

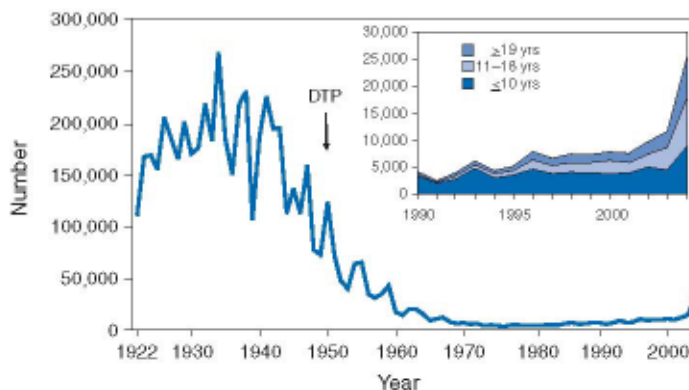
EPI CONNECTIONS

A Bimonthly Newsletter of the Communicable Disease Division

April 2006

Preventing Pertussis in Adolescents with Tdap Vaccine

The number of pertussis cases reported nationally declined until the early 1990s (Figure 1). Much of the increase in the past decade has occurred in persons >10 years of age, most likely due to waning immunity (Figure 1 inset). Review of Boulder County pertussis data from 1999 – 2005 reflects this trend, as 53% of cases reported during that period were 10-19 years of age (Figure 2).



SOURCE: 1950–2004, National Notifiable Diseases Surveillance System and 1922–1949, passive reports to the Public Health Service.

Figure 1

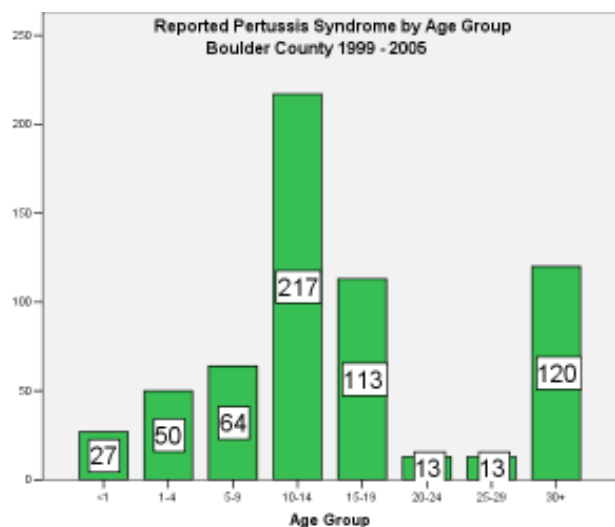


Figure 2

Pertussis incidence rates in Colorado are 2-3 times greater than U.S. rates, and in 2003, Colorado had the 10th highest rate (8 per 100,000). Boulder County represents 6.1% of Colorado's total population;* however, its residents comprised 7-14% of the state pertussis burden each year from 2001 to 2005. The average rate from 1999-2003 was 23 per 100,000—the highest of any urban county in the state. Boulder County reached a peak of 61 per 100,000 (176 cases) in 2004 and declined to 41 per 100,000 (119 cases) in 2005.

As shown in Figure 3, pertussis occurs throughout the year in Boulder County, with peaks generally occurring from September through January. Therefore, clinicians should consider the diagnosis of pertussis in persons of any age at any time of the year with a persistent or paroxysmal cough.

Boulder County Frequency of Pertussis by Month: 1996-2006 YTD

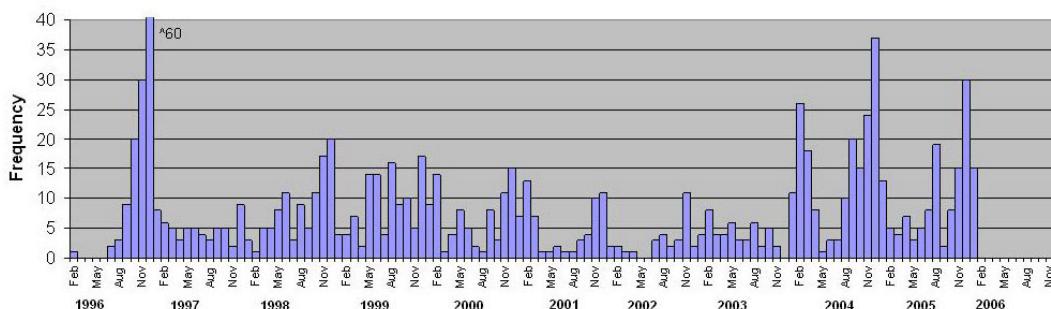


Figure 3

* Colorado State Population: 4,653,023 (July 2004). Colorado State Demography Office.

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Pertussis can be a debilitating disease in all age groups. A review of 2003 pertussis cases \geq ten years of age indicate:

- Paroxysmal cough was present in >98%
- Vomiting after cough occurred in >50%
- Whoop occurred in 30%
- Hospitalization occurred in 0.5%

While diagnostic methods have improved with the addition of PCR testing and therapeutic options have broadened in the past ten years (see *MMWR* Dec. 9, 2005; Vol 54: RR-14), **pertussis remains a problem in Boulder County that must be addressed primarily by reducing the reservoir of susceptible persons (i.e., by vaccination of adolescents and young adults).**

Health practitioners and clinicians now have the means to prevent the disease in older persons and interrupt the chain of transmission that may lead to severe infant and toddler morbidity and mortality. *Tdap* is a combination vaccine that contains tetanus toxoid, reduced diphtheria toxoid, and acellular pertussis vaccine. Two *Tdap* vaccines are currently licensed (BOOSTRIX for persons aged 10-18 years and ADACEL for persons aged 11-64 years); the Advisory Committee on Immunization Practices (ACIP) recently published guidelines on their use among adolescents (see box below).

Vaccine providers should consider giving *Tdap* and MCV4 (Menactra) (both contain diphtheria toxoid) during the same visit, if both vaccines are indicated and available. They should be administered using separate syringes at different anatomic sites. Slightly higher rates of local reactions were observed when ADACEL was administered simultaneously with hepatitis B vaccine or trivalent inactivated influenza vaccine than when vaccines were administered sequentially (evaluation studies of simultaneous administration with BOOSTRIX have not been performed). All licensed *Tdap* vaccines (and *Td* vaccines) are categorized as Pregnancy Category C agents by the FDA; *Td* has been used extensively in pregnant women worldwide primarily to prevent neonatal tetanus, and no evidence indicates use of tetanus and diphtheria toxoids administered during pregnancy are teratogenic.

For further information, please contact the BCPH Immunization Program at 303-413-7500.



Public Health: *PH*ocus on Measles

First Boulder County Measles Case Since 2000 – An infant presented to the pediatric unit at a local hospital with symptoms of high fever, cough, and 86% oxygen saturation. The patient's CXR on admission revealed perihilar haziness and peribronchial thickening. Over the next few days, the child developed a rash that started on the cheeks and then spread to her entire body. The patient fully recovered and was discharged after 8 days.

Upon investigation, the child was likely exposed to measles during recent extended travel to India and short visits to Malaysia and Los Angeles. Boulder County Public Health (BCPH) performed follow-up with 19 contacts exposed to the case; no subsequent cases were identified.

While the child was up-to-date on all vaccinations before the start of travel, she turned 1-year-old during the trip and had yet to acquire her first dose of MMR. The CDC and ACIP now suggest that practitioners provide an MMR immunization at least 2 weeks prior to travel to high-risk countries for children older than 6 months but younger than 12 months. This early dose will provide short-term protection, but it does not take the place of either of the regularly scheduled MMR immunizations; these children will still need 2 more doses of the MMR vaccine to be protected.

Epi-Eye

A Look Outside Our Community and Around the World

Dehydration Prevention Saves Lives

Diarrheal illnesses are the second leading cause of death in children worldwide. Most of these 1.9 million deaths are from dehydration, a condition treatable by Oral Rehydration Salts (ORS). WHO and UNICEF have developed a new formula for ORS that contains less sodium and glucose. The solution is the simplest and most effective way to hydrate children during acute diarrheal episodes, and thus minimizing the need for intravenous fluids and hospitalization.



Pan American Health Organization

Who should get *Tdap* and when?

- ACIP recommends that adolescents aged 11–18 years receive a single dose of *Tdap* in place of tetanus/diphtheria (*Td*). The preferred age for *Tdap* vaccination is 11-12 years.
- ACIP also recommends that adults receive a *Tdap* vaccination 5-10 years after their last tetanus/diphtheria (*Td*) vaccination.
- In situations when it is important to protect against pertussis (such as outbreak situations or for people who have close contact with infants younger than 1 year of age), intervals of 2-5 years since the last *Td* vaccination may be used.

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