia
- Nausea and vomiting

## Symptoms of meningococcemia

- All of the above are possible
- Cold hand and feet
- Pruritic rash

## **Risk Factors**

- Persistent complement component deficiencies
- Asplenia
- HIV infection
- Exposure during an outbreak; Travel/residence in a country where disease is endemic/epidemic
- Household crowding, smoking,
- Unvaccinated college freshmen in dorms\*
- Military recruits





## Quadrivalent Meningococcal Conjugate Vaccine (MCV4) (Men A,C,W, Y)

Menactra<sup>™</sup> licensed for 9 mos. through 55 years Menveo<sup>®</sup> licensed for ages 2 mos. through 55 years MenQuadfi<sup>®</sup> licensed for ages ≥ 2 yrs. of age

ACIP recommends vaccination for:

- First-year college students who live in residential housing (if not previously vaccinated at age 16 years or older) or
- military recruits

## Meningococcal Vaccines for High Risk Persons 6 weeks – 55 years\*

Menactra<sup>™</sup> licensed for 9 mos. through 55 years Menveo<sup>®</sup> licensed for ages 2 mos. through 55 years MenQuadfi<sup>®</sup> licensed for ages ≥ 2 yrs. of age

Recommended for persons **2 months through 55 years\*\*:** 

- Human immunodeficiency virus (HIV)\*\*\*
- Persistent complement component deficiency, taking a complement inhibitor
- Functional or anatomic asplenia (sickle cell disease)
- Microbiologists exposed to isolates of *N. meningitidis*
- Military recruit
- Part of a community outbreak due to vaccine serogroups
- Persons traveling internationally to high-risk regions
   For persons in any of these categories, consult the current
   ACIP Immunization Schedules for specific dosages and guidelines

# Serogroup B Meningococcal Vaccine

Bexsero<sup>®</sup> licensed for ages 10 through 25 years (2 dose) Trumenba<sup>®</sup> licensed for ages 10 through 25 years (2 or 3 dose)

### ACIP recommends serogroup B meningococcal vaccine for\*:

- Persons with persistent complement component deficiencies
- Persons with anatomic or functional asplenia
- Persons receiving complement inhibitor
- Microbiologists routinely exposed to isolates of *Neisseria meningitidis*
- Persons considered at greater risk because of a serogroup B meningococcal disease outbreak

## Based on shared clinical decision making:

• A Men B vaccine series <u>may</u> be administered to people 16-23 yrs. old

# Meningococcal Vaccine <u>Booster</u> Recommendations

For persons at continued risk

- Meningococcal conjugate vaccine for persons who remain at increased risk
- Persons ≥10 years of age who previously received a MenB vaccine series

See MMWR: Tables 2-11
 https://www.cdc.gov/mmwr/volumes/69/rr/rr6909a1.htm#B1\_down for further details.

# MenABCWY Vaccination as an Option for Patients Aged 10 Years or Older

If a patient is receiving MenACWY and MenB vaccines at the same visit, MenABCWY may be given instead.

If a patient receives MenABCWY vaccine, which includes Trumenba<sup>®</sup>, then administer:

- Trumenba<sup>®</sup> for additional MenB dose(s) when MenACWY isn't indicated
- Any MenACWY vaccine when MenB isn't indicated

The minimum interval between MenABCWY doses is 6 months.

People with prolonged increased risk for serogroup A, C, W, or Y**and** B meningococcal disease need regular boosters. However, the recommended interval between doses varies by age and vaccine type.

MenABCWY vaccine can be used only when both MenACWY and MenB vaccines are indicated at the same visit. Otherwise, MenACWY and MenB vaccines should be given separately as appropriate.

# Polio

- Since the launch of Global Polio Eradication Initiative in 1988, polio cases have decreased by more than 99%.
- Polio vaccines have prevented an estimated 20 million cases of paralysis in children since 1988.
- Vaccines have stopped the spread of wild poliovirus in all but <u>two countries</u>: Afghanistan and Pakistan (as of 12/23)
  - Other countries have experienced outbreaks of <u>poliovirus variants</u>, which can emerge in areas where immunization rates are low.

# ACIP Polio Vaccine Recommendations, June 2023

- Most adults residing in the United States are presumed to be protected against polio because they likely received routine childhood immunization and have only a small risk of exposure to poliovirus in the United States
- Adults who are known or suspected to be unvaccinated or incompletely vaccinated against polio should complete a primary vaccination series with inactivated polio vaccine (IPV).
- Adults who have received a primary series of trivalent oral polio vaccine (tOPV) or IPV in any combination and who are at increased risk of poliovirus exposure may receive one lifetime IPV booster.

## People at increased risk for Polio

 Travelers who are going to countries where polio is epidemic or endemic (For additional information, see <u>Polio: For Travelers</u>, <u>https://www.cdc.gov/polio/us/travelers.html</u>)

- Laboratory and healthcare workers who handle specimens that might contain polioviruses.
- Healthcare workers or other caregivers who have close contact with a person who could be infected with poliovirus.

•Adults exposed at a result of an outbreak



\*Epidemiology and Prevention of Vaccine Preventable Diseases 14<sup>th</sup> Edition, 2021 \*Red Book – AAP 2018 Report of the Committee on Infectious Diseases \* MMWR, August 29, 2014, RR Vol. 63, No. 5

## **HPV Vaccine**

## Gardasil 9<sup>®</sup> (9vHPV) <u>HPV types 6, 11, 16, 18, 31, 33, 45, 52, 58</u>

ACIP recommends HPV vaccine starting at age 11 or 12 years for:

- All males and females through 26 yrs.
- Catch-up vaccination for persons through age 26 who are not adequately vaccinated

Gardasil 9 is now also licensed for all persons 9 through 45 yrs. of age\*\*

- Use the 3-dose schedule for persons 15-45 years of age
- Based on shared clinical decision making, the series <u>may</u> be given to persons ages 27-45.

# ACIP Recommendations and Schedule, HPV Vaccine

## 2 Dose Schedule:

HPV vaccine initiated <u>between 9-14 years</u> can be given in two doses: 0, 6-12 months. (If the 2<sup>nd</sup> dose is administered at least 5 months after 1<sup>st</sup> dose, it can be counted).

## **3 Dose Schedule:**

HPV vaccine initiated <u>after the 15<sup>th</sup> birthday</u> or in persons with certain immunocompromising conditions should be vaccinated with the 3 dose schedule: 0, 1-2, 6 months

Dose 2 should be given at least 1-2 months after first dose (1 month min..); Dose 3 should be given at least 6 months after the first dose (min. of 3 months between dose 2 and 3)

## Weekly Population-Based Rates of COVID-19-Associated Hospitalizations — COVID-NET, March 2020–January 2024



https://www.cdc.gov/vaccines/acip/meetings/downloads/slides-2024-02-28-29/02-COVID-Taylor-508.pdf

# Underlying Medical Conditions among Adults Ages $\geq$ 18 Years Hospitalized for COVID-19, by Age Group — COVID-NET, January–June 2023



## Percent of Hospitalizations among Adults Ages ≥18 Years with Underlying Medical Conditions by Age Group, with Top 4 Conditions Highlighted — COVID-NET, October 2022–November 2023

Condition	18–49 yrs	50–64 yrs	65–74 yrs	≥75 yrs
Chronic lung disease	23	36	45	34
Asthma	19	17	14	9
COPD/Bronchitis	3	16	24	16
Cardiovascular disease	20	47	61	67
CAD/CABG/MI	5	17	27	27
CHF/Cardiomyopathy	6	18	25	25
Stroke/TIA	3	13	15	20
Diabetes	21	40	44	37
Immunocompromising condition	12	19	21	13
Neurologic condition	18	26	30	42
Dementia	0	1	6	29
Renal Disease	8	21	24	31
Obesity	42	43	39	23

https://www.cdc.gov/vaccines/acip/meetings/downloads/slides-2024-02-28-29/02-COVID-Taylor-508.pdf

# Staying up to date with COVID-19 vaccines

CDC recommends the 2023–2024 updated COVID-19 vaccines: Pfizer-BioNTech, Moderna, or Novavax, to protect against serious illness from COVID-19

- <u>Everyone aged 5 years and older</u> should get 1 dose of an updated COVID-19 vaccine to protect against serious illness from COVID-19
- <u>Children aged 6 months–4 years</u> need multiple doses of COVID-19 vaccines to be <u>up-to-date</u>, including at least 1 dose of updated COVID-19 vaccine
- <u>People who are moderately or severely immunocompromised</u> may get additional doses of updated COVID-19 vaccine
- People 65 years and older may get an additional dose as well. See <u>https://www.cdc.gov/vaccines/covid-19/clinical-considerations/covid-19-vaccines-us.html</u> for more details.
- COVID-19 vaccine recommendations will be updated as needed

# What's different about the updated COVID-19 Vaccine 2023-24?

This is an updated COVID-19 vaccine

- Monovalent\* provides protection against one strain– XBB.1.5 (Omicron Variant).
- It is made the same way as previous versions of the COVID-19 vaccine, using mRNA technology.
- It is called the updated COVID-19 2023-24 Vaccine
- Provides protection against other currently circulating COVID-19 variants

The older version (one in use until September 11, 2023) was bivalent – protected against two strains (the original strain and the Omicron strains (BA.4 and BA.5). These bivalent vaccines are no longer authorized for use in the United States, effective September 11, 2023.

"Mono" – one "Bi" - two

# COVID-19 Dosing for people who are moderately or severely immunocompromised

- <u>Initial vaccination</u>: should receive a 3-dose series of updated (2023–2024 Formula) Moderna or updated (2023–2024 Formula) Pfizer-BioNTech COVID-19 vaccine
- <u>Received previous mRNA doses</u>: need 1 or 2 doses of updated (2023–2024 Formula) Moderna or updated (2023–2024 Formula) Pfizer-BioNTech COVID-19 vaccine, depending on the number of prior doses
- May receive 1 or more additional updated (2023–2024 Formula) mRNA COVID-19 vaccine doses

# Common symptoms of Long COVID in Adults

- Dyspnea or increased respiratory effort
- Fatigue
- Post-exertional malaise\* and/or poor endurance
- Cognitive impairment or "brain fog"
- Cough
- Chest pain
- Headache
- Palpitations and tachycardia
- Arthralgia
- Myalgia
- Paresthesia
- Abdominal pain

- Diarrhea
- Insomnia and other sleep difficulties
- Fever
- Lightheadedness
- Impaired daily function and mobility
- Pain
- Rash (e.g., urticaria)
- Mood changes
- Anosmia or dysgeusia
- Menstrual cycle irregularities
- Erectile dysfunction

\* <u>Post-exertional malaise (PEM)</u> is the worsening of symptoms following even minor physical or mental exertion, with symptoms typically worsening 12 to 48 hours after activity and lasting for days or even weeks.

# Other vaccine news ACIP Meetings February 2023 and June 2023

**Monkeypox** – ACIP approved the following recommendation, October, 2023, meeting:

https://www.cdc.gov/vaccines/acip/index.html

ACIP recommends vaccination<sup>\*</sup> with the 2-dose<sup>§</sup> JYNNEOS vaccine series for persons aged 18 years and older at risk for mpox<sup>¶</sup>

\*This is an interim recommendation that ACIP will revisit in 2-3 years

<sup>§</sup>Dose 2 administered 28 days after dose 1

# RSV Vaccines for Older Adults (1)

First two (2) vaccines approved by the FDA in May 2023 for prevention of RSV lower respiratory tract disease (LRTD) for use in adults aged ≥60 years.

- RSVPreF3 (Arexvy, GSK) is a 1-dose (0.5 mL) adjuvanted (AS01<sub>E</sub>) recombinant stabilized prefusion F protein (preF) vaccine
- RSVpreF (Abrysvo, Pfizer) is a 1-dose (0.5 mL) recombinant stabilized preF vaccine

# ACIP Recommendations: RSV Vaccines for Older Adults





Both vaccines recommended by ACIP in June 2023: adults aged ≥60 years may receive a single dose of an RSV vaccine, using shared clinical decision-making.



Optimally, vaccination should occur before the onset of the RSV season; however, typical RSV seasonality was disrupted by the COVID-19 pandemic and has not returned to prepandemic patterns.

#### Shared Clinical Decision-Making (SCDM) RSV Vaccination for Adults 60 Years and Older

- Respiratory syncytial virus (RSV) is a cause of severe respiratory illness across the lifespan. Each year in the United States, RSV leads to approximately 60,000-160,000 hospitalizations and 6,000-10,000 deaths among adults 65 years and older.
- Adults 60 years of age and older now have the option to receive one dose of RSV vaccine based on a SCDM process between a patient and their health care provider.
- Consider multiple factors when discussing RSV vaccination with your patients. SCDM recommendations are
  optional and are informed by whether the patient has any risk factors for severe RSV disease; a patient's
  risk of exposure to RSV; a patient's preferences for RSV vaccination; and the clinical discretion of the health
  care provider.

#### Underlying medical conditions associated with increased risk for severe RSV disease include:



Other points to consider

- Serious neurologic conditions, including Guillain-Barré syndrome (GBS), have been reported after RSV
  vaccination in clinical trials. However, it is unclear whether the vaccine caused these events.
- Persons with history of severe allergic reaction (e.g., anaphylaxis) to any component of RSV vaccine should not receive the vaccine.

Additional Information

CDC RSV Vaccine Information: https://www.cdc.gov/mmwr/volumes/7: https://www.cdc.gov/vaccines/vpd/rsv/index.html wr/mm7229a4.htm?s\_cid=mm7229a4\_v



of severe RSV disease

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Adults 60 years of age and older now have the option to receive one dose of RSV vaccine based on discussion between a patient and their health care provider.

Consider multiple factors when having the discussion regarding RSV vaccination including:

- If the patient has any risk factors for severe RSV disease
- A patient's risk of exposure to RSV
- A patient's preferences for RSV vaccination
- The clinical discretion of the health care provider.

www.cdc.gov/vaccines/vpd/rsv/downloads/provider-job-aid-for-older-adults-508.pdf

# RSV Vaccines for Older Adults: Summary: Vaccine Efficacy and Safety

 Vaccination with a single dose of the GSK or Pfizer RSV vaccines demonstrated moderate to high efficacy in preventing symptomatic RSV-associated LRTD over two consecutive RSV seasons among adults aged ≥60 years.

 Although trials were underpowered to estimate efficacy against RSV-associated hospitalization and death, prevention of LRTD, including medically attended LRTD, suggests that vaccination might prevent considerable morbidity from RSV disease among adults aged ≥60 years.

• Although both vaccines were well-tolerated with an acceptable safety profile, 6 cases of inflammatory neurologic events (including GBS, ADEM, and others) were reported after RSV vaccination in clinical trials. Whether these events occurred due to chance, or whether RSV vaccination increases the risk for inflammatory neurologic events is unknown.

# ACIP RSV Vaccine Recommendations(2)



RSV vaccination is currently approved and recommended for administration as a single dose. Currently, there is no recommendation for revaccination .



Optimally, vaccination should occur before the onset of the RSV season; however, typical RSV seasonality was disrupted by the COVID-19 pandemic and has not returned to prepandemic patterns.

# **RSV Vaccine Administration**



RSV vaccine may be co-administered with other adult vaccines at the same visit.



Administering RSV vaccine with one or more other vaccines at the same visit might increase local or systemic reactogenicity. Data are only available for coadministration of RSV and influenza vaccines, and evidence is mixed regarding increased reactogenicity.



As with all vaccines, RSV vaccination should be delayed for persons experiencing moderate or severe acute illness with or without fever (precaution).



RSV vaccines are contraindicated for and should not be administered to persons with a history of severe allergic reaction, such as anaphylaxis, to any component of the vaccine.

# **RSV Vaccine Pregnant People**

• On August 21, 2023, FDA approved the first vaccine for use in pregnant individuals to prevent lower respiratory tract disease (LRTD) and severe LRTD caused by respiratory syncytial virus (RSV) in infants from birth through 6 months of age.

To prevent severe RSV disease in infants, CDC recommends either maternal RSV vaccination or infant immunization with RSV monoclonal antibody. Most infants will not need both.

### Vaccination for pregnant people

- 1 dose of maternal RSV vaccine during weeks 32 through 36 of pregnancy, administered <u>September through January.</u>
- Abrysvo (Pfizer) is the only RSV vaccine recommended during pregnancy.
- Abrysvo (Pfizer) is administered as a single dose injection into the muscle.

# Minimizing immunization errors

Vaccine providers who carry the monoclonal antibody nirsevimab (for use in infants and young children), and the adult vaccines:

- GSK RSV vaccine (Arexvy, for use in adults aged  $\geq$ 60 years) or
- Pfizer RSV vaccine (Abrysvo, for use in adults aged ≥60 years and pregnant people at 32-36 weeks' gestation)

should be especially diligent in following vaccine administration safety procedures to prevent errors.

### To minimize risk of errors:

•Store GSK or Pfizer RSV vaccines and the RSV monoclonal antibody product (nirsevimab) in their original packaging on different shelves and clearly label the shelves.

•Educate staff about the differences in indication , including age for use, preparation, and dosage.

•Confirm with the patient or caregiver the product(s) they are expecting to receive.
## Critical Elements

## Strategies to Avoid Missed Opportunities

- Provider Prompts
  - Automatic pop-up alerts through your EHR system
  - These can sometimes be pre-installed and then customized in your office
- Family-friendly office hours
  - Occasional evening or Saturday hours
  - "No-appointment-required" if needing immunizations only
- Immunization Champion in your practice
  - Manage vaccine supply and schedule periodic updates
  - Any member of the staff could fill this role
- Include all recommended vaccines at each visit
- Schedule periodic team meetings with all personnel to:
  - Improve patient flow
  - Improve quality of care
  - Discuss problems within the framework of the practice

### Recommended Healthcare Personnel Vaccinations

- Hepatitis B (exposure risk) check immunity
- Influenza (annual)
- Measles, Mumps, Rubella (MMR)
- Varicella (Chickenpox)
- Tetanus, Diphtheria, Pertussis (Tdap)
- Meningococcal (recommended for microbiologists who are routinely exposed to isolates of N. meningitidis).
- COVID-19 vaccine

### Are <u>YOU</u> up to date?

#### Healthcare Personnel Vaccination Recommendations<sup>1</sup>

to be HBsAg positive should be counseled and

For HCP with documentation of a complete

2-dose (Heplisav-B) or 3-dose (Engerix-B or Re-

combivax HB) vaccine series but no documen-

tation of anti-HBs of at least 10 mIU/mL (e.g.,

risk for occupational blood or body fluid expo-

those vaccinated in childhood): HCP who are at

sure might undergo anti-HBs testing upon hire or

matriculation. See references 2 and 3 for details.

All HCP, including physicians, nurses, paramedics,

emergency medical technicians, employees

of nursing homes and chronic care facilities,

students in these professions, and volunteers.

should receive annual vaccination against influ-

enza. Live attenuated influenza vaccine (LAIV)

may be given only to non-pregnant healthy HCP

age 49 years and younger. Inactivated injectable

influenza vaccine (IIV) is preferred over LAIV

for HCP who are in close contact with severely

transplant recipients) when they require protec-

HCP who work in medical facilities should be

HCP born in 1957 or later can be considered

immune to measles, mumps, or rubella only

if they have documentation of (a) laboratory

(b) appropriate vaccination against measles,

confirmation of disease or immunity or

immune to measles, mumps, and rubella,

immunosuppressed patients (e.g., stem cell

Measles, Mumps, Rubella (MMR)

medically evaluated.

Influenza

tive isolation.

#### VACCINES AND RECOMMENDATIONS IN BRIEF

- Hepatitis B If previously unvaccinated, give a 2-dose (Heplisav-B) or 3-dose (Engerix-B or Recombivax HB) series. Give intramuscularly (IM). For HCP who perform tasks that may involve exposure to blood or body fluids, obtain anti-HBs serologic testing 1–2 months after dose #2 (for Heplisav-B) or dose #3 (for Engerix-B or Recombivax HB).
- Influenza Give 1 dose of influenza vaccine annually. Inactivated injectable vaccine is given IM. Live attenuated influenza vaccine (LAIV) is given intranasally.
- MMR For healthcare personnel (HCP) born in 1957 or later without serologic evidence of immunity or prior vaccination, give 2 doses of MMR, 4 weeks apart. For HCP born prior to 1957, see below. Give subcutaneously (Subcut).
- Varicella (chickenpox) For HCP who have no serologic proof of immunity, prior vaccination, or diagnosis or verification of a history of varicella or herpes zoster (shingles) by a healthcare provider, give 2 doses of varicella vaccine, 4 weeks apart. Give Subcut.
- Tetanus, diphtheria, pertussis Give 1 dose of Tdap as soon as feasible to all HCP who have not received Tdap previously and to pregnant HCP with each pregnancy (see below). Give Td or Tdap boosters every 10 years thereafter. Give IM.
- Meningococcal Give both MenACWY and MenB to microbiologists who are routinely exposed to isolates of *Neisseria meningitidis*. As long as risk continues: boost with MenB after 1 year, then every 2–3 years thereafter; boost with MenACWY every 5 years. Give MenACWY and MenB IM.

Hepatitis A, typhoid, and polio vaccines are not routinely recommended for HCP who may have on-the-jab exposure to fecal material.

#### Hepatitis B

Unvaccinated healthcare personnel (HCP) and/ or those who cannot document previous vaccination should receive either a 2-dose series of Heplisav-B at 0 and 1 month or a 3-dose series of either Engerix-B or Recombivax HB at 0, 1, and 6 months. HCP who perform tasks that may involve exposure to blood or body fluids should be tested for hepatitis B surface antibody (anti-HBs) 1-2 months after dose #2 of Heplisav-B or dose #3 of Engerix-B or Recombivax HB to document immunity.

 If anti-HBs is at least 10 mIU/mL (positive), the vaccinee is immune. No further serologic testing or vaccination is recommended.

 If anti-HBs is less than 10 mIU/mL (negative), the vaccinee is not protected from hepatitis B virus (HBV) infection, and should receive another 2-dose or 3-dose series of HepB vaccine on the routine schedule, followed by anti-HBs testing 1–2 months later. A vaccinee whose anti-HBs remains less than 10 mIU/ mL after 2 complete series is considered a "non-responder."
 For non-responders. HCP who are non-responders

For non-responders: FICV who are non-responders: should be considered susceptible to HBV and should be counseled regarding precautions to prevent HBV infection and the need to obtain HBIG prophylaxis for any known or probable parenteral exposure to hepatitis B surface antigen (HBsAg)-positive blood or blood with unknown HBsAg status. It is also possible that nonresponders are people who are HBsAg positive. HBSAg testing is recommended. HCP found measles and mumps vaccines given on or after the first birthday and separated by 28 days or more, and at least 1 does of live vubella vaccine). HCP with 2 documented doses of MMR are not recommended to be serologically tested for immunity; but if they are tested and results are negative or equivocal for measles, mumps, and/or rubella, these HCP should be considered to have presumptive evidence of immunity to measles, mumps, and/or rubella and are not in need of additional MMR doses.

 Although birth before 1957 generally is considered acceptable evidence of measles, mumps, and rubella immunity, 2 doses of MMR vaccine should be considered for unvaccinated HCP born before 1957 who do not have laboratory evidence of disease or immunity to measles and/or mumps. One dose of MMR vaccine should be considered for HCP with no laboratory evidence of disease or immunity to rubella. For these same HCP who do not have evidence of immunity, 2 doses of MMR vaccine are recommended during an outbreak of measles or mumps and 1 dose during an outbreak of rubella.

#### Varicella

It is recommended that all HCP be immune to varicella. Evidence of immunity in HCP includes documentation of 2 doses of varicella vaccine given at least 28 days apart, laboratory evidence of immunity, laboratory confirmation of disease, or diagnosis or verification of a history of varicella or herpes zoster (shingles) by a healthcare provider.

#### Tetanus/Diphtheria/Pertussis (Td/Tdap)

All HCPs who have not or are unsure if they have previously received a dose of Tdap should receive a dose of Tdap as soon as feasible, without regard to the interval since the previous dose of Td. Pregnant HCP should be revaccinated during each pregnancy. All HCPs should then receive Td or Tdap boosters every 10 years thereafter.

#### Meningococcal

Vaccination with MenACWY and MenB is recommended for microbiologists who are routinely exposed to isolates of *N. meningitidis*. The two vaccines may be given concomitantly but at different anatomic sites, if feasible.

#### REFERENCES

- CDC. Immunization of Health-Care Personnel: Recommendations of the Advisory Committee on Immunization Practices (ACIP). MMWR, 2011; 60(RR-7).
- 2 CDC. Prevention of Hepatitis B Virus Infection in the United States. Recommendations of the Advisory Committee on Immunization Practices. MMWR, 2018; 67 (RR1):1–30.
- 3 IAC. Pre-exposure Management for Healthcare Personnel with a Documented Hepatitis B Vaccine Series Who Have Not Had Post-vaccination Serologic Testing. Accessed at www.immunize.org/catg.d/p2108.pdf.

For additional specific ACIP recommendations, visit CDC's website at www.cdc.gov/vaccines/hcp/acip-recs/vaccspecific/index.html or visit IAC's website at www.immunize.org/acip.

HBsAg testing is recommended. HCP found mumps, and rubella (i.e., 2 doses of live specific/index.nmi or visit buc.'s website at www.immunize.org/acip.

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### Hepatitis B Immunization Status for Previously Vaccinated HCP - Post-vaccination Testing



### 2024 Recommended Immunization Schedule for Adults Aged ≥19 Years

- Recommended adult schedule by age group
- Recommended immunization schedule for adults aged 19 years or older by medical condition and other indications

#### Changes

- Clarification of the charts
- Additional information in the Notes section

### READ THE FOOTNOTES TO ACCESS SPECIFIC VACCINE ADMINISTRATION DETAILS!



### Updated Vaccine Storage and Handling Recommendations

- Use stand-alone refrigerator and stand-alone freezer units. If combined, use only refrigerator part.
- Do not store any vaccine in a dormitory-style or bar-style combined refrigerator/freezer unit.
- Use a bio-safe glycol-encased probe or a similar temperature buffered probe
- Probes should be calibrated every 1-2 yrs. or according to manufacturers' guidelines
- Use digital data loggers.
- Do not store ANYTHING ELSE in refrigerator.
- Review vaccine expiration dates and rotate vaccine stock weekly.







## Maintaining Appropriate Vaccine Storage & Handling

- Assign a primary and alternate vaccine coordinator.
- Store all vaccines as recommended by manufacturer and <u>IN ORIGINAL PACKAGING, WITH THE LID</u> <u>CLOSED</u>.
- Monitor and record temperatures of refrigerator and freezer twice daily.
- Correct ranges: refrigerator 36° F to 46° F; freezer -58° F to +5° F
- Maintain temperature log records for 3 years.
- Take immediate action for all out-of-range temps.
- Implement a vaccine emergency system.
- If it is necessary to transport vaccine, do NOT use dry ice. See Vaccine Storage and Handling Toolkit, Section 6 for Transport System Recommentations.

#### •For COVID-19 vaccine, see specific vaccine guidelines.

## Vaccine Administration Best practices – Route, Dose, Site, Needle Size

#### Administering Vaccines: Dose, Route, Site, and Needle Size

Vaccine		Dose	Route	Injection Site and Needle Size				
COVID-19	Pfizer-BioNTech • age 5 to <12 yrs: 0.2 mL pe • age ≥12 yrs: 0.3 mL adult/a primary and booster doses	2 mL pediatric formulation ("orange cap") adult/adolescent formulation for r doses		<b>Subcutaneous (Subcut) injection</b> Use a 23–25 gauge needle. Choose the injection site that is to the person's age and body mass.				
	Moderna; ≥18 yrs: 0.5 mL primary series*; 0.25 mL booster lanssen: ≥18 yrs: 0.5 mL for primary & booster doses			AGE	NEEDLE LENGTH	INJECTION SITE		
Diphtheria, T (DTaP, DT, To	<b>Fetanus, Pertussis</b> dap, Td)	0.5 mL	ім	Infants (1–12 mos)	5/8"	Fatty tissue over eral thigh musc		
Haemophilu	<b>s influenzae type b (</b> Hib)	0.5 mL	IM	Children 12 mos or older		Fatty tissue over		
		≤18 yrs: 0.5 mL		adolescents, and adults	5/8"	eral thigh musc		
Hepatitis A	нера)	≥19 yrs: 1.0 mL	IM	Intromuccular (IM) injection				
Hepatitis B Persons 11–15 yrs	(HepB) may be given Recombivax HB	Engerix-B; Recombivax HB ≤19 yrs: 0.5 mL ≥20 yrs: 1.0 mL	ім	Use a 22–25 gauge needle. Choose the injection site and nee that is appropriate to the person's age and body mass.				
(Merck) 1.0 mL adult form	nulation on a 2-dose schedule.	Heplisav-B ≥18 yrs: 0.5 mL		AGE	NEEDLE LENGTH	INJECTION SITE		
Human papillomavirus (HPV)		0.5 mL	IM	Newborns (1st 28 days)	5/8"1	Anterolateral th		
		0.2 ml (0.1 ml in each	Intra-	Infants (1-12 mos)	1"	Anterolateral thi		
Influenza, live attenuated (LAIV)		nostril)	nasal	Toddlars (1, 2 years)	1–11⁄4"	Anterolateral thi		
		Afluria: 0.25 ml	spray	Toddiers (1–2 years)	5/8-1"1	Deltoid muscle		
Influenza, in	activated (IIV): for ages	Fluzone: 0.25 or 0.5 mL		Children	5/8—1 " <sup>1</sup>	Deltoid muscle		
6–35 months		Fluarix Flucelyax Flut aval:	IM	(3–10 years)	1–11⁄4"	Anterolateral thi		
		0.5 mL		Adolescents and teens	5/8-1"1	Deltoid muscle		
Influenza, in	activated (IIV), ≥3 yrs;	0.5 mL		(11–18 years)	1–11⁄2"	Anterolateral thi		
recombinant high-dose (H	: (RIV), ≥18 yrs; 1D-IIV) ≥65 yrs	FluZone HD: 0.7 mL	IM	Adults 19 years or older				
	· / = / · -			E   1 300	F( 3.03			

	(MenACWY)
leeale Size	Meningococcal serogrou
	Pneumococcal conjugate
	Pneumococcal polysacch (PPSV)
n site that is appropriate	Polio, inactivated (IPV)
JECTION SITE	Rotavirus (RV)
tty tissue over anterolat-	Varicella (VAR)
al thigh muscle	Zoster (Zos)
tty tissue over anterolat-	Combination Vaccine
al thigh muscle or fatty sue over triceps	DTaP-HepB-IPV (Pediari) DTaP-IPV/Hib (Pentacel) DTaP-IPV (Kinrix; Quadr- DTaP-IPV (Kinrix; Quadr-
n site and needle length ly mass.	MMRV (ProQuad)
.,	HepA-HepB (Twinrix)
JECTION SITE	* If immunocompromised, M
nterolateral thigh muscle	3-dose primary series, then dose.
nterolateral thigh muscle	<sup>†</sup> The Shingriv vial might cont
nterolateral thigh muscle <sup>2</sup>	0.5 mL. Do not administer n
eltoid muscle of arm	
eltoid muscle of arm <sup>2</sup>	
nterolateral thigh muscle	
eltoid muscle of arm <sup>2</sup>	IMMUNIZATION AC
nterolateral thigh muscle	

Measles, Mumps, Rubella (MMR)	0.5 mL	Subcut
Meningococcal serogroups A, C, W, Y (MenACWY)	0.5 mL	IM
Meningococcal serogroup B (MenB)	0.5 mL	IM
Pneumococcal conjugate (PCV)	0.5 mL	IM
Pneumococcal polysaccharide (PPSV)	0.5 mL	IM or Subcut
Polio, inactivated (IPV)	0.5 mL	IM or Subcut
Rotavirus (RV)	Rotarix: 1.0 mL Rotateq: 2.0 mL	Oral
Varicella (VAR)	0.5 mL	Subcut
Zoster (Zos)	Shingrix: 0.5 <sup>†</sup> mL	IM
Combination Vaccines		
DTaP-HepB-IPV (Pediarix) DTaP-IPV/Hib (Pentacel) DTaP-IPV (Kinrix; Quadracel) DTaP-IPV-Hib-HepB (Vaxelis)	0.5 mL	IM
MMRV (ProQuad)	≤12 yrs: 0.5 mL	Subcut
HepA-HepB (Twinrix)	≥18 yrs: 1.0 mL	IM
If immunocompromised, Moderna 0.5 mL fo 3-dose primary series, then 0.25 mL for boos dose. The Shingrix vial might contain more than 0.5 mL. Do not administer more than 0.5 mL	r ter Intranasal (NAS) administration of Flumist (LAIV) vaccine	E

Female or male <130 lbs	5/8-1"1	Deltoid muscle of arm
Female or male 130–152 lbs	1"	Deltoid muscle of arm
Female 153–200 lbs Male 153–260 lbs	1–1½"	Deltoid muscle of arm
Female 200+ lbs Male 260+ lbs	11⁄2"	Deltoid muscle of arm
Female or male, any weight	11⁄2"	Anterolateral thigh muscle

 A 5% needle may be used in newborns, preterm infants, and patients weighing less than 130 bs (<60 kg) for Winjection in the deltoid muscle only if the skin stretched tight, the subcutaneous tissue is not bunched, and the injection is made at a 90-degree angle to the skin.
 Preferred site NOTE: Always refer to the package insert included with each biologic for complete vaccine administration information. CDC's Advisory Committee on Immunization Practices (ACIP) recommendations for the particular vaccine should be reviewed as well. Access the ACIP recommendations at www.immunize.org/acip.

Intramuscular (IM)	Subcutaneous (Subcut)		
injection	injection		
90° angle	45° angle		
skin	skin		
subcutaneous tissue	subcutaneous tissue		
muscle	muscle		

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### How to administer IM and SC vaccine injections

#### How to Administer Intramuscular and Subcutaneous Vaccine Injections Administration by the Intramuscular (IM) Route

#### Administer these vaccines via IM route

- Diphtheria-tetanus-pertussis (DTaP, Tdap)
- = Diphtheria-tetanus (DT, Td)
- Haemophilus influenzae type b (Hib)
- Hepatitis A (HepA)
- = Hepatitis B (HepB)
- Human papillomavirus (HPV)
   Inactivated influenza (IIV)
- Meningococcal serogroups A,C,W, Y (MenACWY)
- Meningococcal serogroup B (MenB)
- Pneumococcal conjugate (PCV13)
- Zoster, recombinant (RZV)

Administer inactivated polio (IPV) and pneumococcal polysaccharide (PPSV23) vaccines either IM or subcutaneously (Subcut).

PATIENT AGE INIECTION SITE NEEDLE SIZE Newborn (0-28 days) Anterolateral thigh muscle 5/8"\* (22-25 gauge) Infant (1–12 mos) Anterolateral thigh muscle 1" (22–25 gauge) Anterolateral thigh muscle 1–1¼" (22–25 gauge) Toddler (1–2 years) Alternate site: Deltoid muscle of arm if 5/8\*-1" (22-25 gauge) muscle mass is adequate Deltoid muscle (upper arm) 5/8\*-1" (22-25 gauge) Children (3–10 years) Alternate site: Anterolateral thigh 1-11/4" (22-25 gauge) muscle Deltoid muscle (upper arm) <sup>5</sup>/8<sup>†</sup>-1" (22-25 gauge) Children and adults Alternate site: Anterolateral thigh (11 years and older) 1-11/2" (22-25 gauge) muscle

\* A 5%" needle usually is adequate for neonates (first 28 days of life), preterm infants, and children ages 1 through 18 years if the skin is stretched flat between the thumb and forefinger and the needle is inserted at a 90° angle to the skin.

† A 5/8" needle may be used in patients weighing less than 130 lbs (<60 kg) for IM injection in the deltoid muscle only if the skin is stretched flat between the thumb and forefinger and the needle is inserted at a 90° angle to the skin; a 1" needle is sufficient in patients weighing 130–152 lbs (60–70 kg); a 1–1½" needle is recommended in women weighing 153–260 lbs (70–90 kg) and men weighing 153–260 lbs (70–118 kg); a 1½" needle is recommended in women weighing more than 200 lbs (91 kg) or men weighing more than 260 lbs (118 kg).



#### Needle insertion

Use a needle long enough to reach deep into the muscle.

Insert needle at a 90° angle to the skin with a quick thrust.

(Before administering an injection of vaccine, it is not necessary to aspirate, i.e., to pull back on the syringe plunger after needle insertion.<sup>¶</sup>)

Multiple injections given in the same extremity should be separated by a minimum of 1", if possible.

CDC. "General Best Practices Guidelines for Immunization: Best Practices Guidance of the ACIP" at https://www.cdc.gov/vaccines/ hcp/acip-recs/general-recs/downloads/ general-recs.pdf

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Intramuscular (IM) injection site for infants and toddlers

#### Intramuscular (IM) injection site for children and adults



Give in the central and thickest portion of the deltoid muscle – above the level of the armpit and approximately 2–3 fingerbreadths (~2") below the acromion process. See the diagram. To avoid causing an injury, do not inject too high (near the acromion process) or too low.

CONTINUED ON THE NEXT PAGE

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Insert needle at a 90° angle into the

anterolateral thigh muscle.

IM injection site

(shaded area)

www.immunize.org/catg.d/p2020.pdf • Item #P2020 (1/18)

## Training Tools: Skills Checklist for Vaccine Administration

for Vaccine Values and the final skills, techniques and procedures outpreserve and the server volumes an imported that is needed, these with them achieve areas below and the chinesi askills, techniques and procedures outpreserve and every advection develop and a set of them achieve										Self-Asse	ssment		Superviso	or Review		
dminist	In the Self-Assessmen If you check Needs to Improve, you indicate further study or change is needed. When you check Meets or Exceeds, y	t column. the level of c y, practice, others. rou indicate	ompetence you expect; cire	le desired actions or write in					COMPETENCY	CLINICAL SKILLS, TECHNIQUES, AND P	ROCEDURES	NEEDS TO	MEETS OR EXCEEDS	NEEDS TO	MEETS OR EXCEEDS	PLAN OF ACTI
During the COVID-19 pandemic, the CDC recommends additional infection         Supervisors: Use the Skills Checklist to clarify responsibilities and expectations for staff who administer vaccines. When you use it to orning the covid to the supervisor in the supervisor		mmunization Techniques: d Adults" helps ensure that ew at www.youtube.com/w w.immunize.org/dvd.) And	Best Practices with Infants, t staff administer vaccines atch?v=WsZ6NEijlfl or order other helpful resource is					D Administering	<ol> <li>Controls the limb with the non-dominant hand; h- from the skin and inserts it quickly at the appropr or 45° for Subcut).</li> </ol>	olds the needle an inch ate angle (90° for IM						
e www.cdc.gov/vac	cines/pandemic- themselves in advance. Next, observe their performance	as they gov/vaccines	ne Administration eLearn c s/hcp/admin/resource-libr	ourse, available at www.cdc. ary.html.					Immunizations	9. Injects vaccine using steady pressure; withdraws ne	edle at angle of insertion.					
idance/index.ntmi).		Self-Assessment	nt Supervisor Review						(continued)	<ol> <li>Applies gentle pressure to injection site for severa gauze pad, bandaid).</li> </ol>	l seconds (using, e.g.,					
COMPETENCY	CLINICAL SKILLS, TECHNIQUES, AND PROCEDURES	NEEDS TO MEETS OR IMPROVE EXCEEDS	NEEDS TO MEETS OR IMPROVE EXCEEDS	PLAN OF ACTION					11. Uses strategies to reduce anxiety and pain associa	ted with injections.						
)	1. Welcomes patient/family and establishes rapport.									12. Properly disposes of needle and syringe in "sharp	s" container.					
tient/Parent	2. Explains what vaccines will be given and which type(s) of injection(s) will									13. Properly disposes of vaccine vials.						
lucation	<ol> <li>Answers questions and accommodates language or literacy barriers and special needs of patient/parents to help make them feel comfortable</li> </ol>					E	•	I. Fully documents each vaccination in patient chart: manufacturer site VIS date name/initials	: date, lot number,							
	and informed about the procedure. 4. Verifies patient/parents received Vaccine Information Statements (VISs) for indicated vaccines and has had time to read them and ask questions.								Records Procedures	<ol> <li>If applicable, demonstrates ability to use state/loca or computer to call up patient record, assess what undet a computer ind immunication bilatory.</li> </ol>	l immunization registry is due today, and					
	5. Screens for contraindications (if within employee's scope of work).		Skills Checklist for Vac	cine Administration (continu	ed)					2 Asia for and undertain astightly unastightly.	and accessible de de service					
_	<ol> <li>Reviews comfort measures and aftercare instructions with patient/parents, and invites questions.</li> </ol>									bring it to each visit.	and reminds them to					
B Medical and Office Protocols	<ol> <li>Identifies the location of the medical protocols (e.g., immunization protocol, emergency protocol, reporting adverse events to the Vaccine Adverse Event Reporting system [VAERS], reference material).</li> </ol>		COMPETENCY	CLINICAL SKILLS	TECHNIQUES, AND PROCEDURES	Self-Asses	sment LEETS OR EXCEEDS	NEEDS T	Plan of Action	a. Watch video on immunization techniques and	g. Practice injections.			File the	Skills Checklist	in the employee's
	<ol> <li>Identifies the location of epinephrine, its administration technique, and clinical situations where its use would be indicated.</li> </ol>		G	Performs proper hand hygiene prior to preparing vaccine.     When removing vaccine from the refrigerator or freezer, looks at the storage unit's temperature to make sure it is in proper range.					Circle desired next	review CDC's Vaccine Administration eLearn, h. Read Vaccine Inform available at www.cdc.gov/vaccines/hcp/admin/		nation Statemer	nts.	folder.		
	3. Maintains up-to-date CPR certification.		Vaccine						steps and write in the agreed deadline for	resource-library.html. b. Review office protocols. c. Review manuals, textbooks, wall charts, or parents and patients,	ization skills.	lemonstrate				
	<ol> <li>Understands the need to report any needlestick injury and to maintain a sharps injury log.</li> </ol>		Preparation	<ol> <li>Checks vial expiration d to drawing up.</li> </ol>	3. Checks vial expiration date. Double-checks vial label and contents prior to drawing up.				completion, as well as date for the follow-up		er staff) interactions with Ts, including age appropriate		OF ACTION DEADLINE			
	<ol> <li>Demonstrates knowledge of proper vaccine handling (e.g., maintains and monitors vaccine at recommended temperature and protects from light).</li> </ol>	nd ht).		<ol> <li>Prepares and draws up v is not adjacent to areas</li> </ol>	ines in a designated clean medication area that ere potentially contaminated items are placed.				performance review.	other guides (e.g., Key Vaccination Resources for Healthcare Professionals at	comfort measures. k. Attend a skills training or oth	ing or other app	oropriate	riate	E OF NEXT PERFO	RMANCE REVIEW
	CONTINUED ON THE NEXT PAGE			5. Selects the correct need	e size for IM and Subcut based on patient age				d. Review package inserts.	courses/training.						
IUNIZATION ACTIO	Saint Paul, Minnesota • 651-647-9009 • www.immunize.org • w	vww.vaccineinformatic		<ol> <li>Maintains aseptic techn septum (stopper) of the</li> </ol>	ique throughout, including cleaning the rubber vial with alcohol prior to piercing it.					e. Review vaccine storage and handling guide- lines or video.	I. Attend healthcare c cultural competenc	petency training.		EMPLOYEE SIGNATURE		
			<ol> <li>Prepares vaccine accord draws up correct dose or</li> </ol>	ng to manufacturer instructions. Inverts vial and vaccine. Rechecks vial label.					f. Observe other staff with patients.	m. Renew CPR certifica Other	ation.		SUPERVI	SOR SIGNATURE		
				<ol> <li>Prepares a new sterile sy the expiration date on the</li> </ol>	ringe and sterile needle for each injection. Checks e equipment (syringes and needles) if present.				Immunization Actio	<b>N COALITION</b> Saint Paul, Minnesota • 651-647-900	• www.immunize.org • ۱	www.vaccineinfo	ormation.or	g www.immu	nize.org/catg.d/p	7010.pdf • Item #P
				9. Labels each filled syring	e or uses labeled tray to keep them identified.											
			D	<ol> <li>Verifies identity of patient against the vial and the</li> </ol>	nt. Rechecks the provider's order or instructions prepared syringes.											
		Administering Immunizations 2. 3.	<ol> <li>Utilizes proper hand hyg on disposable gloves. (I</li> </ol>	ene with every patient and, if it is office policy, puts f using gloves, changes gloves for every patient.)												
			3. Demonstrates knowledg	emonstrates knowledge of the appropriate route for each vaccine.												
			4. Positions patient and/o	restrains the child with parent's help.												
				<ol> <li>Correctly identifies the i tissue over triceps).</li> </ol>	njection site (e.g., deltoid, vastus lateralis, fatty											

https://www.immunize.org/catg.d/p7010.pdf

### Improper Immunization Administration Practices with <u>Any</u> Vaccine

DO NOT re-use needles or syringes, due to the possibility of:

- Transmission of blood-borne viruses (HCV, HBV, HIV)
- Referral of providers to licensing boards for disciplinary action
- Malpractice suits filed by patients

#### Never use partial doses from 2 or more vials to obtain a dose of vaccine.

Per OSHA and the CDC, you MAY use the same needle to withdraw a diluent, inject this into a lyophilized vaccine vial, and then administer to a patient, providing the needle or syringe has not otherwise been contaminated.

CDC, NCEZIZ, DHQP. Injection Safety Information for Providers: www.cdc.gov/injectionsafety/providers.html http://www.immunize.org/askexperts/administering-vaccines.asp Vaccine Storage and Handling Toolkit, January, 2020

## Always Document...

- Accept only written documentation of prior immunizations
- Provide VIS prior to administration of vaccine
- After vaccine administration, <u>document</u>:
  - $\checkmark$  Publication date of VIS & date VIS given
  - ✓ Date, site, route, antigen(s), manufacturer, lot #
  - ✓ Person administering vaccine, practice name and address
  - ✓ Vaccine refusals with a signed "Refusal to Vaccinate Form"—see Online Resources slide for link to this form
  - ✓GA law does not require signed consent for immunizations

CHICKENPO	OX VACCINE
WHAT YOU N	вер то киоч
1 Why get vaccinated?	People who do not get the vaccine until 13 years of age or older should get 2 doors, 4-8 weeks
Chickenpox (also called varicella) is a common chikihood disease. It is usually mild, but it can be serious, especially in young infects and adults.	apart. Ask your doctor or name for details.
<ul> <li>The chickenpox virus can be spread from person to person through the air, or by contact with fluid from chickenpox blaters.</li> </ul>	Chickenpox vaccine may be given at the same tir as ofter vaccines.
<ul> <li>It cannot a much, tichting, fever, and tiredness.</li> </ul>	3 chickenpox vaccine or
<ul> <li>It can lead to severe skin infaction, scars, pressmonia, train damage, or death.</li> </ul>	<ul> <li>People should not get chickenpox vaccine if the</li> </ul>
<ul> <li>A person who has had chickenpox can get a peicful rash called stringles years later.</li> </ul>	have over had a life-threatening allergic reaction to gotain, the artibiotic ne-mych, or (for the needing a second deed) a previous dose of chicketipes vacches.
<ul> <li>About 12,000 proper are hospitalized for chickenpox each year in the United States.</li> <li>Next 100 model dis each years in fee Weited.</li> </ul>	<ul> <li>People who are moderately or severely III at its time the shot is scheduled should usually wait a</li> </ul>

![](_page_83_Picture_10.jpeg)

R	efusal te	o Vaccinate
Child's Name		Child's ID#
Parent's/Guardian's Name		
My child's doctor/nurse,	wive the	That some vaccine-preventable diseases are common in other countries and that my unvaccinated child could easily get one of these diseases while traveling or from a traveler.
Recommended	Declined	<ul> <li>If my child does not receive the vaccine(s) according to the medically accepted schedule, the consequences may include</li> </ul>
Hepatitis B vaccine		- Contracting the illness the vaccine is designed to prevent
<ul> <li>Diphtheria, tetanus, acellular pertussis (DTaP or Tdap) vaccine</li> </ul>		(the outcomes of these illnesses may include one or more of the following: certain types of cancer, pneumonia, illness
Diphtheria tetanus (DT or Td) vaccine		requiring hospitalization, death, brain damage, paratysis, monipolitis, seizures, and deafness; other severe and
Haemophilus influenzae type b (Hib) vaccine		permanent effects from these vaccine-preventable
Pneumococcal conjugate or polysaccharide vaccine		diseases are possible as well).
Inactivated poliovirus (IPV) vaccine		<ul> <li>Transmitting the disease to others (including those too young to be succinated or thore with immune problems)</li> </ul>
Measles-mumps-rubella (MMR) vaccine		possibly requiring my child to stay out of child care or school
Varicella (chickenpox) vaccine		and requiring someone to miss work to stay home with my
Influenza (flu) vaccine		child during disease outbreaks.
Meningococcal conjugate or polysaccharide vaccine		<ul> <li>My child's doctor and the American Academy of Pediatrics, the American Academy of Family Physicians, and the Canters</li> </ul>
Hepatitis A vaccine		for Disease Control and Prevention all strongly recommend
Rotavirus vaccine		that the vaccine(s) be given according to recommendations.
Human papillomavirus (HPV) vaccine		Nevertheless, I have decided at this time to decline or defer the
Other	_ 🗆	vaccine(s) recommended for my child, as indicated above, by check- ing the appropriate box under the column titled "Declined." I know

![](_page_84_Picture_0.jpeg)

### A 'Birth to Death' Immunization Registry

- Providers administering vaccines in Georgia must provide appropriate information to GRITS.
- GRITS personnel can work with your EHR/EMR vendor to create an interface between your system and GRITS.
- Use GRITS to generate reminders on medical records and/or notify patients when vaccines are needed.
- Assess your immunization rates using GRITS to improve patient care, HEDIS scores, and identify problem areas.

## Monitoring Vaccine Safety

Do Your Part for Vaccine Safety —

**Report to** 

FDA

• VAERS—Vaccine Adverse Event Reporting System

- Option 1 Report Online to VAERS (Preferred)
  - Must be completed and submitted in one sitting
- Option 2 Report using a Writable PDF Form

If you need further assistance with reporting to VAERS, please email info@VAERS.org or call 1-800-822-7967.

• FDA and Vaccine Data Link Safety Project

#### • VERP: <u>VACCINE ERROR REPORTING PROGRAM</u>

- ✓ Online reporting at http://verp.ismp.org/
- ✓ Report even if no adverse events associated with incident
- ✓ Will help identify sources of errors to help develop prevention strategies

### Invalid Contraindications to Vaccination

- Mild illness or injury
- Antibiotic therapy
- Disease exposure or convalescence
- Pregnancy or immunosuppression in household
- Family history of an adverse event to a vaccine

- Breastfeeding
- Prematurity
- Allergies to products not in vaccine
- Need for TB skin testing
- Need for multiple vaccines

87

### Vaccine Risk Perception

Many parents of young children are not familiar with vaccine-preventable diseases and perceive the risks of vaccines outweigh the benefits

#### **Common Concerns**

- Immune system overload
- Children get too many shots at one visit
- Vaccines have side effects (adverse reactions)
- Immunity from the disease is better than immunity from a vaccine (ie. chicken pox)
- Vaccines cause autism

## Anti-Vaccine Movement

- Promotes the idea that there is less evidence of disease today and immunizations are no longer needed
- Sends confusing & conflicting information
- Uses stories, personal statements, and books to play on the emotional side of concerned parents

Encourage parents/patients to:

- Get the facts
- Consider the source
- Discuss their concerns with you

![](_page_88_Picture_8.jpeg)

**Global Vaccine Awareness League** 

![](_page_88_Picture_10.jpeg)

![](_page_88_Picture_11.jpeg)

![](_page_88_Picture_12.jpeg)

## Resources for Factual & Responsible Vaccine Information

![](_page_89_Picture_1.jpeg)

![](_page_89_Picture_2.jpeg)

American College of Physicians American Society of Internal Medicine

![](_page_89_Picture_4.jpeg)

![](_page_89_Picture_5.jpeg)

![](_page_89_Picture_6.jpeg)

WERGID REALINE OF CAN, WATERING - CREEAN RATERIN M CONDIALIS FOR LA SAMU

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![](_page_89_Picture_9.jpeg)

immunization action coalition

![](_page_89_Picture_11.jpeg)

![](_page_89_Picture_12.jpeg)

![](_page_89_Picture_13.jpeg)

www.vaccinesafetynet.org

![](_page_89_Picture_15.jpeg)

## Stay Current!

Sign up for listserv sites which provide timely information pertinent to your practice: <u>www.immunize.org/resources/emailnews.asp</u>

- AAP Newsletter
- CDC immunization websites (32 in all)
- CHOP Parents Pack Newsletter
- IAC Express, Needle Tips and Vaccinate Adults
- Websites specific to particular vaccines

![](_page_90_Picture_7.jpeg)

![](_page_91_Picture_0.jpeg)

#### YOU ARE ALL PART OF THE TEAM THAT CAN

**MAKE SURE YOUR PATIENTS RECEIVE THE** 

**IMMUNIZATIONS THEY NEED!** 

#### **Online Resources**

Current Childhood and Adult Immunization Schedules – www.cdc.gov/vaccines/schedules/index.html

Parent's Guide to Childhood Immunizations – www.cdc.gov/vaccines/parents/tools/parentsguide/index.html

Order Information for Free CDC Immunization Materials for Providers and Patients – wwwn.cdc.gov/pubs/CDCInfoOnDemand.aspx

Vaccine Labels to Organize a Storage Unit –

www.cdc.gov/vaccines/hcp/admin/storage/guide/vaccine-storage-labels.pdf

Vaccine Information Statements (VISs) – www.cdc.gov/vaccines/hcp/vis/current-vis.html

Refusal to Vaccinate Form –

https://www.aap.org/en-us/documents/immunization\_refusaltovaccinate.pdf

Standing Orders (Explanation and Templates) – www.immunize.org/standing-orders/

Ask the Experts – www.immunize.org/askexperts/

General Best Practice Guidelines for Immunization – https://www.cdc.gov/vaccines/hcp/acip-recs/general-recs/index.html

### Questions?

#### **Contacts for more immunization information and resources!**

National Cei	nter for Immunization and Respiratory Diseases, CDC	Immunization Action Coalition				
E-mail	NIPInfo@cdc.gov	E-mail	admin@immunize.org			
Hotline	800.CDC.INFO	Phone	651.647.9009			
Website	http://www.cdc.gov/vaccines	Website	www.immunize.org			

#### Georgia Immunization Program

- E-mail **DPH-Immunization@dph.ga.gov**
- Hotline 404-657-3158
- Website http://dph.georgia.gov/immunization-section

# *Test Your Knowledge! EPIC 2024*

Ben is a 25-year-old plumber. Three months ago he had a motorcycle wreck causing multiple fractures, lacerations, and a ruptured spleen. His spleen was removed. He received Td in the ER.

He had chicken pox when he was 6 years old but has no idea if he ever had an MMR.

What vaccines do you recommend?

Ben is a 25-year-old plumber. Three months ago he had a motorcycle wreck causing multiple fractures, lacerations, and a ruptured spleen. His spleen was removed. He received Td in the ER.

He had chicken pox when he was 6 years old but has no idea if he ever had an MMR.

What vaccines do you recommend?\*

Tdap, MCV4, MenB, PCV15/20,

PPSV23 (dependent on whether PCV15/20 used), MMR, and consider Hib, Influenza vaccine (in fall).

Stay up to date on COVID-19 vaccines.

HPV vaccine series (if not previously vaccinated)

(Obtain Proof of varicella disease/vaccine)

Paige is 24 years old. She has well controlled diabetes. She will be getting married in 3 months. Paige has received 2 doses of MMR and her last Td was 4 years ago. She denies ever having chicken pox but her 2 younger siblings had chicken pox.

What vaccines are recommended now?

Paige is 24 years old. She has well controlled diabetes. She will be getting married in 3 months. Paige has received 2 doses of MMR and her last Td was 4 years ago. She denies ever having chicken pox but her 2 younger siblings had chicken pox.

What vaccines are recommended now?

Tdap, PCV15/20, PPSV23(depending on prior pneumococcal vaccination and whether PCV15/20 is being administered)

hepatitis B, HPV, varicella

Influenza vaccine (in fall)

Staying up to date on COVID-19 vaccines

Sam is a 32-year-old carpenter. He punctured the palm of his hand with one of his tools at 6PM Friday. The injury caused minimal bleeding and he says it doesn't need stitches.

Does he need Tetanus Toxoid tonight or can he wait until Monday when your office is open?

Sam is a 32 year old carpenter. He punctured the palm of his hand with one of his tools at 6pm Friday. The injury caused minimal bleeding and he says it doesn't need stitches.

Does he need tetanus vaccine tonight or can he wait until Monday when your office is open?\*

The decision to delay a booster dose of tetanus toxoid following an injury should be based on the nature of the injury and likelihood that the injured person is susceptible to tetanus. If a tetanus booster is recommended, he should receive Tdap if he has not received Tdap previously.

\*Updated Recommendations for Use of Tetanus Toxoid, Reduced Diphtheria Toxoid and Acellular Pertussis (Tdap) Vaccine from the Advisory Committee on Immunization Practices, 2010 MMWR / January 14, 2011 / Vol. 60 / No. 1 https://www.immunize.org/ask-experts/topic/tetanus/page/2/ - March 2022, Immunize.org

A 45-year-old patient will be traveling to Haiti for a mission trip. She doesn't recall ever getting an MMR booster. She was immune to rubella when pregnant 20 years ago. Her measles titer is negative.

Would you recommend an MMR booster?

A 45-year-old patient will be traveling to Haiti for a mission trip. She doesn't recall ever getting an MMR booster. She was immune to rubella when pregnant 20 years ago. Her measles titer is negative.

#### Would you recommend an MMR booster?\*

ACIP recommends 2 doses of MMR given at least 4 weeks apart for any adult born in 1957 or later who plans to travel internationally. There is no harm in giving MMR vaccine to a person who may already be immune to one or more of the vaccine viruses.

Lillian, a 50-year-old grandmother, was given DTAP instead of TDAP.

Does she need to receive one dose of TDAP?

Lillian, a 50 year old grandmother, was given DTaP instead of Tdap.

Does she need to receive one dose of Tdap?\*

Lillian received the appropriate amount of tetanus toxoid and MORE diphtheria toxoid and pertussis antigen than is recommended. Count the dose as Tdap. The patient does not need a repeat dose of Tdap. **Take measures to prevent this error in the future.** 

Morris is a 59 year old accountant. He is an alcoholic with chronic liver disease and smokes 1 pack of cigarettes per day. No other significant medical problems. His last tetanus booster was 12 years ago. He states he has never had measles or chicken pox.

What vaccines does he need?

Morris is a 59 year old accountant. He is an alcoholic with chronic liver disease and smokes 1 pack of cigarettes per day. No other significant medical problems. His last tetanus booster was 12 years ago. He states he has never had measles or chicken pox.

What vaccines does he need?\*

Tdap, hepatitis A, hepatitis B, PCV15/PCV20, PPSV23 (alcoholic, liver disease and smoker), Shingrix<sup>®</sup> since he was born before 1980 and therefore could be presumed to have had or developed immunity to chickenpox

MMR (if he has no documentation of MMR)

Influenza vaccine (in fall), Stay up to date on COVID-19 vaccines
Hazel is 61 years old. She had major surgery one month ago requiring a blood transfusion. During her visit to your office today she tells you she would like to get the shingles vaccine.

How would you respond to her request?

Hazel is 61 years old. She had major surgery one month ago requiring a blood transfusion. During her visit to your office today she tells you she would like to get the shingles vaccine.

How would you respond to her request?\*

There is no waiting period for administering Shingrix following transfusion. Shingrix contains no live virus so may be given at any time after receipt of a blood product.

Dr. Brown treats many patients for shingles and post-herpetic neuralgia. He is encouraging all his patients 50 years and older to get Shingrix<sup>™</sup> vaccine.

Should he ask his patients if they had chickenpox or shingles before administering zoster vaccine?

Dr. Brown treats many patients for shingles and postherpetic neuralgia. He is encouraging all his patients 50 years and older to get Shingrix<sup>™</sup> vaccine.

Should he ask his patients if they had chickenpox or shingles before administering zoster vaccine?

No. All persons age 50 years or older---whether they have a history of chickenpox or shingles or not---should be given Shingrix<sup>™</sup> vaccine unless they have a medical contraindication to the vaccine. It is also not necessary to test for varicella antibody prior to giving the vaccine.

Sixty five year old Nadine requests the shingles vaccine. In addition, she needs pneumococcal and influenza vaccine.

Should she receive all 3 vaccines on the same day?

Sixty-five-year-old Nadine requests the shingles vaccine. In addition, she needs pneumococcal and influenza vaccine.

Should she receive all 3 vaccines on the same day?\*

Yes.

ACIP states that shingles vaccine may be given at the same visit along with other appropriate and recommended vaccines, such as pneumococcal and/or influenza.