A quarter of a century into the epidemic: Challenges in HIV and AIDS research

As we approach the third decade of the AIDS epidemic, HIV is still considered a new and complex disease for which there is no cure. As such, it presents unique challenges for research. In this article, GEOFFREY SETSWE reviews the status of HIV and AIDS research, and asks whether AIDS is over-researched.

MILESTONES IN THE 23 YEARS of effort and investment in AIDS research have resulted in numerous advances. These include the identification of the human immunodeficiency virus (HIV); the development of drugs to treat HIV infection; advances in the treatment and prevention of several HIV-related diseases and infections; the identification of barriers to access to prevention of HIV; the discovery that antiretroviral drugs can dramatically reduce the risk of HIV transmission from a pregnant woman to a foetus, and a reduction in the number of new HIV infections in some countries.

Beyond its direct impact on the treatment and prevention of AIDS-related conditions, HIV and AIDS research has also led to major advances in other areas of science and medicine. It is helping to unravel the mysteries surrounding many other infectious, malignant, neurological, autoimmune and metabolic diseases. Most importantly, HIV research has significantly enhanced our understanding of the immune system and the ways in which our bodies fight against disease and infection.

This research has also provided an entirely new drug design and development paradigm for treating viral infections. For example, the

development of the 'flu drug, Relenza, directly benefited from AIDS research; and the drug known as 3TC, developed to treat AIDS, is now the most effective therapy for chronic hepatitis B infection.

Drugs developed to prevent and treat AIDS-related opportunistic infections also provide benefit to patients undergoing cancer chemotherapy or receiving anti-transplant-rejection therapy. AIDS is also providing a new understanding of the relationship between viruses and cancer. Other areas in which HIV and AIDS research has contributed include:

- Accelerated research into viruses in general and retroviruses in particular;
- Insight into the treatment with protease inhibitors of other conditions, including bone loss and heart muscle damage;
- Enhanced understanding of the spread of infectious agents through the blood/brain barrier (which has implications for research on Alzheimer's disease, dementia, encephalitis and meningitis);
- Improved treatment and prevention of infections among people with advanced breast cancer, organ transplants and autoimmune conditions; and
- Improved diagnostic tests to detect cancer cells and tuberculosis.

Yet it seems that HIV and AIDS research has reached an impasse. Despite the great research discoveries, there is still no cure for AIDS; the potential for the development of an effective vaccine is many years away; more than 40 million people are infected; about 20 million people have died from this epidemic and HIV has become the leading cause of death among the 15–59 year age group. In fact, HIV/AIDS is outstripping bubonic plague as the world's worst epidemic.

There are literally thousands upon thousands of research programmes into this pandemic. The assumption is that more research might bring better HIV prevention. We also presume that creating awareness of HIV and AIDS on a larger scale would bring instant changes in behaviour, attitudes and practices, but research has proven us wrong, says Sharon Ekambaram of the AIDS Consortium. Knowledge of HIV and AIDS does not automatically translate into changes in behaviour, attitudes and practices.

She concludes that although there is still room for expanding our understanding and knowledge of certain aspects of the HIV and AIDS epidemic, there are relatively few real research gaps. AIDS researchers concur that there are few other communicable diseases which can compare with the extent to which AIDS has been researched. Put simply, HIV and AIDS are over-researched.

Solveig Freudenthal, a Swedish anthropologist, disagrees. He says that although the knowledge of how to prevent HIV transmission exists, research results are seldom utilised in the implementation of HIV-prevention and care programmes. He identified the following areas that still need to be researched:

- The dominant norms and youth culture that place young people's sexual health at risk, and the ways in which young people resist those norms;
- Specific socioeconomic contexts and, in particular, an understanding of gender differences in the way that young people find social acceptance on a sexual level, and to investigate young men and women's perceptions of sexuality and gender relations;
- The need to understand how to best influence policy-makers, how to select, train and supervise peer educators, how to address gender and cultural factors, and how to scale up programmes;
- Media studies for developing innovative approaches for reaching more remote rural areas; and
- How to make reproductive-health services more user-friendly for young people.

At the XV International AIDS Conference in 2004, 9 000 papers were delivered in about five days. This is a clear indication that the field of HIV and AIDS is over-researched and out of proportion to society's success in tackling the pandemic. As the statistics rise, so does the research mountain. And all the research presented at conferences and published in journals is a drop in the ocean compared to the research that lies in cupboards and is not acted on. Instead, efforts should be channelled towards quality, innovative and collaborative research that address specific questions.

What are the current challenges in HIV and AIDS research? The AIDS epidemic is complex and is fuelled by biomedical, social, economic and political forces. Solutions can no longer be expected from one group of scientists, laboratory, clinical, social, behavioural or policy experts. HIV and AIDS research spans the spectrum of basic science, clinical research, prevention interventions, policy development, ethics, social science and operations research.

HIV/AIDS research has resulted in tremendous advances, including a dramatic reduction in AIDS-related mortality and the discovery of increasingly effective treatments for HIV disease and its related conditions. Despite these advances, millions of people are being infected and at least 3 million die annually.

FIGURE 1: Some of the major challenges in HIV and AIDS research

The research community is challenged with the need to continue to develop interventions to address an epidemic that increasingly affects the poor, women, and young people throughout the world. It is essential for researchers to now pool their resources and to work on innovative research projects in multidisciplinary teams with the different disciplines sharing their best practices. It is also necessary to, firstly, conduct evidence-based research to determine which interventions are effective and, secondly, to implement them. ●

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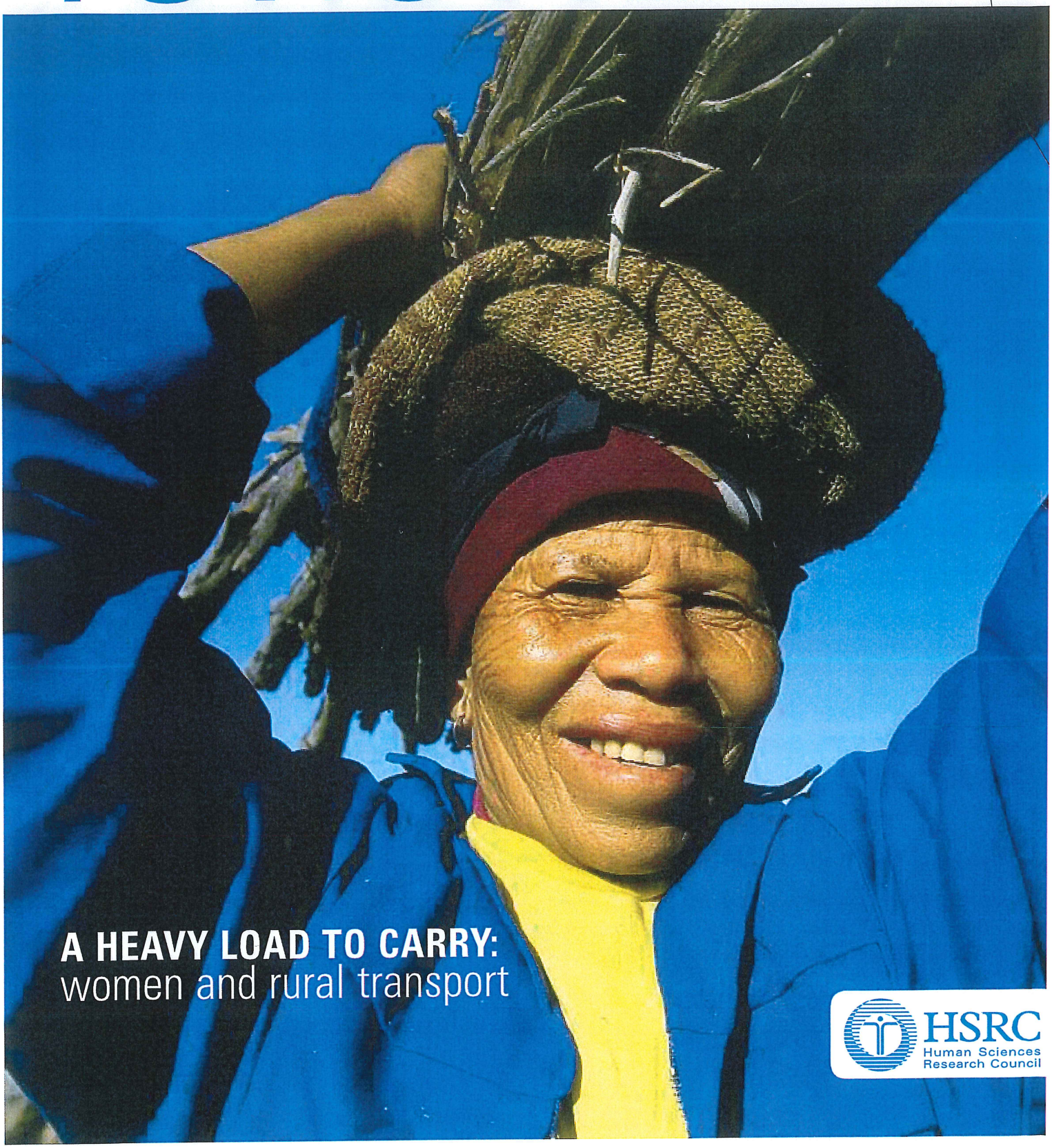

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