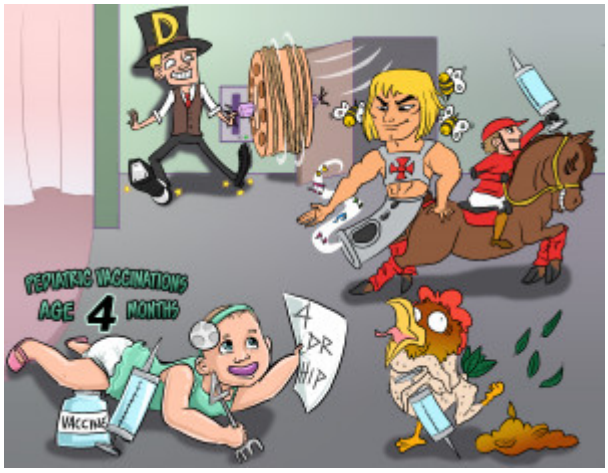
Pediatric Vaccinations - Age 4 Months

Vaccinations are a type of primary prevention, meaning that their goal is to decrease the overall incidence of disease in the population. A 4-month old infant should receive a total of 5 vaccinations: their 2nd dose of the rotavirus, diphtheria, tetanus, and acellular pertussis (DTaP), haemophilus influenzae type B (HiB), pneumococcal conjugate (PCV13), and inactivated poliovirus (IPV), vaccinations. Many of these vaccines are available in a combination to decrease the overall number of shots given. General contraindications to all vaccinations include serious (anaphylactic) allergic reaction to any vaccine component or previous dose of the particular vaccination and those with severe immunodeficiency. Live vaccines (MMR, varicella, yellow fever, nasal influenza, oral rotavirus) should not be given to immunosuppressed or pregnant patients.



PLAY PICMONIC

4 DR HIP

DTaP - Diphtheria Tetanus acellular pertussis

DTaP-dancer

The DTaP vaccine protects against three disease-causing bacteria. Diphtheria is an acute respiratory illness caused by Corynebacterium diphtheriae and has a fatality rate of up to 20% among children under 5 years old. Tetanus, caused by Clostridium tetani toxin, is a spasmodic nervous system disorder. Bordetella pertussis causes an acute respiratory illness known as "whooping cough." The DTaP vaccine contains diphtheria and tetanus toxoids (inactivated toxins). The vaccine also contains inactivated acellular pertussis to protect against these three infections. It is administered intramuscularly (IM). The 2nd of 5 total doses of DTap is recommended at 4 months old. Contraindications to immunization include encephalopathy without an identifiable cause within 7 days of a previous dose. Another contraindication would be progressive neurologic diseases such as infantile spasms or uncontrolled epilepsy. Pertussis booster (Tdap) vaccine is now recommended during adolescence regardless of immunization status and is also recommended even if the patient has already had pertussis.

RV - Rotavirus

Rotor-virus

Rotavirus is a naked, double-stranded, linear RNA virus in the Reoviridae family and is the most common cause of severe diarrhea in infants and young children. The Rotavirus vaccination is a live-attenuated vaccine given orally. There are two available formulations; RV1 is a human assortment requiring 2 doses, and RV5 is a human-bovine assortment requiring 3 doses. Infants generally receive the 2nd dose of the rotavirus vaccine at their 4-month visit. If Rotarix was used, this is the last dose needed (the RotaTec preparation requires 3 doses).

HiB - Haemophilus Influenzae Type B

He-man in-flute (B) Bee

Before the development of the vaccination, Hib was the most common cause of bacterial meningitis in children. It also frequently caused other serious diseases, including epiglottitis, pneumonia, septic arthritis, and bacteremia. The Hib vaccine consists of the type B capsular polysaccharide conjugated to a carrier protein. This conjugation strengthens the T cell-dependent response to vaccination. As the vaccination only covers type B, it does not offer any protection against other types of non-typeable Haemophilus. It is administered IM, and the 2nd dose is given at the 4-month visit. If a 2-dose preparation was used (PedvaxHib or COMVAX), this is the last dose needed.

IPV - Inactivated Polio Vaccine

Polio-player Syringe

There are two polio vaccines: inactivated poliovirus vaccine (IPV) and live attenuated poliovirus vaccine (OPV). OPV is no longer used in the United States, it is, however, still used in many parts of the world. IPV induces active immunity against poliovirus types 1, 2, and 3. IPV is available alone and in combination with other pediatric vaccines. It is administered IM or subcutaneously, and the 2nd of 4 doses is given at 4 months of age. Any child up to 18 years of age should receive all doses if behind. IPV is contraindicated during pregnancy or for those with pregnant individuals at home.

PCV - Pneumococcal

Nude-cock Syringe

PCV derives from a capsular polysaccharide, which allows for type-specific antibody killing. Polysaccharide vaccines were found to have poor efficacy in children <2 years old. However, conjugation of the polysaccharide to immunogenic non-pneumococcal carrier proteins elicits a T cell-dependent memory response that is effective in infants. The Pneumococcal conjugate vaccine (PVC13) contains purified polysaccharides of 13 serotypes conjugated to a diphtheria protein. PCV13 is given in 4 doses, with the second being given at the 4-month visit. There must be a minimum of 4 weeks between the first 3 doses and 8 weeks between the 3rd and last dose. The 23-valent pneumococcal polysaccharide vaccine (PS23) is given to provide additional protection against the PCV13 in some high-risk children (e.g., functional or anatomic asplenia) who are >2 years old.