

Vaccine Has Stopped Most, but Not All, Varicella

BY MIRIAM E. TUCKER
Senior Writer

Varicella is still around despite the vaccine—and in some cases it can still be fatal, according to the Centers for Disease Control and Prevention.

Varicella vaccination is more than 95% effective against severe disease, and, since 1996, has been recommended for routine administration to children aged 12-18 months and to all susceptible persons aged 13 years and older. For children aged 19-35 months, national estimates of varicella vaccine coverage increased from 26% in 1997 to 85% in 2003, resulting in substantial reductions in varicella morbidity and mortality.

In two Varicella Active Surveillance Project sites—Antelope Valley, Calif., and West Philadelphia, Pa.—the number of reported cases dropped by approximately 85% during 1995-2003, and hospitalizations by about 70%.

Yet, cases are still occurring among both vaccinated and unvaccinated individuals, as are a small number of varicella-related deaths among those not vaccinated or whose vaccination status is unknown, the CDC said in two separate reports (MMWR 2005;54:272-6).

During 2003 and the first half of 2004, the CDC received reports of eight varicella-related deaths, of whom six were unvaccinated and vaccine status unknown for the other two. The decedents ranged from 1 to 40 years, including six children and adolescents younger than 20 years of age. Three of the children had preexisting immunosuppressive conditions.

The other three, all initially healthy, were a 12-year-old boy, a 10-year-old girl, and a 14-month-old girl. None had been vaccinated or previously had the disease. Two had been exposed to classmates with varicella, while the source for the third child was unknown. All three had been brought to the emergency room with rashes consistent with varicella.

The 12-year-old was having repetitive episodes of vomiting, shortness of breath, and weakness. He was afebrile and initially had a 97% pulse oximetry, which dropped to 69% after he was hospitalized. He died on the second hospital day after having a seizure and becoming apneic.

The 10-year-old died on the fourth hospital day after hospitalization for fever, ataxia, and changes in mental status.

The third child was brought to the hospital with vomiting, diarrhea, fever, and reduced oral intake 3 days after her rash appeared. She became hypotensive and was diagnosed with varicella and septic shock. Despite fluid resuscitation, intravenous ceftriaxone, vancomycin, and acetaminophen and transfer to a children's hospital, she developed respiratory and cardiac arrest and died less than an hour after arriving, the CDC reported.

To prevent varicella from occurring among children in the age range of the older two who died, middle- and high-school entry vaccination requirements will be necessary. By June 2004, a total of 44 states had implemented child care and/or school entry requirements for varicella vaccination. However, as of March 2005, only 18 states had included middle- or high-school entry requirements, the CDC said.

In Oregon, which has requirements for

vaccination prior to out-of-home child care, kindergarten, and seventh grade, the Multnomah County school district has been conducting surveillance since the 2002-2003 school year for 37,850 students in 109 public elementary schools in kindergarten through fifth grade (5-10 years old).

Overall for the 2002-2003 and 2003-2004 school years, approximately 60% of varicella cases occurred as a single case in classrooms, while 40% were part of classroom outbreaks (defined as two or more cases within 21 days). Twenty-two percent were among students aged 7 years, while 19% occurred in 6-year-olds. Overall, 69% with varicella had been vaccinated, and 28% lacked evidence of immunity, having neither a history of vaccination nor of disease. Information was missing for the other 3%.

This school-based surveillance method detected more cases than physician-based surveillance alone would have. School nurses reported 90% of new varicella cases, with 88% subsequently confirmed by physicians, nurses, or parents. However, only 34% of the 2002-2003 cases and 44% of the 2003-2004 cases had been initially diagnosed by physicians, according to the CDC. ■

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Decline in Tetanus Incidence Belies Risk Among Diabetics, Elderly

BY ALICIA AULT
Contributing Writer

WASHINGTON — The incidence of tetanus has declined precipitously in recent decades, as have deaths from the toxin, but the elderly, diabetics, and injection-drug users are still at risk, according to research presented at the National Immunization Conference, sponsored by the Centers for Disease Control and Prevention.

Pamela Srivastava of the CDC's National Immunization Program, reported the results of an epidemiologic look at tetanus from 1972 to 2001.

During that period, 1,842 cases of tetanus were reported to the CDC, Ms. Srivastava said.

Tetanus occurs from exposure to *Clostridium tetani*, a bacterium that releases a toxin initially causing headache, fever, sore throat, muscle spasms, and stiffness in the neck, arms, and legs. Left unchecked, the toxin will spread and lead to the characteristic "lockjaw," as well as rigidity of other muscles.

C. tetani can live for years in soil and feces. Infection usually comes through wounds. Historically, tetanus occurred more frequently in the southeast, and primarily in the summer, but

most regional differences have disappeared, and there is not as much seasonal variation, either, Ms. Srivastava said.

The incidence of the infection has been on the decline in the United States, dropping 59% from 1972 to 2001. During that time, the case fatality rate decreased by 64%, she said.

Vaccination history was reported for 932 of the 1,842 cases. Among those, 644 (49%) were unvaccinated, and the case death rate was 28%. Among the 172 (18%) who had received one or two doses of vaccine, the death rate was 17%. Among the 114 persons (12%) who had received three or more doses, the death rate was 4%.

The number of cases and death rates were highest among people aged 60 or older, in whom the incidence was 0.78 per million and the death rate was 40%, Ms. Srivastava said. She hypothesized that there was a low prevalence of immunity and high incidence of tetanus in the elderly, at least early in the study period, because they more likely had not received a primary immunization series. The incidence in the elderly declined somewhat from 1991 to 2001, however.

Patients with diabetes were at increased risk for dying from

tetanus. Looking at one slice of the study period (1987-2001) diabetes patients accounted for 13% of all cases and 29% of all deaths. Of the diabetics with tetanus, 44% died, Ms. Srivastava said.

There may be more people at risk, because a surprising number of tetanus cases come from nonacute, or chronic wounds, she said. About 16% of all the cases reported were from nonacute wounds; 76% were from acute wounds, and the rest from other sources.

Tetanus also has been steadily increasing over the decades in injection drug users. From 1992 to 2001, there was a threefold increase from previous decades, driven partly by an epidemic among users in California. During that decade, they accounted for 12% of all adult cases, Ms. Srivastava said.

And although there tend to be no differences in incidence overall among ethnic groups, that equality disappears among injection-drug users, where Hispanics account for 48% of cases, she said.

Tetanus is not a high-cost disease in this country, costing only about \$12 million a year, but it is severely disabling, and 78% of those affected are hospitalized. ■

EBV Is One of Several Viruses Masquerading as Mumps

BY KATE JOHNSON
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Children vaccinated for MMR who present with mumps-like illnesses have other identifiable viral etiologies about 14% of the time, according to results of a Finnish study.

"When one is trying to establish the cause of mumps-like symptoms in a patient, it would be worthwhile to test at least for antibodies to EBV [Epstein-Barr virus] and the parainfluenza viruses, if not for antibodies to other viruses as well," wrote Irja Davidkin, Ph.D., and colleagues from the National Public Health Institute in Helsinki (J. Infect. Dis. 2005;191:719-23).

"An attempt to verify the etiology of mumps-like diseases is important for active surveillance in a population in which mumps is no longer endemic and also for evaluation of the success of an MMR vaccination program," they noted.

The study analyzed frozen serum samples from 601 children and adolescents who had reported mumps-like illness but in whom mumps had been ruled out. Their symptoms usually included swelling of the parotid gland and low-grade fever.

A previous study of 848 patients with mumps-like symp-

toms, which included the 601 non-mumps patients, had confirmed mumps in 2% (17) of cases, while inadequate sample collection or storage accounted for the remaining 230 cases.

Among the 601 non-mumps cases, antibody testing revealed an acute viral infection in 84 (14%) patients; the remaining patients could not be diagnosed.

EBV was the most commonly identified viral infection, occurring in 7% of patients, which was half of the diagnosed group. Parainfluenza types 1, 2, and 3 made up another 4% of the diagnosable cases, adenovirus was seen in 3% of cases, and enterovirus was seen in 2% of cases. Additionally, 0.5% of patients were diagnosed with parvovirus, and human herpesvirus was seen in 4% of a subgroup of children under 4 years old.

A total of 14 patients were diagnosed with two concomitant viral infections, and 2 patients had three diagnoses.

The authors noted that although adenovirus infection associated with parotitis has been previously reported only in HIV-positive patients, this study indicates it should be considered in the differential diagnosis for mumps-like symptoms in otherwise healthy children and adolescents. ■