

# NHIP THE BEST ORIENTATION 2010

Vaccines, Vials and Viruses

By: Karen Davis, RN

LRGHealthcare

## WHY IMMUNIZE?? THE CDC SAYS...

- In the U.S., vaccines have reduced or eliminated many infectious diseases that once routinely killed or harmed many infants, children, and adults. However, the viruses and bacteria that cause vaccine-preventable disease and death still exist and can be passed on to people who are not protected by vaccines. Vaccine-preventable diseases have many social and economic costs: sick children miss school and can cause parents to lose time from work. These diseases also result in doctor's visits, hospitalizations, and even premature deaths.

# LETS START WITH POLIO...

- Polio virus causes acute paralysis that can lead to permanent physical disability and even death. Before polio vaccine was available, 13,000 to 20,000 cases of paralytic polio were reported each year in the United States. These annual epidemics of polio often left thousands of victims--mostly children--in braces, crutches, wheelchairs, and iron lungs. The effects were life-long



# POLIO (IPV)

- ◉ Schedule of Administration:
- ◉ 2,4,6 months of age
- ◉ Booster dose between age 4-6
- ◉ Oral polio vaccine was discontinued by the year 2000



# NEXT UP... MEASLES...



- ◉ Before measles immunization was available, nearly everyone in the U.S. got measles. An average of 450 measles-associated deaths were reported each year between 1953 and 1963.
- ◉ According to the World Health Organization (WHO), nearly 900,000 measles-related deaths occurred among persons in developing countries in 1999. In populations that are not immune to measles, measles spreads rapidly. If vaccinations were stopped, each year about 2.7 million measles deaths worldwide could be expected.

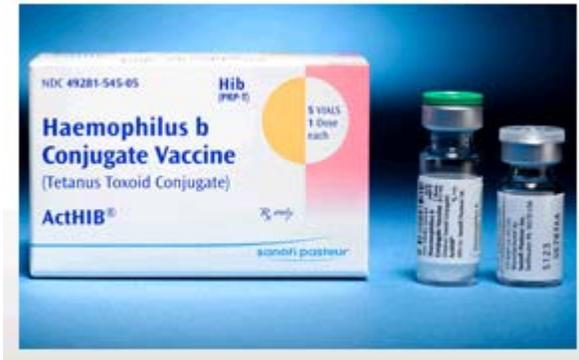
# MEASLES SCHEDULE

- Measles, administered as a part of the Measles, Mumps and Rubella series (MMR) should not be given to any child under the age of one year.
- MMR #2 can be administered to a child between the ages of 4-6 years of age (per the NHIP recommended schedule).

# MUMPS & RUBELLA (PART OF THE MMR SERIES)

- ◉ Before the **mumps** vaccine was introduced, mumps was a major cause of deafness in children, occurring in approximately 1 in 20,000 reported cases. Mumps is usually a mild viral disease. However, serious complications, such as inflammation of the brain (encephalitis) can occur rarely. Prior to mumps vaccine, mumps encephalitis was the leading cause of viral encephalitis in the United States, but is now rarely seen.
- ◉ While **rubella** is usually mild in children and adults, up to 90 percent of infants born to mothers infected with rubella during the first trimester of pregnancy will develop congenital rubella syndrome (CRS), resulting in heart defects, cataracts, mental retardation, and deafness.
- ◉ In 1964-1965, before **rubella** immunization was used routinely in the U.S., there was an epidemic of rubella that resulted in an estimated 20,000 infants born with CRS, with 2,100 neonatal deaths and 11,250 miscarriages.

# HAEMOPHILUS INFLUENZAE TYPE B (HIB)



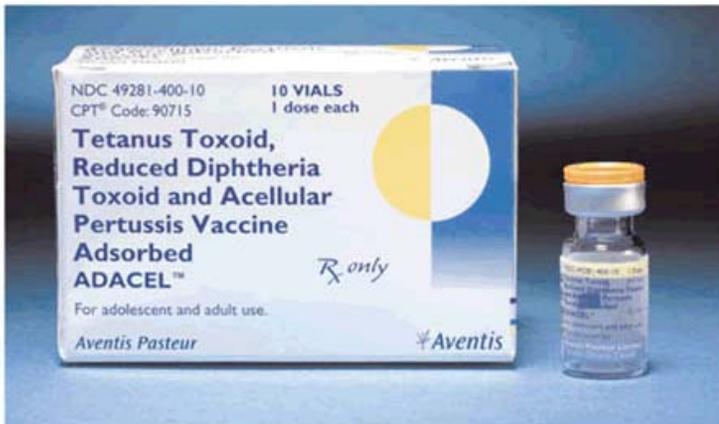
- Before Hib vaccine became available, Hib was the most common cause of bacterial meningitis in U.S. infants and children. Hib meningitis once killed 600 children each year and left many survivors with deafness, seizures, or mental retardation.
- Since introduction of conjugate Hib vaccine in December 1987, the incidence of Hib has declined by 98 percent.

# PERTUSSIS (WHOOPIING COUGH)



- Before pertussis immunizations were available, nearly all children developed whooping cough. In the U.S., prior to pertussis immunization, between 150,000 and 260,000 cases of pertussis were reported each year, with up to 9,000 pertussis-related deaths.
- Pertussis can be a severe illness, resulting in prolonged coughing spells that can last for many weeks.

# PERTUSSIS...CONTINUED



- Tetanus Toxoid, Reduced Diphtheria Toxoid and Acellular Pertussis Vaccine Adsorbed (Tdap). ADACEL™ vaccine is the first tetanus, diphtheria, and acellular pertussis (Tdap) booster vaccine available for both adolescents and adults 11 through 64 years of age.
- Pertussis is given at 2, 4, 6 and 12-15 months with a booster given between 4-6 years of age, and again between 11-12 years old.

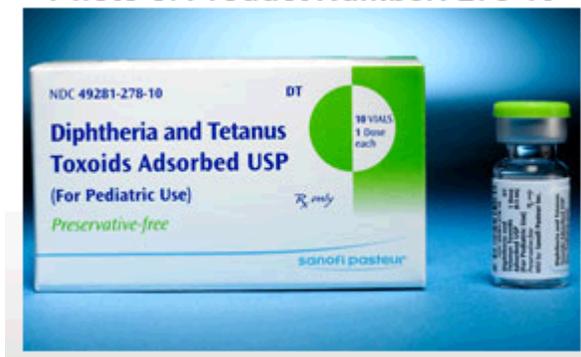
# BOOSTRIX (“BOOSTER” DOSE TDAP FOR 10-64 YEARS OF AGE)

- BOOSTRIX vaccine is indicated for active booster immunization against tetanus, diphtheria, and pertussis as a single dose. BOOSTRIX is approved for use in individuals 10-64 years of age via a single dose of .5mL intramuscular injection.

**BOOSTRIX VACCINE VIAL**

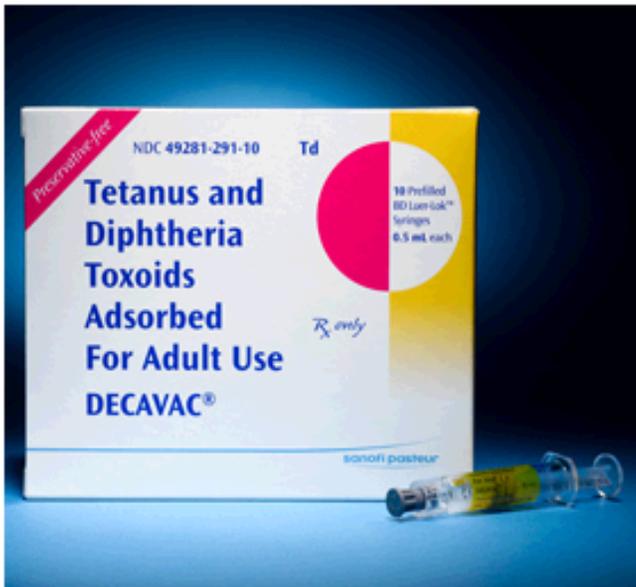


# DIPHTHERIA (COMBINED WITH TETANUS AS TD, DT, TDAP, DTAP)



- ◉ Diphtheria is a serious disease caused by a bacterium. This germ produces a poisonous substance or toxin which frequently causes heart and nerve problems. The case fatality rate is 5 percent to 10 percent, with higher case-fatality rates (up to 20 percent) in the very young and the elderly.
- ◉ In the 1920's, diphtheria was a major cause of illness and death for children in the U.S. In 1921, a total of 206,000 cases and 15,520 deaths were reported.

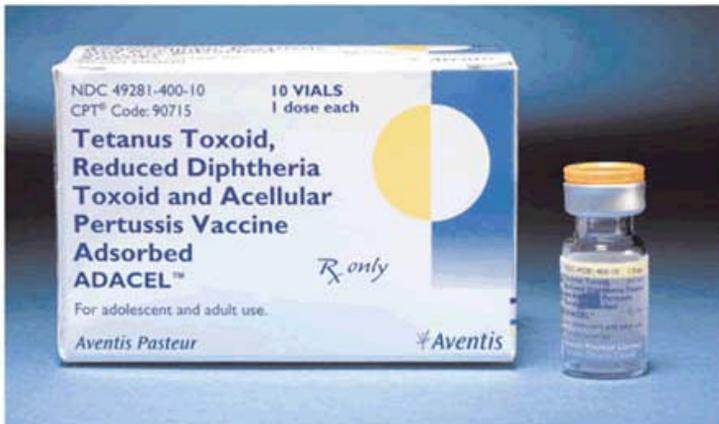
# TETANUS



- Tetanus is a severe, often fatal disease. The bacteria that cause tetanus are widely distributed in soil and street dust, are found in the waste of many animals, and are very resistant to heat and germ-killing cleaners. From 1922-1926, there were an estimated 1,314 cases of tetanus per year in the U.S.
- Given at 2,4,6,12-15 months, 4-6 yrs, 11-12 yrs and boosters q10 years

# TETANUS CONTINUED....

- People who get tetanus suffer from stiffness and spasms of the muscles. The larynx (throat) can close causing breathing and eating difficulties, muscles spasms can cause fractures (breaks) of the spine and long bones, and some people go into a coma, and die. **Approximately 20 percent of reported cases end in death.**



# PNEUMOCOCCAL



- Before pneumococcal conjugate vaccine became available for children, pneumococcus caused 63,000 cases of invasive pneumococcal disease and 6,100 deaths in the U.S. each year. Many children who developed pneumococcal meningitis also developed long-term complications such as deafness or seizures.
- (Adult vaccine pictured)

# PREVNAR 13 (CHILDREN) & PNEUMOVAX 23 (ADULTS)

- **Infants and Children under 2 Years of Age**
  - PCV13 is routinely given to infants as a series of 4 doses, one dose at each of these ages: 2 months, 4 months, 6 months, and 12 through 15 months.
  - Children who miss their shots or start the series later should still get the vaccine. The number of doses recommended and the intervals between doses will depend on the child's age when vaccination begins.
- Pneumovax® is 23-valent polysaccharide vaccine (PPVSV) that is currently recommended for use in all adults who are older than 65 years of age and for persons who are 2 years and older and at high risk for disease (e.g., sickle cell disease, HIV infection, or other immunocompromising conditions, such as DM). It is also recommended for use in adults 19 through 64 years of age who smoke cigarettes or who have asthma.

# VARICELLA (CHICKEN POX)



- Prior to the licensing of the chickenpox vaccine in 1995, almost all persons in the United States had suffered from chickenpox by adulthood. Each year, the virus caused an estimated 4 million cases of chickenpox, 11,000 hospitalizations, and 100-150 deaths.
- A highly contagious disease, chickenpox is usually mild but can be severe in some persons.

# VARICELLA SCHEDULE

- Varicella is administered to children at 1 year of age, and repeated between 4-6 years of age.



# ZOSTAVAX® (ZOSTER)

- Zostavax®, a live virus zoster (shingles) vaccine, is recommended for use in persons 60 years old or older to prevent shingles. The Advisory Committee for Immunization Practices (ACIP) recommends a single dose of zoster (shingles) vaccine for adults 60 years old or older, whether or not the patient reported a prior episode of shingles or chicken pox illness.



# PROQUAD (MMR & VARICELLA COMBINATION VACCINE)

- ◉ *In June 2009, after consideration of the postlicensure data and other evidence, ACIP adopted new recommendations regarding use of MMRV vaccine for the first and second doses and identified a personal or family (i.e., sibling or parent) history of seizure as a precaution for use of MMRV vaccine. For the 1<sup>st</sup> dose of MMRV vaccine at age 12-47 months, the CDC recommends that providers administer the MMR vaccine & the varicella vaccine for the first dose in this age group.*
- ◉ To prevent measles, mumps, rubella, and varicella, the Advisory Committee on Immunization Practices (ACIP) recommends a 2-dose vaccine schedule in childhood, with the first dose administered at age 12--15 months and the second dose at age 4--6 years . In September 2005, the combination quadrivalent measles, mumps, rubella, and varicella vaccine (MMRV, ProQuad, Merck & Co., Inc.) was licensed by the Food and Drug Administration for use among children aged 12 months--12 years

# HEPATITIS B

- More than 2 billion persons worldwide have been infected with the hepatitis B virus at some time in their lives. Of these, 350 million are life-long carriers of the disease and can transmit the virus to others. One million of these people die each year from liver disease and liver cancer.
- Recommended administration at birth, 2 months, and 6 months per the NHIP simplified schedule.





# HEPATITIS A



- ◉ A disease of the liver caused by hepatitis A virus
- ◉ Symptoms: Potentially none (likelihood of symptoms decreases with the person's age)
- ◉ If present: yellow skin or eyes, tiredness, stomach ache, loss of appetite, or nausea
- ◉ Transmission: *Most often:* spread by the fecal-oral route (An object contaminated with the stool of a person with hepatitis A is put into another person's mouth.)
- ◉ *Less often:* spread by swallowing food or water that contains the virus

# HEPATITIS A



## **HAVRIX® (Pediatric)**

(Hepatitis A Vaccine) Suspension for Intramuscular Injection (Preservative Free Formulation)

- Vaccine is recommended for the following persons aged 1 year and older routinely and if:
- You live in a community with a high rate of hepatitis A.
- You are a man and have sex with other men.
- You use street drugs.
- You work or travel to countries with high rates of hepatitis A.
- You have long-term liver disease.
- You receive blood products to help your blood clot.
- You work with HAV-infected animals or work with HAV in research setting.

# ROTAVIRUS - ROTARIX



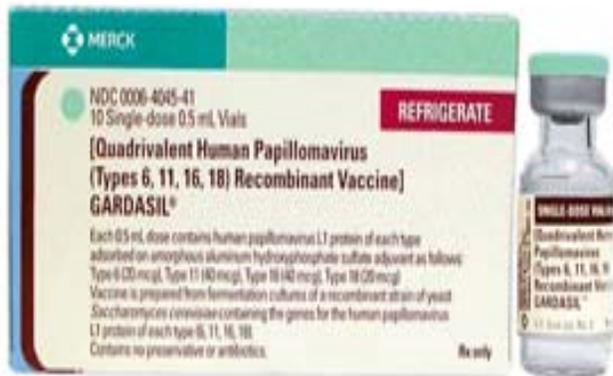
- Rotavirus is the leading cause of severe acute gastroenteritis (vomiting and severe diarrhea) among children worldwide. Two different rotavirus vaccines are currently licensed for use in infants in the United States.
- Two dose schedule at age 2, 4 months and must be reconstituted.

# ROTAVIRUS- ROTATEQ



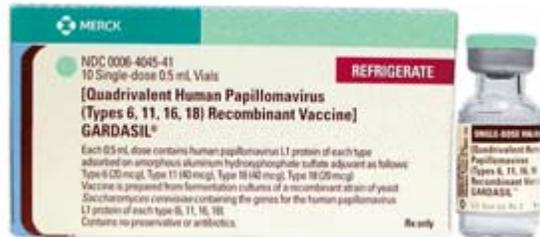
- Your child should receive the vaccine during the first year infancy. There are two brands of rotavirus vaccine. A baby should get 3 doses of RotaTeq:
- The doses are recommended at these ages:
  - First Dose: 2 months of age (must be before 16 weeks)
  - Second Dose: 4 months of age
  - Third Dose: 6 months of age (if needed) and cannot be older than 32 weeks.

# HPV - GARDASIL



- ◉ Genital human papillomavirus (also called HPV) is the most common sexually transmitted infection (STI). There are more than 40 HPV types that can infect the genital areas of males and females. These HPV types can also infect the mouth and throat. Most people who become infected with HPV do not even know they have it.
- ◉ HPV is not the same as herpes or HIV (the virus that causes AIDS). These are all viruses that can be passed on during sex, but they cause different symptoms and health problems.

# GARDASIL®



- In June 2006, the quadrivalent HPV vaccine (GARDASIL®) was licensed by the Food and Drug Administration for use in females 9 through 26 years of age. The vaccine protects against HPV types 6, 11, 16 and 18. The Advisory Committee on Immunization Practices (ACIP) recommends routine vaccination of 11 through 12 year old females and catch up vaccination of females 13 through 26 years of age & is also approved for males of the same age.

# MENINGITIS -MENACTRA & MENVEO



- Meningitis is a disease caused by the inflammation of the protective membranes covering the brain and spinal cord known as the meninges. The inflammation is usually caused by an infection of the fluid surrounding the brain and spinal cord. Meningitis is also referred to as spinal meningitis.
- Meningitis may develop in response to a number of causes, usually bacteria or viruses, but meningitis can also be caused by physical injury, cancer or certain drugs.

# MENINGOCOCCAL VACCINE

- You should get either the MPSV4 vaccine or the MCV4 vaccine if:
  - You are a college freshmen living in a dormitory
  - You are a military recruit
  - You have a damaged spleen or your spleen has been removed
  - You have terminal complement deficiency
  - You are a microbiologist who is routinely exposed to *Neisseria meningitidis* (the causal pathogen)
  - You are traveling or residing in countries in which the disease is common.
- There are two meningococcal vaccines available in the United States:
  - Meningococcal polysaccharide vaccine (MPSV4)
  - Meningococcal conjugate vaccine (MCV4)
  - MCV4 is the preferred vaccine for people ages 2 through 55, but MPSV4 can be used when MCV4 is not available.
  - Target age group aged 11-12 years old.

# COMBINATION VACCINES:

- Pentacel
- Pediarix
- Twinrix
- Kinrix
- MMRV

QUESTIONS ABOUT ANYTHING  
RELATED TO VACCINES? GO TO:

[CDC Home](#)

[About CDC](#)

[Press Room](#)

[A-Z Index](#)

[Contact Us](#)



Department of Health and Human Services

Centers for Disease Control and Prevention

Vaccines & Immunizations

# NEW HAMPSHIRE IMMUNIZATION PROGRAM (NHIP)

- Call the NHIP at:
- 800-852-3345 x4482
- 603-271-4482
- Pink Book (on-line at the CDC)
- [www.uptodate.com](http://www.uptodate.com)
- CHOP.edu
- [www.immunize.org](http://www.immunize.org)