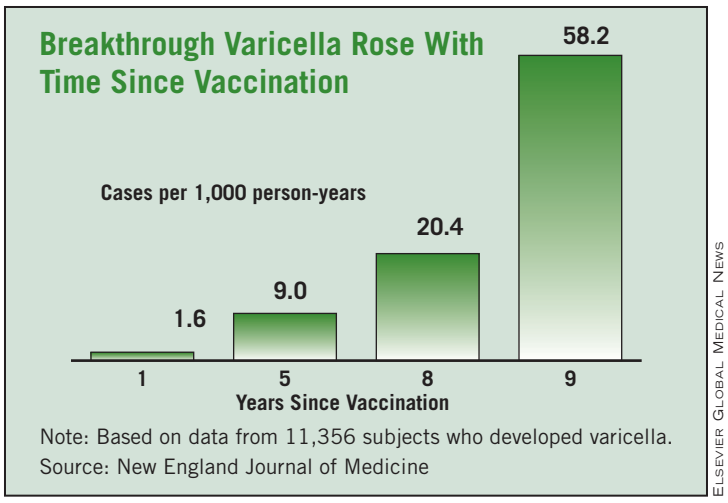

Note: Based on data from 11,356 subjects who developed varicella.
Source: New England Journal of Medicine

ELSEVIER GLOBAL MEDICAL NEWS

Rising Chickenpox Cases Indicate Varicella Vaccine's Protection Fades

BY MARY ANN MOON
Contributing Writer

The protection afforded by a single dose of the varicella vaccine steadily wanes over time, according to Dr. Sandra S. Chaves of the Centers for Disease Control and Prevention, Atlanta, and her associates.

A second vaccine dose could increase protection "by increasing the proportion of children with protective antibody titers and an improved cellular immune response," they added.

Several small outbreaks of chickenpox have occurred in the United States, despite the success of the varicella vaccination program initiated in 1995. Investigations of these small outbreaks have not been sufficiently powered to definitively determine whether immunity wanes after vaccination, the researchers said.

To answer the question, Dr. Chaves and her associates examined 10 years of data from a community-based varicella surveillance program involving 300 child care centers, public and private schools, physicians' private practices, HMOs, and public health clinics in Antelope Valley, Calif. In the decade following the inception of the varicella vaccination program, 11,356 subjects in the surveillance area developed the disease, including 1,080 (9.5%) who developed "breakthrough" varicella after being vaccinated.

The proportion of varicella cases that occurred in vaccinated children steadily rose from 1% in 1996 to 18% in 2000 to 60% in 2004, the study data revealed.

The proportion of varicella cases that occurred in vaccinated children steadily rose from 1% in 1996 to 18% in 2000 to 60% in 2004. In a parallel trend, the incidence of breakthrough cases steadily increased as the interval following vaccination lengthened. Incidence rose from 1.6 per 1,000 person-years at 1 year post vaccination to 9.0 per 1,000 person-years at 5 years post vaccination, to 20.4 per 1,000 person-years at 8 years post vaccination, and to 58.2 per 1,000 person-years at 9 years post vaccination. This dramatic rise occurred against a backdrop of a substantial (85%) decline in overall varicella cases, the investigators noted (N. Engl. J. Med. 2007;356:1121-9).

The pattern of disease distribution also changed in recent years. Before the vaccine program was implemented, 73% of cases occurred in children aged 6 years or younger, with a peak disease frequency at age 3-6 years. In 2004, 30% of cases occurred in children who were 6 years or younger. Disease frequency peaked at age 6-9 years in vaccinated children and at 9-12 years in unvaccinated children.

The frequency of severe, as opposed to mild, varicella infection similarly increased over time, rising from 18% in 1995-1998 to 31% in 2001-2004.

The frequency of severe disease also increased with patient age, regardless of vaccination status. Severe disease was seen in 22% of children aged 1-7 years who acquired varicella, compared with 44% of those who were aged 13 or older when they became infected.

When the severity data were analyzed according to time elapsed since vaccination, the severity of varicella was found to have increased as this interval lengthened. The frequency of severe disease doubled among patients who were vaccinated 5 or more years previously, compared with those who were vaccinated more recently. ■