

AIDS vaccines in perspective



AIDS vaccine development is challenging, but possible

The world needs an AIDS vaccine



Right now, **NO** AIDS vaccine exists, although many possible vaccines are in the development and testing stages. People who are not infected with HIV would use a preventive AIDS vaccine to protect themselves from infection or disease in case of future exposure to the virus.

No viral epidemic has ever been stopped without a vaccine, and a vaccine remains the world's best hope to halt the spread of HIV.

There will never be a single solution to HIV and AIDS, so any future vaccine will need to be used in conjunction with other prevention and treatment interventions, such as condoms, male circumcision, and antiretroviral therapy.

Developing an AIDS vaccine poses challenges that researchers have not encountered to the same degree in the development of other vaccines.

Vaccine development strategies that worked well for other diseases, such as measles, use weakened forms of the virus in the vaccines. This strategy is not used in AIDS vaccine development due to concern that the weakened form could change back into the disease causing form of HIV. Another challenge is that HIV changes rapidly and can evade immune responses in many people, making it difficult for researchers to study the virus and the human immune response. These represent just a couple of the challenges being faced by AIDS vaccine researchers.

There are sound scientific reasons, however, to believe that a vaccine is possible. Most humans control HIV for many years before developing AIDS. A small number never contract the virus despite repeated exposure. Vaccine studies in non-human primates show that infection can be prevented entirely. With such strong evidence in humans and in animals, experts believe a vaccine is possible.



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Does subtype matter in developing an AIDS vaccine?

Although the primary goal is to develop a vaccine that can be used worldwide, it is still unknown whether that goal is achievable.

There are different forms of HIV, called subtypes or clades, in different parts of the world. More than nine major subtypes have been identified globally.

Currently, no one knows if one vaccine will protect against different subtypes of the virus. Therefore, it is important to test a candidate vaccine in various parts of the world where different subtypes are found.



AIDS vaccine research must be a global effort

Research must take place in the countries and populations most affected by the global epidemic. This will help determine whether a vaccine will be safe and effective for these populations, and to ensure that an eventual vaccine, once proven safe and effective, can be introduced quickly where it is needed most. *See the box at left on HIV subtypes for further information.*

AIDS vaccine research is ongoing in both Western and developing countries. Trials in developing countries are often led by in-country researchers who collaborate with researchers and trial sponsors from other countries. Such partnerships help ensure that research efforts are regionally relevant, and that trials are appropriately conducted and accepted by the surrounding community.

The global AIDS vaccine research effort is not just a scientific pursuit. The active involvement of stakeholders such as policymakers and civil society groups is an integral part of maintaining political, social, and economic commitment to the field at local, national, and global levels.



AIDS vaccine trials are conducted in an ethical manner

All clinical trials, including AIDS vaccine trials, must pass careful review before they receive approval to begin, to make sure that they are scientifically and ethically sound. AIDS vaccine trials follow strict international ethical guidelines and undergo evaluation by local review boards. Review of the trials ensures that each volunteer's well-being and human rights are protected. Examples of volunteer safeguards include confidentiality, the right to leave the trial at any time, and non-coerced, fully informed consent.

When someone is deciding whether or not to participate in a trial, that person must fully understand key information about the trial to make an informed decision about participation. Review of the study by local and national regulatory bodies helps ensure that participants are not unfairly influenced to participate by anyone – friends, family, or trial site staff.


AIDS vaccine candidates cannot cause HIV infection

There is no possibility of a volunteer becoming HIV-infected from a trial vaccine because these vaccine candidates do not contain HIV. The vaccine candidates contain only copies of pieces of genetic material from HIV. These small molecules are meant to cause the body to create an immune response against HIV, but they cannot cause HIV infection.

Everyone should protect himself or herself against HIV and other sexually transmitted infections. People who join a clinical trial should **NOT** count on the trial vaccine to protect them against HIV infection! In fact, the purpose of the research is to find out whether the candidate vaccine works.

When trials begin, researchers do not know for sure how a candidate vaccine might affect a volunteer's risk of HIV infection or disease if exposed through such means as sexual transmission – the level of risk might be less, the same, or more than if the volunteer had not received the experimental vaccine.

Despite efforts to help trial participants reduce their risk of infection, some volunteers may become HIV-infected; these infections are not caused by the candidate vaccine, but occur from exposure to the virus through means such as sexual transmission or injecting drug use. Even though volunteers receive counselling about how to prevent HIV, some people might still take risks or become exposed in other ways. Volunteers who do become infected with HIV through sexual or other exposure have access to medical care as agreed with national and local stakeholders. Anyone who has HIV should receive comprehensive HIV treatment, care, and counselling.



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This fact sheet is a part of the AIDS Vaccine Literacy ("VaxLit") Toolkit which contains resources intended for training, mobilization, and advocacy purposes around AIDS vaccine research. To view the entire VaxLit Toolkit please visit <http://www.iavi.org/vaxlit> or contact IAVI at pubs@iavi.org to request print copies or CD-ROMs.

Access and introduction issues must be addressed

Some key players in the AIDS vaccine field are already addressing access issues for people who will most need the vaccine once it is available. New strategies are being developed to help ensure that vaccines will be affordable, especially in developing countries. This can only happen through partnerships and agreements between many players, including governments, donors, international organisations, and the private sector.

Providing clear and accurate information about AIDS vaccines will be especially important once they are available. Initial AIDS vaccines will most likely be partially effective, meaning they will not prevent HIV infection in every vaccine recipient. It will be very important for people to understand that receiving a vaccine does not guarantee prevention of infection so that they continue to practice other HIV prevention methods. Public health efforts to encourage use of prevention methods such as condoms and clean needles must continue at the time of vaccine introduction.

Even a partially-effective AIDS vaccine can have a significant impact on the global epidemic if given to a large segment of the population. Access for affected populations should be at the forefront of AIDS vaccine introduction efforts.