THE IMMUNIZATION PARTNERSHIP

Your Healthy Classroom Module Transcript

Slide 1: Hello and Welcome to The Immunization Presentation on Vaccine-Preventable Diseases, You, and Your Healthy Classroom. We are excited for you to join us today!

Slide 2: The Immunization Partnership is a Texas-based non-profit dedicated to helping individuals, physicians, and others with an interest in immunizations to protect their communities from vaccine-preventable diseases. All across Texas, The Immunization Partnership conducts educational community forums and researches immunization best practices.

Slide 3: This presentation is made possible through partnerships and funding from our listed supporters.

Slide 4: Before we get started, here is the disclaimer letting viewers know all speakers and individuals on the planning committee have no disclosed conflicts of interest. Additionally, this presentation is for educational use only and does not constitute legal or medical advice.

Slide 5: Today's presentation will cover What are Vaccine-Preventable Diseases?, What Policies are in Place to Best Protect your Classroom?, and What can **YOU** do to Keep your Classroom Healthy?

Slide 6: This section of the presentation will cover information about each of the vaccine-preventable diseases. We will talk about 17 diseases, how you can get it, how it can possibly spread in your classroom and what are the common symptoms to look for.

Slide 7: We have made great advances in vaccines over the years. In the year 1900, the only vaccine that was routinely given to children was the smallpox vaccine. In 1960, kids routinely received five vaccines. In 1980, the seven vaccines were routinely administered. In the early 2000's children received 11 routine vaccines and now children are protected from 16 different diseases and 7 types of cancers by the time they turn 18!

Even so, it's important to note that human bodies are pretty incredible. When we're in the womb, we're in a sterile environment. We're safe and warm and protected. But the minute we're born, we're faced with an onslaught of viruses and bacteria. *Thousands* of antigens. A child easily is exposed to far more crawling around on the floor than through vaccination. And our body is ready for that. Of course, it gets stronger over time. But the amount that our immune system has to deal with isn't just a drop in the bucket, it's a drop in the *ocean*. Each vaccine helps to build antibodies and protect our bodies.

Slide 8: Vaccination has made an enormous contribution to global health. Immunization prevents deaths every year in all age groups from diseases like tetanus, pertussis, flu and measles. It is one of the most successful and cost-effective public health interventions.

Successful immunization campaigns have successfully eradicated smallpox world-wide and eliminated polio, measles, rubella and diphtheria from the US.

The eradication of smallpox world-wide means there are zero cases in all countries, and we no longer need to vaccinate against it. The elimination of polio, measles, rubella and diphtheria means we still have cases in circulation in other countries, but we do not have cases that start in the US. We still need to vaccinate against these vaccine preventable diseases.

Now let's jump into some of the history of the vaccines we still give today, the details of the different diseases each vaccine prevents, and why its so important these diseases are no longer spreading in our communities.

Slide 9: Measles is a highly contagious viral infection that starts in the respiratory system and results in a skin rash.

Measles is spread through droplet transmission from the nose, throat, and mouth of someone who is infected with the virus. These droplets are sprayed when the infected person coughs or sneezes.

Among unimmunized people exposed to the virus, over 90% will contract the disease.

Symptoms don't typically appear until 10 to 14 days after exposure and include fever, runny nose, cough, and red eyes.

In addition to flu-like symptoms, it can cause a characteristic rash that starts at the hairline and gradually proceeds to the face, neck and the rest of the body.

In the US we have a combined vaccine for measles, mumps and rubella. In previous slides we learned both rubella and measles are considered eliminated from the US. However, we have seen a resurgence of measles over the last few years and almost lost the elimination status in 2019.

The MMR vaccine is vital to protecting our children! The CDC recommends children get 2 doses of the vaccine, the first one between 12 to 15 months of age and the second between ages 4 and 6. Although MMR is generally only recommended for children 12 months or older, the CDC recommends a vaccination for infants younger before travel because the disease are much more common in other locations. Fortunately, MMR is only recommended for adults during an outbreak situation.

Before the vaccine was licensed in 1963, there were an estimated 3–4 million cases each year. By 2004, only 37 cases were reported. However, new cases continue to be reported, primarily in populations that have refused vaccination for religious or personal belief reasons. In 2015, a large multi-state outbreak linked to an amusement park in California received reports of 188 measles cases.

The continued occurrence of measles outbreaks among unvaccinated people in the United States reinforces the importance of maintaining high vaccination coverage rates to prevent transmission of the disease.

John Enders developed the 1st measles vaccine from an isolated measles virus he took from an ill student during a 1954 outbreak in Boston. Although the vaccine was first developed in 1963, Maurice Hilleman created an improved vaccine that is still used today. Originally, the vaccine had to be given with human blood proteins to lessen side effects. Hilleman weakened his vaccine by passing the virus through chick embryo cells 40 more times, eliminating the need for proteins. **The measles vaccine was Maurice Hilleman's first, but his research led to the creation of over 40 other vaccines.**

References:

- https://www.cdc.gov/vaccines/hcp/vis/vis-statements/mmr.html
- https://www.cdc.gov/measles/about/history.html
- https://www.historyofvaccines.org/timeline#EVT_100517
- https://www.ncbi.nlm.nih.gov/pmc/articles/PMC557162/

Slide 10: Mumps is a viral infection that primarily affects saliva-producing (salivary) glands that are located near your ears. Mumps can cause swelling in one or both of these glands

Mumps is spread through droplet transmission from the nose, throat, and mouth of someone who is infected with the virus.

These droplets are sprayed when the infected person coughs or sneezes. It can also be found on surfaces and touching those objects or surfaces can transmit the virus.

Symptoms include fever, headache, loss of appetite, tiredness, and swollen and tender salivary glands under the ears on one or both sides. They typically appear 16-18 days after infection.

Before the vaccine program was started in 1967, there were an estimated 186,000 cases each year. Since then there has been a 99% decrease in the US. However, new cases continue to be reported, primarily in populations that have refused vaccination for religious or personal belief reasons. In 2006, a large multi-state outbreak reported more than 6,500 cases, mostly in Midwestern college-age students. The continued occurrence of mumps outbreaks among unvaccinated people in the United States reinforces the importance of maintaining high vaccination coverage rates to prevent transmission of the disease.

Slide 11: Tetanus is a serious bacterial infection that causes painful muscle spasms and can lead to death.

It is the only vaccine-preventable disease that is not transferred from person to person and instead can be found in soil, rust and manure.

The spores can get into the body through broken skin, usually through injuries from contaminated objects. Certain breaks in the skin are more likely to get infected with tetanus bacteria. These include:

- Wounds contaminated with dirt, poop (feces), or spit (saliva)
- Wounds caused by an object puncturing the skin (puncture wounds), like a nail or needle
- Burns
- Crush injuries

- Injuries with dead tissue

Tetanus is often called “lockjaw” because one of the most common signs of this infection is tightening of the jaw muscles.

Slide 12: *Pertussis,* or *whooping cough*, is a highly contagious bacterial infection that affects the lungs and airways. The disease causes violent and uncontrollable coughing, making it hard to catch your breath. Pertussis can be deadly, especially in newborns.

Pertussis spreads through the air, from one person to another, when an infected person coughs or sneezes.

Pertussis symptoms typically appear 5 to 10 days after exposure, with a range of 4 to 21 days. After 1 to 2 weeks, the cough usually occurs in strong “coughing fits.” In young children, this is often followed by a whooping sound, as they try to catch their breath.

In its early stages, pertussis appears as nothing more than the common cold and is not usually diagnosed until more severe symptoms appear.

Recovery is slow which leaves people open to other respiratory infections for many months.

Tetanus and Pertussis can be part of a combined vaccine called DTaP or Tdap or TD. As we learned on a previous slide diphtheria has been eliminated from the US, but is not yet eradicated so we still vaccinate for it because it is just a plane ride away.

DTaP is a vaccine that helps children younger than age 7 develop immunity to three deadly diseases caused by bacteria

Tdap is a combination vaccine that protects against three potentially life-threatening bacterial diseases: tetanus, diphtheria, and pertussis (whooping cough).

Td is a booster vaccine for tetanus and diphtheria. It does not protect against pertussis.

Booster shots are necessary every 10 years and it is important for women to get the Tdap each pregnancy in the third trimester to provide protection for the new baby.

Slide 13: Hepatitis B is a serious infection that affects the liver. It is caused by the hepatitis B virus.

Hepatitis B virus is easily spread through contact with the blood or other bodily fluids of an infected person. A baby whose mother is infected can be infected at birth. Children, adolescents, and adults can become infected by:

Contact with blood and bodily fluids through breaks in the skin such as bites, cuts, or sores.

Contact with objects (where the virus can live for up to 7 days) that have blood or bodily fluids on them such as toothbrushes, razors, or monitoring and treatment devices for diabetes.

Having unprotected sex with an infected person.

Sharing needles when injecting drugs.

Being stuck with a used needle that is contaminated with hepatitis b virus, such as when getting a tattoo or piercing.

Infants and young children usually show no symptoms. In about 7 out of 10 older children and adults, acute hepatitis B causes the following:

- Loss of appetite
- Mild fever
- Tiredness
- Pain in muscles, joints, and stomach
- Nausea, diarrhea, and vomiting
- Dark urine
- Tan-colored bowel movements
- Yellow skin and eyes

Symptoms of short-term illness usually appear 3 or 4 months after infection.

The first hepatitis B vaccine was approved in the United States in 1981. A recombinant version came to market in 1986. Both versions were developed by Maurice Hilleman and his research team.

In 2016, about 3,200 people became infected with acute Hepatitis B. Acute illness, with symptoms, is more common among adults. Chronic infection is more common among infants and children than among adults. People who are chronically infected can spread the Hepatitis B virus to others, even if they don't look or feel sick. Up to 1.2 million people in the United States may have chronic Hepatitis B infection.

Each year about 2,000 to 4,000 people die in the United States from cirrhosis or liver cancer caused by hepatitis B.

Routine Hepatitis B vaccination was recommended for some U.S. adults and children beginning in 1982, and for all children in 1991. Since 1990, new Hepatitis B infections among children and adolescents have dropped by more than 95 percent – and by 75 percent in other age groups.

Resources:

- Moticka E (25 November 2015). *A Historical Perspective on Evidence-Based Immunology*. p. 336. ISBN 9780123983756.
- Tulchinsky, Theodore H. (2018). "Maurice Hilleman: Creator of Vaccines That Changed the World". *Case Studies in Public Health*: 443–470. doi:10.1016/B978-0-12-804571-8.00003-2. PMC 7150172.

Slide 14: Chickenpox is a common childhood disease caused by the varicella-zoster virus (VZV). It is usually mild, but it can be serious, especially in young infants, adults, and those with weakened immune systems.

Chickenpox is very contagious and can spread through the air or by contact with fluid from chickenpox blisters.

Chickenpox can also spread by a person with shingles (also caused by the VZV) through the air or by contact with fluid from shingles blisters.

It can take up to 21 days for someone to develop chickenpox after exposure.

A person with chickenpox can spread the virus 1 to 2 days before they get the rash, throughout the 5 to 7 days of illness, and 5 to 7 days after scabs have formed.

Common symptoms include:

- Rash
- Itching
- Fever
- Tiredness
- Headaches
- Loss of appetite

The chickenpox vaccine is a live, attenuated vaccine and is not recommended for people with weakened immune systems. It is available as a single vaccine, and it is also available as part of the MMRV vaccine (measles, mumps, rubella, and varicella vaccine).

The chickenpox vaccine was added to the childhood immunization schedule in 1995. The booster dose was added in 2006.

While everyone is at risk for chickenpox, it is most common in children. Most people will get chickenpox at some point in their lives, unless they have had the vaccine. Chickenpox can have serious complications for people with weakened immune systems. Unfortunately, these people cannot receive the vaccination and heavily rely on others to be vaccinated to help protect them.

Chickenpox can have serious complications that include infected blisters, pneumonia, bleeding disorders and swelling of the brain (encephalitis). It can lead to scars, severe skin infection, pneumonia, brain damage or death. *Before the vaccine, about 11,000 people were hospitalized for chickenpox each year in the*

United States. Also, about 100 people died each year.

A person who has had chickenpox can get a painful rash called shingles years later.

Resources:

- https://www.historyofvaccines.org/content/articles/chickenpox-varicella

Slide 15: Hepatitis A is a liver infection caused by the Hepatitis A virus (HAV). A is highly contagious. It is usually transmitted by the fecal-oral route, either through person-to-person contact or consumption of contaminated food or water.

How does Hepatitis A spread?

Person to person contact

- when an infected person does not wash his or her hands properly after going to the bathroom and touches other objects or food
- when a parent or caregiver does not properly wash his or her hands after changing diapers or cleaning up the stool of an infected person
- when someone has sex or sexual contact with an infected person. (not limited to anal-oral contact)

Hepatitis A can be spread by eating or drinking food or water contaminated with the virus. (This can include frozen or undercooked food.) This is more likely to occur in countries where Hepatitis A is common and in areas where there are poor sanitary conditions or poor personal hygiene. The food and drinks most likely to be contaminated are fruits, vegetables, shellfish, ice, and water. In the United States, chlorination of water kills Hepatitis A virus that enters the water supply.

If you do have symptoms, they may include the following:

- Fever
- Fatigue
- Loss of appetite
- Nausea
- Vomiting
- Abdominal pain
- Dark urine
- Clay-colored bowel movements
- Joint pain
- Jaundice (a yellowing of the skin or eyes)

But many will not experience any symptoms

Several vaccines for hepatitis A are available in the United States, including several combination vaccines. It has been part of the routine childhood immunization schedule since 1994. The vaccine was created by doctors Maurice Hilleman and Francis Andre

Since the development of the vaccine, rates of infection have declined more than 95 percent. In 2016 there were an estimated 4,000 cases in the US. Hepatitis A virus able to survive outside the body for months. High temperatures, such as boiling or cooking food or liquids for at least 1 minute at 185°F, kills the virus. Freezing temperatures do not kill the virus.

Resources:

- https://www.historyofvaccines.org/index.php/content/articles/hepatitis-and-hepatitis-b
- https://aasldpubs.onlinelibrary.wiley.com/doi/full/10.1002/cld.1018

Slide 16: Meningococcal disease refers to any illness caused by bacteria called Neisseria meningitidis, also known as meningococcus.

These illnesses are often severe and can be deadly. Sometimes within 24 hours on first symptoms.

These bacteria spread through the exchange of respiratory and throat secretions like spit.

It is often spread by living in close quarters or by activities such as kissing.

Most common symptoms include:

- Fever
- Headache
- Stiff neck

Also be aware of the following symptoms:

- Nausea
- Vomiting
- Photophobia (eyes being more sensitive to light)
- Altered mental status (confusion)

Some fun facts about the Meningococcal vaccines available:

The meningitis vaccinations are effective for 4 out of the 5 common bacterial types. Those 4 types cause 70% of infections in the U.S. Increased promotion & use of the meningitis vaccine has lowered the frequency of outbreaks. In just the 1 year between 1992 and 1993, there were 8 identifiable outbreaks. In the past 11 years there has only been 13.

There are two types of meningitis vaccines, meningococcal conjugate vaccine, which is the one generally required if there is a mandate, and the serogroup B vaccine created by Maurice Hilleman and his research team. The CDC recommends the conjugate vaccine for preteens between ages 11 and 12 and a booster at age 16. Young adults and teens between 16 to 23 can also get a serogroup B vaccine because they are in the age group most at risk. It is ideal to get a serogroup B vaccine between 16 and 18.

According to the CDC, there are 1,000-2,600 cases each year and 1 out 10 cases result in death. 11-19% of those that survive meningitis have continuing health problems from the disease such as loss of limbs and hearing, blindness, nervous system problems, learning disability, kidney failure, seizures, and strokes. Meningitis can be contained by antibiotic if it is caught extremely early, but death and health problems are still possible. Meningitis infection progresses quickly, death can even result in 24 hours and the initial symptoms mimic typical flu. It is important to get vaccinated to prevent ever contracting this dangerous and fast disease.

Because college students are at greater risk for contracting meningitis, universities are beginning to have vaccine requirements. Jamie Schanbaum was a 19 year old student at the University of Texas who contracted meningitis and lost her fingers and lower legs. In response to her and other's advocation, Texas passed SB 1107 also known as the Jamie Schanbaum Law that requires all students living on campus to have been vaccinated. Two years later, Nicolis Williams, a 20 year old student at A&M, passed away from meningitis. Following Nicolis's tragedy, Texas passed HB 1816 known as the Nicolis Williams Law expanding university vaccine requirements to all students, living on or off campus. Texas is the first state to make this expansion. As of now, there is no legislation regarding the Serogroup B meningitis vaccine, only the conjugate discussed earlier.

Resources:

- https://www.cdc.gov/meningitis/bacterial.html#reference
- http://www.ncsl.org/research/health/meningitis-state-legislation-and-laws.aspx#W
- http://www.thecb.state.tx.us/reports/PDF/8106.PDF?CFID=79331274&CFTOKEN=60120648
- https://www.cdc.gov/vaccines/vpd/mening/public/index.html
- https://www.texastribune.org/2012/08/10/meningitis-vaccine-mandate-could-get-tweaked-2013/
- http://www.thecb.state.tx.us/reports/PDF/8106.PDF?CFID=79331274&CFTOKEN=60120648

Slide 17: Rotavirus causes severe diarrhea and vomiting. It affects mostly babies and young children. Diarrhea and vomiting can lead to serious dehydration (loss of body fluid).

If dehydration is not treated, it can be deadly.

Rotavirus spreads easily. The virus is in the stool of people who are infected. A person can get sick if they touch an object contaminated with rotavirus and put their hand in their mouth or consume contaminated food or drinks.

The disease commonly spreads in:

- Families
- Hospitals
- Childcare centers.
- Schools

What are the symptoms of Rotavirus?

- Severe watery diarrhea
- Vomiting
- Fever
- Abdominal pain

- Diarrhea and vomiting can last for 3 to 8 days. Children may stop eating and drinking while they are sick.

Infection is most common December through June**.**

Slide 18: What is Haemophilus influenzae type B ?

Haemophilus influenzae type b (Hib) disease is a serious disease caused by bacteria. It usually affects children under 5 years old. It can also affect adults with certain medical conditions.

Hib disease was the leading cause of bacterial meningitis among children

Hib is spread person-to-person through respiratory droplets that occur when someone who has the bacteria in their nose or throat coughs or sneezes.

Hib causes different symptoms depending on which part of the body is affected. The most common severe types of *H. influenzae* disease are:

- Pneumonia (lung infection)
- Bacteremia (bloodstream infection)
- Meningitis (infection of the covering of the brain and spinal cord)

Slide 19: Pneumococcal disease is an infection caused by *Streptococcus pneumoniae* bacteria, sometimes referred to as pneumococcus. Pneumococcus can cause many types of illnesses, including ear infections and meningitis.

How does Pneumococcal spread?

Anyone can get pneumococcal disease, but some people are at greater risk for disease than others. Being a certain age or having some medical conditions can put you at increased risk for pneumococcal disease.

Spreads from person-to-person by direct contact with respiratory secretions, like saliva or mucus.

Pneumococcal (lung infection) is the most common serious form of pneumococcal disease.

Symptoms include:

- Fever and chills
- Cough
- Rapid breathing or difficulty breathing
- Chest pain
- Low alertness
- Ear pain, a red, swollen ear drum
- Stiff neck
- Headache
- Pain when looking into bright lights
- Confusion

Pneumococcal vaccines help protect against some of the more than 90 types of pneumococcal bact**eria.**

Slide 20: The flu is a highly contagious respiratory infection caused by the influenza virus. The influenza virus usually enters the body through mucus membranes in the mouth, nose, or eyes.

When a person with the flu coughs or sneezes, the virus becomes airborne and can be inhaled by anyone nearby.

You can also get the flu if you've touched a contaminated surface like a telephone or a doorknob, and then touch your nose, eyes, or mouth.

- The risk of infection is greater in highly populated areas like schools, buses, and crowded settings.
- A fever of 100 degrees or higher (although not everyone with the flu has a fever)
- A cough and/or sore throat
- A runny or stuffy nose
- Headaches and/or body aches
- Chills
- Fatigue
- Occasionally, nausea, vomiting, and/or diarrhea (more common in children)

Some fun facts about the flu vaccine!

The flu vaccine was 1st developed and approved for military use in 1945. This development was a priority because 1 out of 67 influenza cases in the military were resulting in death during the 1918-1919 pandemic we will discuss later. This vaccine was approved for public use the following year. Both Dr. Thomas Francis Jr. & Dr. Jonas Salk were instrumental in development.

Each year schools are forced to close for intense cleaning due to large outbreaks of the flu. This comes at a great cost to the school systems. Even if some flu vaccines are not quite as effective as others, depending on the prominent strain that year, there are still many other important reasons to get vaccinated.

Vaccination lowers the risk of contracting a flu illness by 40-60%. If one does contract the flu, the vaccine makes the illness milder or even prevents the visible sickness all together. Getting the vaccine also significantly reduces a child's risk of death if he or she does contract the flu. Flu vaccines also have benefits for those with chronic diseases. The vaccine results in lower rates of cardiac events for those with heart disease and reduces hospitalization for those with diabetes or lung disease. The flu vaccine also helps protect people who cannot get vaccinated such as infants, the elderly, or those with compromised immune systems.

Vaccination rates for adults since 2010 are just over 40% with the rates for the 2016-2017 season at 43.3%. The rate for children is a little higher with percentages in the high 50s. Herd immunity is a concept in which people are protected by others' vaccines. The more people that are vaccinated, the less likely those individuals will get sick. If less people are sick and more immune, the disease spreads less throughout the community. Unfortunately, the flu vaccination rates are not high enough to establish herd immunity. Many adults don't get vaccinated because they are at a lower risk of contracting the flu. Children and elderly are more at risk, but often they are the ones who cannot be vaccinated. It is important to be vaccinated, even if you are at low risk of a disease, to protect those around you who can't get the vaccine.

References:

- https://www.historyofvaccines.org/content/articles/influenza-pandemics
- https://www.cdc.gov/flu/about/qa/vaccineeffect.htm
- https://www.cdc.gov/flu/fluvaxview/coverage-1617estimates.htm
- https://www.cdc.gov/flu/about/qa/vaccineeffect.htm

Slide 21: Coronavirus disease (COVID-19) is an infectious disease caused by a newly discovered coronavirus.

Most people infected with the COVID-19 virus will experience mild to moderate respiratory illness and recover without requiring special treatment. However, others may be more likely to develop serious illness.

The virus that causes COVID-19 most commonly spreads between people who are in close contact with one another (within about 6 feet, or 2 arm lengths)

It spreads through respiratory droplets or small particles, such as those in aerosols, produced when an infected person coughs, sneezes, sings, talks, or breathes.

- Symptoms may appear 2-14 days after exposure to the virus.
- People with these symptoms may have COVID-19:
- Fever or chills
- Cough
- Shortness of breath or difficulty breathing
- Fatigue
- Muscle or body aches
- Headache
- New loss of taste or smell
- Sore throat
- Congestion or runny nose
- Nausea or vomiting
- Diarrhea

We currently have vaccines approved for 12 and up.

Slide 22: There are many policies in place at both the state and federal level to ensure your classroom is a safe and healthy place for children to grow and learn. This section is going to cover the immunization policies put into place.

Slide 23: In order to attend public schools in Texas a student must show acceptable evidence of vaccination. The vaccine requirement can be found in the Texas Administrative Code (TAC), Title 25 Health Services, §§97.61-97.72. The Department of State Health Services (DSHS) is granted authority to set immunization requirements for your schools by the Texas Education Code, Chapter 38

Slide 24: The chart looks at the vaccination received before the age 18. As you can see here if a caregiver follows the CDC recommended schedule they will have all the required vaccinations for school attendance in Texas.

The state of Texas has minimum state vaccine requirements which will protect children from several vaccine-preventable disease, but still leave them vulnerable to an outbreak from other vaccine-preventable diseases. By following the CDC recommendation the children will be protected from far more vaccine-preventable diseases and your classroom will be a healthier place for all.

Slide 25: We know that following the CDC recommendation leaves your classroom as a healthier place but what does it actually mean for your classroom?

Slide 26: Before we dive in to the data I want to talk a bit more about why vaccines are important.

In order to prevent an infectious disease from spreading, a certain percentage of the community has to be immunized. This is called Community immunity.

If no one is immunized against a disease then the disease can spread rapidly.

If some people are immunized but not all, the disease can still spread amongst the population.

However, immunizing all those who can be immunized,, the disease doesn't have anywhere to go. Therefore, the spread of the disease is minimal or prevented. This is Community immunity.

By protecting most of the community, we protect everyone. Community immunity is how smallpox was eradicated from the world and we no longer need small pox vaccination.

In the 1990s, public health experts predicted that the measles virus could be eliminated from the US by the year 2000 and be on the path to eradication.

Instead, as immunization rates dropped, multiple measles outbreaks have occurred.

Why do we need Community immunity?

- While vaccines are very effective, no vaccine is 100% perfect.
- A very small percentage of vaccinated people do not mount a sufficient immune response.
- Individuals with a compromised immune system, such as those undergoing chemotherapy, cannot be vaccinated.
- Babies are too young to receive certain vaccines and they can be at increased risk for a vaccine preventable disease.
- By immunizing all who can receive the vaccines, we limit the spread of the disease.

Slide 27: Vaccines in the combined childhood 7 series include at least 4 doses of DTaP, 3 doses of Polio, 1 dose of MMR, 3 doses of Hep B, 3 doses of Hib, 1 dose of Varicella antigens, and 4 doses of Pneumococcal conjugate vaccine given between birth and 35 months.

This chart looks at the rates from 2015 through 2019 pulled from the National Immunization Survey-Child, conducted by the Centers for Disease Control and Prevention. The The NIS is a random-digit-dialed survey of parents or guardians of children 19–35 months old. The telephone survey is followed by a questionnaire mailed to vaccination providers to obtain the children's vaccination history.

Two other things to note. Health and Human Services set a Healthy People 2020 objective to have 80% of the population vaccinated by 2020. you will see here that the number have not reached the 80% just

yet for the 2019 year. You will also see there last few year on the chart we have been declining in our numbers and this is due to the growing number of individual who are choosing not to vaccinated their children. Which we will cover later in this presentation.

Over all Texas is holding steady with national numbers but was all have room for growth!

Slide 28: This slide looks at the rates for adolescents. The important thing to note is that for the required vaccines we have reached the 80% by 2020 vaccinated and for the non-required vaccines we have room for growth.

Slide 29: Not everyone can or should be vaccinated. Children with life-threatening allergies to a particular vaccine component shouldn't receive vaccines that contain that ingredient.

Because of this, Texas state law – as well as every other state in the US – does allow physicians to write a statement stating that the vaccine(s) required would be medically harmful or injurious to the health and well-being of the child or household member

The law also grants parents/guardians the right to choose an exemption from immunization requirements for reasons of conscience, including a religious belief. Parents or guardians choosing to exercise this right must fill out an official exemption affidavit request that can be found at www.ImmunizeTexas.com.

The law does not allow is parents/guardians to elect an exemption simply because of inconvenience (for example, a record is lost or incomplete and it is too much trouble to go to a physician or clinic to correct the problem). Schools and child-care facilities should maintain an up-to-date list of students with exemptions, so they may be excluded in times of emergency or epidemic declared by the commissioner of public health.

Slide 30: While the media might pay a whole lot of attention to those considered "anti-vaccine" individuals, they are a tiny, tiny portion of our population. For the state of Texas it represents a little over 1%. Very few people decide not to vaccinate at all. And for this tiny sliver of the population.

They are often disproportionately loud on social media, in particular, and can appear to be a larger group than they are. But it's important to remember, they represent a very small minority of our population.

However, We are now at 72,743 non-medical exemptions for the 2019-2020 school year in public and private schools. That's a 3,044% increase in the last 17 school years for non-medical exemptions in Texas. That's since the legislature expanded the criteria to apply for non-medical exemptions in 2003.

While this number is a little over 1% of the Texas population we know we have some schools who have more than 50% of their students missing one or all their childhood vaccines. This means we have schools who are an increased vulnerability for a vaccine-preventable disease.

If you are curious about your schools data you can make a FOIA request to your ISD to get campus level data.

Slide 31: Provisional Enrollment

All immunizations *should* be completed by the first day of attendance, but provisional enrollment for students that are behind schedule The law requires that students be fully vaccinated against the specified diseases. A student may be enrolled provisionally if the student has an immunization record that indicates the student has received at least one dose of each specified age-appropriate vaccine required by this rule. To remain enrolled, the student must complete the required subsequent doses in each vaccine series on schedule and as rapidly as is medically feasible and provide acceptable evidence of vaccination to the school.

A school nurse or school administrator shall review the immunization status of a provisionally enrolled student every 30 days to ensure continued compliance in completing the required doses of vaccination. If, at the end of the 30-day period, a student has not received a subsequent dose of vaccine, the student is not in compliance and the school shall exclude the student from school attendance until the required dose is administered.

Slide 32: So how do these exemptions shape vaccination rates? Nonmedical exemption rates for kindergartners is actually higher than the overall average — at or above 1 percent for the vaccines listed here. And as these rates go up, we are seeing slight declines in vaccination rates for individual vaccines. We've done a great job in Texas of getting our vaccination rates above 95% for the state as a whole, but it's important to remember that these are state averages — individual school rates vary quite a bit. Some schools, for example, have vaccination rates below 50% for some vaccines. And that's particularly worrisome for highly contagious diseases like measles.

Slide 33: For 7th graders, rates are lower for non-medical exemptions, and like in kindergarten vaccination rates are above 95% which is where we'd like them to stay.

Slide 34: This is a breakdown map of where the highest non-medical exemptions are by county across the state. As you can see we do have pockets of Texas where they are vulnerable to outbreaks. Remember when I mentioned we know we have schools with 50% or more of their population missing one or more of their vaccines. This map will show you where you could find these schools. The darker the blue the more non-medical exemptions are filed.

This map also closely aligned with the 2013 pertussis outbreak hotspots. So that outbreak showed what can happen when an area is not protected from a vaccine-preventable disease.

Slide 35: We know is its up to the parent or caregiver to vaccinate their child so you may be wondering what you can do to protect your classroom. This next section is going to cover the important role you play to keep yourself and your students healthy.

References:

- https://www.k12.wa.us/sites/default/files/public/healthservices/pubdocs/infectiousdiseasecontrolguide.pdf
- https://cchealth.org/cd/cd-guide/
- https://dphhs.mt.gov/schoolhealth/communicabledisease
- https://www.washtenaw.org/DocumentCenter/View/5326/Managing-Communicable-Diseases-in-Schools-PDF

- https://plsclasses.com/stop-the-spread-of-germs-in-your-classroom/
- https://infectionpreventionandyou.org/settings-of-care/non-healthcare-setting/school/
- https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6162749/

Slide 36: Infections can spread in a variety of ways: the five most common routes are:

1. Through the gastrointestinal tract, (intestines and feces) e.g. infectious diarrhea and hepatitis A.

2. Through the respiratory tract, (eyes, nose, mouth and lung secretions) e.g. colds and influenza.

3. Through direct contact, (skin contact, contact with saliva and other body fluids, sexual contact), e.g. bacterial skin infections such as impetigo, molluscum contagiosum, scabies, and through indirect contact with surfaces or materials such as pencils, handkerchiefs, soiled clothing and crockery and cutlery which have been contaminated by germs, e.g. influenza and the common cold.

4. Through contact with infected blood e.g. hepatitis B.

5. Through ingestion of contaminated food or water e.g. food poisoning or polio.

Reference:

- https://www.hpsc.ie/a-z/lifestages/schoolhealth/File,14304,en.pdf

Slide 37: Your classroom is the perfect environment for respiratory and airborne illnesses to flourish. You and your students are in close proximity for long hours. This makes it easy for germs to pass from one person to another quickly.

Some germs can happily live in the nose and throats of people who never develop symptoms of infection, yet they can pass it to another person. The interval between contact with infection and the time symptoms develop is called the incubation period. People are often infectious during the latter part of the incubation period. For example children with measles are infectious for about 3 days before the appearance of a rash.

Spread through the respiratory tract Some infectious diseases are spread by germs that can live and multiply in the eyes, airways (including the nose and mouth), and the lungs. These germs are easily passed from our nose or mouth to our hands and from there to other objects. This could be another hand, or it could be an item such as a pen or pencil. Some infections are spread by droplets that are expelled by an infected person when they sneeze, cough or talk. Droplet spread usually requires the infected person and the susceptible contact to be relatively close to one another, within about 3 feet. Examples include; common cold, influenza, meningococcal disease, mumps, rubella and pertussis (whooping cough). Other infections are spread by small aerosol droplets that remain in the air where they are carried on air currents (airborne spread) for some time after they are expelled e.g. measles, chickenpox and tuberculosis.

Basic good hygiene precautions should be applied on a routine basis, rather than relying on the identification of infectious pupils or staff. This is the only way to guarantee a safe environment for staff and pupils.

Slide 38: Gastrointestinal spread is responsible for the spread of most infectious diarrhea as well as some more generalized infections such as hepatitis A.

Spread through the gastrointestinal tract or gut some diseases are caused by germs which live and multiply in the intestines or gut and are passed out of the body in the. For disease to spread, containing these germs must be carried to the mouth and swallowed. Disease can spread when even very small amounts of feces, amounts so small that they cannot be seen by the naked eye, contaminate hands or objects and are unknowingly brought to the mouth and swallowed. This is also known as the fecal-oral (feces to mouth) route of transmission and usually occurs when hands are contaminated after using the toilet. Hands can also contaminate objects such as pencils and door-handles which are then handled, allowing the germs to pass to the next pair of hands and ultimately to the mouth of the next person, and so the infectious chain continues.

Again, basic good hygiene precautions should be applied on a routine basis, rather than relying on the identification of infectious pupils or staff. This is the only way to guarantee a safe environment for staff and pupils.

Slide 39: Purpose Of Hand Washing is to reduce the spread of bacteria and viruses, from person to person and from people to food contact surfaces which are the main cause of the spread of Norovirus, the common cold and the flu;

It reduces germs and bacteria found on the hands to safe levels, to prevent or to eliminate the spread of bacteria and viruses, which increase the spread of illness in the cafeteria and classroom.

And to reinforce and practice personal hygiene practices with all students.

Hand washing is one of the best ways to prevent the spread of diseases within the classroom. Teachers need to encourage hand washing after using the restroom, before handling food ie. Before lunch or snacktime. And coming in from recess and anytime hands are soiled.

Slide 40: It is important to match your cleaning and disinfecting activities to the types of germs you want to remove or kill. Most studies have shown that influenza can survive on surfaces up to 48 hours and still have potential to be infectious. Always follow label directions on cleaning products and disinfectants. Wash surfaces with a general household cleaner to remove germs. Rinse with water, and follow with an EPA-registered disinfectant to kill germs.

Slide 41: It is important to maintain a sanitary school environment to prevent the spread of illnesses. Follow your school's standard procedures for routine cleaning and disinfecting. Typically, this means daily sanitizing surfaces and objects that are touched often, such as desks, countertops, doorknobs, computer keyboards, hands-on learning items, faucets, phones, and toys.

Immediately clean surfaces and objects that are visibly soiled. If surfaces or objects are soiled with body fluids or blood, use gloves and other standard precautions to avoid coming into contact with the fluid. Remove the spill, and then clean and disinfect the surface

If a surface is not visibly dirty, you can clean it with an EPA-registered product that both cleans (removes germs) and disinfects (kills germs) instead. Be sure to read the label directions carefully, as there may be a separate procedure for using the product as a cleaner or as a disinfectant. Disinfection usually requires the product to remain on the surface for a certain period of time (e.g., 3 to 5 minutes). Use disinfecting

wipes on electronic items that are touched often, such as phones and computers. Pay close attention to the directions for using disinfecting wipes. It may be necessary to use more than one wipe to keep the surface wet for the stated length of time.

Slide 42:

- Ask sick students and staff to stay home (and to seek medical attention when necessary).
- Keep a supply of alcohol-based hand sanitizer and sanitizing wipes.
- Teach good hand washing practices.
- Clean and disinfect classroom materials and surfaces.
- Provide reminders in daily announcements about preventing the spread of germs and illnesses.
- Adopt healthy practices, such as safe handling of food and the use of standard precautions when handling body fluids and excretions.
- Encourage students and staff to get an annual flu shot and remain up-to-date on all vaccinations.

Slide 43: Vaccines are one of public health biggest victories and saves millions of lives every year. They help keep you and your students healthy.

Slide 44: If you have any questions about this presentation, please reach out to Katy Gore at The Immunization Partnership. Thank you for listening.