



HIV Prevention Programme

HIGHLIGHTS OF THE YEAR

- » First full phase II trial to assess the safety and immune response to a candidate HIV vaccine completed at Klerksdorp site.
- » Enrolment for a new study to understand the immunology of persons acutely infected with HIV began at the Klerksdorp site.
- » Sobering progress in the quest for an effective preventative HIV vaccine was made in connection with the HVTN 503 trial. A total of 221 volunteers had been enrolled by Aurum's Klerksdorp team when findings from an American trial showed that the vaccine candidate had no preventative effect, and may prime the immune system to become more susceptible to HIV among certain subgroups of people.
- » The establishment of Aurum's second clinical research site, supported by a vibrant community advisory group in Rustenburg, North West Province, focused on researching HIV prevention.
- » Completion of a qualitative research study to understand the barriers and facilitators involved in the accessing of voluntary counselling and testing (VCT) for HIV in Rustenburg.
- » Significant progress made in preparation for a representative household survey in the Rustenburg community to be undertaken in the first half of 2008.

PROGRAMME OVERVIEW

A quarter of a century into the global pandemic that is HIV, more than 25 million people have died from AIDS, 39 million people are living with HIV worldwide, and 4 million people are newly infected each year. Even as South Africa expands its own programme to prevent and treat HIV/AIDS, 1,500 new infections every day testify to the ever-growing humanitarian, social and economic burden the country faces. While the global community works to offer treatment and care services to those already infected or affected by HIV/AIDS, there is an urgent need to strengthen HIV prevention activities in order to stem the tide of new infections. For example, the Global HIV Prevention Working Group published a report in 2007 showing the very low levels of current, proven prevention technologies being promoted and used. Methods such as voluntary counselling and testing, provision of

mother to child transmission medication, and condom promotion all had population coverage rates of less than 10%. (Bringing HIV Prevention to Scale: An Urgent Global Priority (June 2007) Global HIV Prevention Working Group.) In this same report, modelling estimates showed that over the next 10 years, the cumulative number of new HIV infections would drop by half if the current, proven methods of prevention were more vigorously promoted.

Bringing the HIV pandemic under control requires the continued promotion of HIV prevention by means of education/awareness drives, the correct use of condoms, and male circumcision, as well as the introduction of additional methods of prevention once proven effective, such as vaccines and microbicides. Historically, significant public health gains have rarely been made through the advent of a single, highly effective technology. Rather, in the absence of such 'magic bullets', history

shows that dramatic public health achievements have come about through the introduction of multiple, imperfect public health measures. Thus, Aurum is committed to continuing its search for an effective HIV vaccine, while also working on other fronts to test alternative promising technologies such as microbicides and improved behavioural interventions.

Vaccines are generally regarded as one of the most effective options for fighting infectious diseases because they do not depend upon the user to remember to use them. By extension, then, an effective AIDS vaccine is one of the best hopes of halting the spread of HIV. But, the development of an effective vaccine is still years away, and 2007 revealed further setbacks in this quest. Unexpected developments brought disappointing news to the field of HIV vaccine research: a large trial (STEP study) of a candidate vaccine that was being tested in the Americas



found the candidate vaccine to be ineffective, and to possibly prime the immune system such that those who volunteered to receive the vaccine may in fact be more susceptible to becoming infected with HIV, should they have future contact with the virus. These findings became known in the third quarter of 2007, six months after five South African trial sites had already begun testing the same candidate vaccine in a sister study. The Aurum Institute was one of the South African trial sites testing that vaccine candidate. This trial was launched at the Klerksdorp site in April 2007. The trial tested a Clade B vaccine candidate to determine if it might cross-react and provide protection to the Clade C population prevalent in South Africa. These findings have created a new, sobering, landscape for the field of HIV vaccine development since most current HIV vaccine candidates are based on similar mechanisms of action, and use the same vector or mode of delivering the vaccine once in the body. Nonetheless, Aurum remains committed to researching promising HIV vaccines, along with other HIV prevention modalities in order to combat the expanding HIV epidemic in Southern Africa.

The time frame for finding effective HIV prevention methods is long and expensive, but the discovery of an unsatisfactory outcome to our research endeavours this year, while disappointing, still represents progress. The core of the research enterprise is to ask and answer questions. We must be prepared to accept that sometimes, the answer to our research questions will be a disappointing “no”, on the road to finding an encouraging “yes”. Negative results help us to re-evaluate our assumptions, and to refine our focus on where to search for effective ways to prevent HIV.

PROGRESS REVIEW

Activities at the Klerksdorp Clinical Research Site

This year marked Aurum’s establishment of a full-fledged, up and running, vaccine clinical research site in Klerksdorp in North West Province. Two vaccine trials, and another research study to inform the development of an HIV vaccine, were conducted at Aurum’s Klerksdorp clinical trial site. Both vaccine trials were conducted as part of the HIV Vaccine Trial Network (HVTN), where Aurum was one of several sites throughout the world testing

candidate vaccines. In the first trial, 80 volunteers were vaccinated and successfully followed up for a year in order to examine the safety and ability of the vaccine to produce an immune response. Preliminary findings from this study are promising. Plans to take this vaccine candidate to larger-scale testing to evaluate its ability to prevent new HIV infections are under way.

In the second trial, Aurum was part of a consortium of five South African trial sites that tested a candidate vaccine developed by Merck. This candidate vaccine was already being tested in a large trial under way throughout the Americas. Soon after the launch, vaccinations in the South African trial were unexpectedly stopped by the study’s central safety board since the trial conducted in the Americas found that the vaccine was ineffective. Aurum had enrolled 221 volunteers into the vaccine trial before the arrival of the disappointing news. All trial volunteers were immediately informed of this discovery, and will continue to have their health monitored over the next several years. The disappointing news regarding the second vaccine candidate reminded us all about the fundamental nature of our work: research involves the search for an



answer to a question, and sometimes the answer is not always what was hoped for or expected. This turn of events was a major test of our years of community mobilization efforts to educate the Klerksdorp population about the nature of HIV vaccine trials. We were pleased to learn that our volunteers, while disappointed, had understood the fundamentally uncertain nature of the research enterprise, and that the Klerksdorp community continues to support our vaccine research clinic.

In our third major study at the Klerksdorp site, we screened more than 1000 people at high risk for HIV infection in order to identify those already displaying early signs of the virus. Of the 1000 volunteers screened we found over 10 such people, and invited them into a study that will continue over time. In this study, volunteers give blood samples at regularly scheduled intervals, which will allow laboratory scientists to better understand how the immune system responds to very early HIV infection. Having a better understanding of these biological processes will inform the development of new vaccine candidates that protect the body against HIV as soon as one becomes HIV infected.

An additional accomplishment at the Klerksdorp clinical site is that we now have a fully qualified and staffed laboratory which supports our vaccine-related research activities. All of our laboratory staff are now capable of conducting technically demanding tests to exacting international standards. Finally, our Community Advisory Group is thriving, and continues to be our vital link to the community.

Activities at the Rustenburg clinical research site

Another major accomplishment in 2007 was the establishment of Aurum's second clinical research site in Rustenburg, in North West Province. Multiple preparatory activities were undertaken in support of the new site. Site staff undertook social mapping of the Rustenburg community and conducted a small, qualitative study with local residents to reveal local perceptions of barriers and facilitators to the accessing of voluntary testing and counselling services. Findings from this

study will be published and will inform the design of the voluntary counselling and testing services for HIV offered by Aurum.

Additionally, preparations to enable Aurum staff to undertake a large representative household survey of the Rustenburg area were developed. Using maps from Statistics South Africa, updated by Aurum field staff, we will interview a representative sample of hundreds of Rustenburg residents about their attitudes, beliefs and behaviours related to HIV, AIDS, voluntary counselling and testing, and risk behaviours. This survey will allow us to tailor our future outreach and community education efforts related to HIV.

Another significant accomplishment in Rustenburg was the official launch of the site in September, involving over 200 community stakeholders, a number that reflects the significant amount of work conducted to introduce ourselves to the community. The Community Advisory Group was also launched, had initial training, and is now meeting regularly. The establishment of this group represents a continued effort by Aurum to learn from the community and share its progress with key stakeholders. Finally, a new, permanent facility was identified as a research site in the downtown area of Rustenburg. Renovations are well advanced at this space of over 1,000 square meters to include laboratory capabilities and enable us to run multiple studies involving hundreds of research volunteers at any given time.

VOTE OF THANKS TO OUR FUNDERS

All of our activities were made possible by the contributions of donors and research funders. We are honoured to be associated with a number of research partners, both national and international. These include the HIV Vaccine Trials Network (HVTN), the International AIDS Vaccine Initiative (IAVI), the Center for HIV/AIDS Vaccine Immunology (CHAVI), Family Health International and the South African AIDS Vaccine Initiative (SAAVI). We enjoy significant collaboration with South African and international scientists involved in HIV vaccine research from a range of disciplines. These agencies also provide

invaluable assistance in training Aurum staff and monitoring standards of practice.

CHALLENGES

As the march of scientific progress has revealed swift, disappointing answers to some of our research questions related to HIV vaccines, a key challenge facing the HIV prevention community is the scarcity of new prevention products to be tested. This is true for both vaccines as well as microbicidal candidates for HIV prevention. At the clinical site level it will be a challenge to keep our communities engaged and supportive as we all await new technologies and solutions to come down the research and development pipeline for testing. However, while the search for an effective way to prevent HIV is a long and arduous road, our commitment to this cause, and to the communities we serve, is unwavering.

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