Family Perspectives on Vaccines

IKC IMMUNIZE KANSAS COALITION

3 Main Purposes of Vaccination

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Chickenpox vaccine is 85% to 90% effective in preventing all chickenpox infections and 100% effective in preventing moderate and severe chicken pox.

#1 Vaccines help protect the health and life of those who get vaccinated.

Often, the diseases prevented by vaccines are severe, requiring hospital care.

For example, in the U.S. in 2011, 222 people had measles and 1 out of 3 needed hospital care.

These diseases also may lead to long-term disability.

For example, after meningitis caused by infection with the pneumococcus bacteria, people often have:

- Nerve damage that interferes with daily life
- Hearing loss
- Long-term learning and thinking problems

#2 Vaccines help our friends and families - of all ages - to safely gather.

Babies

Some illnesses, such as pertussis (whooping cough) are very dangerous to infants. Anyone in close contact with an infant should be sure they are fully vaccinated.

#2 Vaccines help our friends and families - of all ages - to safely gather.

Families and Friends

Vaccines help us prevent spread of infections to our families and others near us.

Keep in mind -- we don't always know the medical history of the person next to us during work, play, or worship.

#2 Vaccines help our friends and families - of all ages - to safely gather.

Elders

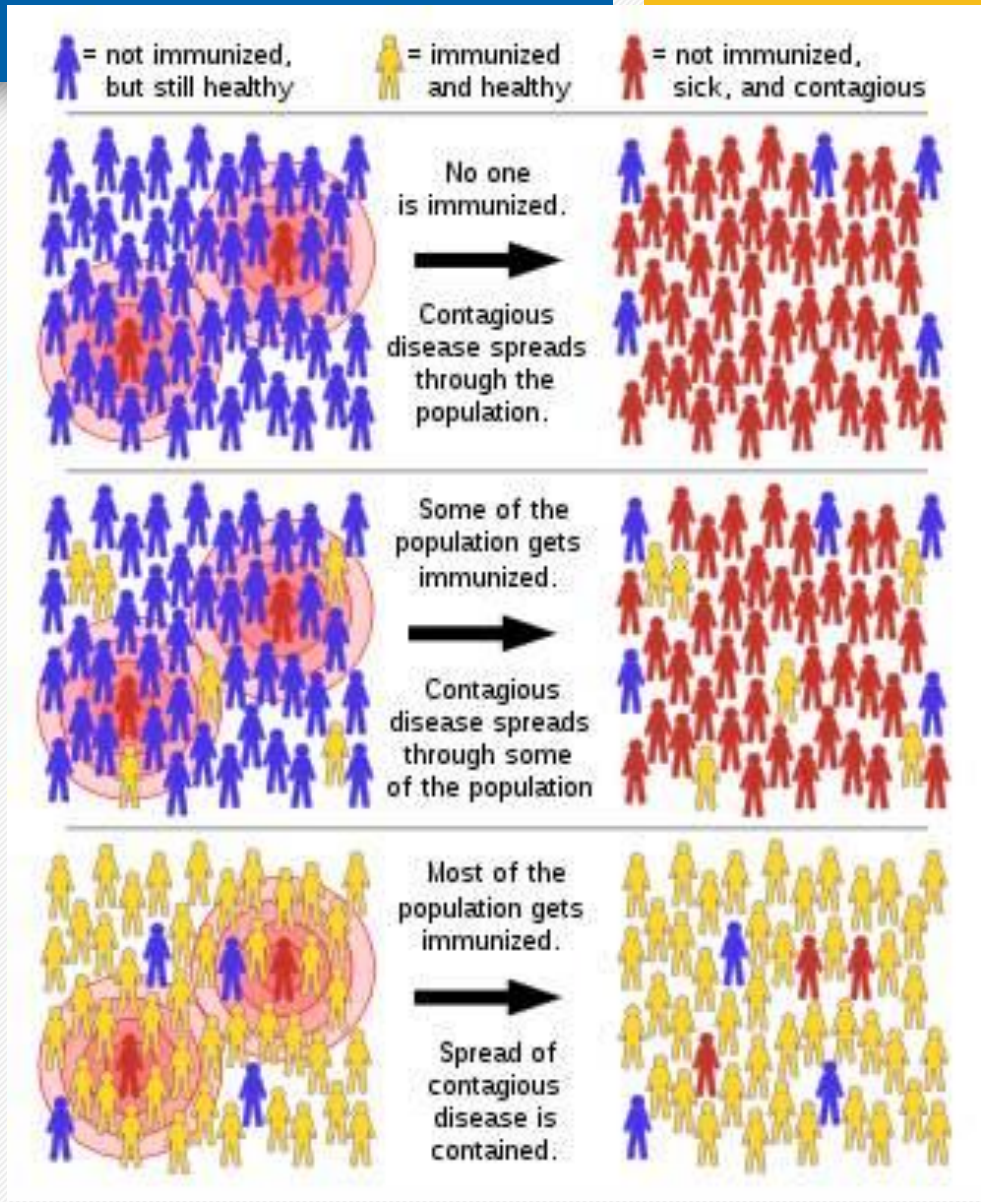
Some infections, like flu, can take a big toll on people ages 65 and older.

If the people around them get vaccinated, that reduces their risk of exposure.

#3 Vaccines help keep our neighbors and communities safer.

Community immunity: When enough people are immunized against a disease, it's difficult for the disease to spread in the community.

This offers some protection to people who are unable to receive vaccinations.

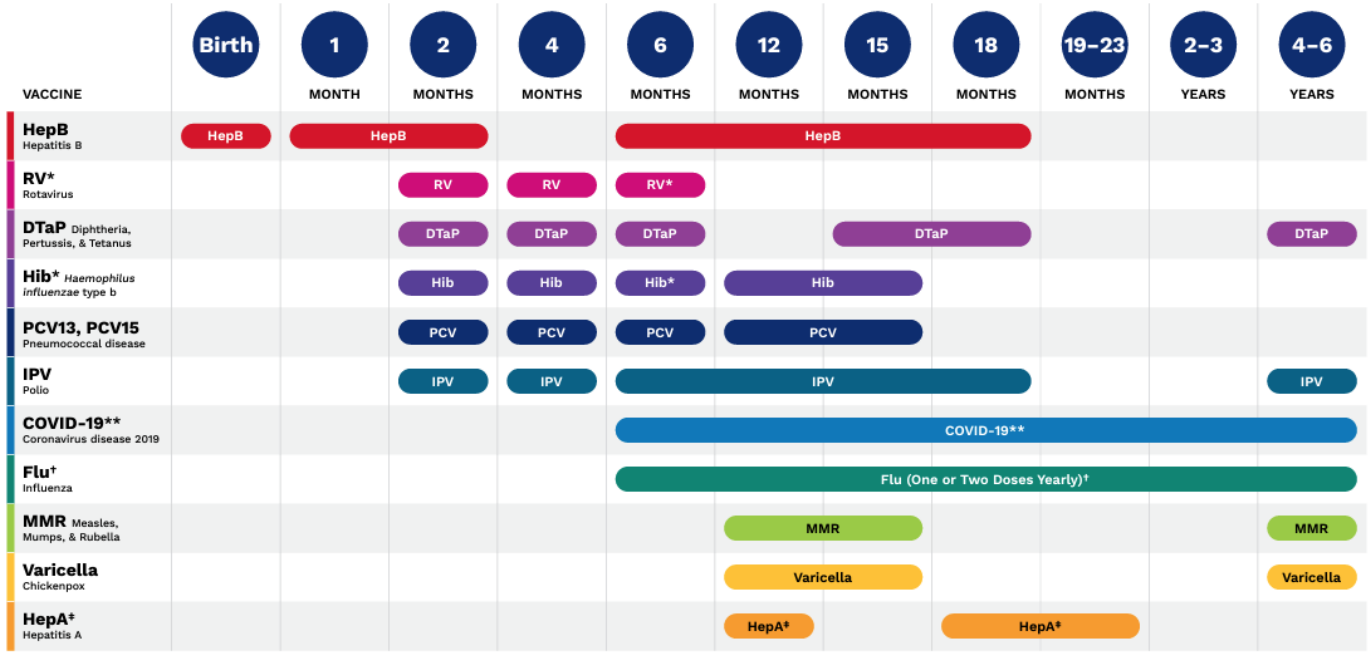


What diseases do vaccines prevent?

Ages birth to 6 years

Birth to 6 Years Immunization Schedule

2023 Recommended Immunizations for Children from Birth Through 6 Years Old



FOOTNOTES

RV* Hib* Administering a third dose at age 6 months depends on the brand of Hib or rotavirus vaccine used for previous dose.

COVID-19** Number of doses recommended depends on your child's age and type of COVID-19 vaccine used.

Flu† Two doses given at least 4 weeks apart are recommended for children age 6 months through 8 years of age who are getting an influenza (flu) vaccine for the first time and for some other children in this age group.

HepA‡ Two doses of Hep A vaccine are needed for lasting protection. The 2 doses should be given between age 12 and 23 months. Both doses should be separated by at least 6 months. Children 2 years and older who have not received 2 doses of Hep A should complete the series.

ADDITIONAL INFORMATION

1. If your child misses a shot recommended for their age, talk to your child's doctor as soon as possible to see when the missed shot can be given.

2. If your child has any medical conditions that put them at risk for infection (e.g., sickle cell, HIV infection, cochlear implants) or is traveling outside the United States, talk to your child's doctor about additional vaccines that they may need.

Talk with your child's doctor if you have questions about any shot recommended for your child.

U.S. Department of Health and Human Services
Centers for Disease Control and Prevention

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

AAFP American Academy of Family Physicians

American Academy of Pediatrics
DEDICATED TO THE HEALTH OF ALL CHILDREN™

Why do we want to prevent these diseases?

Click on the schedule to open the full PDF in web browser.

Hepatitis B
A virus that can destroy the liver

- **Spread:** Through contact with blood, saliva, body tissues, or the fluids of an infected person.
- **Vaccine reactions**: If any, tend to be mild, such as soreness at the injection site or slight fever.
- **The first dose:** This should be given in the delivery center because any exposure to hepatitis B in the newborn period is a medical emergency.

Hepatitis B
A virus that can destroy the liver

Infants are at special risk because if they become infected from their mothers at birth or during infancy:

- 90% will develop a life-long hepatitis B infection
- 25% of those with this long-term infection will develop liver cancer or liver failure later in life.

Many adults need hepatitis B vaccine, too, because they did not get it when they were children. If you are not sure whether you've been vaccinated, *check with your doctor!*

Rotavirus

A virus that causes severe diarrhea

- **Spread**: From other people and surfaces.
- **Disease:** Rotavirus causes vomiting, diarrhea, and fever. Once ill, infants can quickly become dehydrated. **Before rotavirus vaccine was added** to the childhood immunization schedule, **up to 70,000 children were hospitalized each year** in the U.S. due to rotavirus.
- **Vaccine reactions:** Rare, mild reactions can include fever and diarrhea.

Haemophilus influenzae type b (Hib)
It used to be the #1 bacteria to cause meningitis.

- **Spread:** Through coughing or from contact with an infected person's saliva.
- **Disease:** Hib causes severe infections of the brain, throat, and blood. Meningitis is an inflamed lining of the brain and spinal cord.
- **The disease is extremely serious:**
  - Fatal in 5% of patients
  - Causes brain damage in 10% to 30% of survivors
- **Vaccine reactions**: This can cause soreness at the injection site. It is not associated with serious side effects.

Pneumococcus

A bacteria that causes problems for young & old

- **Spread:** People have the bacteria in their nose or throat, which spreads to others through direct contact with airway fluids.
- **Disease:** Prior to the use of this vaccine, each year in the U.S. pneumococcal disease caused:
  - 5 million ear infections
  - 13,000 blood infections
  - 700 cases of meningitis
  - 200 deaths
- **Vaccine reactions:** This vaccine can cause soreness at the injection site and low-grade fever.

Bonus! When children receive this vaccine, they don't spread pneumococcus to grandparents.

Polio

A virus that causes paralysis and limb "withering"

- **Spread:** When the feces of an infected person gets into the mouth of another person through contaminated water or food.
- **Disease**: Polio virus can spread to the nervous system and cause short- or long-term paralysis.
- **Vaccine reactions**: May cause soreness where it was injected. It is not associated with serious side effects.

The photo is from Rotary International, which has long worked to stop the spread of polio.

Polio

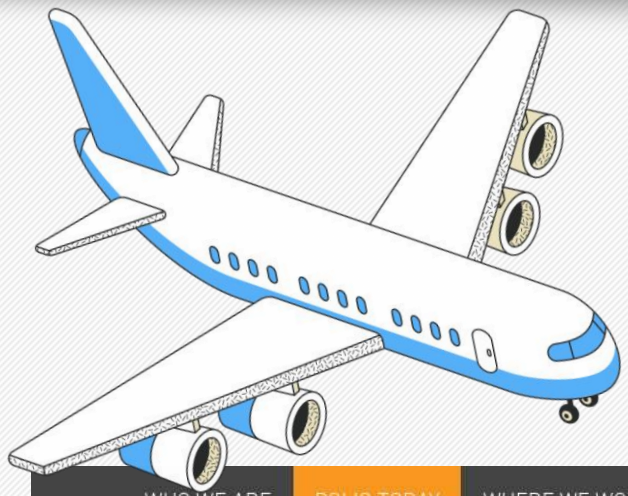
A virus that causes paralysis and limb "withering"

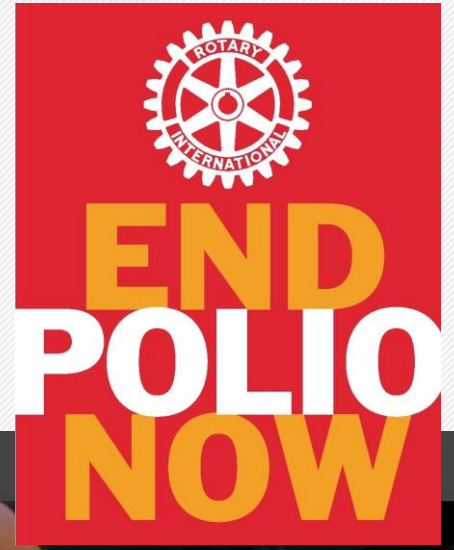
Eradicate polio!

While polio was eliminated from the U.S. in 1979, it is only a plane ride away.

The world is trying to *eradicate polio forever* as we did with smallpox.

Vaccinating your child is a key way to help reach this goal.

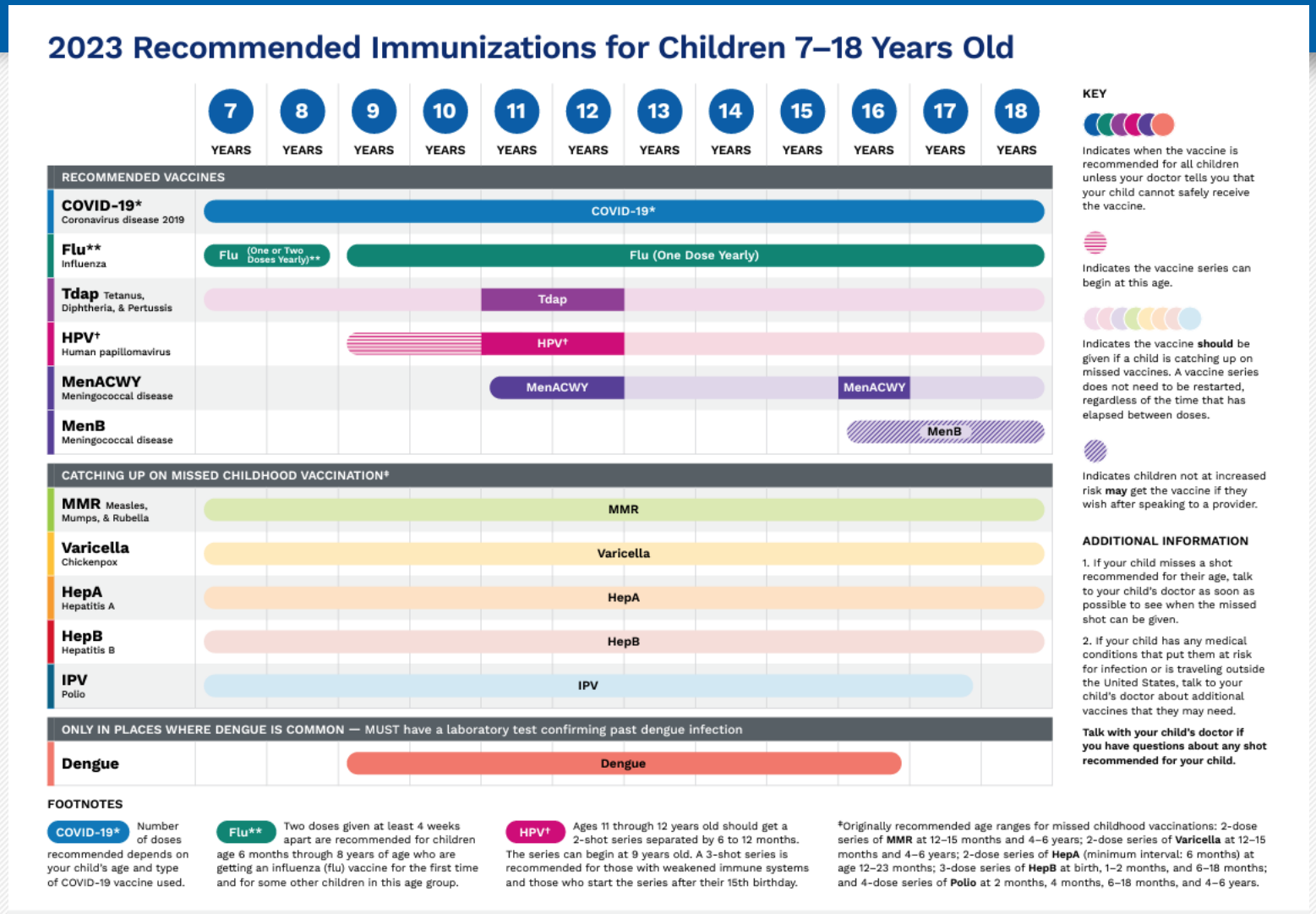




What diseases can vaccines prevent?

Ages 7-18 years

7 to 18 Years Immunization Schedule



Why do we want to prevent these diseases?

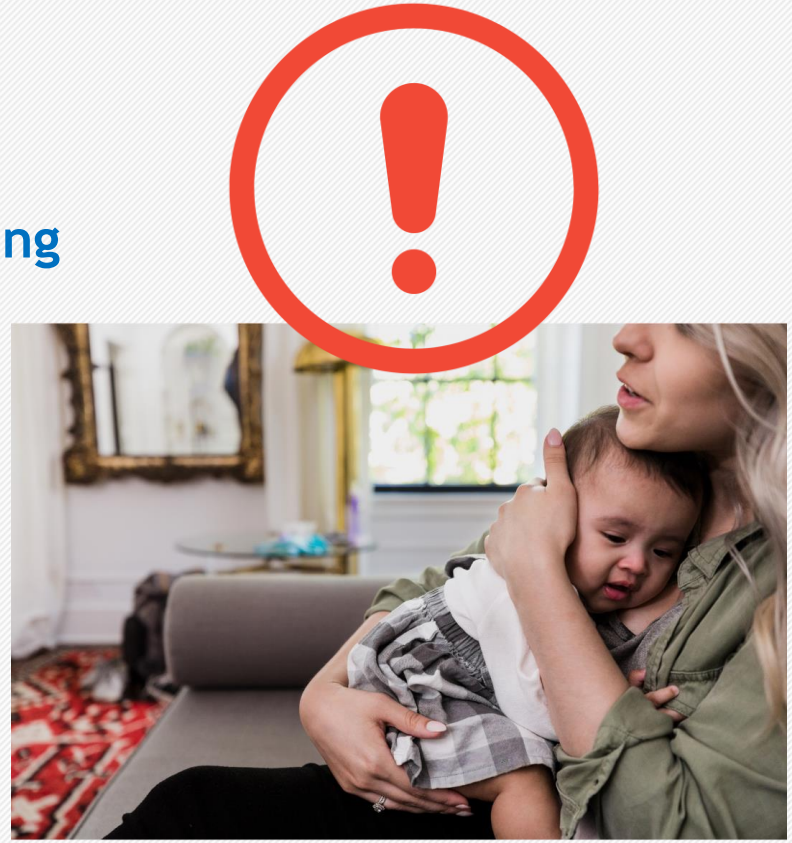
Click on the schedule to open the full PDF in web browser.

Pertussis (In the Tdap vaccine)
Also known as Whooping Cough

- **Spread:** Droplets produced during coughing or sneezing carry the bacteria to others nearby. **Many infants who get pertussis are infected by older siblings, parents, or caregivers** who might not even known they have the disease.
- **Disease:** After a week or two of 'cold' symptoms, the person may have…
  - Fits of many, rapid coughs followed by a high-pitched “whoop” sound
  - Throwing up during or after coughing fits
  - Feeling very tired after coughing fits
- **Vaccine reactions**: Redness, swelling, pain, and tenderness at the injection site is most common. Some people get body-ache, fatigue, or even a fever.

Pertussis (In the Tdap vaccine)
Also known as Whooping Cough

- **Disease complications:** Teens and adults often have complications that are unpleasant, but infants and young children are **in danger**.
    - 1 out of 4 (23%) get lung infection
    - 1 out of 100 (1.1%) will have convulsions
    - 3 out of 5 (61%) will have slowed or stopped breathing
    - 1 out of 300 (0.3%) will have disease of the brain
    - 1 out of 100 (1%) will die



Human Papillomavirus (HPV)

A virus that causes cancers

- **Spread**: from mother to infant, non-sexually from person-to-person or sexually.
- **Disease:** HPV can cause cancer of the base of the tongue and tonsils, cervix, vulva, vagina, penis, or anus. *The cancer often develops years, or even decades, after infection.*
- **Vaccine reactions:** HPV vaccine can cause pain, redness, or swelling in the arm where the shot was given. A few adolescents get fever, fainting, nausea, headache, or tired feeling.

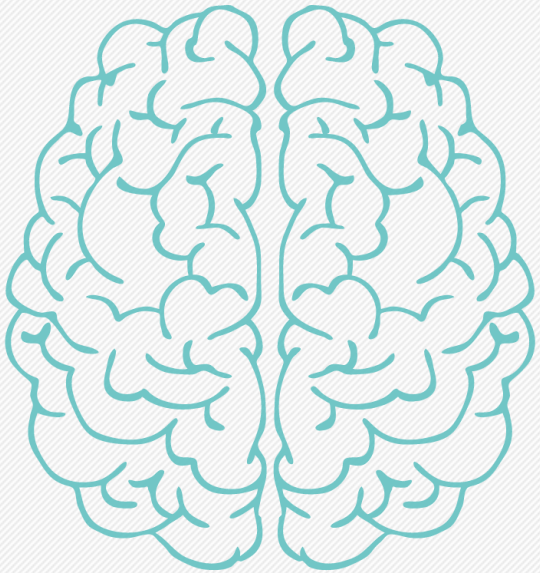
Visit the American Cancer Society "HPV Cancer Free" website

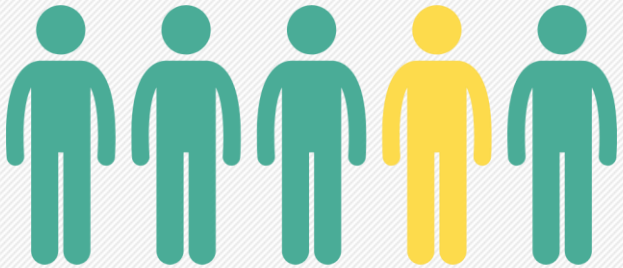
Meningococcus
Uncommon, but devastating

- **Spread:** from person-to-person by coughing or coming into close or lengthy contact with someone who is sick or who carries the bacteria without knowing it.
  - Contact includes kissing, sharing drinks, or living together.
  - Up to 1-in-10 people carry this bacteria in their nose or throat without getting sick.
- **Disease:** This causes severe infections of the brain and blood as well as loss of fingers, hands, feet, and limbs.
- **Vaccine reactions**: As with the other vaccines in this lesson, this can cause soreness at the injection site, fever, headache, nausea, and fatigue.

Meningococcus
Uncommon, but devastating

- **The disease can be extremely serious**
  - Meningitis is the inflamed lining of the brain and spinal cord.
  - Even with antibiotic treatment, **10-15% of infected people will die**.
  - Up to **1-in-5 survivors will have long-term disabilities**, such as loss of limb(s), deafness, nervous system problems, or brain damage.





On-time Vaccination is the Best Choice

Then and Now
Vaccination is still the best choice

Measles cases in the United States, 1944-2007
https://newsforkids.net/articles/2018/08/28/without-vaccines-measles-numbers-grow/

In the past, parents feared diseases such as measles, and were eager to have their children vaccinated.

Then and Now
Vaccination is still the best choice

If you want your child to be active in school and sports, *immunization is the best choice*.

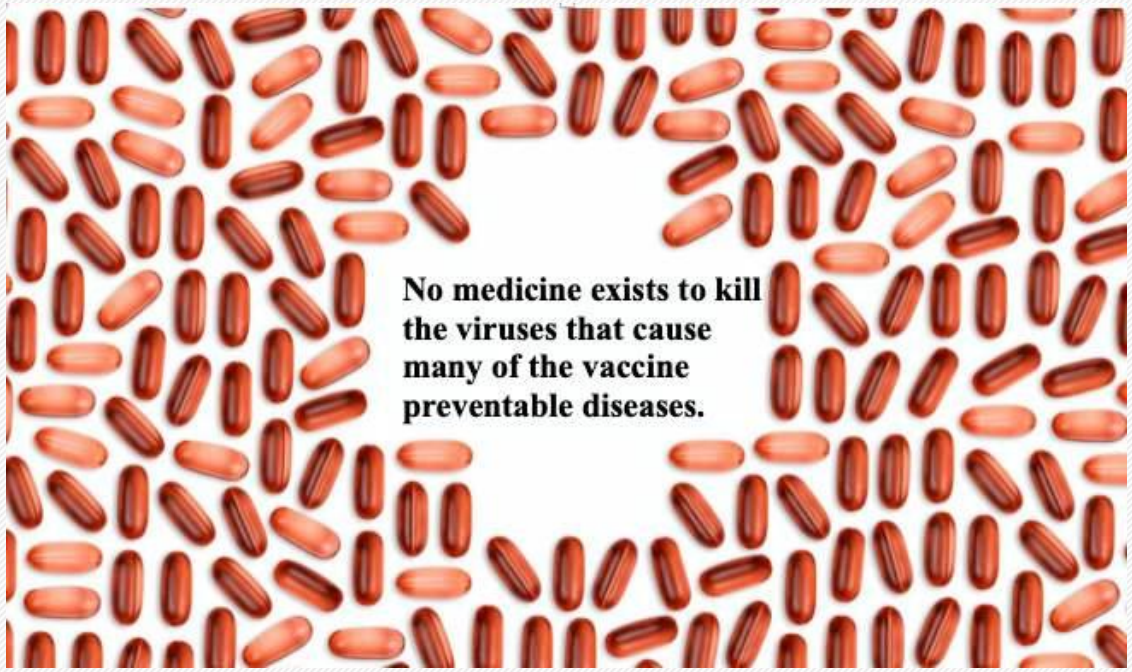
On-time vaccination was and is still the best choice for children and adolescents. **Here's why…**

1) Vaccines are still needed.

Vaccine preventable diseases are still among us.

Dinosaurs are frightening, but extinct. Other than smallpox, the vaccine preventable diseases are still among us. Some diseases such as tetanus and flu will *never* be eradicated.

1) Vaccines are still needed.



There is no medicine to kill many viruses.

Once you are infected with many viruses, we can treat symptoms, but there is no medicine to rid the body of the infection.

1) Vaccines are still needed.

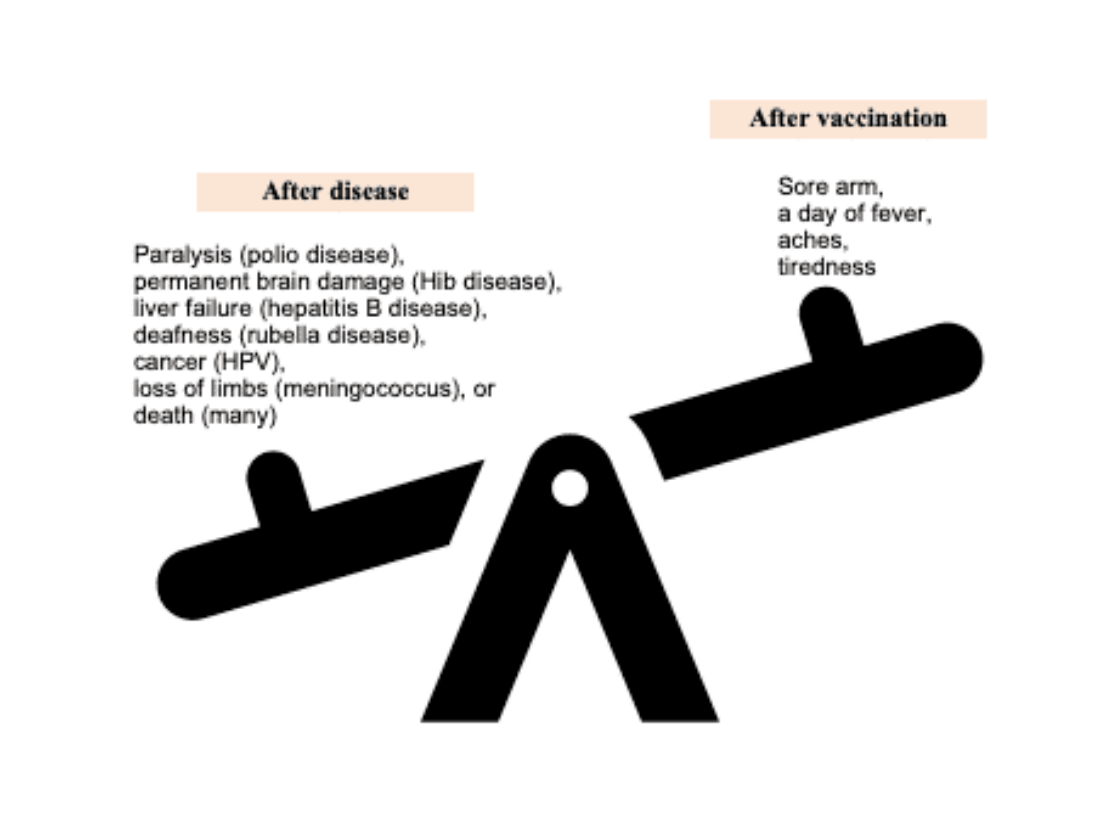
Vaccination is better than natural infection.

Vaccination is better than natural infection because vaccination has LESS side effects.

After vaccination people may have a sore arm, a day of fever, aches, tiredness.

After natural infection people may have:

- Paralysis (polio disease)
- Permanent brain damage (Hib disease)
- Liver failure (hepatitis B disease)
- Deafness (rubella disease)
- Cancer (HPV)
- Loss of limbs (meningococcus)
- Death (many)



1) Vaccines are still needed.

Vaccines help prevent the spread of disease.

Vaccines protect the person who receives them and, indirectly, the people close to them.

1) Vaccines are still needed.

Prevention is better than a cure (or just hoping my loved one is not infected).

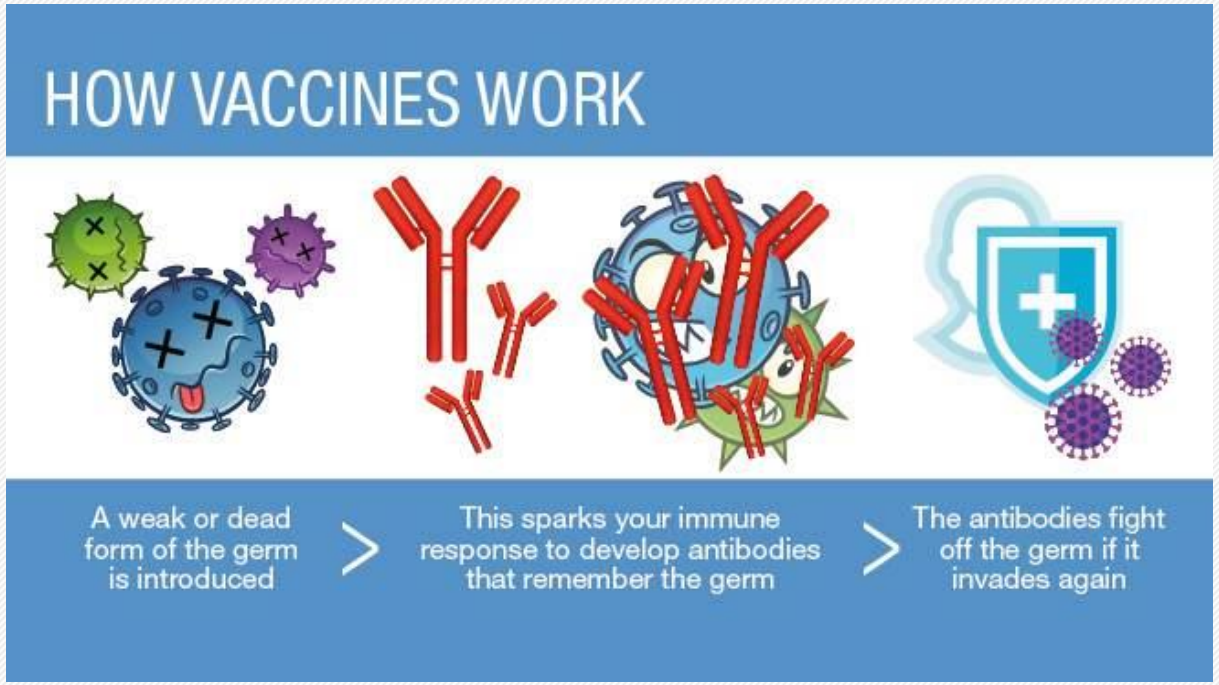
Protection through vaccination has been shown to be more effective and safer.

There is no specific medicine to fight most of the viruses that cause vaccine-preventable diseases. For example, there is no specific medicine against polio virus, HPV, or measles.

2) Vaccines work.

Vaccines work with the natural immune system.

- A vaccine contains some part or parts of the disease germ – called **antigens**. When the antigen is injected, the body recognizes the invader and makes **antibodies**.
- Unlike the actual disease germ, the vaccine does not overwhelm the immune system; the person does not get the disease.
- While the antibodies fight the antigens, the immune system creates **memory cells** to help fight off the disease should the person ever be exposed to it again.



2) Vaccines work.

This system really works!

Haemophilus influenzae type b (Hib) vaccine

HPV vaccines

2) Vaccines work.

This system really works!

After getting a full series of the modern Hib vaccine, more than 95% of infants develop antibody levels high enough to provide protection.

HPV vaccines

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This system really works!

After getting a full series of the modern Hib vaccine, more than 95% of infants develop antibody levels high enough to provide protection.

Scientists did an analysis of data on more than 60 million vaccinated girls in 14 countries. They looked at infections with the 2 most common cancer-causing HPV types.

They found that -- compared with the period before vaccination – these infections decreased by 83% among girls aged 15–19 years.

2) Vaccines are safe.

Vaccine ingredients are safe.

The ingredients in vaccines may sound scary, but most of them are already part of our environments.

2) Vaccines are safe.

Thimerosal

- This organic mercury compound is used in some vaccines as a preservative.
- It was removed from routine childhood immunizations (except some influenza vaccines) as a precaution before further research was done.
- Since then, studies have shown that thimerosal is **quickly cleared from the body** and poses much less of a health risk than other mercury compounds.
- In the amounts that used to be found in vaccines, thimerosal is safe.

2) Vaccines are safe.

Formaldehyde

- This is used during the manufacturing of some vaccines.
- **Our bodies produce formaldehyde** as a natural byproduct of metabolism. So, we all have formaldehyde in our circulation.
- Very high doses of formaldehyde may pose some risk, but our bodies can handle lower doses.
- The amount of formaldehyde a 2-month old can handle is 1,500 times more than the amount an infant would be exposed to in any individual vaccine.
- **Even a pear** can contain much more formaldehyde than a vaccine (up to 600 times more).

2) Vaccines are safe.

Aluminum

- Aluminum is the **third most common mineral** in the earth's crust, so **it's everywhere--**in air, food, breast milk and formula.
- Aluminum salts (not elemental aluminum) are used as an adjuvant in vaccines. Adjuvants help the body's immune system respond to the antigens in vaccines so that smaller amounts of antigens need to be used in our vaccines.
- The amount of aluminum salts in vaccines is miniscule—and is easily processed by young children.

2) Vaccines are safe.

The Centers for Disease Control and Prevention (CDC) lists the vaccine ingredients in a table.

The table may be helpful for people concerned about particular allergies or ingredients. However, the table does not indicate how much of each ingredient is in the vaccine.

Appendix B

Vaccine Excipient Table

Vaccine (Trade Name)	Package Insert Date	Contains[a]
Adenovirus	10/2019	monosodium glutamate, sucrose, D-mannose, D-fructose, dextrose, human serum albumin, potassium phosphate, plasdone C, anhydrous lactose, microcrystalline cellulose, polacrilin potassium, magnesium stearate, cellulose acetate phthalate, alcohol, acetone, castor oil, FD&C Yellow #6 aluminum lake dye
Anthrax (Biothrax)	11/2015	aluminum hydroxide, sodium chloride, benzethonium chloride, formaldehyde
BCG (Tice)	02/2009	glycerin, asparagine, citric acid, potassium phosphate, magnesium sulfate, iron ammonium citrate, lactose
Cholera (Vaxchora)	06/2016	ascorbic acid, hydrolyzed casein, sodium chloride, sucrose, dried lactose, sodium bicarbonate, sodium carbonate
Dengue (Dengvaxia)	06/2019	sodium chloride, essential amino acids (including L-phenylalanine), non-essential amino acids, L-arginine hydrochloride, sucrose, D-trehalose dihydrate, D-sorbitol, trometamol, urea
DT (Sanofi)	06/2018	aluminum phosphate, isotonic sodium chloride, formaldehyde
DTaP (Daptacel)	01/2021[b]	aluminum phosphate, formaldehyde, glutaraldehyde, 2-phenoxyethanol
DTaP (Infanrix)	01/2021[b]	formaldehyde, aluminum hydroxide, sodium chloride, polysorbate 80 (Tween 80)
DTaP-IPV (Kinrix)	01/2021[b]	formaldehyde, aluminum hydroxide, sodium chloride, polysorbate 80 (Tween 80), neomycin sulfate, polymyxin B
DTaP-IPV (Quadracel)	02/2021	formaldehyde, aluminum phosphate, 2-phenoxyethanol, polysorbate 80, glutaraldehyde, neomycin, polymyxin B sulfate, bovine serum albumin
DTaP-HepB-IPV (Pediarix)	01/2021[b]	formaldehyde, aluminum hydroxide, aluminum phosphate, sodium chloride, polysorbate 80 (Tween 80), neomycin sulfate, polymyxin B, yeast protein
DTaP-IPV/Hib (Pentacel)	12/2019	aluminum phosphate, polysorbate 80, sucrose, formaldehyde, glutaraldehyde, bovine serum albumin, 2-phenoxyethanol, neomycin, polymyxin B sulfate
DTaP-IPV-Hib-HepB (Vaxelis)	10/2020	polysorbate 80, formaldehyde, glutaraldehyde, bovine serum albumin, neomycin, streptomycin sulfate, polymyxin B sulfate, ammonium thiocyanate, yeast protein, aluminum
Ebola Zaire (ERVEBO)	01/2021[b]	Tromethamine, rice-derived recombinant human serum albumin, host cell DNA, benzonase, rice protein
Hib (ActHIB)	05/2019	sodium chloride, formaldehyde, sucrose
Hib (Hiberix)	04/2018	formaldehyde, sodium chloride, lactose
Hib (PedvaxHIB)	01/2021[b]	amorphous aluminum hydroxyphosphate sulfate, sodium chloride
Hep A (Havrix)	01/2021[b]	MRC-5 cellular proteins, formalin, aluminum hydroxide, amino acid supplement,

Discussion Points

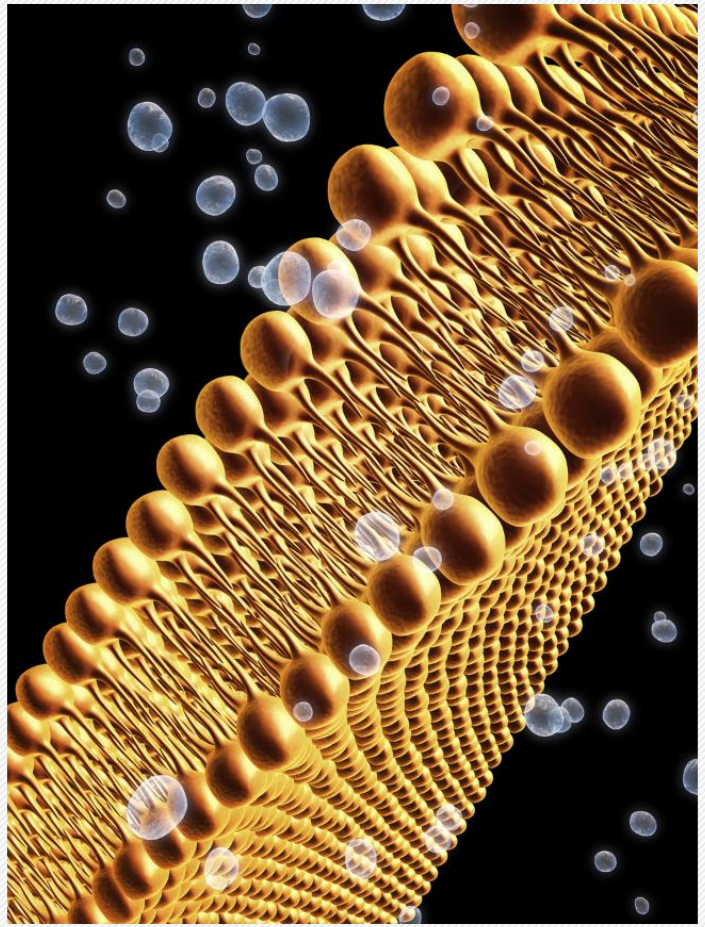
COVID-19 Vaccine

- COVID-19 lockdowns helped reduce illness, but **we all wanted to get back to normal life!**
- Through October 5, 2022, more than 6.4 million 12- to 17-year-olds got COVID-19 and 785 died.
- Parents and physicians hope vaccination makes COVID-19 a thing of the past.
- As of October 2022, there are COVID-19 vaccines (both Pfizer & Moderna) available for children 6 months-4 years and children 5-17 years.

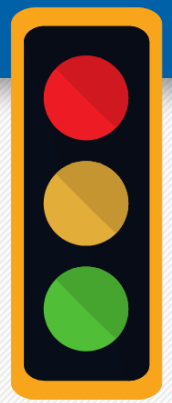
Fetal Cells

Production of varicella, rubella, rabies (one version), hepatitis A, and COVID-19 (one version) vaccines involve growing viruses in human cell culture.

- Two human cell lines provide these cultures; they were developed from two aborted fetuses in the 1960s.
- The donor fetuses **were not aborted for the purpose of obtaining these cells.**
- The same cell lines have been used for many decades – **no new fetal tissue is required.**



School Requirements



We live in communities so we depend on each other to stop at red lights.

Similarly, we ask kids to be vaccinated so they don't put others in their school in danger.

More Resources

Reliable Immunization Websites

Immunize Kansas Coalition: We are working together to protect all Kansans from vaccine preventable diseases. Our goal is to focus on improving access to and rates of adolescent immunizations, paying special attention to HPV and meningococcal vaccination rates.

immunizekansascoalition.org

Voices for Vaccines: We received inspiration & help for this module from the parent-led group, Voices for Vaccines. Voices for Vaccines supports and advocates for on-time vaccination and the reduction of vaccine-preventable disease.

voicesforvaccines.org

More great vaccine websites

- **Vaccine Education Center**: https://www.chop.edu/centers-programs/vaccine-education-center
- **Immunization Action Coalition:** www.vaccineinformation.org
- **American Academy of Pediatrics**: www2.aap.org/immunization
- **Centers for Disease Control and Prevention**: www.cdc.gov/vaccines
- **Immunize for Good**: www.immunizeforgood.com
- **Vaccinate Your Family**: www.vaccinateyourfamily.org
- **The History of Vaccines**: www.historyofvaccines.org