

Attention HIV/AIDS! The role of research



Sida initiative for HIV/AIDS research

Attention to HIV/AIDS was called by researchers in the early 80's. Swedish development research co-operation convened scientists and financed studies which early pointed to the disastrous pandemic. Since then, a special research programme developed under the auspices of an international group of scientific experts.

The special research programme has provided long-term support for a few selected research projects focusing on preventive measures, such as vaccine development and studies on infection transmission from mother to child. Robust and simple diagnostic tools were developed. Epidemiologic studies made it possible to monitor changing infection rates, e.g. the decreasing number of new infections in Kagera region in Tanzania, one of the areas where HIV first was detected. Behavioral and social aspects were also studied.

International research of the highest standing has been involved in the programme. HIV/AIDS research was supported in Tanzania, Guinea Bissau, Mozambique and Zimbabwe. One important impact has been the enhanced research capacity in these countries, a prerequisite for clinical trials for potential new drugs and vaccines.

Building on the growing strength of African research and its links with advanced research in Sweden and elsewhere, Sida prepares for new investments in research towards preventing and managing HIV/AIDS. In addition to the specific studies, attention HIV/AIDS will apply to all areas of Sida research co-operation.

Support to HIV/AIDS research in figures

Since 1995 Sida has provided SEK 60 million in support to the HIV/AIDS programme in Tanzania. The research has been on biomedical and epidemiological issues, mainly related to the spread of HIV.

The programme has resulted in almost one hundred scientific publications and about 200 presentations at scientific conferences. To date, seven Tanzanians have completed their Ph.D. at Swedish universities.

The TANSWED-programme:

“An exceptional north-south collaboration”

A large part of Swedish support to HIV/AIDS research has gone to Tanzania, channeled through the bilateral TANSWED programme. Since its inception in 1986 the programme has brought together Swedish and Tanzanian researchers in over ten projects in clinical medicine, biomedicine, epidemiology and the social sciences. As a direct result of the programme, researchers have tracked the spread of infection in Tanzania and developed diagnostic methods.

Co-ordinators for the TANSWED programme since it began are Gunnel Biberfeld, professor at the Center for Infectious Disease Control and Karolinska Institutet in Stockholm, and Fred Mhalu, professor at the Muhimbili University College of Health Sciences in Dar es Salaam, Tanzania.

“The programme has had a big impact on the building of research capacity in Tanzania and on training of Tanzanian researchers. Another impact is the creation of knowledge and experience that has been utilised by the national AIDS control program in Tanzania, but also in global AIDS strategies,” says Fred Mhalu.

“The programme’s greatest strength is that Tanzanians have been in the driver’s seat. Swedish support has been essential and catalytic. But the decision-making has been on our side. I would say this has been an exceptional north-south collaboration. Not many collaborative research projects have been able to do it this way,” says Fred Mhalu.

Support to HIV/AIDS research in figures

Up to 2004 Sweden provided SEK 186 million in support to the special research programme. During 2000–2002 the programme produced 67 scientific publications in international peer reviewed journals and seven completed doctoral theses.

Diagnostics adapted for developing countries

Accurate and appropriate diagnostics is a basic requirement for a treatment regimen with antiviral drugs for HIV and in epidemiological studies. Since the TANSWED programme began, one important field of research has been the evaluation of laboratory tests and testing strategies tailored to conditions in Tanzania. Today, these tests are used throughout the country.

For various reasons, developing countries cannot always use the same tests and procedures used for HIV diagnosis in the affluent societies. For instance, the screening test that is used to rule out false positives is too expensive for most developing countries. However, by combining less expensive tests it has been possible to achieve the same reliability of results in Tanzania as in Sweden and other developed countries.

In recent times new rapid tests have been launched that provide results within one hour. These rapid tests have the advantage that they can be used in impoverished areas without electricity. Some of these tests have been evaluated within the framework of the TANSWED programme. A combination of two tests is now used in several locations in the country offering voluntary HIV testing and screening of pregnant women.

A third result of the TANSWED programme is testing of manual techniques to determine the degree of immunodeficiency in HIV-infected patients, where normally expensive sophisticated laser technology would be used. The less expensive techniques are more time-consuming but function well for examining a limited number of samples per day.



Treatment of nursing mothers

An estimated 700,000 children throughout the world are infected with HIV each year. The main reason is mother-to-child transmission of infection during pregnancy, delivery or through breastfeeding. Sida has supported several studies to test different types of antiviral treatment to reduce the risk of mother-to-child transmission of HIV.

In 2002 the prestigious medical journal the Lancet published the results of the Petra study, one of the first large interventional trials in Africa of mother-to-child transmission of HIV. The study was a WHO/UNAIDS-coordinated multicentre study in South Africa, Tanzania and Uganda. Sida financed the Tanzanian study.

One important result is that short-term treatment of mothers and children with a combination of two antiviral drugs reduced the rate of infection transmission up to six weeks of age by more than 60 percent. After 18 months, however, transmission was comparable with the rate in a group that received no treatment. This discouraging result is still important because it shows the significance of infection transmission via breast milk.

HIV-infected mothers have long been advised not to nurse their children. However, in developing countries in many cases it is impossible to refrain from nursing since safe infant formula is not available. In addition, mothers who stop nursing also run the risk of being stigmatised as being HIV-infected and are ostracised by family and neighbors.

The Mitra study investigated a strategy for preventing the spread of infection via breast milk. In this study, where the first results are expected in autumn 2004, children born to HIV-infected mothers in Tanzania

received continued prophylactic treatment for six months. Researchers are now proceeding with a follow up study called *Mitra plus*.

Here, the strategy instead is to evaluate the effect of continued treatment of HIV-infected mothers for six months. Those mothers who have advanced immunodeficiency disease will receive continued long-term treatment even after weaning their babies. The advantage of this approach is that it benefits both mother and child. The study is possible thanks to the falling prices of antiviral drugs.

Sida finances both the Mitra and Mitra plus studies using funds from the special research programme. The Swedish Embassy in Dar es Salaam also provides funding for the Mitra plus study. Principle investigator in Tanzania for both studies is Charles Kilewo, a doctoral student at Karolinska Institutet who is receiving his postgraduate education through the bilateral TANSWED programme.

HIV vaccine tested in Tanzania

A great hope in the battle against the global HIV/AIDS epidemic has long been to develop a vaccine that can strengthen the body's immune system against the virus. The idea is that in the event of infection, the body would be better able to stop the virus from multiplying to an extent that prevents the development of AIDS. By limiting the viral load in the body, this in turn would reduce the risk of transmitting the infection to others.

Since the late 1980s Sweden has supported several projects focusing on developing HIV vaccines. For example, experiments have shown that vaccination can evoke a strong immune reaction that limits reproduction of the virus in apes. This research has provided impor-

tant clues on how to formulate a vaccine that works in humans. Another important project has been to prepare a group of Tanzanian police officers who are regularly tested, and will be volunteers in upcoming vaccine trials.

An EU and Sida-supported vaccine trial is beginning in October 2004 at Södersjukhuset in Stockholm. If the results show promise, it will pave the way for larger vaccine trials in Tanzania. The introductory phase is not primarily intended to see whether the vaccine protects against HIV, but to study whether the vaccine is safe and free of unacceptable side effects.

The vaccine was developed to target the viral types prevalent in East Africa. However, because it was manufactured in Sweden it is ethically correct to first test it on healthy volunteers in Sweden. Next year a first study will begin in Tanzania, where researchers hope to see that the vaccine strengthens the immune system against HIV.

Professor Hans Wigzell has led the vaccine research programme. He underscores the long-range approach of the Swedish HIV-vaccine research initiative.

“This type of research and development often takes longer than expected and, as such, long-term initiatives are important. These efforts have spawned a core of talented researchers who have given Sweden a prominent position in this field.”

Social sciences research based in Africa

An important goal in the fight against HIV/AIDS is to provide knowledge. That way people can adopt habits which minimizes their risk of getting infected. During the 1990s Sweden supported projects in several African countries focusing on the social and behavioral aspects of the HIV/AIDS epidemic. Researchers from Zam-

bia, Kenya, England and Sweden studied how local societies could act to prevent the spread of infection and cope with people living with AIDS. Role-play and video recorded dialogues were used to increase insight into the disease, as well as “peer education” among seasonal workers in agriculture. One part of the project explored men’s understanding of sexuality. Researchers showed that outreach activities among HIV-infected sexual partners (partner notification) work in an African environment. Studies on quality of care at health centers and hospitals showed that people prefer to seek traditional healthcare care when they believe they are infected by sexually transmitted diseases.

In West Africa men’s sexuality and their sexual networking was studied. Studies on male circumcision indicated that this decreased the risk of getting infected.

Current studies undertaken by three African research networks involve:

- The protection of young people and future generations – for example, how do you get young people to improve communications about sexuality and to use condoms to a greater extent?
- Health care research – how do reforms within the health care sector affect the spread of HIV/AIDS?
- Research on and for policy – how can new knowledge best be assimilated and implemented in prevention programmes, and what lessons can we learn from countries that have succeeded in holding down the rate of infection?
- Social and economic consequences of the HIV/AIDS epidemic – how is the national economy affected by the large loss of human life?

Halving poverty by 2015 is one of the greatest challenges of our time, requiring cooperation and sustainability. The partner countries are responsible for their own development. Sida provides resources and develops knowledge and expertise, making the world a richer place.



SWEDISH INTERNATIONAL
DEVELOPMENT COOPERATION AGENCY

SE-105 25 Stockholm Sweden
Phone: +46 (0)8 698 50 00
Fax: +46 (0)8 698 56 15
sida@sida.se, www.sida.se