Linda M. Niccolai, PhD

No one gets cervical cancer without first being infected by the human papillomavirus (HPV). That’s why cancer prevention scientists, including Linda M. Niccolai, PhD, ScM, Associate Professor of Epidemiology and Director of the HPV-IMPACT Project, are so enthusiastic about the vaccine that prevents several strains of HPV. Since the vaccine became available in 2006, millions of doses have been given. By the end of 2010 about 50 percent of all adolescent girls aged 13 to 17 had received at least one dose of the three-dose regimen.

The fact that the vaccination rate had climbed from zero to 50 in just a few years is very good news, said Dr. Niccolai, because it prevents the four most common strains of HPV, including those that account for 70 percent of cervical cancers as well as some cancers of the anus, penis, vagina, vulva, and oropharynx. But there’s a problem: by the end of 2012, the percentage of all vaccinated adolescent girls had barely budged, to 54 percent.

“This is a recommended vaccine for all adolescents,” Dr. Niccolai explained, “so to be stuck at about 50 percent is really no good, especially when compared to other vaccines like meningococcal and Tdap, which are up around 80 percent. This stall motivates a lot of my research and is a tremendous concern among providers whose job is to protect health. We really need to understand what the barriers are.”

To that end Dr. Niccolai and her colleagues have started a qualitative study at the Yale-New Haven Hospital Primary Care Center, interviewing the parents of young adolescents to see what they know about the vaccine and what could be hindering vaccination of their children.

Her frustration at the stalled vaccination rate has been compounded by findings from her recent research as Director of the HPV-IMPACT Project with the CT Emerging Infections Program, which tracks the impact of the vaccine on females in Connecticut. She has found that high-grade cervical lesions – the precancerous stage of cervical disease – have already declined by about 25 percent among Connecticut women in their early 20s, perhaps because they were vaccinated as girls. “It’s evidence that the vaccine can have a tremendous health impact, which speaks to the need to do a better job of getting kids vaccinated,” she said.

In a paper published in 2013 in Cancer, Dr. Niccolai and colleagues showed that the encouraging decline in high-grade lesions also has a troubling side. They found disparities in the impact of the HPV vaccine – there were lower rates of decline in lesions among black, Hispanic, and low-income women than among white or higher-income women. “We don’t yet know what that means,” Dr. Niccolai said.

About fifteen types of HPV can cause cervical cancer. The vaccine protects against two, HPV 16 and 18. About half of all high-grade lesions among white women are caused by these two strains of the virus, but among black, Hispanic, and low-income women, the comparable number is about 35 percent, which indicates that they may get less protection from the vaccine and hence less protection against cervical cancer.

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“This will require a lot of ongoing monitoring,” Dr. Niccolai said. A new vaccine now in Phase III clinical trials could help mitigate the disparity. “It would prevent nine different types of HPV, which are responsible for 90 percent of cervical cancers.”

Dr. Niccolai immediately said, “Interventions. We need to get more kids vaccinated.” That means targeting parents, providers, and adolescents. She has a pilot grant from Yale Cancer Center to look into one possible way to overcome the barriers to vaccination: she will be exploring the feasibility of working with school-based health centers in New Haven and surrounding communities to vaccinate kids at school.

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Asked where she will focus her attention in the coming year, Dr. Niccolai immediately said, “Interventions. We need to get more kids vaccinated.” That means targeting parents, providers, and adolescents. She has a pilot grant from Yale Cancer Center to look into one possible way to overcome the barriers to vaccination: she will be exploring the feasibility of working with school-based health centers in New Haven and surrounding communities to vaccinate kids at school.

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