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More US teens susceptible to HSV-1 infection, a growing cause of genital herpes

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A new study suggests a growing number of U.S. adolescents lack antibodies that may help protect them later in life against an increasingly important cause of genital herpes. Published in *The Journal of Infectious Diseases* and available online, the findings show that fewer of today's teens have been exposed in their childhood to herpes simplex virus type 1 (HSV-1), a common cause of cold sores, than U.S. adolescents in previous years. Without these antibodies, today's teens may be more susceptible—when they become sexually active—to genital infections also caused by the virus, particularly through oral sex.

HSV-1 and a related virus, herpes simplex virus type 2 (HSV-2), both cause lifelong infections, with no known cure, that can go through dormant periods after an initial outbreak. Most people contract HSV-1 in childhood, through skin-to-skin contact with an infected adult. HSV-2 is usually transmitted sexually. Though both viruses can cause genital herpes, HSV-1 has been associated with fewer recurrences and less viral shedding than HSV-2. Recent research, however, suggests that HSV-1 is becoming a significant cause of genital herpes in industrialized countries, with one study finding that nearly 60 percent of genital herpes infections were attributable to HSV-1.

In this latest study, Heather Bradley, PhD, and colleagues from the Centers for Disease Control and Prevention examined HSV-1 and HSV-2 prevalence among 14 to 49 year olds in the United States, using data from the National Health and Nutrition Examination Surveys (NHANES), large nationwide surveys, including blood samples, that are

representative of the U.S. population. Investigators estimated the prevalence of antibodies for HSV-1 and HSV-2, or seroprevalence, among different age groups, from the 2005 to 2010 time period and compared it to seroprevalence from the 1999 to 2004 period. They also examined trends in HSV-1 and HSV-2 from earlier time periods.

Dr. Bradley and her team found an overall HSV-1 seroprevalence of 54 percent during the period 2005 to 2010. Among 14 to 19 year olds, HSV-1 seroprevalence declined by nearly 23 percent from the 1999 to 2004 period compared to the 2005 to 2010 period. Among 20 to 29 year olds, HSV-1 seroprevalence declined by more than 9 percent. HSV-1 seroprevalence remained stable in the two oldest age groups (those in their 30s and 40s). HSV-2 seroprevalence was not significantly different across any of the age groups between these two time periods.

The data suggest that an increasing number of U.S. adolescents lack HSV-1 antibodies at their first sexual encounter and are therefore more susceptible to genital herpes resulting from that strain. "In combination with increased oral sex behaviors among young people," the study authors wrote, "this means that adolescents may be more likely than those in previous time periods to genitally acquire HSV-1."

In an accompanying editorial, David W. Kimberlin, MD, at the University of Alabama at Birmingham, wrote that the study's "key finding is that HSV-1 seroprevalence among 14 to 19 year olds has declined by nearly 23 percent from 1999-2004 to 2005-2010, from 39.0 percent to 30.1 percent, for an absolute difference of about 9 percent." This absolute difference that has occurred over the past 10 years, Dr. Kimberlin noted, represents an approximately 9 percent decrease in the percentage of adolescents who have already had oral HSV-1 as they enter their sexually active years, when exposure genitally is increasingly common: "Almost one in 10 adolescents who 10 years ago already would have acquired HSV-1 earlier in life now are vulnerable to getting a

primary infection" as they become sexually active later in life.

Changes in sexual practices could make the problem worse: An unintended consequence of the success of public campaigns to limit the spread of HIV has led some to embrace the notion that oral sex is "safe," Dr. Kimberlin wrote, despite the fact that oral sex also carries risks, including significant risk of transmission of HSV-1 from the mouth to the genitals. Another serious potential consequence of increased susceptibility to genital herpes caused by HSV-1 is the risk of genital transmission of the virus from mother to baby during delivery, Dr. Kimberlin wrote. Both HSV-1 and HSV-2 can pose significant problems for newborn infants, who lack a mature immune system capable of fighting these viruses. Up to 30 percent of infected babies will die from this infection if they have the most severe form of the disease, Dr. Kimberlin noted.

The study authors stressed the importance of continued surveillance of HSV-1 and HSV-2 to monitor the changing epidemiology of these diseases and to help inform prevention strategies for genital herpes and vaccine development efforts against herpes viruses.

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