



EPIC[®] Immunization 2022 Update

Immunizing Adults

EPIC[®] 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

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5/1/2023

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 vaccine-preventable diseases when compared with the pre-vaccine era

DISEASE	PRE-VACCINE ERA ESTIMATED ANNUAL MORBIDITY ¹	MOST RECENT REPORTS OR ESTIMATES OF U.S. CASES	PERCENT DECREASE
Diphtheria	21,053	2 ²	>99%
<i>H. influenzae</i> (invasive, <5 years of age)	20,000	14 ^{2,3}	>99%
Hepatitis A	117,333	(est) 24,900 ⁴	79%
Hepatitis B (acute)	66,232	(est) 21,600 ⁴	67%
Measles	530,217	1,287 ²	>99%
Meningococcal disease (all serotypes)	2,886 ⁵	329 ²	89%
Mumps	162,344	3,509 ²	98%
Pertussis	200,752	15,662 ²	92%
Pneumococcal disease (invasive, <5 years of age)	16,069	1,700 ⁷	93%
Polio (paralytic)	16,316	0 ²	100%
Rotavirus (hospitalizations, <3 years of age)	62,500 ⁸	30,625 ⁹	51%
Rubella	47,745	4 ²	>99%
Congenital Rubella Syndrome	152	0 ²	100%
Smallpox	29,005	0 ²	100%
Tetanus	580	19 ²	96%
Varicella	4,085,120	102,128 ¹⁰	>98%

<https://www.immunize.org/catg.d/p4037.pdf>

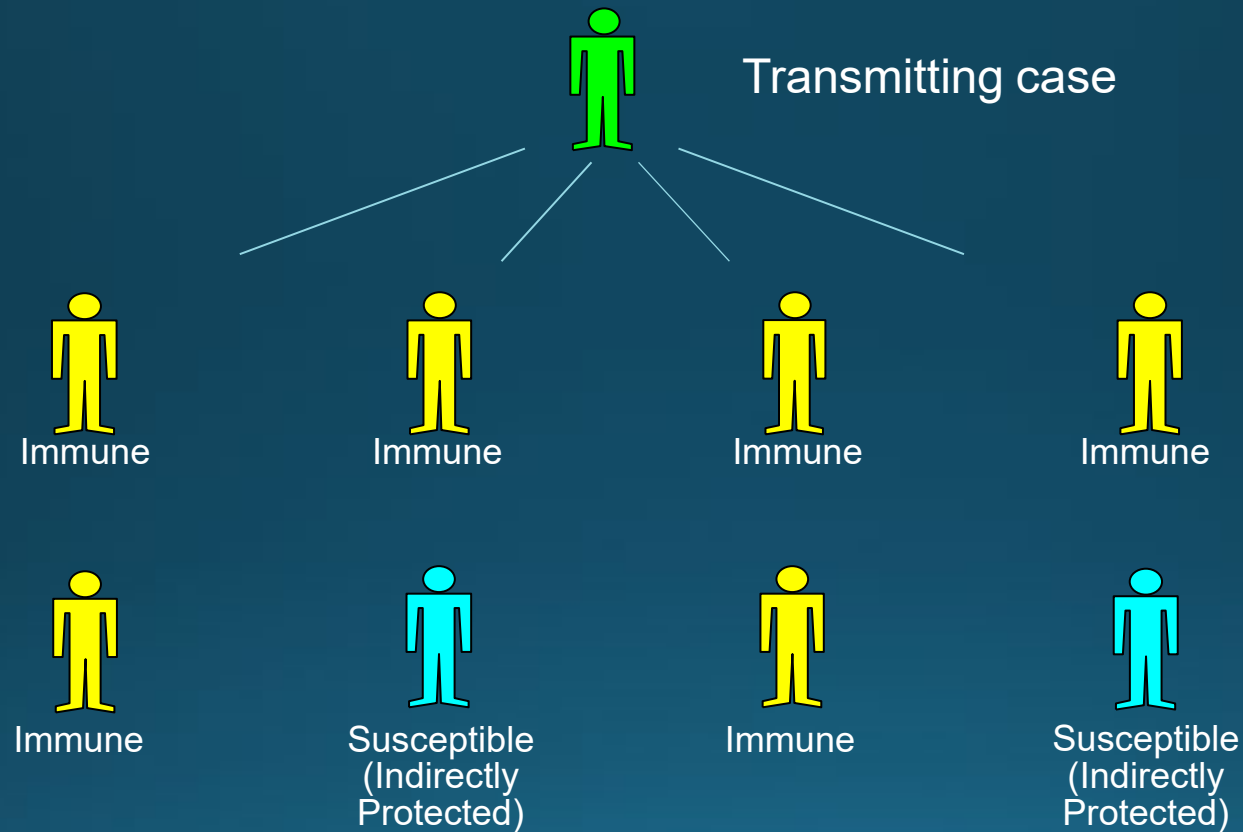
Advisory Committee on Immunization Practices (ACIP)

- 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

5/1/2023



Diphtheria



Tetanus



Pertussis



Tdap for Adults

Boostrix™ licensed for persons 10 yrs. and older

Adacel™ licensed for persons 10 through 64 years of age

- 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 ≥ 65 years.
- Either Tdap or Td can be used for routine decennial booster.
- Either can be used for tetanus prophylaxis for wound management.
There is no minimum interval between doses of Td and Tdap.

Tdap for Pregnant Women

ACIP recommends:

One dose of Tdap during each 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>

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.



Source: Immunization
Action Coalition

Measles, Mumps, Rubella

Measles (M)



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

Mumps (M)



Source: Creative Commons

Rubella (R)



Congenital Rubella (R)

MMR Vaccine

ACIP recommendations:

Children: 2 doses of MMR:

- Dose 1 @ 12 through 15 months of age
- Dose 2 @ 4 through 6 years of age

Second dose can be given 28 days after first dose, if necessary.

Adults:

- At least 1 dose MMR for unvaccinated adults
- 2 doses MMR for students entering colleges, universities, technical and vocational schools, and other post-high-school educational institutions
- 2 doses MMR for measles and mumps and 1 dose MMR for rubella for healthcare personnel
- Travelers to foreign countries should be appropriately immunized with MMR before leaving U.S.
- Infants 6-12 mos. of age traveling abroad should receive 1 dose of MMR. This dose must be repeated at age 12 -15 months of age and a second dose at least 4 weeks later.
- A 3rd MMR may be recommended in the instance of a public health-declared mumps outbreak.

MMR Vaccine

- Antibodies develop in approximately 95% of children vaccinated at age 12 months and over 99% of children who receive 2 doses
- Immunity 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

- MMR-II
- PRIORIX (GSK). ACIP Recommended June 2022
 - First licensed in Germany in 1997 and approved in over 100 countries
 - Contains equivalent vaccine virus strains as MMR II (Merck)
 - No significant differences found in safety or side effects when comparing Priorix to MMR-II.
 - PRIORIX and M-M-R II are fully interchangeable.
 - ACIP General Best Practices states a preference that doses of vaccine in a series come from the same manufacturer; however, vaccination should not be deferred when the manufacturer of the previously administered vaccine is unknown or when the vaccine from the same manufacturer is unavailable
 - Studies have shown that PRIORIX is safe and immunogenic when administered as a second dose after M-M-R II
- MMRV

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 a common consequence of zoster. PHN is defined as nerve pain persisting longer than 3 mos. after disappearance of the rash.
- Risk for zoster and PHN increases with age



Photo courtesy of www.webmd.com

Shingrix[®] (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% in preventing zoster in all vaccinated persons in licensed age groups
- > 88% in preventing PHN
- At least 85% vaccine effectiveness >4 years post-vaccination in persons 70 years and older

Shingrix[®] (RZV) from GSK*

ACIP Recommendations

- RZV (recombinant zoster vaccine) is recommended by the ACIP for the prevention of shingles and related complications.
- RZV is recommended for **immunocompetent** adults 50 years and older who previously received ZVL and **immunocompromised adults 19 years and older**.
- Two doses of RZV are recommended, regardless of prior history of herpes zoster disease or previous receipt of zoster vaccine live vaccine (ZVL).
- RZV may be given ≥ 2 months after prior receipt of ZVL. 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.
- RZV may be administered while patients are taking antiviral medications.
- RZV can be administered at the same visit as other vaccines

Shingrix[®] (RZV) from GSK

- Store at appropriate refrigerator temperatures
- **2 doses given IM, 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 (PCV13, PCV15) ACIP Recommendations

Children

- All children PCV13 or PCV15: 4-dose series at 2, 4, 6 months and 12-15 months
- On June 22, 2022, the ACIP recommended use of PCV15 as an option for pneumococcal conjugate vaccination of persons aged <19 years, according to currently recommended PCV13 dosing and schedules.
- For older children and adolescents (2 years through 18 years) with underlying medical conditions, see detailed recommendations at <https://www.cdc.gov/vaccines/schedules/hcp/imz/child-adolescent.html#note-pneumo>

Pneumococcal Conjugate Vaccine (PCV15, PCV20)

ACIP Recommendations

Adults

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

Pneumococcal Polysaccharide Vaccine (PPSV23)

ACIP Recommendations:

- For children and adolescents 2 years through 18 years and
- Adults 19 years and older

See Summary of recommendations of PPSV23 and timing at:
<https://www.cdc.gov/vaccines/vpd/pneumo/hcp/who-when-to-vaccinate.html>

FDA Recommended Influenza Antigens for 2022-2023 Season in the U.S.

• Egg-based influenza vaccines	Cell culture–based inactivated (ccIIV4) and recombinant (RIV4) influenza vaccines
<ul style="list-style-type: none">• an influenza A/Victoria/2570/2019 (H1N1)pdm09-like virus• an influenza A/Darwin/9/2021 (H3N2)-like virus• an influenza B/Austria/1359417/2021 (Victoria lineage)- like virus, and• an influenza B/Phuket/3073/2013 (Yamagata lineage)-like virus	<ul style="list-style-type: none">• an influenza A/Wisconsin/588/2019 (H1N1)pdm09-like virus• an influenza A/Darwin/6/2021 (H3N2)-like virus• an influenza B/Austria/1359417/2021 (Victoria lineage)- like virus,• an influenza B/Phuket/3073/2013 (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 2022-2023 Season

TABLE 1. Influenza vaccines — United States, 2022–23 influenza season*

Trade name (manufacturer)	Presentations	Age indication	µg HA (IIV4s and RIV4) or virus count (LAIV4) for each vaccine virus (per dose)	Route	Mercury (from thimerosal, if present), µg/0.5 mL
IIV4 (standard-dose, egg-based vaccines[†])					
Afluria Quadrivalent (Seqirus)	0.5-mL PFS [§]	≥3 yrs [§]	15 µg/0.5 mL	IM [¶]	—**
	5.0-mL MDV [§]	≥6 mos [§]	7.5 µg/0.25 mL	IM [¶]	24.5
		(needle and syringe) 18 through 64 yrs (jet injector)	15 µg/0.5 mL		
Fluarix Quadrivalent (GlaxoSmithKline)	0.5-mL PFS	≥6 mos	15 µg/0.5 mL	IM [¶]	—
FluLaval Quadrivalent (GlaxoSmithKline)	0.5-mL PFS	≥6 mos	15 µg/0.5 mL	IM [¶]	—
Fluzone Quadrivalent (Sanofi Pasteur)	0.5-mL PFS ^{††}	≥6 mos ^{††}	15 µg/0.5 mL	IM [¶]	—
	0.5-mL SDV ^{††}	≥6 mos ^{††}	15 µg/0.5 mL	IM [¶]	—
	5.0-mL MDV ^{††}	≥6 mos ^{††}	7.5 µg/0.25 mL 15 µg/0.5 mL	IM [¶]	25
cclIV4 (standard-dose, cell culture–based vaccine)					
Flucelvax Quadrivalent (Seqirus)	0.5-mL PFS	≥6 mos	15 µg/0.5 mL	IM [¶]	—
	5.0-mL MDV	≥6 mos	15 µg/0.5 mL	IM [¶]	25
HD-IIV4 (high-dose, egg-based vaccine[†])					
Fluzone High-Dose Quadrivalent (Sanofi Pasteur)	0.7-mL PFS	≥65 yrs	60 µg/0.7 mL	IM [¶]	—
aIIV4 (standard-dose, egg-based vaccine[†] with MF59 adjuvant)					
Fluad Quadrivalent (Seqirus)	0.5-mL PFS	≥65 yrs	15 µg/0.5 mL	IM [¶]	—
RIV4 (recombinant HA vaccine)					
Flublok Quadrivalent (Sanofi Pasteur)	0.5-mL PFS	≥18 yrs	45 µg/0.5 mL	IM [¶]	—
LAIV4 (egg-based vaccine[†])					
FluMist Quadrivalent (AstraZeneca)	0.2-mL prefilled single- use intranasal sprayer	2 through 49 yrs	10 ^{6.5–7.5} fluorescent focus units/0.2 mL	NAS	—

Abbreviations: ACIP = Advisory Committee on Immunization Practices; FDA = Food and Drug Administration; HA = hemagglutinin; IIV4 = inactivated influenza vaccine, quadrivalent; IM = intramuscular; LAIV4 = live attenuated influenza vaccine, quadrivalent; MDV = multidose vial; NAS = intranasal; PFS = prefilled syringe; RIV4 = recombinant influenza vaccine, quadrivalent; SDV = single-dose vial.

Influenza Vaccine Products for the 2022–2023 Influenza Season

Manufacturer	Trade Name (vaccine abbreviation) ¹	How Supplied	Mercury Content (mcg Hg/0.5mL)	Age Range	CVX Code	Vaccine Product Billing Code ²
						CPT
AstraZeneca	FluMist (LAIV4)	0.2 mL (single-use nasal spray)	0	2 through 49 years	149	90672
GlaxoSmithKline	Fluarix (IIV4)	0.5 mL (single-dose syringe)	0	6 months & older ³	150	90686
	FluLaval (IIV4)	0.5 mL (single-dose syringe)	0	6 months & older ³	150	90686
Sanofi	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 ³	150	90686
		0.5 mL (single-dose vial)	0	6 months & older ³	150	90686
		5.0 mL multi-dose vial (0.25 mL dose)	25	6 through 35 months ³	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	Afluria (IIV4)	5.0 mL multi-dose vial (0.25 mL dose)	24.5	6 through 35 months ³	158	90687
		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 ³	150	90686
	Fluad (aIIV4)	0.5 mL (single-dose syringe)	0	65 years & older	205	90694
	Flucelvax (ccIIV4)	0.5 mL (single-dose syringe)	0	6 months & older ³	171	90674
		5.0 mL multi-dose vial (0.5 mL dose)	25	6 months & older ³	186	90756

NOTES

1. IIV4 = egg-based quadrivalent inactivated influenza vaccine (injectable); where necessary to refer to cell culture-based vaccine, the prefix "cc" is used (e.g., ccIIV4); RIV4 = quadrivalent recombinant hemagglutinin influenza vaccine (injectable); aIIV4 = adjuvanted quadrivalent inactivated influenza vaccine.

2. 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

4. 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.



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

www.immunize.org/catg.d/p4072.pdf
Item #P4072 (8/2022)



Scan for PDF

Live, Attenuated Influenza Vaccine (LAIV4)*

FluMist® MedImmune (Nasal Spray)

- Licensed for healthy persons 2 through 49 years of age

LAIV4 MAY be used in the 2022-2023 season.

Contraindications to LAIV include:

- Children 2-4 yrs. of age with a diagnosis of asthma
- Persons receiving aspirin-containing medications – potential risk for Reye syndrome
- Persons who are immunocompromised, by medication or disease, 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

- Persons with a history of egg allergy who have experienced only urticaria (hives) after exposure to egg should receive influenza vaccine.
- Any licensed, recommended influenza vaccine (i.e., any IIV4, RIV4, or LAIV4) that is otherwise appropriate for the recipient's age and health status can be used.
- Persons who report having had reactions to egg involving symptoms other than urticaria (e.g., angioedema or swelling, respiratory distress, lightheadedness, or recurrent vomiting) or who required epinephrine or another emergency medical intervention can also receive any licensed, recommended influenza vaccine (i.e., any IIV4, RIV4, or LAIV4) that is otherwise appropriate for their age and health status.
- If a vaccine other than cclIV4 or RIV4 is used, the selected vaccine should be administered in an inpatient or outpatient medical setting, including but not necessarily limited to hospitals, clinics, health departments, and physician offices. Vaccine administration should be supervised by a health care provider who is able to recognize and manage severe allergic reactions.

Co-administration

- Inactivated influenza vaccines(IIV4s) and RIV4 may be administered simultaneously or sequentially with other inactivated 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. However, if two live vaccines are not given simultaneously, then after administration of one live vaccine (such as LAIV4), at least 4 weeks should pass before another live vaccine is administered
- Guidance concerning administration of COVID-19 vaccines with other vaccines indicates that these vaccines may be given with other vaccines, including influenza vaccines.
- Providers should be aware of the potential for increased reactogenicity with coadministration and should consult the CDC guidance as more information becomes available. (This is more likely with the adjuvanted or high dose IIV4s which are recommended in persons 65 years and older.

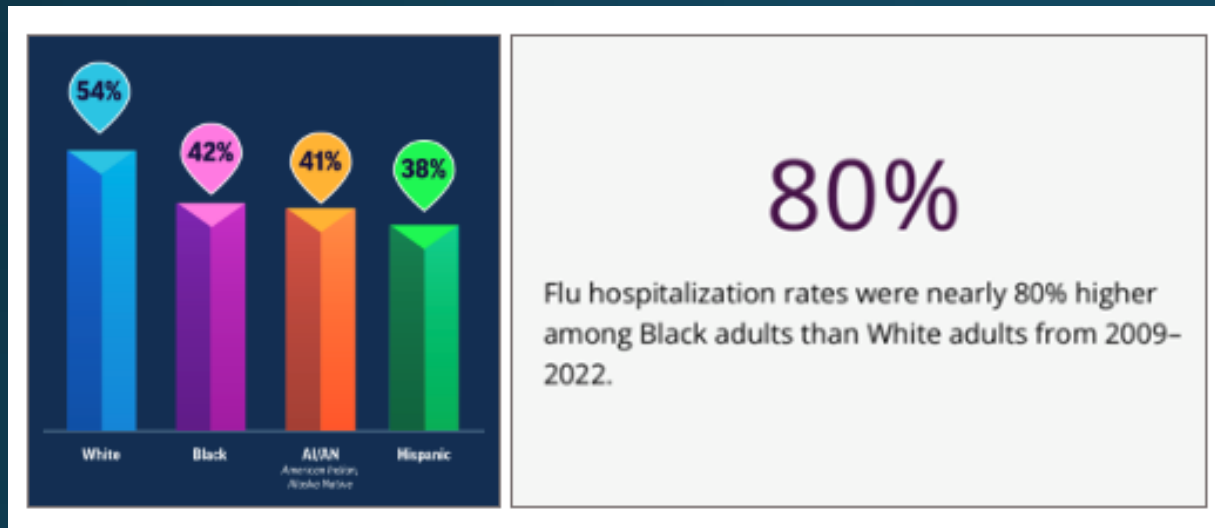
Influenza Vaccines Preference 2022-23 for Older Adults and other changes for 2022-23 influenza vaccination recommendations

- 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 (aIIV4).
- 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 might be available as early as July or August; however, vaccination during these months is not recommended for most groups because of the possible waning of immunity over the course of the influenza season
- For most persons who need only 1 dose of influenza vaccine for the season, vaccination should ideally be offered during September or October.
- However, vaccination should continue after October and throughout the influenza season as long as influenza viruses are circulating and unexpired vaccine is available.

Inequities in Flu Vaccine Uptake



Hepatitis A Vaccine Recommendations for Adults

- Adults age 19 years or older with risk factors should receive the adult formulation of HepA vaccine.
- 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 or on dialysis
 - 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.

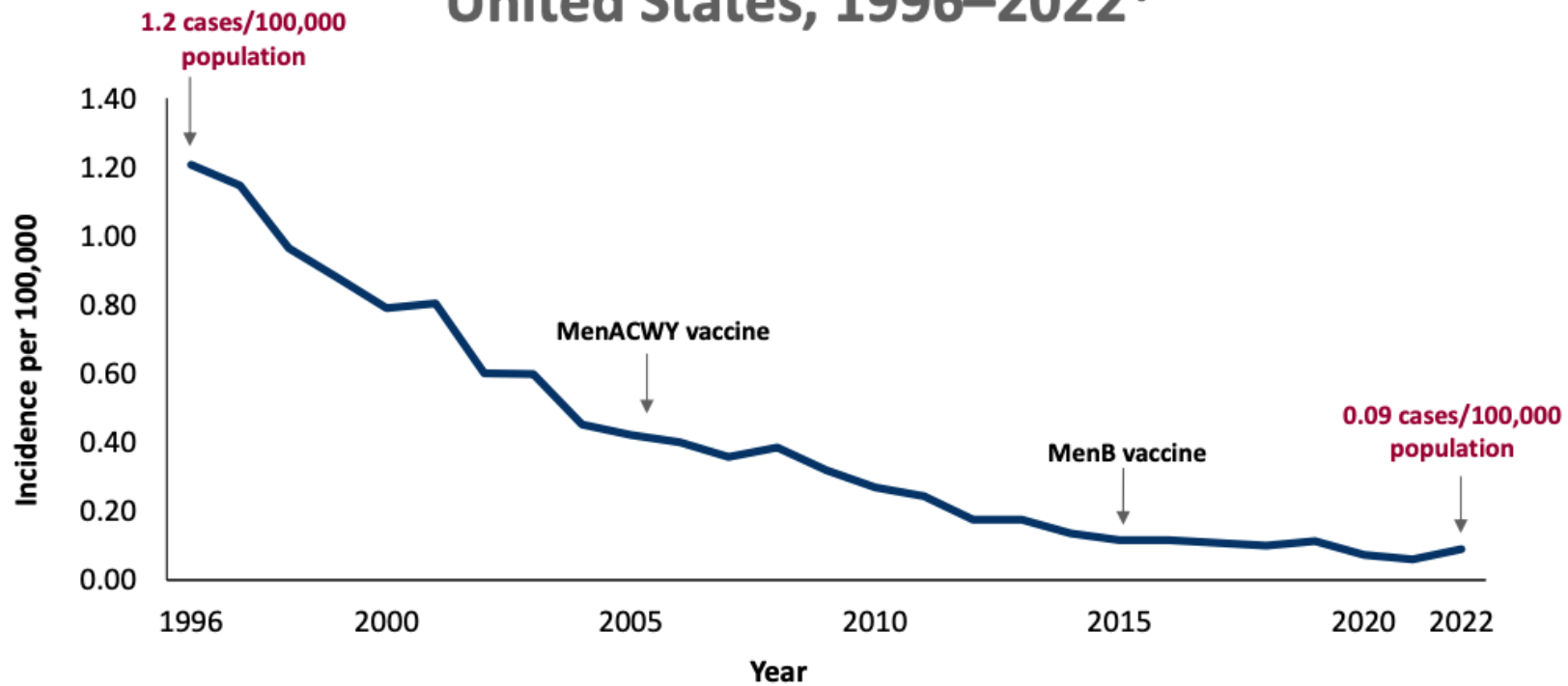
Hepatitis B Vaccine Recommendations for adults

- All adults aged 19-59 years should receive Hep B vaccine
- Hepatitis B vaccine is recommended for adults **age 60 years or older with** risk factors for hepatitis B virus infection
- **People age 60 years or older without** known risk factors for hepatitis B virus infection **may** also complete a HepB 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**
 - **Incarceration**
 - **Travel in countries with high or intermediate endemic hepatitis B**
- 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*)

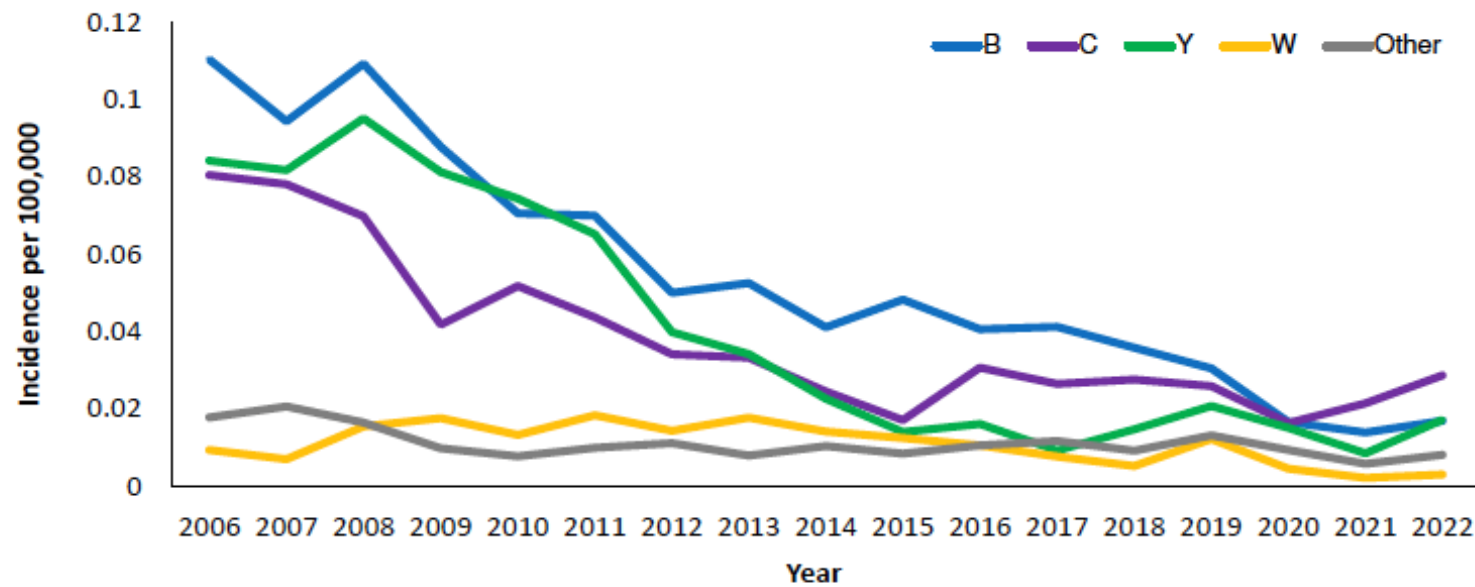
- Usually presents as meningitis, bacteremia or both
 - Transmitted through direct contact with respiratory tract secretions from patients and asymptomatic carriers
 - Nasopharyngeal carriage rate is highest in adolescents and young adults in the U.S.
 - Incidence of meningococcal disease declined during 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

Meningococcal Disease Incidence – United States, 1996–2022*



Abbreviations: MenACWY vaccine = quadrivalent conjugate meningococcal vaccine against serogroups A, C, W, Y; MenB vaccine = serogroup B meningococcal vaccine
Source: 1996–2022 NNDSS Data. *2021–2022 NNDSS data are preliminary.

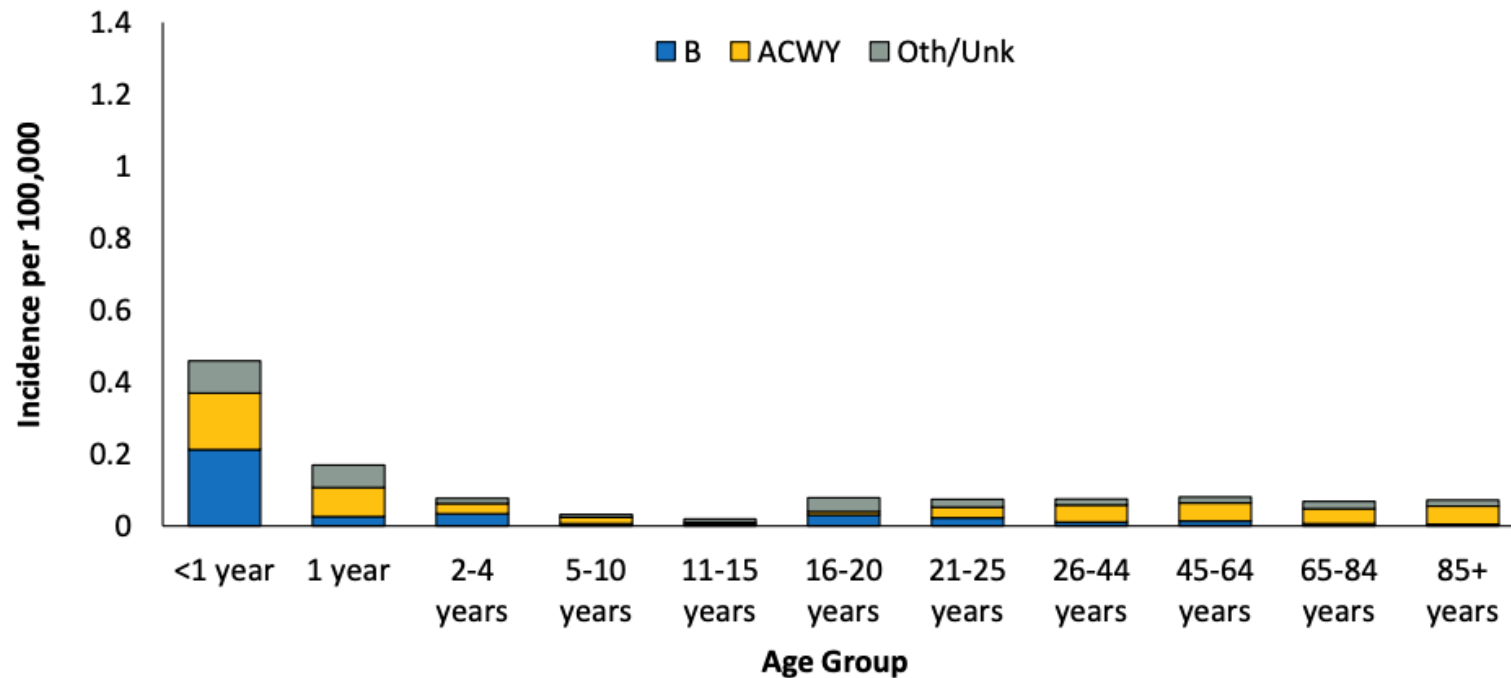
Trends in Meningococcal Disease Incidence by Serogroup – United States, 2006–2022*



Source: NNDSS data with additional serogroup data from Active Bacterial Core surveillance (ABCs) and state health departments

*2021 and 2022 data are preliminary

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



Source: NNDSS data with additional serogroup data from ABCs and state health departments

*2021 and 2022 data are preliminary

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Signs and Symptoms of Meningococcal Disease

- Symptoms of meningitis
 - Sudden onset of fever
 - Headache
 - Stiff neck
 - Photophobia
 - Nausea and vomiting
- Symptoms of meningococemia
 - 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 (particularly serogroup B)
 - Military recruits



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

Menactra™ licensed for 9 mos. through 55 years

Menveo® licensed for ages 2 mos. through 55 years

MenQuadfi® licensed for ages ≥ 2 yrs. of age

ACIP recommends for adolescents:

- Dose 1---age 11-12 years preferred
- Booster dose---age 16 years
- If 1st dose is received ≥ 16 years of age, a 2nd dose is not needed, unless they become at increased risk for meningococcal disease
- **Effective July 1, 2021, for the 2021-2022 school year, a meningococcal conjugate (MCV4/MenACWY) booster was required for all high school students entering the 11th grade and who are 16 years of age or older.**
- **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™ licensed for 9 mos. through 55 years

Menveo® licensed for ages 2 mos. through 55 years

MenQuadfi® licensed for ages ≥ 2 yrs. of age

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

- human immunodeficiency virus (HIV)***
- Persistent complement component deficiency, complement inhibitor
- functional or anatomic asplenia (sickle cell disease)
- microbiologists exposed to isolates of *N. meningitidis*
- part of a community outbreak due to vaccine serogroups
- persons traveling internationally to regions with endemic meningococcal disease

**For persons in any of these categories, consult the current
ACIP Immunization Schedules for specific dosages and guidelines**

Serogroup B Meningococcal Vaccine

Bexsero® licensed for ages 10 through 25 years (2 dose)

Trumenba® 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 may be administered to adolescents and young adults 16 through 23 years of age to provide short-term protection against most strains of Men B. Preferred age is 16-18 years.

Serogroup B Meningococcal Vaccine Administration

Bexsero® licensed for ages 10 through 25 years (2 dose)

Trumenba® licensed for ages 10 through 25 years (2 dose or 3 dose)

The 2 vaccine products are not interchangeable.

MenB-FHbp (Trumenba®)

- 2 dose schedule – administered at 0, 6 months
- Given to healthy adolescents who are not at increased risk for meningococcal disease
- 3 dose schedule – administered at 0, 1-2, 6 months
- Given to persons at increased risk for meningococcal disease and for use during serogroup B outbreaks

MenB-4C (Bexsero®)

- 2 dose schedule – 0, 1-2 months
- Given to healthy adolescents who are not at increased risk for meningococcal disease
- Given to persons at increased risk for meningococcal disease and for use during serogroup B outbreaks

Meningococcal Vaccine Booster Recommendations*

For persons at continued risk

- Meningococcal quadrivalent 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.

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

ACIP Polio Vaccine Recommendations

For the year 2020, polio remained endemic with a total of 138 cases in 2 countries: 82 in Pakistan and 56 in Afghanistan.**

- Routine vaccination of adults 18 years and older in the U.S. is not necessary or recommended.
- Laboratory workers handling poliovirus-containing specimens, HCP treating patients with possible polio, travelers to areas where polio is endemic or epidemic may need vaccination
- Adults at risk without documented polio vaccination should receive primary vaccination (3 doses)

Travelers to countries affected by Wild Poliovirus

- If travel will be less than 4 weeks:
 - Individuals <18 years – no additional dose if polio series has been completed
 - Individuals ≥18 years – one dose prior to travel
- For adults with documentation of a polio vaccine series and an adult IPV booster dose who will be in a polio-exporting or polio-infected country for >4 weeks and their last dose of polio vaccine was administered >12 months before the date they will be departing that country, an additional dose of IPV should be given.
- Proof of polio vaccination is needed upon leaving infected countries.

* MMWR, July 11, 2014, Vol 63/ # 27, <https://stacks.cdc.gov/view/cdc/29251>

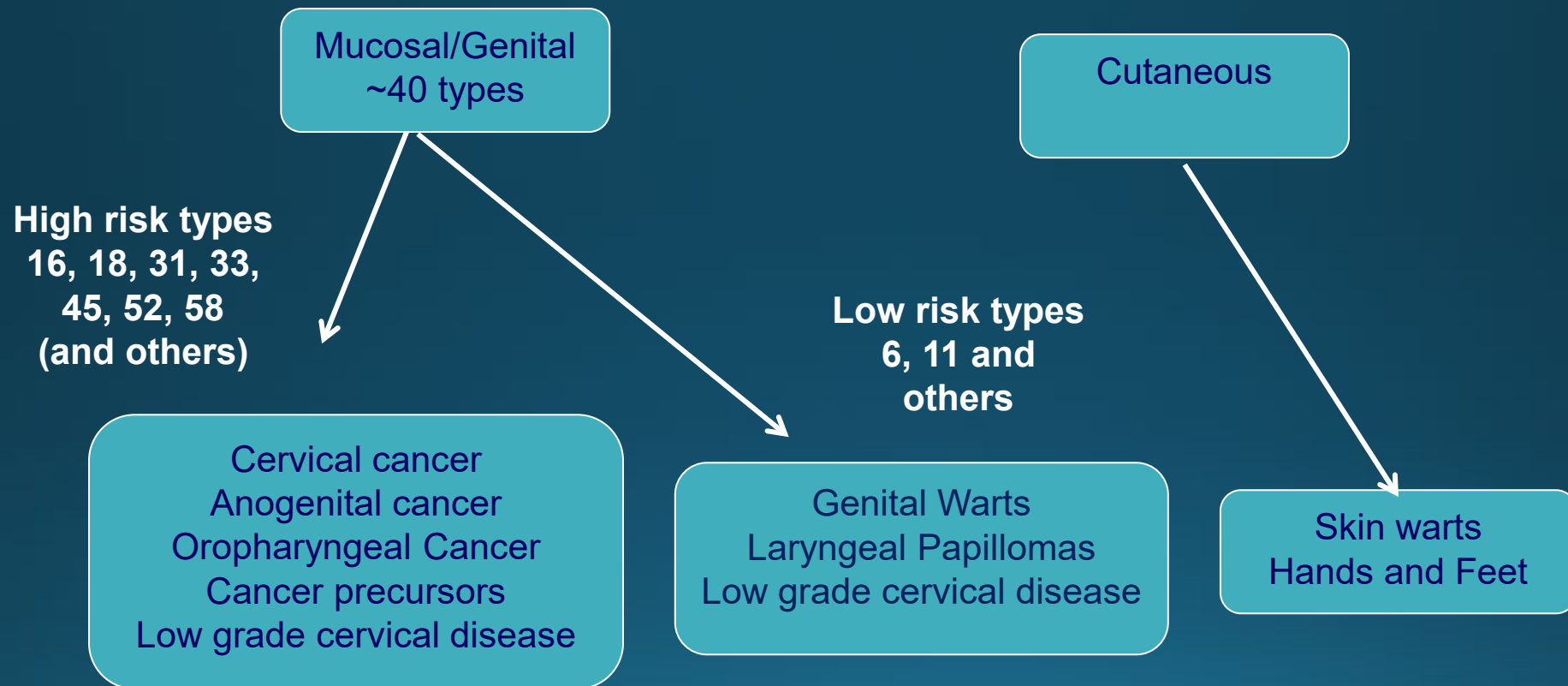
*Clinical Update: Interim CDC Guidance for Travel to and from Countries Affected by the New Polio Vaccine Requirements.

**<https://polioeradication.org/polio-today/polio-now/this-week/>

<https://www.cdc.gov/vaccines/pubs/pinkbook/polio.html>

Types of Human Papilloma Virus (HPV)*

(More Than 200 Types Identified)



*Epidemiology and Prevention of Vaccine Preventable Diseases 13th Edition, 2015

*Red Book – AAP 2018 Report of the Committee on Infectious Diseases

* MMWR, August 29, 2014, RR Vol. 63, No. 5

HPV Vaccine

Gardasil 9[®] (9vHPV) HPV types 6, 11, 16, 18, 31, 33, 45, 52, 58

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

- All males and females through 26 years of age
- 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 may be given to persons ages 27-45.

ACIP Recommendations and Schedule

2 Dose Schedule:

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

3 Dose Schedule:

HPV vaccine initiated after the 15th birthday 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 to 2 months after first dose (1 month minimum); Dose 3 should be given at least 6 months after the first dose
(minimum of 3 months between dose 2 and 3)

Other vaccine news February 2023

RSV – The VRBPAC (Vaccines and Related Biological Products Advisory Committee) of the FDA has voted to approved two new RSV vaccines for adults 60 years and older. The ACIP has not yet met to vote and provide any recommendations. Stay tuned!

<https://www.cnn.com/2023/02/28/health/fda-rsv-vaccine/index.html#:~:text=Over%20the%20course%20of%20a,vaccines%20against%20the%20common%20virus.>

Monkeypox – ACIP approved the following recommendation by majority vote at its February 22-24, 2023, meeting:

- ACIP recommends the 2-dose JYNNEOS vaccine series for persons aged 18 years and older at risk of mpox during an mpox outbreak.

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

*Place holder for COVID slides

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 YOU up to date?

5/1/2023

Healthcare Personnel Vaccination Recommendations¹

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-job 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 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 non-responders are people who are HBsAg positive. HBsAg testing is recommended. HCP found

to be HBsAg positive should be counseled and medically evaluated.

For HCP with documentation of a complete 2-dose (Heplisav-B) or 3-dose (Engerix-B or Recombivax HB) vaccine series but no documentation of anti-HBs of at least 10 mIU/mL (e.g., those vaccinated in childhood): HCP who are at risk for occupational blood or body fluid exposure might undergo anti-HBs testing upon hire or matriculation. See references 2 and 3 for details.

Influenza

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 influenza. 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 immunosuppressed patients (e.g., stem cell transplant recipients) when they require protective isolation.

Measles, Mumps, Rubella (MMR)

HCP who work in medical facilities should be immune to measles, mumps, and rubella.

- HCP born in 1957 or later can be considered immune to measles, mumps, or rubella only if they have documentation of (a) laboratory confirmation of disease or immunity or (b) appropriate vaccination against measles, mumps, and rubella (i.e., 2 doses of live

measles and mumps vaccines given on or after the first birthday and separated by 28 days or more, and at least 1 dose of live rubella 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

1. 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.

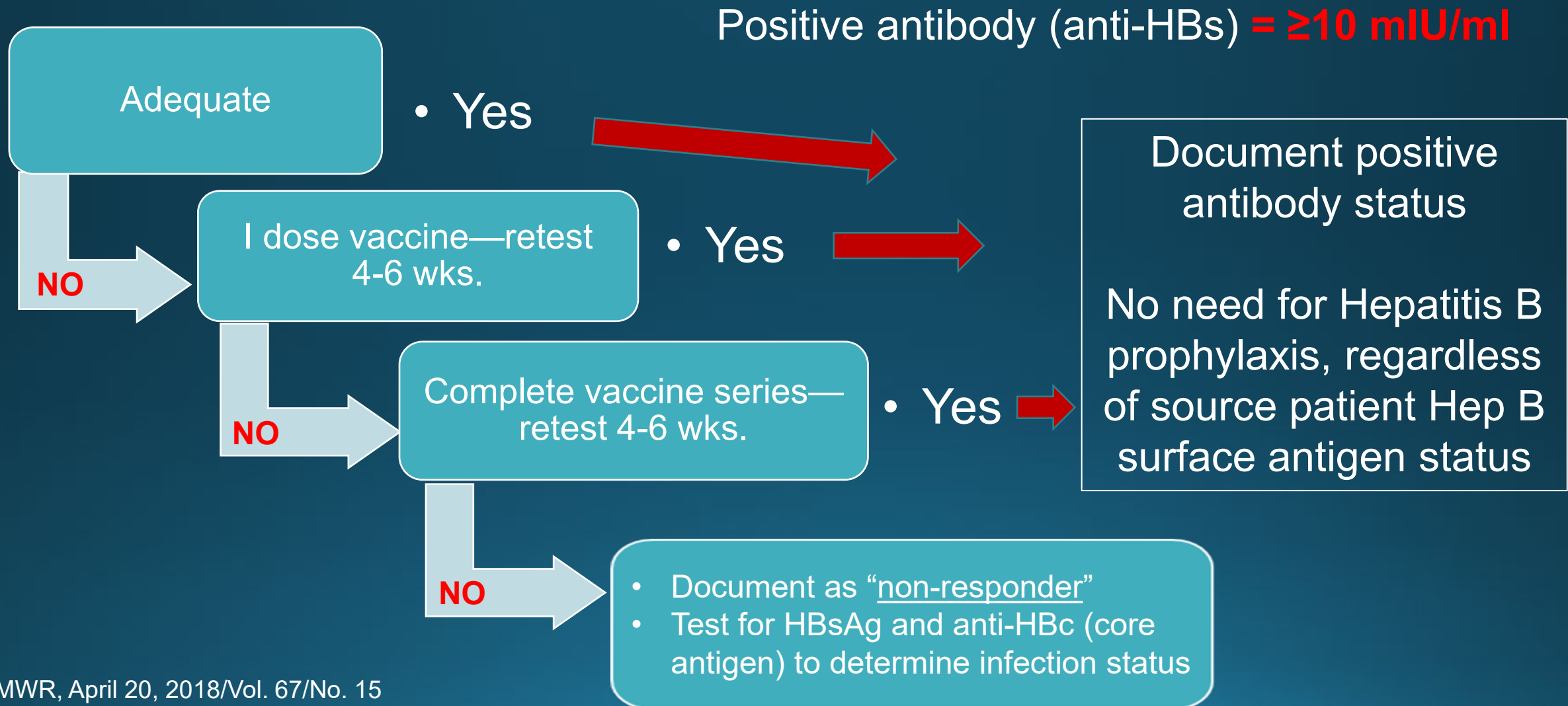
For additional specific ACIP recommendations, visit CDC's website at www.cdc.gov/vaccines/hcp/acip-recs/vacc-specific/index.html or visit IAC's website at www.immunize.org/acip.

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www.immunize.org/catg.d/p2017.pdf • Item #P2017 (2/21)

Available at www.immunize.org, P#2017

Hepatitis B Immunization Status for Previously Vaccinated HCP with No Post-vaccination Testing*



2023 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!

Table 1 Recommended Adult Immunization Schedule by Age Group, United States, 2021

Vaccine	19–26 years	27–49 years	50–64 years	≥65 years
Influenza inactivated (IV) or Influenza recombinant (RIV4)	1 dose annually			
Influenza live, attenuated (LAIV4)	1 dose annually			
Tetanus, diphtheria, pertussis (Tdap or Td)	1 dose Tdap each pregnancy; 1 dose Td/Tdap for wound management (see notes)			
Measles, mumps, rubella (MMR)	1 dose Tdap, then Td or Tdap booster every 10 years			
Varicella (VAR)	1 or 2 doses depending on indication (if born in 1957 or later)			
Zoster recombinant (RZV)	2 doses (if born in 1980 or later)			
Human papillomavirus (HPV)	2 or 3 doses depending on age at initial vaccination or condition	27 through 45 years		
Pneumococcal conjugate (PCV13)	1 dose			
Pneumococcal polysaccharide (PPSV23)	1 or 2 doses depending on indication			
Hepatitis A (HepA)	2 or 3 doses depending on vaccine			
Hepatitis B (HepB)	2 or 3 doses depending on vaccine			
Meningococcal A, C, W, Y (MenACWY)	1 or 2 doses depending on indication, see notes for booster recommendations			
Meningococcal B (MenB)	2 or 3 doses depending on vaccine and indication, see notes for booster recommendations			
Haemophilus influenzae type b (Hib)	19 through 23 years	1 or 3 doses depending on indication		

 Recommended vaccination for adults who meet age requirement, lack documentation of vaccination, or lack evidence of past infection.
 Recommended vaccination for adults with an additional risk factor or another indication.
 Recommended vaccination based on shared clinical decision-making.
 No recommendation/Not applicable.

Table 2 Recommended Adult Immunization Schedule by Medical Condition and Other Indications, United States, 2021

Vaccine	Pregnancy	Immunocompromised (including HIV infection)	HIV infection CD4 count <200 mm ³ or ≥200 mm ³	Asplenia, complement deficiencies	End-stage renal disease or on hemodialysis	Heart or lung disease, alcoholism ¹	Chronic liver disease	Diabetes	Health care personnel ²	Men who have sex with men
IV or RIV4 or LAIV4										1 dose annually
Tdap or Td	1 dose Tdap each pregnancy									1 dose Tdap, then Td or Tdap booster every 10 years
MMR	Not Recommended ³	Not Recommended ³								1 or 2 doses depending on indication
VAR	Not Recommended ³	Not Recommended ³								2 doses
RZV										2 doses at age ≥50 years
HPV	Not Recommended ³	3 doses through age 26 years	2 or 3 doses through age 26 years depending on age at initial vaccination or condition							
PCV13										1 dose
PPSV23										1, 2, or 3 doses depending on age and indication
HepA										2 or 3 doses depending on vaccine
HepB										2, 3, or 4 doses depending on vaccine or condition
MenACWY										1 or 2 doses depending on indication, see notes for booster recommendations
MenB	Precaution									2 or 3 doses depending on vaccine and indication, see notes for booster recommendations
Hib		3 doses HSCT recipients only								1 dose

 Recommended vaccination for adults who meet age requirement, lack documentation of vaccination, or lack evidence of past infection.
 Recommended vaccination for adults with an additional risk factor or another indication.
 Recommended vaccination based on shared clinical decision-making.
 Not recommended/contraindicated—vaccine should not be administered.
 No recommendation/Not applicable.

1. Precaution for LAIV4 does not apply to alcoholism. 2. See notes for influenza, hepatitis B, measles, mumps, and rubella and varicella vaccinations. 3. Hematopoietic stem cell transplant.

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 IN ORIGINAL PACKAGING, WITH THE LID CLOSED.
- 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 Recommendations.
- **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 pediatric formulation ("orange cap") • age ≥12 yrs: 0.3 mL adult/adolescent formulation for primary and booster doses Moderna; ≥18 yrs: 0.5 mL primary series*; 0.25 mL booster Janssen: ≥18 yrs: 0.5 mL for primary & booster doses		IM	Subcutaneous (Subcut) injection Use a 23–25 gauge needle. Choose the injection site that is appropriate to the person's age and body mass.
Diphtheria, Tetanus, Pertussis (DTaP, DT, Tdap, Td)	0.5 mL	IM	
Haemophilus influenzae type b (Hib)	0.5 mL	IM	
Hepatitis A (HepA)	≤18 yrs: 0.5 mL ≥19 yrs: 1.0 mL	IM	
Hepatitis B (HepB) <i>Persons 11–15 yrs may be given Recombivax HB (Merck)</i> <i>1.0 mL adult formulation on a 2-dose schedule.</i>	Engerix-B; Recombivax HB ≤19 yrs: 0.5 mL ≥20 yrs: 1.0 mL Heplisav-B ≥18 yrs: 0.5 mL	IM	
Human papillomavirus (HPV)	0.5 mL	IM	
Influenza, live attenuated (LAIV)	0.2 mL (0.1 mL in each nostril)	Intra-nasal spray	
Influenza, inactivated (IIV); for ages 6–35 months	Afluria: 0.25 mL Fluzone: 0.25 or 0.5 mL Fluarix, Flucelvax, FluLaval: 0.5 mL	IM	
Influenza, inactivated (IIV), ≥3 yrs; recombinant (RIV), ≥18 yrs; high-dose (HD-IIV) ≥65 yrs	0.5 mL FluZone HD: 0.7 mL	IM	

AGE	NEEDLE LENGTH	INJECTION SITE
Infants (1–12 mos)	5/8"	Fatty tissue over anterolateral thigh muscle
Children 12 mos or older, adolescents, and adults	5/8"	Fatty tissue over anterolateral thigh muscle or fatty tissue over triceps
Intramuscular (IM) injection Use a 22–25 gauge needle. Choose the injection site and needle length that is appropriate to the person's age and body mass.		
AGE	NEEDLE LENGTH	INJECTION SITE
Newborns (1st 28 days)	5/8" ¹	Anterolateral thigh muscle
Infants (1–12 mos)	1"	Anterolateral thigh muscle
Toddlers (1–2 years)	1–1¼"	Anterolateral thigh muscle ²
	5/8–1"	Deltoid muscle of arm
Children (3–10 years)	5/8–1"	Deltoid muscle of arm ²
	1–1¼"	Anterolateral thigh muscle
Adolescents and teens (11–18 years)	5/8–1"	Deltoid muscle of arm ²
	1–1½"	Anterolateral thigh muscle
Adults 19 years or older		

Measles, Mumps, Rubella (MMR)	0.5 mL	Subcut	Female or male <130 lbs	5/8–1" ¹	Deltoid muscle of arm
Meningococcal serogroups A, C, W, Y (MenACWY)	0.5 mL	IM	Female or male 130–152 lbs	1"	Deltoid muscle of arm
Meningococcal serogroup B (MenB)	0.5 mL	IM	Female 153–200 lbs Male 153–260 lbs	1–1½"	Deltoid muscle of arm
Pneumococcal conjugate (PCV)	0.5 mL	IM	Female 200+ lbs Male 260+ lbs	1½"	Deltoid muscle of arm
Pneumococcal polysaccharide (PPSV)	0.5 mL	IM or Subcut	Female or male, any weight	1½"	Anterolateral thigh muscle
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 [†] 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			

¹ A 5/8" needle may be used in newborns, preterm infants, and patients weighing less than 130 lbs (<60 kg) for IM injection 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.

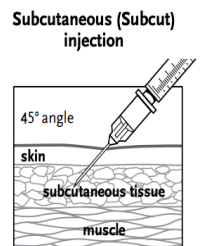
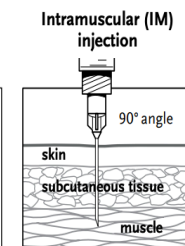
² Preferred site

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.

* If immunocompromised, Moderna 0.5 mL for 3-dose primary series, then 0.25 mL for booster dose.

[†] The Shingrix vial might contain more than 0.5 mL. Do not administer more than 0.5 mL.

Intranasal (NAS) administration of Flumist (LAIV) vaccine



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www.immunize.org/catg.d/p3085.pdf · Item #P3085 (11/21)

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)

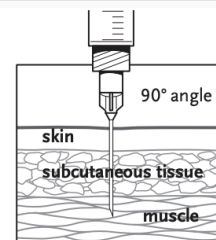
Administer inactivated polio (IPV) and pneumococcal polysaccharide (PPSV23) vaccines either IM or subcutaneously (Subcut).

PATIENT AGE	INJECTION 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)
Toddler (1–2 years)	Anterolateral thigh muscle	1–1¼" (22–25 gauge)
	Alternate site: Deltoid muscle of arm if muscle mass is adequate	5/8"–1" (22–25 gauge)
Children (3–10 years)	Deltoid muscle (upper arm)	5/8"–1" (22–25 gauge)
	Alternate site: Anterolateral thigh muscle	1–1¼" (22–25 gauge)
Children and adults (11 years and older)	Deltoid muscle (upper arm)	5/8"–1" (22–25 gauge)
	Alternate site: Anterolateral thigh muscle	1–1½" (22–25 gauge)

* A 5/8" 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 1–1¼" needle is recommended in women weighing 153–200 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.

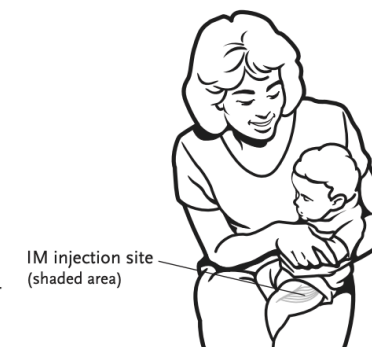
Insert needle at a 90° angle to the skin with a quick thrust.

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

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

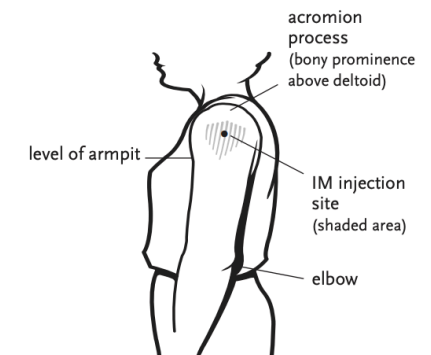
† CDC. "General Best Practices Guidelines for Immunization: Best Practices Guidance of the ACIP" at <https://www.cdc.gov/vaccines/hcp/acip-recs/general-recs/downloads/general-recs.pdf>

Intramuscular (IM) injection site for infants and toddlers



Insert needle at a 90° angle into the anterolateral thigh muscle.

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.

Training Tools: Skills Checklist for Vaccine Administration

Skills Checklist for Vaccine Administration

During the COVID-19 pandemic, the CDC recommends additional infection control measures for vaccination (see www.cdc.gov/vaccines/pandemic-guidance/index.html).

The Skills Checklist is a self-assessment tool for healthcare staff who administer immunizations. To complete it, review the competency areas below and the clinical skills, techniques and procedures outlined for each area. Score yourself in the Self-Assessment column. If you check **Needs to Improve**, you indicate further study, practice, or change is needed. When you check **Meets or Exceeds**, you indicate you believe you are performing at the expected level of competence, or higher.

Supervisors: Use the Skills Checklist to clarify responsibilities and expectations for staff who administer vaccines. When you use it to assist with performance reviews, give staff the opportunity to score themselves in advance. Next, observe their performance as they

administer vaccines to several patients, and score in the Supervisor Review columns. If improvement is needed, meet with them to develop a Plan of Action (see bottom of page 3) to help them achieve the level of competence you expect; circle desired actions or write in others.

The video "Immunization Techniques: Best Practices with Infants, Children, and Adults" helps ensure that staff administer vaccines correctly. (View at www.youtube.com/watch?v=W6Z6NEjffI or order online at www.immunize.org/dvd/.) Another helpful resource is CDC's Vaccine Administration eLearn course, available at www.cdc.gov/vaccines/hcp/admin/resource-library.html.

COMPETENCY	CLINICAL SKILLS, TECHNIQUES, AND PROCEDURES	Self-Assessment		Supervisor Review		
		NEEDS TO IMPROVE	MEETS OR EXCEEDS	NEEDS TO IMPROVE	MEETS OR EXCEEDS	PLAN OF ACTION
A Patient/Parent Education	1. Welcomes patient/family and establishes rapport.					
	2. Explains what vaccines will be given and which type(s) of injection(s) will be done.					
	3. Answers questions and accommodates language or literacy barriers and special needs of patient/parents to help make them feel comfortable 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.					
	5. Screens for contraindications (if within employee's scope of work).					
	6. Reviews comfort measures and aftercare instructions with patient/parents, and invites questions.					
B Medical and Office Protocols	1. 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).					
	2. Identifies the location of epinephrine, its administration technique, and clinical situations where its use would be indicated.					
	3. Maintains up-to-date CPR certification.					
	4. Understands the need to report any needlestick injury and to maintain a sharps injury log.					
	5. Demonstrates knowledge of proper vaccine handling (e.g., maintains and monitors vaccine at recommended temperature and protects from light).					

CONTINUED ON THE NEXT PAGE ►

IMMUNIZATION ACTION COALITION Saint Paul, Minnesota • 651-647-9009 • www.immunize.org • www.vaccineinformation.org

Skills Checklist for Vaccine Administration (continued)

COMPETENCY	CLINICAL SKILLS, TECHNIQUES, AND PROCEDURES	Self-Assessment		
		NEEDS TO IMPROVE	MEETS OR EXCEEDS	NEEDS TO IMPROVE
C Vaccine Preparation	1. Performs proper hand hygiene prior to preparing vaccine.			
	2. When removing vaccine from the refrigerator or freezer, looks at the storage unit's temperature to make sure it is in proper range.			
	3. Checks vial expiration date. Double-checks vial label and contents prior to drawing up.			
	4. Prepares and draws up vaccines in a designated clean medication area that is not adjacent to areas where potentially contaminated items are placed.			
	5. Selects the correct needle size for IM and Subcut based on patient age and/or weight, site, and recommended injection technique.			
	6. Maintains aseptic technique throughout, including cleaning the rubber septum (stopper) of the vial with alcohol prior to piercing it.			
	7. Prepares vaccine according to manufacturer instructions. Inverts vial and draws up correct dose of vaccine. Rechecks vial label.			
	8. Prepares a new sterile syringe and sterile needle for each injection. Checks the expiration date on the equipment (syringes and needles) if present.			
	9. Labels each filled syringe or uses labeled tray to keep them identified.			
D Administering Immunizations	1. Verifies identity of patient. Rechecks the provider's order or instructions against the vial and the prepared syringes.			
	2. Utilizes proper hand hygiene with every patient and, if it is office policy, puts on disposable gloves. (If using gloves, changes gloves for every patient.)			
	3. Demonstrates knowledge of the appropriate route for each vaccine.			
	4. Positions patient and/or restrains the child with parent's help.			
	5. Correctly identifies the injection site (e.g., deltoid, vastus lateralis, fatty tissue over triceps).			
	6. Locates anatomic landmarks specific for IM or Subcut injections.			
	7. Preps the site with an alcohol wipe, using a circular motion from the center to a 2" to 3" circle. Allows alcohol to dry.			

CONTINUED ON THE NEXT PAGE ►

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Skills Checklist for Vaccine Administration (continued)

page 3 of 3

COMPETENCY	CLINICAL SKILLS, TECHNIQUES, AND PROCEDURES	Self-Assessment		Supervisor Review		
		NEEDS TO IMPROVE	MEETS OR EXCEEDS	NEEDS TO IMPROVE	MEETS OR EXCEEDS	PLAN OF ACTION
D Administering Immunizations (continued)	8. Controls the limb with the non-dominant hand; holds the needle an inch from the skin and inserts it quickly at the appropriate angle (90° for IM or 45° for Subcut).					
	9. Injects vaccine using steady pressure; withdraws needle at angle of insertion.					
	10. Applies gentle pressure to injection site for several seconds (using, e.g., gauze pad, bandaid).					
	11. Uses strategies to reduce anxiety and pain associated with injections.					
	12. Properly disposes of needle and syringe in "sharps" container.					
E Records Procedures	13. Properly disposes of vaccine vials.					
	1. Fully documents each vaccination in patient chart: date, lot number, manufacturer, site, VIS date, name/initials.					
	2. If applicable, demonstrates ability to use state/local immunization registry or computer to call up patient record, assess what is due today, and update computerized immunization history.					
	3. Asks for and updates patient's vaccination record and reminds them to bring it to each visit.					

Plan of Action

Circle desired next steps and write in the agreed deadline for completion, as well as date for the follow-up performance review.

- Watch video on immunization techniques and review CDC's Vaccine Administration eLearn, available at www.cdc.gov/vaccines/hcp/admin/resource-library.html.
- Review office protocols.
- Review manuals, textbooks, wall charts, or other guides (e.g., Key Vaccination Resources for Healthcare Professionals at www.immunize.org/catg.d/p2005.pdf)
- Review package inserts.
- Review vaccine storage and handling guidelines or video.
- Observe other staff with patients.

- Practice injections.
- Read Vaccine Information Statements.
- Be mentored by someone who has demonstrated appropriate immunization skills.
- Role play (with other staff) interactions with parents and patients, including age appropriate comfort measures.
- Attend a skills training or other appropriate courses/training.
- Attend healthcare customer satisfaction or cultural competency training.
- Renew CPR certification.
- Other _____

File the Skills Checklist in the employee's personnel folder.

PLAN OF ACTION DEADLINE _____

DATE OF NEXT PERFORMANCE REVIEW _____

EMPLOYEE SIGNATURE _____ DATE _____

SUPERVISOR SIGNATURE _____ DATE _____

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

5/1/2023

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Improper Immunization Administration Practices with Any 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.**

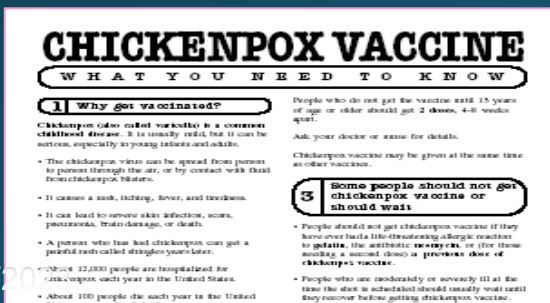
*CDC, NCEZIZ, DHQP. Injection Safety Information for Providers: www.cdc.gov/injectionsafety/providers.html

**<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, document:
 - ✓ 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



Refusal to Vaccinate

Child's Name _____ Child's ID# _____

Parent's/Guardian's Name _____

My child's doctor/nurse, _____ has advised me that my child (named above) should receive the following vaccines:

Recommended	Declined
<input type="checkbox"/> Hepatitis B vaccine	<input type="checkbox"/>
<input type="checkbox"/> Diphtheria, tetanus, acellular pertussis (DTaP or Tdap) vaccine	<input type="checkbox"/>
<input type="checkbox"/> Diphtheria tetanus (DT or Td) vaccine	<input type="checkbox"/>
<input type="checkbox"/> Hemophilus influenzae type B (Hib) vaccine	<input type="checkbox"/>
<input type="checkbox"/> Pneumococcal conjugate or polysaccharide vaccine	<input type="checkbox"/>
<input type="checkbox"/> Inactivated poliovirus (IPV) vaccine	<input type="checkbox"/>
<input type="checkbox"/> Measles mumps rubella (MMR) vaccine	<input type="checkbox"/>
<input type="checkbox"/> Varicella (chickenpox) vaccine	<input type="checkbox"/>
<input type="checkbox"/> Influenza (flu) vaccine	<input type="checkbox"/>
<input type="checkbox"/> Meningococcal conjugate or polysaccharide vaccine	<input type="checkbox"/>
<input type="checkbox"/> Hepatitis A vaccine	<input type="checkbox"/>
<input type="checkbox"/> Rotavirus vaccine	<input type="checkbox"/>
<input type="checkbox"/> Human papillomavirus (HPV) vaccine	<input type="checkbox"/>
<input type="checkbox"/> Other _____	<input type="checkbox"/>

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.

If my child does not receive the vaccine(s) according to the medically accepted schedule, the consequences may include:

- Contracting the illness the vaccine is designed to prevent (the outcomes of these illnesses may include one or more of the following: certain types of cancer, pneumonia, illness requiring hospitalization, death, brain damage, paralysis, meningitis, seizures, and deafness; other severe and permanent effects from these vaccine-preventable diseases are possible as well).
- Transmitting the disease to others (including those too young to be vaccinated or those with immune problems), possibly requiring my child to stay out of child care or school and requiring someone to miss work to stay home with my child during these outbreaks.

My child's doctor and the American Academy of Pediatrics, the American Academy of Family Physicians, and the Centers for Disease Control and Prevention all strongly recommend that the vaccine(s) be given according to recommendations.

Nevertheless, I have decided at this time to decline or defer the vaccine(s) recommended for my child, as indicated above, by checking the appropriate box under the column titled "Declined." I have signed this form as the parent or guardian of my child.



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.

Call the GRITS Training Coordinator (404) 463-0807 or e-mail : <https://dph.georgia.gov/georgia-immunization-registry-grits>

Monitoring Vaccine Safety



- **VAERS—Vaccine Adverse Event Reporting System**

- **Option 1 - Report Online to VAERS (Preferred)**

- Submit a VAERS report online. The report must be completed online and submitted in one sitting and cannot be saved and returned to at a later time. Your information will be erased if you are inactive for 20 minutes; you will receive a warning after 15 minutes.

- **Option 2 - Report using a Writable PDF Form**

- Download the Writable PDF Form to a computer. Complete the VAERS report offline if you do not have time to complete it all at once. Return to this page to upload the completed Writable PDF form by clicking here.

- **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: VACCINE ERROR REPORTING SYSTEM**

- ✓ On line 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 Vaccine*

- 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

Vaccine Risk Perception

Many patients are not familiar with vaccine-preventable diseases and perceive the risks of vaccines outweigh the benefits.

Concerns

- Immune system overload
- 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:

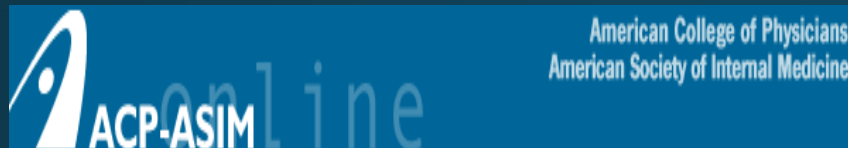
- Get the facts
- Consider the source
- Discuss their concerns with you



Global Vaccine Awareness League



Resources for Factual & Responsible Vaccine Information



www.vaccinesafetynet.org



Stay Current!



- Sign up for listserv sites which provide timely information pertinent to your practice
www.immunize.org/resources/emailnews.asp
 - AAP Newsletter
 - CDC immunization websites (32 in all)
 - CHOP Parents Pack Newsletter
 - IAC Express, Needle Tips and Vaccinate Adults
 - Websites specific to particular vaccines



**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/parents-guide/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 Center for Immunization and Respiratory Diseases, CDC

E-mail ▶ NIPInfo@cdc.gov
Hotline 800.CDC.INFO
Website <http://www.cdc.gov/vaccines>

Georgia Immunization Program

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

Immunization Action Coalition

E-mail admin@immunize.org
Phone 651.647.9009
Website www.immunize.org

Test Your Knowledge!

EPIC 2023

Test Your Knowledge!

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?

Test Your Knowledge!

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, MMR, and consider Hib

Influenza vaccine (in fall),

Stay up to date on COVID-19 vaccines

HPV

*Adult Immunization Schedule

**Immunization Action Coalition, Ask the Experts- Needle Tips; September 2009

Test Your Knowledge!

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, PPSV23, PCV15/20 hepatitis B, HPV, varicella

Influenza vaccine (in fall) , Staying up to date on COVID-19 vaccines

Test Your Knowledge!

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?

Test Your Knowledge!

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

Test Your Knowledge!

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?

Test Your Knowledge!

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.

*IAC Ask the Experts - Reviewed July 2014

Test Your Knowledge!

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

Does she need to receive one dose of Tdap?

Test Your Knowledge!

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.

*IAC Ask the Experts - Reviewed July 2014

Test Your Knowledge!

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® 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

Test Your Knowledge!

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?

Test Your Knowledge!

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.

*Immunization Action Coalition, Ask the Experts, September 2011

Test Your Knowledge!

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

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

Test Your Knowledge!

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

[*https://www.cdc.gov/mmwr/volumes/67/wr/mm6703a5.html](https://www.cdc.gov/mmwr/volumes/67/wr/mm6703a5.html)

Test Your Knowledge!

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?

Test Your Knowledge!

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.

*Immunization Action Coalition, Ask the Experts, February, 2018