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HPV Vaccine Is Credited in Fall of Teenagers' Infection Rate

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The prevalence of dangerous strains of the human papillomavirus — the most common sexually transmitted infection in the United States and a principal cause of cervical cancer — has dropped by half among teenage girls in recent years, a striking measure of success for a vaccine against the virus that was introduced only in 2006, federal health officials said on Wednesday.

The sharp decline in the infection rate comes at a time of deepening worry among doctors and public health officials about the limited use of the HPV vaccine in the United States. Health departments across the country are scrambling for ways to increase vaccination rates, while nonprofit groups are using postcard reminders and social media campaigns and pediatricians are being encouraged to convince families of the vaccine's benefits.

There are some signs that resistance to the vaccine may be growing. A study published in the journal Pediatrics in March found that 44 percent of parents in 2010 said they did not intend to vaccinate their daughters, up from 40 percent in 2008. Because it prevents a sexually transmitted infection, the vaccine comes with a stigma. Some parents worry it promotes promiscuity. And it has been controversial. During the Republican primary in 2011, Representative Michele Bachmann, Republican of Minnesota, said the vaccine could have "dangerous side effects," a concern that health officials say is unfounded.

The magnitude of the decline in HPV infections surprised public health experts because only about a third of teenage girls in the United States have been vaccinated with the full course of three doses. By comparison, vaccination rates in countries like Denmark and Britain are above 80 percent. Even Rwanda, in East Africa, has reached 80 percent.

Yet even with relatively low vaccination rates in the United States, infection with the viral strains that cause cancer dropped to 3.6 percent among girls ages 14 to 19 in 2010, from 7.2 percent in 2006, the officials said.

"These are striking results," said Dr. Thomas R. Frieden, director of the Centers for Disease Control and Prevention. "They should be a wake-up call that we need to increase vaccination rates. The bottom line is this: It is possible to protect the next generation from cancer, and we need to do it."

The findings, published online Wednesday in The Journal of Infectious Diseases, covered the years 2003 to 2010 and were based on a national survey that is conducted every two years and is considered the gold

standard on health indicators. Government health workers interviewed more than 8,000 girls and women ages 14 to 59 and collected vaginal swabs that were evaluated by the C.D.C.

The infection rate for girls fell even further when the two strains of the virus that cause genital warts were included, with a 56 percent drop over the period of the study. The rate was flat in the years before the vaccine was introduced, giving researchers even more assurance that the vaccine was driving the decline. Health officials began monitoring HPV prevalence in boys only this year. The first data will be available in 2015.

There are about 12,000 cases of cervical cancer and 4,000 deaths a year in the United States. At current vaccination rates, the vaccine would prevent 45,000 cases of cervical cancer and 14,000 deaths among girls now age 13 and younger over the course of their lifetimes, according to C.D.C. estimates. Increasing the rate to 80 percent could prevent an additional 53,000 cancers and nearly 17,000 deaths.

Federal officials on Wednesday sought to dispel fears about the vaccine, and emphasized its role in preventing cervical cancer.

"This is an anticancer vaccine," Dr. Frieden said.

About 79 million Americans, most in their late teens and early 20s, are infected with HPV, or about a quarter of the American population. Each year, about 14 million people become infected. The virus causes about 19,000 cancers in women every year, and 8,000 in men, according to the C.D.C. Cervical cancer is the most common among women; among men, throat cancer is most common.

Health officials offered several possible explanations for why the drop was so sharp even though most girls in the United States are still not fully vaccinated.

One possible reason is a phenomenon known as herd immunity, in which people who are vaccinated reduce the overall prevalence of the virus in society, decreasing the chances that unvaccinated people would be exposed to someone who is infected. Another is the unexpected effectiveness of a partial dosage of the HPV vaccine, said Dr. Lauri E. Markowitz, a medical epidemiologist at the C.D.C. and the lead author of the study. About half of teenage girls in the United States have received at least one dose of the vaccine.

Because girls and women who got vaccinated tended to be more sexually active, compared with those who were not vaccinated, researchers suggest that those who had been contributing most to the prevalence of the infection were no longer infecting others.

There are two HPV vaccines, one made by Merck for boys and girls, and one by GlaxoSmithKline, for girls. Experts recommended in 2007 that all girls get vaccinated, and extended that guidance to boys in 2011.

Earlier data from the C.D.C. showed that Hispanic girls were more likely to be vaccinated than white girls,

even though they were less likely to come from families with health insurance or to get regular medical care. That is partly because a federal program that covers vaccines for the poor and underserved gave the H.P.V. vaccine to clinics, while many patients with private insurance had high co-pays or had to pay the full price, generally up to $500 for a complete cycle of the vaccine.

But cost will be less of an issue after the full implementation of President Obama's health care law, which Dr. Frieden said requires providers to cover the vaccine at no cost to patients.

Another obstacle to higher vaccination rates are doctors, who Dr. Frieden said are "not consistently giving strong recommendations for the vaccines, particularly for younger teens."

Dr. Amanda F. Dempsey, an associate professor of pediatrics at the University of Colorado Denver, says most providers believe in the vaccine, but have met considerable resistance from parents, and feel that the brief time during visits may be better used on topics to which parents are more receptive.

"You want to make the biggest impact," said Dr. Dempsey, who recommends the vaccine to patients, but still gets a lot of refusals. Many parents do not believe their child is at risk because they are not sexually active, but she said that she explains that vaccination should happen long before exposure.

She added, "For a lot of people there's still a vague sense that there's some controversy about the vaccine."