

## INFORMATION PAPER

DHA-IHB  
2 December 2015

SUBJECT: Rotavirus

1. Purpose: To describe Rotavirus disease and vaccine to prevent it.
2. Facts.

a. Disease. Rotavirus is the leading cause of severe acute gastroenteritis (vomiting and severe diarrhea) among children worldwide. Rotavirus has a characteristic wheel-like appearance when viewed by an electron microscopy. The name rotavirus is derived from the Latin *rota*, meaning "wheel". Rotaviruses are nonenveloped, double-shelled viruses. The genome is composed of 11 segments of double-stranded RNA, which code for six structural and five nonstructural proteins. The disease has a winter seasonal pattern, with annual epidemics occurring from December through June. The highest rates of illness occur among infants and young children, and most children in the United States are infected by 5 years of age. Adults can also be infected, though disease tends to be milder.

b. Epidemiology. The primary mode of transmission is the fecal-oral route. It usually occurs through ingestion of contaminated water or food and contact with contaminated surfaces or objects. Incubation period for rotavirus disease is approximately 2 days.

c. Vaccines. There are two licensed live attenuated oral rotavirus vaccines available in the United States. RotaTeq® (RV5) manufactured by Merck & Co., and is given to infants in 3 doses at ages 2, 4, and 6 months old. Rotarix® (RV1) manufactured by GlaxoSmithKline and is given to infants in 2 doses at 2 and 4 months old. If a baby spits out the oral rotavirus vaccine do not give them more. According to the CDC the vaccines are about 85% to 98% effective in preventing severe rotavirus disease in infants and young children. RV5 and RV1 contain no preservatives or thimerosal.

d. Clinical Guidance. ACIP recommends routine rotavirus vaccination of all infants without a contraindication and that the rotavirus vaccine series be completed with the same product whenever possible. Vaccination should not be deferred because the product used for a previous dose(s) is not available or is unknown. In these situations, the provider should continue or complete the series with the product available. If any dose in the series was RV5 or the vaccine product is unknown for any dose in the series, a total of 3 doses of rotavirus vaccine should be administered (CDC, Pink book 2015). All doses should be administered by age 8 months and 0 days.

e. Precautions and Contraindications. Rotavirus vaccine should not be administered to infants who have a history of a severe allergic reaction (e.g., anaphylaxis) after a previous dose of rotavirus vaccine or to a vaccine component. Rotavirus vaccine is contraindicated in severe combined immunodeficiency (SCID). Infants with severe (anaphylactic) allergy to latex should not receive Rotarix® (RV1) due to the fact that oral applicator contains latex rubber. Rotavirus vaccine should not be administered to infants with acute moderate or severe gastroenteritis until the condition improves.

f. Intussusception. An earlier rotavirus vaccine, RotaShield, was withdrawn after finding it significantly increased the risk of intussusception (a serious situation in which part of the intestine slides into an adjacent part of the intestine) in children. Studies of RotaTeq and Rotarix conducted between 2006 and 2010 found no increased risk of intussusception following vaccination with RotaTeq, but a very slight increased risk (1 case in 20,000 children) of intussusception following dose 1 and dose 2 of Rotarix.

g. Adverse Reactions/Events. Mild effects following the vaccine including increased irritability/crying, diarrhea, or vomiting. The risk of a serious reaction is extremely small, however, difficulty breathing, wheezing, hives, paleness, fast heart beat may be signs of an allergic reaction. Stomach pain, weakness, loss of appetite, persistent vomiting, and/or dark red stools may be signs of intussusception. Any clinically significant or unexpected adverse event that occurs after administration of rotavirus vaccine should be reported to Vaccine Adverse Events Reporting System (VAERS).

### 3. References

a. Centers for Disease Control and Prevention (CDC), 2014, Morbidity and Mortality Weekly Report (MMWR), Rotavirus Surveillance – Worldwide, 2009: Recommendations of the Advisory Committee on Immunization Practices (ACIP) (2011, April 29). Retrieved from <http://www.cdc.gov/mmwr/preview/mmwrhtml/mm6016a5.htm>

b. Centers for Disease Control and Prevention, Rotavirus, (n.d.). Retrieved from <http://www.cdc.gov/vaccines/vpd-vac/rotavirus/default.htm#clinical>

c. Centers for Disease Control and Prevention, Rotavirus, Pink Book: Course Textbook - 13th Edition, (2015, June 1). Retrieved from <http://www.cdc.gov/vaccines/pubs/pinkbook/rota.html#vaccines>

d. Centers for Disease Control and Prevention (CDC), Rotavirus. (2014, May 12). Retrieved from <http://www.cdc.gov/rotavirus/about/transmission.html>

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