HPV vaccine and the future of HPV disease

From: NanoVir, LLC

More than 30 years ago, an excellent vaccine, was introduced by the pharmaceutical company Merck to provide protection against infection by the sexually-transmitted hepatitis B virus, an infectious agent that causes considerable worldwide morbidity and mortality.
At the time, the vaccine was billed as a tool to eliminate chronic hepatitis and liver cancer, two diseases often associated with hepatitis B virus infections. Yet, currently, the world faces a yearly mortality rate of approximately one million people as a direct consequence of hepatitis B virus infection. Furthermore, antiviral treatments for hepatitis B virus are now in great demand but had not been discovered or developed, due in large part to the lack of anticipation of their need in the wake of the vaccine publicity. After all, the hepatitis B virus vaccine was going to eliminate an illness in much the same way as polio and smallpox had been.

Recently, considerable information has been disseminated predicting that Pap smear testing, combined with broad vaccination with Gardisil or other up-and-coming HPV vaccines, has the potential to eliminate cervical cancer. Lobbying efforts by pharmaceutical companies to persuade lawmakers to advocate for their agenda in preventing a devastating disease would be commendable if the HPV vaccine would indeed eliminate cervical cancer. The pro-vaccine campaign has been pushed aggressively at the state, rather than federal, level because it is here that mandatory vaccinations can become laws that would be enforced. But it should be noted that significant obstacles stand in the way of implementing a successful vaccine program for any sexually transmitted disease, and especially HPV.

According to the Centers for Disease Control and Merck, an estimated 5.5 to 6.2 million Americans become infected with HPV each year (recently published studies suggest that up to 25 percent of women in the United States are infected with HPV), and about 20 million Americans are currently infected. Therefore, a very large fraction of the United States (and world) population is already infected with HPV, and vaccination of these individuals against HPV will not eliminate the virus, nor will it reduce their risk of cervical cancer.

High-risk HPV is predominantly a sexually transmitted virus that is carried by both men and women, though currently the vaccine is approved only for women ages 12-26. Therefore, men will continue to be major carriers unless the male population can become fully vaccinated, a process that is only theoretical at present and will likely not happen because men would be vaccinated for largely altruistic reasons since their risk of cancer from HPV is small. The HPV vaccine is not approved by the FDA for men.

Furthermore, there are numerous high-risk HPV types that the vaccines will not prevent: More than 13 types of human papillomaviruses are currently known to cause cervical cancer, while only two are targeted by the vaccines. Thus, numerous cancer-causing HPVs have the potential to fill the niche of those two HPVs targeted by the vaccines. Another type of obstacle is that many parents are hesitant or unwilling to have their children vaccinated against sexually

transmitted diseases because of numerous issues, including social, moral concerns, and cost-benefit concerns in the wake of increasing reports of adverse HPV vaccine side-effects.

It is being recommended that 12-year old girls be the target population for vaccination, yet cervical dysplasia (pre-cancerous disease caused by HPV resulting in a positive Pap smear) generally presents itself, on average, in women in their early 30's. Therefore, a considerable lag (perhaps several generations) is anticipated before any significant relief in cervical cancer prevalence is realized from vaccination programs. For these and other reasons it is very important to distinguish the reality of HPV disease etiology from the marketing literature that has been aggressively promoted by lobbyists and state senators.

To draw a comparison with the hepatitis B virus vaccine, it has been shown, after nearly three decades on the market, that more adults die each year from hepatitis B virus infection than from any other vaccine-preventable disease. In light of these disappointing results, for people to prematurely predict the efficacy of a HPV vaccine in eliminating cervical cancer is irresponsible at the least, and disregards considerable previous experience with vaccination against STDs.

There remains a real need for the development of medicines to treat those who are currently suffering from complications from HPV infections. For these people, the vaccine is meaningless. The rhetoric employed by promoters of the vaccine tends to raise false hopes and to have a chilling effect upon research that may benefit those millions of people worldwide who are currently infected with ``high-risk'' HPV.

In other words, if cervical cancer will soon be eliminated or prevented by an HPV vaccine, why should a treatment of those infected by HPV be pursued? The answer, of course, comes from experience with the hepatitis B virus: History has told us that STDs are extremely difficult to treat via vaccination, that HPV presents even greater challenges than the hepatitis B virus, and that we should not abandon the search for antiviral treatments because of false or over-inflated rhetoric.

NanoVir embraces a key element missing from the scheme of vaccination and Pap smear testing: the use of HPV antiviral treatments for those people currently infected with the virus. It is only via this multitiered approach -- Pap testing, antiviral treatment and vaccination -- that the goal of eliminating high risk HPV and cervical cancer might be realized.