



## Symposium 5.2

### Treating HIV/AIDS in the era of resistance

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In recent years, access to antiretroviral therapy to HIV-infected individuals in low and middle income countries has increased considerably, largely as a result of global initiatives such as the WHO/UNAIDS initiated “3 by 5” program. By June 2006, approximately 1.6 million people living with HIV/AIDS were receiving treatment in these countries representing around a quarter of the estimated 6.8 million people in need of treatment. This increase in access to ARV has been most apparent in the most affected region, sub-Saharan Africa. In Asia where a marked increase in the epidemic has occurred in recent years, treatment access has also increased by three folds. This rapid expansion of ARVs in low and middle-income countries with major health systems constraints has led to concerns for the widespread development of HIV drug resistance (HIVDR).

Thus far the majority of reports of increased HIVDR prevalence are from developed countries and areas of South America. However transmitted HIVDR is emerging in countries where access to therapy is being scaled up, including regions of sub-Saharan Africa. In both developed and developing countries, overall rates of HIVDR at present are higher in treatment experienced HIV-1 infected cohorts compared with drug-naïve recently infected persons.

Numerous studies have shown that consistent high-level adherence to HAART is the key to durable suppression of HIV viral load. Innovative and effective adherence interventions are critical in optimizing individual responses to HAART and in minimizing the propagation of drug resistance. Careful selection of initial combination regimes which takes into account the efficacy, side-effects and tolerability, and the potential for development of resistance of these drugs is crucial in managing previously ARV-naïve individuals. In the long term, development of antiretroviral drug combinations that have a high pharmacokinetic or genetic barrier to resistance is important in the management of HIV.

Providing antiretroviral resistance testing as part of a routine clinical service is currently out of reach for many developing countries. The International AIDS Society–USA and European guidelines recommend antiretroviral resistance testing for primary HIV infection and in cases of treatment failure. The long-term efficacy of making resistance testing routinely available to clinicians has not been well established. Several prospective studies have shown short-term improvement in viral load suppression in patients when antiretroviral resistance testing was used to guide therapy. Conversely recent studies showed either transient or no benefit associated with the use of resistance assays. More recent studies suggest that routine access to resistance testing may improve long-term virologic outcomes in HIV-infected patients who are treatment experienced but may not impact outcome in patients who are naïve to or have had limited experience with ART.

Factors that may contribute to the development of HIVDR include weak drug procurement and supply management systems, poor laboratory infrastructure and severe human resource shortages. The emergence of HIVDR will severely impact HIV treatment programmes in the future in countries where the option for antiretroviral agents is already severely limited. Country-level national programmes where access to treatment is being escalated will need to have in place surveillance mechanisms for detection of the emergence of resistance patterns. This will help ensure early detection of the circulation of resistance strains and direct efforts for containment and preservation of program effectiveness.