

## INFORMATION PAPER

DHA-IHB  
23 Oct 2015

SUBJECT: Chickenpox and the Chickenpox Vaccine

1. Purpose. To describe the Chickenpox virus, and the Chickenpox vaccine.

2. Facts.

a. Microbiology. The primary infection is caused by the varicella zoster virus (VZV), chickenpox typically occurs during childhood. Reactivation of latent virus later in life produces Shingles (also see Shingles information paper).

b. Disease. About 14-16 days after exposure, a 1 to 2 day prodrome may begin. During the prodrome infected people, especially adults, develop fever and malaise. The prodrome is then followed by a rash. The varicella rash usually begins on the scalp and then moves downward and outward. It covers the trunk and extremities, with most lesions occurring on the trunk. The itchy rash progresses rapidly from macules to papules to vesicles, which then crust over. Infected people usually have 250 to 500 lesions, but can have as few as 10 or more than 1,500. The lesions can occur on the mucous membranes of the mouth and throat, respiratory tract, and the eye, as well as on the skin. The lesions are normally 1 to 4 mm in diameter and occur in successive crops over several days, so all stages of lesions may be present at any given time. In general, varicella is usually mild and goes away without treatment in about 5-10 days. Serious complications are rare, occurring in about 1 in every 100,000 persons infected. The most common of these rare complications include secondary bacterial infections of the skin, dehydration, pneumonia, and central nervous system manifestations. Adults, people who are immune compromised, pregnant women, children under the age of 4 years, especially infants are most likely to experience complications from varicella infection.

c. Epidemiology. The varicella zoster virus is an exclusively human pathogen. Varicella zoster virus is highly contagious and spreads from person to person via airborne respiratory droplets or by direct contact with the fluid inside lesions. Persons are most contagious from one to two days before rash onset until all the lesions crust over. Varicella occurs throughout the year in temperate regions, but the incidence typically peaks in the months of March through May and lessens between September and November. According to data from the prevaccine era, greater than 95% of persons in the United States acquired varicella before 20 years of age, and fewer than 2% of adults were susceptible to infection. Prior to 1995 the CDC estimated the yearly incidence of chickenpox in the U.S. at approximately four million cases, with nearly 11,000 admissions and 100 deaths. The epidemiology for varicella has changed dramatically since the introduction of the varicella vaccine in 1995, with decreased

disease incidence approaching up to 90% and mortality decreasing by approximately 66%.

d. Vaccine.

(1) Varivax® produced by Merck is a live, attenuated (weakened) viral vaccine. Varivax® is licensed for persons 12 months of age and older. The vaccine is reconstituted with sterile water and contains no preservatives.

(2) ProQuad® produced by Merck is a combination vaccine which includes antigens for chickenpox, measles, mumps, and rubella. ProQuad® is licensed for children 12 months through 12 years of age. The vaccine is reconstituted with sterile water and contains no preservatives.

(3) The viruses within varicella vaccine are fragile and must be handled carefully. To maintain potency, the freeze dried vaccine must be protected from light at all times and frozen at an average temperature of +5°F (-15°C) or colder until it is reconstituted for injection. Administer the vaccine immediately after reconstitution and discard if not used in 30 minutes. Store the diluent separately at room temperature or in the refrigerator.

e. Immunization. Children should receive a single 0.5-mL dose administered subcutaneously at 12 to 15 months of age with a second dose at 4 through 6 years. The second dose may be administered earlier than 4 through 6 years of age if at least 3 months have elapsed following the first dose. A second dose of varicella vaccine is also recommended for persons older than 6 years of age who have received only one dose. Based on the Catch up schedule, the minimum interval between doses, is 3 months for children ages 12 months through 12 years and 4 weeks for people age 13 and older. Persons 13 years of age and older, who do not have evidence of varicella immunity, should receive two 0.5-mL doses of varicella vaccine subcutaneously separated by at least 4 weeks. Measles-mumps-rubella (MMR) vaccine and other routine childhood vaccines may be administered simultaneously. If varicella and other live vaccines are not administered at the same visit, separate them by at least 28 days. Prior history of chickenpox is not a contraindication to varicella vaccination.

f. Cautions. The following people should not receive the varicella vaccine: people with a severe allergic reaction to a previous dose of varicella vaccine or a varicella vaccine component (note: If administering varicella combined with MMR vaccine, also check for a history of severe allergic reaction to previous dose of MMR vaccine); women known to be pregnant or attempting to become pregnant (advise women to avoid pregnancy for one month after varicella vaccination); people who are immune suppressed due to disease, treatment, or medication; and people who have recently received blood products or immune globulin. Unless the parent or caregiver expresses a preference for MMRV vaccine, separate MMR and varicella vaccines should be

administered for the first dose for children 12 through 47 months of age. This is also to avoid the slightly increased risk of febrile seizures.

g. Adverse Events. The most commonly reported adverse reactions following varicella vaccination are fever and injection site pain, erythema (redness), and swelling. Less common reactions include mild rashes that can occur up to a month after vaccination.

h. DoD Policy. Use varicella vaccine in accordance with recommendations of the Advisory Committee on Immunization Practices (ACIP). Unless seroimmune, administer varicella vaccine per ACIP guidelines to military personnel at initial entry training or upon deployment.

### 3. References.

a. Centers for Disease Control and Prevention. Prevention of Varicella. Recommendations of the Advisory Committee on Immunization Practices (ACIP). MMWR 2007;56(No. RR-4).

b. Center for Disease Control and Prevention. Use of Combination Measles, Mumps, Rubella and Varicella Vaccine Recommendations of the Advisory Committee on Immunization Practices (ACIP). MMWR 2010;59(No. RR-3)

c. Multiple resources (e.g., product insert, Vaccine Information Statements) assembled by Immunization Healthcare Branch: [www.health.mil/chickenpox](http://www.health.mil/chickenpox)

IHB Education Office/ (877) 438-8222

Approved by: Chief, Clinical Services Office