

EPIC® Immunization 2022 Update Children, Adolescents, & Adults

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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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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 children, adolescents, and 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>

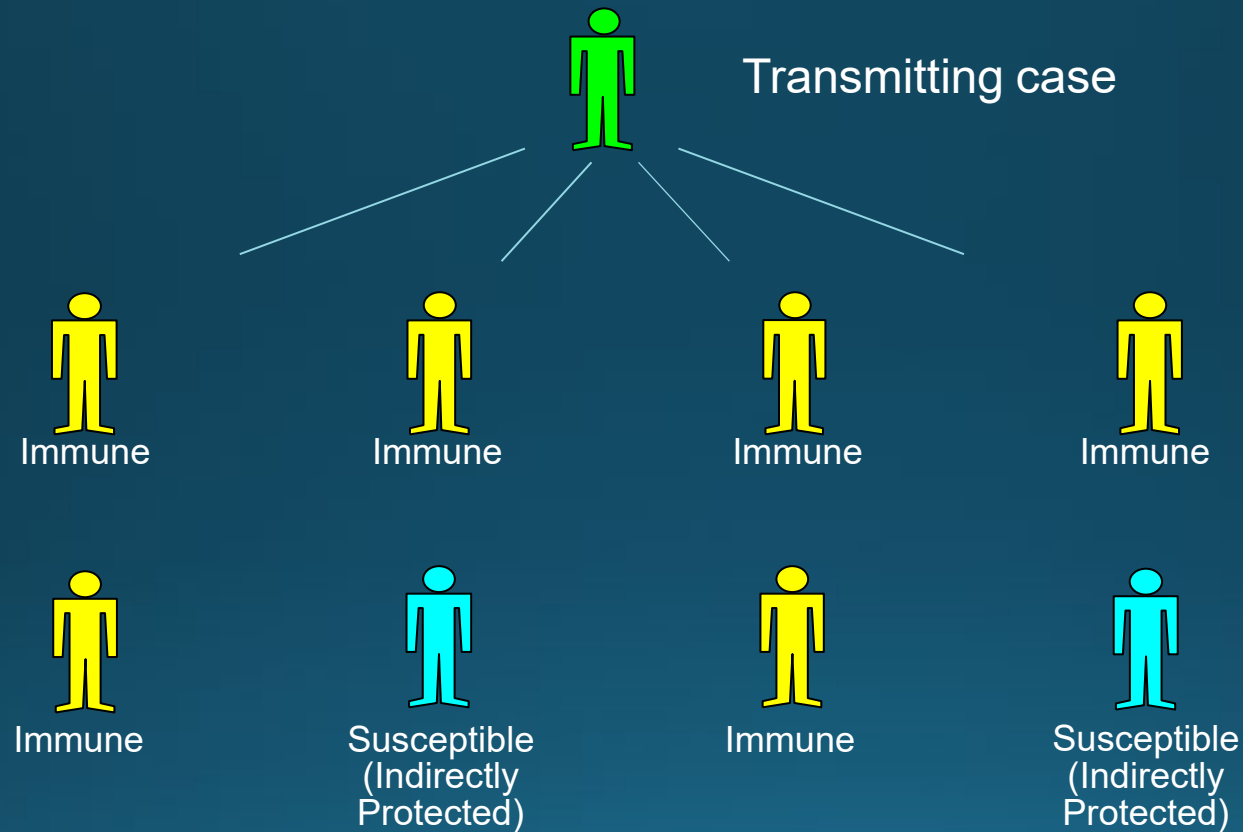
Advisory Committee on Immunization Practices (ACIP)

- 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

10/31/22



Diphtheria



Tetanus



Pertussis



Diphtheria, Tetanus and Pertussis Vaccines for Children, Adolescents, and Adults

ACIP Recommendations:

DTaP

- Administered at 2, 4, 6, 15-18 months and 4-6 years (Not given after age 6)

Tdap---can now be used any time Td is indicated

- Children and adolescents starting at 11 or 12 years of age
- Any adult who has not received a dose
- Routine decennial booster
- Tetanus prophylaxis for wound management
- Unvaccinated persons 7-18 yrs. of age
 - 3 doses of Td or Tdap given at appropriate intervals—see Catch-up Schedule*

2021 Childhood Schedule: Children 7-10 years of age who receive Tdap as part of the catch-up series should be given Tdap again at ages 11-12 years.*

No minimum interval between doses of Td and Tdap**

*<https://www.cdc.gov/vaccines/schedules/downloads/child/0-18yrs-child-combined-schedule.pdf>

**<https://www.immunize.org/catg.d/p2055.pdf>

Improving DTaP 4th Dose Coverage*

Prior research has identified the 4th dose of DTaP as one of the main contributors to non-completion of the primary series by age 2.

In years 2015-2016 Dose #3 coverage = 93.8%, but Dose #4 = 80.3%

Common Provider Challenges

- Provider confusion about when to administer the 4th dose
- When children are delayed in getting the 1st 3 doses, they may not be eligible to receive the 4th dose at the usual time (12-15 mos.)
- Failure of providers to administer all recommended doses at a visit
- Failure of providers to utilize reminder/recall functions of GRITS or their EMR

GRITS can be a valuable tool to help address all of these challenges.

Tdap for Adults

Boostrix™ licensed for persons 10 yrs. and older

Adacel™ licensed for persons 10 through 64 years of age

- 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.

*MMWR, January 24, 2020/ Vol.69/No. 3

**<https://www.immunize.org/catg.d/p2055.pdf>

ADMINISTER THE RIGHT VACCINE!

PRODUCT	COMPONENT(S)	USE FOR AGES	USE FOR DTaP DOSES	ROUTE
Daptacel (SP)	DTaP	6 wks. thru 6 yrs.	Doses 1 thru 5	IM
Infanrix (GSK)	DTaP	6 wks. thru 6 yrs.	Doses 1 thru 5	IM
Pediarix (GSK)	DTaP-HepB-IPV	6 wks. thru 6 yrs.	Doses 1 thru 3	IM
Pentacel (SP)	DTaP-IPV/Hib	6 wks. thru 4 yrs.	Doses 1 thru 4	IM
Kinrix (GSK)	DTaP-IPV	4 thru 6 yrs.	Dose 5	IM
Quadracel (SP)	DTaP-IPV	4 thru 6 yrs.	Dose 5	IM
Vaxelis (Merck & SP)	DTaP-IPV-Hib-Hep B	6 wks. thru 4 yrs.	Doses 1 thru 3	IM

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, administer Tdap immediately postpartum.

Haemophilus influenzae type b (Hib)

ACIP recommends:

3-4 doses of Hib (depending on brand)

- Dose 1 @ 2 months of age
- Dose 2 @ 4 months of age
- Dose 3 @ 6 months of age

(Not required if Pedvax HIB® is administered at 2 and 4 months of age)

- Booster dose @ 12 through 15 months of age (Vaxelis® is NOT recommended for use as a booster dose.)
- One dose of Hib for unimmunized persons 5 through 18 years who have asplenia, sickle cell disease or HIV infection.
- One dose of Hib may be given to adults with immunocompromising conditions.



Polio

ACIP Recommendation:*

Four dose series of IPV at : 2, 4, 6 through 18 months and 4 through 6 years of age.

- Minimum interval from dose 3 to dose 4 is six mos.
- Final dose at 4 years of age or older regardless of the number of previous doses
- Only trivalent OPV (tOPV) given before 4/1/2016 counts toward U.S. vaccination requirements***
- If documentation not available (for persons ≤ 18 yrs.,) give routine IPV series.
- Travelers---A booster dose may be recommended, depending on destination and traveler's history of polio vaccination.
Go to: www.cdc.gov/vaccines/travel**

*MMWR, August 7, 2009, Vol 58, #30

**MMWR, July 11, 2014, Vol 63, # 27

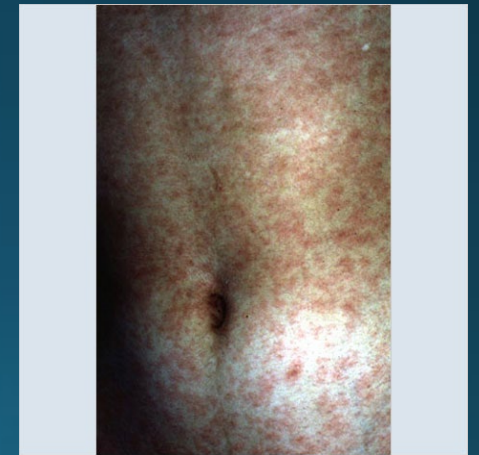
**<https://wwwnc.cdc.gov/travel/news-announcements/polio-guidance-new-requirements>

***MMWR January 13, 2017 / 66(01);23–25
10/31/22



MEASLES*

- Incubation period---8 to 14 days from exposure to onset of symptoms
- Symptoms: fever, cough, coryza, conjunctivitis, maculopapular rash and Koplik spots
- Complications: otitis media, pneumonia, croup, & diarrhea
- Acute encephalitis occurs in 1 out of 1,000 cases.
- Death occurs in 1 to 3 of every 1,000 cases.
- 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 infection causes generalized immunosuppression that may make other infections more severe. ***



Source: Immunization
Action Coalition

*AAP Red Book, 32nd edition, 2021-2024, published 2021

** <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6027681>

*** Science, 1 November 2019 – Vol. 366, Issue 6465

<https://www.aappublications.org/news/2016/10/28/Measles102816/>

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 recommends 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.

Other Recommendations:**

- Travelers to foreign countries should be appropriately immunized with MMR prior to 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.
- Efficacy:
 - 95% of people develop serum measles antibody after one dose. 99% after 2 doses.
 - 5% or less may lose protection after several years.
- **Acceptable presumptive evidence of MMR immunity**
 - Documentation of age-appropriate vaccination with MMR vaccine
 - Laboratory evidence of immunity
 - Laboratory confirmation of disease
 - Birth before 1957---except for evidence of rubella immunity in women who could become pregnant

New MMR Vaccine: Priorix (June 2022 ACIP Meeting recommendations)

- Priorix (GSK). FDA approved
- 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.
- June 2022, ACIP voted unanimously to approve the vaccine: *“MMR vaccine (Priorix, GSK) is recommended according to currently recommended schedules and off-label uses as an option to prevent measles, mumps, and rubella.”*



Varicella* (Chickenpox)



ACIP recommends 2 doses of Varicella Vaccine

- Dose 1 @ 12 months through 15 months of age
- Dose 2 @ 4 through 6 years of age**
- Those 13 years of age or older without evidence of immunity should receive 2 doses separated by 4 to 8 weeks.

*MMWR, June 22, 2007, Vol 56, #RR-04
10/31/22

**Second dose can be administered at an earlier age, provided the interval between the first and second dose is at least 3 months.

Acceptable Evidence of Varicella Immunity*

- Written documentation of age-appropriate vaccination
- Laboratory evidence of immunity or laboratory confirmation of varicella disease
- U.S.-born before 1980
 - Does not apply to healthcare personnel or pregnant women
- Healthcare provider diagnosis or verification of varicella disease
- History of herpes zoster based on healthcare provider diagnosis

ACIP Recommendations for use of MMRV (ProQuad [®])*

Licensed for ages 12 months through 12 years

Dose 1 at ages 12 through 47 months

- Either separate MMR and varicella vaccines or MMRV vaccine can be used.
- CDC recommends separate doses of MMR and varicella at early age
 - Slightly increased risk of febrile seizures with combination vaccine
 - Providers should discuss benefits and risks of both vaccination options with parents

Dose 1 or 2 given at ages 48 months and older

- MMRV vaccine generally is preferred over separate injections of its equivalent component vaccines (i.e., MMR and varicella vaccines).

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 yrs. post vaccination in persons 70 years and older

ACIP Recommendations

- RZV (recombinant zoster vaccine) is recommended by the ACIP for 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.
- RZV may be given ≥ 2 months after receipt of ZVL
- 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 same visit as other vaccines

Shingrix[®] (RZV) from GSK

Use in immunocompetent adults 50 years and older*

- Licensed for adults ≥ 50 years of age
- Store at appropriate refrigerator temperatures
- **2 doses given IM, 2-6 months apart**
- **Give only 0.5 ml, not full contents of the vial.****

Shingrix (RZV) from GSK

Use in immunocompromised adults 19 years and older

- Two doses of recombinant zoster vaccine are recommended for the prevention of herpes zoster and its complications in adults aged 19 years or older who are or will be immunodeficient or immunosuppressed due to disease or therapy.
- Dose 2 should be given 2-6 months after Dose 1.
- For persons who are or will be immunodeficient or immunosuppressed, the second dose can be administered 1-2 months after the first
- When possible, patients should be vaccinated before becoming immunosuppressed

Pneumococcal Conjugate Vaccine (PCV13)*

Children

- All children 2 mos.- 4 yrs.
- Children age 5 with increased risk factors**
- Children ages 6 - 18 yrs. with immunocompromising conditions, asplenia, cochlear or organ transplants

Pneumococcal Polysaccharide Vaccine (PPSV23)*

Children ≥ 2 yrs. with:

- Underlying medical conditions
 - Sick cell, asplenia, immunocompromising conditions
 - Should receive a 2nd dose 5 yrs. after first dose**
- Immunocompetent children with chronic illness
 - Heart or lung disease, diabetes, CSF leaks, cochlear implants

Pneumococcal Vaccines Recommended by ACIP October 2021

- PCV15
- PCV20
- PPSV23

PCV15 for children (June 2022 ACIP Meeting Recommendations)

- PCV15 (Vaxneuvance), Merck. Licensed by FDA June 17, 2022 for use in children 6 weeks and older.
- Includes all serotypes in PCV13 and 2 additional
- Clinical trial data:
 - PCV15 similar safety and side effects as PCV13
 - PCV15 produced same or better immune response to vaccination compared to PCV13
- ACIP voted unanimously *“PCV15 may be used as an option to PCV13 for children aged <19 years according to currently recommended PCV13 dosing and schedules.”*
- *NO preference for one vaccine over the other at this time.*
- **Formal, official ACIP Recommendations are pending. Stay tuned.**

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

10/31/22

ACIP Recommendations

Pneumococcal Vaccines 10/2021

- **Age-based:** Adults aged 65 years or older who have not previously received PCV or whose previous vaccination history is unknown should receive 1 dose of PCV (either PCV20 or PCV15). When PCV15 is used, it should be followed by a dose of PPSV23.
- **Risk-based:** Adults aged 19-64 years with certain underlying medical conditions or other risk factors who have not previously received PCV or whose previous vaccination history is unknown should receive 1 dose of PCV (either PCV20 or PCV15). When PCV15 is used, this should be followed by a dose of PPSV23.

Clinical Guidance Pneumococcal vaccines 10/2021

- **Dosing schedule:** When PCV15 is used, the recommended interval between administration of PCV15 and PPSV23 is ≥ 1 year. (A minimum interval of 8 weeks can be considered for adults with an immunocompromising condition, cochlear implant, or cerebrospinal fluid leak)
- **Adults with previous PPSV23 only** may receive a PCV (either PCV20 or PCV15) ≥ 1 year after their last PPSV23 dose. When PCV15 is used in those with history of PPSV23 receipt, it need NOT be followed by another dose of PPSV23.
- **Coadministration with other vaccines.** PCV15, PCV20, or PPSV23 can be coadministered with QIV (quadrivalent influenza vaccine).

TABLE 1. Recommendations for use of 15-valent pneumococcal conjugate vaccine in series with 23-valent pneumococcal polysaccharide vaccine or 20-valent pneumococcal conjugate vaccine in pneumococcal conjugate vaccine-naïve adults aged ≥19 years — United States, 2022

Medical indication group	Specific underlying medical condition	Age group, yrs	
		19–64	≥65
None	None	None	1 dose of PCV20 or 1 dose of PCV15 followed by a dose of PPSV23 ≥1 years later*
Underlying medical conditions or other risk factors	Alcoholism Chronic heart disease† Chronic liver disease Chronic lung disease‡ Cigarette smoking Diabetes mellitus Cochlear implant CSF leak Congenital or acquired asplenia Sickle cell disease or other hemoglobinopathies Chronic renal failure** Congenital or acquired immunodeficiencies**,†† Generalized malignancy** HIV infection** Hodgkin disease** Iatrogenic immunosuppression**,§§ Leukemia** Lymphoma** Multiple myeloma** Nephrotic syndrome** Solid organ transplant**	1 dose of PCV20 or 1 dose of PCV15 followed by a dose of PPSV23 ≥1 years later§	1 dose of PCV20 or 1 dose of PCV15 followed by a dose of PPSV23 ≥1 years later*

Abbreviations: CSF = cerebrospinal fluid; PCV15 = 15-valent pneumococcal conjugate vaccine; PCV20 = 20-valent pneumococcal conjugate vaccine; PPSV23 = 23-valent pneumococcal polysaccharide vaccine.

* Adults with immunocompromising conditions, cochlear implant, or CSF leak might benefit from shorter intervals such as ≥8 weeks. These vaccine doses do not need to be repeated if given before age 65 years.

† Includes congestive heart failure and cardiomyopathies.

‡ Adults with immunocompromising conditions, cochlear implant, or CSF leak might benefit from shorter intervals such as ≥8 weeks.

§ Includes chronic obstructive pulmonary disease, emphysema, and asthma.

** Indicates immunocompromising conditions.

†† Includes B- (humoral) or T-lymphocyte deficiency, complement deficiencies (particularly C1, C2, C3, and C4 deficiencies), and phagocytic disorders (excluding chronic granulomatous disease).

§§ Diseases requiring treatment with immunosuppressive drugs, including long-term systemic corticosteroids and radiation therapy.

Use of PCV20 in adults who previously received PCV13:

Population	Pneumococcal vaccine history	Vaccine(s) recommended to complete pneumococcal vaccine series
Adults with an immunocompromising condition, cochlear implant, or cerebrospinal fluid leak	PCV13 <i>and</i> one or more PPSV23 doses (before age 65), but have not completed all previously recommended doses of PPSV23	<i>Option A:</i> PCV20 at least 5 years after the most recent pneumococcal vaccine dose <i>Option B:</i> PPSV23 as previously recommended
Adults age 65 years and older	PCV13 and PPSV23	PCV20 <u>may</u> be given at least 5 years after the most recent pneumococcal vaccine dose (<i>shared clinical decision-making</i>)
Adults age 19 years and older previously recommended to receive PCV13 followed by PPSV23, but who have received only PCV13	PCV13 only	<i>Option A:</i> PCV20 at least 1 year after the PCV13 dose <i>Option B:</i> PPSV23 as previously recommended

UPDATED ACIP RECOMMENDATIONS OCT 2022

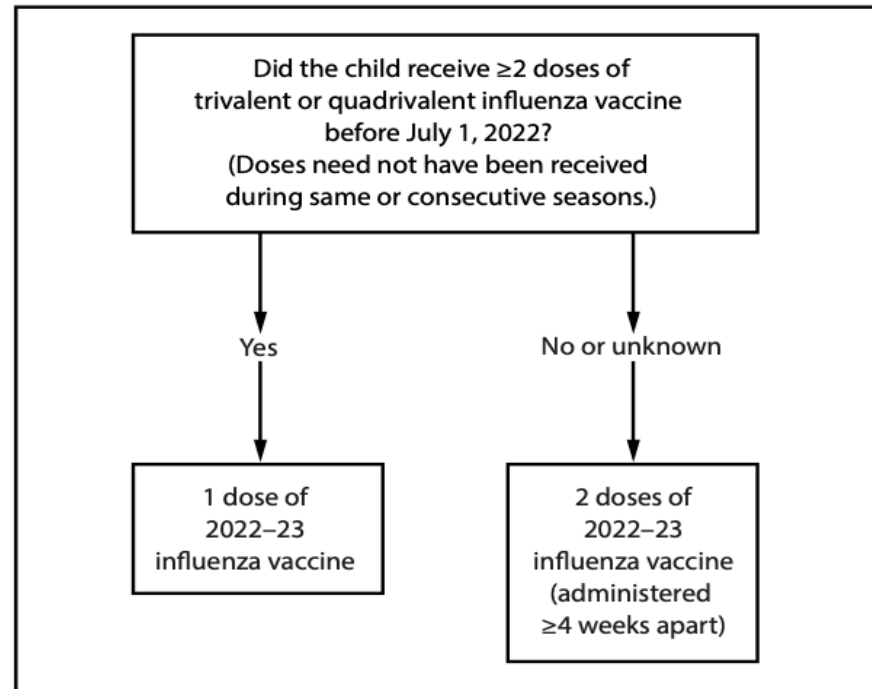
FDA Recommended Influenza Antigens for 2022-2023 Season in the U.S.

• 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.

Dosing for children 6 months through 8 years of age

FIGURE. Influenza vaccine dosing algorithm for children aged 6 months through 8 years* — Advisory Committee on Immunization Practices, United States, 2022–23 influenza season



* Children aged 6 months through 8 years who require 2 doses of influenza vaccine should receive their first dose as soon as possible (including during July and August, if vaccine is available) to allow the second dose (which must be administered ≥ 4 weeks later) to be received, ideally, by the end of October. For children aged 8 years who require 2 doses of vaccine, both doses should be administered even if the child turns age 9 years between receipt of dose 1 and dose 2.

SOURCE: MMWR CDC

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.

TABLE 4. Dose volumes for inactivated influenza vaccines approved for children aged 6 through 35 months* — United States, 2022–23 influenza season

Trade name (Manufacturer)	Dose volume for children aged 6 through 35 mos (μg HA per vaccine virus)
Afluria Quadrivalent (Seqirus)	0.25 mL (7.5 μg) [†]
Fluarix Quadrivalent (GlaxoSmithKline)	0.5 mL (15 μg)
Flucelvax Quadrivalent (Seqirus)	0.5 mL (15 μg)
FluLaval Quadrivalent (GlaxoSmithKline)	0.5 mL (15 μg)
Fluzone Quadrivalent (Sanofi Pasteur)	0.5 mL (15 μg) [§]

The cell-culture based inactivated influenza vaccine (ccIIV, Flucelvax Quadrivalent, Seqirus) is licensed and recommended for all people age 6 months and older. All standard dose IIVs are now approved for use beginning at age 6 months.

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.

Hepatitis A Vaccine for Children and Adolescents*

ACIP recommends 2 doses of hepatitis A vaccine for:

- All children 12 through 23 months of age (Separate the 2 doses by a minimum of 6 months)
- Any child or adolescent 2 through 18 years, not previously vaccinated
- All persons >1 year of age at increased risk for HAV infection or at increased risk for severe disease from HAV infection including persons experiencing homelessness, persons with chronic liver disease, persons living with HIV
- Infants 6-11 mos. traveling outside the U.S. when protection against HAV is recommended. Revaccinate with 2 doses, separated by at least 6 months, between age 12-23 months.

Hepatitis A Vaccine Recommendations for Adults*

- All persons 1 year and older infected with HIV
- Vaccination of pregnant women identified to be at risk for HAV infection during pregnancy (e.g. international travelers, persons who use illegal drugs, etc.)
- During outbreaks of Hepatitis A in persons at risk for HAV infection
- Those traveling or working in countries with high or intermediate endemicity of infection
- Men who have sex with men
- Users of injecting and non-injecting drugs
- Persons with chronic liver disease or on dialysis
- Persons working with HAV positive primates or with HAV in research laboratory setting
- 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*

Hepatitis B is an infectious liver disease caused by the hepatitis virus (HBV) that can lead to cirrhosis, liver cancer, and premature death.

Transmission:

- Percutaneous or mucosal exposure to infected blood or body fluids (e.g. skin puncture, sexual contact, contaminated surfaces)
- Vertical transmission from a HBsAg-positive mother to her newborn at birth
- Infected infants have 90% risk of developing chronic infection if not given HepB vaccine and HBIG at birth**

ACIP Hepatitis B vaccine recommendations (children and adolescents);

- Administer hepatitis B vaccine to all newborns within 24 hours of birth, using single antigen vaccine; Dose 2 at 1-2 mos. of age and Dose 3 at 6-18 mos. of age
- All children and adolescents less than 19 years of age who did not complete the series as an infant

*Recommended Immunization Schedule for Persons Age 0 Through 18 Years, United States, 2017

*MMWR, December 23, 2005, Vol 54, #RR16, Vol 60

** <https://www.cdc.gov/hepatitis/hbv/bfaq.htm>

Hepatitis B-Exposed Infants and Children*

Postexposure Prophylaxis (PEP) for infants born to mothers who are HBsAg-positive,

- Administer hepatitis B immune globulin (HBIG) AND hepatitis B vaccine within 12 hours of birth

For infants born to mothers whose HBsAg status is unknown, administer the Hep B vaccine within 12 hours of birth.

- And administer HBIG within 12 hours of birth for infants who weigh less than 2000 grams,
- HBIG can be administered up to 7 days after birth for infants weighing at least 2000 grams if the mother's hepatitis B surface antigen (HBsAg) lab result is unavailable at delivery and mother is determined to be HBsAg-positive during that time period

For further details on dosing, please visit:

<https://www.cdc.gov/vaccines/pubs/pinkbook/hepb.html>, Epidemiology and Prevention of Vaccine-Preventable Diseases, Hepatitis B chapter

Post-vaccination serologic testing (PVST)*

ACIP Recommendations re: PVST

- PVST recommended for infants born to HBsAg-positive and HBsAg-unknown mothers
- Testing is recommended at 9-12 months of age (not recommended before 9 mos. of age)
- PVST must include hepatitis B surface antigen (HBsAg) **AND** hepatitis B surface antibody (anti-HBs) tests

*Prevention of Hepatitis B Virus Infection in the United States: Recommendations of the Advisory Committee on Immunization Practices. MMWR Recommendations and Reports 2018;67(No. RR-1):1–31.

Hepatitis B Vaccine Recommendations for adults*

- Persons with history of or current drug use.
- Persons with chronic liver disease, including Hepatitis C infection, HIV infection
- Incarcerated persons
- All unvaccinated adults at risk for hepatitis B infection, including those aged 19- 59 yrs. with diabetes mellitus
- Persons of any age at risk for infection by sexual exposure.
- All other adults seeking protection from HBV infection.
- Post vaccination serologic testing (PVST) recommended for infants born to HBsAg-positive and mothers whose HBsAg status remains unknown
 - Testing is recommended at 9-12 months of age (not recommended before 9 mos. of age)
 - PVST must include hepatitis B surface antigen (HBsAg) **AND** hepatitis B surface antibody (anti-HBs) tests

MMWR, April 20, 2018, Vol 67(15) <https://www.cdc.gov/mmwr/volumes/67/wr/mm6715a5.htm>

MMWR, January 12, 2018, Vol 67 (1) <https://www.cdc.gov/mmwr/volumes/67/rr/rr6701a1.htm>

10/31/22

ACIP Vote 11/2021 Hepatitis B

- ACIP unanimously voted to recommend that hepatitis B vaccine should be given to:
 - all adults 19 through 59 years
 - All people aged 60 or older with any risk factor for hepatitis B infection.
- ACIP also voted that any person aged 60 and older with NO known risk factor may be vaccinated.

*MMWR/April 1, 2022/Vol.71/No.13

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.
 - Disease Incidence
 - Highest in infants <1 year
 - Next highest in children 1 through 4 years of age
 - A second peak is found in adolescents and young adults 17-21 years of age
- Serogroups B and C are the major causes of meningococcal disease in the US.
 - Each responsible for approximately 25 to 40% of cases
- About 5% of all U.S. cases of meningococcal disease are outbreak-related

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:

- Dose 1---age 11-12 years preferred
- Booster dose---age 16 years
- Minimum interval between doses---8 weeks
- If 1st dose is received ≥ 16 years of age, a 2nd dose is not needed, unless they become at increased risk for meningococcal disease
- College students ≤ 21 years of age need 1 dose of MCV4 ≤ 5 years before enrollment.

Effective July 1, 2021, for the 2021-2022 school year, a meningococcal conjugate (MCV4/MenACWY) booster will be required for all high school students entering the 11th grade and who are 16 years of age or older.**

**<https://dph.georgia.gov/immunization-section>

***<https://dph.georgia.gov/public-health-regulations/regulationsrule-making>

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 **6 weeks through 55 years****:

- human immunodeficiency virus (HIV)***
- complement component deficiency
- 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**
- The 2 vaccine products are not interchangeable.

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)

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.

Rotavirus Vaccines

RotaTeq® (Merck) and Rotarix® (GSK)*

- RV 5, RotaTeq®: 3 doses; ages 2, 4, 6 months
- RV 1, Rotarix®: 2 doses; ages 2 and 4 months

ACIP recommendation:

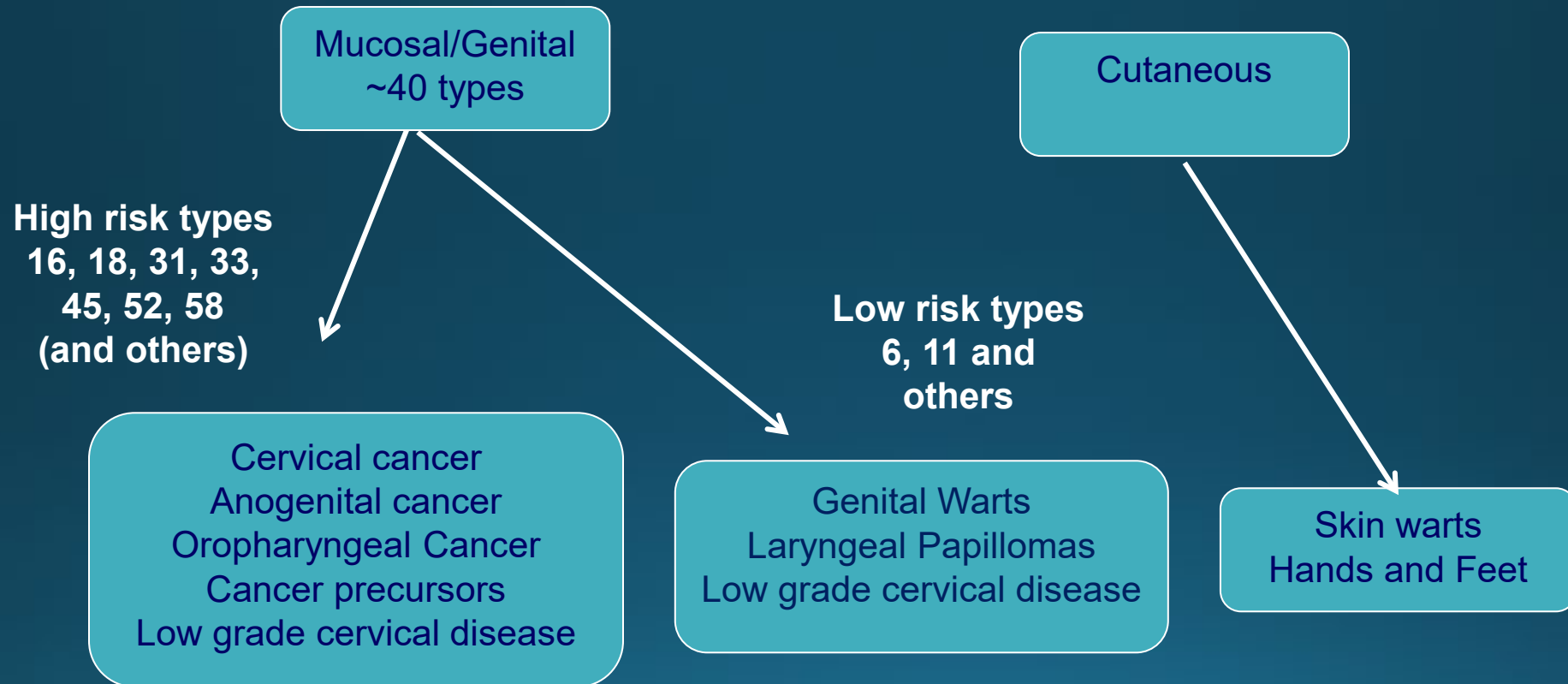
- 2-3 doses depending on brand
- Administer either vaccine as directed below:
 - Minimum age for first dose: 6 weeks
 - Maximum age for first dose: 14 weeks 6 days
 - Minimum interval between doses: 4 weeks
 - Maximum age for any dose: 8 months 0 days
- If any dose is Rotateq®, 3 doses are required
- Use RotaTeq® if allergy to latex

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

MMWR, February 6, 2009, Vol 58, #RR-02; MMWR, June 11, 2010, Vol 59, # RR-22; MMWR, October 21, 2011, Vol 60, # RR-41

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.

*https://www.merck.com/product/usa/pi_circulars/g/gardasil_9/gardasil_9_pi.pdf

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

**MMWR, August 16, 2019, Vo1 68, No. 32

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)

*MMWR, December 16, 2016, Vol 65, No. 49

Reasons to Immunize Against HPV at age 11-12 Years*

- Higher antibody level attained when given to pre-teens rather than to older adolescents or women
- At this age, more likely to be administered before onset of sexual activity
- HPV can be transmitted by other skin-to-skin contact, not just sexual intercourse
- There is no link between vaccine and riskier sexual behavior
- Even those who abstain from sex until marriage can be infected by their marital partner
- Individuals need to complete the series for full protection
- This is an anti-cancer vaccine, and.....

Over 90% of HPV cancers are preventable through HPV vaccination.

Bottom line: NOT receiving a healthcare provider's recommendation for HPV vaccine was one of the main reasons parents reported for not vaccinating their adolescent children.**

*Presented by Anne Schuchat, MD, RADM US Public Health Service, Asst. Surgeon General, Director NCIRD at Immunize Georgia Conference, Atlanta, GA, 9-11-14
Increasing HPV Vaccination Rates Among Adolescents: Challenges and Opportunities. PolicyLab: The Children's Hospital of Philadelphia, 2016.

**^{10/31/22}
http://www.immunize.org/askexperts/experts_hpv.asp

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

Other vaccine news discussed at June 2022 ACIP meeting

- *RSV* – ACIP discussed the substantial burden of RSV disease in infants and in older adults and those with chronic health conditions. Several new products, including vaccines for adults and a long-acting (5 months or longer) single-dose monoclonal antibody (mAb) for newborns and infants are in late stages of clinical development and may be eligible for FDA licensure during 2023.

HPV - Information was provided about the recent decision by the World Health Organization's Strategic Advisory Group of Experts (SAGE) to recommend 1-dose HPV vaccination as an option in settings where use of a single dose will allow countries to expand HPV vaccination programs to more age groups. Early evidence suggests that a single dose may be sufficient to provide a sustained, high level of protection from infection with HPV strains in the vaccine that may be close to the benefit of 2 doses; however, there is no plan at this time to consider a one-dose HPV vaccination schedule in the United States.

Monkeypox – The committee discussed the ongoing monkeypox outbreak in the United States. Two vaccines are available for post-exposure or pre-exposure prophylaxis when indicated: a live vaccine (ACAM2000, Emergent BioSolutions) and a replication-deficient live vaccine (Jynneos, Bavarian Nordic). Images in the presentation slides show how the skin lesions of monkeypox (deep-seated pustules or vesicles) in the current outbreak may differ from previous outbreaks. Clinicians who suspect monkeypox should contact their state or local public health department for consultation and assistance with specimen collection and testing. Commercial lab testing may be available. Visit <https://www.cdc.gov/poxvirus/monkeypox/clinicians/index.html> for further guidance.

*Place holder for COVID slides

Critical Elements for Immunization Services



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?

10/31/22

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, with 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.

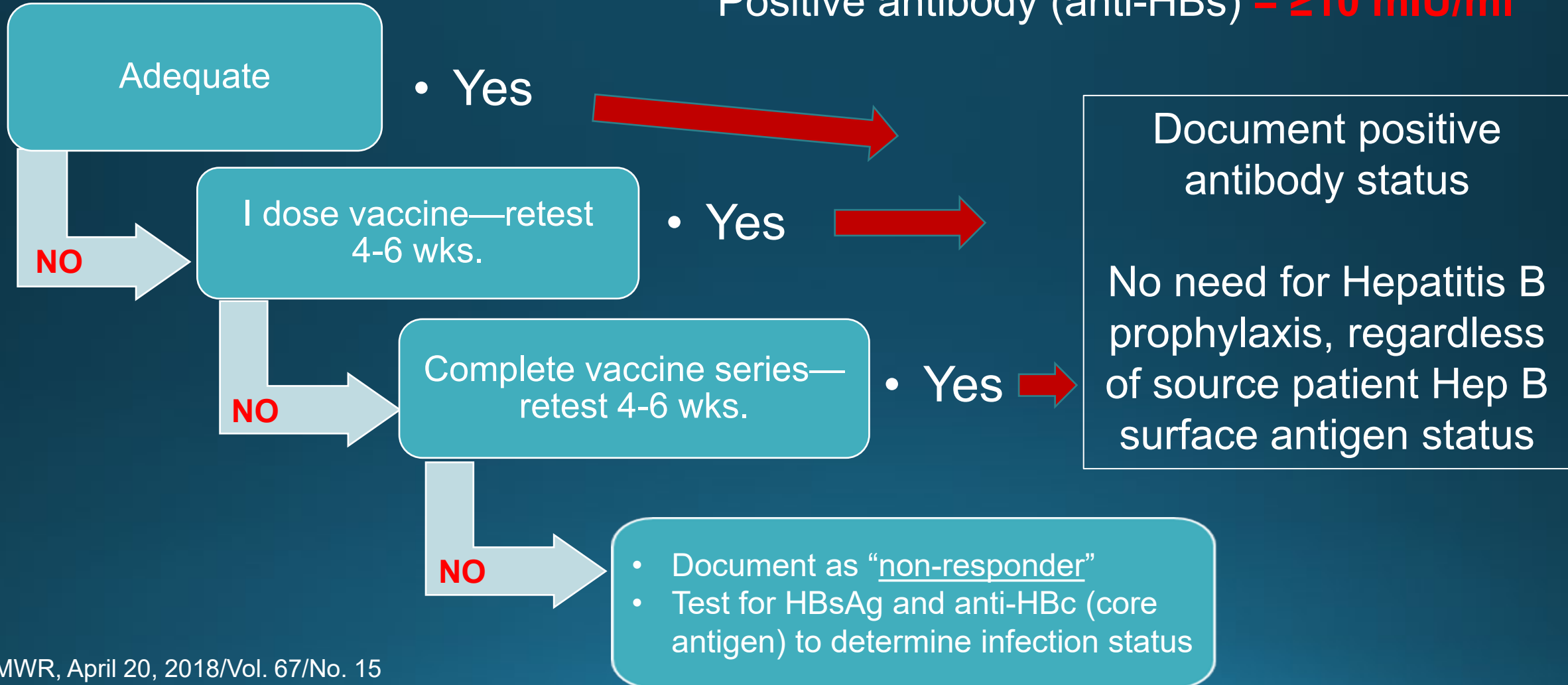
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www.immunize.org/catg.d/p2017.pdf • Item #P2017 (2/21)

Available at www.immunize.org, P#2017

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

Positive antibody (anti-HBs) = **≥ 10 mIU/ml**



2022 Childhood and Adolescent Immunization Schedules*

- Recommended Schedule for Children Ages 0-18 Years
- Catch-up Schedule
- Vaccines that might be indicated for children and adolescents aged 18 years or younger based on medical indications

Changes

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

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

<https://www.cdc.gov/vaccines/schedules/hcp/imz/child-adolescent.html>

10/31/22

Table 1 Recommended Child and Adolescent Immunization Schedule for ages 18 years or younger, United States, 2021

These recommendations must be read with the notes that follow. For those who did not start the vaccine series at birth, the schedule is indicated by the green bars. The schedule is indicated by the yellow bars. For those who did not start the vaccine series at birth, the schedule is indicated by the green bars. The schedule is indicated by the yellow bars.

Table 2 Recommended Catch-up Immunization Schedule for Children and Adolescents Who Start Late or Who Are More than 1 Month Behind, United States, 2021

The table below provides catch-up schedules and minimum intervals between doses for children whose vaccinations have been delayed. A vaccine series does not need to be restarted, regardless of the time that has elapsed between doses. Use the section appropriate for the child's age. Always use this table in conjunction with Table 1 and the notes that follow.

Children and adolescents through 6 years

Children and adolescents age 7 through 18 years

Table 3 Recommended Child and Adolescent Immunization Schedule by Medical Indication, United States, 2021

Always use this table in conjunction with Table 1 and the notes that follow.

INDICATIONS

VACCINE

INDICATIONS

VACCINE

2022 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 (RV) (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 RV4 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 <60 years ≥60 years
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.

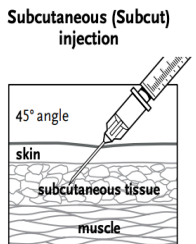
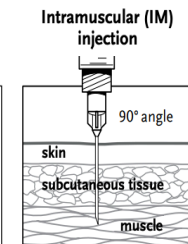
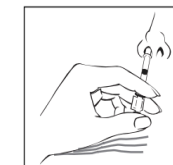
² Preferred site

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)

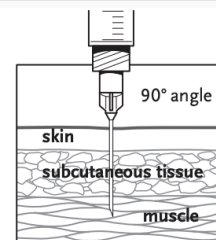
Administer inactivated polio (IPV) and pneumococcal polysaccharide (PPSV23) vaccines either IM or subcutaneously (Subcut).

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.

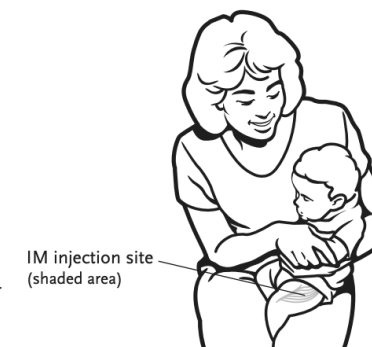
Insert needle at a 90° angle to the skin with a quick thrust.

(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.

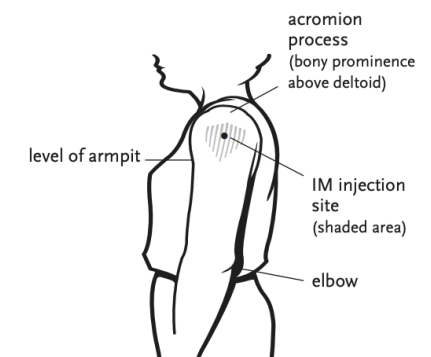
† CDC. "General Best Practices Guidelines for Immunization: Best Practices Guidance of the ACIP" at <https://www.cdc.gov/vaccines/hcp/acip-recs/general-recs/downloads/general-recs.pdf>

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 ►

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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>

10/31/22

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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.**

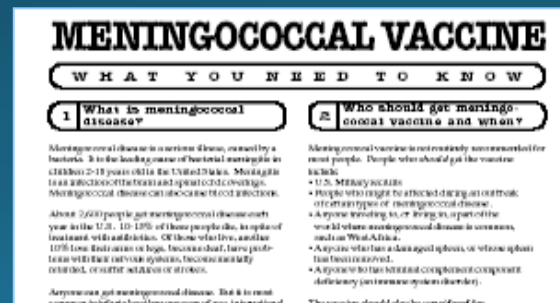
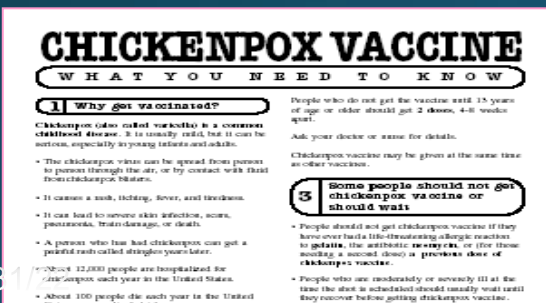
*CDC, NCEZIZ, DHQP. Injection Safety Information for Providers: www.cdc.gov/injectionsafety/providers.html

**<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 DOB _____

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"/> 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 disease 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 know that my child is at greater risk of contracting these diseases.



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.

Exemptions From School/Day Care Requirements

Medical Exemption O.C.G.A. §20-2-771(d)

- Used when a physical disability or medical condition contraindicates a particular vaccine.
- Requires an annual review.
- The medical exemption is documented in GRITS.

Religious Exemption O.C.G.A. §20-2-771(e)

- Parent or guardian must be directed to <http://dph.georgia.gov/immunization-section> to obtain an Affidavit of Religious Objection to Immunization form.
- This form must be signed and notarized and provided to the school.
- Must be kept on file at school/facility in lieu of an immunization certificate.
- Affidavit does not expire.

Georgia does NOT have a philosophical exemption.

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

*<https://www.cdc.gov/vaccines/hcp/acip-recs/general-recs/index.html>

Vaccine Risk Perception

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

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 (i.e. chicken pox)
- Vaccines cause autism

Provider Strategies to Improve Vaccination Rates*

- **Strengthening vaccination recommendations**
 - Increased emphasis in the practice on training re: vaccine safety and efficacy for ALL employees having patient contact
 - Having OB doctors begin the promotion of vaccines with expectant mothers, for themselves and for their newborn
 - Be alert to avoid missed opportunities
 - Decrease acceptance of alternative schedules
- **Strengthening vaccine mandates**
 - Eliminating nonmedical exemptions
 - Increased enforcement of state mandates by schools and childcare facilities

*Children's Hospital of Philadelphia, Vaccine Update for Healthcare Providers, "News & Views: Addressing Vaccine Hesitancy," March 21, 2017

Provider Strategies* (cont'd)

- **Attention to requirements of “informed refusal”****
 - Explain basic facts/uses of proposed vaccine
 - Review risks of refusing the vaccine(s)
 - Discuss anticipated outcomes with and without vaccination
 - Parental/patient completion of Refusal to Vaccinate form each visit
- **Importance of documenting informed refusal to vaccinate****
 - Claims of failure to warn of consequences of failing to vaccinate have resulted in successful lawsuits
 - Documented informed refusal creates a record of interaction between parents/patients and providers

*Children’s Hospital of Philadelphia, Vaccine Update for Healthcare Providers, “News & Views: Addressing Vaccine Hesitancy,” March 21, 2017

**AAP Publications, “Document informed refusal just as you would informed consent,” James P. Scibilia, M.D. FAAP, October 30, 2018

Vaccine Schedules Varying From ACIP/AAP/AAFP Recommendations

Alternate Schedules

- Dr. Bob's Selective Vaccine Schedule
- Dr. Bob's Alternative Vaccine Schedule
- Parent-derived schedules
- Parent/caretaker refusal of all vaccines

Concerns re: alternate schedules

- Alternate or delayed schedules have not been tested
- No studies to prove they are safer

If any of these Alternate Schedules are requested, the health care provider and staff must spend additional time educating the parent/caretaker about the appropriate use of vaccines.

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:

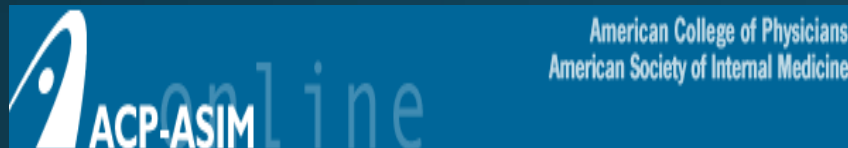
- Get the facts
- Consider the source
- Discuss their concerns with you



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 2022

Test Your Knowledge!

Four month old Lucas was given Tdap instead of DTaP.

What should be done?

Test Your Knowledge!

Four month old Lucas was given Tdap instead of DTaP.

What should be done?*

If Tdap was inadvertently given to a child under age 7 years:

- It should not be counted as either the first, second, or third dose of DTaP.
- The dose should be repeated with DTaP. Continue vaccinating on schedule.
- If the dose of Tdap was administered for the fourth or fifth DTaP dose, the Tdap dose can be counted as valid.

Please remind your staff to always check the vaccine vial at least 3 times before administering any vaccine.

Test Your Knowledge!

Five-year-old Tonia received her second MMR a week ago.

How long should she wait before receiving live varicella zoster vaccine?

Test Your Knowledge!

Five-year-old Tonia received her second MMR a week ago.

How long should she wait before receiving live varicella zoster vaccine?*

Live vaccines can be administered simultaneously with another live vaccine (for example MMR, varicella), but if not given at the same visit, ACIP recommends waiting 4 weeks before administering the second live vaccine.

Test Your Knowledge!

Logan is an 8 year old boy who has never had DTaP vaccine. His mother was hesitant to immunize him when he was younger. Now she is willing to have him immunized.

What vaccine would you use to immunize him against diphtheria, tetanus and pertussis?

Test Your Knowledge!

Logan is an 8 year old boy who has never had DTaP vaccine. His mother was hesitant to immunize him when he was younger. Now she is willing to have him immunized.

What vaccine would you use to immunize him against diphtheria, tetanus and pertussis?

Logan should receive the following (either Td or Tdap may be used for Dose 2 and/or 3)*:

Dose 1---Tdap

Dose 2 ---Td or Tdap 4 weeks after Dose 1

Dose 3 ---Td or Tdap 6 months after Dose 2

An additional Tdap should be given at age 11-12.

Test Your Knowledge!

Emily is 12 years old and comes to your office for a physical exam. Her immunizations were up-to-date when she started kindergarten.

What vaccines do you recommend for her?

Test Your Knowledge!

Emily is 12 years old and comes to your office for a physical exam. Her immunizations were up-to-date when she started kindergarten.

What vaccines do you recommend for her?*

Tdap, Meningococcal Conjugate, HPV

Influenza vaccine (in the fall)

*Current Child and Adolescent Immunization Schedule

Test Your Knowledge!

Simon received MPSV4 at 5 years of age for international travel and a dose of MCV4 at age 11.

Does he need a booster dose of MCV4 vaccine at age 16?

Test Your Knowledge!

Simon received MPSV4 at 5 years of age for international travel and a dose of MCV4 at age 11.

Does he need a booster dose of MCV4 vaccine at age 16?*

Yes. Any meningococcal vaccination given prior to the tenth birthday (either with MCV4 or MPSV4) does NOT count toward routinely recommended doses.

*Immunization Action Coalition, Ask the Experts - Reviewed September 2013

Test Your Knowledge!

Ethan is 17 years old. After his second DTP vaccine at 4 months of age he cried persistently for 4 hours, had a fever of 104°F, and developed a severe local reaction at the injection site.

His pediatrician subsequently administered DT at 6 months, 18 months and 5 years of age. He received Td when he was 12 years old.

With this history of a severe reaction to pertussis vaccine, should he receive Tdap?

Test Your Knowledge!

Ethan is 17 years old. After his second DTP vaccine at 4 months of age he cried persistently for 4 hours, had a fever of 104°F, and developed a severe local reaction at the injection site.

His pediatrician subsequently administered DT at 6 months, 18 months and 5 years of age. He received Td when he was 12 years old.

With this history of a severe reaction to pertussis vaccine, should he receive Tdap?*

Yes, administer Tdap. These adverse reactions in infancy are not contraindications or precautions for Tdap vaccination in adolescents.

*Preventing Tetanus, Diphtheria, and Pertussis Among Adolescents: Use of Tetanus Toxoid, Reduced Diphtheria Toxoid and Acellular Pertussis Vaccines MMWR Recommendations and Reports March 24, 2006 / Vol. 55 / No. RR-3

Test Your Knowledge!

Dakota is an 18 year girl who will be starting her first year of college in August.
She had her first dose of HPV vaccine on April 5 and her second dose on May 8.
She will not be coming home again until late November.

Should you give her the third dose of HPV vaccine before she leaves home in mid August?

Test Your Knowledge!

Dakota is an 18 year girl who will be starting her first year of college in August. She had her first dose of HPV vaccine on April 5 and her second dose on May 8. She will not be coming home again until late November.

Should you give her the third dose of HPV vaccine before she leaves home in mid August?*

No! The minimum interval between the second and third doses of vaccine is 12 weeks. The minimum interval between the first and third doses is 24 weeks.

*Immunization Action Coalition, Ask the Experts, April 2012

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)

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?

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?*

Tdap, PPSV23/PCV20/PCV15, hepatitis B, HPV, varicella
Influenza vaccine (in fall)

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?

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.

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.

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?

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?*

Tdap, hepatitis A, hepatitis B, PPSV23/PCV15/PCV20 (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)

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?*

Zoster vaccine can be given to persons who have recently received blood products. The amount of antigen in zoster vaccine is so substantial that it overpowers any antibody to herpes zoster that may be in the blood product.

*Immunization Action Coalition, Ask the Experts, September 2011

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 either 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

Test Your Knowledge!

Varicella vaccine and MMR vaccine were administered to a 12 month old child. Before the child left the office the nurse noticed that the MMR vaccine expired at the end of the previous month (2 days ago).

What action should you take?

Test Your Knowledge!

Varicella vaccine and MMR vaccine were administered to a 12 month old child. Before the child left the office the nurse noticed that the MMR vaccine expired at the end of the previous month (2 days ago).

What action should you take?*

The dose must be repeated. Because MMR is a live virus vaccine you must wait at least 4 weeks after the expired dose was given before repeating the vaccine. If the expired dose was an inactivated vaccine, the dose should be repeated as soon as possible.

*Immunization Action Coalition, Ask the Experts IAC Express, Issue number 789: April 6, 2009

Test Your Knowledge!

Your office has a large supply of vaccine and space in the refrigerator is always an issue. Since the vaccines can not be stored in the vegetable drawers, the “vaccine manager” removed the bins and is storing some of the vaccines in the space occupied by the drawers.

Is this storage space appropriate?

Test Your Knowledge!

Your office has a large supply of vaccine and space in the refrigerator is always an issue. Since the vaccines can not be stored in the vegetable drawers, the “vaccine manager” removed the bins and is storing some of the vaccines in the space occupied by the drawers.

Is this storage space appropriate?*

No! The area is commonly closer to the motor of the refrigerator and temperature may be less stable.