

Centers for Disease Control and Prevention
 National Center for Immunization and Respiratory Diseases

Immunization Update: Stepping Up to the Plate

**NH Immunization Conference
 September 2019**

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Disclosures

- The speaker is a federal government employee with no financial interest in or conflict with the manufacturer of any product named in this presentation
- The speaker will not discuss a vaccine not currently licensed by the FDA
- The speaker will discuss the off-label use of some vaccines in a manner consistent with ACIP recommendations
- Use of trade names is for identification purposes only

Disclosures

- The recommendations to be discussed are primarily those of the Advisory Committee on Immunization Practices (ACIP):
 - Composed of 15 nongovernment experts in clinical medicine and public health
 - Provides guidance on use of vaccines and other biologic products to DHHS, CDC, and the U.S. Public Health Service
- Watch the meeting via live webcast



**Next ACIP meeting
 October 23–24, 2019**

CDC ACIP meeting website: <http://www.cdc.gov/ncidod/diseases/acip/meetings/upcoming-data.html>. Accessed 9/4/2019.

Information contained in this presentation is current as of the date on the title slide. Please note: These slides may differ from those used in the presentation.

Overview

- Vaccination coverage rates
- Vaccine Information Statements
- Vaccine Product Updates
 - Recombivax HB
 - Shingrix
- 2019 Immunization Schedules
- Measles Update
- Influenza
- ACIP Updates
 - HPV
 - Hepatitis A
 - Tdap
 - Men B
 - Pneumococcal
- Resources

Vaccination Coverage

Estimated Vaccination Coverage among Children Aged 19–35 Months, NIS, 2017

State/Area	Combined Series* 4:3:1:3:3:1:4
United States	70.4%
New Hampshire	78.9%

*The combined (4:3:1:3:3:1:4) vaccine series includes ≥4 doses of DTaP, ≥3 doses of poliovirus vaccine, ≥1 dose of measles-containing vaccine, full series of Hib vaccine (≥3 or ≥4 doses, depending on product type), ≥3 doses of HepB, ≥1 dose of varicella vaccine, and ≥4 doses of PCV.

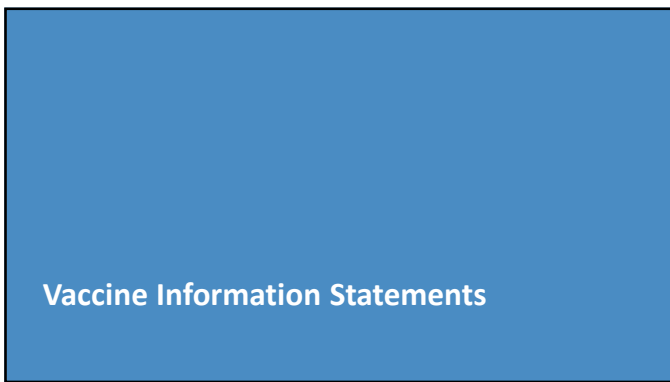
Child VaxView <https://www.cdc.gov/vaccines/imz-managers/coverage/childvaxview/index.html>. Accessed 9/17/2019.

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Estimated Vaccination Coverage among Adolescents Aged 13–17 Years, NIS-Teen, 2018

Vaccine	United States	New Hampshire
≥ 1 Tdap	88.9%	97.5%
≥ 1 HPV (M and F)	68.1%	77.4%
HPV UTD* (M and F)	51.1%	67.4%
≥ 1 MenACWY	86.6%	86.2%
≥ 2 MenACWY	50.8%	-----

*HPV UTD includes those with 23 doses and those with 2 doses when the first HPV vaccine dose was initiated at age <15 years and at least 5 months minus 4 days elapsed between the first and second dose.
 Teen VaxView <https://www.cdc.gov/vaccines/imz-managers/coverage/teenvaxview/index.html>. Accessed 9/4/2019.

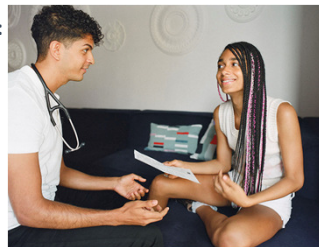


Vaccine Information Statements

2019 Vaccine Information Statement Updates

Recently updated VISs include:

- HepB
- Influenza IIV
- Influenza LAIV
- MMR
- MMRV
- MenACWY
- MenB
- Varicella



Current VIS website <https://www.cdc.gov/vaccines/imz-managers/coverage/teenvaxview/index.html>. Accessed 9/4/2019.

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Vaccine Products Updates

Vaccine Supply: Recombivax HB

- Children: A limited supply of pediatric HepB vaccine through mid 2020**
 - GSK can address the gap using a mix of monovalent pediatric HepB vaccine and DTaP-HepB-IPV (Pediatrix)
- Adults: Merck does not expect to be distributing adult hepatitis B vaccine or dialysis formulation during the remainder of 2019 or during 2020.**
 - With the exception of a limited release of vaccine available in the fall of 2019
 - Dynavax and GSK have sufficient supplies of adult hepatitis B vaccines to address the anticipated gap in Merck's supply of adult hepatitis B vaccine during this period

Recombivax HB (Hepatitis B Vaccine) - Supply Shortage

Recombivax HB (Hepatitis B Vaccine) is a combination vaccine that contains recombinant hepatitis B surface antigen (HBsAg) and hepatitis B core antigen (HBcAg) adsorbed to aluminum hydroxide. It is used to prevent hepatitis B infection.

Supply Shortage Information:

Merck expects to resume distribution of Recombivax HB (Hepatitis B Vaccine) in the fall of 2019. In the interim, GSK and Dynavax have sufficient supplies of adult hepatitis B vaccines to address the anticipated gap in Merck's supply of adult hepatitis B vaccine during this period.

Supply Shortage by Product:

Product	Supply Status	Expected Availability
Recombivax HB (Hepatitis B Vaccine)	Supply Shortage	Fall 2019
Adult Hepatitis B Vaccine (GSK)	Sufficient Supply	Ongoing
Adult Hepatitis B Vaccine (Dynavax)	Sufficient Supply	Ongoing

Supply Shortage by Region:

Region	Supply Status	Expected Availability
United States	Supply Shortage	Fall 2019
Canada	Supply Shortage	Fall 2019
Other Regions	Supply Shortage	Fall 2019

CDC Current Vaccine Shortages & Delays page: <https://www.cdc.gov/vaccines/hcp/clinical-resources/shortages.html>
 Pediatric Hepatitis B Vaccination Guidance during the Supply Shortage: <https://www.cdc.gov/vaccines/hcp/clinical-resources/downloads/Pediatric-hep-b-vaccine-supply-526.pdf>

Adult Vaccine Supply: Shingrix

- Due to high levels of demand for Shingrix vaccine, the manufacturer has implemented order limits and providers have experienced shipping delays**
- Order limits and shipping delays will continue throughout 2019**
- The manufacturer has increased the U.S. supply available and plans to release more doses on a consistent and reliable basis in 2019**

CDC Current Vaccine Shortages and Delays www.cdc.gov/vaccines/hcp/clinical-resources/shortages.html Accessed 03/21/2019

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Ensure Your Patients Get Both Doses!

- There are currently ordering limits and intermittent shipping delays for Glaxo Shingrix vaccine
- Use proven strategies to help patients complete the series, including:
 - Use a reminder and recall system to contact patients when you have Shingrix
 - Give first consideration to patients due for their second dose of Shingrix
 - If you are out of Shingrix and a patient needs a second dose, refer the patient to another provider in the community that has Shingrix
 - Be sure to enter your patients' current vaccination information into your state's immunization information system (IIS)
 - As supply becomes less constrained, notify eligible patients so they can come in to get their first dose of Shingrix

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

ACIP Immunization Schedule Updates

CDC Website

2019 Immunization Schedules

New Design for Schedule Web Pages

Table 1. Recommended Child and Adolescent Immunization Schedule for ages 18 years or younger, United States, 2019

Always make recommendations by determining needed vaccines based on age (Table 1), determining appropriate intervals for catch-up if needed (Table 2), ensuring for medical indications (Table 3), and reviewing special situations (Table 4).

Table 1. By age

Table 2. Catch-up schedule

Table 3. By medical indications

Changes to this year's schedule

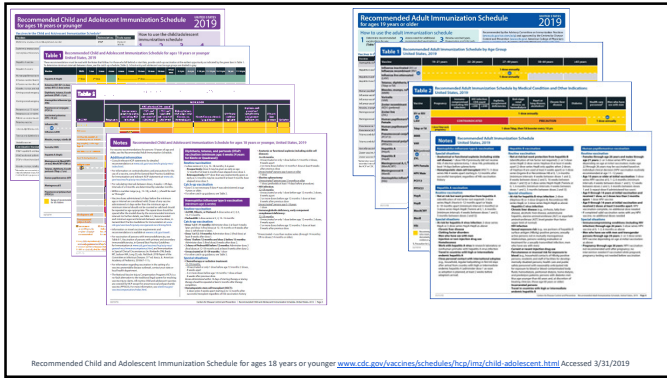
Parent-friendly schedule

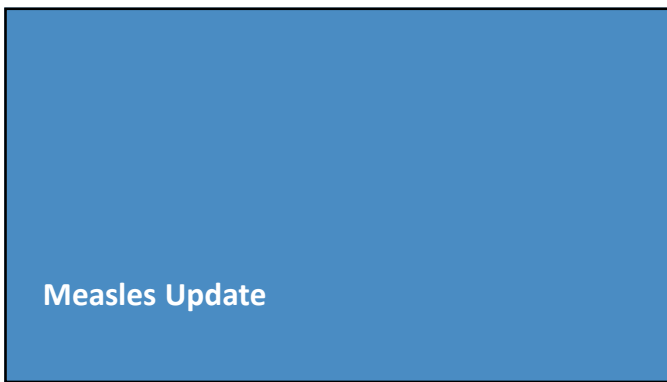
Resources for health care providers

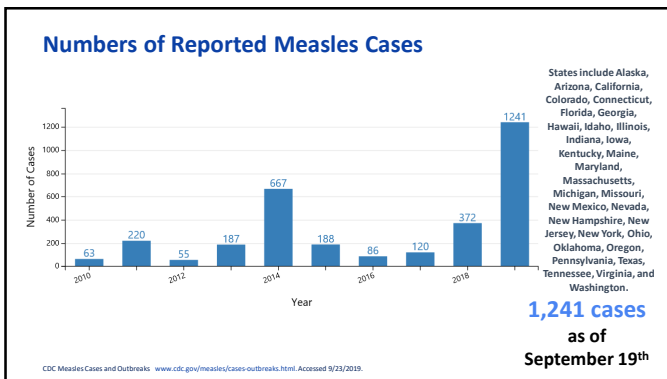
Download Schedules App

Recommended Child and Adolescent Immunization Schedule for ages 18 years or younger www.cdc.gov/vaccines/schedules/hcp/imz/child-adolescent.html. Accessed 8/31/2019.

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Outbreaks

Man drove across three states for charity, spreading measles to 39 people as he went

The traveller became Michigan's Patient Zero, after meeting hundreds of people in homes, synagogues and markets



A sign warns people of measles at the ultra-Orthodox Jewish community in Williamsburg on April 10, 2019 in New York City. (AP Photo/Andrew H. Cohen)

WASHINGTON POST
LEAH M. SHIN
 APR 10, 2019
 12:07 PM EDT

Last month, a traveler raked in money for charity in Brooklyn's ultra-Orthodox Jewish community, drove through the night to Detroit — his next fundraising stop. He fell sick on route and saw a doctor when he got there. But the doctor, who had never seen measles, misdiagnosed the man's fever and cough as bronchitis.

Man Drive Across Three States for Charity spreading measles to 39 people as he went: The Washington Post: <https://nationalpost.com/news/health/man-drive-across-three-states-for-charity-spreading-measles-to-39-people-as-he-went> Accessed 4/16/2019

Measles Transmission

- Measles is one of the most contagious of all infectious diseases
 - Up to 9 out of 10 susceptible persons who have close contact with a measles patient will develop measles
- The virus is transmitted by direct contact with infectious droplets or by airborne spread when an infected person breathes, coughs, or sneezes
- Measles virus can remain infectious in the air for up to two hours after an infected person leaves an area

Guidance for Health Care Personnel

- Be vigilant about measles
- Consider measles in patients with febrile rash illness and clinically compatible measles symptoms-cough, coryza, and conjunctivitis
- Mask and promptly isolate patients with suspected measles
- Ask patients about:
 - Recent international travel
 - Recent travel to domestic venues frequented by international travelers
 - Recent contact with international travelers
 - History of measles in the community

CDC Measles For Healthcare Professionals at www.cdc.gov/measles/hcp/index.html Accessed 4/16/2019.

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Presumptive Evidence of Measles Immunity

- **Evidence of measles immunity:**
 - 2 appropriately spaced and documented doses of MMR vaccine
 - Laboratory evidence of immunity or
 - Laboratory confirmation of disease
- **No additional doses are indicated or recommended**
- **No serologic testing is recommended.**
- **Consider vaccinating with 2 doses of MMR* unvaccinated health care personnel born before 1957 without:**
 - Laboratory evidence of measles, mumps, or rubella immunity** or
 - Laboratory confirmation of disease

*At least 4 weeks apart
 **2 doses for measles and mumps immunity, 1 dose for rubella immunity
 MMWR 2013;62(RR-4)

ACIP Routine Immunization Recommendations*

- **Pediatric:**
 - Dose 1 at 12–15 months
 - Dose 2 at 4–6 years of age
- **Adults:**
 - Most adults need 1 dose
 - 2 doses, at least 28 days apart, for those at increased risk, including:
 - Health care personnel
 - College and post-high school students
 - International travelers

*Without evidence of immunity
 MMWR 2013;62(RR-4)

**ACIP Immunization Recommendations:
 International Travel**

- **Persons 12 months of age and older without other evidence of immunity should receive 2 doses,* including:**
 - Children 1–4 years of age
 - Adults** who only received 1 dose in the past
- **Children 6–11 months of age should receive 1 dose*****
 - Those vaccinated between 6–11 months of age need 2 additional doses* at age 12 months of age or older

*Separate doses by at least 28 days
 **Born in 1957 or later
 ***ACIP off-label recommendation
 MMWR 2013;62(RR-4)

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What You Need to Know About Vaccination During Outbreaks

- Stay in contact with local health departments for the most up-to-date recommendations
 - May include guidance for additional doses (similar to travel recommendations)
- Health departments may recommend 1 dose of MMR for infants 6–11 months of age
 - Outbreak is affecting infants younger than 12 months of age
 - Outbreak demonstrates sustained, community-wide transmission
 - Benefit of early protection against measles during a period of increased transmission and exposure should be weighed against risk of decreased immune response following subsequent MMR doses in infants vaccinated younger than 12 months of age compared with infants vaccinated at 12 months of age or older
 - MMR dose given prior to 12 months of age does not count toward routine schedule

Most Measles Cases in 25 Years: Is This the End of Measles Elimination in the United States? CDC COCA webinar, 5/21/2019
Slides: emergency.cdc.gov/oops/ppt/2019/slides_052119_Measles.pdf

Measles Outbreak Toolkit for Healthcare Providers

For information about measles for healthcare professionals, visit <https://www.cdc.gov/measles/hcp/index.html>

If you are looking for resources for you or your staff to learn more about having effective vaccine conversations with parents, these may help:

- [Guidance for Talking with Parents about Vaccines](#)
- [Tips for Engaging for Question Parents may Ask about Vaccines](#)
- [Vaccine safety fact sheets](#), such as [Understanding Thimerosal, Mercury, and Vaccine Safety](#)
- [You Call the Shots](#) module on MMR

Examples of resources for providers to share with parents include:

- [Parent-friendly immunization schedule](#) for children ages 0-6
- [Fast Sheet: Infant Immunizations \(0-6\)](#)
- [Fast Sheet: If You Choose Not to Vaccinate Your Child, Understand the Risks and Benefits](#)
- [Infographic: Measles, It's Not Just a Little Bump](#)
- [Fast Sheet: Tips for a Less Successful Shot Visit](#)
- [Infographic: Beyond the 4-2-2-2 Schedule: 6 Other CDC's Immunization Schedule](#)
- [Fast Sheet: Measles and the Vaccine Shots to Parents](#)
- [Fast Sheet: Vaccines When Your Child is Sick](#)

If you would like posters to display in your office, here are some that may be helpful:

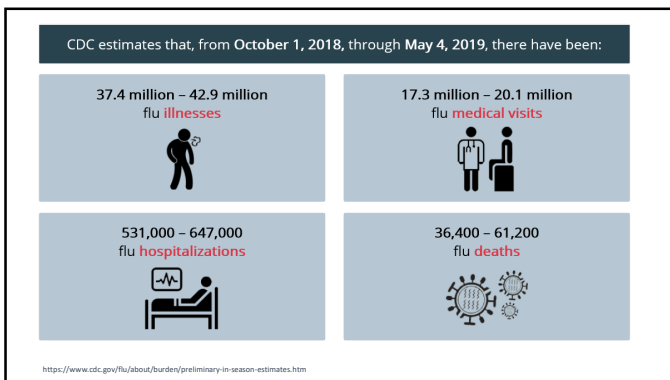
- [Superfamily: Power to Protect](#)
- [How Vaccines Strengthen Your Baby's Immune System](#)
- [Stop Germs: Child Proof Diseases on Their Tracks](#)

CDC Measles Outbreak Toolkit for Healthcare Providers www.cdc.gov/measles/toolkit-for-healthcare-providers.html Accessed 5/20/2019
Measles Outbreak Fact Sheet www.cdc.gov/measles/outbreak.html Accessed 5/4/2019

Advisory Committee on Immunization Practices (ACIP) Updates and MMWR Publications

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ACIP Recommendations: Influenza Vaccine



- ### 2019–2020 Northern Hemisphere Vaccine Strains
- For 2019–2020, trivalent (three-component) vaccines are recommended to contain:
 - A/Brisbane/02/2018 (H1N1)pdm09-like virus*
 - A/Kansas/14/2017 (H3N2)-like virus*
 - B/Colorado/06/2017-like virus (Victoria lineage)
 - Quadrivalent (four-component) vaccines, which protect against a second lineage of B viruses, include:**
 - B/Phuket/3073/2013-like virus (Yamagata lineage)
- *New
MMWR, 2019 08(01):1-21

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2019–20 Influenza Season

- ACIP recommendations were published August 23
- Many products will be available - IIV3, IIV4, and LAIV
 - Indications vary by product, including age, formulation, and type
 - More than one product may be appropriate for any given person

Prevention and Control of Seasonal Influenza with Vaccines: Recommendations of the Advisory Committee on Immunization Practices – United States, 2019–20 Influenza Season

Recommendations and Reports August 23, 2019. MMWR 68(33):1-21

Summary

This report updates the 2019–20 recommendations of the Advisory Committee on Immunization Practices (ACIP) regarding the use of inactivated influenza vaccine in the United States (US). It provides updated influenza vaccination recommendations for all persons aged 6 months and older who do not have contraindications. A limited number of live attenuated influenza vaccine (LAIV) products are recommended for persons aged 2 through 49 years without contraindications. Influenza virus (IV) and live attenuated influenza vaccine (LAIV) are expected to be available for the 2019–20 season. Updated data on influenza, including influenza activity and the availability of quadrivalent formulations (IIV4, high-dose IIV3, and quadrivalent LAIV) are provided. Influenza activity will be available in a separate influenza activity report. Recommendations for the use of influenza vaccine (IIV4) will be available in a separate influenza activity report.

Updates to the recommendations described in this report reflect discussions during public meetings of ACIP held on October 20, 2018; February 27, 2019; and June 27, 2019. Previous updates in this report include the following two issues: Issue 2018–19 (1) [https://www.cdc.gov/mmwr/preview/mmwrhtml/mm6803a1.htm?resid=2018_03_01_01a](#); and Issue 2018–19 (2) [https://www.cdc.gov/mmwr/preview/mmwrhtml/mm6803a2.htm?resid=2018_03_01_02a](#).

Pediatric Flu Vaccine Products and Dosages (Volume)

Age	Product	Dosage (Amount)
6 through 35 months	Afluria	0.25 mL
	Fluzone	0.25 mL or 0.5 mL
	Fluarix	0.5 mL
	FluLaval	0.5 mL
3 years and older*	All products	0.5 mL

Labeling changes:

- Afluria: May be given to children 6 months and older (was 5 years and older)
- Fluzone: 0.5 mL dosage may be given to children as young as 6 months of age

*Product eligibility may vary based on the FDA approved age indications

2019–20 ACIP Recommendations: Influenza

- Annual influenza vaccination continues to be recommended for persons 6 months of age and older without contraindications or precautions
- Immunization providers may choose to administer any licensed, influenza vaccine product (appropriate for age and health status) including LAIV, IIV, RIV, or cIIV
 - ACIP/CDC express no preferences for any one type of influenza vaccine product if more than one is appropriate and available

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2019–20 Influenza Vaccination Schedule for Children

- Children 6 months through 8 years* of age with:
 - No previous doses of influenza vaccine
 - 1 documented dose before July 1, 2019
 - Unknown history

Completed series**
No additional doses are needed this flu season

Dose 1 Dose 2

*Two doses are recommended even if the child turns 9 years of age before receiving dose 2
**Both doses do not have to be the same type of influenza vaccine or product

MMWR, 2019, 68(03):1-21

What Do You Think?

- Alexis is 4 years old. Her immunization history includes:
 - Influenza vaccine at 6 months of age
 - Influenza Vaccine at 3 years of age
- How many doses does she need this flu season?
 - One
 - Two

2019–20 Influenza Vaccination Schedule for Children

- Children 6 months through 8 years of age who have had 2 doses before July 1, 2019*
- Children 9 years of age and older, regardless of immunization history

No additional doses are needed this flu season

1 dose

*Note: Both doses do not have to be administered during the same season or consecutive seasons
Both doses do not have to be the same type of influenza vaccine or product

MMWR, 2019, 68(03):1-21

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CDC Clinical Resources for Health Care Personnel: Influenza

- Education for health care personnel with free CE
 - You Call the Shots—Influenza www.cdc.gov/vaccines/ed/youcalltheshots.html
 - PB webinar series: Influenza www.cdc.gov/vaccines/ed/webinar-epv/index.html
- Clinical job aids
 - Influenza vaccine product labels for storage units www.cdc.gov/vaccines/hcp/admin/storage/guide/vaccine-storage-labels-flu.pdf
 - Fact sheet for health care providers of pregnant women www.cdc.gov/flu/professionals/vaccination/vaccination-possible-safety-signal.html
 - Tools to Assist Satellite, Temporary, and Off-Site Vaccination Clinics www.isummitpartners.org/nais-workgroups/influenza-workgroup/off-site-clinic-resources/

ACIP Recommendations: HPV Vaccine

HPV recommendations

- Published 8/16/19
- Updated recommendations
 - Catch-up vaccination
 - Vaccination of person 27-45 years

Morbidity and Mortality Weekly Report

Human Papillomavirus Vaccination for Adults: Updated Recommendations of the Advisory Committee on Immunization Practices

Shimizu M, Hoots C, Smithey M, et al. *MMWR*. 2019;68(33):749-755. doi:10.1093/mmwr.mm6833a1

Introduction
Mucosal papillomavirus (HPV) is a common cause of HPV infection and HPV-associated diseases, including some cancers. The Advisory Committee on Immunization Practices (ACIP) routinely recommends HPV vaccination for 11- and 12-year-olds and for catch-up vaccination for 13- to 26-year-olds. The Advisory Committee on Immunization Practices (ACIP) routinely recommends HPV vaccination for 11- and 12-year-olds and for catch-up vaccination for 13- to 26-year-olds. The Advisory Committee on Immunization Practices (ACIP) routinely recommends HPV vaccination for 11- and 12-year-olds and for catch-up vaccination for 13- to 26-year-olds.

Background
HPV is a common sexually transmitted infection, with HPV infection possibly occurring even after the initial intercourse. HPV infection is associated with several HPV-associated diseases, including some cancers. The Advisory Committee on Immunization Practices (ACIP) routinely recommends HPV vaccination for 11- and 12-year-olds and for catch-up vaccination for 13- to 26-year-olds.

Methods
The Advisory Committee on Immunization Practices (ACIP) routinely recommends HPV vaccination for 11- and 12-year-olds and for catch-up vaccination for 13- to 26-year-olds.

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ACIP Immunization Recommendations: HPV

- **Children and adults 9 through 26 years:**
 - Routinely recommended at age 11 or 12 years; vaccination can be given starting at age 9 years
 - Catch up unvaccinated or incompletely vaccinated persons regardless of gender

- **Immunization schedules and intervals have not changed, administered a 2- or 3-dose series depending on age at first dose and health status**

MMWR, 2019 68(32):698-702.

**ACIP Immunization Recommendations: HPV
Adults 27 through 45 Years of Age**

- **Shared clinical decision-making regarding HPV vaccination is recommended for some adults who are not adequately vaccinated**
- **Catch-up HPV vaccination is not recommended for all adults**
- **Recommendations for special populations and medical conditions apply to all persons 9 through 45 years of age**
- **HPV vaccines are not licensed for use in adults 46 years of age and older**

MMWR, 2019 68(32):698-702.

Considerations for shared clinical decision-making regarding human papillomavirus (HPV) vaccination of adults aged 27–45

- Ideally, HPV vaccination should be given in early adolescence because vaccination is most effective before exposure to HPV through sexual activity.
- HPV is a very common sexually transmitted infection. Most HPV infections are transient and asymptomatic and cause no clinical problems.
- Although new HPV infections are most commonly acquired in adolescence and young adulthood, some adults are at risk for acquiring new HPV infections. At any age, having a new sex partner is a risk factor for acquiring a new HPV infection.
- Persons who are in a long-term, mutually monogamous sexual partnership are not likely to acquire a new HPV infection.
- Most sexually active adults have been exposed to some HPV types, although not necessarily all of the HPV types targeted by vaccination.
- No clinical antibody test can determine whether a person is already immune or still susceptible to any given HPV type.
- HPV vaccine efficacy is high among persons who have not been exposed to vaccine-type HPV before vaccination.
- Vaccine effectiveness might be low among persons with risk factors for HPV infection or disease (e.g., adults with multiple lifetime sex partners and likely previous infection with vaccine-type HPV), as well as among persons with certain immunocompromising conditions.
- HPV vaccines are prophylactic (i.e., they prevent new HPV infections). They do not prevent progression of HPV infection to disease, decrease time to clearance of HPV infection, or treat HPV-related disease.

MMWR 68(32):698-702

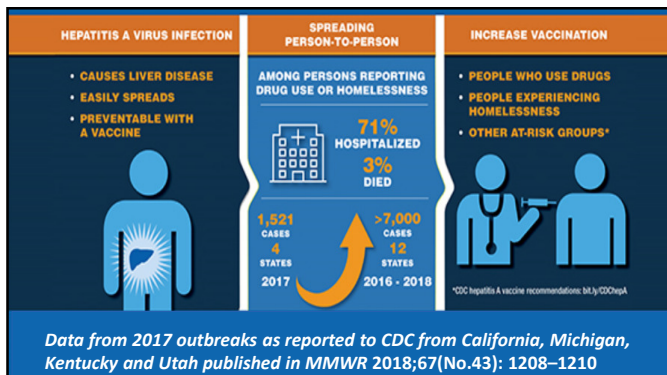
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Updated ACIP Immunization Recommendations: HPV

- Recommendations for schedules and intervals have not changed
- No prevaccination testing (e.g., Pap or HPV testing) is recommended
- Recommendations for pregnant or breastfeeding women have not changed
 - HPV vaccination should be delayed until after pregnancy
 - Pregnancy testing is not needed before vaccination
 - Persons who are breastfeeding or lactating can receive HPV vaccine
- Cervical cancer screening recommendations should be followed

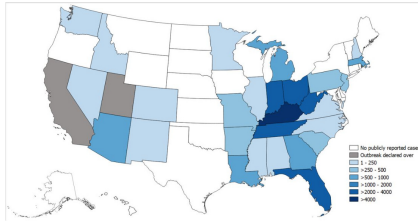
MMWR, 2019 68(32):688-702

ACIP Recommendations: Hepatitis A Vaccine



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Widespread person-to-person outbreaks of hepatitis A across the United States

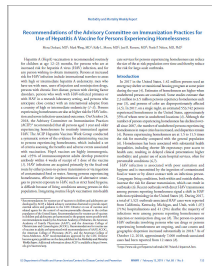


- Since the outbreaks were first identified in 2016, 30 states have reported*:
 - 25,783 cases
 - 15,517 (60%) hospitalizations
 - 259 deaths
- Risk factors:
 - drug use
 - homelessness

* As of September 13, 2019

Hepatitis A Immunization Recommendations

- ACIP updated recommendations to add homelessness as an indication for routine published 2/15/2019
- Increasing vaccination coverage among all at-risk groups recommended



MMWR 2018;67(No. 43):1208-10

Updated Hepatitis A Immunization Recommendations: Adults

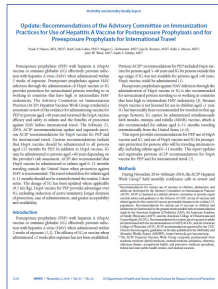
- Recommended for adults who have a specific risk or lack a risk factor but want protection
 - Homelessness
 - Travel to or work in countries with high or intermediate hepatitis A endemicity
 - Men who have sex with men
 - Injection or noninjection drug use
 - Clotting factor disorders
 - Chronic liver disease
 - Close, personal contact with an international adoptee
 - Healthy adults through age 40 years who have recently been exposed to hepatitis A virus
 - Work with hepatitis A virus in a research laboratory or with nonhuman primates infected with hepatitis A virus

MMWR, 2019 67(43):1208-10

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Updated Hepatitis A Recommendations

- The Advisory Committee on Immunization Practices updated Hepatitis A recommendations for children and adults preexposure and postexposure prophylaxis
- Published in the *MMWR* on 11/2/2018



MMWR 2018;67(No. 43):1208-10
MMWR 2018;67(No. 43):1216-20

International Travel and Infants: 6 Through 11 Months of Age

- International travel recommendations* for children 6 through 11 months of age:
 - Hepatitis A: IG (previous)
 - Measles, mumps, rubella: MMR vaccine
- Problematic if both are indicated as IG and live, attenuated vaccines cannot be administered simultaneously

* Countries with high or intermediate hepatitis A endemicity
MMWR 2018;67(No. 43):1216-20

Hepatitis A Vaccine for International Travelers: Infants

- Administer a single dose of HepA vaccine to infants 6–11 months of age
- Infants should restart the 2-dose series of HepA vaccine at 12 months of age or older as recommended



MMWR 2018;67(No. 43):1216-20

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Summary: Hepatitis A Vaccine Recommendations and International Travel

Age	
Infants 5 months of age or younger	IG
Infants 6 through 11 months of age	Vaccine (or IG ¹)
Healthy persons 1 year of age or older	Vaccine
Special Populations	
Persons with a vaccine contraindication	IG
Immunocompromised persons	Vaccine with addition of IG ²
Persons with chronic liver disease	Vaccine
Pregnant women	Vaccine

¹Based on provider risk assessment and availability of vaccine or IG
²If measles is not endemic in the destination area
 MMWR 2018;(No.43):1216-20

What Do You Think?

- Achal is 13 months old. A dose of hepatitis A vaccine was administered at 10 months of age due to international travel. When should the next dose of vaccine be administered?
 - 15 months of age
 - 18 months of age
 - Now

Current Hepatitis A Immunization Recommendations for Children

- Routinely recommended for children 12 through 23 months of age
 - 2-dose schedule (0, 6 months)
- Vaccination should be integrated into the routine vaccination schedule
- Children who are not vaccinated by 2 years of age can be vaccinated at subsequent visits

Recommended Immunization Schedule for Children and Adolescents Aged 18 Years or Younger, United States, 2019. Accessed on 3/26/2019

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ACIP Meeting June 2019

Hepatitis A Vote

- ACIP recommends that all children and adolescents aged 2 through 18 years who have not previously received hepatitis A vaccine be vaccinated routinely at any age (i.e., children and adolescents are recommended for catch-up vaccination).
- ACIP recommends all persons with HIV aged 1 year of age and older be routinely vaccinated with hepatitis A vaccine

These recommendations have been adopted by the CDC Director and will become official once published in MMWR Advisory Committee on Immunization Practices (ACIP) www.cdc.gov/vaccines/acip/index.html. Accessed 8/25/2019.

New Hepatitis A Immunization Recommendations for Children (pending publication)

- Routinely recommended for children 12 through 23 months of age
 - 2-dose schedule (0, 6 months)
- Routinely catch-up children and adolescents 2 through 18 years of age incompletely or unvaccinated with Hepatitis A vaccine*

Recommended Child and Adolescent Immunization Schedule for ages 18 years or younger, United States, 2019. Accessed on 3/26/2019. *This recommendations have been adopted by the CDC Director and will become official once published in MMWR.

Updated Hepatitis A Immunization Recommendations: Adults

- Recommended for adults who have a specific risk or lack a risk factor but want protection
 - HIV*
 - Homelessness
 - Travel to or work in countries with high or intermediate hepatitis A endemicity
 - Men who have sex with men
 - Injection or noninjection drug use
 - Clotting factor disorders
 - Chronic liver disease
 - Close, personal contact with an international adoptee
 - Healthy adults through age 40 years who have recently been exposed to hepatitis A virus
 - Work with hepatitis A virus in a research laboratory or with nonhuman primates infected with hepatitis A virus

* Pending publication in the MMWR
MMWR: 2019 67(43):13208-10

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ACIP Recommendations: Tdap Vaccine

ACIP Adolescent Recommendations: Tdap

- Routinely recommended at 11–12 years of age
- Catch up adolescents 13 years of age and older who were not vaccinated
- Adolescents who received Tdap inadvertently or as part of the catch-up series between 7–10 years of age should be given the routine adolescent Tdap dose at 11–12 years of age

MMWR 2018; 67(2):1-44

ACIP Recommendations for Pregnant Women

- **Pregnant women:**
 - Administer Tdap during each pregnancy, preferably at 27 through 36 weeks' gestation
 - If not administered during pregnancy, Tdap should be administered immediately postpartum to women **not previously vaccinated** with Tdap
 - Additional doses of Tdap are not indicated for previously vaccinated postpartum women
 - History of an adolescent dose (or Tdap given at another time) = previously vaccinated

MMWR, 2018 67(2):1-44

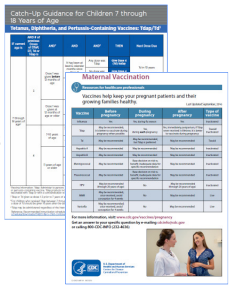
Maternal Tdap Vaccination is Very Effective in Prevention of Infant Pertussis Infection

	Vaccine effectiveness (95% confidence intervals)	Definitions	
		Infant age at pertussis onset	Mother gestational age received Tdap
United Kingdom			
Observational, ¹ screening method	91% (83–95%)	Younger than 3 months	At least 28 days before birth*
Case-Control, ² retrospective	91% (77–97%), unadjusted 93% (81–97%), adjusted ⁴	Younger than months	Cases: 31.5 weeks (range, 28–38) Controls: 33 weeks (range, 26–38)
United States			
Cohort, ³ retrospective	85% (33–98%)	Younger than 2 months	27–36 weeks
Case-Control, ⁴ retrospective	78% (44–91%)	Younger than 2 months	27–36 weeks

*2012 UK recommendation: Tdap between 28 and 38 weeks
¹Adjusted for sex, geographical area, and birth period
²Amirthalingam G, et al. 2014; ³Dabrera G, et al. 2015; ⁴Winter K, et al. 2016; ⁵CDC, unpublished

CDC Clinical Resources for Health Care Personnel: Tdap

- Pink Book webinar series with free CE www.cdc.gov/vaccines/ed/webinar-epv/index.html
- Updated ACIP recommendations www.cdc.gov/mmwr/volumes/67/rr/pdfs/rr6702a1-H.pdf
- Catch-up guidance for children 7 through 18 years of age www.cdc.gov/vaccines/schedules/downloads/child/job-aids/tdap.pdf
- HCP materials on vaccinating pregnant women www.cdc.gov/vaccines/pregnancy/hcp/index.html



ACIP Recommendations: Meningococcal B Vaccine

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Meningococcal B Vaccines

- **Bexsero (MenB-4C)**
 - Route: IM injection
 - Dosage: 0.5 mL
 - Schedule: 2 dose series at 0, and 1-6 months

- **Trumenba (MenB-FHbp)**
 - Route: IM injection
 - Dosage: 0.5 mL
 - Schedule: 3-dose series, administered at 0, 1-2, and 6 months OR 2-dose series, administered at 0, and 6 months

Trumenba (MenB-FHbp) Schedule Considerations

- For persons at increased risk for meningococcal disease and for use during serogroup B outbreaks, 3 doses of MenB-FHbp should be administered at 0, 1-2, 6 months

- When given to healthy adolescents who are not at increased risk for meningococcal disease, 2 doses of MenB-FHbp should be administered at 0 and 6 months

**ACIP MenB Recommendations
Clinical Considerations**

- Use the same vaccine product for all doses

- Administer at the same clinical visit as other vaccines
 - If more than 1 vaccine is given in the same limb, separate injection sites by at least 1 inch, if possible

- ACIP does not have a product preference

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ACIP Recommendations: MenB

- A MenB vaccine series may be administered to adolescents and young adults aged 16–23 years to provide short-term protection against most strains of serogroup B meningococcal disease*
- The preferred age for MenB vaccination is 16–18 years

* Subject to shared clinical decision making
MMWR October 23, 2015 / 64(41):1171-6

ACIP Recommendations: MenB

- Administer MenB vaccine to persons aged 10 years* and older who are at increased risk for meningococcal disease including:
 - Persons with persistent complement component deficiencies
 - Persons with anatomic or functional asplenia**
 - Microbiologists routinely exposed to isolates of Neisseria meningitidis
 - Persons identified as at increased risk because of a serogroup B meningococcal disease outbreak

*ACIP off-label recommendation
**Including sickle cell disease
http://www.cdc.gov/mmwr/preview/mmwrhtml/mm6422a3.htm?_cid=mm6422a3_w

**ACIP Meeting June 2019
Meningococcal B Vote**

- For persons 10 years of age and older with complement deficiency, complement inhibitor use, asplenia, or who are microbiologists:
 - ACIP recommends a MenB booster dose 1 year following completion of a MenB primary series, followed by MenB booster doses every 2–3 years thereafter, for as long as increased risk remains
- For persons 10 years of age and older determined by public health officials to be at increased risk during an outbreak:
 - ACIP recommends a one-time booster dose if it has been 1 year or more since completion of a MenB primary series
 - A booster dose interval of 6 months or longer may be considered by public health officials depending on the specific outbreak, vaccination strategy, and projected duration of elevated risk

These recommendations have been adopted by the CDC Director and will become official once published in MMWR Advisory Committee on Immunization Practices (ACIP) www.cdc.gov/ncidod/diseases/zoonotic/b190119a.htm. Accessed 9/25/2019.

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Other Recently Updated ACIP Immunization Recommendations

**ACIP Meeting June 2019
Pneumococcal Vote**

- ACIP recommends PCV13 based on shared clinical decision-making for adults 65 years or older who do not have an immunocompromising condition and who have not previously received PCV13
- All adults 65 years or older should receive a dose of PPSV23

These recommendations have been adopted by the CDC Director and will become official once published in MMWR. Advisory Committee on Immunization Practices (ACIP) www.cdc.gov/vaccines/acip/index.html. Accessed 8/25/2019

DRAFT

CDC Immunization Resources for HCP

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Catch-Up Guidance: Hib and PCV

The image contains three separate CDC vaccine schedule charts. Each chart is titled 'Catch-Up Guidance for Healthy Children 4 Months through 4 Years of Age'. The first chart is for ' Pneumococcal Conjugate Vaccine PCV', the second is for ' Acella, Pentacel, Hiberts, or Unknown', and the third is for ' Haemophilus influenzae type b Vaccine: Polio-Hib Vaccine Only'. Each chart includes a table with columns for age groups (0-2 years, 2-4 years, 4-6 years) and rows for different vaccine components, detailing the number of doses and timing.

<https://www.cdc.gov/vaccines/schedules/hcp/imz/catchup.html>

CDC Resources for Staff Education

- Multiple education products available free through the CDC website:
 - Immunization courses (webcasts and online self-study)
 - You Call the Shots* self-study modules
- Continuing education available

The image shows a screenshot of the 'Immunization Education & Training' website. The page features a navigation menu with 'Education and Training Home', 'You Call the Shots', 'Current issues in immunization netconferences (CIINC)', 'Immunization Courses', 'Continuing Education', and 'Pink Book Webinars'. A central banner for 'Expert Commentary' is also visible.

Immunization Education and Training: www.cdc.gov/vaccines/ed/index.html

Current Issues in Immunization Netconferences (CIINC) and 2019 EpiVac Pink Book Webinars

- Provide clinicians with the most up-to-date information on immunizations
- Archived versions available
- Sign up for e-mail alerts at
 - www.cdc.gov/vaccines/ed/ciinc/index.html
 - www.cdc.gov/vaccines/ed/webinar-epv/index.html

The image shows an email sign-up form with a 'Get Email Updates' header. Below the header is the text 'To receive email updates about this page, enter your email address:'. A red-bordered input field contains the placeholder text 'Your e-mail address here'. To the right of the input field is a 'Submit' button. There is also a 'What's this?' link.

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Immunization Questions?

- Questions? E-mail CDC nipinfo@cdc.gov or www.cdc.gov/cdcinfo
- Vaccines and Immunizations website www.cdc.gov/vaccines
- HCP education www.cdc.gov/vaccines/hcp.htm
- Twitter @DrNancyM_CDC
- Influenza www.cdc.gov/flu
- Vaccine safety www.cdc.gov/vaccinesafety

CDC Immunization Apps for Health Care Personnel



Childhood and adult immunization schedules
www.cdc.gov/vaccines/schedules/hcp/schedule-app.html



Influenza information
www.cdc.gov/flu/apps/cdc-influenza-hcp.html



Morbidity and Mortality Weekly Report (MMWR)
www.cdc.gov/mobile/applications/mobileframework/mmwrpromo.html



PneumoRecs VaxAdvisor
www.cdc.gov/vaccines/vpd/pneumo/hcp/pneumoapp.html
