There are an estimated 6 million South Africans living with HIV today. The HIV and AIDS and STI Strategic Plan for South Africa, ambitious though it is, provides an excellent framework to implement nationally to begin to make a dent in the epidemic by 2011. But plans without implementation and scale are of little value.

The 4th South African HIV Conference held at the International Convention Centre, Durban, on 31 March - 3 April 2009 attempted to address some of the operational gaps and prioritise our efforts to get the ‘best bang for our bucks’ before 2011. With the theme ‘Scaling up for success’, overwhelming attendance, participation and feedback indicated that many of the goals set by the scientific and organising committee were met. Perhaps most significant to many of us was the tangible and positive spirit of determination and cooperation between researchers, practitioners, activists, civil society and government at the conference, which bodes well for the busy time ahead.

A large portion of the scientific programme was abstract driven (almost 2 000 abstracts were received) with 6 tracks, listed below with chairs and co-chairs. Each track had 4 oral sessions covering a series of themes derived from the abstract submissions. Perhaps one of the best innovations this year was the addition of the community engagement programme that ran as a theme throughout the whole conference, culminating in a full post-conference workshop on 3 April at the same venue.

This year, two South Africans and an African representative chaired each track. We warmly thank them for taking the time to engage and appreciate the contribution they have already made.

**Track 1: Basic sciences**
**Chairs:** Thombi N’dungu, Jo-Ann Passmore, Rosemary Musonda  
**Rapporteur:** Victoria Kasprowicz and team

**Track 2: Clinical Sciences**
**Chairs:** Doug Wilson, Vivian Black, Moses Sinkala  
**Rapporteur:** Claire Von Mollendorf and team

**Track 3: Epidemiology, Prevention and Public Health Systems**
**Chairs:** Virginia Zweigenthal, Guy de Bruyn  
**Rapporteur:** Lilian Dudley and team

**Track 4: Social and Economic Sciences, Human Rights and Ethics**
**Chairs:** Catherine Slack, Vasu Reddy, Michaela Clayton  
**Rapporteur:** Catherine Slack and team

**Track 5: Best Practices and Programs**
**Chairs:** Astrid Dearham, Nigel Rollins  
**Rapporteur:** Astrid Dearham and team

**Track 6: Community Exchange Encounters**
**Chairs:** Victor Lakay, Peter Mathebula, Pauline Sambo  
**Rapporteur:** Victor Lakay and team

Two major themes were highlighted from the studies in this track. Firstly, renewed emphasis was placed on the identification of correlates of HIV control and protection. Secondly, the research community has begun to focus research efforts on two special subsets of infected individuals: elite controllers and individuals in the acute phase of infection.

**ELITE CONTROLLERS**

Bruce Walker (Ragon Institute of MGH, MIT and Harvard) presented a talk in the plenary session entitled ‘Elite control of HIV: Implications for treatment and vaccines’. Dr Walker suggested that elite controllers might be able to act as a successful model for T-cell vaccination. He reported that the CD8 T-cell response is responsible for inducing the less fit virus found in elite controllers. Walker emphasised that it is the interplay between adaptive immunity (cytotoxic T lymphocyte neutralisation), host genetics (HLA) and viral genetics (fitness) that is responsible for determining infection outcome. Data were presented showing that CTLs are shaping HIV evolution, and that strongly targeted epitopes are being lost at the population level. More information on his efforts and those of his fellow researchers can be found at www.elitecontrollers.org.
EARLY INFECTION

Andile Nofemela (UCT) presented an excellent talk entitled ‘Characterisation of transmitted HIV-1 ENV variants from Mbeya, Tanzania’ in which he highlighted the observation that 73% of new infections are caused by infection of a single virus. This ‘bottle-neck’ effect supports the findings of others that also show that the viral populations in the majority of newly infected individuals are largely homogenous. Gama Bandawe (UCT) reported that shorter and less glycosylated V1 loops were associated with enhanced entry efficiency of certain isolates. Many groups reported on work carried out investigating the immune response in the acute phase and reported on a common theme that early immunological events are complex, and that some may predict viral set-point and disease progression. For example, Wendy Burgers (UCT) showed data indicating that HIV-specific immune activation occurs early and predicts poor disease outcome. Pholo Maenetje (NICD) shared data that showed that HIV-specific T cells may be more prone to viral infection. Clive Gray (NICD) presented data showing that HIV-1-specific T-cell immune responses at 3 months do not predict viral load set point and that the early immune responses are characterised by waves of ‘waxing and waning’ whereby responses frequently appear and then disappear. The reasons for this remain unclear. Various other talks focused on the quality and quantity of T-cell immune responses in adult and paediatric HIV-1 infection. Interestingly, Koleka Mlisana (UKZN) reported that 33% of individuals in the CAPRISA acute infection cohort progressed to CD4 counts <350 within 3 years of infection, 40% of whom were started on antiretroviral therapy (ART). Moving away from characterising immune responses in the periphery, Lindi Roberts (UCT) presented some interesting data looking at the genital tract. Essentially, inflammatory cytokine responses, e.g. IL-6 and TNF-alpha, were found to be associated with HIV disease progression. It is important to remember that a number of factors may play a role in the control of HIV, including CD4 T-cell immunity, CD8 T-cell immunity, innate immunity, neutralising antibodies, viral genetics and host genetics.

ANTIBODIES AND INNATE IMMUNITY

Even though Lynn Morris (NICD) presented a great talk on ‘Limited neutralising antibody specificities drive neutralisation escape in early HIV-1 subtype C infection’, which demonstrated that the immune system can make antibodies that have an effect on viral load, and Dr William Carr presented a talk on the role of NK cells, there was a paucity of presentations and scientific discussion on role of antibodies and the innate arm of the immune response.

IN SUMMARY

The key points from this track of the conference are: elite controllers may hold the key to understanding HIV immune control; in acute infection immune system damage occurs early and predicts the course of disease; further research on the role of antibodies and innate immunity in immune control is required.

TRACK 2: CLINICAL SCIENCES

ANTIRETROVIRAL TREATMENT

A number of presentations looked at successes of ART programmes, including Alison Riddick’s study from rural Hlabisa. This study showed a reduction in adult medical admissions from 2002 to 2007 following the introduction of ART, with no deaths recorded secondary to ART toxicity. The International epidemiologic Databases to Evaluate AIDS (IeDEA) cohort, which included 6 078 children from seven hospitals in Johannesburg, Cape Town and Durban, showed good survival and clinical, immunological and virological outcomes among children initiated on ART. Of concern was inequity of access, with 20% of South African children being treated at these seven urban sites.

Reassuring data from Khayelitsha showed that women who switched from efavirenz to nevirapine at a CD4 cell count >250 cells/µl did not have more adverse events than those who initiated nevirapine at a CD4 cell count <250 cells/µl. However, the numbers in the high CD4 cell count group were too small to show statistical significance.

SYSTEMS

A study done in KwaZulu-Natal and Limpopo evaluating the Integrated Management of Childhood Illness (IMCI) showed that while HIV is common in children presenting at primary care facilities and the HIV algorithm performs well in identifying HIV-infected children, IMCI-trained health care workers do not routinely use the algorithm and do not test for HIV regularly among sick children.

A presentation from the Africa Centre suggests that HIV-exposed infants are less likely to be vaccinated than HIV-unexposed infants. It was suggested that maternal HIV is responsible for this.

A number of presenters showed the devastating effects of HIV, particularly for younger infants (<6 months of age), through retardation of early growth, increased susceptibility to infections and a higher case fatality rate. It is vital to reduce vertical transmission and identify and treat HIV-infected infants early for opportunistic infec-
TUBERCULOSIS

A file review from the Hlabisa district showed that mortality in patients on ART doubled in the presence of prevalent or incident tuberculosis. This mortality rate is higher than that reported in other studies but may reflect the extent of HIV advancement and also time in the programme, since higher mortality in the first 100 days is well described in ART programmes.

After improvement of infection control, including basic administrative, environmental and personnel measures, in Tugela Ferry, admissions of patients with extensively drug-resistant (XDR) and multi-drug resistant (MDR) tuberculosis decreased significantly ($p=0.02$) from 2006 to 2008. Community infection control remained an unaddressed challenge. A case series of four children from Tugela Ferry showed that a diagnosis of XDR TB took many months. The average duration of treatment was 18 months and all children were successfully treated.

OPPORTUNISTIC INFECTIONS

Preliminary data from Ngwelezane Hospital showed no differences in wound infections between HIV-positive and negative patients who had open fractures treated with internal or external fixation. Potential modifiers were albumin (lower in HIV-positive group) and age (younger in HIV-positive group).

A study from the Africa Centre reporting on HIV and HBV co-infection in KZN showed rates as high as 10%. Of concern was that less than 50% of patients started on nevirapine had follow-up alanine transaminase monitoring.

A review of 23 years of records from hospitals in KZN showed a dramatic increase in incidence of Kaposi’s sarcoma (20 times in males) and an age shift towards a younger population.

NEW DEVELOPMENTS

Lesley Scott presented a paper on the use of dried blood spots compared with plasma for viral load analysis. Results were equivalent, suggesting that dried blood spots be utilised to monitor response to ART among patients. With a proposed shift towards decentralising ART services, this is an important finding.
No studies described interventions to reduce MCPs, transactional sex and IPV, which highlights a major gap in prevention research, and a need for closer collaboration between social and medical scientists.

**PMTCT**

The session described the operational effectiveness of a dual-therapy PMTCT regimen, and long-term ART as an intervention for PMTCT. Studies demonstrated improved outcomes in cohorts of pregnant women on long-term ART, with reductions of MTCT to 2.7% at Frere Hospital (Bera) and 5.1% in a community-based clinic cohort (Fitzgerald). Good-quality local trials of the effectiveness and timing of ART in pregnancy to prevent MTCT will provide additional evidence.

Although few studies were presented on postnatal transmission, important data on the low rate of adherence of HIV-positive women to early breastfeeding cessation (24 weeks) were presented. Cessation of breastfeeding after 24 weeks may be more feasible, and further research is needed into prophylactic regimens to protect infants from infection during the breastfeeding period (Goga).

**HEALTH SYSTEMS AND PROGRAMME EVALUATION**

A review of 3 years of ART at multiple NGO sites identified factors associated with increased mortality, poor adherence and loss to follow-up. The first 6 months of treatment had the highest loss to follow-up, and adolescents initiating HAART were identified as needing additional support (Fatti).

Good patient adherence to ART was associated with reduced health care costs and investment in interventions to improve adherence and monitoring of adherence is recommended (Nachega).

The International Epidemiologic Database to evaluate AIDS (IeDEA), a large cohort study collecting individual patient data in the region, identified a trend for men and children to access treatment late. Sentinel surveillance of patient-based data could provide important clinical information in the monitoring of the national ARV programme (Cornell).

Integration of services, including HIV services, with family planning, sexually transmitted infection (STI) clinics, cervical screening, and TB services, was found to be acceptable to clients and providers, and resulted in increase in uptake of HIV testing and other services (Menziwa, Chabikulu, Leon, Bomela).

**Contributors:** Catherine Slack, Ann Strode, Nicola Barsdorf, Jenny Koen, Zaynab Essack, Michaela Clayton and Vasu Reddy

**TRACK 4: SOCIAL AND ECONOMIC SCIENCES, HUMAN RIGHTS AND ETHICS**

Track 4 examined how social-behavioural, economic and legal/human rights factors shape BOTH our epidemiology AND responses to it. In the track there were a number of key interventions that were continually raised due to the social-cultural and human rights implications. There were also a number of vulnerable and marginalised groups that were focused on.

**KEY INTERVENTIONS**

**HIV testing.** Three sessions focused on testing, where it was noted that uptake of testing is still low and resources are limited. In the main, there was greater acceptance that more than one model is needed. Client-initiated testing needs to be re-tooled and taken to people in innovative ways. It needs to be compressed in a way that does not short-change on consent or confidentiality. The merits of self-testing were noted provided there was adequate support through, for example, telephone counsellors. It was also observed that the health system may not be ready to manage a routine offer of testing and will have to be strengthened to do so.

**Male circumcision (MC).** Two sessions focused on MC. It was noted that this priority for scale-up will require attention to consent, counselling and confidentiality (the 3 Cs); that monitoring behavioural disinhibition and the ability of men to abstain until the wound heals is a key part of roll-out; and that providing this service to adolescents will require understanding of the legal framework and parental involvement in many instances.

**Partner reduction.** The need to reduce MCPs came up repeatedly in satellites, plenaries and oral sessions. Key issues included the need to proceed to implement and monitor MCP programmes in the absence of perfect tools; the need to acknowledge that culture is a highly contested construct and that cultural practices can be challenged; that MCP programmes will compete with messages from the commercial media; and that involving celebrities in de-norming MCP will be important.

**KEY GROUPS**

**Children.** A special session on children demonstrated innovative research into the lives of children in the SADC region. It was noted that the full range of children made vulnerable by HIV must be recognised; that a significant number of children remain invisible because they are not registered at birth and remain marginalised from education and support systems; that children living on the streets need far more tailored services and protection, and that children are best assisted by strengthening their families, and a key way to do this is through social protection policies.
Migrant populations. A dedicated oral session and satellite highlighted the needs and rights of migrant populations. Their relative poverty, lack of services, separation from regular partners and stigma increase both HIV risk and impact for this group. The need for better information and services was underscored. In terms of treatment access, it was noted that in the main it is not the legal and policy environment that may be problematic for migrants, but implementation of these rights that is lacking.

People living with HIV (PLWHIV). It was noted that far better integration of HIV and sexual/reproductive services is needed for PLWHIV and that policies and programmes need a far better focus on discordant couples. Food price rises are directly affecting HIV prevention as people move in search of food and work, and this situation is affecting AIDS care, because people on treatment cannot get the nutrition they need in many instances. It was noted that welfare grants are a critical safety net.

Men who have sex with men

A dedicated satellite looked at the needs and rights of men who have sex with men (MSM). It was noted that stigma and in some cases criminalisation of same-sex relationships drive MSM from services, and better surveillance is needed, as well as programmes for this group.

In terms of prison populations, a dedicated satellite session focused on their increased risk. It was argued that HIV care, management and prevention in prisons must be better integrated into policy instruments, and funding is needed for service delivery to this vulnerable group.

In terms of sex workers, one presentation highlighted how criminalisation of sex work limits their uptake of services, and argued that such work should be decriminalised and a customised package rolled out.

Several sessions addressed the needs and rights of research participants in large-scale HIV trials, and the communities from which they are drawn. Because the current array of methods (such as abstinence, fidelity, condoms and circumcision) may not address the particular needs of young women and older women in stable relationships, new tools such as microbicides are needed. Research literacy was advanced as a tool to offset power imbalances between investigators and participants and involve communities more authentically in research. It was stressed that these efforts must avoid tokenism and that sound partnerships with communities can buffer disappointing trial results – which are an inevitable part of product development.

A special session was devoted to SADC countries’ implementation of key human rights norms. It was noted that major gains have been made – for example, all 14 countries have a law or national policy that prohibits unfair discrimination against PLWHIV. A key concern was that in 4 out of 14 countries there are specific laws making the intentional transmission of HIV a crime, and in 9 out of 14 countries there are laws criminalising same-sex relationships, heightening stigma and undermining services. It was noted that such laws contribute to the structural conditions that fuel HIV.

Other contributors: Ann Strode, Nicola Barsdorf, Jenny Koen, Zaynab Essack

Track 5: Best Practices and Programmes

The following themes emanated from this track, which covered evidence-based policy and practice, and models of prevention, treatment, care and support activities in communities, the workplace and the media.

Education, the youth and HIV

Grierson et al. found that peer networks are not consistent across the population but cluster according to key socio-demographic characteristics. More targeted interventions that recognise gender differences and the role of partner violence are needed in peer education programmes (Rogan et al.). In an evaluation of adolescent programmes, Nkala et al. found that although adolescents are aware of the risks of HIV transmission, they were not personalising it and the repeated pregnancy testing at the clinic was indicative of unprotected sex. Once the adolescents tested HIV positive, they were lost to follow-up.

There is a substantial gap in tracing adolescents who become infected but have never tested (Chagan et al.).

In high-risk hospital catchment areas, testing strategies for children needed to be conducted in both health facility (outpatient department, ward) and mobile community settings (Chabikuli et al.).

Reporting on the establishment of a male clinic, Mgwele et al. found this to be the first port of entry for men into the public health system. Critical success factors included the location, operating hours, staff and the services that were offered. In terms of intergenerational sex, Pretorius et al. found that a variation in age difference results in persistence of the HIV epidemic. The establishment of more gay-friendly services was also advocated in the ‘Men and HIV’ theme.

Decentralisation and nurse-based services

There was support for the down-referral of patients to primary care level as well as integrated health care. However, standardised guidelines were still considered to be lacking (Mabaso et al., Carolus et al., Vintges et al.).
The issues of nurse prescription and pharmacy support were still a concern. The re-defining of roles of health care workers was one way of addressing the increasing workload and waiting lists (Draper). The generally poor or non-existent state of health services in prisons was highlighted (United Nations). The transient nature of the offender population may be fuelling HIV and TB in the community, as the prevalence of HIV in prisons is estimated to be 6 - 50 times greater than that of the general adult population. Prison systems are rarely included in country plans, and there is a need to be proactive and take responsibility for putting HIV response plans in prisons into the National AIDS response.

BEST PRACTICES AND HEALTH SYSTEMS

Innovative strategies reported were the use of cell phones for mass messaging (Benjamin) and targeting the youth with online, interactive MTV-like programmes using celebrities as role models with HIV messages about prevention and testing (Pahl et al). Men were the focus of the ‘One Man Can’ and ‘You Can Count on Me’ initiatives to facilitate and encourage awareness about HIV/AIDS (Colvin et al, Becker et al).

The need for dedicated health care worker programmes that offer psychosocial support, encourage HIV testing and TB screening and provide HIV treatment and support if a worker tests positive was raised (Vazi et al).

Mobile clinics aimed at the asymptomatic, males, defaulters, the elderly and under-serviced areas, and offering not only voluntary counselling and testing but also screening for chronic disease, were promoted (Van Schaik et al).

Overall there was a call for health systems to document best practices (Eghtessadi et al), and the importance of partnerships for sustainable, measurable and quality programmes was highlighted.

Other contributors: Meg Osler, Maria Sibanyoni

TRACK 6: COMMUNITY EXCHANGE ENCOUNTERS

Unprecedented numbers of PLWHIV and HIV activist delegates attended the 4th South African AIDS Conference.

Instead of just covering the Community Exchange Encounters track, rapporteurs for Track 6 attended almost every session on the programme, as well as evaluating all six tracks from a community, PLWHIV perspective.

It was felt that this unprecedented turnout was in keeping with the sentiment that activists must scale up participation in AIDS conferences to ensure that the experiences and needs of HIV-positive communities remain at the epicentre of TB/HIV research projects and programmes.

FINANCING: ‘HIV IS NOT IN RECESSION’

In the past months we have seen trillions of dollars spent on so-called financial ‘bailouts’ that are supposed to stimulate economic recovery. A tiny part of this sum could buy quality, sustainable health care for millions of poor people.

There is a multi-billion dollar deficit currently facing the Global Fund and a continued increase in demand with decreasing of resources. Drugs are notably most abundant where infections are least prevalent. The current global economic recession has meant a strong backlash due to possible budgeting cutbacks for HIV programmes. The lessons learned from HIV interventions continue to transform organisation and delivery of all health services. HIV treatment must become part of primary health care.

The Department of Health budget allocation for ARVs through the current HIV/AIDS conditional grant to provinces is at least R1 billion short of the amount initially budgeted to treat 220 000 people this year. A great need therefore exists to work collectively to achieve these ambitious targets and ensure that sufficient resources are mobilised and properly managed.

In November 2008 the National Department of Health instituted an ARV moratorium in the Free State province. There are already similar shortages manifesting in other provinces across South Africa, including Gauteng, South Africa’s richest province.

TASK-SHIFTING

Médecins Sans Frontières (MSF) and the Reproductive Health Research Unit (RHRU) presented compelling data showing that task-shifting is essential due to the overburdened state of clinics and the chronic nature of ART management. The ways that have been presented for task shifting to be implemented are unfair to community health care workers, nurses and doctors. Current laws and regulations that separate the roles of community health care workers, nurses and doctors must change. Government must implement policy on task-shifting based on extensive consultation with health care workers, health systems experts and community activists to address the lasting inequalities which continue to see health resources and responsibilities concentrated in hospitals, in urban areas, and in the hands of doctors.

ARV TREATMENT

We need more ‘bang for our bucks’. Nachega’s ‘Excellent adherence to ART predicts lower direct health care costs for HIV-infected adults’ showed that poor ART
adherence is a major predictor of virological failure, resistance, disease progression and death. There is a need for communities to access ARVs that do not cause drug toxicity but that are more expensive. Dr Francois Venter presented an interesting plenary, 'Key drugs for the next five years', and made the point that toxicity drives ARV regimen switches, particularly resulting from D4T. Tenofovir is good replacement for D4T but is unaffordable to the majority at current prices. Communities must embark on a larger campaign for access to essential medicines, including other exciting new ARVs such as etravirine, raltigravir and tipranavir.

OPPORTUNISTIC INFECTIONS: TB

A plenary presented by Robin Wood on HIV/TB control indicated that despite reasonably functioning TB programmes, TB rates are continuing to rise to unprecedented numbers in HIV hyperendemic areas. There is still not enough progress in health systems or scientific developments to combat HIV-associated TB. The Treatment Action Campaign (TAC), TB/HIV Care and other organisations are mobilising for better, more integrated TB/HIV programmes and improved treatments; but government must join in this struggle beyond mere rhetoric. There is a need for vastly increased resources – biomedical, financial and human – in order to integrate TB and HIV treatment.

OPPORTUNISTIC INFECTIONS: CERVICAL CANCER

In ‘Development in progress: A policy analysis of the national cervical cancer screening policy factoring in HIV/AIDS’ Bomela described strong community support for the integration of cervical cancer programmes into HIV care and highlighted that financial resources are lacking, women are not educated about how and where to access cervical screening services, and nurses are not adequately trained to implement guidelines. This advocacy seeks to mobilise women in communities to increase screening and public access to HPV vaccines.

YOUTH

HIV awareness programmes in schools are poorly funded. There is a strong need for peer-to-peer programmes in HIV education and a greater emphasis on skills development. A satellite session on ‘Progress towards achieving NSP targets for children’ exposed shortcomings of the Department of Health and Department of Education. There are no specific policies on teenage pregnancy or circumcision. The Department of Education has recommitted itself to the ABC strategy (Abstain, Be faithful, Condomise), yet condoms are not made available in schools, thus failing learners. Communities must mobilise to ensure that condoms and accurate information on their use are readily available to sexually active youth.

CONCLUSION

There may be a mistaken perception that the battle for health care in South Africa has been won, but this perception is incorrect. We must improve access to and quality of services where they are needed most if we are to achieve the NSP goals. But … growing financial constraints, the necessity for task-shifting, and rising rates of TB prove that the struggle continues! NOW is the time for communities to refocus and mobilise around these critical issues!