

HIV and Health - Access to PMTCT: HIV testing

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 the proportion of women attending public antenatal clinics who are tested for HIV as part of the prevention of mother-to-child transmission (PMTCT) programme.

% of booked women attending public antenatal clinics who receive HIV testing, by year and province

PROVINCE	2001 / 2	2002 / 3	2003	2004	2005 / 6	2006 / 7	2007 / 8
Eastern Cape	1.7	6.7	*	*	*	75.3	88.3
Free State	4.6	15.8	31.1	33.7	40.4	66.9	80.1
Gauteng	*	20.0	17.6	39.0	47.4	60.6	73.3
KwaZulu-Natal	7.2	13.6	*	*	43.8	58.5	70.7
Limpopo	1.0	8.4	26.0	37.6	46.5	77.5	90.1
Mpumalanga	0.6	0.0	10.9	12.9	31.4	58.2	74.6
North West	2.2	30.7	*	34.7	47.9	74.3	85.6
Northern Cape	5.0	4.6	18.2	16.4	59.1	81.5	88.5
Western Cape	*	43.9	*	*	*	93.7	95.7
South Africa	6.9	15.6	25.3	37.3	49.1	69.2	81.0

Source

- McCoy D, Besser M, Visser R & Doherty T (2002) Interim findings on the national PMTCT pilot sites. Durban: Health Systems Trust.
- Ramkissoon A, Kleinschmidt I, Beksinska M, Smit J & Hlazo J & Mabude Z (2004) National Baseline Assessment of Sexually Transmitted Infections and HIV Services in South African Public Health Facilities 2002/2003. Durban: Reproductive Health Research Unit, University of the Witwatersrand.
- Reagon G, Irlam J & Levin J (2004) National Primary Health Care Facilities Survey 2003. Durban: Health Systems Trust.
- Barron P, Day C, Loveday M & Monticelli F (2005) The District Health Barometer: Year 1. Durban: Health Systems Trust.
- Barron P, Day C, Monticelli F, Vermaak K, Okorafar O, Moodley K & Doherty T (2006) The District Health Barometer: 2005/6. Durban: Health Systems Trust.
- Barron P, Day C & Monticelli F (2007) The District Health Barometer: 2006/7. Durban: Health Systems Trust.
- Barron P, Day C & Monticelli F (2009) The District Health Barometer: 2007/8. Durban: Health Systems Trust.

Analysis by Leigh Johnson, Centre for Actuarial Research, UCT.

Notes

- Reporting periods run from mid-year to mid-year.
- Updated figures were not reported by the Free State for the period mid-2006 to mid-2007.

What do the numbers tell us?

The majority of HIV-positive children in South Africa are infected in-utero, during labour and delivery, or as a result of breast-feeding. The PMTCT programme is a comprehensive health service intervention that aims to limit these forms of HIV transmission from mother to child. In contrast to the life-long provision of antiretroviral treatment for children, the intervention is limited to women's pregnancy and breast-feeding period, is less expensive and can result in massive reductions in HIV transmission if effectively implemented. As such, it is arguably the most critical HIV intervention for children. This indicator reflects the proportion of women attending public antenatal clinics who receive voluntary counselling and testing for HIV, as part of the PMTCT programme.

The roll-out of PMTCT has expanded dramatically in recent years, with the proportion of pregnant women receiving HIV counselling and testing increasing from approximately 7% in 2001/02 to 81% in 2007/08. It is only in the last two years that estimates have been reported for all provinces.

In 2001, the Department of Health introduced two pilot PMTCT sites in each province, although there were many additional sites already providing PMTCT in the Western Cape and Gauteng provinces at this time.¹ Following legal action by the Treatment Action Campaign in 2001 and 2002, the department was ordered to make PMTCT services available to all pregnant women; since that time, access to PMTCT has improved steadily in all provinces.

Access to PMTCT however remains variable between provinces. The Western Cape, which began its PMTCT programme in 1999, had a two to three year head start and achieved a take-up rate of nearly 43.9% in 2002/03 compared to a national average of 15.6% for the same period. Over the next five years, PMTCT roll-out improved in all provinces, with the Western Cape continuing to provide the highest levels of PMTCT coverage. The Northern Cape expanded its PMTCT provision dramatically in recent years and is now the province with the second highest proportion of pregnant women who are tested for HIV. Mpumalanga has consistently had one of the lowest levels of PMTCT roll-out, although its performance has improved substantially in recent years.

The proportion of pregnant women who receive HIV testing and counselling is a measure of three factors: First, the proportion of antenatal clinics that provide PMTCT services; second, the proportion of women who are offered HIV testing at PMTCT facilities; and third, the proportion of women who agree to be tested for HIV. Although it is often assumed that PMTCT facilities would offer HIV testing to all pregnant women, recent qualitative evidence suggests that a significant proportion of women attending PMTCT services are not offered testing due to shortages of counsellors, testing supplies and relevant forms.² Early experience suggested that 25 – 50% of women would decline the offer to be tested for HIV³ but other evidence suggests that less than 10% of women decline the offer to be tested if there is individual counselling and if lay counsellors have been recruited.⁴

A number of different data sources have been used for the years prior to 2005, and differences between data sets might therefore account for some of the changes observed from one year to the next. Estimates from provinces that experienced data problems have been omitted, but attempts were made to correct these problems for the purpose of estimating the national averages.

HIV testing is only the first step in the PMTCT process, and ideally several further indicators should be evaluated when monitoring the success of the PMTCT programme. However, these other indicators are difficult to measure reliably. For example, an important indicator for measuring PMTCT coverage is the proportion of women who receive PMTCT prophylaxis. The District Health Barometer reports on one element of the antiretroviral component of PMTCT, namely the proportion of women testing HIV positive who receive nevirapine during labour. This was estimated to be 76% in 2007/08.⁵ This could be an under-estimate if women do not disclose to labour ward staff that they have received nevirapine, but it could also be an over-estimate if there is double counting of self-administered nevirapine and nevirapine administered in the labour ward. The District Health Barometer data suggest highly erratic trends in the provision of nevirapine to pregnant women and their babies, which is probably a reflection of changes in record-keeping practices rather than real changes in quality of service. In more well-resourced facilities and research settings, the

proportion of women testing positive who receive nevirapine is generally estimated to be between 65% and 85%.⁶

The PMTCT indicator that is ultimately of greatest interest is the proportion of infants born to HIV-positive mothers who acquire HIV. This too is difficult to measure, as a high proportion of HIV-positive mothers do not return to have their infants tested. In South African settings where formula feeding is practised by most HIV-positive mothers, around 10% of children born to mothers receiving nevirapine tested positive for HIV at age 6 – 8 weeks.⁷ Transmission rates are higher when women breastfeed their babies – with approximately 15% of children testing positive at 6 – 8 weeks, and 20 – 25% testing positive at 6 months.⁸

Technical notes

To estimate the proportion of pregnant women receiving counselling and HIV testing in 2001/02, the average monthly number of HIV tests at each pilot site was multiplied by the number of months that the site was operational between mid-2001 and mid-2002⁹, and the total number tested in each province was then divided by the estimated number of births to women attending public antenatal clinics in each province (obtained from the ASSA2003 AIDS and Demographic model). The calculation was not performed for the Western Cape and Gauteng because these provinces were known to be providing PMTCT to significant numbers of women outside of the pilot sites.

To estimate the proportion of pregnant women receiving counseling and HIV testing in 2002/03, the proportion of sampled sites that were offering PMTCT services in the July 2002 survey of public health facilities¹⁰ was multiplied by the proportion of women attending PMTCT services who were offered (and accepted) HIV testing in the March – May 2003 survey of primary health care facilities.¹¹ Since both surveys were based on samples of health facilities, there is substantial scope for “sampling variation” around these estimates.

The 2004 District Health Barometer data relate to the calendar year from 1 January to 31 December.¹² However, the 2005/06 and 2006/07 District Health Barometer data¹³ relate to the Department of Health financial year, which runs from 1 April to 31 March.

For the purpose of calculating the national averages, the provincial estimates are weighted by the ASSA2003 estimates of the numbers of births to women attending public antenatal clinics in each province.

Strengths and limitations of the data

A number of different data sources have been used for different years, and differences between data sets might therefore account for some of the changes observed from one year to the next. For example, the estimate for 2002/03 is based on a sample of public health facilities, whereas the District Health Barometer is based on data collected from all public health facilities. The estimates for 2002/03 are therefore subject to greater uncertainty, and should be treated with caution.

When examining the District Health Barometer data, it is clear that certain health districts have not reported adequately in certain periods. The data show erratic trends in provision of nevirapine to pregnant women and their babies, which may reflect changes in record-keeping rather than quality of service. The data collected from all public health facilities are subject to greater uncertainty and should be treated with caution. There is also provincial variation in the quality of the data. Where provinces produced implausible figures, fields have been left empty.

It is important to note that, in all of these calculations, the denominator is the number of pregnant women who make booking visits at public antenatal clinics. A small proportion of women who deliver at public health facilities (about 5 – 10%) do not make prior booking visits, and would thus not receive HIV testing and counselling prior to delivery. There are also a substantial proportion of pregnant women (about 18%) who attend private antenatal services. Although it appears that these women have reasonably good access to PMTCT services¹⁴, little research has been published. The prevalence of HIV in women attending private

antenatal services is much lower than that in public antenatal services ¹⁵, and the vast majority of pregnant HIV-positive women therefore seek antenatal care in the public health sector.

References and related links

- ¹ McCoy D, Besser M, Visser R & Doherty T (2002) *Interim findings on the national PMTCT pilot sites: lessons and recommendations*. Health Systems Trust. Available: www.hst.org.za/publications/478
- ² Nkonki LI, Doherty TM, Hill Z, Chopra M, Schaay N & Kendall C (2007) Missed opportunities for participation in prevention of mother to child transmission programmes: simplicity of nevirapine does not necessarily lead to optimal uptake, a qualitative study. *AIDS Research and Therapy*, 4: 27.
- ³ See no. 1 above.
- ⁴ Abdullah MF, Young T, Bitalo L, Coetzee N & Myers JE (2001) Public health lessons from a pilot programme to reduce mother-to-child transmission of HIV-1 in Khayelitsha. *South African Medical Journal*, 91: 579-583;
Coetzee D, Hilderbrand K, Boule A, Draper B, Abdullah F & Goemaere E (2005) Effectiveness of the first district-wide programme for the prevention of mother-to-child transmission of HIV in South Africa. *Bulletin of the World Health Organization*, 83(7): 489-494;
Doherty T, Besser M, Donohue S, Kamoga N, Stoops N, Williamson 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.
- ⁵ Day C, Barron P, Monticelli F & Sello E. *District Health Barometer 2007/08*. Health Systems Trust; 2009. Available: <http://www.hst.org.za/publications/850>.
- ⁶ Urban M & Chersich M (2004) Acceptability and utilisation of voluntary HIV testing and nevirapine to reduce mother-to-child transmission of HIV-1 integrated into routine clinical care. *South African Medical Journal*, 94(5): 362-366;
Sherman GG, Jones SA, Coovadia AH, Urban MF & Bolton KD (2004) PMTCT from research to reality – results from a routine service. *South African Medical Journal*, 94(4): 289-292; Nkonki et al (2007) – reference 2;
Jackson DJ, Chopra M, Doherty TM, Colvin MSE, Levin JB, Willumsen JF, Goga AE & Moodley P (2007) Operational effectiveness and 36 week HIV-free survival in the South African programme to prevent mother-to-child transmission of HIV-1. *AIDS*, 21(4): 509-516.
- ⁷ Coetzee D, Hilderbrand K, Boule A, Draper B, Abdullah F & Goemaere E (2005) Effectiveness of the first district-wide programme for the prevention of mother-to-child transmission of HIV in South Africa. *Bulletin of the World Health Organization*, 83(7): 489-494;
Moodley D, Moodley J, Coovadia H, Gray G, McIntyre J, Hofmeyr J, Nikodem C, Hall D, Gigliotti M, Robinson P, Boshoff L & Sullivan JL (2003) A multicenter randomized controlled trial of nevirapine versus a combination of zidovudine and lamivudine to reduce intrapartum and early postpartum mother-to-child transmission of human immunodeficiency virus type 1. *Journal of Infectious Diseases*, 187(5): 725-735;
Sherman GG, Jones SA, Coovadia AH, Urban MF & Bolton KD (2004) PMTCT from research to reality – results from a routine service. *South African Medical Journal*, 94(4): 289-292.
- ⁸ Rollins N, Little K, Mzolo S, Horwood C & Newell ML (2007) Surveillance of mother-to-child transmission prevention programmes at immunization clinics: the case for universal screening. *AIDS*, 21(10): 1341-1347;
Moodley et al (2003) – reference 7;
Coovadia HM, Rollins NC, Bland RM, Little K, Coutoudis A, Bennish ML & Newell ML (2007) Mother-to-child transmission of HIV-1 infection during exclusive breastfeeding in the first 6 months of life: an intervention cohort study. *Lancet*, 369(9567): 1107-1116.
- ⁹ See no. 1 above.
- ¹⁰ Ramkissoon A, Klenschmidt I, Beksinska M, Smit J & Hlazo J (2004) *National Baseline Assessment of Sexually Transmitted Infection and HIV Services in South African Public Sector Health Facilities*. Reproductive Health Research Unit.
- ¹¹ Reagon G, Irlam J & Levin J (2004) *The National Primary Health Care Facilities Survey 2003*. Durban: Health Systems Trust.
- ¹² Barron P, Day C, Loveday M & Monticelli F (2005) *The District Health Barometer Year 1: January – December 2004*. Health Systems Trust. Available: www.hst.org.za/publications/689.
- ¹³ Barron P, Dav C, Monticelli F, Vermaak K, Okorofar O, Moodley K & Doherty T (2006) *District Health Barometer 2005/06*. Health Systems Trust. Available: www.hst.org.za/publications/701
- ¹⁴ Stein A, McLeod H & Achmat Z (2002) *The cover provided for HIV/AIDS benefits in medical schemes in 2002*. Rondebosch: Centre for Actuarial Research, UCT. Available: www.commerce.uct.ac.za/Research_Units/CARE/Monographs/Monographs/mono10.pdf
- ¹⁵ Wilkinson D (1999) HIV infection among pregnant women in the South African private medical sector. *AIDS*, 13: 1783.



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.