Addressing Adult Vaccine Hesitancy in the US

June 29, 2023
12:00 PM ET

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Agenda

Welcome and Introductions

William Schaffner, MD
NFID Medical Director

Addressing Adult Vaccine Hesitancy in the US

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Questions and Answers

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  - Indicate if your question is directed to a specific presenter
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- Certificate will be available for print or download following successful completion of online evaluation and post-test until June 29, 2024
- Contact **cme@nfid.org** with any questions

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Disclosures

- Ruth M. Carrico (Presenter) was an advisor or consultant for Moderna, Novavax, Pfizer Inc., Sanofi, Seqirus, and Valneva; and was a researcher for Janssen
- Marla Dalton (NFID Staff) owned stock from Merck & Co., Inc.

All relevant financial relationships listed for these individuals have been mitigated

All other individuals in a position to control the content of this activity have no relevant financial relationships with ineligible companies to disclose

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Learning Objectives

At the conclusion of this activity, participants will be able to:

- Identify issues, barriers, and challenges that impact US adult vaccine acceptance
- Discuss health disparities in coverage for adult influenza (flu), pneumococcal disease, hepatitis B, Tdap, and COVID-19 vaccines in the US
- Evaluate and apply strategies for implementation of US adult immunization recommendations into practice

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About NFID

Founded in 1973, the National Foundation for Infectious Diseases (NFID) is a non-profit 501(c)(3) organization

Vision:
Healthier lives for all through the effective prevention and treatment of infectious diseases

Mission:
Educate and engage the public, communities, and healthcare professionals about infectious diseases across the lifespan

Core Values:
- Collaboration
- Diversity, Equity, Inclusion
- Evidence-Based
- Integrity
- Transparency

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Vaccines for Life

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www.nfid.org/resource/vaccines-for-life/

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Professor, Division of Infectious Diseases
University of Louisville School of Medicine

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Hepatitis B

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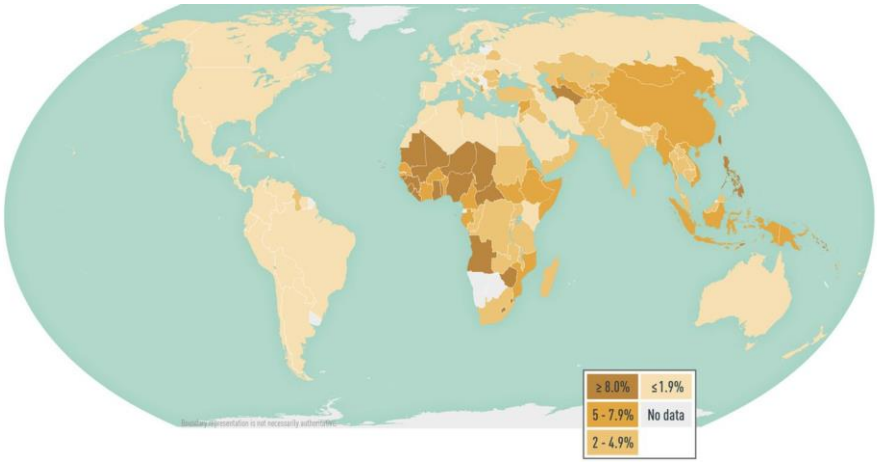
Hepatitis B Worldwide Prevalence



Disease data source: 2021 estimates of hepatitis B virus disease burden. CDA Foundation Polaris Observatory. cdafound.org/polaris-countries-distribution/.

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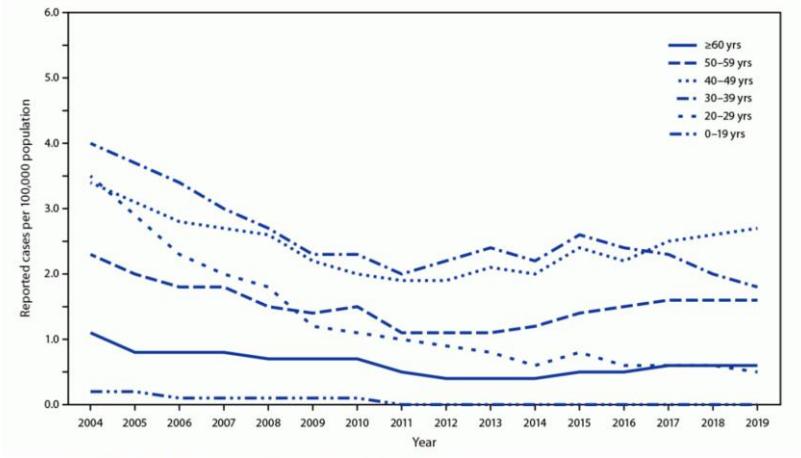
FIGURE. Rates of reported acute hepatitis B virus infection, by age group — United States, 2004–2019



Source: https://www.cdc.gov/hepatitis/statistics/2019surveillance/Figure2.4.htm

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Case Study: Jean

- 62-year-old female previously seen in the clinic in preparation for extended travel to Southeast Asia
- Unsure of her vaccination history but does not recall receiving, or being offered, hepatitis B vaccine
- Medical history includes type 2 diabetes in addition to hypertension and hyperlipidemia

Her healthcare professional suggests hepatitis B vaccination. This suggestion is based upon the unique need for protection against hepatitis B associated with international travel, as current hepatitis B vaccination is not currently recommended for adults.

A. The rationale above is TRUE
B. The rationale above is FALSE

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A. The rationale above is TRUE
B. The rationale above is FALSE

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Rationale

Hepatitis B vaccination is now part of a strategy for universal vaccination and is recommended for the following:

- All infants
- Individuals age <19 years
- Adults age 19–59 years
- Adults age ≥60 years with risk factors for hepatitis B
- Adults age ≥60 years without known risk factors for hepatitis B who are interested in receiving hepatitis B vaccine

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Hepatitis B Epidemiology

- A leading cause of chronic hepatitis, cirrhosis, and hepatocellular carcinoma; an estimated chronic infection present in more than 257 million worldwide
- Risk of transmission is greatest in countries where the prevalence of chronic infection is ≥2%, including western Pacific and African regions
- Incubation period is generally 90 days with a range of 60-150 days
- The risk of acute hepatitis B progressing to chronic HBV infection depends on the age at the time of initial infection: >90% of neonates and infants, 25%–50% of children age 1-5 years, and <5% of older children and adults
- 15%-40% of people with chronic HBV infection will develop liver cirrhosis, hepatocellular carcinoma, or liver failure, and 25% die
- Disparities exist between White and non-White populations with respect to hepatitis B disease as well as vaccination rates

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Hepatitis B Prevention

- Prevent contact with blood, body fluids
- Avoid situations involving contact or potential contact with medical devices or equipment that have been reused when inappropriate [e.g., single-use disposable items] or reusable equipment that has not been appropriately cleaned and disinfected
- When traveling, take precautions to prevent injury that may require medical intervention involving the use of medical devices
- Vaccination

Current Hepatitis B Vaccination Recommendations

- **All infants; persons age <19 years**
- **Adults age 19–59 years**
- **Adults age ≥60 years with risk factors for hepatitis B:**
  - Persons at risk for infection by sexual exposure
  - Persons at risk for infection by percutaneous or mucosal exposure to blood
  - Others
    - International travelers to countries with high or intermediate levels of endemic hepatitis B virus infection (HBsAg prevalence of ≥2%)
    - Persons with hepatitis C virus infection
    - Persons with chronic liver disease (including, but not limited to, persons with cirrhosis, fatty liver disease, alcoholic liver disease, autoimmune hepatitis, and an alanine aminotransferase or aspartate aminotransferase level greater than twice the upper limit of normal)
    - Persons with HIV infection
    - Persons who are incarcerated
- **Adults age ≥60 years without known risk factors for hepatitis B may receive hepatitis B vaccines**

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

Hepatitis B Vaccines (Adult)

Vaccine	Brand/ Manufacturer	Age (years)	Dose	Route	Schedule	Booster
Hepatitis B vaccine, inactivated single antigen	Heplisav-B™ Dynavax	≥ 18 years	0.5 mL **(20 ug)**	IM	0, 1 months	None unless no evidence of response
Hepatitis B vaccine, inactivated single antigen	Recombivax HB™ Merck	≥ 20 years	1.0 mL **(10 ug)**	IM	0, 1, 6 months	None unless no evidence of response
Hepatitis B vaccine, inactivated single antigen	Engerix B™ GlaxoSmithKline	≥ 20 years	1.0 mL **(20 ug)**	IM	0, 1, 6 months	None unless no evidence of response
Hepatitis B vaccine, inactivated triple antigen	PreHevbrio™ VBI Vaccines	≥ 18 years	1.0 mL **(10ug)**	IM	0,1,6 months	None unless no evidence of response
Combined Hepatitis A and B vaccine	Twinrix™ GlaxoSmithKline	≥ 18 ≥ 18	1.0 mL 720 ELU HAV + 20ug HBsAg) Same as above	IM IM	0,1,6 months (**accelerated** 0, 7 days, 21-30 days)	None 12 months

Prescribing Information (package inserts)

Trade Names for Clarification Purposes Only

Hepatitis B Vaccine Effectiveness

- **Seroprotection**
  - >90% protection among healthy adults who complete the 3-dose hepatitis B (HepB) series
  - Estimated ≥90% of persons had evidence of protection 30 years after receiving the primary series
  - Heplisav-B® [2-dose series] approved based on clinical trials comparing seroprotection rates (SPR, defined as anti-HBs of 10 mIU or higher, and indicative of protection against hepatitis B infection) following 2 doses of Heplisav-B® to rates following 3 doses of Engerix-B® (GSK). Among people 18 through 70 years of age, SPRs were 90%-95% following 2 doses of Heplisav-B® and 65%-81% following 3 doses of Engerix-B®
- **Vaccine effectiveness**
  - Within 10 years of initiation of universal HepB vaccination in 1991, a 68% decrease in HBV infection prevalence among children was observed
  - No published studies on universal HepB vaccination among adults

Trade Names for Clarification Purposes Only

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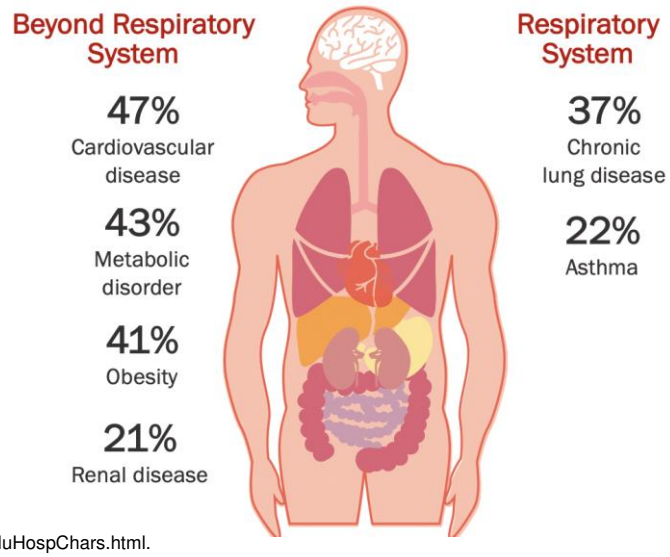
www.cdc.gov/vaccines/acip/recs/grade/hepb-adults-etr.html

Influenza (Flu)

Influenza Is More Than a Bad Cold

- Influenza is an infection that involves the respiratory tract, but it can also trigger a systemic inflammatory response resulting in sudden onset of fever and secretion of proinflammatory mediators (cytokines) into circulation
- This sudden and robust response can impact multiple organs and systems and exacerbate underlying chronic health conditions
- Adults hospitalized with influenza during 2019-2020 influenza season had at least one underlying chronic medical condition complicating their illness



CDC. gis.cdc.gov/grasp/fluview/FluHospChars.html.

Case Study: Paul

- Overweight 39-year-old male, presents at the clinic with a 2-day history of fever, headache, and myalgias
- Not vaccinated against influenza and tells you, his HCP, that there are no data that can be used to estimate how effective the vaccines are

A. He is correct. There are no public health data regarding vaccine effectiveness other than anecdotal information provided to local health departments and the Centers for Disease Control and Prevention (CDC).
B. He is incorrect. All US laboratories report positive influenza tests directly to the CDC so vaccine efficacy rates can be compiled and shared nationally.
C. He is correct. Although vaccine manufacturers collect effectiveness data, they do not publish or share those data due to market competition.
D. He is incorrect. CDC works with multiple universities, researchers, and vaccine effectiveness networks to compile information necessary to estimate influenza vaccine effectiveness.

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Rationale

- CDC has been gathering relevant data from universities and research partners for more than 20 years; more recently, data are also being captured from multiple surveillance networks
- Some, but not all, laboratories report positive influenza tests to their local health departments, but many tests may be performed in outpatient settings and may not be part of required public health reporting
- Vaccine manufacturers frequently collect data regarding product effectiveness, and many disseminate those data through peer-reviewed publications, presentations, or directly to regulatory agencies such as FDA

Vaccine Efficacy and Vaccine Effectiveness

- A vaccine's **efficacy** is measured in a controlled clinical trial and is based on how many people who got vaccinated developed the 'outcome of interest' (usually disease) compared with how many people who got the placebo developed the same outcome
- Once the study is complete, the numbers of sick people in each group are compared, in order to calculate the relative risk of getting sick depending on whether the subjects received the vaccine
- From this we get the efficacy–a measure of how much the vaccine lowered the risk of getting sick. If a vaccine has high efficacy, far fewer people in the group who received the vaccine got sick than the people in the group who received the placebo.

WHO. Accessed June 16, 2023. www.who.int/news-room/feature-stories/detail/vaccine-efficacy-effectiveness-and-protection#:~:text=This%20is%20calculated%20by%20comparing,work%20in%20the%20real%20world.

Vaccine Efficacy and Vaccine Effectiveness

- So, let's imagine a vaccine has a proven efficacy of 80%. This means that out of the people in the clinical trial, those who received the vaccine were at an 80% lower risk of developing disease than the group who received the placebo. This is calculated by comparing the number of cases of disease in the vaccinated group versus the placebo group. An efficacy of 80% does not mean that 20% of the vaccinated group will become ill.
- Instead, if a vaccine has an efficacy of 80%, it means that in a vaccinated population, 80% fewer people will contract the disease when they come in contact with the virus

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WHO. Accessed June 16, 2023. www.who.int/news-room/feature-stories/detail/vaccine-efficacy-effectiveness-and-protection#:~:text=This%20is%20calculated%20by%20comparing,work%20in%20the%20real%20world.

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Vaccine Efficacy and Vaccine Effectiveness

- Vaccine **effectiveness** (VE) is a measure of how well vaccination protects people against health outcomes such as infection, symptomatic illness, hospitalization, and death
- Vaccine effectiveness is generally measured by comparing the frequency of health outcomes in vaccinated and unvaccinated people. **Absolute vaccine effectiveness** is a term that can be applied when the study compares vaccinated people to unvaccinated people.
- While vaccine effectiveness can vary, recent studies show that flu vaccination reduces the risk of flu illness by between 40% and 60%

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www.cdc.gov/flu/vaccineswork/vaccineeffect.htm#:~:text=While%20vaccine%20effectiveness%20(VE)%20can.used%20to%20make%20flu%20vaccines.

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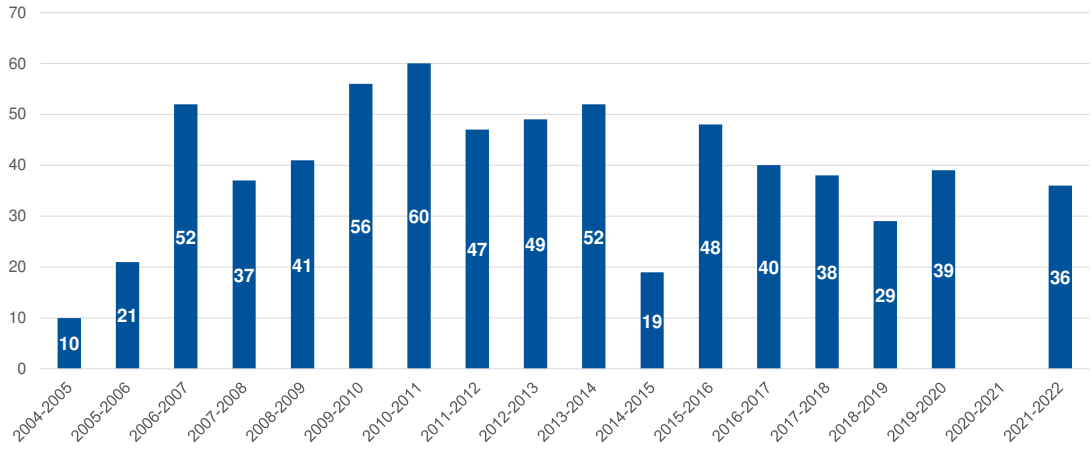
Effectiveness of Seasonal Flu Vaccines from 2005-2022 Flu Seasons



*2020-2021 flu vaccine effectiveness was not estimated due to low flu virus circulation during the 2020-2021 flu season. CDC. Accessed June 15, 2023. www.cdc.gov/flu/vaccines-work/effectiveness-studies.htm.

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Vaccine Coverage–How Are/Were We Doing?

	2013-2014	2014-2015	2015-2016	2016-2017	2017-2018	2018-2019	2019-2020	2021-2022
6 months-4 years	70.4%	70.4%	70.0%	70.4%	67.8%	73.4%	**75.5%**	**66.7%**
5-12 years	61.0%	61.8%	61.8%	59.9%	59.5%	63.6%	**64.6%**	**58.4%**
13-17 years	46.4%	46.4%	46.8%	48.8%	47.4%	52.2%	**53.3%**	**49.8%**
18-49 years with a high-risk condition	38.7%	39.3%	39.5%	39.3%	31.3%	40.4%	**44.4%**	--
18-49 years without a high-risk condition	31.1%	32.6%	31.5%	32.6%	26.1%	33.8%	**37.5%**	**37.1%**
50-64 years	45.3%	47.0%	43.6%	45.4%	39.7%	47.3%	**50.6%**	**52.4%**
65+ years	65.0%	66.7%	63.4%	65.3%	59.6%	68.1%	**69.8%**	**73.9%**

Centers for Disease Control and Prevention (CDC). Accessed June 16, 2023. www.cdc.gov/flu/fluvaxview/.

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Pneumococcal Disease

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Some Underlying Medical Conditions Increase the Risk for Pneumococcal Disease Among Adults

- Pneumococcal pneumonia is an infection that causes significant disease among adults
- Some chronic medical conditions increase the risk of serious illness including hospitalization and death
- In addition to advanced age, underlying conditions such as diabetes, cardiovascular disease, and pulmonary conditions, including asthma, are associated with some of the greatest risks
- One study looking at adults age 19-49 years found that nearly 52% of pneumococcal pneumonia cases and invasive pneumococcal disease cases were in patients with underlying medical conditions

www.cdc.gov/vaccines/acip/meetings/downloads/slides-2021-02/24-25/05-pneumococcal-kobayashi.pdf

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Case Study: Shelby

- 49-year-old female with asthma currently works as a nurse at a local hospital
- During a visit with her employee health department, she asked about pneumococcal vaccine and was told it was not a vaccine recommended as part of healthcare worker immunization programs

Was the information provided by the employee health department correct?

A. Yes, the information provided was correct
B. No, the information provided was not correct

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A. Yes, the information provided was correct
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Rationale

The information provided by the employee health department was correct. Pneumococcal disease is not considered to be work-related in healthcare settings and is therefore not included in healthcare worker immunization programs.

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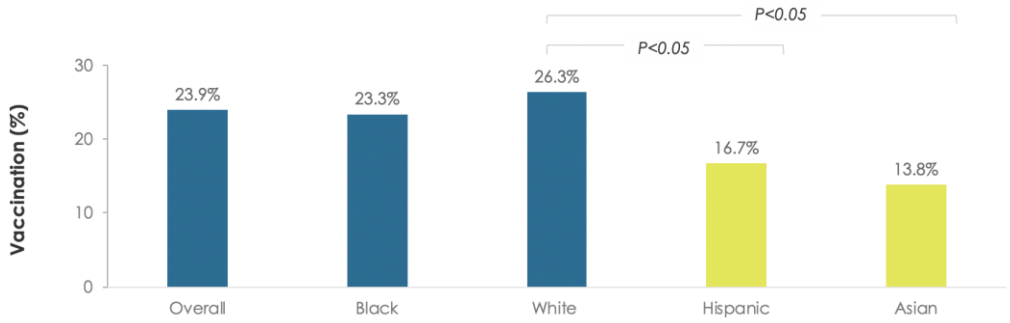
Rates of Vaccination Among at Risk Adults Age 19-64 Years is Also Impacted by Race/Ethnicity

Estimated proportion of adults aged 19–64 years who ever received pneumococcal vaccination* by increased-risk status† and race/ethnicity — NHIS, 2020



*Responders asked about vaccination status. †At-risk status determined based upon information provided by healthcare provider
National Health Interview Survey, 2019-2020. Vaccination coverage among adults in the US.
www.cdc.gov/vaccines/imz-managers/coverage/adultvaxview/pubs-resources/vaccination-coverage-adults-2019-2020.html#

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Current Recommendations for Pneumococcal Vaccination for Adults Age 19-64 Years with Certain Chronic Conditions and Risk Factors*

Prior vaccines	Option A	Option B
None*	PCV20	PCV15 → (≥8 weeks) PPSV23
PPSV23 only	(≥1 year) PCV20	(≥1 year) PCV15
PCV13 only	(≥1 year) PCV20	(≥8 weeks) PPSV23 → (≥5 years) PPSV23 Review pneumococcal vaccine recommendations again when your patient turns 65 years old.
PCV13 and 1 dose of PPSV23	(≥5 years) PCV20	(≥5 years†) PPSV23 Review pneumococcal vaccine recommendations again when your patient turns 65 years old.
PCV13 and 2 doses of PPSV23	(≥5 years) PCV20	**No vaccines** recommended at this time. Review pneumococcal vaccine recommendations again when your patient turns 65 years old.

*Alcoholism, CSF leak, chronic heart/liver/lung disease, chronic renal failure, cigarette smoking, cochlear implant, congenital or acquired asplenia, congenital or acquired immunodeficiencies, diabetes, generalized malignancy, HIV infection, Hodgkin disease, iatrogenic immunosuppression, leukemia, lymphoma, multiple myeloma, nephrotic syndrome, sickle cell disease or other hemoglobinopathies, and solid organ transplants

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CDC. Pneumococcal vaccine timing for adults.
www.cdc.gov/vaccines/vpd/pneumo/downloads/pneumo-vaccine-timing.pdf

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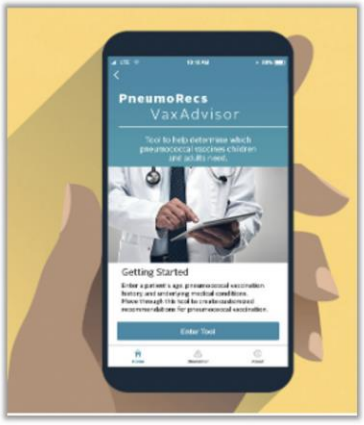
App Available for Free Download



Enter patient's age

↓

Note patient's underlying medical condition

↓

Provide details about patient's pneumococcal vaccination history

"The app provides patient-specific guidance consistent with the immunization schedule recommended by the U.S. Advisory Committee on Immunization Practices"

-Centers for Disease Control and Prevention

PneumoRecs
VaxAdvisor

Tool to help determine which pneumococcal vaccines children and adults need and when.

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Rupali J. Limaye, PhD, MPH, MA
Associate Professor, Department of International Health
Johns Hopkins Bloomberg School of Public Health

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Tdap

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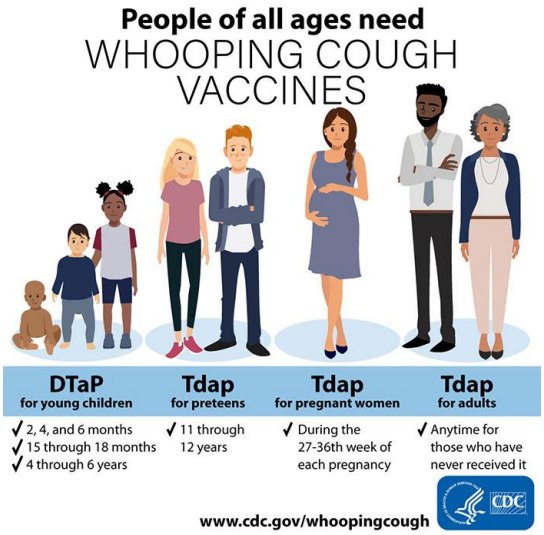

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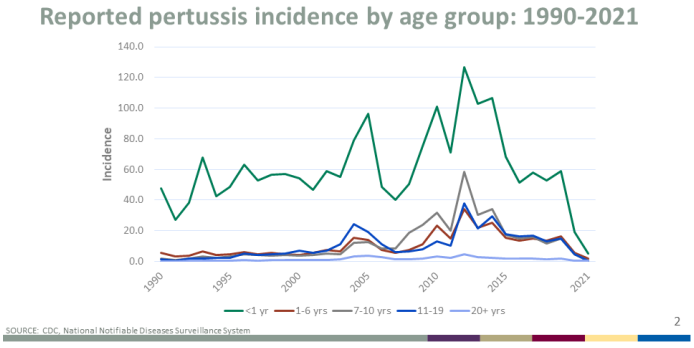
Pertussis: Burden and Recommendation during Pregnancy

- About 1,000 infants are hospitalized and typically between 5-15 infants die each year in the US due to pertussis
- Most of these deaths are among infants who are too young to be protected by the childhood pertussis vaccine (given when infants are 2 months old)
- To help protect babies during this time when they are most vulnerable, women should get the tetanus toxoid, reduced diphtheria toxoid, and acellular pertussis vaccine (Tdap) during **each** pregnancy



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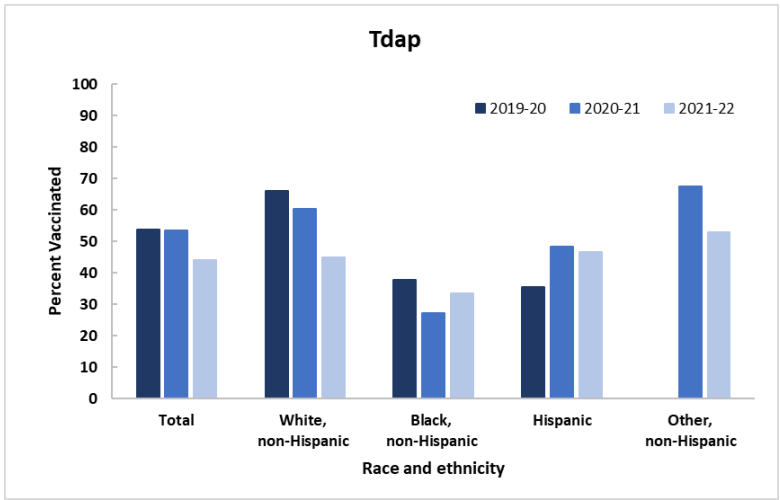
Tdap Coverage among Pregnant Women is Suboptimal

Tdap Vaccination Coverage Among Pregnant Women – US, April 2022



CDC Flu Vax

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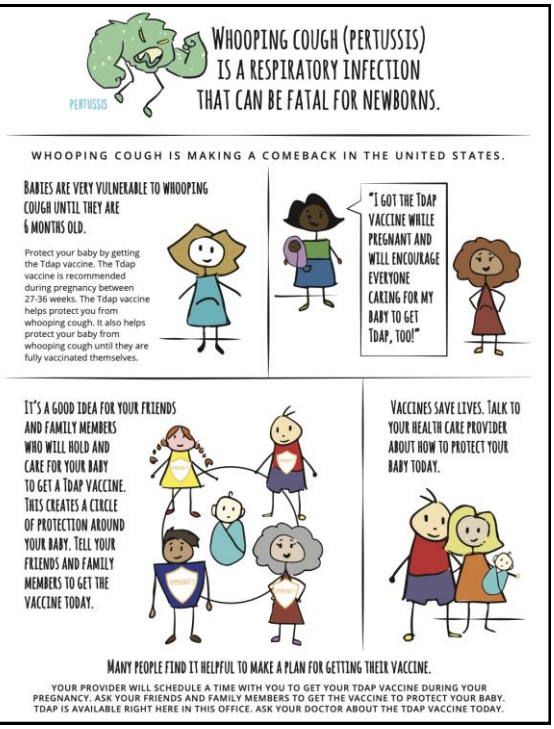
Tdap in Pregnancy

Barriers to Acceptance

- Vaccine ingredients
- Risk perception
- Side effects (including misperceptions)

Why is Vaccination in Pregnancy so Critical?

- Tdap during pregnancy provides the best protection for mother and infant
- Cocooning (vaccinating anyone who comes in close contact with an infant) alone is not sufficient



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Case Study: Anna

- 36 years old
- Pregnant with second child (first child is 6 years old)
- Visiting for routine 28-week visit
- Does not want a Tdap vaccine as she received one during her last pregnancy and believes the vaccine may include a microchip

What is the **most ideal** way to proceed with Anna?

A. Provide Anna with some information about Tdap vaccine and inform her that she can make an appointment for the vaccine at her local pharmacy after she has read more about the vaccine
B. Discuss the effectiveness of the vaccine in protecting Anna and her baby, and strongly recommend that she receive the vaccine today
C. Explain how microchips are made and explain how she is wrong about a microchip being in the vaccine

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Case Study: What is the most ideal way to proceed with Anna?

- 36 years old
- Pregnant with second child (first child is 6 years old)
- Visiting for routine 28-week visit
- Does not want a Tdap vaccine as she received one during her last pregnancy and believes the vaccine may include a microchip

A. Provide Anna with some information about Tdap vaccine and inform her that she can make an appointment for the vaccine at her local pharmacy after she has read more about the vaccine.
   This approach is not wrong, but it is not the most ideal. Same day vaccination is preferred.
B. Discuss the effectiveness of the vaccine in protecting Anna and her baby, and strongly recommend that she receive the vaccine today
   This approach is the most ideal as it encourages same day vaccination and focuses on effectiveness (i.e., directly responds to the reason why she does not want the vaccine)
C. Explain how microchips are made and explain how she is wrong about a microchip being in the vaccine
   Refuting a misconception leads to distrust—if you confronted with a myth, try pivoting instead

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Pivoting

Do not correct misperceptions: The instinctive response to vaccine-related misinformation is to provide correct information, but this can backfire–called the boomerang effect
Focus on the disease: Pivot the conversation to the disease itself

Example: "I read about this on my Facebook moms' group–this woman got the COVID-19 vaccine and now she can't get pregnant."

Response: "There is so much information out there–it can be hard to figure out what is evidence-based information and what is not based on evidence. Let me now tell you what I know about COVID-19 vaccines and fertility."

"The COVID-19 vaccine will not affect fertility. Getting COVID-19, on the other hand, can have a potentially serious impact on pregnancy and the mother's health."

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COVID-19 Vaccine Safety Monitoring

- The US has a robust vaccine safety system in place to ensure that all vaccines are as safe as possible
- After a vaccine is authorized or approved for use by FDA, various vaccine safety monitoring systems watch for adverse events (possible side effects)
- This ongoing monitoring can pick up on adverse events that may not have been seen in clinical trials
- If an unexpected adverse event is seen, experts quickly study it further to see if it is a true safety concern
- Experts then decide whether changes are needed in US vaccine recommendations

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COVID-19 Vaccine Safety Monitoring

FDA monitors the safety of authorized COVID-19 vaccines through both passive and active safety surveillance systems

Passive:

- Passive surveillance is defined as unsolicited reports of adverse events that are sent to a central database or health authority.
- In the US, these are received and entered into the Vaccine Adverse Event Reporting System (VAERS) that is co-managed by FDA and CDC

Active:

- Active surveillance involves proactively obtaining and rapidly analyzing information occurring in millions of individuals recorded in large healthcare data systems to verify safety signals identified through passive surveillance or to detect additional safety signals that may not have been reported as adverse events to passive surveillance systems
- FDA is conducting active surveillance using the Sentinel BEST (Biologics Effectiveness and Safety) System and the CMS system

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Case Study: Oscar

- 40 years old
- Oscar is coming in for a regular check up with his primary care physician (PCP)
- PCP has recommended that Oscar get the COVID-19 booster because he is at high risk for severe COVID-19
- Oscar has concerns related to the safety monitoring of COVID-19 vaccines

What is the **most ideal** way to proceed with Oscar?

A. Provide Oscar with some information about the COVID-19 vaccine
B. Inform Oscar that there are multiple systems tracking the safety of the COVID-19 vaccine and encourage him to receive the vaccine during the visit
C. Say nothing about the COVID-19 vaccine and raise it at his next visit

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Case Study: Oscar

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A. Provide Oscar with some information about the COVID-19 vaccine

This approach is not wrong, but it is not the most ideal. Same day vaccination is preferred.

B. Inform Oscar that there are multiple systems tracking the safety of the COVID-19 vaccine and encourage him to receive the vaccine during the visit

This approach is the most ideal as it provides information related to Oscar's concern. It also assumes vaccination as the default.

C. Say nothing about the COVID-19 vaccine and raise it at his next visit

This is a missed opportunity for Oscar to receive the vaccine during this visit

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Communication Approaches: Assume Vaccination is the Default through Presumptive Communication

- This format linguistically presupposes that the person will vaccinate (e.g., "So your daughter is due for several vaccines today") and therefore frames vaccination as the default, or normative behavior
- Introducing the vaccine as though the healthcare professional (HCP) expects the person will agree to it (called the "presumptive" or "announcement" approach) rather than as being potentially optional (called the "participatory" or "conversational" approach) has been suggested as a preferred communication strategy

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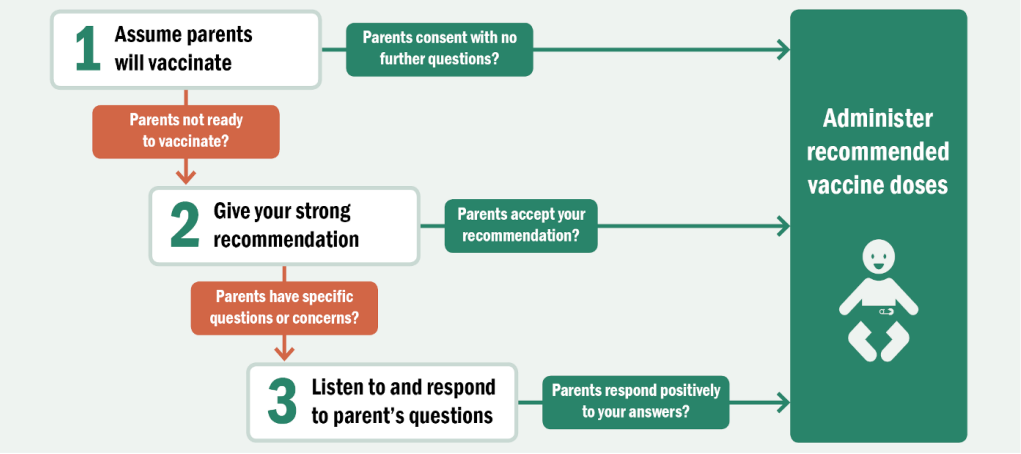
Communication Approaches: Assume Vaccination is the Default through Presumptive Communication



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Communication Approaches: Nudging through Motivational Interviewing

- For those with significant questions or concerns about vaccination, more nuanced communication techniques may be needed
- Motivational interviewing relies on an individual's intrinsic motivation
- **Intrinsic motivation**: some humans have more general motivators that push them to explore their environment—this kind of motivation is called intrinsic motivation

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Communication Approaches: Nudging through Motivational Interviewing

Focuses on leveraging an individual's intrinsic motivation for certain health behaviors and uses tools such as:

- Active listening
- Reflections
- Open-ended questions
- Asking permission to provide additional information
- Acknowledging autonomy as a means to strengthen the perception that the clinician and patient are working together toward a common goal

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Communication Approaches: Enhancing Vaccine Salience through Tailoring

- Tailoring includes matching each individual's specific beliefs, attitudes, and experiences to the messages or information they are provided, thus improving the personal relevance of the information, and the likelihood that it will change behavior

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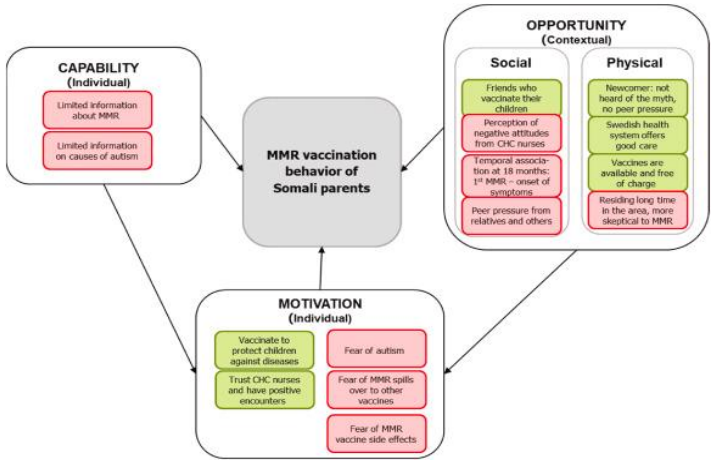
Communication Approaches: Enhancing Vaccine Salience through Tailoring



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Jama, A., Appelqvist, E., Kulane, A., Karregård, S., Rubin, J., Nejat, S., ... & Godoy-Ramirez, K. (2022). Design and implementation of tailored intervention to increase vaccine acceptance in a Somali community in Stockholm, Sweden-based on the Tailoring Immunization Programmes approach. *Public Health in Practice*, *4*, 100305

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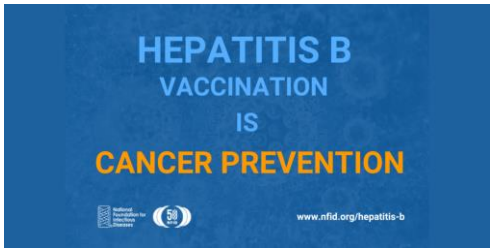
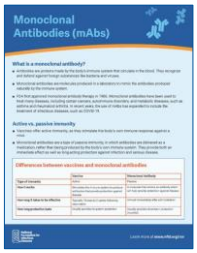
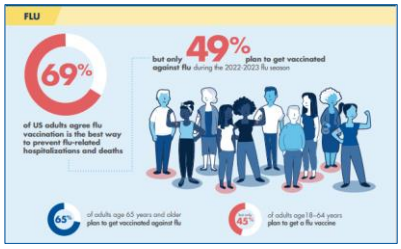
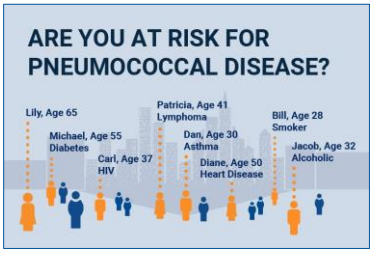
Discussion









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- Contact **cme@nfid.org** with any questions

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Upcoming NFID Webinar

UPDATES FROM JUNE 2023 ADVISORY COMMITTEE ON IMMUNIZATION PRACTICES (ACIP) MEETING

JULY 12, 2023 @ 12:00 PM ET

William Schaffner, MD
NFID Medical Director and
ACIP Liaison

Jessica R. MacNeil, MPH
ACIP Deputy Executive Secretary
Centers for Disease Control and Prevention (CDC)

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