2025 Adult Immunization Update

NWOOA Fall Primary Care Update

November 8, 2025

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Objectives

- Improve understanding how vaccine recommendations are made from bench lab to policy
- Update on adult immunization recommendation changes including:
  - Pneumococcal vaccine
  - RSV vaccines
  - COVID-19 vaccines
- Review public health implications of recent CDC vaccine recommendation changes
- Review evidence-based ways to improve vaccination rates in your practice/community
  - Practice & System-based recommendations
  - Communication skills to improve vaccination rates

No Financial Disclosures

- Clinical Professor Family Medicine, University of Michigan
- AAFP liaison ACIP (Advisory Committee on Immunization Practices) 2017-2024
- Former AAFP liaison to ACIP Pediatric, Hepatitis, RSV, and General Best Practices Work Groups
- Chair MACI (Michigan Advisory Committee on Immunizations), Michigan Department of Health and Human Services (MDHHS)
- Co-chair Immunization Committee, University of Michigan
- Medical Director, Domino's Farms Family Medicine

Vaccines Save Lives

- ~ 4 million deaths worldwide prevented by childhood vaccination annually
- For the ~117 million U.S. children born during 1994-2023, routine childhood vaccinations will have prevented ~508 million lifetime cases of illness, 32 million hospitalizations, and 1,129,000 deaths
- 50 million deaths worldwide can be prevented through immunization between 2021 and 2030

Vaccines Save Lives

- Flu, RSV, and pneumococcal vaccines linked to reduce risk of cardiovascular events in older adults
- All-cause mortality among patients hospitalized with influenza is substantial, with ~50% occurring within 30 days after discharge

Economic Benefits of Vaccines

- Vaccines lower direct medical costs saving society trillions of dollars
- Net savings of routine childhood vaccinations to children born in the U.S. during 1994-2023: $540 billion in direct costs, $2.7 trillion in societal costs

Herd Immunity

- Achieved either through infection & recovery or by vaccination for contagious diseases spread directly between people
- Occurs when a significant portion of a population becomes immune to an infectious disease
- Defines when a **whole population is protected**, including people who haven't caught the disease and recovered, who have been vaccinated, and those who cannot be vaccinated
- Limits further disease spread
- Helps protect people who cannot be vaccinated due to age or having certain medical conditions

Passive Immunity

- Protection by antibody or antitoxin produced by an animal or human and transferred to another
- Provides immediate *but temporary* protection against infection
  - IgG antibodies infant receives from mother, primarily during last 1-2 months of pregnancy
  - Acquired through blood transfusion

Active Immunity

- Produced by a person's own immune system stimulated by an antigen to produce antibody-mediated and cell-mediated immunity
- Usually lasts for many years, often a lifetime
  - **Immunologic memory:** immunity acquired through survival of infection with the disease-causing organism
  - **Vaccination**: stimulates the immune system through antigens to produce immune response often like that produced by natural infection

Contraindications to Vaccines

- Severe allergic reaction (anaphylaxis) after a previous dose or to a vaccine component
- Encephalopathy within 7 days after a dose of pertussis-containing vaccine not attributable to another identifiable cause should not receive any pertussis-containing vaccine
- Receipt of live virus-containing vaccines in immunocompromised and in pregnancy

Condition Commonly Misperceived as Contraindications or Precautions

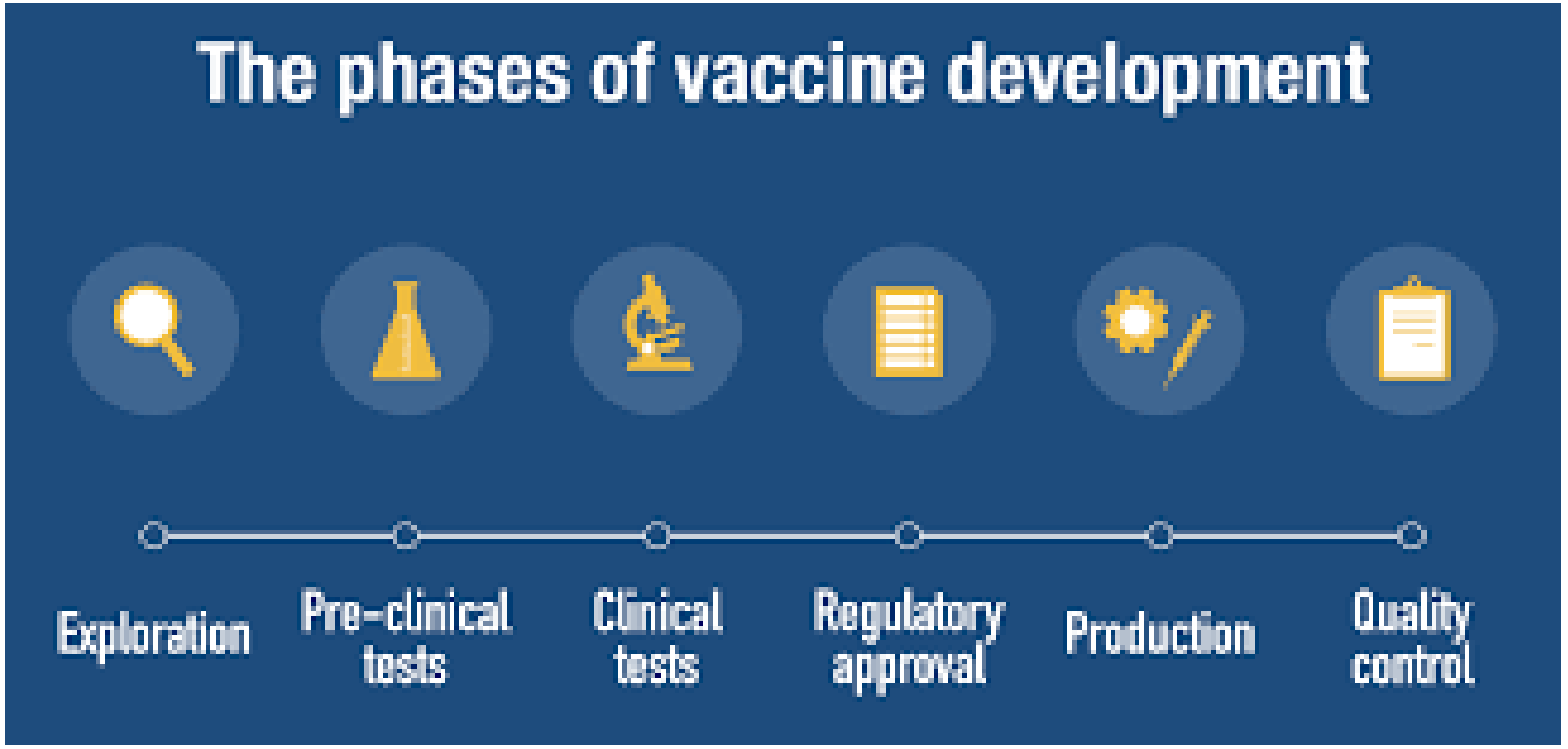
- Mild acute illness with or without fever
- Current antimicrobial therapy
- Convalescent phase of illness
- Recent exposure to an infectious disease
- History of penicillin allergy, other nonvaccine allergies, relatives with allergies, or receiving allergen extract immunotherapy
- History of Guillain-Barre´ syndrome (GBS)
    - Exception: hx of GBS within 6 weeks of receiving influenza of tetanus-toxoid-containing vaccines (precaution)

Note this Change:

- People with history of egg allergy of any severity can be vaccinated with any influenza vaccine indicated for the recipient's age with **no additional safety considerations**

Precautions to Vaccines

- Conditions that may increase risk for a serious adverse reaction, cause diagnostic confusion, or compromise vaccine's ability to produce immunity
- Moderate or severe acute illness with or without fever



From Bench lab to Vaccine Recommendation

Vaccine developed

Evidenced-based Scrutiny & Approval

FDA approves of vaccine, gives Biologics License Application (BLA)

Scientific studies and data presented to Advisory Committee on Immunization Practices (ACIP)

ACIP/CDC

15 voting members of ACIP vote make vaccine recommendations after careful review of data

- ACIP meets 3 times/year: Feb, June, Oct
- Next meeting unknown due to government shutdown

Vaccine Recommendations Made Public

***Morbidity Mortality Weekly Report (MMWR)* is published**

https://www.cdc.gov/mmwr/index.html

Physicians, healthcare systems, pharmacies adopt recommendations

Vaccines For Children (VFC)

- Established 1994 to provide vaccines at no cost to eligible children (Medicaid-eligible, uninsured, underinsured, or American Indian or Alaska Native)
- ~54% of children aged ≤18 years were eligible to receive VFC vaccines (CDC unpublished data 2023)

Immunization Schedule Published by CDC

- Insurance carriers obligated to cover recommended vaccines per the Affordable Care Act
- Addendum to vaccine schedules added real-time
- Vacci ildren (VFC)- Federally funded program that provides vaccines at no ldren uninsured
- Legisl nd Federal Vaccines for Adults Program
- Approved by the American of Pediatrics, American Academy of Family Physicians, America ny of Obstetricians and Gynecologist and others

Robust Vaccine Safety System

- Safety continuously monitored, even after vaccine trials & post-licensure
- Vaccine Adverse Event Reporting System (VAERS)
  - Early warning system through CDC and FDA, anyone can report to VAERS
- Vaccine Safety Datalink (VSD)
  - Collaboration between CDC and several health care organizations for ongoing monitoring and proactive searches of vaccine-related data
- Clinical Immunization Safety Assessment (CISA) Project
  - Partnership between CDC and several medical centers that conduct clinical research on vaccine-associated health risks in certain groups of people
- V-Safe- monitoring system allows vaccine recipients to share side effects
  - COVID-19 and maternal RSV vaccines https://vsafe.cdc.gov/vsafeportal/s/vsafe-register-participant?language=en_US

Former ACIP

- ACIP and dedicated work groups conducted thorough, year-round reviews of scientific data: clinical trial findings, disease epidemiology, post-marketing surveillance data from systems like VAERS and VSD for **systemic evidence review**
- Recommendations developed using **GRADE** methodology to assess quality and strength of evidence and **EtR framework** to translate that evidence into policy, ensuring consistency and transparency
- Consisted of **diverse subject-matter experts** vigorously **vetted** for conflicts of interest; transparent and recused themselves from relevant votes

Current ACIP

- Dismissal and replacement of expert members introduces political influence into a process previously science-driven
- Comprised of many without vaccine science and clinical practice expertise & with known anti-vaccine ideologies
- No application of GRADE and EtR framework protocols
  - Low-quality data presented to focus on theoretical vaccine harms, misrepresentation of established data
- Reduced transparency and expertise within the committee

Current CDC

- Oct 10, 2025: 1,300 CDC employees fired including 70 disease detectives in the Epidemic Intelligence Service, the editors of *MMWR*, the entire staff of the CDC's Washington, DC, office, and the official in charge of measles response.
  - ~700 rehired Oct 11 citing "coding error"
- Estimates of ~3000 CDC employees who have left due to combination of layoffs, terminations, buyout offers, and resignations

Table 1 Recommended Adult Immunization Schedule by Age Group, United States, 2025

Vaccine	19–26 years	27–49 years	50–64 years	≥65 years
COVID-19	1 or more doses of updated 2025-2026 vaccine See Notes			2 or more doses of 2025-2026 vaccine See Notes
Influenza inactivated (IIV3, ccIIV3) Influenza recombinant (RIV3)	1 dose annually			1 dose annually (HD-IIV3, RIV3 or aIIV3 preferred)
Influenza inactivated (aIIV3; HD-IIV3)	Solid organ transplant See Notes			
Influenza live, attenuated (LAIV3)				
Respiratory Syncytial Virus (RSV)	Seasonal administration during pregnancy. See Notes.		50 though 74 (See notes.)	>75 years
Tetanus, diptheria, pertussis (Tdap or Td)	1 dose Tdap each pregnancy; 1 dose Td/Tdap for wound management (See Notes)			
	1 dose Tdap, then Td or Tdap booster every 10 years			
Measles, mumps, rubella (MMR)	1 or 2 doses depending on idication (if born in 1957 or later)			For healthcare personnel, See Notes
Varicella (VAR)	2 doses (if born in 1980 or later)		2 doses	
Zoster recombinant (RZV)	2 doses for immunocompromising conditions (See Notes)		2 doses	
Human papillomavirus (HPV)	2 or 3 doses depending on age at initial vaccination or condition	27 through 45 years		
Pneumococcal (PCV15, PCV20, PPSV23)			See Notes	See Notes
				See Notes
Hepatitis A (HepA)	2, 3, or 4 doses depending on vaccine			
Hepatitis B (HepB)	2, 3 or 4 doses depending on vaccine or condition			
Meningococcal A, C, W, Y (MenACWY)	1 or 2 doses depending on indication, see notes for booster recommendations			
Meningococcal B (MenB)	19 through 23 years	2 or 3 doses depending on vaccine and indication, see notes for booster recommendations		
Haemophilus influenzae type b (Hib)	1 or 3 doses depending on indication			
Mpox	2 doses			
Inactivated poliovirus (IPV)	Complete 3-dose series if incompletely vaccinated. Self-report of previous doses acceptable See Notes			

Recommended vaccination for adults who meet age requirement, lack documentation of vaccination or lack evidence of past infection

Recommended vaccination for adults wtih an additional risk factor or another indication

Recommended vaccination based on shared clinical decision-making

No recommendation Not applicable

Adult Vaccine Recommendations Update

- https://www.aafp.org/family-physician/patient-care/prevention-wellness/immunizations-vaccines/immunization-schedules/adult-immunization-schedule.html

Vaccines Deleted from the 2024 Schedule

- Bivalent mRNA COVID-19 vaccines
- 13-valent pneumococcal conjugate vaccine (PCV13)
- Diphtheria and tetanus toxoid vaccine (DT)
- Menactra

Vaccines Added to the 2025 Schedule

- Updated COVID-19
- PCV21
- Pentavalent meningococcal (MenABCWY)
- Respiratory syncytial virus (RSV) (mResvia)- newly licensed mRNA vaccine

2024 update Mpox (JYNNEOS: 2-dose vaccine) **Vaccine**

- Known or suspected exposure to someone with mpox
- Had a sex partner in past 2 weeks diagnosed with mpox
- Gay, bisexual, or other men who have sex with men, transgender, nonbinary, or gender-diverse person who in the past 6 months had a new diagnosis of an STI OR more than one sex partner
- If you've had sex at a commercial sex venue, had sex in a city where mpox transmission is occurring, had sex in exchange for money
- Have HIV
- Work in a lab with orthopoxviruses

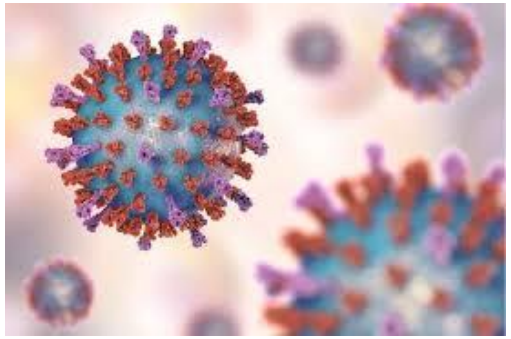
Influenza Vaccines

- All those 6 months and older recommended for annual vaccine
- September 2024: FDA approved FluMist (live-attenuated) for self- or caregiver administration
- March 2025: FDA approved Flublok (recombinant) for ages ≥9 years (previously approved for ages ≥18 years)

Pneumococcal Vaccines

- All adults 50 years and older: PCV15, PCV20, or PCV21 if they have not received any pneumococcal conjugate vaccine or previous vaccination history is unknown
- If PCV15 is used, give PPSV23 one year later
- If PCV20 or PCV21 is used, a dose of PPSV23 is not indicated
- Adults 65 years or older may get PCV20 or PCV21 of they have received PCV13 at any age **and** PPSV23 at ≥ 65 years of age using shared clinical decision-making

RSV



- Major cause of respiratory illness and hospitalization in older adults during fall and winter
- Large cohort study of adults with outpatient RSV infection across 6 RSV seasons, ~1 in 20 adults experienced all-cause hospitalization within 28 days
- Mortality rate of patients hospitalized with RSV infection 6.6%, 25% required ICU admission

RSV Immunization

- RSV vaccine recommended for **all adults ≥ 75 years &**
- **Adults 50-74 years with high-risk conditions**
- *RSV vaccine recommended for pregnant persons as a one-time dose at 32-36 weeks' gestation**(only Abrysvo)
- Nirsevimab or clesrovimab (long-acting monoclonal antibody) for infants <8 months of age born during or entering their 1st RSV season and who are not protected through maternal RSV vaccination
- *https://www.acog.org/news/news-releases/2025/08/acog-releases-updated-maternal-immunization-guidance-covid-influenza-rsv

High-risk Conditions for Severe RSV

- **Chronic cardiovascular disease**
- **Chronic lung or respiratory disease**
- **End-stage renal disease**
- **Chronic liver disease**
- **Chronic hematologic conditions**
- **Neurologic or neuromuscular conditions** causing impaired airway clearance or respiratory muscle weakness
- **Diabetes mellitus complicated** by chronic kidney disease, neuropathy, retinopathy, or other end-organ damage, or requiring treatment with insulin or sodium-glucose cotransporter-2 (SGLT2) inhibitor
- **Severe obesity** (body mass index ≥40 kg/m^2)
- **Moderate or severe immune compromise**[†]
- **Residence in a nursing home**
- **Other chronic medical conditions**

COVID-19 Vaccines

- Recommended for all those ≥6 months of age:
  - Moderna, Pfizer-BioTech, or Novavax for adults
- Adults ≥ 65 years may receive a booster at 6 months (minimum interval 2 months)
- *Recommended for moderately or severely immunocompromised: may receive additional boosters at 8-week intervals**

*https://www.aafp.org/family-physician/patient-care/prevention-wellness/immunizations-vaccines/immunization-schedules/adult-immunization-schedule.html

Shared Clinical Decision-Making

- Unlike routine, catch-up, and risk-based recommendations
- Individually based and informed by a decision process between the health care provider and patient
    1. COVID-19 for people moderately or severely immunocompromised for adults 27-45 years (may get booster q 2 months) and adults ≥65 to receive booster q 6 mo
    2. HepB for adults 60 and older with diabetes (recommended for all adults 19-59 years)
    3. MenB for adolescents and young adults 16-23 years
    4. PCV20 or PCV21 for adults over 65 years who have completed both PCV13 and PPSV23

Barriers to Vaccine Uptake

- Missed opportunities to vaccinate
- **Lack of community demand**
- Lack of regular assessment of vaccine status
- Patient **misinformation** about vaccinations
- Anti-vaccine movement
- Lack of physician knowledge of vaccine recommendations
- Confusing mixed-messages regarding vaccine recommendations
- Poor access to vaccinations

Vaccine Hesitancy/Refusal

- Vaccine hesitancy results from a complex mix of social and political influences, cultural and religious beliefs, availability of and ability to interpret health and scientific information, and personal and population experiences of health systems and government policies
- 2019: Identified as one of the World Health Organization's top 10 global health threats

Vaccine Hesitancy/Refusal

- Vaccine hesitancy existed since vaccines first discovered
- Greater prevalence of vaccine hesitancy noted in past several years, a key contributor to low vaccine rates
- Lack of trust in public health systems and misinformation
- **Primary indicator of vaccine acceptance is healthcare provider**

Anti-Vaccine Activism

- Has evolved from a fringe subculture into a well-organized, networked movement in the U.S. over past 2 decades
- COVID-19 pandemic exacerbated this evolution
- Reach of vaccine misinformation magnified through social media- 43% of health mis-information about vaccines
- Increasingly aligned with conservative political identity

Vaccination Rates

- Rising levels of unvaccinated children in U.S., coverage among U.S. adults low for most vaccines
- Large disparities in adult vaccination coverage by race and ethnicity and other demographic factors

Misinformation is Widely Believed

- Kaiser Family Foundation (KFF): ~8 out of 10 adults either believe or are unsure about at least one false statement regarding COVID-19 or other vaccines
- KFF: belief in misinformation strongly correlated with vaccination status and political identity
  - Unvaccinated adults and Republicans significantly more likely to believe or be uncertain about false claims compared to vaccinated adults and Democrats

Social Media & Vaccine Misinformation

- Promotes conspiracy theories and fears
- 87 videos from YouTube examined using keywords “vaccine safety” and “vaccines and children”
  - 65% expressed anti-vaccine sentiment
  - Only 5.6% produced by government professionals
  - 36.8% provided no scientific evidence

Social Media & Misinformation

- Anti-vaccine content engenders more use engagement on social media
  - 2010-2016: anti-vaccine tweets are 4.13- fold more likely to be re-tweeted than neutral tweets
- Misinformation about vaccines has led to rising levels of vaccine hesitancy at a faster rate than interventions are addressing it
- COVID-19 misinformation spread both by humans as well as bots and trolls to amplify anti-vaccine sentiment

Social Media & Misinformation

- Foreign Influence fosters discord among Americans
- Bots spread malware and unsolicited content disseminating antivaccine messages & Russian trolls promoted discord
  - Accounts masquerading as legitimate users create false equivalency, **eroding public consensus on vaccination**

HHS Secretary RFK, Jr.

In December 2021, Kennedy falsely called the COVID-19 vaccine “the deadliest vaccine ever made,” citing deaths reported to the Vaccine Adverse Event Reporting System, which is part of the nation’s vaccine safety monitoring systems. But as we have explained, the reports are unverified and, as the VAERS website warns, any report “to VAERS is not documentation that a vaccine caused the event.”

In his second day of confirmation hearings, on Jan. 30 before the Senate Committee on Health, Education, Labor and Pensions, Kennedy refused to say that vaccines do not cause autism, despite a large body of evidence showing that there is no link. Kennedy pointed to a flawed paper to suggest there is credible evidence to claim that vaccines cause autism.

Threat to Public Health

- Rising vaccine refusal rates nationally and abroad increase morbidity/mortality
- Economic burden to the healthcare system and individuals increasing
- VFC program under threat
  - Danger of seeing over 50% of all U.S. children eligible for VFC unable to receive vaccines

Threat to Public Health

- **U.S. at risk of losing measles elimination status** if vaccination rates continue to decline
- Oct 28, 2025: **1,648 confirmed measles cases**
  - Unvaccinated or unknown status: 92%
  - 1 MMR dose: 4%
  - 2 MMR doses: 4%
- 12% of cases hospitalized
- 22% < 5, 7% 5-19, 11% over 20 years-old
- 3 deaths

How to Improve Vaccination Rates

- Give a strong recommendation to vaccinate
- Vaccinate at every visit
- Co-administer multiple vaccines when able
- Use presumptive language, not participatory language when recommending vaccines
- Educate your patients: discuss side effects, benefits of protection, benefits to their community/family, share personal stories
- Debunk vaccine myths with scientific evidence and offer patients sound vaccine information/ resources

Establish a Positive Dialogue

- Be **nonconfrontational,** presume caregivers have a shared goal to do "what is best for the child" when refusing vaccines
- **Acknowledge** there is a large volume of misinformation, information: correct misinformation and dispel myths
- **Identify caregiver/patient concerns** about vaccination

Establish a Positive Dialogue

- **Offer information** and help interpret data to make a best-informed decision to target education
- Emphasize **vaccine safety** and continuous monitoring of vaccines
- Discuss **risks** of natural infection
    - Younger generations do not have reference or experience with vaccine-preventable diseases like polio and measles and the significant morbidity and mortality they may cause

Debunk Myths

Myth #1: Hygiene and Better Nutrition are responsible for the reduction in disease rates

- Data show vaccines are overwhelmingly responsible for the largest drops in disease rates
- If true, chickenpox rates would have dropped long before the introduction of the varicella vaccine (available mid-1990s)

Debunk Myths

Myth #2: MMR vaccine and Thimerosal (ethylmercury as a preservative) causes autism

- No evidence to support that MMR or any vaccine causes autism
- Overwhelming evidence: no increased risk of autism in vaccinated populations
- Though no link between use of thimerosal and autism. . .
    - Thimerosal voluntarily removed from all vaccine formularies aside from whole-cell pertussis vaccines to lower publics' concern

Debunk Myths

Myth #3: Natural immunity is better than vaccine-acquired immunity

- In some cases, natural immunity *lasts longer,* **BUT** the risks of natural infection outweigh the risks of immunization
- Hib and tetanus vaccines provide more effective immunity than natural infection

Debunk Myths

Myth #4: Antigenic overload

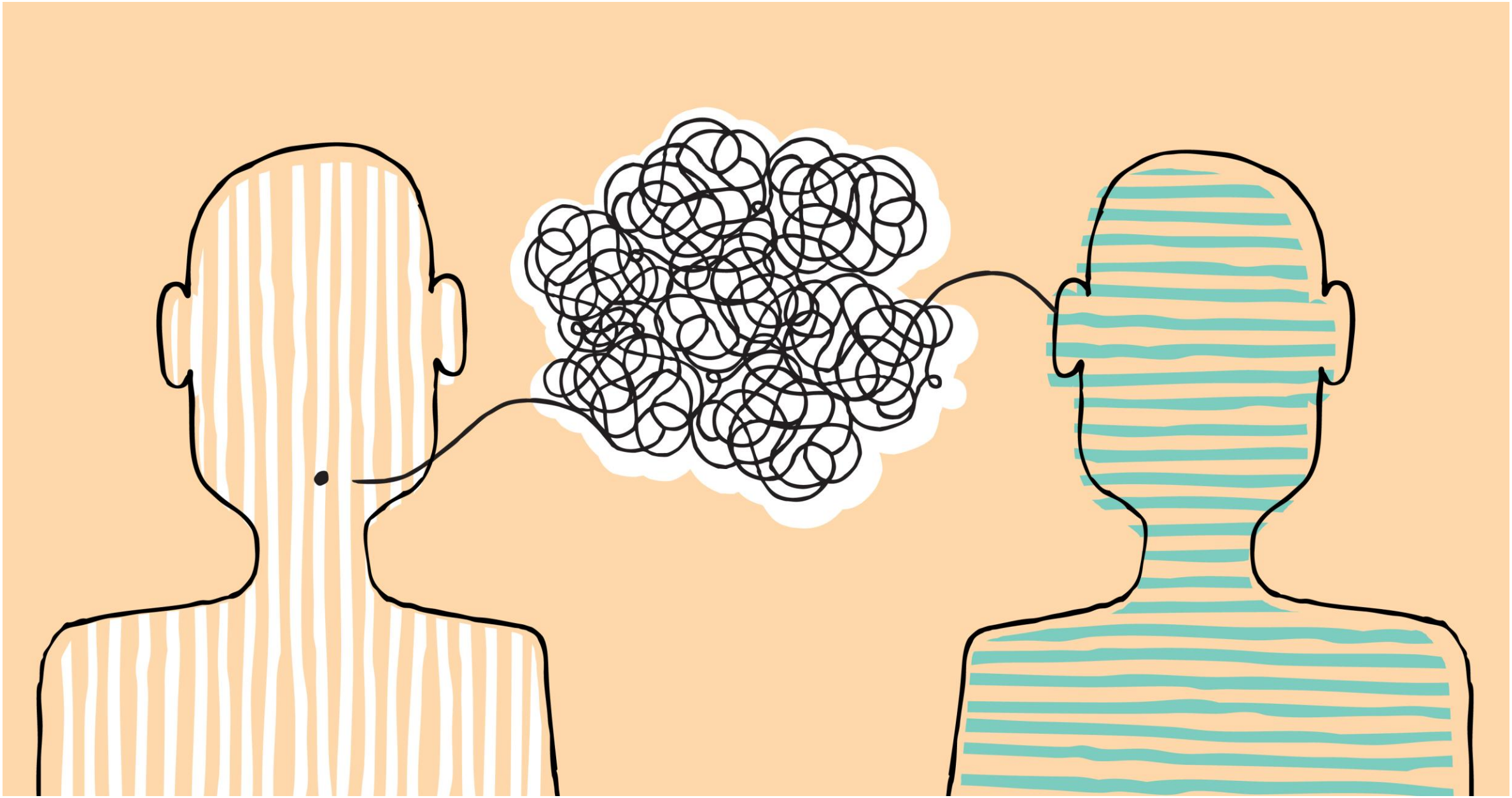
- 23% parents in a U.S telephone survey agreed with statement: “children get more immunizations than are good for them”
- 25% parents concerned their child’s immune system could be weakened by too many immunizations
- Vaccines comprise only a small fraction of antigens children exposed to throughout normal life
- **Though number of vaccines recommended has increased, total number of antigens has decreased from more than 3,200 to ~320**
- Multiple studies show children who received vaccinations had similar, or reduced risk of unconnected infections

Systems Approach to Improve Vaccination Rates

- Use **reminder/recall lists** to catch patients up on delayed/missed vaccines
- Use your **Immunization Information System (IIS)** to help identify patients in need of vaccination
  - Ohio Impact Statewide Immunization information System (ImpactSIIS)
  - Michigan Care Improvement Registry (MCIR)

Systems Approach to Improve Vaccination Rates

- Use **standing orders**
  - Authorizes nurses, pharmacists, MAs where allowed by state to assess a patient's immunization status and administer vaccinations
  - Immunize.org. https://www.immunize.org/wp-content/uploads/va/va35_standing_orders.pdf
- **Audit/feedback** to vaccine healthcare providers



Communication Style is Important

- Use a **strong recommendation** to vaccinate
- Use **presumptive** language (assume person will accept vaccination) rather than participatory language
- Deliver evidence-based information with a compassionate communication style for those who are hesitant
- Do not repeat false/misinformation
- Share personal stories

Communication Style is Important

- *WHAT* you say is as important as *HOW* you say it
- Use of confident language, scientific language increases uptake of intent to vaccinate
- **Improved clinician communication** shown to improve vaccination rates
  - Motivational interviewing
  - Use empathy, inquire about hesitation
- Mentor Nurses, Medical assistants, pharmacists to educate/vaccinate as part of a team and use presumptive language

Participatory

“Would you like your child to receive immunizations today?”

Presumptive

“Your child will be receiving their routine vaccinates today. Do you have any questions?”

17% more likely to receive vaccines

Summary

- **CDC current vaccine policy politicized and not following evidenced-based science**
- Recommendation to follow professional organizations that defer to evidence in recommendations: AAFP, AAP, ACOG
- New adult vaccines added to adult immunization schedule:
  - PCV21
  - Pentavalent meningococcal (MenABCWY)
  - RSV (mResvia) mRNA

Summary

- Immunization rates are declining
- Many barriers to improved vaccine rates
- Social media responsible for much vaccine hesitancy with proliferation of misinformation
- Use your IIS to improve vaccination rates
- Use standing orders to improve vaccination rates
- Use every visit opportunity to vaccinate

Summary

- Increase vaccine rates with better communication skills
- Give a strong recommendation
  - Use presumptive, not participatory language
- Debunk vaccine myths
- Provide reassurance on a robust vaccine safety system
- Build trust (may take time, continuity of care)
- Be honest about side effects
- **Focus on** protection of patient **& community**

Questions?

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