Zoster Following Varicella Vaccination

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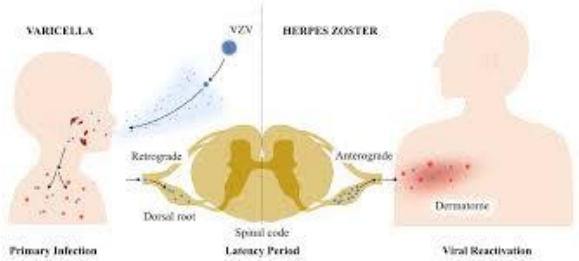
When vOka was first developed, it was feared that zoster might become more common after immunization than after infection with wild-type VZV

Gershon AA, Gershon MD, Shapiro ED. Live attenuated varicella vaccine: prevention of varicella and of zoster. The Journal of Infectious Diseases. 2021 Oct 1;224(Supplement_4):S387-97.

Although vOka was attenuated and thus did not cause a significant acute illness, little was known at the time



about its tendency to develop latency and subsequently to reactivate.

Gershon AA, Gershon MD, Shapiro ED. Live attenuated varicella vaccine: prevention of varicella and of zoster. The Journal of Infectious Diseases. 2021 Oct 1;224(Supplement_4):S387-97.

Early studies were conducted in children with leukemia who were immunized in the 1980s. It was found that the incidence of zoster in these vaccines was significantly lower than that among similar leukemic children who had had varicella from wild-type VZV

Hardy I, Gershon AA, Steinberg SP, LaRussa P. The incidence of zoster after immunization with live attenuated varicella vaccine. A study in children with leukemia. Varicella Vaccine Collaborative Study Group. N Engl J Med 1991; 325:1545–50.

Because what happened
in leukemic children might not be
generalizable to a healthy population,
there was also considerable interest in
determining the incidence
of zoster in healthy individuals who had
received vOka.

Gershon AA, Gershon MD, Shapiro ED. Live attenuated varicella vaccine: prevention of varicella and of zoster. The Journal of Infectious Diseases. 2021 Oct 1;224(Supplement_4):S387-97.

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JOURNAL ARTICLE

Incidence and Clinical Characteristics of Herpes Zoster Among Children in the Varicella Vaccine Era, 2005–2009

Sheila Weinmann ✉ , Colleen Chun , D. Scott Schmid , Michelle Roberts , Meredith Vandermeer , Karen Riedlinger , Stephanie R. Bialek , Mona Marin

The Journal of Infectious Diseases, Volume 208, Issue 11, 1 December 2013, Pages 1859–1868, https://doi.org/10.1093/infdis/jit405

Published: 06 August 2013 **Article history** ▾

In a study done between 2005 and 2009, 322 subjects were enrolled, of whom 118 had been vaccinated. The incidence of zoster was 79% lower in vaccinated children than in unvaccinated children

Weinmann S, Chun C, Schmid DS, et al. Incidence and clinical characteristics of herpes zoster among children in the varicella vaccine era, 2005-2009. J Infect Dis 2013; 208:1859–68.

Interestingly, half of the cases of zoster detected in vaccinees were caused by wild-type VZV, suggesting either that they had been asymptomatically infected with wild-type VZV after they received the vaccine or that they had already been infected with wild-type VZV prior to vaccination.

Weinmann S, Chun C, Schmid DS, et al. Incidence and clinical characteristics of herpes zoster among children in the varicella vaccine era, 2005-2009. J Infect Dis 2013; 208:1859–68.

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Incidence of Herpes Zoster Among Children: 2003–2014

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In the study involving children

vaccinated between 2004 and 2014 found that the

incidence of zoster was

72% lower in vaccinated children than in those

who had had varicella from wild-type VZV

Weinmann S, Naleway AL, Koppolu P, et al. Incidence of herpes zoster among children: 2003–2014. Pediatrics 2019; 144:e20182917.

When zoster due to vOka does develop, however, it does not appear to be milder than that caused by wild-type VZV.

Weinmann S, Naleway AL, Koppolu P, et al. Incidence of herpes zoster among children: 2003–2014. Pediatrics 2019; 144:e20182917.

Evidently, vOka protects against 2 diseases, zoster as well as varicella.

Studies have demonstrated that vOka is not attenuated for establishment of latency; vOka does appear, however, to be attenuated with respect to its tendency to reactivate

Sadaoka T, Depledge DP, Rajbhandari L, Venkatesan A, Breuer J, Cohen JI. In vitro system using human neurons demonstrates that varicella-zoster vaccine virus is impaired for reactivation, but not latency. Proc Natl Acad Sci U S A 2016; 113:E2403–12.

Clinical Infectious Diseases

BRIEF REPORT

The Epidemiology of Herpes Zoster in the United States During the Era of Varicella and Herpes Zoster Vaccines: Changing Patterns Among Older Adults

Rafael Harpaz and Jessica W. Leung

National Center for Immunization and Respiratory Diseases, Centers for Disease Control and Prevention, Atlanta, Georgia

We conducted a retrospective cohort study of HZ incidence using data from IBM MarketScan® Research Databases, we used data from population tables from the years 1993–2015. (following the introduction of a varicella vaccine in 1996)

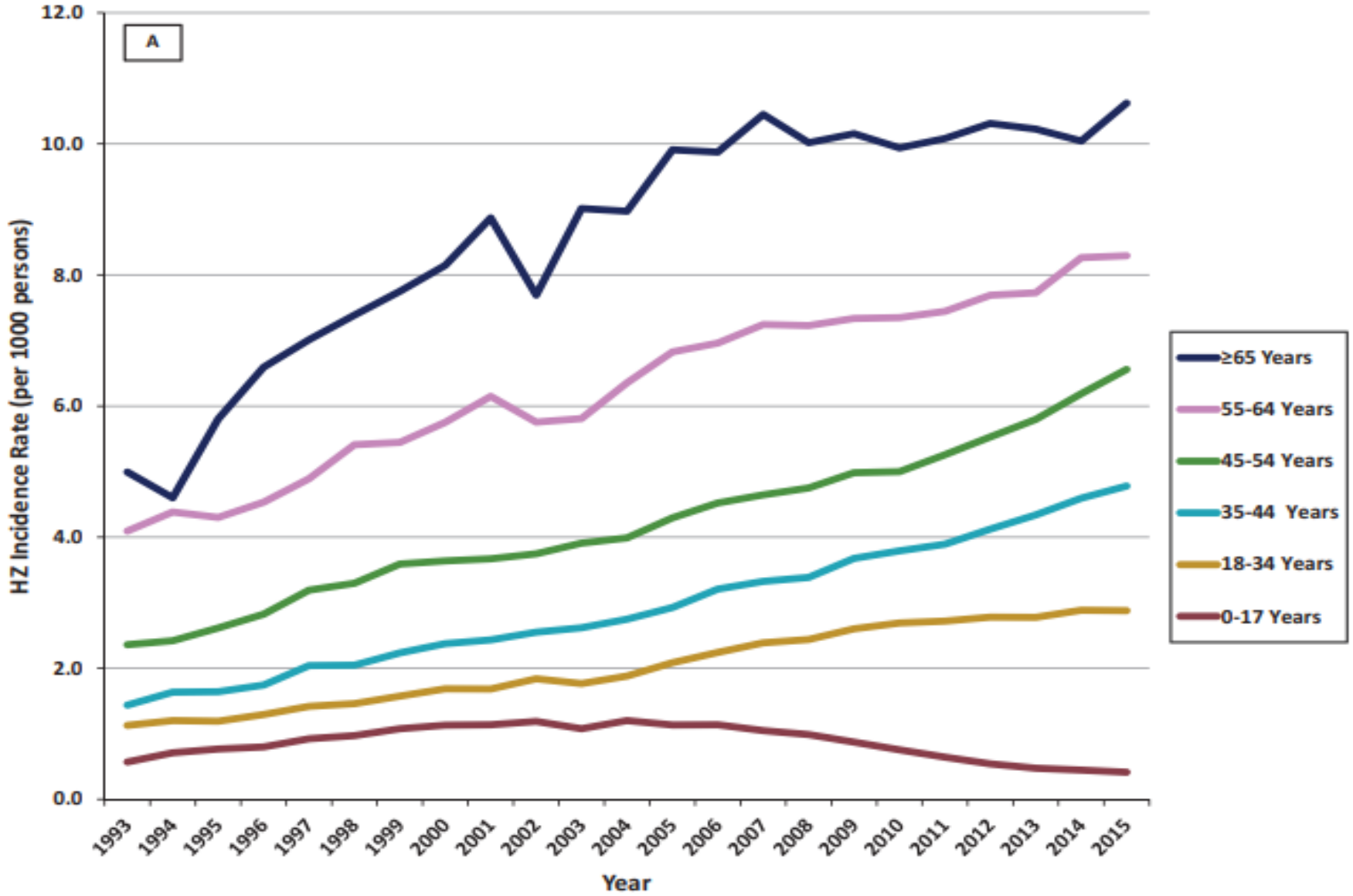
There were a total of 27262603 persons in our prospective study.

The HZ incidence, which had increased from

2.5/1000 in 1993 to 6.1/1000 in 2006 among

adults aged ≥35 years, continued to increase, to

7.2/1000 in 2016


A
12.0
10.0
8.0
6.0
4.0
2.0
0.0
HZ Incidence Rate (per 1000 persons)
1993
1994
1995
1996
1997
1998
1999
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015
Year
≥65 Years
55-64 Years
45-54 Years
35-44 Years
18-34 Years
0-17 Years

Conclusion

- Nonetheless, given the seeming unpredictability of HZ incidences over time, researchers and public health practitioners need to be cautious in interpreting or attributing those patterns.

The Food and Drug Administration licensed Zostavax (ie, zoster vaccine live; ZVL) for the prevention of HZ among adults aged ≥60 years in 2006, and extended the indication to adults aged ≥50 years in 2011.

The people should also get *Shingrix* even if they have previously:

*Had shingles

*Received Zostavax

*Received varicella (chickenpox) vaccine