Partnering for Immunizations

VACCINE PREVENTABLE DISEASES

OBJECTIVES

- Describe diseases, common symptoms, and modes of transmission
- Understand national and local disease burden
- Describe routine vaccine recommendations
- Identify vaccine resources

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MICHIGAN VACCINE PREVENTABLE DISEASES

Disease	Total Cases 2016	Total Cases 2017 (Provisional)
Congenital Rubella	0	0
Diphtheria	0	0
H. Influenzae Invasive <5 Years (Sterotype b)	18(0)	22(1)
Measles	1	2
Meningococcal Disease	6	6
Mumps	36	41
Pertussis	417	663
Poliomyelitis	0	0
Rubella	0	0
Tetanus	1	2
Varicella	556	508

HEPATITIS B

- **Caused by a virus that attacks the liver**
- **Spread through direct contact with infected body fluids**
- **Can cause lifelong infection, cirrhosis (scarring) of the liver, liver cancer, liver failure, death**
- **850 provisional cases in SE MI in 2017**

HEPATITIS B
SIGNS & SYMPTOMS

- **Jaundice (yellow skin)**
- **Abdominal Pain**
- **Nausea/Vomiting**
- **Joint Pain**
- **Loss of Appetite**
- **Fatigue**

HEPATITIS B VACCINES

- **Routinely given at birth, 1-2 months, and 6-12 months**
- **Those 19+ are recommended for Hep B vaccine based on risk group**

ROTAVIRUS

- **A virus that causes gastroenteritis**
  (Inflammation of the stomach and intestines)
- **Leading cause of severe diarrhea in infants and toddlers worldwide**
- **Rotavirus was the top cause of severe diarrhea in U.S. infants and toddlers before the vaccine**
- **Responsible for more than 500,000 deaths each year in children under 5 around the world**

ROTAVIRUS
SIGNS & SYMPTOMS

- **Watery Diarrhea**
- **Vomiting**
- **Severe Dehydration**
- **Abdominal Pain**
- **Fever**

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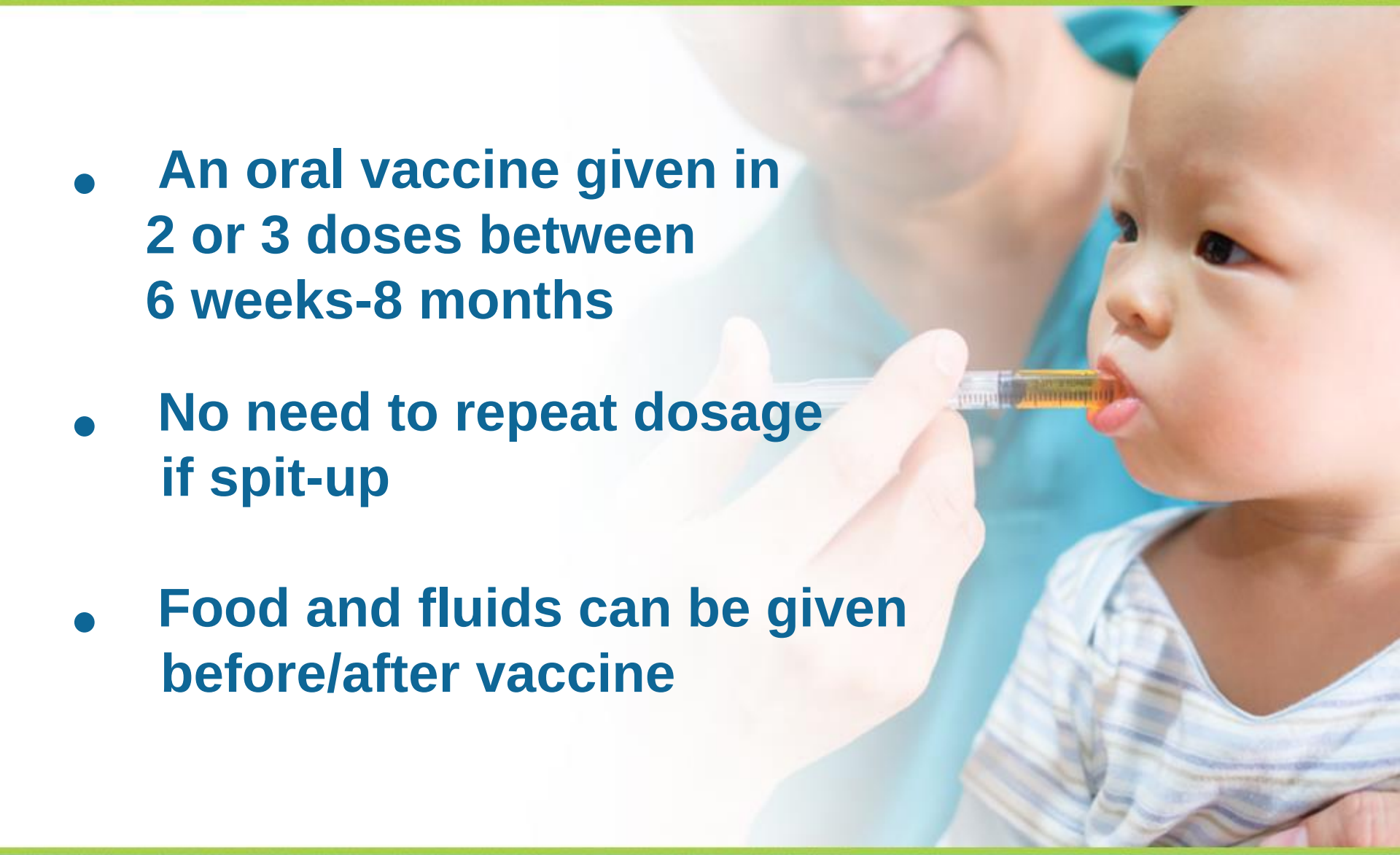
ROTAVIRUS VACCINES



- An oral vaccine given in 2 or 3 doses between 6 weeks-8 months
- No need to repeat dosage if spit-up
- Food and fluids can be given before/after vaccine

DIPHTHERIA

- Bacterial infection affecting the nose and throat
- Spread person-to-person through direct respiratory and physical contact
- Once occurred in 100-200/100,000 people, now it is rarely seen in the U.S. thanks to the vaccine
- DTaP, Td, and Tdap vaccines prevent diphtheria

TETANUS

- A disease of the nervous system caused by clostridium tetani bacteria
- Tetanus enters the body through a skin wound
- In 2015, there were 29 reported cases and 2 deaths in the U.S.
- Tetanus is very rare thanks to vaccination

TETANUS
SIGNS & SYMPTOMS

- **Often begins with spasms in jaw muscles (lockjaw)**
- **Spasms in the respiratory system can also caused breathing problems**

PERTUSSIS

(Whooping Cough)

- **Highly contagious bacterial disease caused by Bordetella pertussis**
- **Spread by direct contact with discharges from nose or airborne droplets released when infected person coughs or sneezes**
- **352 provisional cases in SE MI in 2017**

PERTUSSIS
SIGNS & SYMPTOMS

- **Begins like a common cold, then cough gets worse**
- **Severe coughing spells that end in a "whooping cough" sound –** 
- **For infants younger than 18 months, this disease is very serious/deadly**

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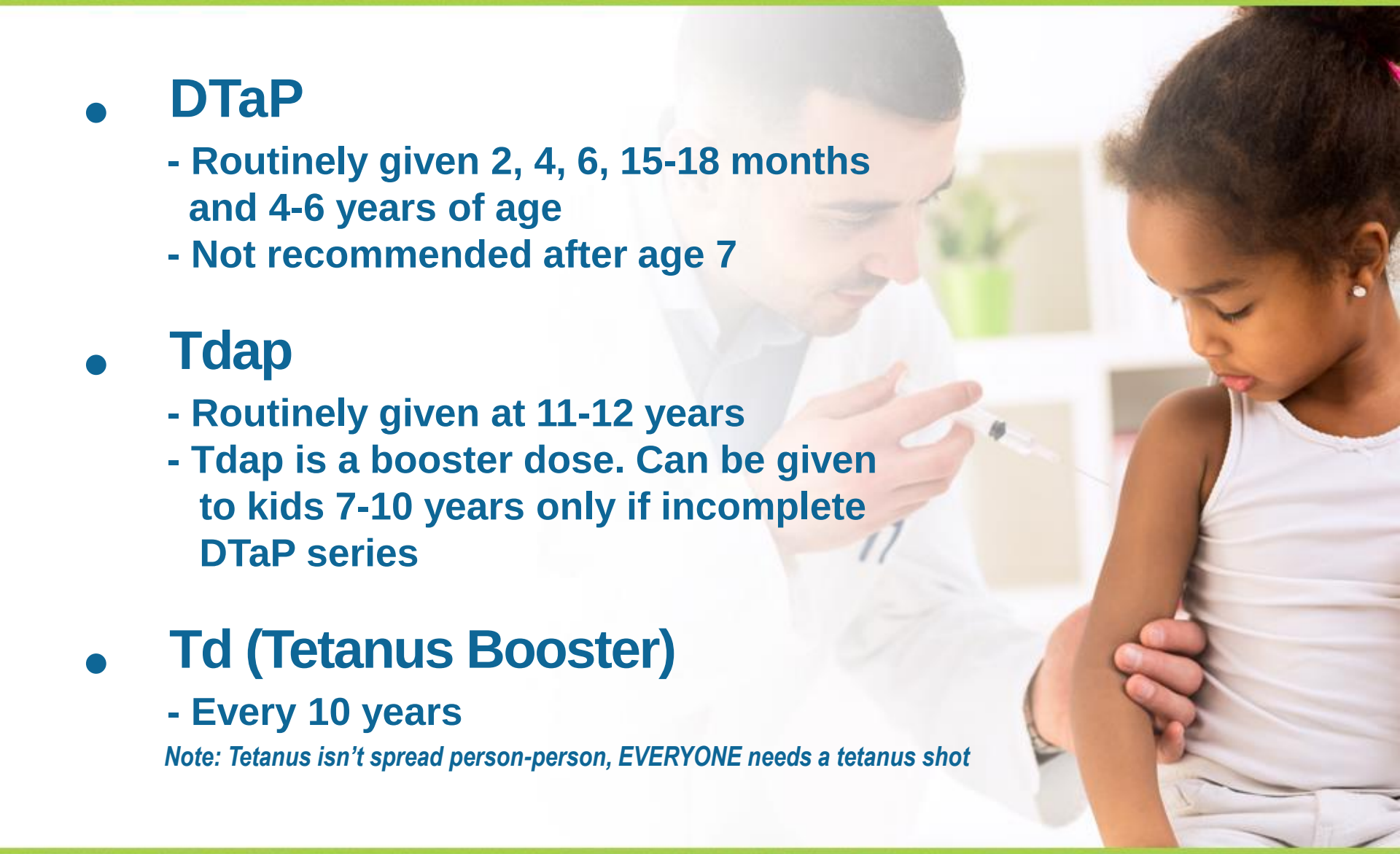
TETANUS, DIPHTHERIA, AND PERTUSSIS CONTAINING VACCINES



- **DTaP**
  - Routinely given 2, 4, 6, 15-18 months and 4-6 years of age
  - Not recommended after age 7
- **Tdap**
  - Routinely given at 11-12 years
  - Tdap is a booster dose. Can be given to kids 7-10 years only if incomplete DTaP series
- **Td (Tetanus Booster)**
  - Every 10 years

Note: Tetanus isn't spread person-person, EVERYONE needs a tetanus shot

HAEMOPHILUS INFLUENZAE TYPE B

(HIB)

- **The Hib virus causes many diseases**
- **The most common diseases are pneumonia, bacteremia, meningitis, epiglottitis, septic arthritis, cellulitis, and otitis media**
- **Due to routine Hib vaccination, Hib in children has decreased by 99% since 1990**
- **In Michigan, there was 1 case of HIB among children < 5 years in 2017 (provisional data)**

HIB VACCINES

- **ActHIB, Hiberix, or Pentacel (DTaP-IPV-Hib)**
  - 3-dose Primary Series at 2, 4, 6 months
  - Booster dose at 12-15 months
- **PedvaxHib**
  - 2-dose Primary Series at 2, 4 months
  - Booster dose at 12-15 months
- **Any Hib vaccine can be used for the booster dose after 12 months**
- **Hib is not routinely given after a child turns 5 years of age**

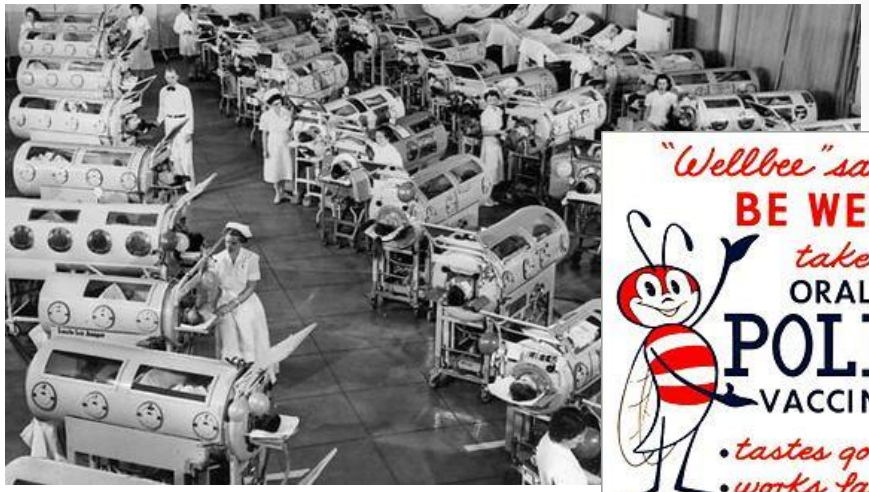
POLIO

- **An infectious disease caused by a virus**
- **Most often spread through person-to-person contact via stool of an infected person**
- **May be spread through oral/nasal secretions**
- **Polio was very common in U.S. before vaccine was introduced in 1955. It has been eradicated and most of the world**

  - Still a plane ride away

POLIO
SIGNS & SYMPTOMS

- **Can cause severe paralysis resulting in permanent disability, or even death**



POLIO VACCINE

- **Routinely given 2, 4, 6-18 months and 4-6 years of age**
- **Last dose recommended on/after 4th birthday**

PNEUMOCOCCAL DISEASE

- **Caused by Streptococcus pneumoniae pneumococcus bacteria**
- **Different diseases include pneumococcal pneumonia, bacteremia, meningitis, otitis media**
- **Can cause brain damage, hearing loss, or death**
- **94 deaths from 2012-214 and 204 hospitalizations in SE MI**

PCV13 (PREVNAR13) VACCINE

- **Vaccine is very effective at preventing disease**
- **Protects from 13 strains of pneumococcal disease**
- **Routinely given at 2, 4, 6, and 12-15 months**
  - **High-risk children under 6 who did not get 4 doses may need 2 more doses**
  - **High-risk children and adults aged 6-64 years can get one dose of PCV13 if no prior dose**

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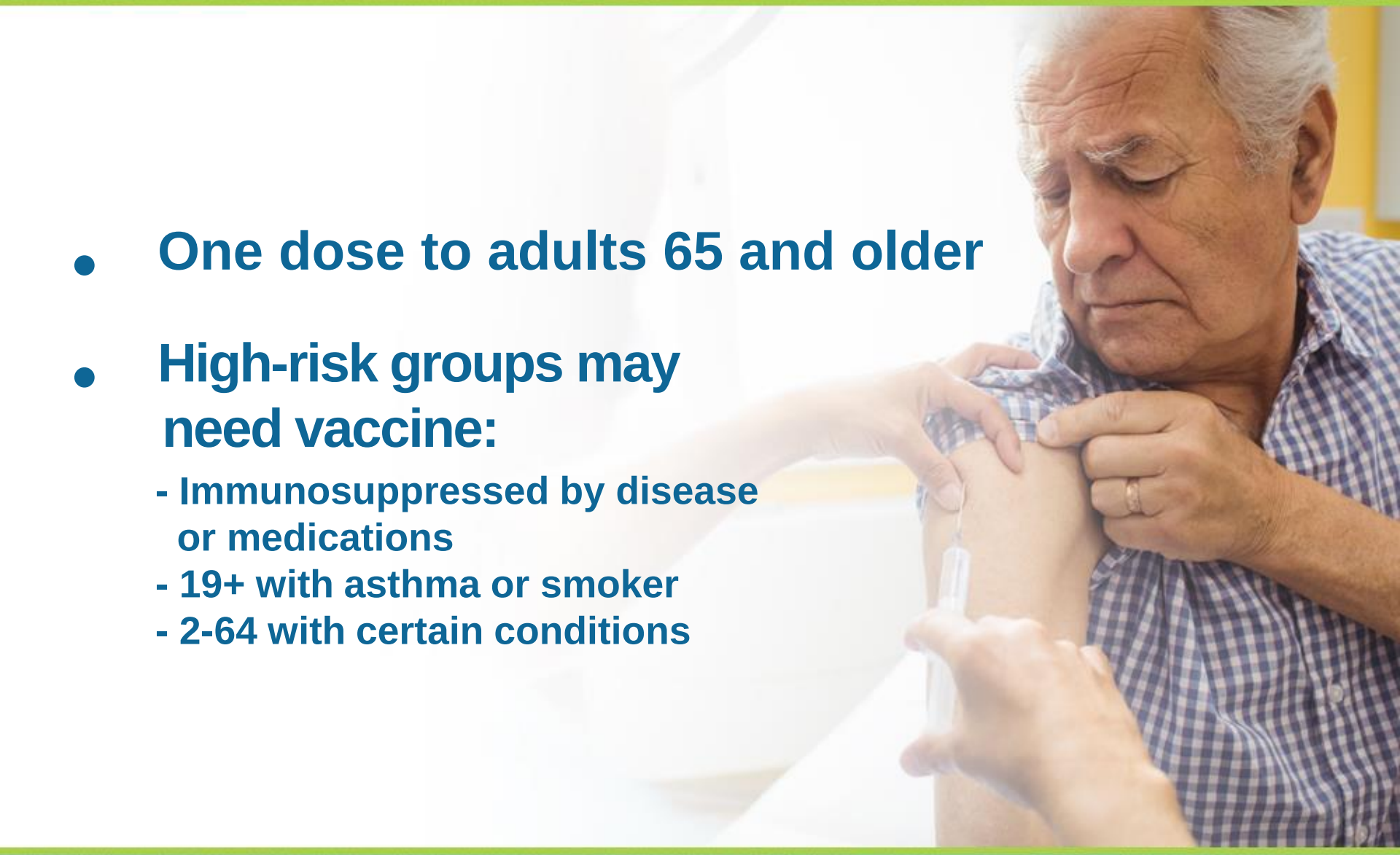
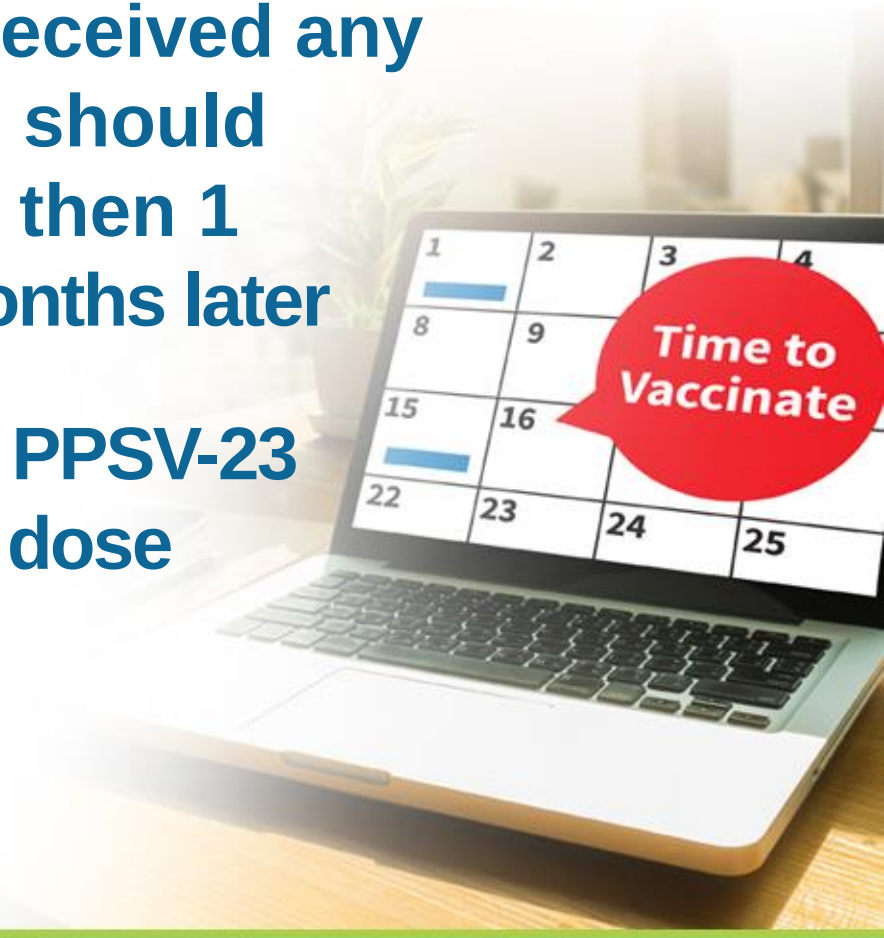
PPSV23 (PNEUMOVAX) PNEUMOCOCCAL POLYSACCHARIDE VACCINE



- **One dose to adults 65 and older**
- **High-risk groups may need vaccine:**
  - **Immunosuppressed by disease or medications**
  - **19+ with asthma or smoker**
  - **2-64 with certain conditions**

PNEUMOCOCCAL VACCINES

- **Adults 65+ who never received any pneumococcal vaccine should receive 1 PCV-13 dose, then 1 dose of PPSV-23, 6-12 months later**
- **Adults 65+ who received PPSV-23 should receive 1 PCV-13 dose one year later**



INFLUENZA (FLU)

- Caused by a virus
- Kills an average of 36,000 people in the U.S. per year
- Our deadliest vaccine-preventable disease

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INFLUENZA (FLU) SIGNS & SYMPTOMS

- Causes a high fever, body aches, chills, headache, and cough
- Symptoms can last up to 3 weeks
- Young and elderly at highest risk for severe outcomes

FLU VACCINES

- **Given to those 6 months and older**
  - **2 doses needed with 4 week min. interval if first dose given between 6 mo. – 8 yrs.**
- **Recommended annually every fall due to virus changes**

MEASLES

- Extremely contagious, caused by a virus
- Spread by contact with droplets from nose, mouth, or throat of infected person
- Common childhood illness before vaccines
- There were 2 provisional cases in 2017 in Michigan; both were in SE MI

Partnering for Immunizations

MEASLES
SIGNS & SYMPTOMS

- **Bloodshot eyes**
- **Light sensitivity**
- **Cough**
- **Muscle pain**
- **Fever**
- **Rash**

(Appears 3-5 days after the first signs of illness, lasts 4-7 days)

MUMPS

- Caused by a virus
- Spread through saliva. Can infect many parts of the body, especially the parotid salivary glands
- 18 suspected cases (3 confirmed, 10 probable, 5 suspected) of mumps in SE MI in 2017

MUMPS
SIGNS & SYMPTOMS

- Face pain
- Fever
- Headache
- Sore throat
- Parotid glands swelling
- Swelling of temples or jaw
- Boys/men
  – genital inflammation

RUBELLA

German Measles

- **Contagious skin rash caused by a virus**
- **Can pass through a pregnant woman's bloodstream to infect her child**
- **Congenital rubella can cause deafness, developmental delay, or mental retardation**

RUBELLA
SIGNS & SYMPTOMS

- Children generally have few symptoms
- Adults may experience a fever, headache, general discomfort (malaise), and a runny nose before the rash appears
- Can spread from 1 week before rash develops, through 1-2 weeks after rash disappears

MMR VACCINE

- **Before vaccine**
  - **Measles: >500,000 cases reported yearly**
  - **Mumps: >200,000 cases reported yearly**
  - **Rubella: epidemics occurred every 6-9 years**
- **Routinely given to children at 12-15 months and a second dose given at 4-6 years of age**
- **No link to autism: original study retracted and physician lost medical license**

VARICELLA

Chickenpox

- **Caused by the varicella-zoster virus (VZV)**
  - **Less common today, but on the rise due to reduced herd immunity**
- **Can pass through a pregnant woman's bloodstream to infect her child**
- **In 2015, Michigan had 6% of all reported chickenpox cases in the U.S.**
  - **549 MI cases**

VARICELLA
SIGNS & SYMPTOMS

- **Itchy rash of blistering spots – may occur anywhere on the body, with flu-like symptoms**
- **Symptoms often mild and end without treatment**
  - **Can cause serious bacterial infections**
- **A person usually has only 1 chickenpox episode**
- **VZV can lie dormant in the body and cause shingles (herpes zoster) later in life**

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VARICELLA VACCINE

- **Vaccine recommended between 12-15 months**
- **Second dose recommended 4-6 years**
  - **Provides further protection**

HEPATITIS A

- **Virus found in stools of those infected causing swelling of the liver**
- **Transmitted through touching/consuming infected items or touching infected people**
- **513 reported cases in SE MI in 2017 (provisional data)**
- **SE MI is currently experiencing one of the largest outbreaks in the United States in the post hepatitis A vaccination era**

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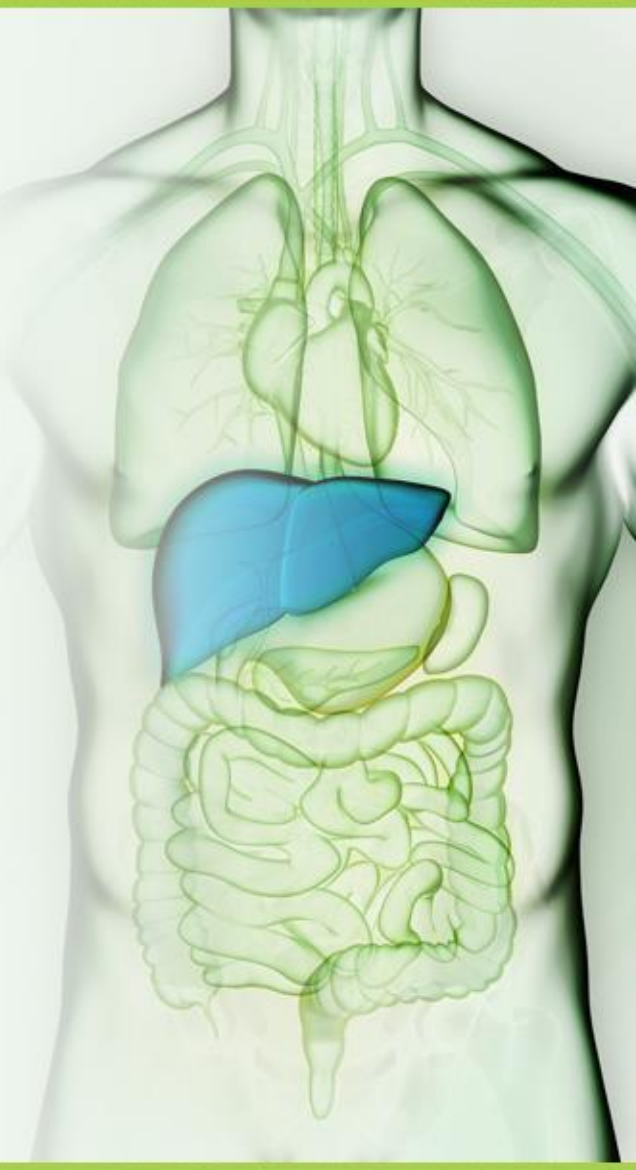
HEPATITIS A
SIGNS & SYMPTOMS

- **Jaundice (yellow skin)**
- **Nausea and vomiting**
- **Fatigue**
- **Loss of appetite**
- **Low-grade fever**



HEPATITIS A VACCINES

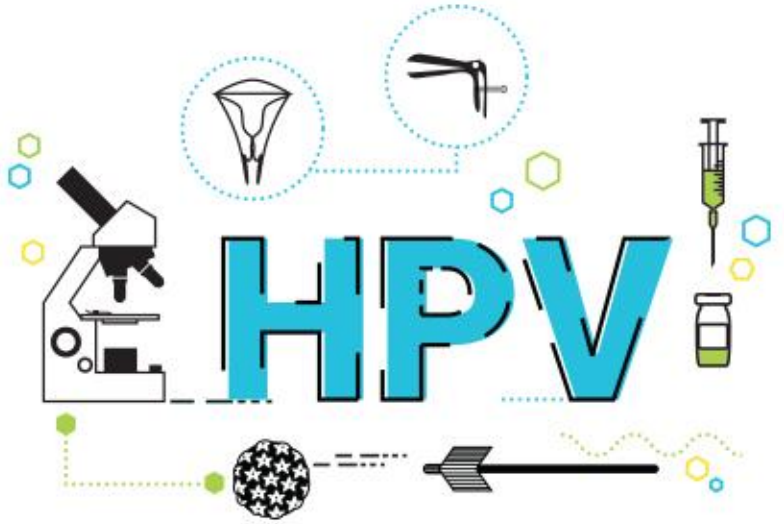
- **Routinely give 2 doses, starting at 12-23 mo.**
  - **Separate doses by 6 calendar months**
- **Catch-up all children ages 2-18 years**
- **High-risk individuals in need of vaccination:**
  - **Travelers to countries with high rates**
  - **Men who have sex with men**
  - **Injection drug users**
  - **Persons with clotting factor disorders**
  - **Persons working with nonhuman primates**

HUMAN PAPILLOMAVIRUS (HPV)

- **Most common sexually-transmitted infection**
- **Spreads easily with minimal physical contact**
- **More than 90% of people will carry at least one HPV strain in their lifetime**
- **Most people clear the virus without treatment, but about 1 in 10 cases are pre-cancerous in women (CDC)**

HUMAN PAPILLOMAVIRUS SIGNS & SYMPTOMS

- **Abnormal pap/pre-cancerous cells in cervix**
- **High-risk individuals in need of vaccination:**
  - **Cervical cancer in women**
  - **Oropharynageal (head/neck) in men and women**
  - **Anal cancers in men and women**
  - **Penile cancer in men**
- **Can cause genital warts in men and women**



HUMAN PAPILLOMAVIRUS VACCINE

- **Best protection against HPV is the vaccine**
- **Vaccinate all preteens at 11-12 years**
- **Vaccine can be given from 9-26 years**
  - **Children who start series before age 15 only need 2 doses with a 6-month minimum interval**
- **At/after 15 or if immunocompromised, a 3-dose series is given at 0, 1-2, 6 months**

BACTERIAL MENINGITIS

- **Caused by Neisseria meningitis bacteria**
- **Most common forms are meningitis and blood infections**
- **Spread through close contact with infected individuals**
  - **People living in close quarters at high risk**
- **39 provisional cases in SE MI in 2017**

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BACTERIAL MENINGITIS SIGNS & SYMPTOMS

- **Neck and/or back pain**
- **Headache**
- **Nausea/vomiting**
- **Bacterial meningitis rash**
- **Progresses quickly with high fatality rates**

MENINGOCOCCAL SEROGROUPS (MENACWY) VACCINES

- 1 dose at age 11-12 years, with second dose at 16 years
- Catch-up all adolescents 13-18 years who have not been vaccinated
- Vaccinate high risk people, 2-55 years

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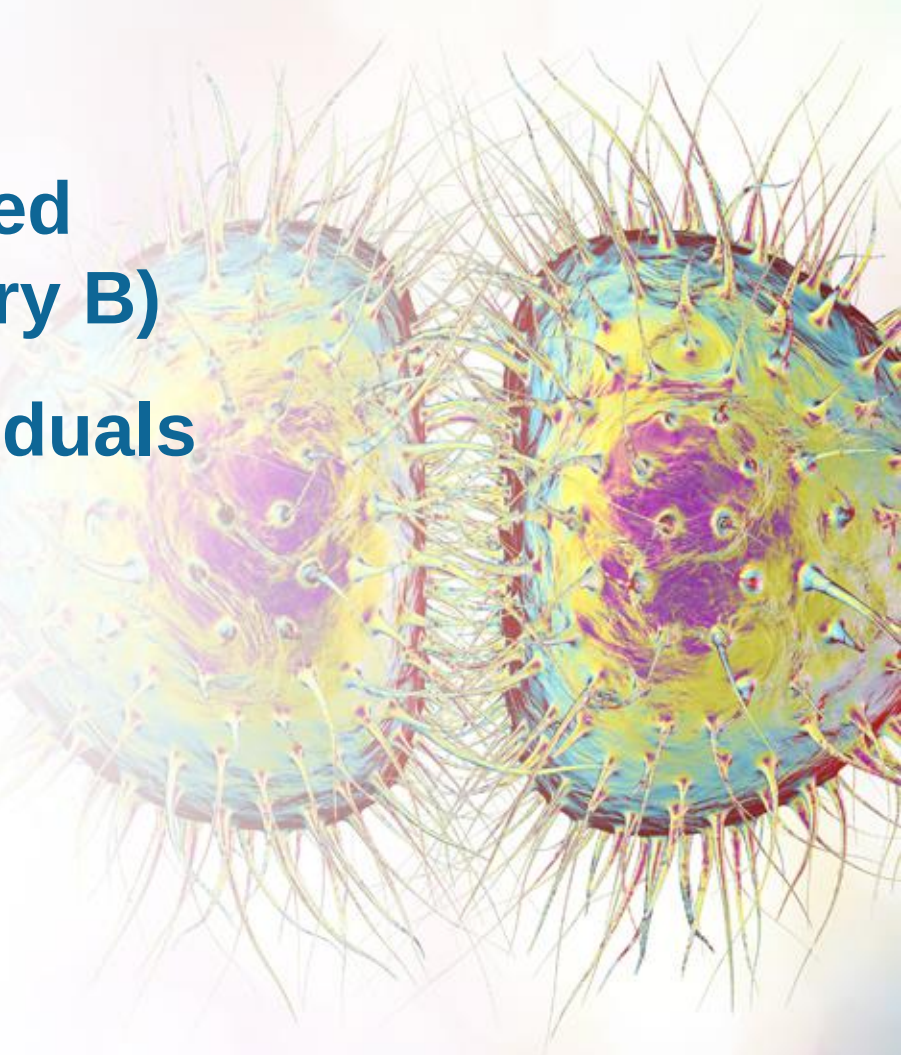
MENINGOCOCCAL B (MENB) VACCINE

- 2-3 doses recommended for ages 16-18 (category B)
- Give to high-risk individuals age 10 years +
- Give to age 16-23 for short-term protection (category B)



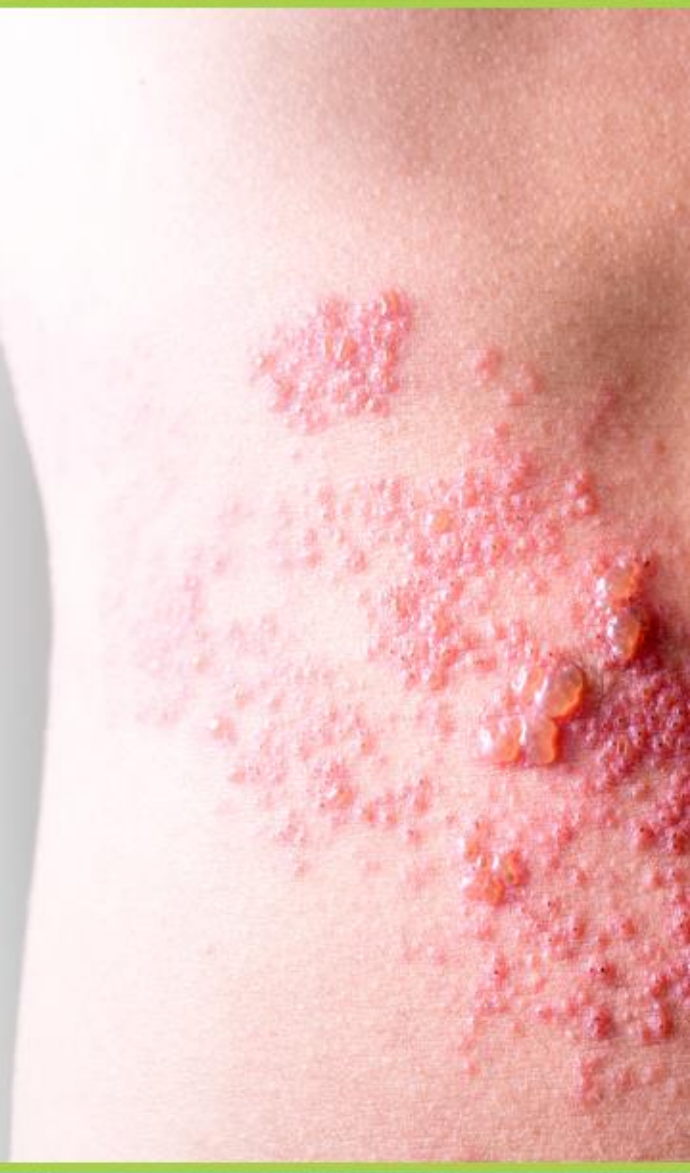
ZOSTER

Shingles

- **Caused by same virus that causes chickenpox**
- **Virus remains inactive in the body for years once a person has had chickenpox**
- **Stress or other infection may activate the virus and cause shingles**

ZOSTER
SIGNS & SYMPTOMS

- **Rash**
  - **Begins as cluster of small red spots**
  - **Often blister and painful**
  - **Usually on one side of body**
- **May cause blindness if contracted in the eye**
- **Rash/post-herpetic pain can last for weeks**



ZOSTER VACCINES

Shingrix

- ACIP's preferred shingles vaccine
- 2 doses to people 50 years and older at 0, 2-6 mos.
- Recommended even if had shingles, had Zostavax vaccine, or uncertain whether had chickenpox
- Not for treatment of shingles or post herpetic neuralgia

Zostavax

- 1 dose to people 60 years and older
- Live, attenuated vaccine
- Not for treatment of shingles or post herpetic neuralgia

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LIVE ATTENUATED (WEAKENED) VACCINES

- **E.g. MMR, Varicella, Zoster (zostavax)**
- **Cannot be given to immunosuppressed individuals or pregnant women**
- **Must be given on the same day as other live vaccines or separated by at least 28 days**

IMMUNIZATION PROCESS

- Assess immunization record
- Check current ACIP recommended schedule
- Ask screening questions
- Educate the parent/client
- Administer vaccine(s)
- Document what you did

VACCINE SUMMARY

- **Responsible for the control of many infectious diseases once common in the U.S.**
- **Save lives and prevent disease in people who receive them, AND those who are not vaccinated**

KEY NATIONAL ORGANIZATIONS

- **Centers for Disease Control & Prevention (CDC): Administers Vaccines for Children (VFC) Program**
- **Advisory Committee on Immunization Practices (ACIP): A CDC group of clinicians and researchers that develops vaccine scheduling guidelines**
- **Immunization Action Coalition (IAC)**

KEY MICHIGAN ORGANIZATIONS

- **Michigan Department of Health and Human Services (MDHHS) provides guidance to LHDs about vaccines and educational training for providers**
- **Michigan Care Improvement Registry (MCIR) hosts state vaccine database, and provides educational training**
- **Local Health Department (LHDs) provide guidance and training to practices about vaccines, and administer VFC program**

KEY MICHIGAN ORGANIZATIONS

- **MCIR Region 1 LHDs include:**
  - **City of Detroit**
  - **Macomb County**
  - **Oakland County**
  - **Washtenaw County**
  - **Livingston County**
  - **Monroe County**
  - **St. Clair County**
  - **Wayne County**

RESOURCES

- **Centers for Disease Control and Prevention**
  www.cdc.gov
- **Alliance for Immunizations in Michigan:**
  www.aimtoolkit.org
- **Children's Hospital of Philadelphia:**
  www.chop.edu
- www.kidshealth.org