Study: Demand for HIV Vaccine Will Depend on How Good It Is

If an HIV vaccine became available tomorrow, would the world line up for it? It depends on the level of protection it affords, says a research team from the University of California at Los Angeles.

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If an HIV vaccine became available tomorrow, would the world line up for it? The answer may come as a surprise: not necessarily. It will all depend on how effective the vaccine is. This is the chief finding of a study conducted by William Cunningham, MD, MPH, and researchers at the University of California at Los Angeles (UCLA). They concluded that if the vaccine is only partially effective, it will take more work and preparation to successfully roll it out.

Scientists have been predicting that an effective HIV vaccine was “just 10 years away” for almost 30 years now. Some despair that research may never produce a vaccine that prompts the immune system to ward off HIV infection 100 percent of the time. Others, however, are heartened by last year’s news of an HIV vaccine, RV 144, that appeared the tiniest bit more effective than a placebo, suggesting we might not be far off from developing a compound that affords at least partial protection.

Partial protection, however, might not be enticing enough to people who most need a vaccine, notably individuals at high risk of eventually becoming infected with the virus. “The [UCLA] study very much confirms what I think many of us would have said, which is that efficacy matters—how good something is will determine largely whether someone wants to use it,” says Mitchell Warren, the executive director of the AIDS Vaccine Advocacy Coalition (AVAC) in New York City.

The study involved more than 1,000 volunteers in Los Angeles County considered to be at high risk for HIV. Cunningham and his colleagues gave each volunteer a card describing a vaccine—the vaccines varied in levels of effectiveness, side effects and cost—and asked whether they would accept the vaccine. The responses were decidedly mixed. If a vaccine surfaced that was 99 percent effective, had no side effects and would only cost $10, people overwhelmingly said they would line up to be vaccinated. When asked about a vaccine that was only 50 percent effective or had side effects or would cost $250 a pop, people got a lot less enthusiastic.

Another important finding of the study, called LA VOICES, was that participants reported they

would not likely increase their HIV risk behaviors much if they were given a modestly effective vaccine.

Now that Cunningham has demonstrated that the demand for a vaccine will depend on its qualities and that a moderately effective vaccine will not necessarily fuel high-risk activity, it will be up to scientists and policy makers to ensure that people are educated and ready if we are ever so fortunate as to have an effective vaccine in our sights.

What Does the Research Say?

The UCLA study was designed to address a common misconception on the part of manufacturers and some policy makers that "if you build it, then they will come." Cunningham's group predicted that not all vaccines would be welcomed with open arms. The acceptance of vaccines, they hypothesized, would depend on each compound's efficacy, side effects and cost.

"Virtually none of the billions of dollars that the [National Institutes of Health] and others are pouring into developing a vaccine in the lab," Cunningham says, "has addressed the behavioral and attitudinal issues and the decisions individuals will need to make about accepting a vaccine once it is developed."

LA VOICES sought to do this. Specifically, the researchers recruited 1,164 people from needle-exchange programs, Latino community-based organizations and clinics for sexually transmitted infections. The participants were asked to rate nine hypothetical vaccines that varied on several key qualities, including their level of efficacy, degree of side effects, cost, duration of protection and number of doses required.

Cunningham and his colleagues found that efficacy—people were asked to choose between a 99 percent and a 50 percent effective vaccine—had the biggest impact on the participant's acceptance of a vaccine. The second most important factor was side effects—minor side effects versus no side effects. The third most important factor was cost. In some of the hypothetical vaccines, people had to pay $10, while for others they had to pay $250.

"It confirms what I think we know," Warren says, "which is that efficacy, cost and side effects are the main drivers of decision making."

Cunningham confirms this observation. "We showed that a partially effective HIV vaccine, which is what we presented to the participants in the study, is only going to be moderately acceptable," he says. "So right there, it should tell people that it is not a given that [at-risk individuals] will accept a vaccine at the rates that [researchers and vaccine manufacturers] might expect, once it is available."

Increasing Risk, Decreasing Returns

Predicting the degree people will accept a partially effective vaccine is one challenge. Another is

figuring out whether getting vaccinated will disinhibit people and cause them to discard the prevention tactics they'd been using to remain uninfected.

Cunningham's group looked at this too, and found encouraging results.

For example, while about 14 percent of the participants said they would probably use condoms less often for vaginal sex if they received a vaccine that was 99 percent effective, only 6 percent said they'd increase their risky behavior if a vaccine had only 50 percent efficacy. This, according to Cunningham's team, means that even high-risk participants at least somewhat understand the implications of a vaccine that is not 100 percent effective.

"We don't know what will happen when we actually have a vaccine," Warren says. "That's particularly challenging if the new option isn't 100 percent effective. That is something that we all think about and worry about."

The answer, at least in part, is to stress that tried-and-true prevention tactics such as condoms remain necessary despite the arrival of pharmaceutical prevention tactics, such as a vaccine or pre-exposure prophylaxis (PrEP). This, says Holly Wong, vice president of policy for the International AIDS Vaccine Initiative (IAVI) in New York City, will be critical. "Under any circumstance, we would certainly want to see strong educational messaging and counseling in tandem with the vaccine," she says, "just to make sure that disinhibition is minimized as much as possible."

Cunningham hopes researchers and policy makers will heed the results of the study as they plan further vaccine research, find the money to pay for it and hopefully one day oversee distribution of an effective HIV vaccine.

The goal of the UCLA study was to understand what issues would arise from a partially effective vaccine, he explains. "[We wanted] to ask what kind of trade-offs people will make, what kind of decisions they will face."

In addition, Cunningham concludes, "[We want] to let researchers and policy makers know what the likely recipients of a future HIV vaccine would be, and [we want researchers] to take that into account in making plans for developing and especially disseminating a vaccine once it exists."
