

## **New Tetanus Vaccine Available at CorpOHS facilities**

CorpOHS will be replacing the current tetanus vaccine with a new vaccine (Dtap) recently approved by the FDA and recommended by the CDC Advisory Committee on Immunization Practices (ACIP). The new vaccine protects against tetanus, diphtheria and pertussis, while the older vaccine protected against tetanus and diphtheria only.

Pertussis is a highly contagious, vaccine preventable bacterial illness which in its classic form is characterized by sudden severe coughing episodes, post-cough vomiting, and inspiratory whoop (Hence the name “whooping cough”). Infective persons are most contagious during the first two to three weeks of the illness, and infection is spread by coughed droplets of respiratory secretions. Most hospitalizations and deaths due to pertussis occur in infants who have not yet been immunized. Non-immune older family members are the recognized source of infection for the majority of infant cases. Mortality from pertussis in infants was reduced 90 percent by introduction of a vaccine in the 1940s. However, the immunity from vaccination is not permanent; immunity wanes five to 15 years after the last childhood dose, which is usually administered before school entry.

In the U.S., the reported number of pertussis cases has increased in the past 30 years. In 2002, 23 percent of cases occurred in adults age 20 or older. Infection in adults and adolescents is less likely to manifest as the classic pertussis symptoms. Symptoms include a mild or moderate cough. Up to 20 percent of adults with an illness with prolonged cough may be infected with pertussis. The non-specific symptoms may be attributed to generic bronchitis unless specific testing for pertussis is performed. Pneumonia can be a complication of pertussis infection in adults but again may not be identified as pertussis unless specific testing is ordered.

While increased awareness and better diagnostic testing may contribute to increased recognition of pertussis in adults, a true increase in disease activity due to waning immunity is recognized. In the U.S. 11,647 cases of pertussis were reported in 2003, the highest incidence since 1964. Nevertheless, pertussis is considered to be under recognized and is often reported as atypical bronchitis or pneumonia infection in adults. The actual incidence in the U.S. is estimated to range from 50,000 to as high as 1 million cases per year.

### **About the Vaccines**

Two formulations of acellular pertussis vaccine with diphtheria and tetanus toxoids (Dtap) are approved and licensed in North America and Europe: *Boostrix* from Glaxo Smith Kline and *Adacel* from Sanofi Pasteur. The dTap vaccines have been available in Europe and Canada since the late 1990s. Use of a single dose in adolescents or adults is reported to be about 85 percent effective in producing immunity for pertussis. No increase in vaccine-associated adverse effects are reported from the addition of the acellular pertussis antigens to the current adult tetanus booster (dT) vaccine.

A single dose of Dtap is recommended for adults in place of the dT in most situations, such as when a routine tetanus booster is due or for post-injury wound management in adults age 19-64. The Dtap may be given even if an interval of less than 10 years has elapsed since receipt of the last tetanus toxoid containing vaccine; this practice has been shown to accelerate protection of adults against pertussis. Clinical experience in Canada supports the safety of using Dtap as soon as two years post dT. The Dtap acellular pertussis combination is especially recommended for adults who have close contact with infants under 12 months of age, such as parents, childcare providers, and health care workers. Immunization is ideally provided one month before beginning infant contact. Preconception immunization is encouraged for women of childbearing age. While the ACIP states that pregnancy is not a contraindication to either dTap or Td vaccination, it has not yet made formal recommendations about use of Dtap in pregnancy.

### **Occupational Implications**

The availability of an adult vaccine for pertussis has occupational implications for health care workers and childcare providers. Widespread use of Dtap may protect infants from pertussis acquired from adult contacts or caregivers. Formal recommendations to immunize health care workers will likely follow the CDC's ratification of the ACIP recommendations. The occurrence of outbreaks of pertussis in hospitals may be prevented or more readily contained by use of Dtap.

Pertussis has also been problematic in occupational settings unrelated to health care or childcare. In 2003, an outbreak occurred in an oil refinery, affecting 15 workers or 10 percent of the employees at two separate operations. A total of 24 pertussis cases were identified as a result of this outbreak.

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