Pertussis, more commonly known as “whooping cough”, can cause serious illness in infants, children and adults. Substantial declines in disease occurred in the U.S. after the introduction of the vaccine in the 1940s, but rates have increased since the early 1980s. A new Illinois policy requires a pertussis vaccine at 6th and 9th grade entry and is expected to decrease the number of infections, hospitalizations, and death due to pertussis infections.

What is Pertussis?

The disease usually starts with cold-like symptoms. After 1 to 2 weeks, severe coughing can begin; coughing fits can continue for weeks. More than half of infected infants younger than 1 year of age require hospitalization. Adolescents and adults can also experience complications from pertussis. However, they are usually less severe and can include fainting or rib fractures due to violent coughing fits.

Pertussis is a very contagious disease only found in humans and is spread from person to person. People with pertussis usually spread the disease by coughing or sneezing while in close contact with others, who then breathe in the pertussis bacteria. Since the pertussis bacteria is found in the fluids of the nose and mouth, the sharing of utensils or drinks resulting in the transfer of those fluids can also spread the pertussis bacteria.

Pertussis Vaccination

The best way to prevent pertussis is to get vaccinated. The Centers for Disease Control and Prevention (CDC), American Academy of Pediatrics (AAP), and the American Academy of Family Physicians (AAFP) recommend diphtheria, tetanus, acellular pertussis (DTaP) vaccine for children 6 years of age and younger and the tetanus, diphtheria and acellular pertussis (Tdap) vaccine for adolescents and adults 10 year of age and older.

After the first infant vaccines were introduced in the 1940s, dramatic declines in disease occurred in the U.S. However, rates of pertussis began to increase in the early 1980s.\(^1\) Despite the fact that a high proportion of infants and young children receive all four recommended DTaP doses, pertussis disease continued to occur in adolescents and adults because immunity decreases over time. In 2006, Tdap vaccines were licensed and recommended for adolescents and adults to address this waning immunity. Although national, state and local coverage levels among adolescents have improved since Tdap was licensed and recommended, coverage levels remain below the Healthy People 2020 Goal of 80% (Figure 1).

**Figure 1. Percentage of 13-17 year olds receiving Tdap vaccine*, by Geographic Area, 2008-2010**

CDC. National, state, and local area vaccination coverage among adolescents aged 13-17 years—United States, 2010. MMWR 2011;60:1117-1123.

Illinois Vaccination Policy

During the 2011-2012 academic year, Illinois’ Child Health Examination Code (77 Ill. Adm. Code 665) required that 6th and 9th grade students provide documentation of having received five vaccines including DTaP, polio, MMR (Measles, Mumps, Rubella), hepatitis B, and varicella. For the 2012-13 academic year, Illinois students entering 6th and 9th grade will also be required to provide documentation of having received one dose...
of the Tetanus, diphtheria and acellular pertussis (Tdap) vaccine. The Illinois Department of Public Health modified the Child Health Examination Code to align the existing pertussis vaccination requirement for school entry with current accepted clinical practices as recommended by the CDC, AAP and the AAFP. At least 35 other states have already instituted school entry requirements for Tdap vaccine.

State vaccination laws and regulations for kindergarten entry are effective in attaining high coverage levels (i.e., >90%) among school attendees and have led to a marked decline in morbidity and mortality from vaccine-preventable diseases. These laws also serve as an effective “safety net” because they apply to all children entering school, regardless of race, ethnicity, socioeconomic status, or insurance coverage. State laws requiring proof of vaccination for entry into middle school have also resulted in increased adolescent vaccination coverage levels.

Pertussis Cases in Chicago, Illinois and the U.S.

Implementation of the Tdap vaccination requirement strikes at an opportune time. Reported pertussis cases have been increasing in Illinois since 2010. From 2010 to 2011, reported cases increased from 1,057 to 1,381 in Illinois. Although reported cases in Chicago were fairly stable from 2010 (97) to 2011 (92), as of July 3, 2012, 102 pertussis cases were reported in Chicago (Figure 2). Similarly, 981 pertussis cases were reported in Illinois during that same time period.

Elsewhere in the U.S., large, localized outbreaks of pertussis are not uncommon and continue to occur. Some examples of recent pertussis activity include:

- In Washington, there were 2,647 cases reported through June 23, 2012, compared to 187 reported cases in 2011 during the same time period. There were 965 cases reported statewide in 2011 compared to 608 reported cases in 2010.

Several studies have found that school vaccination requirements have been effective in decreasing transmission of infectious diseases (e.g., measles). In addition, school vaccination requirements have contributed to increased vaccination coverage levels and decreased racial and ethnic disparities in vaccination coverage. In 2010, estimates for Tdap vaccine coverage
levels among 13-17 year olds were determined to be 70% in Chicago and 66% in Illinois (Figure 1). These levels suggest that more than 30% of Illinois children 13-17 years of age remain unprotected from pertussis infections. Requiring Tdap vaccine at 6th and 9th grade entry will improve pertussis vaccine coverage levels, decrease the spread pertussis infections and decrease the number of infections, hospitalizations and death due to pertussis infections throughout Illinois.

References
8. Centers for Disease Control and Prevention, National Center for Immunization and Respiratory Diseases, Pertussis (whooping cough) Outbreaks, www.cdc.gov/pertussis/outbreaks.html

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