

## HIV and Health - Children starting ART

**Author/s:** Leigh Johnson (Centre for Actuarial Research, University of Cape Town), updated by Katharine Hall (CI)

**Date:** Updated July 2010

### Definition

This indicator is calculated as the number of children under 15 years starting antiretroviral treatment (ART) in a particular year, divided by the estimated number of new paediatric HIV infections over the same year.

% of children newly eligible for ART who initiate treatment, by year and by province						
PROVINCE	2002 / 2003	2003 / 2004	2004 / 2005	2005 / 2006	2006 / 2007	2007 / 2008
Eastern Cape	1.2	2.3	7.7	13.1	18.6	26.8
Free State	1.4	1.7	4.9	11.7	19.5	22.1
Gauteng	2.1	6.9	14.8	31.1	28.3	46.0
KwaZulu-Natal	1.6	2.2	7.4	20.8	26.4	30.6
Limpopo	0.8	1.2	4.6	9.0	13.2	35.9
Mpumalanga	1.3	1.8	3.0	12.2	20.4	29.4
North West	1.3	1.6	6.9	18.9	35.0	50.7
Northern Cape	1.5	3.9	27.2	51.8	79.6	96.1
Western Cape	20.1	36.8	51.1	58.5	86.2	96.9
<b>South Africa</b>	<b>2.1</b>	<b>3.9</b>	<b>9.4</b>	<b>20.8</b>	<b>26.5</b>	<b>36.9</b>

- Source
- Department of Health (2008) National Comprehensive HIV and AIDS plan statistics. [Unpublished]
  - Adam MA & Johnson LF (2009) Estimation of adult antiretroviral treatment coverage in South Africa. South African Medical Journal. 99: 661-667.
  - Dorrington RE, Johnson LF, Bradshaw D & Daniel T (2006) The Demographic Impact of HIV/AIDS in South Africa. National and provincial indicators for 2006. Centre for Actuarial Research (UCT), Medical Research Council and Actuarial Society of South Africa.
  - Barron P, Day C & Monticelli F (2008) The District Health Barometer 2006/07. Health Systems Trust.
- Analysis by Leigh Johnson, Centre for Actuarial Research, UCT.

- Notes
1. Only children under 15 years are included.
  2. Reporting periods run from mid-year to mid-year.

## What do the numbers tell us?

It is crucial for HIV-positive children to receive antiretroviral treatment (ART) early. Without treatment, more than 30% of children who were infected at birth will die before their first birthday. This indicator is a measure of children's access to ART. It is defined as the proportion of newly infected children starting ART. It is calculated as the number of children starting ART in a particular year, divided by the estimated number of new paediatric HIV infections over the same year.

Access to antiretroviral treatment for children has improved substantially over the past six years, with the proportion of newly infected children starting antiretroviral treatment increasing from 2% between mid-2002 and mid-2003, to 37% between mid-2007 and mid-2008. More than 21,000 children started treatment during the 2007/08 period, approximately 5,000 more than in the previous year.

Antiretroviral coverage for children varies significantly between provinces, from 22% in the Free State to 97% in the Western Cape over the 2007/8 period. The Western Cape, Northern Cape and North West are the only provinces in which ART reached more than half of children acquiring HIV. The exceptionally high coverage in the Western Cape is not only the result of antiretroviral roll-out to children, but also a reflection of the success of the prevention of mother-to-child transmission programme, which has dramatically reduced the annual number of new HIV infections in that province. Northern Cape has also performed well in treating newly infected children (96% in 2007/08).

Although the indicators of antiretroviral coverage suggest that adults have greater access to ART than children, the indicators for adults and children are not comparable because they reflect different definitions of antiretroviral eligibility. Recent guidelines recommend that antiretroviral treatment should be started in all HIV-infected children in the first year of life.<sup>1</sup> The number of children newly eligible for treatment in a particular year has therefore been calculated as the number of new paediatric HIV infections. The Department of Health guidelines that have been used until now, however, did not recommend immediate initiation of ART in infancy.<sup>2</sup> The calculations of antiretroviral coverage in adults are based on the assumption that adults are eligible only when they progress to AIDS, a relatively conservative assumption that is likely to lead to the over-estimation of adult ART coverage.

## Technical notes

The numerator is the number of children under 15 years old starting antiretroviral treatment between the middle of the stated year and the middle of the next year. This is derived from estimates of the cumulative numbers of children enrolled on treatment in the public health sector<sup>3</sup> and estimates of the total number of individuals receiving treatment through disease management and non-governmental programmes<sup>4</sup>.

The reason that only children under 15 years old are included in this indicator is because the Department of Health data collection system defines children as 0 – 14 year olds. All people over 15 are classified as adults. Adult data is only disaggregated in 5 year age-bands, which makes it impossible to report on children as defined in the South African constitution (under the age of 18).

The denominator is calculated as the ASSA2003 estimate of the number of new HIV infections in children over the same period. The proportions were calculated prior to publication of the revised ASSA model (ASSA2008), but the ASSA2003 estimates were updated to take into account:

- Revised estimates of the proportion of pregnant women who receive HIV counselling and testing (as presented in the section on access to prevention of mother-to-child transmission);
- Revised estimates of the proportion of women testing positive who receive nevirapine (this has been set at 75%);
- Allowance for the greater effectiveness of the combined AZT and nevirapine regimen that has been introduced in the Western Cape since 2004; and
- Revised estimates of the proportion of women who practise exclusive formula feeding<sup>5</sup>.

It should be noted that not all the children starting antiretroviral treatment are doing so in their first year of life; hence there is some inconsistency in the way in which the numerator and denominator are calculated. Due to this inconsistency, it is theoretically possible that the rate of roll-out in a particular period may exceed 100% if almost all the newly infected children in the current year start treatment and if there is also a significant number of children infected in previous years who start treatment.

## Strengths and limitations of the data

The strength of this analysis is that it combines antiretroviral treatment data from the public, private and NGO sectors.

However, the reliability of the reported numbers of children cumulatively enrolled on antiretroviral treatment is questionable. For example, there has been an unexplained drop in the numbers of children starting treatment in Gauteng province in the 2006/2007 period. It is also concerning that the cumulative number of children on antiretroviral treatment in the Northern Cape is reported to have decreased from July 2005 to August 2005. This is clearly incorrect, as cumulative totals cannot decrease. These data problems and anomalies suggest that the estimates of paediatric antiretroviral coverage need to be treated with caution.

It is also difficult to estimate reliably the number of new paediatric HIV infections occurring every year. A major problem is that there is a lack of data on feeding practices in HIV-positive women. The estimated numbers of new HIV infections in children have been based on HIV-positive women's reports of their intended feeding practices, at the time they are discharged from the maternity ward, in a relatively small sample of clinics.<sup>6</sup> These data do not necessarily reflect the actual feeding practices. In addition, the ASSA2003 model, which is used to produce the estimates of the annual numbers of new paediatric HIV infections, tends to under-estimate quite substantially the HIV prevalence that has been measured in surveys of older children.<sup>7</sup> This suggests that the annual numbers of new paediatric HIV infections could be under-estimated.

It is unfortunately not possible to analyse antiretroviral coverage at a district level, since numbers of patients on antiretroviral treatment are not published at a district level, either for the public sector or the private sector. In addition, the ASSA2003 model that is used in the denominator of the antiretroviral coverage calculation has not been applied at a district level.

## References and related links

<sup>1</sup> Southern African HIV Clinicians Society (2008) Guidance for antiretroviral therapy in HIV-infected infants less than 1 year of age. Southern African Journal of HIV Medicine, 9(4): 34-35;

World Health Organisation (2008) Report of the WHO Technical Reference Group, Paediatric HIV/ART Care Guideline Group meeting, WHO headquarters, Geneva, Switzerland, 10 – 11 April 2008. WHO: Geneva.

<sup>2</sup> Department of Health (2005) *Guidelines for the management of HIV-infected children – 2005*. Pretoria: DoH. Available: [www.doh.gov.za/docs/index.html](http://www.doh.gov.za/docs/index.html)

<sup>3</sup> Department of Health (2008) *National Comprehensive HIV and AIDS plan statistics*. Pretoria: DoH. [Unpublished]

<sup>4</sup> Johnson LF & McLeod HD (2007) Steady growth in antiretroviral treatment provision by disease management and community treatment programmes. *South African Medical Journal*, 97(5): 358-35.

<sup>5</sup> Doherty T, Besser M, Donohue S, Kamoga N, Stoops N, Willimason L & Visser R (2003) *An Evaluation of the Prevention of Mother-to-child Transmission (PMTCT) of HIV Initiative in South Africa: Lessons and Key Recommendations*. Durban: Health Systems Trust.

<sup>6</sup> Ibid.

<sup>7</sup> Shisana O, Rehle T, Simbayi LC, Parker W, Zuma K, Bhana A, Connolly C, Jooste S & Pillay V (2005) *South African National HIV Prevalence, HIV Incidence, Behaviours and Communication Survey, 2005*. Cape Town: HSRC Press. Available: [www.hsrcpress.ac.za/product.php?productid=2134&cat=0&page=1&freedownload=1](http://www.hsrcpress.ac.za/product.php?productid=2134&cat=0&page=1&freedownload=1).



This fact sheet has been updated with the financial support of the Programme to Support Pro-Poor Policy Development (PSPPD), a partnership programme of the Presidency, Republic of South Africa and the Delegation of the European Union. The content of this document is the sole responsibility of the Children’s Institute, University of Cape Town, and can under no circumstances be regarded as reflecting the position of the Presidency or the European Union.



**Copyright**

The Children's Institute, University of Cape Town, holds copyright of the papers and publications on this site. Permission is granted to reproduce and distribute copies of these works for non-profit or library purposes, provided that the author, source, and copyright notice are included on each reproduced copy. Users who cite the material must acknowledge the author and copyright holder, and fully reference the work. It is also the policy of the Children’s Institute to respect the intellectual property rights of others, and the authors have attempted to ensure that no unauthorised use of copyrighted resources occurs.

**Disclaimer**

Every attempt is made to ensure that the material on these pages is accurate and as up-to-date as possible. Neither the University of Cape Town, its Faculty of Health Sciences, staff, agents nor any other person shall be liable to whomsoever may have sustained any loss of any kind as a result of having relied to his/her detriment upon any information contained in or downloaded from any of the pages at the World Wide Web – Children Count site of the Children's Institute at the University of Cape Town.