

NEW BIOMEDICAL HIV INTERVENTIONS

WHAT IS THE PUBLIC HEALTH ISSUE?

In 2003, it was estimated that 4.2 million adults worldwide acquired HIV infection. In the United States, there is continuing HIV transmission, with increasing concentration among African Americans and Hispanics/Latinos, especially among women of color. These trends reinforce the importance of identifying effective new HIV prevention methods. A key effort is the development of new biomedical interventions, such as vaccines and microbicides, to prevent HIV infection.

The development of a safe and effective HIV vaccine would greatly decrease the incidence of HIV, and ultimately AIDS worldwide. However, there are many challenges to the development of an HIV vaccine. Since early vaccine candidates are unlikely to be as effective as vaccines for other infectious diseases and unlikely to be effective against all HIV strains, behavior change will remain important to prevent HIV infection. In addition, the development of safe and effective vaginal microbicides (chemical compounds that can be applied topically to inactivate HIV) will be a critical addition to HIV prevention. This is important for many women, especially in the developing world, because some male sex partners may be unwilling to use condoms consistently, if at all. In addition to vaccines and microbicides, other potential biomedical interventions, such as pre-exposure prophylaxis, are starting to emerge.

WHAT HAS CDC ACCOMPLISHED?

CDC staff has conducted laboratory, clinical, and behavioral studies related to vaccines and microbicides. Current activities in HIV vaccine research focus on a large-scale vaccine efficacy trial in Thailand and vaccine trial preparatory work in Thailand and Kenya. The results of the United States and Thailand trials of the vaccine, AIDSVAX, were announced in 2003. Although the results indicated that the vaccine was not effective in reducing the risk of HIV infection, the trial has provided critical information that will guide future research on vaccines against HIV. About 20 other vaccine candidates are being developed and evaluated for safety and immune response. Several promising microbicides have also been identified at CDC in laboratory studies. CDC has participated in evaluations of microbicide safety in Cote d'Ivoire and Thailand and plans to participate in an evaluation of microbicide efficacy in Botswana.

Example of Program in Action

CDC helped to evaluate AIDSVAX in the United States and Thailand. CDC has also helped to evaluate Caraguard™, a compound derived from seaweed, as a vaginally applied microbicide in safety and acceptability studies in women in Thailand. In addition, CDC is beginning an evaluation on the safety and efficacy of daily oral Tenofovir as a pre-exposure prophylaxis to prevent HIV transmission.

WHAT ARE THE NEXT STEPS?

CDC will continue to evaluate new tools and techniques, such as microbicides, vaccines, and oral prophylaxis, to prevent HIV transmission. Researchers are working with scientists worldwide to evaluate the safety and effectiveness of biomedical interventions that can prevent infection with HIV. Similarly, CDC works with organizations to develop linkages between communities and scientists relative to biomedical research and the development of effective interventions.

For additional information on this or other CDC programs, visit www.cdc.gov/program

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