Dr. Jennifer Uzzell earned her Bachelor of Science in Nursing in 1996 and her Master of Science in Nursing along with certification as a Pediatric Nurse Practitioner in 2001, all from Texas Woman's University. She completed her Doctor of Nursing Practice (DNP) degree in 2024. Additionally, she is certified as a Pediatric Mental Health Specialist, Lactation Consultant, and in Evidence-Based Practice.

Dr. Uzzell currently practices at Pediatric Healthcare of Northwest Houston in Tomball, Texas, and serves as adjunct faculty at Texas Woman's University and Houston Christian University, where she precepts nurse practitioner students. She is also the Student Liaison for the Houston chapter of the National Association of Pediatric Nurse Practitioners (NAPNAP) and a Leadership Succession Member of Sigma Theta Tau International Honor Society of Nursing.

Her advocacy work includes participating in health policy initiatives through the NAPNAP Child Advocacy Program and the Texas Nurse Practitioners Legislative Ambassador Program.

2025 U.S. Childhood Vaccine Schedule

For Nurse Practitioners

Jennifer Uzzell DNP, CPNP-PC, PMHS, EBP-C

Disclosure

- I have no financial relationships or conflicts of interest to disclose in relation to this presentation

Objectives

1. Explain how vaccines stimulate the immune system to provide protection against specific childhood diseases.
2. Discuss the current CDC immunization schedule for children from birth through adolescence.
3. Assess patient history to identify contraindications, precautions, and appropriate timing for vaccine administration.
4. Apply best practices in vaccine storage, handling, documentation, and administration to ensure safety and efficacy.
5. Use evidence-based strategies to educate and counsel parents or guardians about vaccine benefits, side effects, and common concerns.

Introduction

- Childhood immunizations are a cornerstone of preventive pediatric healthcare in the United States.
- The CDC and the ACIP annually updates the recommended immunization schedule to reflect the latest evidence on vaccine safety, efficacy, and public health needs.
- Nurse practitioners play a vital role in vaccine administration, education, and advocacy.

History of Vaccines

Smallpox vaccination – 1796

Required vaccination – 1905

DTP – 1940s

Polio – 1950

MMR – 1970s

Vaccines for Children (VFC) – 1994

HPV, RV, MCV

COVID-19 - mRNA

Immunity

- Protection against a disease, and it can be passive or active, natural or vaccine induced
- **Active immunity** - exposure to a disease-causing organism
- **Natural immunity -** infection with a disease-causing organism
- **Vaccine-induced immunity -** exposed to killed or weakened bacteria or viruses through vaccination
- **Passive immunity** - provided by antibodies produced by another human being or animal; temporary

How Vaccines Confer Immunity

Introduction of an Antigen

Immune System Activation

Formation of Memory Cells

Rapid Response to Future Exposure

Types of Vaccines

Live attenuated vaccines (Varicella, MMR) use a weakened form of the virus.

Inactivated vaccines (polio, DTaP) use a killed version.

Subunit, recombinant, or conjugate vaccines use specific parts of the pathogen.

mRNA vaccines (COVID-19) provide genetic instructions for cells to produce the antigen themselves.

Vaccine Safety

Vaccine Safety System – CDC, FDA, ACIP

Vaccine Adverse Event Reporting System (VAERS)

- voluntary reporting
- rapid detection of potential safety signals or unusual patterns of adverse events following vaccination
- Data is often incomplete, unverified,
- reporting biases

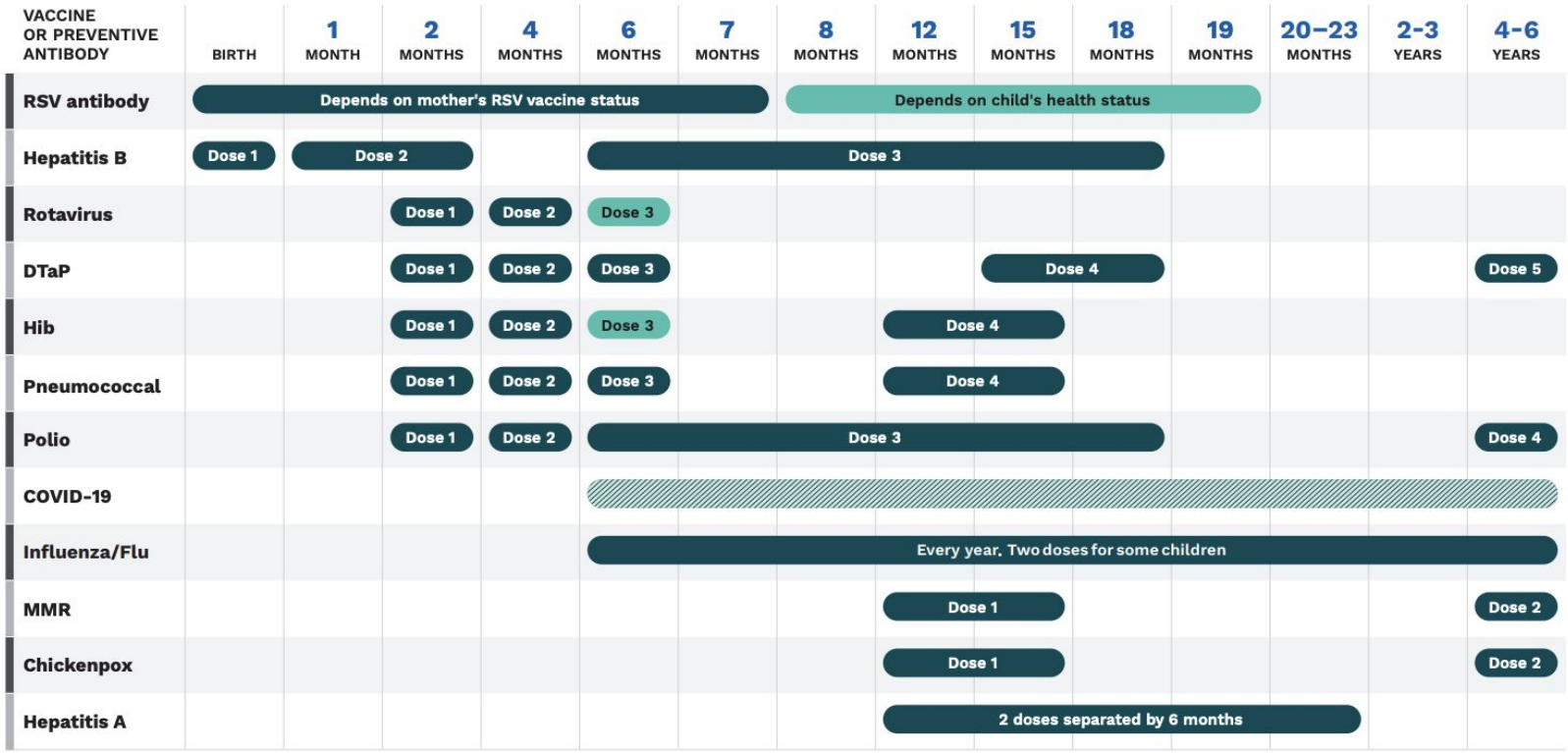
Vaccine Safety Datalink (VSD)

- Conducts in-depth studies and investigations into potential vaccine safety concerns identified by VAERS or other sources
- controlled data from source medical records, enabling robust statistical analysis
- planned vaccine safety studies, timely investigations, and a more accurate assessment of potential links between vaccination and adverse events.

Your child needs vaccines as they grow!

2025 Recommended Immunizations for Birth Through 6 Years Old

Want to learn more?
Scan this QR code to find out which vaccines your child might need. Or visit **www2.cdc.gov/vaccines/childquiz/**



KEY

- ALL children should be immunized at this age
- SOME children should get this dose of vaccine or preventive antibody at this age
- Parents/caregivers should talk to their health care provider to decide if this vaccine is right for their child

Talk to your child's health care provider for more guidance if:

1. Your child has any medical condition that puts them at higher risk for infection.
2. Your child is traveling outside the United States. Visit **wwwnc.cdc.gov/travel** for more information.
3. Your child misses a vaccine recommended for their age.

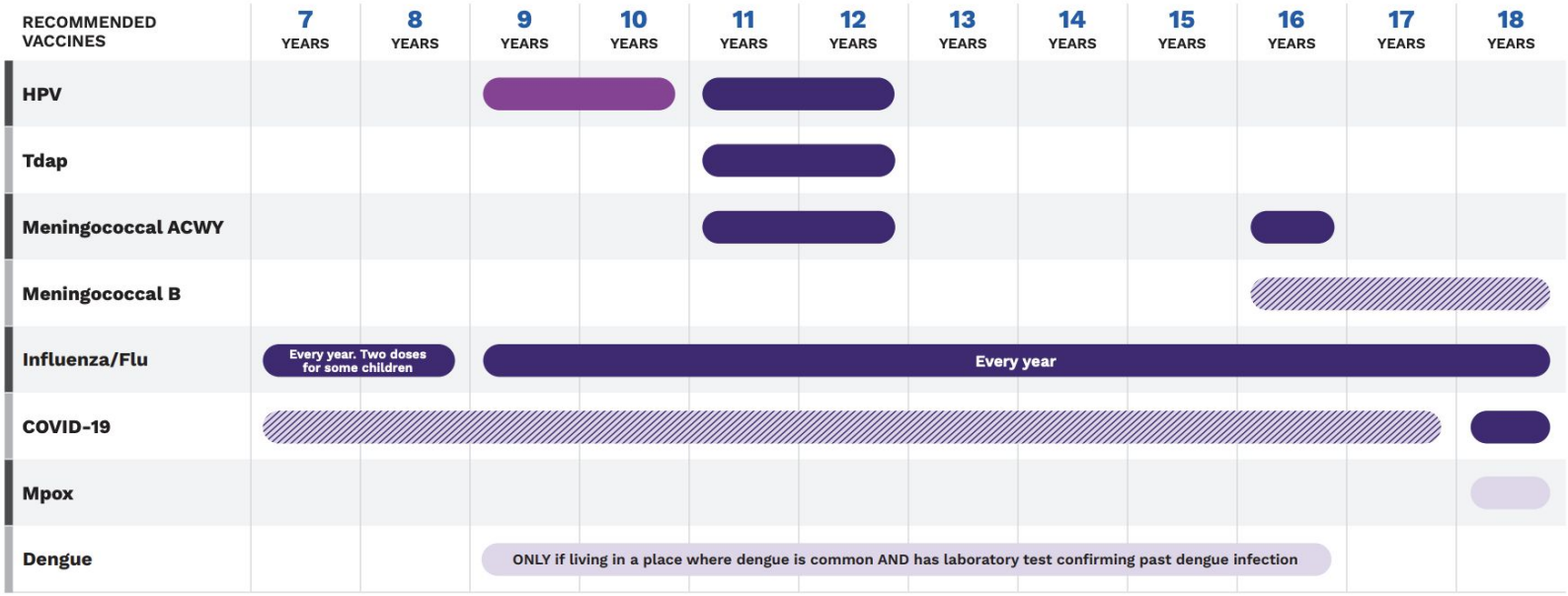
CDC U.S. CENTERS FOR DISEASE CONTROL AND PREVENTION

FOR MORE INFORMATION
Call toll-free: **1-800-CDC-INFO (1-800-232-4636)**
Or visit: **www2.cdc.gov/vaccines/childquiz/**

Older children and teens need vaccines too!

2025 Recommended Immunizations for Children 7–18 Years Old

Want to learn more?
Scan this QR code to find out which vaccines your child might need. Or visit **www2.cdc.gov/vaccines/childquiz/**



KEY

- ALL children in age group should get the vaccine
- ALL children in age group can get the vaccine
- SOME children in age group should get the vaccine
- Parents/caregivers should talk to their health care provider to decide if this vaccine is right for their child

Talk to your child's health care provider for more guidance if:

1. Your child has any medical condition that puts them at higher risk for infection or is pregnant.
2. Your child is traveling outside the United States. Visit **wwwnc.cdc.gov/travel** for more information.
3. Your child misses any vaccine recommended for their age or for babies and young children.

U.S. CENTERS FOR DISEASE CONTROL AND PREVENTION

FOR MORE INFORMATION
Call toll-free: **1-800-CDC-INFO (1-800-232-4636)**
Or visit: **www2.cdc.gov/vaccines/childquiz/**

Texas Department of State Health Services (DSHS) Immunizations

Texas Immunization Registry (ImmTrac2)

Texas Vaccines for Children and Adult Safety Net programs

Age Recommendations

Birth: HepB

2 months: DTaP, IPV, Hib, HepB (Vaxelis), PCV20, RV

4 months: DTaP, IPV, Hib (Pentacel), PCV20, RV

6 months: DTaP, IPV, Hib, HepB (Vaxelis), PCV20, RV,

Influenza starting at 6 months if seasonally appropriate – 2 vaccines 4 weeks apart for first flu vaccine under age 9

Age Recommendations	
	12 months: MMR, VAR, HepA
	15 months: DTaP, Hib, PCV20
	18 months: HepA
	Yearly September-May: Flu
	4-6 years: DTaP, IPV (Kinrex, Quadracel), MMR, VAR (ProQuad)
	11-12 years: Tdap, HPV, MenACWY
	16 years: MenACWY, MenB

Vaccine Schedule

CDC Catch-up schedules for children who start late or are more than 1 month behind:

HepB: 3 doses at 0, 1-2, and 6-18 months

DTaP: 5 doses at 2, 4, 6, 15-18 months, and 4-6 years

Hib: 3 or 4 doses depending on the vaccine

PCV: 4 doses at 2, 4, 6, and 12-15 months

IPV: 4 doses at 2, 4, 6-18 months, and 4-6 years

Rotavirus: 15 weeks start, finish at 8 months; Rotateq: 3 doses at 2 months, 4 months, and 6 months; Rotarix: 2 doses at 2 months and 4 months

Influenza: Annual vaccination – first immunization under 9 years = 2 doses 30 days apart

MMR: 2 doses at 12-15 months and 4-6 years

VAR: 2 doses at 12-15 months and 4-6 years

HepA: 2 doses at 12-23 months

HPV: 2 or 3 doses depending on age at initial vaccination

MenACWY: 2 doses at 11-12 years and 16 years

MenB: 2 doses at 16-18 years

Special Considerations

COVID-19: 1 or more doses of the 2024-25 vaccine

- "CDC recommends a 2024-2025 COVID-19 vaccine for most adults ages 18 and older. Parents of children ages 6 months to 17 years should discuss the benefits of vaccination with a healthcare provider." June 6, 2025

Influenza: trivalent this year

RSV: Beyfortus – one dose

- Neonates and infants born during or entering their first RSV season: 2, 4, or 6 months
  - <5Kg = 50mg; ≥5Kg= 100mg)
- Children up to 24 months of age who remain vulnerable to severe RSV disease through their second RSV season regardless of weight
  - 1 x 200 mg dose administered as 2 IM injections (2 x 100 mg)

Combination vaccines: Use combination vaccines instead of separate injections when appropriate

Contraindications, Precautions, and Timing

- Contraindications:
  - severe adverse reaction with previous dose
  - cancer treatments (no live viruses)
  - immunocompromised (no live viruses)
  - Severe Combined Immunodeficiency (SCID) disease
  - history of intussusception (no RSV)
- Precautions:
  - Fever
  - Moderate to severe illness
  - Pregnancy
  - Antibiotic use
- Flu vaccine and egg allergy – no precautions necessary
- Timing: CDC catch up schedule

Vaccine Storage, Handling, Documentation, and Administration

Storage and Handling

- Storage labels
- Temperature
  - Refrigerator (most vaccines): 36F to 46F
  - Freezer (COVID-19 Moderna, MMRV, Mpox, Var): - 58F to +5F
  - Ultra-Cold Freezer (COVID-19 Pfizer): -130F to -76F
- Transportation
- Disposal and Wastage
- Needlestick injury
- Training
- Inspection

Documentation and Administration

- EMR/ImmTrac
- IM or SC
- Thigh or Arm
- Oral
- Intranasal

Vaccine Regulations, Side Effects, and Common Concerns

Regulations

- Package inserts
- Vaccine Information Statements (VIS)

Common side effects

- very mild, pain or swelling at the injection site, fussiness, low-grade fever

Common Concerns

- Do not overload the immune system
- Aluminum salt adjuvants are safe
- No relationship between vaccines and autism
- Thimerosal in multi-dose flu vaccines only in USA
- ACIP

VACCINE INFORMATION STATEMENT

Hepatitis A Vaccine:

What You Need to Know

Many vaccine information statements are available in Spanish and other languages. See www.immunize.org/vis

Hojas de información sobre vacunas están disponibles en español y en muchos otros idiomas. Visite www.immunize.org/vis

1. Why get vaccinated?

Hepatitis A vaccine can prevent **hepatitis A**.

Hepatitis A is a serious liver disease. It is usually spread through close, personal contact with an infected person or when a person unknowingly ingests the virus from objects, food, or drinks that are contaminated by small amounts of stool (poop) from an infected person.

Most adults with hepatitis A have symptoms, including fatigue, low appetite, stomach pain, nausea, and jaundice (yellow skin or eyes, dark urine, light-colored bowel movements). Most children less than 6 years of age do not have symptoms.

A person infected with hepatitis A can transmit the disease to other people even if he or she does not have any symptoms of the disease.

Most people who get hepatitis A feel sick for several weeks, but they usually recover completely and do not have lasting liver damage. In rare cases, hepatitis A can cause liver failure and death; this is more common in people older than 50 years and in people with other liver diseases.

Hepatitis A vaccine has made this disease much less common in the United States. However, outbreaks of hepatitis A among unvaccinated people still happen.

2. Hepatitis A vaccine

Children need 2 doses of hepatitis A vaccine:
- First dose: 12 through 23 months of age
- Second dose: at least 6 months after the first dose

Infants 6 through 11 months old traveling outside the United States when protection against hepatitis A is recommended should receive 1 dose of hepatitis A vaccine. These children should still get 2 additional doses at the recommended ages for long-lasting protection.

Older children and adolescents 2 through 18 years of age who were not vaccinated previously should be vaccinated.

Adults who were not vaccinated previously and want to be protected against hepatitis A can also get the vaccine.

Hepatitis A vaccine is also recommended for the following people:
- International travelers
- Men who have sexual contact with other men
- People who use injection or non-injection drugs
- People who have occupational risk for infection
- People who anticipate close contact with an international adoptee
- People experiencing homelessness
- People with HIV
- People with chronic liver disease

In addition, a person who has not previously received hepatitis A vaccine and who has direct contact with someone with hepatitis A should get hepatitis A vaccine as soon as possible and within 2 weeks after exposure.

Hepatitis A vaccine may be given at the same time as other vaccines.

CDC U.S. CENTERS FOR DISEASE CONTROL AND PREVENTION

3. Talk with your health care provider

Tell your vaccination provider if the person getting the vaccine:
- Has had an **allergic reaction after a previous dose of hepatitis A vaccine**, or has any **severe, life-threatening allergies**

In some cases, your health care provider may decide to postpone hepatitis A vaccination until a future visit.

Pregnant or breastfeeding women should be vaccinated if they are at risk for getting hepatitis A. Pregnancy or breastfeeding are not reasons to avoid hepatitis A vaccination.

People with minor illnesses, such as a cold, may be vaccinated. People who are moderately or severely ill should usually wait until they recover before getting hepatitis A vaccine.

Your health care provider can give you more information.

4. Risks of a vaccine reaction

- Soreness or redness where the shot is given, fever, headache, tiredness, or loss of appetite can happen after hepatitis A vaccination.

People sometimes faint after medical procedures, including vaccination. Tell your provider if you feel dizzy or have vision changes or ringing in the ears.

As with any medicine, there is a very remote chance of a vaccine causing a severe allergic reaction, other serious injury, or death.

5. What if there is a serious problem?

An allergic reaction could occur after the vaccinated person leaves the clinic. If you see signs of a severe allergic reaction (hives, swelling of the face and throat, difficulty breathing, a fast heartbeat, dizziness, or weakness), call **9-1-1** and get the person to the nearest hospital.

For other signs that concern you, call your health care provider.

Adverse reactions should be reported to the Vaccine Adverse Event Reporting System (VAERS). Your health care provider will usually file this report, or you can do it yourself. Visit the VAERS website at www.vaers.hhs.gov or call **1-800-822-7967**. *VAERS is only for reporting reactions, and VAERS staff members do not give medical advice.*

6. The National Vaccine Injury Compensation Program

The National Vaccine Injury Compensation Program (VICP) is a federal program that was created to compensate people who may have been injured by certain vaccines. Claims regarding alleged injury or death due to vaccination have a time limit for filing, which may be as short as two years. Visit the VICP website at www.hrsa.gov/vaccinecompensation or call **1-800-338-2382** to learn about the program and about filing a claim.

7. How can I learn more?

- Ask your health care provider.
- Call your local or state health department.
- Visit the website of the Food and Drug Administration (FDA) for vaccine package inserts and additional information at www.fda.gov/vaccines-blood-biologics/vaccines.
- Contact the Centers for Disease Control and Prevention (CDC):
  - Call **1-800-232-4636** (**1-800-CDC-INFO**) or
  - Visit CDC's website at www.cdc.gov/vaccines.

Screening Checklist for Contraindications to Vaccines for Children and Teens

PATIENT NAME _____

DATE OF BIRTH ____/____/____
month day year

For parents/guardians: The following questions will help us determine which vaccines your child may be given today. If you answer "yes" to any question, it does not necessarily mean your child should not be vaccinated. It just means additional questions must be asked. If a question is not clear, please ask your healthcare provider to explain it.

	yes	no	don't know
1. Is the child sick today?	☐	☐	☐
2. Does the child have allergies to medicine, food, a vaccine component, or latex?	☐	☐	☐
3. Has the child had a serious reaction to a vaccine in the past?	☐	☐	☐
4. Does the child have a long-term health problem with heart, lung (including asthma), kidney, liver, nervous system, or metabolic disease (e.g., diabetes), a blood disorder, no spleen, a cochlear implant, or a spinal fluid leak? Are they taking regular aspirin or salicylate medication?	☐	☐	☐
5. For children age 2 through 4 years: Has a healthcare provider told you that the child had wheezing or asthma in the past 12 months?	☐	☐	☐
6. For babies: Have you ever been told the child had intussusception?	☐	☐	☐
7. Has the child, a sibling, or a parent had a seizure; has the child had a brain or other nervous system problem?	☐	☐	☐
8. Has the child ever been diagnosed with a heart condition (myocarditis or pericarditis) or have they had Multisystem Inflammatory Syndrome (MIS-C) after an infection with the virus that causes COVID-19?	☐	☐	☐
9. Does the child have an immune-system problem such as cancer, leukemia, HIV/AIDS?	☐	☐	☐
10. In the past 6 months, has the child taken medications that affect the immune system such as prednisone, other steroids, or anticancer drugs; drugs to treat rheumatoid arthritis, Crohn's disease, or psoriasis; or had radiation treatments?	☐	☐	☐
11. Does the child's parent or sibling have an immune system problem?	☐	☐	☐
12. In the past year, has the child received immune (gamma) globulin, blood/blood products, or an antiviral drug?	☐	☐	☐
13. Is the child/teen pregnant?	☐	☐	☐
14. Has the child received vaccinations in the past 4 weeks?	☐	☐	☐
15. Has the child ever felt dizzy or faint before, during, or after a shot?	☐	☐	☐
16. Is the child anxious about getting a shot today?	☐	☐	☐

FORM COMPLETED BY _____ DATE _____

FORM REVIEWED BY _____ DATE _____

Did you bring your immunization record card with you? **yes** ☐ **no** ☐

It is important to have a personal record of your child's vaccinations. If you don't have one, ask the child's healthcare provider to give you one with all your child's vaccinations on it. Keep it in a safe place and bring it with you every time you seek medical care for your child. Your child will need this document to enter day care or school, for employment, or for international travel.

Immunize.org

FOR PROFESSIONALS www.immunize.org / **FOR THE PUBLIC** www.vaccineinformation.org

www.immunize.org/catg.d/p4060.pdf
Item #P4060 (12/10/2024)

Scan for PDF

Vaccine Refusals

Parental rights

Religious freedom

Personal or Philosophical beliefs

Notarized affidavit from DSHS

House Bill 1586 –

September 1, 2025

National Vaccine Injury Compensation Program

- The National Childhood Vaccine Injury Act of 1986 created the VICP.
- No-fault alternative to the traditional legal system for resolving vaccine injury petitions.
- File a petition with the U.S. Court of Federal Claims.
- U.S. Department of HHS medical staff makes a preliminary recommendation.
- The U.S. Department of Justice develops submits report it to the Court.
- Court-appointed special master holds a hearing in which both parties can present evidence.
- If compensation is awarded, the special master determines the amount and type of compensation.
- U.S. Department of HHS awards compensation.

NP Vaccine Support

- Make patients and parents aware of your immunization policy.
- Make vaccine resources easy to find.
- Review each patient's vaccination status and prepare them to receive vaccines.
- Make effective recommendations.
- Answer questions and address concerns

Vaccine Information Websites

- CDC.gov
- AAP.org
- HealthyChildren.org
- DSHS.gov
- VoicesForVaccines.org
- Immunize.org
- VaccinateYourFamily.org
- KidsHealth.org

Case Study

Lucas presents for a well-child visit and vaccine catch-up. His mother expresses concern about vaccinating Lucas while brother Noah is immunocompromised.

Patient Profile

- **Name:** Lucas M.
- **Age:** 4 years old
- **Medical History:** Diagnosed with mild persistent asthma; uses albuterol as needed and a daily low-dose inhaled corticosteroid.
- **Vaccination Status:** Up to date through age 15 months; missed immunizations due to frequent respiratory infections. Needs to be up-to-date for school attendance.
- **Family History:** Lives with his 6-year-old brother, Noah, who is currently undergoing chemotherapy for acute lymphoblastic leukemia (ALL).

Case Study Questions

- Which vaccines are safe and recommended for Lucas, considering his asthma and his brother's leukemia?
- What are the risks and benefits of administering live vaccines in this household?
- Should Lucas receive the influenza vaccine as an inactivated injection or live attenuated nasal spray?
- What other vaccines might Lucas be missing?

References

- Centers for Disease Control and Prevention. (2024, August 10). *Explaining how vaccines work* . U.S. Department of Health and Human Services. https://www.cdc.gov/vaccines/basics/explaining-how-vaccines-work.html

- Centers for Disease Control and Prevention. (2025, July 2). *Child and adolescent immunization schedule by age (Addendum updated July 2, 2025)* . U.S. Department of Health and Human Services. https://www.cdc.gov/vaccines/hcp/imz-schedules/child-adolescent-age.html

- Centers for Disease Control and Prevention. (2024, July 25). Contraindications and precautions. https://www.cdc.gov/vaccines/hcp/imz-best-practices/contraindications-precautions.html

- Centers for Disease Control and Prevention. (2024, August 10). *Vaccine storage and handling resources* . https://www.cdc.gov/vaccines/hcp/storage-handling/resources.html

- Centers for Disease Control and Prevention. (2025, May 29). *Immunization schedules* . U.S. Department of Health and Human Services. https://www.cdc.gov/vaccines/hcp/imz-schedules/index.html

- Centers for Disease Control and Prevention. (2025, July 10). *Vaccine administration: Before giving vaccine*. U.S. Department of Health and Human Services. https://www.cdc.gov/vaccines/hcp/administration/before.html

- Health Resources and Services Administration. (2025, June). *National Vaccine Injury Compensation Program*. HRSA. https://www.hrsa.gov/vaccine-compensation

- National Library of Medicine. (2025, January 10). *History of medicine* . U.S. Department of Health and Human Services. https://www.nlm.nih.gov/hmd/index.html

Questions?

- Jennifer Uzzell – Jendnp24@gmail.com