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CU Researchers Advance Quest To Find HIV Vaccine

BY KATIE TELISCHAK

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Researchers at the College of Physicians and Surgeons, along with scientists across the country working for the HIV Vaccine Trial Network, are in the process of creating vaccines to fight the virus that killed between 2.5 and 3.5 million people in 2003 alone.

According to Michele Montecalvo, an HVTN recruitment coordinator, the development of a vaccine depends as much on the public as on the scientists. To test the vaccines, researchers must give them to healthy, HIV-negative people; the effectiveness of a new vaccine is a mystery without volunteers. "We'll never have results if the community doesn't embrace

us," Montecalvo said.

HVTN struggles to find willing participants. Many people avoid involvement because they are afraid of getting HIV from the vaccine, an idea that Montecalvo refers to as a "big myth." Although the vaccinations for some viruses do contain a form of the virus itself, the HIV vaccines developed so far contain only synthetic copies of the virus that researchers say cannot infect patients.

The goal of the various synthetic copies of the virus is to trick the immune system into thinking it sees the real culprit, and get the patient's immune system to learn how to fight back. As with any vaccine, the idea is to give the immune system a sneak preview of the real virus, so that it will recognize and fight a true form of the virus.

Creating the vaccine is easier said than done. The HIV virus, with its phenomenal rate of mutation, is "a man of ten billion faces," according to Steven Chang, an HVTN recruitment coordinator and a research nurse in the College of Physicians and Surgeons. An effective vaccine has to help the immune system recognize all of these faces, making HIV a tougher target than other viruses.

As Chang points out, polio is a simple virus relative to HIV, yet it took nearly 50 years to develop a polio vaccine. Researchers have been working for a mere 20 years on an HIV vaccine. While scientific and technological advances shave time off of vaccine research, the complexity of the HIV virus adds a considerable distance between present stages of potential vaccines and "the light at the end of the tunnel," Montecalvo said.

An additional problem is the stigma

attached to the virus. Chang explained that whereas President Roosevelt's infection with polio boosted publicity and federal support for vaccine research, the stigma attached to HIV has hindered public and federal aid to research. The United States cycled through multiple administrations before the issue was properly addressed, he said, and "it was not until the Clinton administration that things started moving," adding that the shame attached to the virus creates tremendous reluctance to face the disease.

"HIV is still a dirty word" in society, Montecalvo said.

The U.S. government still isn't giving enough attention to HIV efforts, Chang and Montecalvo agreed. In 2001, 18 cases of bio-terrorism with anthrax were reported in the United States and 40,000 new cases of HIV infections. Yet this past year, Congress gave the National Institutes of Health \$1.5 billion for defense against bio-terrorism and only \$413 million for AIDS vaccine research.