# Reports of Pertussis Rising in Teenagers

BY MIRIAM E. TUCKER
*Senior Writer*

ATLANTA — Pertussis in adolescents is an increasingly reported problem across the United States, Margaret M. Cortese, M.D., said at a meeting of the Centers for Disease Control and Prevention's Advisory Committee on Immunization Practices.

Preliminary data for 2004 include 8,000 cases reported in adolescents, with large numbers in Wisconsin, upstate New York, Colorado, and Massachusetts. More than 100 cases were reported in adolescents in each of 16 states, while 14 states reported more than 500 cases each in persons of all ages. Moreover, although reporting rates have increased, "these numbers are likely only a portion of the true burden," said Dr. Cortese, a medical officer with the CDC's National Immunization Program.

Her presentation was among the discussion points during a 4-hour session at the Advisory Committee for Immunization Practices (ACIP) meeting devoted to issues surrounding the pertussis disease burden and to the anticipated licensure of two new reduced-antigen tetanus-diphtheria-acellular pertussis (Tdap) vaccines formulated for use in adolescents.

Both candidate vaccines—Sanofi-Pasteur's Adacel and GlaxoSmith-Kline's Boostrix—will be reviewed this month by the Food and Drug Administration's Vaccines and Related Biological Products Advisory Committee, and ACIP is expected to issue recommendations later this year for their use as adolescent boosters.

In Massachusetts—which is the only state that conducts active surveillance for pertussis using a standardized serologic test for diagnosis—there were 1,088 cases of pertussis among adolescents in 2003, compared with 374 in 2002, 331 in 2001, and 869 in 2000. Of those cases, between 45% and 50% were involved in school outbreaks, Dr. Cortese reported.

Because Massachusetts has such an aggressive surveillance and reporting system for pertussis, their rates are typically about 20 times higher than the reported rates of any other state and "probably give a true indication of the rest of the country," she noted.

Previously published data have documented significant morbidity and high costs associated with pertussis in adolescents. Among 314 children aged 10-17 years identified in Massachusetts, paroxysmal cough was reported in 74%, difficulty sleeping in 77%, difficulty breathing in 72%, post-tussive vomiting in 56%, and weight loss in 33%. A total of 38% were still coughing at the last interview, done a mean 3.4 months following the initial diagnosis (Clin. Infect. Dis. 2004;39:1572-80).

Those 314 were a subset of a larger group of 1,679 adolescents in whom various cost parameters were assessed. The teenagers made a median of two office visits, and 83% reported missing a mean 5.5 school days, while 43% of their parents/caretakers missed a mean 2.4 days of work. Average medical cost (including office visits, chest x-rays, and antibiotics) per case was $256, and average nonmedical cost (mostly in missed work) was $160.

These estimates don't include the costs of prophylactic antibiotics for contacts or the public health response, Dr. Cortese noted. ■

# *Tdap Shot Can Fit in to Preteen Visit, Surveyed Doctors Say*

ATLANTA — Physicians who take care of adolescents are likely to accept routine vaccination of 11- to 12-year-olds with a tetanus-diphtheria-acellular pertussis vaccine instead of the current tetanus-diphtheria vaccine, Karen R. Broder, M.D., reported at a meeting of the Centers for Disease Control and Prevention's Advisory Committee on Immunization Practices.

However, preliminary survey data suggest that vaccinating older adolescents might prove trickier, and that vaccination practices are likely to differ between family physicians and pediatricians, said Dr. Broder, a medical officer with the CDC's National Immunization Program.

In anticipation of the expected licensure of two new specially formulated adolescent tetanus-diphtheria-acellular pertussis (Tdap) vaccines, the University of Michigan and the CDC surveyed approximately 600 randomly selected U.S. pediatricians and family physicians. A total of 154 pediatricians and 143 family physicians returned the surveys and said they provided outpatient primary care to one or more adolescents (aged 11-18 years) per week.

Most of the physicians (75% of pediatricians and 66% of family physicians) worked in private, independent office settings, while 19% of the family physicians worked in practice networks/HMOs, compared with just 7% of the pediatricians.

Both specialties reported high current rates of administering tetanus-diphtheria toxoids (Td) when indicated for wound management (73% pediatricians/83% family physicians) and for camp and/or school requirements (83%/79%). However, while 77% of pediatricians said they routinely gave Td vaccine to 11- to 12-year-olds at preventive care visits, just 51% of family physicians reported doing so.

Among the surveyed physicians, the reported "major" barriers to current adolescent Td vaccination included "lack of patient visits" for 40% of pediatricians and 48% of family physicians; "record keeping" for 11% and 24%, respectively; "reimbursement" for 3% and 17%; and "too busy" by 2% of pediatricians and 7% of family physicians. "No barrier" was reported by 47% of pediatricians and 32% of family physicians.

A total of 70% of pediatricians versus 42% of family physicians either agreed or strongly agreed with the statement that pertussis is a "serious enough disease" to use Tdap for adolescents, rather than Td, she noted.

In a separate survey of a different but comparable group of physicians, 63% of pediatricians and 35% of family physicians reported that more than half of their adolescent patients have a routine preventive visit at 11-12 years, while 44% of pediatricians and 27% of family physicians reported the same for those aged 14-15 years, compared with just 30% and 15%, respectively, at 17-18 years.

A total of 84% of pediatricians and 59% of family physicians said that more than half of their patients received a Td booster at any time between the ages of 11 and 18 years, suggesting more than 50% coverage. By comparison, the 2002 National Health Interview Survey found that just 33% of those aged 13-15 years had a Td dose listed in their shot cards, while coverage for Td varied from 48% to 97% in three states with Td school laws for middle-schoolers, Dr. Broder noted.

In addition to ACIP's expected recommendation for routine Tdap vaccination at the 11- to 12-year-old preventive visit, the committee is also considering a "first opportunity" strategy in which the vaccine would be given to any teenager who had received Td more than 5 years earlier (an interval of 5 years is required to minimize adverse events). These survey data suggest that such a strategy "might pose challenges," Dr. Broder remarked.

**—Miriam E. Tucker**

# Criteria for PANDAS Subgroup Should Be Refined, Researchers Say

BY PATRICE WENDLING
*Chicago Bureau*

CHICAGO — A new study suggests that three of the five criteria for inclusion in the pediatric autoimmune neuropsychiatric disorders associated with streptococcal infections, or PANDAS, subgroup could be narrowed and still provide clinically useful benchmarks.

The first criterion for this subgroup is that the children must meet a lifetime diagnostic criterion for obsessive-compulsive disorder (OCD) or a tic disorder, Lisa Snider, M.D., said at the annual meeting of the Society for Developmental and Behavioral Pediatrics.

"Some people are suggesting that anorexia nervosa, attention-deficit hyperactivity disorder, possibly even bipolar disorder could be triggered by infections like streptococcal infection," Dr. Snider said. "Our research came out of a predisposition to thinking that OCD and tics are secondary to a dysfunction within the basal ganglia.

"Our original research was on patients with Sydenham's chorea, which is triggered by streptococcal infection, and felt to be a basal ganglia disorder."

The criteria were defined in 1998 by colleague Susan Swedo, M.D., of the National Institute of Mental Health, Bethesda, Md., and have been used successfully to study the pathophysiology and clinical course of the PANDAS subgroup. But, they also have been criticized as being too broad.

PANDAS is now defined by the presence of OCD and/or tic disorder, prepubertal onset, unique clinical course, association of neuropsychiatric symptoms with group A β-hemolytic streptococcal infections, and association with neurologic abnormalities during symptomatic periods.

Dr. Snider and her colleagues suggested the three new criteria should be:

- A primary diagnosis of OCD or prominent obsessive-compulsive features (criterion 1).
- Abrupt onset of neuropsychiatric symptoms reaching clinical impairment in less than 48 hours or a period of complete neuropsychiatric symptom remission (criterion 2).
- A positive throat culture in the 2 months prior to or elevated antistreptococcal titers drawn between 3 weeks and 3 months after neuropsychiatric symptom onset or exacerbation (criterion 3).

"The criteria haven't radically changed, but they are tighter and much more specific, which should help clinicians and researchers," Dr. Snider told this publication. "If you see someone for the first time, you have a better chance now of saying if this is PANDAS or not, because we don't have a blood test for this disorder." The study included 30 boys and 20 girls, mean age 8.2 years, who met the original PANDAS criteria. Thirty-eight (76%) had a primary diagnosis of OCD and 12 patients (24%) had a primary diagnosis of tic disorder.

Of the 12 patients with a primary tic disorder, 9 (75%) had comorbid OCD or significant obsessive-compulsive symptoms. Only three patients had a tic disorder without obsessive-compulsive features.

The results were equally clear in regard to criterion 2, Dr. Snider said. Forty-four of the 50 patients (88%) had an abrupt onset of symptoms reaching clinical impairment in less than 48 hours. Of the remaining six patients, four had at least one period of complete symptom remission.

All 50 patients had a group A β-hemolytic streptococcal infection associated with onset or exacerbation. Infection was found in 23% of patients at presentation. ■