

OPINION

Setting district-based annual targets for HAART and PMTCT – a first step in planning effective intervention for the HIV/AIDS epidemic

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While the overall mismatch between people receiving highly active antiretroviral treatment (HAART) and those who need it – the 'treatment gap' – has been well publicised,¹ less attention has focused on the number of incoming HIV clients with failing immune systems who will need to be added to the programme each year. Of the estimated 5.4 million South Africans currently infected with HIV, 640 000 developed indications for HAART in 2006,² and a similar number will come on stream for treatment every year for at least the next decade. While it has been publicised that over 200 000 clients have initiated HAART in government programmes since 2004, only an estimated 100 000 of the > 600 000 newly eligible clients requiring HAART were initiated on this treatment in 2006.^{2,3} After an initial period of rapid growth, the annual increase in the number of patients initiated on HAART each year in government programmes has slowed, suggesting that unless a different approach is adopted to rapidly expand this programme, the existing gap between those requiring and receiving HAART will not be closed.

The recent HIV and AIDS and STI strategic plan for South Africa, 2007 - 2011,⁴ calls for 80% of the HIV-infected population to have access to comprehensive HIV/AIDS care, including HAART. To build a system that has the long-term capacity to meet this ambitious goal, targets for HAART should focus on the numbers who will be requiring HAART for the first time each year as well as those already on treatment. For adults, HIV infection progresses slowly from a sub-clinical state to immune compromise, so those needing HAART for the first time were infected 6 - 10 years ago.⁵ The Actuarial Society of South Africa (ASSA) has published yearly estimates

of new HIV infections for each province for 2000 - 2015.² We used these data to project the annual need for new HAART initiations 6 years after the year of infection for the South African adult population (Fig. 1). The projected annual need of ~550 000 equates to just over 1% of the population. ASSA estimates that 91 250 adults (16.3% of the projected need) were started on HAART in 2006. A rough estimate of the annual need for new HAART initiations in each district can be made (Table I), based on the district population and after adjustment for the local antenatal HIV prevalence rate. Systematic expansion of HIV treatment programmes can then be designed to meet this local need, focusing on existing capacity within primary and secondary health care services in those districts. While prevention of HIV should remain a cornerstone of the fight against the epidemic, reduction of new HIV infections in adults now will only influence the need for HAART in future decades.

By contrast, since HIV progresses rapidly to AIDS in children⁶ (mortality for HIV-infected infants is 35% by 1 year), preventing perinatal and postnatal transmission of HIV will have rapid and marked effects on demand for paediatric HAART (Fig. 2). The number of infants infected with HIV each year (and requiring HAART in infancy and early childhood) is closely tied to the effectiveness of the prevention of mother-to-child transmission (PMTCT) programmes in the perinatal and

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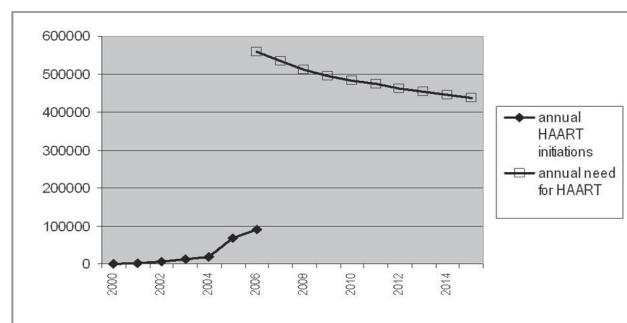


Fig. 1. Estimates of the number of HIV-infected people in South Africa who require HAART each year, and the number of adults started on HAART each year since 2000. This number is derived from the total number of South Africans that ASSA estimates to have been infected 6 years earlier, less the number of infants who were infected that year.² Estimates of adults who require HAART before 2006 are not available since ASSA has not published estimates of people infected before 2000.



Table I. Example of extrapolations from ASSA data to derive targets for total annual HAART need and estimate of infants newly infected with HIV in 2006 in a district of 200 000 people, adjusted for local antenatal prevalence and HIV transmission rates

	South Africa	District example
Population	47 866 984	200 000
ANC prevalence rate	28.3%	32%
Estimated need for adult HAART initiations during 2006	559 122	2 261 (0.01 × 200 000 × (32/28.3))
Est. births 2006	1 095 651	5 000
Estimated HIV transmission rate	21%	25%
Estimated number of infants infected with HIV during 2006	64 085	400 (5 000 × 0.32 × 0.25)

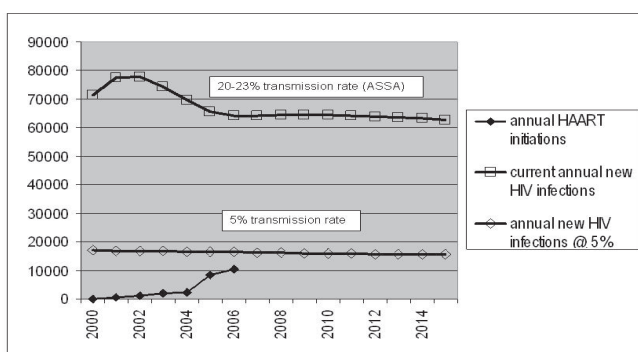


Fig. 2. Estimates of the number of infants infected with HIV each year through perinatal transmission and breastfeeding, and number of infants and children started on HAART each year since 2000. Data are derived from ASSA reports.²

postnatal periods, and to the choice of drugs used to reduce perinatal transmission. Apart from programmes in the Western Cape province, isolated donor-funded projects, and a recent report of dramatic reduction in MTCT rates in Botswana,⁷ efforts to prevent HIV in children in sub-Saharan Africa have largely been ineffective.⁸ Reduction of perinatal and postnatal MTCT of HIV from the estimated national rate (> 20%)² to rates in the Western Cape (< 10%) would dramatically reduce the treatment gap by decreasing the number of additional children eligible for HAART each year (Fig. 2). The number of infants and children started on HAART in 2006 suggests that South Africa already has the capacity to treat new paediatric HIV infections if the transmission rates could be reduced. However, since most of the paediatric HIV-infected population were > 12 months of age when started on HAART,⁹ major focus will need to be directed at early detection of newly infected infants in the first months of life, many of whom are dying before they

can access treatment. For infants, the expected annual new HIV infections can be calculated at a district level from annual birth rates, published antenatal HIV infection rates, and the estimated local or provincial HIV transmission rates.²

The South African government response to the HIV/AIDS epidemic would be enhanced by the setting of district-level targets that mirror the true local HAART need, and also set local expectations for a high-performing PMTCT programme. The data for deriving rough estimates of these targets for each district are readily available. The knowledge of the district-level need for HAART in adult and paediatric populations is a first step in designing locally appropriate strategies to manage the HIV/AIDS through optimisation of the district health infrastructure, including better utilisation of the existing primary care networks, and addition of resources where necessary.

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