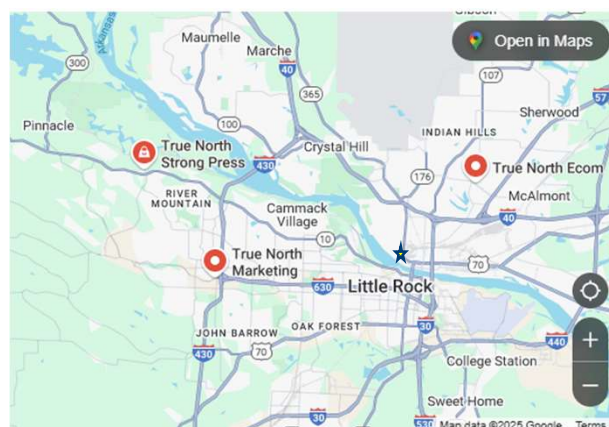


Focusing on the 'True North' in Adult Immunization

Robert H. (Bob) Hopkins, Jr., MD, MACP
NFID Medical Director



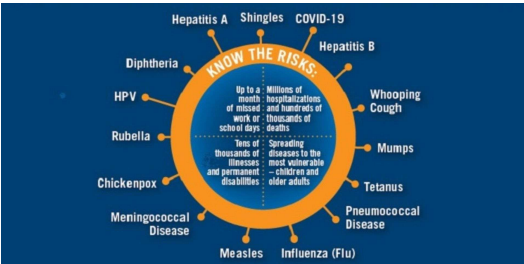
“True North”



Google Maps Result for search 'True North' from my office in 72205 on 3/20/25 0740

Outline

- ACIP
- Current Adult Immunizations: Recommendations and Evidence
Flu, COVID-19, RSV, Pneumococcal, Zoster, HBV, HPV
- Evidence Gaps
- Future Opportunities
- Suggestions for uncertain times ...



Advisory Committee on Immunization Practices (ACIP)

- Develop US immunization recommendations and advise CDC Director
- Up to 20 voting members
 - 18 independent medical/public health experts
 - 1 public representative
 - Minimum 20% designated minority representation
 - Overlapping 4-year terms
 - All require approval by HHS Secretary
- Ex-Officio: 6 federal agency employees
- Liaison: 30 representatives of organizations with immunization expertise



www.cdc.gov/acip/downloads/Policies-Procedures-508_1.pdf
www.gsa.gov/policy-regulations/policy/federal-advisory-committee-management

ACIP Members: COI Requirements

- No member/spouse/immediate family can be directly employed by vaccine manufacturer or its parent company
- Members cannot hold stock in any vaccine manufacturer or parent company in excess of OGE de minimus amounts; members agree that they/spouse/minor children will not purchase such stock during their tenure
- Members cannot be holders of or otherwise entitled to royalties or other compensation for a patent on a vaccine product or process, immunologic agent, adjuvant, or preservative that can be used for a vaccine that may come before ACIP during the anticipated term of appointment under consideration
- Members agree to resign any advisory or consulting roles, whether paid or unpaid, to a vaccine manufacturer (except participation in clinical trials or service on data monitoring boards) and to forego such consultation or membership on any vaccine manufacturer advisory committees (except participation in clinical trials or service on data monitoring boards) during tenure
- Members forego solicitation or acceptance of funds from vaccine manufacturers on behalf of themselves or others
- During ACIP tenure, members do not serve as paid litigation consultants or expert witnesses in litigation involving a vaccine manufacturer
- Members do not accept honoraria or travel reimbursement with a funding source from a vaccine manufacturer for attendance at scientific meetings, with the exception that they may receive travel reimbursement for CME presentations where the source of funding is an unrestricted grant to the CME provider by a vaccine manufacturer



www.cdc.gov/acip/downloads/Policies-Procedures-508_1.pdf

ACIP Meetings

- 3 times/year: Announced 6-12 months in advance
- Generally requires 60-days notice in Federal Register
- Most meetings are open and include public comment
- CDC Director has final decision
- Once CDC Director acts, MMWR publishes final recommendations

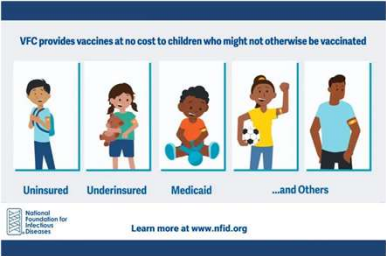
2025	<ul style="list-style-type: none">• April 15-16<ul style="list-style-type: none">◦ Final ACIP April 15-16, 2025 Meeting Agenda (posted 4-11-2025) [PDF]◦ Draft ACIP April 15-16, 2025 Meeting Agenda (posted 3-24-2025) [PDF]◦ Previous ACIP Feb. 26-28, 2025 Meeting Agenda (rescheduled, posted 1-17-2025) [PDF]◦ Anticipated votes◦ Presentation slides◦ YouTube Live Stream Link 4-15-2025◦ YouTube Live Stream Link 4-16-2025• June 25-26• October 22-23
2026	<ul style="list-style-type: none">• February 25-26• June 24-25• October 21-22
2027	<ul style="list-style-type: none">• February 24-25• June 23-24• October 20-21



www.cdc.gov/acip/meetings/index.html
www.cdc.gov/acip/index.html

Vaccines for Children (VFC) Program

- ACIP recommendations for VFC program have distinct process
- High priority placed on alignment between ACIP recommendations + VFC coverage
- Specific votes required for VFC program coverage



ACIP Solicits for New Members [Annually]

- Openings published on ACIP webpage and Federal Register
- Vetted by ACIP Executive Secretary, Secretariat, and Steering Committee
- CDC Director reviews and sends approved slate to HHS Secretary
- HHS Secretary nominates members [may or may not be on slate]
- ACIP appointed members are Special Government Employees and subject to all COI rules/regulations
- Candidate packets on slate members not selected are held for consideration for potential future vacancies ...



Apply for ACIP Membership

Access the online application for ACIP membership and learn about qualifications.



www.cdc.gov/acip/apply-for-membership/index.html
www.cdc.gov/acip/downloads/Policies-Procedures-508_1.pdf

ACIP: Status and Policies

February Meeting, April 15-16, 2025

• Meningococcal

Pentavalent [And VFC]

VOTE, VFC VOTE

• Influenza

VE and Self-administered nasal

• COVID-19

VE, Epi and Moderna next generation

• RSV Adult

Expand indications to 50-59 at risk

VOTE

• RSV Newborn

New monoclonal for infants

• Chikungunya

Disease, new VLP vaccine

VOTE

• Pneumococcal

Workgroup updates

• HPV

Coverage, new data

• Mpox

Data on vaccine in 12-17 years

• Lyme


Reconstitute workgroup

• CMV

Disease, CMV vaccine data


▪ Next scheduled meeting: June 25-26, 2025

As of 5/8/2025: No word on whether these have been approved as public health policy by CDC Director (nor HHS leadership in absence of CDC Director) ...

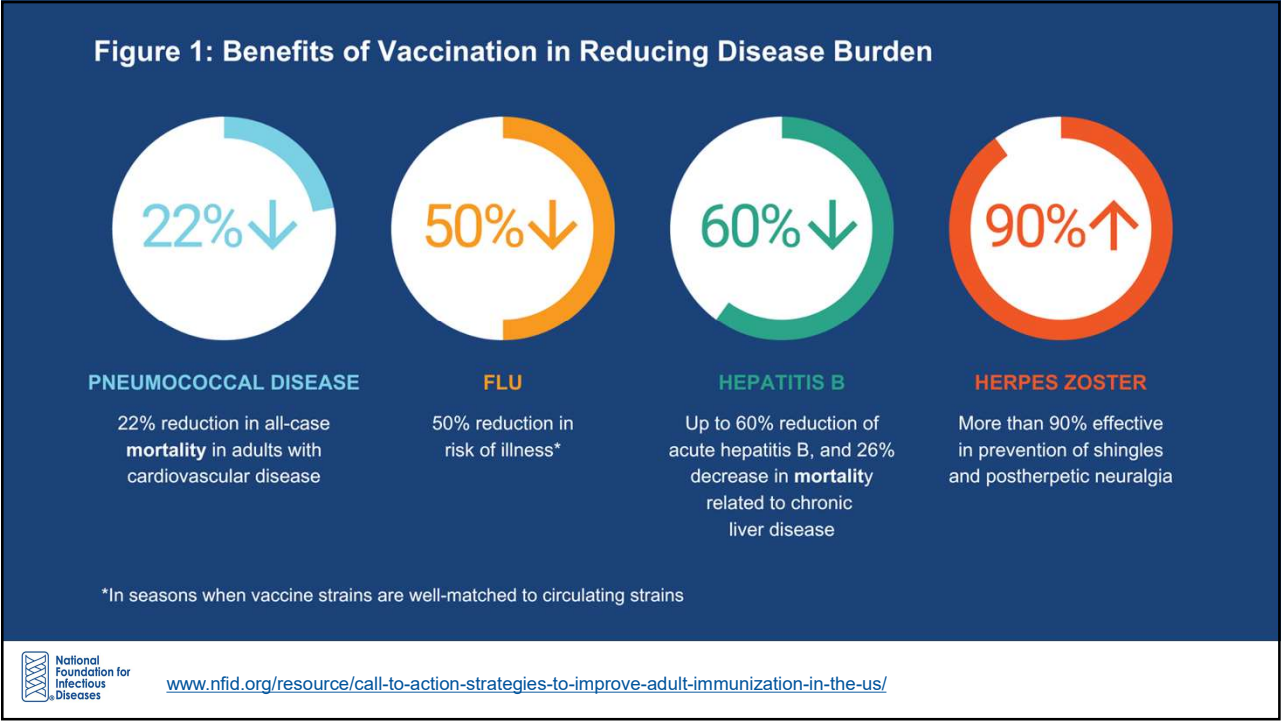


www.cdc.gov/acip/downloads/agendas/draft-posted-2025-03-24-508.pdf

Adult Vaccines and Vaccination



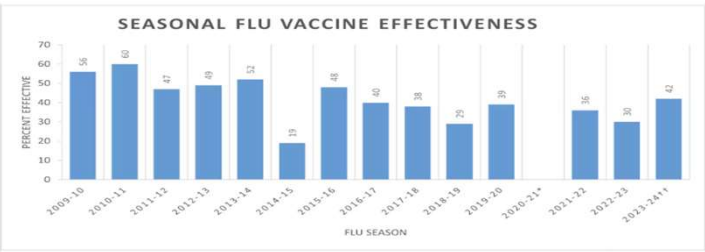
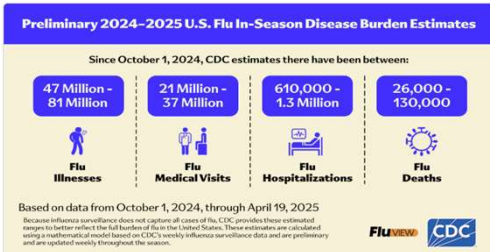
5



Effectiveness of Common Vaccines		
Vaccine	Effectiveness	
Polio	▪ Paralytic disease: 2 doses >90%; 3 doses 99-100%	
MMR	▪ 1 dose: measles 93%, mumps 72%, rubella 97% ▪ 2 doses: measles 97%, mumps 86%	
DTaP	▪ Pertussis in children: 71% ≥5 yr after last dose	
Tdap	▪ Pertussis in adults: 73% after 1 yr, ~34% after 4 yr	
Hepatitis B	▪ Infant to adults: >90% ▪ By age 60 yr, standard dose: ~75%	
Varicella	▪ 1 dose: 82%; 2 doses: >90%, lasting at least 10 yr	
Zoster	▪ Shingles and PHN in healthy adults ≥50 yr: >90% ▪ Shingles in individuals who are immunocompromised: 68-91%	
Pneumococcal	▪ PCV7 series vaccine-type IPD in children: 97% ▪ PCV13: 45% against vaccine-type pneumonia, 75% against vaccine-type IPD	

National Foundation for Infectious Diseases
www.cdc.gov/vaccines/hcp/by-disease/index.html

Influenza (Flu)



Preliminary VE for 2024-2025 Vaccine ~ 2023-2024



www.cdc.gov/flu-burden/php/data-vis/2024-2025.html [download 5/1/2025]; www.cdc.gov/flu-vaccines-work/php/effectiveness-studies/index.html;
www.cdc.gov/mmwr/volumes/74/wr/mm7406a2.htm

Flu

- Vaccine is key to prevention of severe disease > infection
 - **1 dose annually for all ≥ 6 months** [2 doses @ 1+ month: children <9 in 1st vaccination season only]
- Vaccine effectiveness generally 40-50% in adults, BUT varies by individual (timing, health status, circulating strains)
- **Benefit > Zero (if unvaccinated)**
- **Why is flu vaccination so important?**
Greatest benefit is reduction in risk for severe disease and serious related complications (hospitalization and death)



We are not vaccinating enough of the population!!



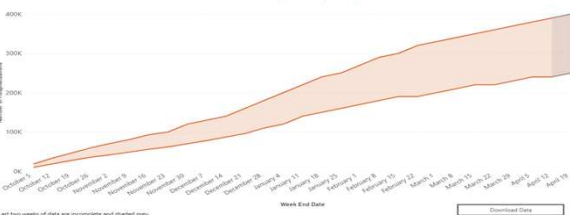
COVID-19

Hospitalization and death rates have declined year/year since 2021 ...
2023-2024:

- **50% reduction** in COVID-19 hospitalization in adults 65+
- **36% reduction** in COVID-19 hospitalization in IC persons
- Vaccination during pregnancy reduced risk for COVID-19-related hospitalization by 54% in infants during 1st 3 months of life
- October 2022-April 2024: 1470 infants less than 6 months hospitalized with COVID-19



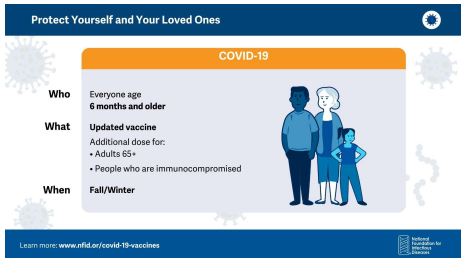
Figure: Preliminary Upper and Lower Uncertainty Bounds of Cumulative COVID-19-associated Hospitalizations by Week for October 1, 2024-April 19, 2025.



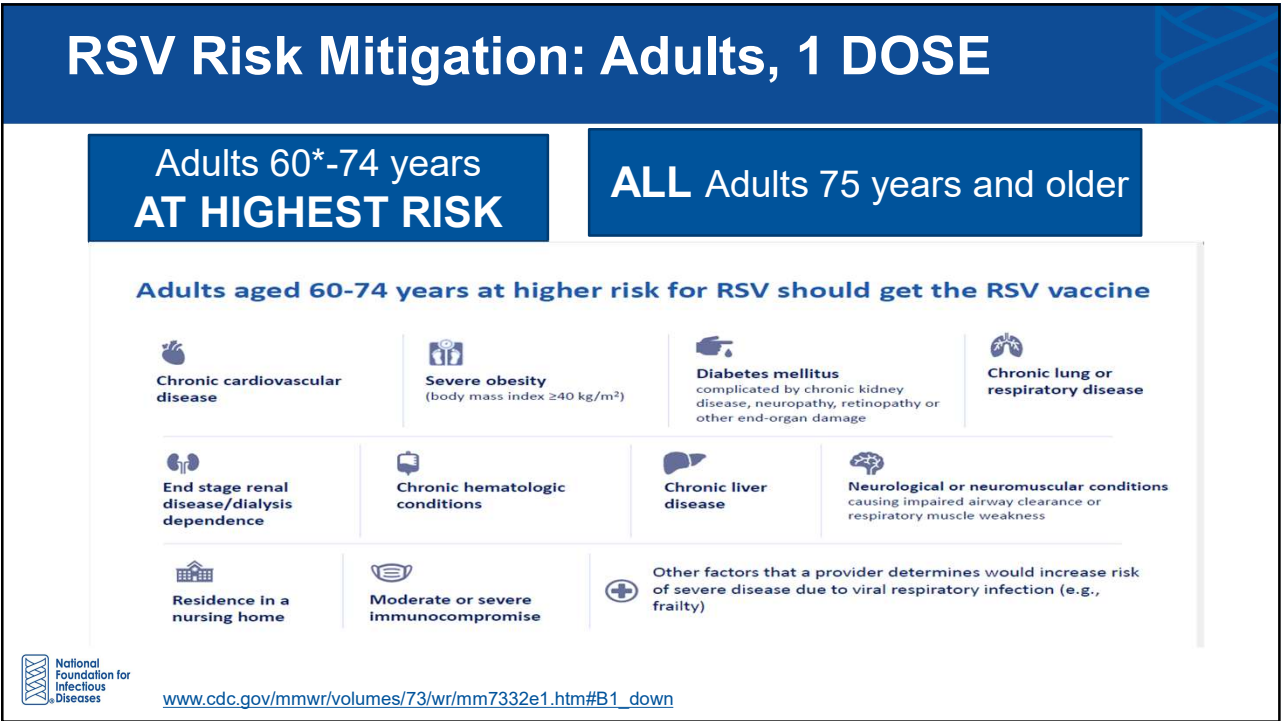
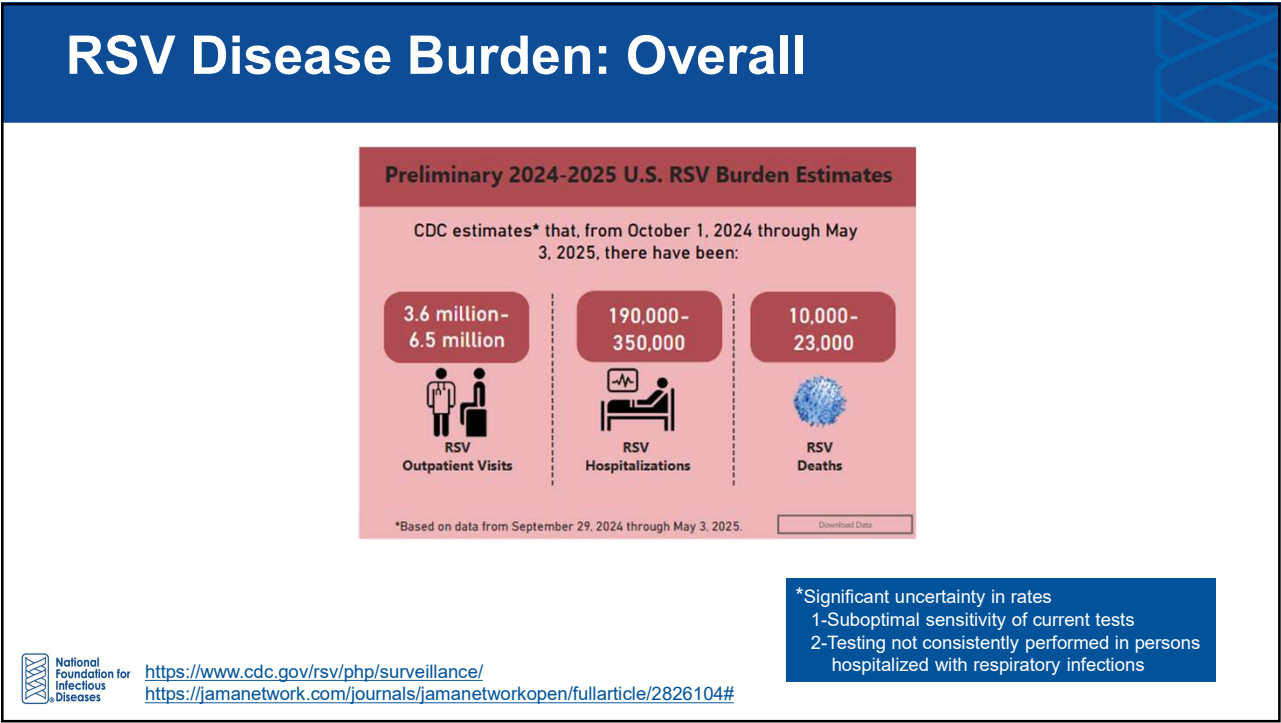
www.cdc.gov/covid/php/surveillance/burden-estimates.html; www.cdc.gov/covid/vaccines/benefits.html

COVID-19

- Vaccine is THE key to:
 - Reduction in severe disease [greater than reduction in infection]
 - Reduction in long-COVID risk [lots of data, ongoing challenge in defining long-COVID]
- Recommendation:
 - 2-3 doses mRNA vaccine (6 months-4 years)
 - 1 dose mRNA vaccine (4-11 years)
 - 1 dose any vaccine (12-64 years)
 - Vaccination during pregnancy (good for mom and baby)
 - 2 doses in adults 65+
 - 2 or more doses in immunocompromised



www.cdc.gov/covid/hcp/vaccine-considerations/overview.html



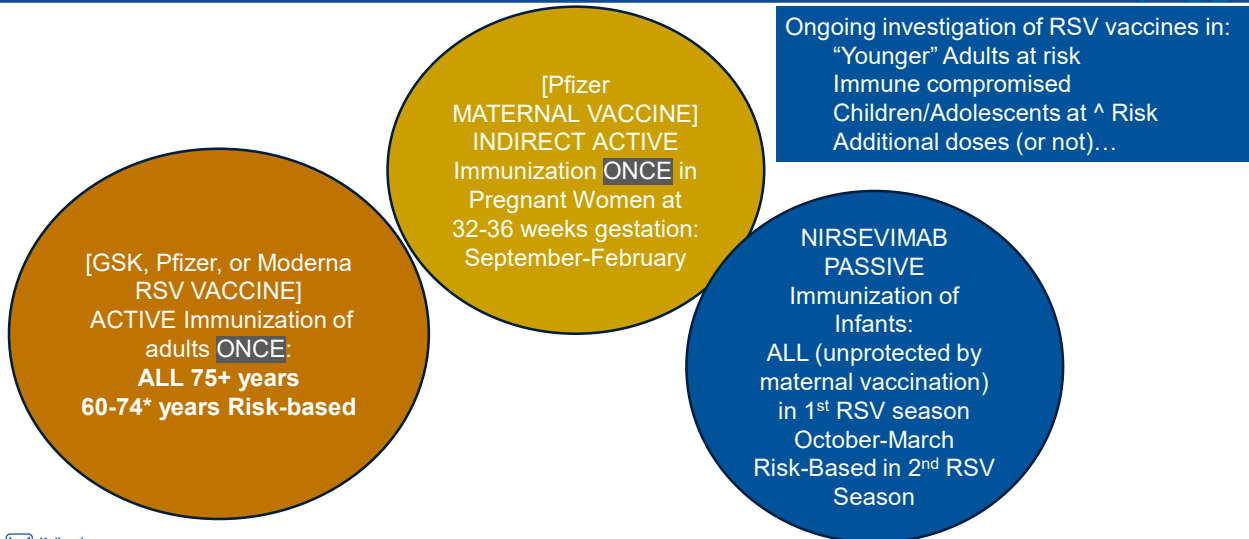
RSV Vaccines: Effectiveness and Safety

- **Vaccine effectiveness [real world]**
 - VISION Network: 28271 RSV hosp, 36521 ED visits in adults 60+ 10/23-3/24
77% VE against RSV-associated ED visits
No IC: 80% VE vs. RSV hospital admit, 81% vs. RSV ICU admit/death/both
IC: 73% VE vs. RSV hospital admit, 81%
 - VA: 146852 vaccinated v 582936 controls, median 75.9 years
VE 78.1% RSV illness, 78.7% v. RSV ED/UC visits, 80.3% v. RSV Hospitalization
- **Vaccine safety**
 - V-Safe, VAERS
 - Reactogenic: Pain, swelling, HA, Fatigue, Arthralgia, Redness= common AE
 - GBS reporting rate elevated [4.4, 1.8/million doses P and GSK vaccine]
 - FDA/CMS Collaboration: Self-controlled case series CMS data
 - >3.2 million adults 65+: < 10 cases GBS/1 M doses either subunit vaccine



[www.thelancet.com/journals/lancet/article/PIIS0140-6736\(24\)01738-0/fulltext](https://www.thelancet.com/journals/lancet/article/PIIS0140-6736(24)01738-0/fulltext)
[www.thelancet.com/journals/laninf/article/PIIS1473-3099\(24\)00796-5/fulltext](https://www.thelancet.com/journals/laninf/article/PIIS1473-3099(24)00796-5/fulltext)
www.cdc.gov/mmwr/volumes/73/wr/mm7321a3.htm
www.medrxiv.org/content/10.1101/2024.12.27.24319702v1

Lifespan Strategy: Mitigate Risk for Severe RSV Disease



*RSV Vaccine ACIP recommended in at-risk adults 50-59 at April meeting. Not yet approved by CDC Director or published in MMWR

Pneumococcal Disease and Vaccination

Timeline of CDC's PCV Recommendations

PCV7: 2000 in children

PCV13: 2010 in children; 2012 in adults with risk conditions; 2014-2019 in adults 65 years or older

PCV15: 2021 in adults; 2022 in children

PCV20: 2021 in adults; 2023 in children

Childhood vaccination and disease trends


From 1998 through 2021, IPD rates among children less than 5 years old decreased by

- 95% overall
- 99% for disease caused by serotypes covered by PCV13

Adult vaccination and disease trends

IPD rates in adults decreased after PCVs were used in children. PCV use in children can provide herd immunity and decrease IPD rates in adults.

IPD caused by the serotypes covered by 23-valent pneumococcal polysaccharide vaccine (PPSV23) also declined during this time. However, these reductions were due to declines in IPD caused by serotypes in common with PCV13. PPSV23 has been available since 1984.


www.cdc.gov/pneumococcal/php/surveillance/index.html

Who Needs Pneumococcal Vaccination? ALL Children, MANY Adults


Protect Yourself and Your Loved Ones

Pneumococcal Disease (Pneumonia)

Who	Children ≤ 5 years Adults 50+ People with certain medical conditions
What	1 vaccine
When	Any time of year



Learn more: www.nfid.org/pneumo




Recommended Tool

PneumoRecs VaxAdvisor App for Vaccine Providers

KEY POINTS

- Use PneumoRecs VaxAdvisor to quickly and easily determine which pneumococcal vaccines a patient needs and when.
- Mobile and web versions are available and free to use.
- The PneumoRecs VaxAdvisor app was updated on September 12, 2024, to reflect CDC's updated adult pneumococcal vaccination recommendations.



Get the app

Download the mobile app

Download **PneumoRecs VaxAdvisor** on your mobile device:

- [iOS devices](#)
- [Android devices](#)

Use the web version


Access a [web version](#) when connected to the internet through a mobile device or computer.
Note: We recommend adjusting the screen size of the web browser to look like a smartphone for a better user experience.

RELATED PAGES

- Vaccine Recommendations
- Risk-based Recommendations
- People with Cochlear Implants
- Clinical Features
- Clinical Overview

VIEW ALL
Pneumococcal



BACK TO TOP




www.cdc.gov/pneumococcal/hcp/vaccine-recommendations/app.html

Zoster (Shingles)

- Incidence increases with age to nearly 50% by mid-80s
- Immune compromised are also at increased risk
- Most common complication is post-herpetic neuralgia
- Recent data suggests vaccine reduces risk for dementia
 - Recent press on study showing this with live zoster vaccine no longer used in US





www.cdc.gov/shingles/vaccines/index.html
www.nytimes.com/2025/04/02/health/shingles-vaccine-dementia.html
www.nature.com/articles/s41591-024-03201-5

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Shingles Vaccination

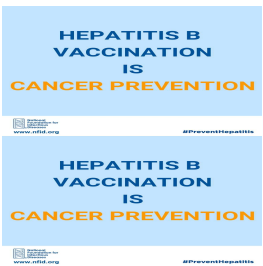
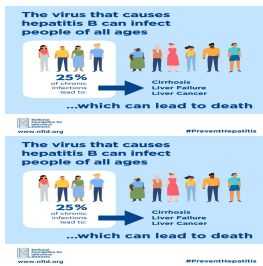
- Who: All adults 50+ years
Adults 19+ years with immune compromise
 - How: 2 doses, 2-6 month interval IM [1 month if time critical]
 - Safety: Fever, pain in arm, myalgias
SMALL risk for GBS [3-6 excess cases/Million doses vaccine]
- The live-attenuated shingles vaccine is no longer available in the US



www.fda.gov/vaccines-blood-biologics/safety-availability-biologics/fda-requires-warning-about-guillain-barre-syndrome-gbs-be-included-prescribing-information-shingrix; www.cdc.gov/shingles/vaccines/index.html

Hepatitis B: Lifespan Vaccination

- Hepatitis B vaccination is the best way to prevent hepatitis B, which is a common worldwide cause for chronic liver disease, cirrhosis, and liver cancer
- Half of US acute hepatitis B cases are in persons 30-49 years, and cases continue to increase in persons age 40-59 years



www.immunize.org/wp-content/uploads/catg.d/p2191.pdf; www.cdc.gov/vaccines/hcp/current-vis/downloads/hep-b.pdf; www.cdc.gov/hepatitis-b/vaccination/index.html

Hepatitis B: Adults < 60 Years

ACIP Approved UNIVERSAL HEPATITIS B Vaccination for Adults <60 years
and for those at increased risk >60 years in November 2021

In addition to universal HBV immunization of all infants and persons <19 years

Why universal recommendation is important:

- Low uptake with risk-based recommendation
Stigma, Time, Opportunity, Billing
- Opportunity to impact disease: asymptomatic, significant risk of chronic infection, vaccine-preventable cancer



www.cdc.gov/mmwr/volumes/71/wr/mm7113a1.htm

Hepatitis B: Adults >60 Years

Risk-Based Recommendation:

- Behavioral and social
- Occupational
- Medical
- International Travel: Destination with endemic HBV (community prevalence \geq 2%)
- Adults 60+ without risk factors MAY be vaccinated to prevent hepatitis B



www.cdc.gov/mmwr/volumes/71/wr/mm7113a1.htm


HPV Vaccine Impacts: US

- Gargano, et.al. [MMWR] “Cervical precancer incidence decreased 79% and higher-grade precancer incidence decreased 80% among screened women age 20-24 years”
- Doral, et.al. [JAMA]: “Found a steep decline in cervical cancer mortality among US women younger than 25 years”
- DeKloe, et.al. [JCO] “Males vaccinated for HPV were at decreased odds for HPV-related cancers”

Each year in the US, cervical cancer causes **4,000+ deaths**

HPV Vaccination = Cancer Prevention

HPV Vaccination = Cancer Prevention

 www.nfid.org/hpv



www.cdc.gov/mmwr/volumes/74/wr/mm7406a4.htm
<https://jamanetwork.com/journals/jama/fullarticle/2827212>
https://ascopubs.org/doi/abs/10.1200/JCO.2024.42.16_suppl.10507

HPV Vaccine Impacts: Beyond US

- Scotland: “No cases of invasive cancer were recorded in women immunized at 12 or 13 years irrespective of the number of doses.”
- Germany: “The incidence of cervical cancer, which had been rising, has been falling since 2010, with a marked decline among women in all age groups eligible for vaccination”
- Norway: “The findings suggest a significant reduction in the incidence of high-grade cervical precursors following the introduction of the HPV vaccine in Norway’s national immunization program”

HPV VACCINATION
IS
CANCER PREVENTION
CANCER PREVENTION

 www.nfid.org/hpv



<https://academic.oup.com/inci/article/116/6/857/7577291>
<https://pmc.ncbi.nlm.nih.gov/articles/PMC11465478/>
www.mdpi.com/2076-393X/12/4/421

HPV Vaccine

- Critically important CANCER PREVENTION
 - Genital cancers and precancers
 - Oropharyngeal cancers
 - HPV-associated genital verruca (warts)
- Ongoing implementation challenges
- Recommended for:
 - ALL 9-26 years
 - Start series before 15, No IC: 2 doses at 6 months+ interval
 - Start series at 15+ and/or IC: 3 doses at time 0, 1-2 months, 6+ months
 - SDM for 27-45 years



Evidence Gaps

- Influenza: Impact of home/self-administered LAIV
- COVID-19: Impact of 'next generation' vaccines, variants
- RSV: Vaccine benefit in additional patient groups
- Pneumococcal: Relative benefit of PCV21 v. 20(15) in adult subgroups
- Zoster: Durability of protection [younger IC subgroups, 50+], 'Boost-ability' of vaccine
- HBV: Subgroups: newer vaccines have greatest relative benefit
- HPV: Durability of protection by age administered. Benefits with a single dose



Future Opportunities

- New and updated/improved vaccines
- New vaccine delivery systems
- Improving vaccine confidence
- Increase vaccine uptake
- More robust vaccine tracking/forecasting for adults
- Vaccines for Adults program...



Planning for 2025-2026 Respiratory Season

Scientific Evidence:

- IMMUNIZATION of individuals for whom flu, COVID-19, RSV, and pneumococcal vaccine(s) are indicated and in accord with current CDC recommendations reduces the risk for severe disease [with lesser, albeit important, impact on infection]
- Respiratory vaccines have low risk for moderate/severe adverse events

There are many important uncertainties today...

- HHS and subordinate agencies

I will:

- Acknowledge uncertainties, but they WILL NOT define me
- Continue to learn, educate, and advocate for science and prevention in accord with evidence
- Plan for vaccination campaigns to help protect patients



What We Know

- FDA/WHO independently selected influenza strains for 2025-2026 in April
- VRBPAC scheduled 5/22/25 re: COVID-19 strains for 2025-2026
- Manufacturers are planning and making influenza vaccines
- Moderna FDA application for licensure of 2nd-generation vaccine for 2025-2026
- Moderna and Pfizer will be making [current type] vaccines for 2024-2025
- Novavax vaccine remains under consideration for licensure by FDA

There are also many things we do not know ...



Suggestions for Uncertain Times ...

1. Follow the science
2. Engage in respectful dialogue with those who will do the same with you
3. Continue to learn and grow
4. Advocate for what you believe in
5. Seek out new resources and new opportunities
6. DO NOT tune out
7. DO NOT waste time and energy on anger or dismay
8. REMEMBER: Vaccines have saved millions of lives

**We are members of a community—a society in and for which
WE CAN MAKE A DIFFERENCE!!**



Questions?

FOCUS ON YOUR
TRUE NORTH!!

