ASK THE IMMUNIZATION EXPERTS

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1.

Q

How long should pediatric patients wait after a recent flu diagnosis to receive their flu vaccine? How long are they protected post-infection with the influenza vaccine?

A

Mary Koslap-Petraco: "There is no hard-and-fast rule regarding when to get the influenza vaccine following an influenza illness. Generally, the individual should wait until they are fever-free for at least 24 hours without using antipyretics. Others suggest waiting until all symptoms resolve, which can be up to two weeks.

The duration of immunity to one specific strain of influenza is lifelong. However, flu viruses mutate constantly, so immunity to one strain offers little protection because the individual can be infected with another strain during the same flu season. The only dependable protection against influenza is an annual flu vaccine."

Couch, R. B., & Kasel, J. A. (1983). Immunity to influenza in man. Annual review of microbiology, 37, 529–549. https://doi.org/10.1146/annurev.mi.37.100183.002525

Valkenburg, S. A., Rutigliano, J. A., Ellebedy, A. H., Doherty, P. C., Thomas, P. G., & Kedzierska, K. (2011). Immunity to seasonal and pandemic influenza A viruses. Microbes and infection, 13(5), 489–501. https://doi.org/10.1016/j.micinf.2011.01.007

2.

Q

What are some examples of "sound bite" messages that we can use about the added benefits of vaccination (e.g., preventing dementia, etc.)?

A

Audrey Stevenson: "Beyond preventing specific diseases, vaccines offer a wide range of health, economic and social benefits for individuals and communities.

Health Benefits Beyond Prevention

- Reduced Disease Severity: Vaccinated people who contract a disease are less likely to have severe symptoms. This reduces the risk of hospitalization and death.
- Prevention of Secondary Infections and Complications: Vaccines can prevent secondary infections that follow a primary viral illness. For example, influenza vaccination lowers the risk of secondary bacterial pneumonia or ear infections in children.
- Protection Against Other Major Health Issues: Emerging research links some vaccinations to reduced risks of specific serious conditions, even if those conditions are not directly caused by the targeted pathogen. This association is being studied to clarify whether the vaccinations are a contributing factor or if other variables play a role.
    - Cardiovascular Events and Stroke: Receiving the influenza and shingles vaccines has been associated with a lower risk of heart attack and stroke. This association may occur because these vaccines help reduce the widespread inflammation in the body that can be triggered by the initial infections.
    - Cancer Prevention: The HPV vaccine prevents infection that can cause cervical, anal and other cancers. The hepatitis B vaccine stops chronic liver infection that can lead to cirrhosis and cancer.

2. Cont.

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A

  - Studies have found that adults who receive vaccines such as flu, shingles and Tdap tend to have a lower risk of developing dementia or Alzheimer's disease later in life; however, these studies only show an association and do not prove that the vaccines directly cause the reduced risk.

- Improved Immune Function (Trained Immunity): Some vaccines, such as the measles vaccine, may train the immune system's innate responses, better preparing it for other pathogens and potentially reducing all-cause mortality — not just from the targeted disease.

- Prevention of "Immune Amnesia": The measles virus can cause "immune amnesia," erasing the body's memory of prior infections or vaccinations. By preventing measles, the vaccine prevents this immune system damage and maintains overall immune defense.

Community and Societal Benefit

- Herd Immunity: High vaccination rates in a community slow or stop disease spread. This protects people who cannot be vaccinated due to age, medical conditions or a weakened immune system.

- Reduced Antimicrobial Resistance (AMR): Vaccines prevent infections that can lead to secondary bacterial illnesses. This reduction lowers the need for antibiotics and helps slow the development of antibiotic-resistant bacteria.

- Economic Gains: Widespread vaccination is highly cost-effective. It saves money by averting direct medical expenses (e.g., hospitalizations, treatments) and indirect costs, such as lost wages for patients and caregivers.

- Improved Productivity and Education: Healthy children miss fewer school days, leading to better learning and higher achievement. Healthy adults are also more productive at work.

- Global Health Security and Eradication: Global vaccination campaigns have eradicated smallpox and nearly ended polio. These efforts have improved global health security and helped stop outbreaks.

Chevalier-Cottin EP, Ashbaugh H, Brooke N, Gavazzi G, Santillana M, Burlet N, Tin Tin Htar M. Communicating Benefits from Vaccines Beyond Preventing Infectious Diseases. Infect Dis Ther. 2020 Sep;9(3):467-480. doi: 10.1007/s40121-020-00312-7. Epub 2020 Jun 24. PMID: 32583334; PMCID: PMC7452969.

Nandi A, Shet A. Why vaccines matter: understanding the broader health, economic, and child development benefits of routine vaccination. Hum Vaccin Immunother. 2020 Aug 2;16(8):1900-1904. doi: 10.1080/21645515.2019.1708669. Epub 2020 Jan 24. PMID: 31977283; PMCID: PMC7482790.

Rosen A (2025) Vaccines do more than prevent disease. Johns Hopkins. https://publichealth.jhu.edu/2025/the-health-and-economic-benefits-of-vaccines

3.

Q

Some clients don't want anything to do with monoclonal antibodies but might be open to egg-based products. Any tips on facilitating this discussion?

A

Mary Koslap-Petraco: "Start the conversation by noting that there is an alternative to mRNA vaccines to prevent COVID — a protein sub-unit vaccine called Novavax (Nuvaxovid®). This vaccine contains no mRNA and is made using an older technology, such as is used in making the hepatitis B vaccine. Subunit vaccines include only the parts of a virus that best stimulate the immune system. No egg-based products are available for the COVID-19 vaccine. It is approved for those 65 and older and 12 years through 64 years of age with at least one underlying condition that puts them at high risk for severe outcomes from COVID-19."

U.S. Federal Drug Administration. (n.d.). Nuvaxovid. https://www.fda.gov/vaccines-blood-biologics/vaccines/nuvaxovid

4.

Q

What is the best way to bring up vaccinations in various settings, (e.g., urgent care, ED, inpatient, corrections)?

A

Audrey Stevenson: "To effectively promote vaccinations across various settings — whether in urgent care, the emergency department, inpatient care or corrections — it is essential to adopt a patient-centered and presumptive approach. This strategy not only prioritizes patient needs but also fosters an environment of trust and openness. By delivering clear education, thoroughly addressing barriers, employing reminders (both technological and staff-based) and tailoring messaging to fit each specific context, we can significantly increase vaccination uptake.

For instance, early screening in emergency departments; seamless integration into existing workflows (like those involving pharmacy and nursing); and ensuring accessible and confidential care in correctional facilities are all critical steps. Additionally, leveraging system supports such as electronic medical record (EMR) prompts and appointing vaccination champions can make a substantial difference.

General Best Practices (All Settings)

1. Adopt a Presumptive Approach: Assume that patients are interested in vaccines and frame the conversation positively. For example, saying, "We're offering the flu shot today — would you like to get yours?" invites engagement and reduces any hesitation.
2. Provide Strong Recommendations: A clear and confident recommendation from a trusted health care provider can significantly influence a patient's decision to get vaccinated.
3. Educate and Address Barriers: Take a moment to explain the benefits of vaccination, dispel common myths and inquire about any concerns patients might have — such as side effects, costs or the timing of their vaccination.
4. Integrate Into Systems: Utilize EMR prompts, implement standing orders and appoint "immunization champions" to seamlessly incorporate vaccination practices into daily workflows.

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Setting-Specific Strategies:

1. Urgent Care and Emergency Department:

- Early Screening is Crucial: Implement screening during registration to avoid any discharge delays, especially for essential vaccines like influenza.
- Streamline Workflow Integration: Review the patient's vaccine record at every encounter. Offer vaccines as part of the patient workup process — such as when labs and vital signs are being obtained — to maximize efficiency.
- Communicate Clearly: Deliver concise messages that highlight how vaccinations can prevent future urgent care visits and reduce the risk of contracting a vaccine-preventable illness.

2. Inpatient (Hospital) Care:

- Prioritize Vaccination Before Discharge: Administer vaccines before discharge to help lower the risk of readmission and exposure to infectious diseases.
- Engage a Multidisciplinary Team: Involve nurses, physicians, pharmacists and social workers to create a comprehensive vaccination strategy.
- Focus on High-Risk Vaccines: Prioritize seasonal vaccines (such as flu and RSV) and discharge-specific vaccines for specific medical conditions.

3. Corrections:

- Ensure Accessibility and Confidentiality: Ensure vaccinations are readily available within facilities while safeguarding patient privacy.
- Conduct Targeted Outreach:
    - Organize mobile clinics and designated vaccination days to reach as many individuals as possible.
    - Provide Targeted Education: Share culturally relevant materials that emphasize vaccine safety and community health benefits.
    - Obtain Leadership Support: Secure commitment from correctional leaders to adopt policies that support vaccination initiatives and allocate necessary resources. Utilize all community leaders (faith-based, school personnel, cultural leaders and community health workers).

Key Tools and Tactics:

Every encounter or visit is a "vaccine visit." Review the patient's vaccine status at every encounter and use every encounter as an opportunity to provide vaccines. Never assume a patient is up to date on all age-appropriate vaccines. Many don't know which vaccines they've had or which ones they need.

4. Cont.

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A

Leverage Immunization Information Systems (IIS): Use state registries to effectively monitor and track patients' vaccination histories.

Utilize Patient Reminders: Place phone calls, send texts or send letters to remind individuals of the importance of vaccination and encourage them to participate.

Incorporate Visual Aids: Place posters, pamphlets and official vaccine schedules in examination rooms to raise awareness and facilitate discussions.

Practice Motivational Interviewing: Help patients discover their personal reasons for getting vaccinated, making the decision more impactful and meaningful.

By implementing these strategies, we can build a stronger vaccination culture that not only improves individual health but also protects our communities as a whole. Let's take action now for a healthier future!"

5.

Q **What immunization recommendations are the best ones to follow?**

A

Audrey Stevenson: "This is a fantastic question. Before June of 2025, clinicians relied on the Advisory Committee on Immunization Practices (ACIP) and the Centers for Disease Control and Prevention (CDC) for vaccine recommendations for each age group. As a result of changes in ACIP membership and surprising changes in CDC recommendations, most professional organizations are developing vaccine recommendations for the patient populations they serve. Among the groups that have developed vaccine recommendations are the American Academy of Pediatrics (AAP), American College of Obstetricians & Gynecologists (ACOG), American Academy of Family Physicians (AAFP), American Geriatrics Society (AGS) and others. Recognizing these alternative sources can help you stay current and confident in your vaccination decisions.

So far, these organizations agree with one another on the recommendations. There are groups, such as Immunize.org and National Foundation for Infectious Diseases (NFID), working to harmonize schedules across age groups. It is essential that you continue to follow the recommendations of professional organizations — as they are based on science — to stay aligned with current, authoritative guidance and best practices."

6.

Q **What conditions are considered immunocompromised in the age 19 and older group for Shingrix, and where do I need to document this so it doesn't keep getting denied?**

A

Debra Kosko: "For Shingrix (recombinant zoster vaccine) in adults 19 years and older, the CDC and ACIP recommend a two-dose series for anyone who is immunocompromised, meaning they are immunodeficient or immunosuppressed because of a disease or because of therapy (e.g., cancer, HIV, organ transplant, autoimmune disease on immunosuppressants, primary immunodeficiencies, etc.) rather than based solely on age. Specific examples include

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A hematopoietic stem cell transplant recipients, solid organ transplant recipients, hematologic malignancies, solid tumors, HIV infection, primary immunodeficiencies, autoimmune conditions and those on immunosuppressive medications.

Insurance denials are frustrating, time-consuming and delay important immunizations for our patients. To prevent insurance denials, document the clinical immunocompromised condition in the patient's medical record and on the vaccine claim (e.g., ICD-10 diagnosis codes linked to the underlying condition and immunosuppressive therapy) and note that the patient meets the ACIP/CDC immunocompromised indication for Shingrix. Many practices include a note in the chart/problem list; attach supporting diagnoses and relevant medications (e.g., biologic immunosuppressants, chemotherapy); and use the appropriate vaccine CPT (90750) with corresponding diagnosis codes when billing. It is important to confirm your payer's specific prior authorization or documentation requirements, because some insurers require provider attestation or chart evidence of immunosuppressive disease/therapy to support medical necessity. While CDC guidance outlines who is immunocompromised, billing documentation practices vary by insurer, so include clear diagnosis coding and clinical notes in the patient's chart to support coverage."

- Centers for Disease Control and Prevention. (2024, July 9). Clinical considerations for Shingrix use in immunocompromised adults aged ≥19 years. https://www.cdc.gov/shingles/hcp/vaccine-considerations/immunocompromised-adults.html
- Centers for Disease Control and Prevention. (2024, October 22). Shingles vaccine recommendations (including immunocompromised adults). https://www.cdc.gov/shingles/hcp/vaccine-considerations/index.html
- Centers for Disease Control and Prevention. (2024, September 5). ACIP evidence to recommendations framework for use of recombinant zoster vaccine in immunocompromised adults aged ≥19 years. https://www.cdc.gov/acip/evidence-to-recommendations/recombinant-zoster-immunocompromised-etr.html CDC
- GlaxoSmithKline. (2025). SHINGRIX coding information and reimbursement support. https://gskpro.com/en-us/therapy-areas/vaccines/coding/gsk-vaccines/shingrix/GSKPro
- SHINGRIXhcp.com. (n.d.). CDC recommendations and cost/coverage for SHINGRIX. https://shingrixhcp.com/cost-coverage/ Shingrix HCP
- U.S. Food and Drug Administration. (2025). Package insert: SHINGRIX (Zoster Vaccine Recombinant, Adjuvanted). https://www.fda.gov/files/vaccines%2C%20blood%20%26%20biologics/published/Package-Insert-SHINGRIX.pdf

7.

Q How can clinicians best explore their own biases that may prevent discussing vaccines fully?

A Mary Koslap-Petraco: "Clinicians need to be objective about what they are saying to patients — although pervasive, implicit bias is hidden and difficult to recognize, especially in oneself. Awareness of bias is one step toward behavior change. Awareness can be increased by paying close attention to our own mistaken assumptions, and by critically reflecting on biased behavior that we engage in or experience."

Sabin J. A. (2022). Tackling Implicit Bias in Health Care. The New England journal of medicine, 387(2), 105–107. https://doi.org/10.1056/NEJMp2201180

8.

Q Can an adult 50 years and older still receive the Shingrix vaccine if they have no known prior case of varicella or varicella vaccine?

A Audrey Stevenson: "Yes, absolutely! Adults 50 and older should get the Shingrix vaccine for shingles, even if they don't recall having chickenpox (varicella) or being vaccinated against it, because over 99% of adults have been exposed to the virus. Screening isn't needed, according to current CDC recommendations. The two-dose Shingrix series protects against shingles, and it's recommended regardless of past chickenpox or shingles history.

Key Takeaways:

- No screening needed: You can get the vaccine without a blood test or worrying about chickenpox history, which helps adults feel more at ease about vaccination.
- High Prevalence: Most adults already carry the varicella-zoster virus (VZV), which causes shingles.
- Boosts immunity: Shingrix is highly effective, giving adults confidence in its ability to protect against shingles, even if they've had the older Zostavax vaccine or a prior shingles episode.
- Two doses: The two-dose series, given 2 to 6 months apart, ensures the best protection."

9.

Q **What evidence is there to support the Covid shot? How long does the vaccine stay in your system?**

A Mary Koslap-Petraco: "At six months of follow-up, the Covid-19 vaccine — as compared with no Covid-19 vaccine — was associated with lower risks of Covid-19–associated emergency department visits (vaccine effectiveness, 29.3% [95% confidence interval {CI}, 19.1 to 39.2]; risk difference per 10,000 persons, 18.32 [95% CI, 10.84 to 27.57]).

The cells make copies of the spike protein, and the mRNA is quickly degraded (within a few days). The cell breaks the mRNA up into small harmless pieces. mRNA is very fragile, and there is no evidence that any mRNA or protein accumulates anywhere in the body."

Cai, M.C., Xie, Y., & Ziyad, A. (2025, October 8). Association of 2024–2025 Covid-19 Vaccine with Covid-19 Outcomes in U.S. Veterans. New England Journal of Medicine. (393)16:1612-1623 DOI: 10.1056/NEJMoa2510226 https://www.nejm.org/doi/full/10.1056/NEJMoa2510226#:~:text=At%206%20months%20of%20follow%2Dup%2C%20the%20Covid%2D19,10.84%20to%2027.57%5D)%2C%20Covid%2D

Nebraska Medicine. (2022, November 1). How long do mRNA and spike proteins last in the body? Advancing Health. Retrieved from https://www.nebraskamed.com/COVID/where-mrna-vaccines-and-spike-proteins-go#:~:text=The%20cells%20make%20copies%20of,preserved%20at%20very%20low%20temperatures

10.

Q **Why has a different type of vaccine for COVID-19 other than an mRNA vaccine been developed? Many patients still feel uncomfortable with receiving an mRNA vaccine, especially due to religious views regarding use of cells from an aborted fetus. I have not heard anyone in the medical/scientific community discussing development of a non-mRNA COVID-19 vaccine as a viable option to the current mRNA-type vaccine. Thank you.**

A Mary Koslap-Petraco: "An alternative to mRNA vaccines was developed to broaden the types of vaccines available. Some of the reasons different types of vaccines are made are related to the time it takes for the vaccine to be manufactured and what patents the vaccine manufacturers hold. Different vaccine manufacturers have developed different methods of making vaccines to prevent a specific illness."

11.

Q **During COVID-19 in 2020, a patient received the first Shingrix vaccine and was not able to follow up with the second dose due to the shutdown. Should this patient ask for the second vaccine now, five years later? What is your recommendation?**

A Debra Kosko: "Thank you for this important question. If a patient received the first dose of Shingrix in 2020 and did not get the second dose because of COVID-19 shutdowns, current CDC and immunization guidance is that they should still receive the second dose now rather than restart the series, even if years have passed since the first dose. The Advisory Committee on Immunization Practices (ACIP) recommends two doses of recombinant zoster vaccine (RZV/Shingrix) separated by 2–6 months for full protection, but if more than six months

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have elapsed since the first dose, the second dose should be given as soon as possible and the series does not need to be restarted. This applies to adults whether immunocompetent or, if indicated, immunocompromised (age-based recommendations differ, but the general principle of completing the original 2-dose series remains).

Completing both doses maximizes long-term effectiveness; studies show that one dose alone provides less durable protection than the complete series. Therefore, my recommendation is to administer the second dose now at the next clinical opportunity; documenting the original first dose date; and complete the series without restarting it."

Centers for Disease Control and Prevention. (2024, October 22). Shingles vaccine recommendations. https://www.cdc.gov/shingles/hcp/vaccine-considerations/index.html CDC

Centers for Disease Control and Prevention. (2024, July 9). Clinical considerations for Shingrix use in immunocompromised adults aged ≥19 years. https://www.cdc.gov/shingles/hcp/vaccine-considerations/immunocompromised-adults.html CDC

Immunize.org. (2025, August 25). Ask the experts about vaccines: Zoster (Shingles) vaccine recommendations. https://www.immunize.org/ask-experts/topic/zoster/vaccine-recommendations-zoster-shingles/

Healthline. (2025). Shingrix dosage: Form, strength, how it's given, and more. https://www.healthline.com/health/drugs/shingrix-dosage

Harvard Health Publishing. (2024, April). Two-dose shingles vaccine is still highly effective after four years. Harvard Health. https://www.health.harvard.edu/staying-healthy/two-dose-shingles-vaccine-is-still-highly-effective-after-four-years

12.

Q

I wonder why people younger than 50 who are immunocompromised or having chronic respiratory disease aren't approved for the RSV vaccine (i.e., severe asthma, CVID, cystic fibrosis, non-cystic fibrosis bronchiectasis, primary immune deficiencies)?

A

Debra Kosko: "This is an excellent question I suspect many NPs have. Current RSV vaccines and ACIP recommendations focus on older adults because the pivotal clinical trials and regulatory approvals were performed in and showed clear benefit for older age groups. There is insufficient direct evidence of safety, immunogenicity and clinical benefit in younger adults (those <50) even if they have conditions such as severe asthma, cystic fibrosis, bronchiectasis or primary immunodeficiencies. Therefore, ACIP has not issued a broad recommendation for routine RSV vaccination in younger adults and has judged the evidence inadequate to recommend universal use in the 18–49 age group (while recommendations for some high-risk 50–59-year-olds have been expanded).

In short, regulators and the ACIP base indications on the populations actually studied and measured benefit-risk; until trials demonstrate clear benefit and safety in younger

12. Cont.

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immunocompromised or chronic-respiratory-disease populations (or manufacturers obtain expanded approvals and ACIP issues guidance), those groups are generally not included in routine RSV vaccine recommendation. Some products and guidance are evolving, so clinicians should watch FDA/ACIP updates and consider case-by-case shared clinical decision-making for high-risk patients."

Advisory Committee on Immunization Practices (ACIP). (2024). Use of respiratory syncytial virus vaccines in adults aged ≥60 years (MMWR Recomm. Rep.). Centers for Disease Control and Prevention. https://www.cdc.gov/mmwr/volumes/73/wr/mm7332e1.htm. CDC

U.S. Food and Drug Administration. (2023, May 3). FDA approves first respiratory syncytial virus (RSV) vaccine [Press release; Arexvy approval]. https://www.fda.gov/news-events/press-announcements/fda-approves-first-respiratory-syncytial-virus-rsv-vaccine. U.S. Food and Drug Administration

Ferguson, M., et al. (2024). Noninferior immunogenicity and consistent safety of RSV vaccines in older adults: implications and data gaps regarding younger high-risk adults. Clinical Infectious Diseases. https://academic.oup.com/cid/article/79/4/1074/7727259. OUP Academic

Centers for Disease Control and Prevention. (2025, July 8). RSV vaccine guidance for adults (who should get vaccinated and rationale). https://www.cdc.gov/rsv/hcp/vaccine-clinical-guidance/adults.html. CDC

13.

Q **What are some strategies for communicating with parents/patients regarding vaccine safety and decreasing beliefs about vaccine side effects?**

A

Mary Koslap-Petraco: "First and foremost, when speaking with patients, acknowledge concerns and be respectful. No one wants to be 'talked down to.' Strategies to communicate with patients include motivational interviewing and the CASE method. Asking patients what their concerns are and addressing those concerns one by one is very effective. Ask where they found the information they believe to be true and then look with the patient at the source of that information. Note what group is putting out that information and also note who is funding that source of information. If you or your family members are vaccinated, tell the patients that. Personal stories are very effective." Imminize.org has excellent resources that have been summarized on their handout https://www.immunize.org/wp-content/uploads/webinar/discussion_guide040412.pdf

14.

Q

I would like more information to limit conspiracy theories from patients. Have more data on history of vaccines, facts, studies. I live in Florida and since COVID, more patients decline vaccines due to trust issues, misinformation, lack of knowledge, distort thoughts of side effects and fear of more complicated issues like Guillan Barre.

A

Ruth Carrico: "Common questions from patients focus on two major aspects of vaccination/immunization. First, 'Will the vaccine/immunization help me?' And second, 'Will the vaccine/immunization hurt me?' Unfortunately, vaccine conspiracy theories — especially in the post-COVID era — have created confusion and mistrust among the population and has become a major barrier to preventive care. Misinformation circulating through social media, misinterpretation or misunderstanding of data [disinformation] and sharing of those inaccuracies have also eroded trust in national agencies. Increased mistrust through inaccurate understanding of data, loss of trust in national agencies and anxiety about adverse events have amplified vaccine hesitancy. Countering these concerns requires using clear historical context, transparent facts and evidence-based communication.

Vaccines have a long and well-documented history of safety and effectiveness. Smallpox, once responsible for millions of deaths annually, was eradicated in 1980 because of consistent global vaccination campaigns (Henderson, 1980). Polio, another devastating disease, has been reduced by over 99%, with cases now limited to a few regions of the world (O'Grady & Bruner, 2024). These successes demonstrate that vaccines did not emerge suddenly with COVID-19; they are the most studied and successful medical intervention in modern history.

Understanding vaccine development also helps counter misinformation. Nearly all vaccines undergo preclinical testing, three phases of robust clinical trials, FDA authorization and post-marketing surveillance through systems like the national Vaccine Adverse Events Reporting System (VAERS) and the Vaccine Safety Datalink. These monitoring systems are designed to detect even extremely rare side effects. Guillain-Barré Syndrome (GBS), often cited by hesitant patients, is a good example: the baseline risk of GBS in the U.S. population is 1–2 per 100,000 annually, and studies show only minimal or no increased risk associated with most vaccines, including COVID-19 vaccines (Censi et al., 2024).

More recently, GBS has been studied in relation to the Respiratory Syncytial Virus (RSV) vaccine due to cases identified during the clinical trials and during post-marketing surveillance. Although cases were identified in the vaccination group, there were also cases identified in the control group (those not receiving the vaccine) which continued to show that there is a natural rate of GBS. The FDA concluded that although cases were identified, there is not a level of evidence establishing a causal relationship between the vaccine and GBS (FDA, 2025). This reinforces the need to discuss risk/benefit of vaccines and the disease with patients but also demonstrates the complexity of these discussions. Providing patients with data helps reduce fear. For instance, influenza disease itself poses a far higher risk for GBS than the flu vaccine (Principi & Esposito, 2019). Likewise, COVID-19 infection is associated with much higher risks for neurologic complications — including GBS — than COVID-19 vaccination. Helping patients understand that vaccines reduce (rather than increase) risk is an important reframing.

Addressing misinformation requires acknowledging fears while correcting falsehoods. Techniques such as motivational interviewing, reflections and affirmations help patients feel

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heard and avoid defensiveness. Instead of reciting facts alone, clinicians can ask: 'Tell me more about what you've heard,' or, 'What would help you feel more informed?' This aligns with evidence that correcting misinformation is more effective when combined with empathy and trust-building (Ju I, Yel E, Song H, 2025).

Finally, providing credible sources empowers patients to explore accurate information independently. CDC vaccine pages, immunize.org handouts, and the Vaccine Education Center at CHOP offer easy-to-read, evidence-based resources. Many patients find that reading materials endorsed by multiple organizations helps rebuild trust.

Overall, combating conspiracy theories requires combining historical evidence, modern safety data and empathetic communication. Vaccines remain among the safest and most rigorously monitored public health tools, and clinicians in Florida and elsewhere can use that evidence to help patients navigate fear and misinformation."

Censi S, Bisaccia G, Gallina S, Tomassini V, Uncini A. Guillain-Barré syndrome and COVID-19 vaccination: a systematic review and meta-analysis. J Neurol. 2024 Mar;271(3):1063-1071. doi: 10.1007/s00415-024-12186-7. Epub 2024 Jan 17. PMID: 38233678

FDA (2025). https://www.fda.gov/vaccines-blood-biologics/safety-availability-biologics/fda-requires-guillain-barre-syndrome-gbs-warning-prescribing-information-rsv-vaccines-abrysvo-and

Henderson DA. Smallpox eradication. Public Health Rep. 1980 Sep-Oct;95(5):422-6. PMID: 7422808

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O'Grady M, Bruner PJ. Polio Vaccine. 2024 Oct 31. In: StatPearls [Internet]. Treasure Island (FL): StatPearls Publishing; 2025 Jan–. PMID: 30252295.

Principi N, Esposito S. Vaccine-preventable diseases, vaccines and Guillain-Barre' syndrome. Vaccine. 2019 Sep 3;37(37):5544-5550. doi: 10.1016/j.vaccine.2018.05.119. Epub 2018 Jun 4. PMID: 29880241.

15.

Q **Can we trust the current CDC guidelines?**

A Ruth Carrico: "Trust in the CDC has fluctuated since COVID-19, influenced by political discourse, rapid scientific evolution and mixed messaging early in the pandemic. Many patients now ask whether CDC vaccine guidance is reliable. The short answer, supported by evidence, is yes — CDC guidelines remain among the most rigorously vetted, consensus-driven public health recommendations in the world. Most recently, political concerns have entered the conversation, and unfortunately polarizing opinions have further eroded trust among patients, the general population and even health care personnel.

It is important to recognize that a portion of the population is concerned about vaccine safety, and those concerns have impacted vaccine acceptance. Therefore, in order to address this divide, it is increasingly important to recognize these voices of question and concern and take steps that demonstrate that those voices have been heard. The CDC's Advisory Committee on Immunization Practices (ACIP) has been charged with review of vaccine efficacy and safety data; compilation of expert input and review; and evaluation of social impacts of vaccination approaches. The ACIP has also relied upon relationships with professional associations to convey the guidance to their constituent groups and develop implementation plans across health care specialties. These relationships have emerged as critical elements of vaccination communication and implementation over the course of the past several years.

Associations such as the American Academy of Pediatrics, American Academy of Family Physicians, Infectious Diseases Society of America and the American College of Obstetricians & Gynecologists have recently developed and published guidelines regarding the use of vaccines within their populations of interest. This cross-organizational alignment reinforces scientific credibility. At present, there is discord between CDC/ACIP recommendations and recommendations from the associations. However, CDC and the associations have the mutual goal of protecting patients and communities. It is important for nurse practitioners to monitor this closely and stay in touch with other professional associations, including the American Association of Nurse Practitioners for information."

16.

Q **How prevalent is vaccine hesitancy in health care workers? What specific barriers do health care workers identify in getting annual flu vaccines?**

A Debra Kosko: "In the United States, vaccine hesitancy among health care workers (HCWs) remains a significant concern, with influenza vaccination coverage reaching 75.4% during the 2023–24 season, meaning that about one in four HCWs are not vaccinated annually despite strong recommendations (CDC, 2024). Hesitancy varies by role and setting, with the lowest uptake seen among long-term care staff and aides compared with physicians and pharmacists. U.S. studies consistently identify several key barriers to annual flu vaccination among HCWs: concerns about vaccine safety and effectiveness, misconceptions that the flu vaccine can cause influenza, perceptions that influenza poses low personal risk, logistical obstacles such as limited access or inconvenient vaccination times and workplace culture or lack of institutional encouragement (Kim et al., 2020; Black et al., 2024). Evidence-based strategies to reduce hesitancy and improve annual influenza vaccine uptake among U.S. health care workers

16. Cont.

Q How prevalent is vaccine hesitancy in health care workers? What specific barriers do health care workers identify in getting annual flu vaccines?

A includes improving education, enhancing on-site access and strengthening organizational support."

Black, C. L., Yue, X., Stokley, S., & Lindley, M. C. (2024). Influenza and COVID-19 vaccination coverage among health care personnel, United States, 2023–24 influenza season. Centers for Disease Control and Prevention. https://pmc.ncbi.nlm.nih.gov/articles/PMC11527362/

Kim, H., Schaffzin, J. K., & Heubi, J. E. (2020). Barriers to influenza vaccination among U.S. health care personnel: A systematic review. American Journal of Infection Control, 48(6), 639–645. https://doi.org/10.1016/j.ajic.2019.11.009

Pharmacy Times. (2025). Addressing vaccine hesitancy among health care workers. https://www.pharmacytimes.com/view/addressing-vaccine-hesitancy-among-health-care-workers

17.

Q Is there a cultural influence on vaccine hesitancy?

A Ruth Carrico: "Vaccine hesitancy is certainly shaped by cultural beliefs, community norms, identity and historical experience. Understanding these influences helps nurse practitioners and other clinicians tailor communication that respects values and builds trust. Black Americans often report medical mistrust related to historical injustices including the Tuskegee Syphilis Study, as well as ongoing disparities in health outcomes (Lin, Tu, Terry, 2019). Hispanic communities may experience language barriers, immigration concerns or limited access to consistent health care (Momplaisir, 2021). Certain immigrant groups may rely on traditional medicine or mistrust Western systems.

Religious beliefs also influence hesitancy. Some individuals fear vaccine ingredients or believe immunity should be natural or spiritually protected. Political culture adds another dimension. In the U.S., especially since COVID-19, vaccine hesitancy has aligned strongly with political identity (McMurtry & Cheu, 2026). Political messaging directly influences trust in public health recommendations. Social networks amplify or reduce hesitancy. When trusted community leaders support vaccination, acceptance increases. Conversely, misinformation within cultural networks can intensify reluctance. Culturally responsive care — listening, acknowledging concerns, providing tailored information and partnering with trusted messengers — has strong evidence for improving vaccine uptake.

Understanding cultural influences allows clinicians to approach hesitancy with empathy and strategy rather than frustration. A core strength of nurses involves our abilities to meet the patient at a starting point of discussion that recognizes their distinct values and perspectives. This process of 'going to where the patient is' reflects the value of our approach and is a strong demonstration of the need to understand patient concerns and hesitance as a first step in patient education and development of a plan of action. This plan recognizes that the patient is the driving force behind their own care, and that their health care provider is there to provide evidence, information, empathy and support."

17. Cont.

Q Is there a cultural influence on vaccine hesitancy?

A

Lin C, Tu P, Terry TC. Moving the needle on racial disparity: COVID-19 vaccine trust and hesitancy. Vaccine. 2022 Jan 3;40(1):5-8. doi: 10.1016/j.vaccine.2021.11.010. Epub 2021 Nov 20. PMID: 34839990

McMurtry CL, Cheu R. Political Polarization During Disease Outbreaks: A Meta-Analysis of Archival Survey Data From Polio to COVID-19. Am J Public Health. 2026 Jan;116(1):124-136. doi: 10.2105/AJPH.2025.308226. Epub 2025 Aug 28. PMID: 40875966

Momplaisir FM, Kuter BJ, Ghadimi F, Browne S, Nkwihoreze H, Feemster KA, Frank I, Faig W, Shen AK, Offit PA, Green-McKenzie J. Racial/Ethnic Differences in COVID-19 Vaccine Hesitancy Among Health Care Workers in 2 Large Academic Hospitals. JAMA Netw Open. 2021 Aug 2;4(8):e2121931. doi: 10.1001/jamanetworkopen.2021.21931. PMID: 34459907.

18.

Q Is there an easier way to learn the complicated vaccine charts?

A

Ruth Carrico: "The CDC immunization schedule is complex, but several strategies make it easier to master. First, clinicians should understand underlying principles — minimum intervals, age-based indications, live vs. inactivated vaccines and catch-up rules — rather than memorizing the entire chart. The American Pharmacists Association (APhA) has an excellent blog that outlines strategies for use of the immunization schedule as a roadmap to increasing vaccination coverage (https://www.pharmacist.com/Blogs/CEO-Blog/Article/new-immunization-schedules-roadmap-to-increasing-coverage).

Second, resources like immunize.org simplify the process with quick-reference tables, standing orders and 'Ask the Experts' guidance. Third, review the notes section for each vaccine — that can provide tips for considering how to best use the schedule with individual patients and patient populations. Maintaining a laminated copy of the schedule and notes and use as training for office personnel can also help increase general knowledge among staff while enabling them to address patient questions. Technology also helps.

The CDC's Vaccine Schedules App, the PneumoRecs VaxAdvisor, and automated EMR decision tools reduce cognitive load. Personalized cheat sheets can focus on the vaccines most relevant for a clinician's practice. Case-based learning also improves retention. Lastly, immunize.org is a website that has a wealth of information, so spending time to look at the tools, resources, videos, frequently asked questions and graphics would be an ideal way to learn and generate ideas for use within a practice setting. Overall, a principles-first approach combined with practical tools makes vaccine scheduling manageable."

APhA, 2024. https://www.pharmacist.com/Blogs/CEO-Blog/Article/new-immunization-schedules-roadmap-to-increasing-coverage

19.

Q How do we deal with providers who are against vaccines?

A

Debra Kosko: "I appreciate that NPs may face this challenging situation. Addressing vaccine opposition among provider colleagues requires a combination of professional accountability, evidence-based dialogue and supportive institutional policy. Research shows that even small pockets of vaccine-hesitant clinicians can negatively influence patient decisions, reduce vaccine uptake and erode trust in evidence-based care (Dubé et al., 2021). Effective strategies include engaging colleagues in respectful, peer-to-peer conversations that explore concerns, correcting misinformation with up-to-date scientific evidence and emphasizing the ethical duty to provide accurate public-health guidance (Goldenberg, 2021).

Health systems can address this issue by implementing clear vaccine policies, offering continuing education and reinforcing professional standards that require clinicians to follow evidence-based recommendations (Vanderpool et al., 2023). When misinformation is persistent or leads to harmful recommendations, organizational oversight, remediation, or — when necessary — adherence to disciplinary pathways to protect patient safety should be considered (American Medical Association, 2022).

Direct, respectful, peer-to-peer conversation is one of the most effective approaches when a provider encounters a vaccine-skeptical colleague. Research on clinician communication and misinformation consistently shows that colleagues are more receptive when concerns are acknowledged without judgment, and when the conversation is framed around shared professional values such as patient safety, evidence-based practice and ethical responsibility. The goal is not to 'win an argument,' but to keep the door open for future dialogue and clarify misinformation while reducing the influence of inaccurate guidance on patients or staff. The following are some non-threatening, professionally appropriate statements that invite conversation rather than confrontation:

<u>Opening a conversation</u>

- "I'd really like to understand your perspective — would you be open to sharing what concerns you most about this vaccine?"
- "I know we both want the best outcomes for our patients. Can we talk through some of the evidence together?"

<u>Validating without agreeing</u>

- "It makes sense that you'd want to be cautious. Many people have had questions, especially after the last few years."
- "I hear that you're looking for solid data. I try to do the same."

<u>Offering information gently</u>

- "Would you be open to seeing a couple of updated studies? Some of the newer data helped clarify things for me."
- "I'm wondering if some recent Infectious Diseases Society of America (IDSA) (or American Academy of Family Physicians [AAFP], American Academy of Pediatrics [AAP],

19. Cont.

How do we deal with providers who are against vaccines?

A

American College of Physicians [ACP], Immunization Action Coalition [IAC], Advisory Committee on Immunization Practices [ACIP]) recommendations might address a few of the points you raised — can I share them with you?"

Focusing on common goals

- "We both care deeply about protecting vulnerable patients; that's why I thought it might be helpful for us to walk through this together."
- "I know we all want to give patients consistent, evidence-based guidance so they don't get conflicting messages."

Setting boundaries without escalation

- "I respect that we may see this differently, but I do need to make sure patients receive guidance aligned with current evidence and standards."

Inviting collaboration

- "Would you be interested in reviewing the latest ACIP (or other professional association as noted above) updates together at a staff meeting? It might help everyone stay aligned."

American Medical Association. (2022). Addressing health-related misinformation. https://www.ama-assn.org

Dubé, E., Gagnon, D., & MacDonald, N. E. (2021). Strategies intended to address vaccine hesitancy: Review of published reviews. Vaccine, 39(30), 4255–4265. https://doi.org/10.1016/j.vaccine.2021.05.018

Goldenberg, M. J. (2021). Vaccine hesitancy: Public trust, expertise, and the war on science. University of Pittsburgh Press.

Vanderpool, R. C., Gaysynsky, A., & Chou, W.-Y. S. (2023). Funding, training, and policy approaches to address health misinformation. Health Affairs, 42(5), 651–657. https://doi.org/10.1377/hlthaff.2022.01492

20.

Is there a good source for learning more about vaccine clinical trials?

A

Audrey Stevenson: "When it comes to understanding vaccine clinical trials, it is essential to turn to reputable sources. Official U.S. government health agencies and leading children's hospitals with dedicated vaccine education centers provide you with accurate, reliable and evidence-based information about the vital processes, safety and effectiveness of vaccine research and development.

Top Sources You Can Trust:

1. ClinicalTrials.gov: Managed by the National Institutes of Health (NIH), this invaluable

20. Cont.

Q Is there a good source for learning more about vaccine clinical trials?

A

database allows you to explore both publicly and privately funded clinical studies conducted worldwide. It provides in-depth details on the purpose of each study, eligibility criteria, locations and (often) outcomes —empowering you with knowledge about the research being conducted.

2. Centers for Disease Control and Prevention (CDC): The CDC has previously provided clear and accessible information regarding the development, approval and ongoing safety monitoring of vaccines. This may change as ACIP and other CDC-related entities undergo changes. However, by visiting their website, you can still find safety protocols, including the Vaccine Adverse Event Reporting System (VAERS) and the Vaccine Safety Datalink (VSD), which enhance your confidence in the transparency of vaccine safety measures.

3. Food and Drug Administration (FDA): The FDA plays a critical role in ensuring vaccines are safe and effective. Visit their website to learn about the comprehensive review processes involved in vaccine approval, including the detailed phases of clinical trials that every vaccine must undergo to earn public trust.

4. Children's Hospital of Philadelphia (CHOP) Vaccine Education Center: This premier center offers a wealth of science-based information about vaccines tailored for the general public. Through easily digestible articles and resources, you can gain a thorough understanding of the history and science behind vaccine development.

5. National Institute of Allergy and Infectious Diseases (NIAID): As part of the NIH, NIAID is at the forefront of vaccine research. They not only conduct and support groundbreaking studies but also emphasize the robust ethical safeguards that protect participants. This commitment to moral integrity helps assure the public that vaccine research is conducted with the utmost respect and responsibility.

You may also find local vaccine trials through health care systems, universities and research companies. By exploring these top-tier sources, you can enhance your understanding of vaccine trials and develop a strong, well-informed opinion about the vaccines that protect our communities. Knowledge is power — equip yourself with the facts!"

21.

Q How can I advocate (for vaccinations) in a current system that promotes vaccine hesitancy?

A

Ruth Carrico: "Advocating for vaccination in an environment where hesitancy is normalized requires strategic communication and leadership. A strong, presumptive recommendation remains the most influential factor in patient decision-making ('Today you're due for two vaccines…') (Gilliland K & Kilinsky A, 2025). Motivational interviewing helps clinicians explore concerns while avoiding confrontation. Clinicians can advocate internally by ensuring EMR prompts, standing orders and patient materials remain evidence-based. Community partnerships — especially with faith leaders and culturally aligned organizations — also increase trust.

21. Cont.

Q **How can I advocate (for vaccinations) in a current system that promotes vaccine hesitancy?**

A Advocacy can extend to policy involvement, public speaking and participation in advisory boards. Being involved in AANP initiatives and developing your individual voice as a trusted and credible clinician helps address individual patient concerns while also developing and strengthening the overall nurse practitioner position as a primary go-to profession for information and plans of action. Despite societal challenges, consistent, empathetic advocacy has measurable long-term impact on vaccine acceptance."

Gilliland K, Kilinsky A. Vaccine Hesitancy: Where Are We Now? Pediatr Ann. 2025 May;54(5):e154-e159. doi: 10.3928/19382359-20250307-01. Epub 2025 May 1. PMID: 40305634

22.

Q **Is there scientific data to show minority groups that vaccines are made for and as safe for them as they are for whites?**

A Ruth Carrico: "Extensive scientific evidence demonstrates that vaccines are safe and effective across racial and ethnic groups. COVID-19 vaccine trials included substantial minority representation, with consistent vaccine performance across groups (Baden et al., 2021). Influenza and HPV vaccines show similar cross-group effectiveness. Biologically, immune responses do not differ significantly by race; disparities reflect access and structural inequities, not vaccine safety. National surveillance systems like the Vaccine Safety Datalink include diverse populations and have not identified race-based safety concerns. Providing culturally tailored data helps build trust and correct misconceptions about exclusion in research."

Baden LR, El Sahly HM, Essink B, Kotloff K, Frey S, Novak R, Diemert D, et l. Efficacy and Safety of the mRNA-1273 SARS-CoV-2 Vaccine. N Engl J Med. 2021 Feb 4;384(5):403-416. PMID: 33378609

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