

**“Study of the Prevention-of-Parent-to-Child-Transmission of HIV/AIDS
in Maharashtra”**

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Abstract

The only long-term sustainable way to turn the tide against HIV/AIDS is to prevent new infections. Among children, Parent-to-child-transmission of HIV is the main route of HIV infection. One indisputable strategy for averting new infections is the Prevention of Parent to Child Transmission (PPTCT). India committed to the UNAIDS-led '*Global Plan towards the elimination of new HIV infections among children by 2015, and keeping their mothers alive.*' This commitment demands a comprehensive and sustained approach to scaling up the quality and effectiveness of the Prevention of Parent to Child Transmission program in the country.

This paper aims to provide an overview of the current PPTCT services in Maharashtra (one of India's high prevalence states) while attempting to view other successful strategies in other states in India. It further mentions a few strategies adopted by some World Health Organization (WHO) determined high priority countries that have been successful in lowering the rates of vertical transmission. It also looks at Thailand, a WHO certified "Zero transmission" country in Asia and the Pacific region (to which India belongs) to identify practices and strategies that has aided its success. Lastly, suggestions are made based on what can be modified, strengthened and adopted within the Maharashtrian context.

Introduction

Prevention of Parent-To-Child Transmission (PPTCT), formerly known as Prevention of Mother to Child Transmission (PMTCT) programs are considered as an entry point to continued care and support services. It provides an chance to link a Human Immunodeficiency Virus (HIV)-infected woman, her partner, and child(ren) (if infected) to long-term treatment and care.¹

In 2011, UNAIDS launched the Global Plan to reduce the number of new HIV infections via mother-to-child transmission by ninety percent by 2015 (see Annexure I). This plan covers all low-and middle-income countries, but focuses primarily on twenty-two countries with the highest estimated numbers of pregnant women living with HIV. Of these twenty-two high priority countries, WHO identified that the top ten (Angola, Botswana, Burundi, Cameroon, Chad, Côte d'Ivoire, Democratic Republic of the Congo, Ethiopia, Ghana and India) accounted for seventy-five percent of the global PPTCT service need.²

It is estimated that at least 1.3 million women require PPTCT services in these twenty-two priority countries. Since the decline in new HIV infections among women of reproductive age is a slow process, eliminating this requires a concerted effort³.

¹ Damania KR, Tank PD, Lala MM. Recent trends in mother to child transmission of HIV in pregnancy. The Journal of Obstetrics and Gynecology of India. 2010 Oct 1; 60 (5):395-402.

Available from: <http://medind.nic.in/jaq/t10/i5/jaqt10i5p395.pdf>

² AVERT [internet].United kingdom (UK): Prevention of mother to child transmission; 2016 August 10. Available from: <http://www.avert.org/professionals/hiv-programming/prevention/prevention-mother-child>

³ UNICEF[Internet]: UNICEF analysis of UNAIDS 2014 HIV and AIDS estimates, July 2015

In 2014, seven of the priority countries (Botswana, Mozambique, Namibia, South Africa, Swaziland, Uganda and Tanzania) met the Global Plan target⁴. They managed to reduce mother-to-child transmission by 90 percent. India did not feature in that data. ⁽²⁾

According to the WHO's "PMTCT Strategic Vision 2010–2015" publication- India still ranks among the top ten high-burden countries (see appendix II). In Asia and the Pacific region, six countries— China, India, Indonesia, Myanmar, Thailand, and Vietnam— account for more than 90 percent of the people living with HIV in the region (See appendix III). India continues to account for 4 out of ten people living with HIV in the region. ⁽³⁾

Since the outbreak of the HIV epidemic, India has been addressing the problem through the National AIDS Control Organization (NACO) and the various phases of the National AIDS Control Program (NACP) (See Annexure IV). NACP began in 1992, and over the past three decades, the interventions have been largely effective⁵. There has been a reduction in the number of new infections by more than 50 percent between 2002 and 2012 (UNAIDS Global Report, 2013). In India access to Antiretroviral Therapy (ART) has improved and the number of AIDS-related deaths has reduced significantly. However, India still has the third-largest number of people living with HIV in the world. It also has the largest number of people living with HIV in Asia and the Pacific region⁶. As per USAID 2014 estimates, the number of new infections among children in India actually increased from 4 percent in 2000 to 6 percent in 2014 ⁷ (see annexure III).

⁴ AVERT [internet].United kingdom (UK): Prevention of mother to child transmission; 2016 August 10. Available from: <http://www.avert.org/professionals/hiv-programming/prevention/prevention-mother-child>

⁵ UNICEF[Internet]: UNICEF analysis of UNAIDS 2014 HIV and AIDS estimates, July 2015

⁶ AVERT [internet].United kingdom (UK): Prevention of mother to child transmission; 2016 August 10. Available from: <http://www.avert.org/professionals/hiv-programming/prevention/prevention-mother-child>

⁷ UNICEF[Internet]: UNICEF analysis of UNAIDS 2014 HIV and AIDS estimates, July 2015

India has committed to the UNAIDS-led ‘Global Plan towards the elimination of new HIV infections among children by 2015 and keeping their mothers alive’. This demands a renewed commitment, and a comprehensive and sustained approach to scaling up quality and effective PPTCT services.

Since, treatment for prevention of Parent-to-child-transmission cannot be a 100 per cent effective, WHO has defined “elimination of transmission as a reduction of transmission to such a low level that it no longer constitutes a public health problem.” ⁵

The best way for India to attain WHO validation (see Annexure VI) of “Zero transmission” status is to re-visit the current PPTCT program gaps and strengthen it.

Review of Literature

According to a systematic review conducted by Darak et al. (2012), the current national PPTCT program is hit by high dropout rates of women in the PMTCT cascade (See Annexure II). It was also weighed down by the use of least efficacious single dose Nevirapine as the PMTCT protocol. They recommend that WHO protocol should be followed in order to increase the efficacy of the program. They also suggest exploring the factors that affect women’s continued access to PMTCT services and how to pursue a rapid rollout of more effective PMTCT. This systematic review also highlighted the inadequacy of proper analysis and representation of program data⁸. It could be a significant source of experiential knowledge which could be helpful in program implementation. ⁽⁸⁾ Darak also opines that “little is known about the factors associated with the utilization of continued care among

⁸ Darak S, Mills M, Kulkarni V, Kulkarni S, Hutter I, Janssen F. Trajectories of Childbearing among HIV Infected Indian Women: A Sequence Analysis Approach. PloS one. 2015 Apr 23; 10(4):e0124537.

women who have previously accessed PMTCT services.”⁹ Therefore, the authors advocate for better understanding of the challenges to continued care in HIV-infected women. This understanding can also lead to more effective strategies to increase the uptake of post-PMTCT care.

Madhivanan et al. (2014) conducted a qualitative study of HIV positive women in the high prevalence states of Maharashtra and Karnataka. All of the study participants were receiving HIV and PPTCT services at a government hospital or antiretroviral therapy centers. However, almost all of the participants reported that they had previously attended a private clinic or hospital at some point in their pregnancy. As per the participants, the HIV testing at these private set-ups mostly occurred “without consent; there was little privacy; breaches of confidentiality were commonplace; and denial of medical treatment occurred routinely”.¹⁰ Among the participants in this study, violations of their human rights occurred more commonly in private rather than public healthcare settings.¹¹ In the same study Madhivanan et al. (2014) also highlight aspects like, “lack of privacy, confidentiality of HIV status of the client, counsellor's 'hurried' attitude, communication skills and discriminant behavior towards HIV-positive clients, and disinterest of clients in the counselling”.¹² In another study

⁹ Darak S, Mills M, Kulkarni V, Kulkarni S, Hutter I, Janssen F. Trajectories of Childbearing among HIV Infected Indian Women: A Sequence Analysis Approach. PloS one. 2015 Apr 23; 10(4):e0124537.

¹⁰ Madhivanan P, Krupp K, Kulkarni V, Kulkarni S, Vaidya N, Shaheen R, Philpott S, Fisher C. HIV testing among pregnant women living with HIV in India: are private healthcare providers routinely violating women's human rights?. BMC international health and human rights. 2014 Mar 24;14(1):1.

¹¹ Madhivanan P, Krupp K, Kulkarni V, Kulkarni S, Vaidya N, Shaheen R, Philpott S, Fisher C. HIV testing among pregnant women living with HIV in India: are private healthcare providers routinely violating women's human rights?. BMC international health and human rights. 2014 Mar 24;14(1):1.

¹² Madhivanan P, Krupp K, Kulkarni V, Kulkarni S, Vaidya N, Shaheen R, Philpott S, Fisher C. HIV testing among pregnant women living with HIV in India: are private healthcare providers routinely violating women's human rights?. BMC international health and human rights. 2014 Mar 24;14(1):1.

conducted by Kumar et al. (2015), among post-test HIV women, knowledge about HIV transmission from mother-to-child was low¹³. It was found that although post-test counselling was helpful in increasing the HIV knowledge of modes of transmission, yet 20-30 percent of the clients missed this opportunity. The study also found that education on window period, other sexually transmitted diseases and danger signs of pregnancy was not covered. Another systematic review and meta-analysis study conducted by Sibanda et al. (2013) on the magnitude of Lost-to-follow-up (LTFU) reported that in one private PMTCT program in Maharashtra LTFU was 10.9 percent in spite of follow-up through letters, phone calls and home visits.¹⁴

Rationale for the study

The purpose of this study is two-fold. Within the context of the Millennium Development Goals (MDGs) and the Sustainable Development Goals (SDGs) “*to end the AIDS epidemic by 2030*” it is important to focus on targeted interventions. SDG 3.2 stipulates that by “*By 2030, end preventable deaths of newborns and children under 5 years of age, with all countries aiming to reduce neonatal mortality to at least as low as 12 per 1,000 live births and under-5 mortality to at least as low as 25 per 1,000 live births*”. In order to meet the global goals, India needs to strengthen its prevention strategies and one such prevention strategy can be the PPTCT strategy. Given India’s diverse socio-cultural, political and geographical size and variations it may be unrealistic for India to reach a *Zero-Transmission*

¹³ Kumar A, Singh B, Kusuma YS. Counselling services in prevention of mother-to-child transmission (PMTCT) in Delhi, India: An assessment through a modified version of UNICEF-PPTCT tool. *Journal of epidemiology and global health*. 2015 Mar 31;5(1):3-13.

¹⁴ Sibanda EL, Weller IV, Hakim JG, Cowan FM. The magnitude of loss to follow-up of HIV-exposed infants along the prevention of mother-to-child HIV transmission continuum of care: a systematic review and meta-analysis. *Aids*. 2013 Nov 13;27(17):2787-97.

status immediately. Perhaps, by attempting to understand the epidemic at the local level (i.e. at the inter-state and intra-state levels), could help to consolidate achievements and accelerate progress towards the elimination of new infections and AIDS-related deaths.¹⁵ Conceivably, if this goal is strategically implemented one-state-at-a-time, “Zero transmission” status may be achievable. Therefore, this paper mainly focused on one high prevalence state- Maharashtra, as a starting reference point.

Aim of the study

The aim is to study the current PPTCT program in Maharashtra, barriers to reducing vertical transmission and make suggestions for improvement based on successful and effective strategies implemented in some states in India, other WHO identified high priority countries and WHO certified “Zero Transmission” countries in Asia and the Pacific region.

Objectives of the study

1. To study the PPTCT services of HIV/AIDS implemented through the National AIDS Control Program (NACP) from 2002 to 2016 in India and Maharashtra.
2. To identify barriers to the delivery of Prevention of Mother to Child Transmission (care and support services) in Maharashtra.
3. To provide recommendations for the next phase of NACP-V (due 2017) reviewing a few effective experiences of other successful states in India, other high priority countries and a WHO certified ‘zero transmission’ country in Asia and the Pacific region.

Methodology

Secondary data review method was utilized. A comprehensive research strategy was utilized to identify all relevant literature related to:

15 National AIDS Control Organization: NACO 2015 Technical Report: available from <http://www.naco.gov.in/upload/2015%20MSLNS/HSS/India%20HIV%20Estimations%202015.pdf>

- 1) The prevention of mother to child transmission programs of HIV since 2001 in India, with a greater emphasis on Maharashtra.
- 2) Prevention of mother to child transmission programs in the other WHO declared 21 high priority countries of Sub-Saharan Africa and
- 3) PPTCT programs in WHO certified “Zero Transmission” countries in the Asia Pacific region, which India falls under.

Keywords utilized were: Mother to Child Transmission (MTCT) or Prevention of Mother to Child Transmission (PMTCT) or Prevention of Parent to Child Transmission (PPTCT).

The search was mainly conducted by the US National Library of Medicine Gateway system (Pubmed) and google scholar. The official Ministry of Health and Family Welfare and NACO sites were also accessed. Global reports and WHO reports and guidelines were accessed from the official United Nations, USAID, and the WHO websites.

Findings

Study of PPTC services in India and Maharashtra

India launched its PPTCT program in 2002, a decade after the launch of the first NACP (See Annexure XII). The program was considerably expanded in 2007. In 2010, there were over 8,000 PPTCT centers which tested over 6 million women for HIV. Almost all government Ante-Natal Clinics (ANC) participated in the program, and women were routinely tested for HIV during their antenatal visit unless they opt out following pre-test counseling. Ninety-six percent of the women who were screened at the PPTCT centers accepted to undergo HIV testing. Geographic coverage across the country is also being saturated by making PPTCT

services increasingly available at primary health centers, community health centers and in select private facilities through a public-private partnership model.¹⁶

Although the overall number of pregnant women needing PPTCT services has declined in the country from 52.8 thousand in 2007 to 35 thousand in 2015 this is still a significant number¹⁷. Since the roll out of the national program, NACO reported that the number of pregnant women tested annually under the PPTCT program increased from 0.8 million in 2004 to 8.83 million in 2013. Until March 2013, 12,551 pregnant women were detected as HIV positive out of the 8.83 million antenatal care (ANC) women who underwent HIV counseling and testing. This is a decrease from 2012 which was 14,349 positive women. (See Annexure XV)

Twelve states, including Andhra Pradesh & Telangana, Bihar, Gujarat, Karnataka, Madhya Pradesh, *Maharashtra*, Odisha, Rajasthan, Tamil Nadu, Uttar Pradesh and West Bengal, account for 88 percent of all PPTCT needs in the country.¹⁸

In Maharashtra as per the 2012 ICTC data, the rate of PTCT is considered high in all 34 districts where data was available¹⁹. No data is available for Mumbai and Sangli. Looking at district profile data on pregnant women recorded at ICTCs in the table below on Maharashtra

¹⁶ Sgaier SK, Gupta RS, Rao R, Gaikwad A, Harangule S, Dhamne S, Gowda S, Jayakumar S, Ramesh BM. Prevention of Parent to Child Transmission (PPTCT) program data in India: an emerging data set for appraising the HIV epidemic. PloS one. 2012 Nov 15;7(11):e48827. Available From: <http://www.ncbi.nlm.nih.gov/pubmed/23166595>

¹⁷ NACO: INDIA HIV Estimation 2015 Technical Report NACO
Available from: file:///C:/Users/nicol_000/Downloads/India%20HIV%20Estimations%202015%20(1).pdf

¹⁸ Sgaier SK, Gupta RS, Rao R, Gaikwad A, Harangule S, Dhamne S, Gowda S, Jayakumar S, Ramesh BM. Prevention of Parent to Child Transmission (PPTCT) program data in India: an emerging data set for appraising the HIV epidemic. PloS one. 2012 Nov 15;7(11):e48827.

¹⁹ NACO: District HIV/AIDS Epidemiological Profiles. Fact Sheet Maharashtra.

every single district has a rate of transmission higher than 5 percent of the total route of transmission.

Table 1. Maharashtra District-wise rate of PPTCT transmission in 2012:

Districts	Rate of PPTCT transmissions of the total route of transmission (2012)- ICTC data
1. Ahmednagar	8.86%
2. Akola	5.26%
3. Amravati	6.47%
4. Aurangabad	6.34%
5. Beed	7.24%
6. Bhandara	7.20%
7. Buldana	7.48%
8. Chandrapur	6.27%
9. Dhule	6.47%
10. Gadchiroli	NA
11. Gondia	5.67%
12. Hingoli	10.97%
13. Jalgaon	5.58%
14. Jalna	NA
15. Kolhapur	7.95%
16. Latur	7.02%
17. Mumbai	NA
18. Nagpur	5.93%
19. Nanded	6.02%
20. Nandurbar	8.87%
21. Nashik	7.28%
22. Osmanabad	7.81%
23. Parbani	6.16%
24. Pune	5.38%
25. Raigarh	5.66%
26. Ratnagiri	5.28%
27. Sangli	NA
28. Satara	5.73%
29. Sindhudurg	9.09%
30. Solapur	6.27%
31. Thane	5.66%
32. Wardha	6.39%
33. Washim	6.06%
34. Yavatmal	8.05%

As per WHO guidelines, the goal is to reduce transmission (without intervention) to 5 percent. With intervention, WHO estimates that the rate of transmission can be brought to 2 percent. This suggests that Maharashtra is lagging behind.

As of 2014, Maharashtra State AIDS Control Society (MSACS) had 578 stand-alone Integrated Counselling and Testing Centers (SA-ICTC), and 60 antiretroviral treatment (ART) centers in 33 districts of Maharashtra, excluding two districts of Mumbai. Also, there are more than 3000 facility ICTCs (F-ICTCs) located in all 1811 Primary Health Centers (PHCs) and remaining as public–private partnership ICTCs.²⁰

²⁰ Gupta RS, Hegde A, Mulik T, Yewale K, Babu PA, Pardeshi K, Balkrishnan S, Seguy N, Reddy DC. Descriptive study of the utility of individual tracking tool in program monitoring for prevention of mother-to-child transmission of HIV, Maharashtra, India. *Current Opinion in HIV and AIDS*. 2016 Mar;11(Suppl 1):S30. Available from: <http://www.ncbi.nlm.nih.gov/pubmed/26945146>

Table 2 below is an overview of pregnant women in Maharashtra for the period April 2013-March 2014.²¹

Table 2.

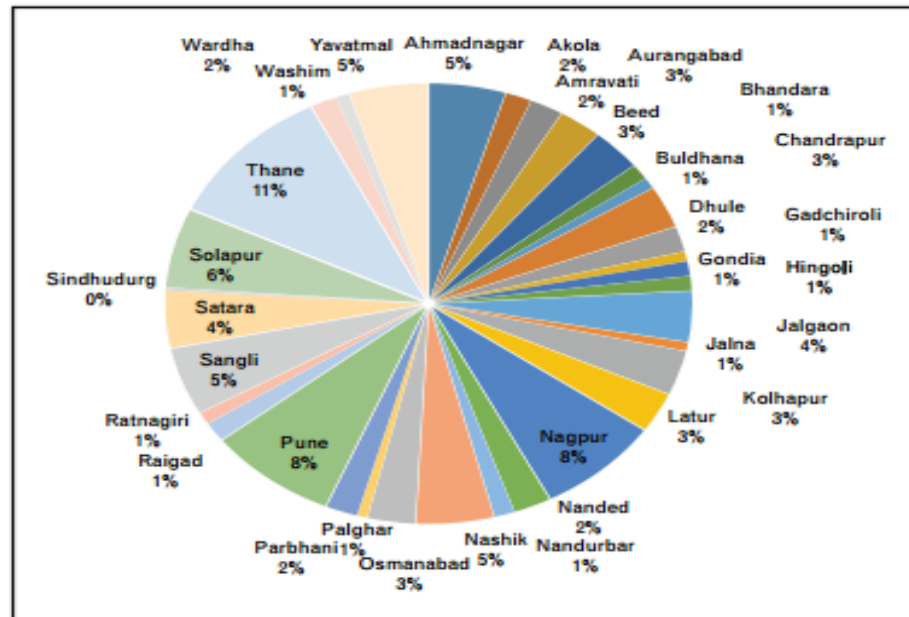
Annual prevention of parent-to-child- transmission for Maharashtra for the period of April 2013-March 2014. (Source: Data from SIMS software, NACO)

Parameter	Numbers
Number of expected pregnancies	1 419 898
Number of new antenatal registrations	1 122 219
Number of pregnant women referred by ANM after HIV screening test	389 514
Number of pregnant women receiving pretest counselling/information	1 180 822
Number of pregnant women tested for HIV	1 134 950
Pregnant women diagnosed with HIV infection in the first trimester	1330
Pregnant women diagnosed with HIV infection in the second trimester	1097
Pregnant women diagnosed with HIV infection in the third trimester	828
Number of pregnant women who underwent MTP	858
Number of pregnant women for whom CD4 count was done and reported	1576
Number of pregnant women for whom CD4 count was less than 350	596
Number of women who were referred for treatment and registered at ART	1397
Number of spouses of HIV-infected pregnant women tested for HIV	2050
Number of spouses of HIV-infected pregnant women detected with HIV infection	1001
Number of mother baby pairs received NVP	2424
Number of vaginal deliveries among HIV-infected pregnant women	2084
Number of caesarean section deliveries among HIV-infected pregnant women	1078
Number of pregnant women delivering in the same hospital	2945
Number of pregnant women delivering in other government hospital	470
Number of pregnant women delivering in private hospital	95
Number of HIV-infected pregnant women delivering at home	65
Number of stillbirths in HIV-infected pregnant women	115
Number of infant deaths in HIV-infected pregnant women	50

²¹ Gupta RS, Hegde A, Mulik T, Yewale K, Babu PA, Pardeshi K, Balkrishnan S, Seguy N, Reddy DC. Descriptive study of the utility of individual tracking tool in program monitoring for prevention of mother-to-child transmission of HIV, Maharashtra, India. Current Opinion in HIV and AIDS. 2016 Mar;11(Suppl 1):S30. Available from: <http://www.ncbi.nlm.nih.gov/pubmed/26945146>

Below, Figure 1 shows the distribution of ante/postnatal positive women registered across different districts of Maharashtra except for Mumbai in 2014. Nine districts alone- Thane, Pune, Nagpur, Solapur, Yavatmal, Ahmednagar, Sangli, Nashik, and Satara account for 57 percent of the positive pregnant women.

Figure 1.



The barriers to effective implementation of the PPTCT program/Key challenges identified:

After reviewing the available PPTCT data on Maharashtra a few key barriers crucial to effective implementation of the program have been listed below:

- Centralized Surveillance data: As Peter Drucker said, “What gets measured, gets managed.” Pointed out in the study by Darak et al. (2012) there is an inadequacy in accurately recording, analyzing and representation of data. Gupta et. al (2016) found that “apart from the aggregated monthly reports there was no other tool to monitor and keep

tab on the HIV positive pregnant women”²². While data on women accessing public facilities is recorded it appears that there is no system or monitoring body to record data for women who only access private services or women who may have switched from public to private or vice versa. Further, one can also question the availability of data on women who do not concede to institutional deliveries.

- Delayed diagnosis: As seen in Table 2 only 22 percent HIV positive pregnant women presented in the first trimester while 45 percent presented in the third trimester and 7 percent presented during delivery. This means that the pregnant women cannot avail of the recommended 24 weeks ART before delivery²³. On an average Gupta et. al (2016) reported that the women receive at the most eight weeks of ART²⁴.
- Testing: Likewise, providing same-day testing and results may help to improve retention in PPTCT programs thus allowing for greater collection over time as well as improving patient health outcomes.²⁵ Testing at private facilities is not regulated, and there is no check on whether NACO and WHO recommended protocol is being followed, be it for pregnant women or infants born to HIV-positive women. Additionally, in many centers when tests are done the patient is asked to return on another day to collect the results.

²² Gupta RS, Hegde A, Mulik T, Yewale K, Babu PA, Pardeshi K, Balkrishnan S, Seguy N, Reddy DC. Descriptive study of the utility of individual tracking tool in program monitoring for prevention of mother-to-child transmission of HIV, Maharashtra, India. *Current Opinion in HIV and AIDS*. 2016 Mar;11(Suppl 1):S30. Available from: <http://www.ncbi.nlm.nih.gov/pubmed/26945146>

²³ Gupta RS, Hegde A, Mulik T, Yewale K, Babu PA, Pardeshi K, Balkrishnan S, Seguy N, Reddy DC. Descriptive study of the utility of individual tracking tool in program monitoring for prevention of mother-to-child transmission of HIV, Maharashtra, India. *Current Opinion in HIV and AIDS*. 2016 Mar;11(Suppl 1):S30. Available from: <http://www.ncbi.nlm.nih.gov/pubmed/26945146>

²⁴ Gupta RS, Hegde A, Mulik T, Yewale K, Babu PA, Pardeshi K, Balkrishnan S, Seguy N, Reddy DC. Descriptive study of the utility of individual tracking tool in program monitoring for prevention of mother-to-child transmission of HIV, Maharashtra, India. *Current Opinion in HIV and AIDS*. 2016 Mar;11(Suppl 1):S30. Available from: <http://www.ncbi.nlm.nih.gov/pubmed/26945146>

²⁵ Msellati P. Improving mothers' access to PMTCT programs in West Africa: a public health perspective. *Social science & medicine*. 2009 Sep 30;69(6):807-12. Available From: <http://www.ncbi.nlm.nih.gov/pubmed/19539413>

(Msellati, 2009)²⁶. This could be a crucial factor in the cascading effect and another reason of LTFU.

- **Lost-To-Follow-Up (LTFU):** Literature from the Sibanda et al. (2013) study reveals that in spite of best efforts LTFU is high. As pointed out earlier, high rates of drop-out in the continuum of care is a major issue (See Annexure IX). LTFU of HIV-positive pregnant women between ANC registration and delivery in Maharashtra was reported at 10.9 percent.²⁷ With multiple points of entry into the treatment process, and various/unregulated record keeping systems in the private sector that have not been designed for sharing between institutions, many women may be lost due to a simple inability to follow up with their care.
- **Treatment and Quality of information at pre-test/post-test counseling:** As stated in the study by Mahadavinan et al. (2014) and Saiger et. al (2012), addressing attitudinal aspects of the counselors towards HIV positive women is vital to improving the quality of the services to prevent mother-to-child transmission of HIV. ^{28,29} It is also important to address the misinformation or lack of information that service providers/counselors provide. This calls for supportive supervision and continuous training.
- **Capacity Building in the private sector:** Again, referring to Mahadavinan (2014) capacity building among private healthcare providers is a pressing need. Standards of practice

²⁶ Msellati P. Improving mothers' access to PMTCT programs in West Africa: a public health perspective. *Social science & medicine*. 2009 Sep 30;69(6):807-12. Available From: <http://www.ncbi.nlm.nih.gov/pubmed/19539413>

²⁷ Sibanda EL, Weller IV, Hakim JG, Cowan FM. The magnitude of loss to follow-up of HIV-exposed infants along the prevention of mother-to-child HIV transmission continuum of care: a systematic review and meta-analysis. *Aids*. 2013 Nov 13;27(17):2787-97.

²⁸ Madhivanan P, Krupp K, Kulkarni V, Kulkarni S, Vaidya N, Shaheen R, Philpott S, Fisher C. HIV testing among pregnant women living with HIV in India: are private healthcare providers routinely violating women's human rights?. *BMC international health and human rights*. 2014 Mar 24;14(1):1.

²⁹ Sgaier SK, Gupta RS, Rao R, Gaikwad A, Harangule S, Dhamne S, Gowda S, Jayakumar S, Ramesh BM. Prevention of Parent to Child Transmission (PPTCT) program data in India: an emerging data set for appraising the HIV epidemic. *PloS one*. 2012 Nov 15;7(11):e48827.

concerning informed consent process, HIV testing, patient confidentiality, treatment, and referrals of pregnant women living with HIV is lacking³⁰.

- Medication supply shortage: In 2014, in a Reuters report, MSACs admitted to facing a shortage in three drugs (one for treating adults and two for treating children) and supply bottlenecks.³¹ In another article in 2015, it was reported that “Maharashtra State Aids Control Society (MSACS), which distributes free drugs to HIV patients, has medicines and condoms supply left for only two weeks.”³² Bottlenecks and drug shortage often lead to substitution of medicines as temporary fixes. All of these issues put patients at risk for drug resistance and further complications.
- Funding: NACO reports that its funds are limited, especially since in February 2015, Central Ministry slashed the 2015-16 central AIDS budget by 22 percent. States have been asked to fill this gap³³. NACO has cautioned that the program will be further jeopardized as thousands of workers have been unpaid for months and there is high attrition.³⁴ Some non-governmental organizations (NGOs) associated with the Maharashtra State Aids Control Society have not received any funds to carry out prevention activities or even pay salaries to staff since April 2015.³⁵ The Maharashtra State AIDS control Society admits that with only 80 percent of the previous year’s budget being allocated for 2015-2016,

³⁰ Madhivanan P, Krupp K, Kulkarni V, Kulkarni S, Vaidya N, Shaheen R, Philpott S, Fisher C. HIV testing among pregnant women living with HIV in India: are private healthcare providers routinely violating women’s human rights?. BMC international health and human rights. 2014 Mar 24;14(1):1.

³¹ <http://www.reuters.com/article/us-india-pharmaceuticals-aids-idUSKBN0GZOLT20140904>

³² <https://www.thequint.com/health-fitness/2015/07/03/beginning-of-the-end-of-indias-hiv-aids-programme>

³³ Funding crisis puts India's AIDS programme, and lives, at risk. Reuters [Internet] 2015 July 24. Available from: <http://in.reuters.com/article/aids-india-funding-idINKCN0PY1JU20150724>

³⁴ Funding crisis puts India's AIDS programme, and lives, at risk. Reuters [Internet] 2015 July 24.

Available from: <http://in.reuters.com/article/aids-india-funding-idINKCN0PY1JU20150724>

³⁵ <https://www.thequint.com/health-fitness/2015/07/03/beginning-of-the-end-of-indias-hiv-aids-programme>

outreach and awareness activities would need to be cut.³⁶ This will negatively impact the effective delivery of PPTCT care and support services. While NACO reports that its funds are limited, review of resource allocation and actual expenditure shows that there is a trend of underspending (See Annexure XI). Even the funds allocated to NGO's in Maharashtra was underspent. (See Annexure XII)

- Delayed Linkages to ART: In their study, Gupta et. al (2016) noted that from the time of detection there is at least a 12-day delay for the HIV pregnant women in reaching the ART center.³⁷ This is gap may be another instrumental factor adding to the problem of LTFUs.

Successful interventions

To address some of the challenges identified earlier, a few successful strategies identified in other states in India, successful high priority countries in Africa and the recently WHO certified “Zero transmission” country of Thailand have been looked at.

Chandigarh appears to be successful in implementing the PPTCT program. According to 3-year (from April 2010 to March 2013) PPTCT data from Government Medical College, Chandigarh 100 percent ANC women not only underwent HIV counseling, but also every one of them was tested for HIV following NACO guidelines³⁸. There was less than 1 percent

³⁶ Funding crisis puts India's AIDS programme, and lives, at risk. Available from: <http://in.reuters.com/article/aids-india-funding-idINKCN0PY1JU20150724>

³⁷ Gupta RS, Hegde A, Mulik T, Yewale K, Babu PA, Pardeshi K, Balkrishnan S, Seguy N, Reddy DC. Descriptive study of the utility of individual tracking tool in program monitoring for prevention of mother-to-child transmission of HIV, Maharashtra, India. Current Opinion in HIV and AIDS. 2016 Mar;11(Suppl 1):S30. Available from: <http://www.ncbi.nlm.nih.gov/pubmed/26945146>

³⁸ Gupta V, Kaur M, Chavan K, Johar N, Chander J. Success of the HIV Program in preventing parent-to-child HIV transmission: A three-year experience from a tertiary care hospital in North India. Indian journal of medical microbiology. 2016 Apr 1;34(2):248. Available from: <http://www.ncbi.nlm.nih.gov/pubmed/26945146>

seropositivity among ANC women for the three consecutive years. Further, the perinatal transmission rate was 3.84 percent (1/26), which was lower when compared to the studies conducted in Mumbai.³⁹ (See Annexure IX). The authors emphasize that inducement of trust, and confidence among the women for post-test counseling, is important in order to get them to accept the results and return to avail the services⁴⁰.

According to NACO, Karnataka reported a high success of accountability of the private sector for reporting. Further, they had success in linking HIV-positive pregnant women to the public sector. They attribute these successes to the enforcement of the Clinical Establishment Act. This act makes it mandatory for all private facilities be registered. In other states, Public Private Partnerships (PPPs) are still limited in scope and require further strengthening in the provision of quality services.⁴¹

Two studies conducted in Mozambique reported by Sibanda et. al (2013) suggested that the LTFU rates were as high as 75 percent in settings where postnatal wards were overcrowded and there was a lack of confidential counseling. This uncondusive environment may have resulted in making the infected patients uncomfortable to return for follow-ups.⁴² This can be contextualized to the Maharashtrian setting given the volume of women attending the clinics

³⁹ Gupta V, Kaur M, Chavan K, Gupta V, Johar N, Chander J. Success of the HIV Program in preventing parent-to-child HIV transmission: A three-year experience from a tertiary care hospital in North India. *Indian J Med Microbiol* 2016;34:248-68

⁴⁰ Gupta V, Kaur M, Chavan K, Johar N, Chander J. Success of the HIV Program in preventing parent-to-child HIV transmission: A three-year experience from a tertiary care hospital in North India. *Indian journal of medical microbiology*. 2016 Apr 1;34(2):248. Available from: <http://www.ncbi.nlm.nih.gov/pubmed/26945146>

⁴¹ NACO. Assessment of Prevention of Parent to Child Transmission of HIV (PPTCT) services implementation in the states of Andra Pradesh, Telangana, Karnataka and Tamil Naidu. Assessment report 2015. Available from: http://karhfw.gov.in/nrhm/KSAPS/Final%20PPTCT%20assessment%20report%2020%20_10_%2014%20-KA.pdf.

⁴² Sibanda EL, Weller IV, Hakim JG, Cowan FM. The magnitude of loss to follow-up of HIV-exposed infants along the prevention of mother-to-child HIV transmission continuum of care: a systematic review and meta-analysis. *Aids*. 2013 Nov 13;27(17):2787-97. Available from: <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3814628/pdf/aids-27-2787.pdf>

with similar overcrowding problems, lack of privacy and confidentiality in pre-and post-test counseling as mentioned in the study by Mahadivanan (2014).⁴³

The extensive use of mobile phone technology on both the client side and the provider side is critical in minimizing LTFU's, increasing adherence and enhancing the accuracy of data. Nassali et al. (2009) found that in Sub-Saharan Africa previous participation with PPTCT programs and mobile phone access were important determinants of adherence. As reported in Sidana et. al (2013) a program in Cameroon tracked the high use of cell phones by clients as being instrumental in low rates of LTFU. The study conducted by Gupta et al. (2016) reiterates the importance of a robust individual tracking tool which connects the providers with their supervisors via the use of mobile technology⁴⁴. The success of this pilot study conducted on behalf of Mumbai Aids Control Society (MSACS) proved that mobile phone text messaging provides an efficient communication mechanism between healthcare providers and supervisors, provided it is implemented well. It demonstrated that the rates in patient follow-up had increased. This pilot study proved that regular follow-up is possible through mobile technology intervention.⁴⁵

The study by Kumar et al. (2015)⁴⁶ mentioned earlier, reported on low knowledge of mothers on the mode of MTCT. In a resource constraint setting like India where there is high attrition

⁴³ Madhivanan P, Krupp K, Kulkarni V, Kulkarni S, Vaidya N, Shaheen R, Philpott S, Fisher C. HIV testing among pregnant women living with HIV in India: are private healthcare providers routinely violating women's human rights?. BMC international health and human rights. 2014 Mar 24;14(1):1.

⁴⁴ Gupta RS, Hegde A, Mulik T, Yewale K, Babu PA, Pardeshi K, Balkrishnan S, Seguy N, Reddy DC. Descriptive study of the utility of individual tracking tool in program monitoring for prevention of mother-to-child transmission of HIV, Maharashtra, India. Current Opinion in HIV and AIDS. 2016 Mar;11(Suppl 1):S30.

⁴⁵ Gupta RS, Hegde A, Mulik T, Yewale K, Babu PA, Pardeshi K, Balkrishnan S, Seguy N, Reddy DC. Descriptive study of the utility of individual tracking tool in program monitoring for prevention of mother-to-child transmission of HIV, Maharashtra, India. Current Opinion in HIV and AIDS. 2016 Mar;11(Suppl 1):S30.

⁴⁶ Kumar A, Singh B, Kusuma YS. Counselling services in prevention of mother-to-child transmission (PMTCT) in Delhi, India: An assessment through a modified version of UNICEF-PPTCT tool. Journal of epidemiology and global health. 2015 Mar 31;5(1):3-13.

among health staff and an inadequate number of staff to address PPTCT services, educating pregnant women and follow-up with them is a challenge. In South Africa, a program like Mother 2 Mothers' Mentor Model (M2M) that creates mentors from other infected mothers was successful in bringing down the rate of transmission to infants. Almost 99 percent of babies in the program test negative for HIV at 18 months.⁴⁷ Independent research done on this program reveals that it was also hugely successful in Uganda as well⁴⁸.

In June 2016 Thailand was the first country in Asia to receive WHO validation of "Zero Transmission" PPTCT status. In 2015, Thailand reported that the number of children who became infected with HIV through mother to child transmission was reduced to 85 This was a decline of more than 90 percent from the year 2000, where an estimated 1000 children were infected with HIV.⁴⁹ The Thailand's Ministry of Public Health (MOPH) states that, 98 percent of all HIV pregnant women have access to antiretroviral therapy. Also, the rate of mother-to-child transmission of HIV has been reduced to less than 2 percent.⁵⁰ One strategy mentioned in Thailand's' national HIV policy is to "Create a sense of ownership at the local level in the expansion of prevention and control of AIDS."⁵¹ Local provinces are encouraged to take responsibility, and this shift from vertical to horizontal programmatic intervention has been critical in ensuring universal coverage. Documented and undocumented migrant

⁴⁷ McNeish H, Pregnant and diagnosed with HIV: The group providing support for mothers. [Internet]. 2016 sept. Available from: <https://www.theguardian.com/global-development-professionals-network/2016/sep/01/pregnant-diagnosed-hiv-support-for-mothers>

⁴⁸ Mothers 2 Mothers: Annual report 2014-2015. Available from: <https://www.m2m.org/wp-content/uploads/2015/09/2014AnnualReport.pdf>

⁴⁹ UNAIDS: Thailand press release statement. Available from: http://www.unaids.org/en/resources/presscentre/pressreleaseandstatementarchive/2016/june/20160607_Thailand

⁵⁰ UNAIDS: Thailand press release statement. Available from: http://www.unaids.org/en/resources/presscentre/pressreleaseandstatementarchive/2016/june/20160607_Thailand

⁵¹ THAILAND: Thailand National Aids Strategy 2012-2016. Available from: http://www.nationalplanningcycles.org/sites/default/files/country_docs/Thailand/2_srunicund_tuesday_28.pdf

workers are treated alike. The government provides— free antenatal care, delivery, and services for HIV and syphilis services to all pregnant women. This has pushed treatment coverage rates up, and has culminated in the validation of elimination of mother-to-child transmission.⁵² The government attributes a strong public health infrastructure, committed political leadership, government funding, and engagement of multiple partners, and a robust monitoring system to the achievement of this significant public health milestone.⁵³ Further, women living with HIV and civil society organizations work with the MOPH to develop and implement a training curriculum for hospital personnel that addresses stigma and discrimination.⁵⁴

Discussion

A decrease in pediatric infections, HIV-free survival for infants, and improved maternal and child health demonstrates the effects of a successful PPTCT program. Achieving this requires great inter-sectorial collaboration, a stronger public-private partnership, an integrated surveillance and data management of both sectors, scaling up, sustained funding, action and follow up (with a focus on the most severely affected areas). Additional evidenced based research is required for stronger policy decisions and diversion of funds.

In 2015, WHO once again revised their guidelines to include an “Option B+”. They recommended initiating lifelong antiretroviral therapy (ART) for all HIV-infected

⁵² UNAIDS: Thailand press release statement. Available from: http://www.unaids.org/en/resources/presscentre/pressreleaseandstatementarchive/2016/june/20160607_Thailand

⁵³ Lolekha R, Boonsuk S, Plipat T, et al. Elimination of Mother-to-Child Transmission of HIV — Thailand. *MMWR Morb Mortal Wkly Rep* 2016;65:562–566. DOI: Available from: <http://dx.doi.org/10.15585/mmwr.mm6522a2>

Available from: <http://www.cdc.gov/mmwr/volumes/65/wr/mm6522a2.htm>

⁵⁴ Lolekha R, Boonsuk S, Plipat T, et al. Elimination of Mother-to-Child Transmission of HIV — Thailand. *MMWR Morb Mortal Wkly Rep* 2016;65:562–566. DOI: <http://dx.doi.org/10.15585/mmwr.mm6522a2> Available from: <http://www.cdc.gov/mmwr/volumes/65/wr/mm6522a2.htm>

individuals regardless of CD4+ cell count. This includes pregnant and breastfeeding women. “Option B+” recommends earliest possible initiation of ART in all HIV-infected pregnant women and lifelong continuation⁵⁵. Also, all infants born to HIV-infected mothers should receive post-exposure antiretroviral prophylaxis. Based on the new WHO guidelines, NACO has decided to provide life-long ART (triple drug regimen) for all pregnant and breastfeeding women living with HIV. All HIV pregnant women will receive the triple-drug ART regimen regardless of CD4+ cell count or WHO clinical stage. This serves the dual purpose for both their health and to prevent vertical HIV transmission from mother-to-child.⁵⁶

As reviewed, NACO and MSACS’ policies and intervention strategies are aligned with the WHO guidelines and standards. They have repeatedly pledged their commitment to ‘*the elimination of new HIV infections among children by 2015, and keeping their mothers alive*’⁵⁷. India as a country and Maharashtra as a high prevalence state, has without a doubt responded to the HIV epidemic since its inception by reversing the epidemic. However, as of 2016, they have not managed to eliminate Parent to Child Transmission or halt new infections. Commitment or lack of it is not the issue. The limitation lies in the effective implementation and monitoring and lack of cohesiveness between public and private health services and private sector accountability. Sharing of data and tracking private sector testing and quality of service delivery is a major drawback. Informed policy decisions can only be made with accurate and reliable data. Any investments that are required in PMTCT services will continue to be inadequate and less effective, for lack of a more regulated and reliable surveillance system.

⁵⁵ http://naco.gov.in/upload/NACP%20-%20IV/18022014%20BSD/National_Guidelines_for_PPTCT.pdf

⁵⁶ http://naco.gov.in/upload/NACP%20-%20IV/18022014%20BSD/National_Guidelines_for_PPTCT.pdf

⁵⁷ http://naco.gov.in/upload/NACP%20-%20IV/18022014%20BSD/National_Guidelines_for_PPTCT.pdf

Recommendations

From the literature review and study of the challenges facing the PPTCT program in Maharashtra a few suggestions are made that can be adapted and revised as deemed appropriate.

Based on the success of Karnataka mentioned earlier, Maharashtra should adopt and stringently implement the Clinical Establishment Act. This will ensure accountability in the private sector as well as ensure case reporting. To ensure an increase in quality private sector involvement in PPTCT, SACS could create a provision to tie- up with private maternity homes (MoUs), and use NGOs to facilitate partnership with the private sector⁵⁸. Since capacity building of private providers is necessary, professional bodies like the Federation of Obstetric and Gynecological Societies of India (FOGSI), Indian Association of Pediatricians (IAP), Family Planning Association of India (FPAI) and Indian Medical Association (IMA) can be solicited to disseminate PPTCT guidelines⁵⁹. Also, the guidance on post-exposure-prophylaxis (PEP) drugs and safe delivery kits to the private maternity homes can help in decreasing stigma and discrimination in these maternity homes.⁶⁰

One way to improve the adherence and retention in care maybe by maintaining better communication between program officers and field staff. This could be done by

⁵⁸ NACO. Assessment of Prevention of Parent to Child Transmission of HIV (PPTCT) services implementation in the states of Andhra Pradesh, Telangana, Karnataka and Tamil Naidu. Assessment report 2015. Available from:

http://karhfw.gov.in/nrhmkSAPS/Final%20PPTCT%20assessment%20report%2020%20_10_%2014%20-KA.pdf

⁵⁹ NACO. Assessment of Prevention of Parent to Child Transmission of HIV (PPTCT) services implementation in the states of Andhra Pradesh, Telangana, Karnataka and Tamil Naidu. Assessment report 2015. Available from:

http://karhfw.gov.in/nrhmkSAPS/Final%20PPTCT%20assessment%20report%2020%20_10_%2014%20-KA.pdf

⁶⁰ NACO. Assessment of Prevention of Parent to Child Transmission of HIV (PPTCT) services implementation in the states of Andhra Pradesh, Telangana, Karnataka and Tamil Naidu. Assessment report 2015. Available from:

http://karhfw.gov.in/nrhmkSAPS/Final%20PPTCT%20assessment%20report%2020%20_10_%2014%20-KA.pdf

implementing the “EID Follow-up system” mentioned in the study by Gupta et. al (2016) for tracking of HIV-exposed babies ⁶¹. The pilot ‘EID Follow-up System’ could be extended to the PPTCT program which will be more effective in the prevention of vertical transmission. Another way to ensure behavior change and greater access to information would be the scaling up of mHealth programs like ‘mMitra’ which is the Indian project for the Global Mobile Alliance for Maternal Action (MAMA). Currently catering to urban India, it provides a free mobile voice call service. Culturally appropriate messages and comprehensive information on preventive care are broadcasted. These include simple interventions to reduce maternal and infant mortality and morbidity. This initiative is spearheaded by the NGO Armman already working in Mumbai. Scaling up would require more PPPs and perhaps the State owning the program.

Again as mentioned in Gupta et. al (2016) since 60 percent of the positive pregnant women in Maharashtra are less than 25 years of age, counseling services have to be strengthened and focused more on lifelong ART, safe sexual practice, and family planning measures (considering that 59% are multigravida).⁶²

A critical area to focus on is linkage to care and retention. The 12-day delay mentioned by Gupta et. al (2016) demonstrates a need for immediate linkage to ARTs and ICTC counselors to avoid the classic LTFU cascade ⁶³. Further, programs such as the M2M model should be

⁶¹ Gupta RS, Hegde A, Mulik T, Yewale K, Babu PA, Pardeshi K, Balkrishnan S, Seguy N, Reddy DC. Descriptive study of the utility of individual tracking tool in program monitoring for prevention of mother-to-child transmission of HIV, Maharashtra, India. Current Opinion in HIV and AIDS. 2016 Mar;11(Suppl 1):S30. Available from: <http://www.ncbi.nlm.nih.gov/pubmed/26945146>

⁶² Gupta RS, Hegde A, Mulik T, Yewale K, Babu PA, Pardeshi K, Balkrishnan S, Seguy N, Reddy DC. Descriptive study of the utility of individual tracking tool in program monitoring for prevention of mother-to-child transmission of HIV, Maharashtra, India. Current Opinion in HIV and AIDS. 2016 Mar;11(Suppl 1):S30. Available from: <http://www.ncbi.nlm.nih.gov/pubmed/26945146>

⁶³ Gupta RS, Hegde A, Mulik T, Yewale K, Babu PA, Pardeshi K, Balkrishnan S, Seguy N, Reddy DC. Descriptive study of the utility of individual tracking tool in program monitoring for prevention of mother-to-child transmission of HIV, Maharashtra, India. Current Opinion in HIV and AIDS. 2016 Mar;11(Suppl 1):S30. Available from: <http://www.ncbi.nlm.nih.gov/pubmed/26945146>

implemented through NGO support. Although support groups exist, a strong M2M model will aid retention in care, clear misnomers and substitute the “hurried attitude of the counselors.”

While funds dedicated to HIV prevention, care and support programs are limited, the need to have a greater number of people on lifelong ARTs and quality care is increasing. As seen in Annexures X and XIV, the trend has been that funds have been under-utilized. Therefore, it becomes imperative to maximize the utilization of the allocated and available funds judiciously. It also becomes necessary to seek new and creative avenues for funding, be it in increased Corporate Social Responsibility (CSR) initiatives or other sponsorships.

Limitations of the study

In India, HIV is a particularly sensitive issue, and the availability of secondary data is limited. For Maharashtra, comprehensive data on trends specific to PPTCT services and allocation of funds for the PPTCT intervention are not available on the official websites. Due to time constraints and formal permissions required, it was difficult to source this data from a primary source. Thus a primary study on PPTCT services might be more enriching and provide a deeper understanding of services, barriers, and gaps.

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Targets achieving 90-90-90 by 2020

- **90%** of people living with HIV knowing their HIV status
- **90%** of people who know their HIV-positive status on treatment
- **90%** of people on treatment with suppressed viral loads

In order to achieving elimination of MTCT, need to improve the coverage of HIV testing and treatment to

95%-95%-95%



Annexure II.

Key indicators in the twenty highest-burden countries

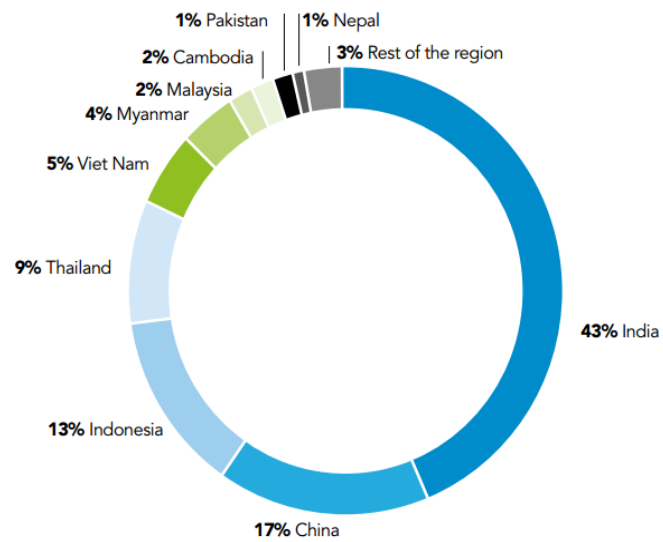
	Country	PMTCT need (Estimated number of HIV+ pregnant women)	Maternal mortality ratio	MDG 5: Improve maternal health	Infant mortality rate	MDG 4: Reduce child mortality	ANC coverage 1 visit (4 visits)
		Point estimate, 2008	Per 100 000 live births, 2005	Level of maternal mortality	Per 1000 live births both sexes, 2007	On track? Based on USMR**	Estimated percent 2000-06
TOP 10 HIGH-BURDEN COUNTRIES	1 Nigeria	210 000	1100	Very high	97	Insufficient	58 (47)
	2 South Africa	200 000	400	High	46	Progress	92 (73)
	3 Mozambique	110 000	520	Very high	115	Insufficient	85 (53)
	4 Kenya	110 000	560	Very high	80	No progress	88 (52)
	5 Tanzania	100 000*	950	Very high	73	Insufficient	78 (62)
	6 Uganda	82 000	550	Very high	82	Insufficient	94 (47)
	7 Zambia	70 000	830	Very high	103	No progress	94 (72)
	8 Malawi	*73 000	1100	Very high	71	Insufficient	92 (57)
	9 Zimbabwe	53 000	880	Very high	59	No progress	94 (71)
	10 India	49 000	450	High	54	Insufficient	74 (37)
	11 Ethiopia	36 000	720	Very high	75	Insufficient	28 (12)
	12 Cameroon	36 000	1000	Very high	87	No progress	82 (60)
	13 Democratic Republic of the Congo	32 000	1100	Very high	108	No progress	85 (47)
	14 Côte d'Ivoire	22 000	810	Very high	89	Insufficient	85 (45)
	15 Burundi	16 000	1100	Very high	108	No progress	92 (79)
	16 Angola	16 000	1400	Very high	116	Insufficient	80 (7)
	17 Chad	15 000	1500	Very high	124	No progress	39 (18)
	18 Lesotho	14 000	960	Very high	68	Progress	90 (70)
	19 Ghana	13 000	560	Very high	73	No progress	92 (69)
	20 Botswana	12 000	380	High	33	Progress	97 (97)

* point estimate for 2008 not available; 2007 point estimate used

** USMR = Under-five mortality rate

Annexure III.

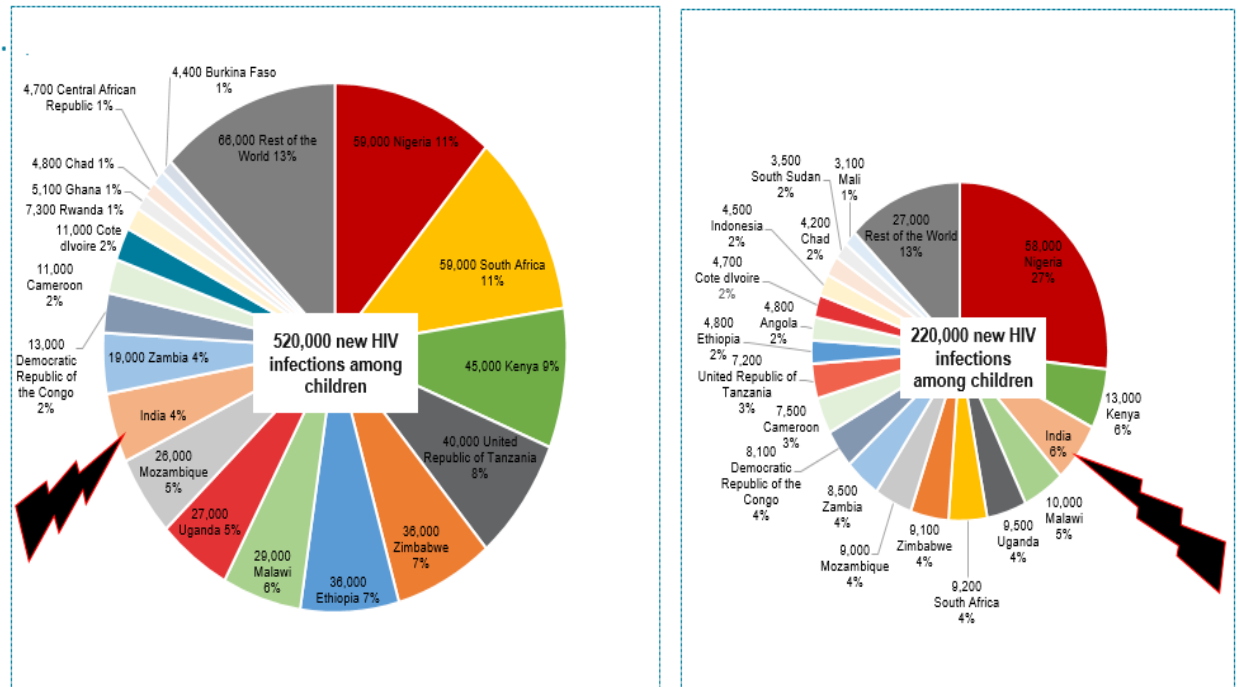
People living with HIV in Asia and the Pacific, 2013



Source: UNAIDS 2013 estimates.

Annexure IV.

Global distribution of the estimated number of new HIV infections among children (aged 0-14), top 20 high burden countries, 2000 vs. 2014



Source: UNICEF analysis of UNAIDS 2014 HIV and AIDS estimates, July 2015

Annexure V.

WHO indicators for Validation of “Zero Transmission”:

WHO required validation indicators include:

Impact Indicators – must be met for at least one year

- New pediatric HIV infections due MTCT of HIV are less than 50 cases per 100 000 live births
- MTCT rate of HIV to less than 5% in breastfeeding populations or less than 2% in non-breastfeeding populations.

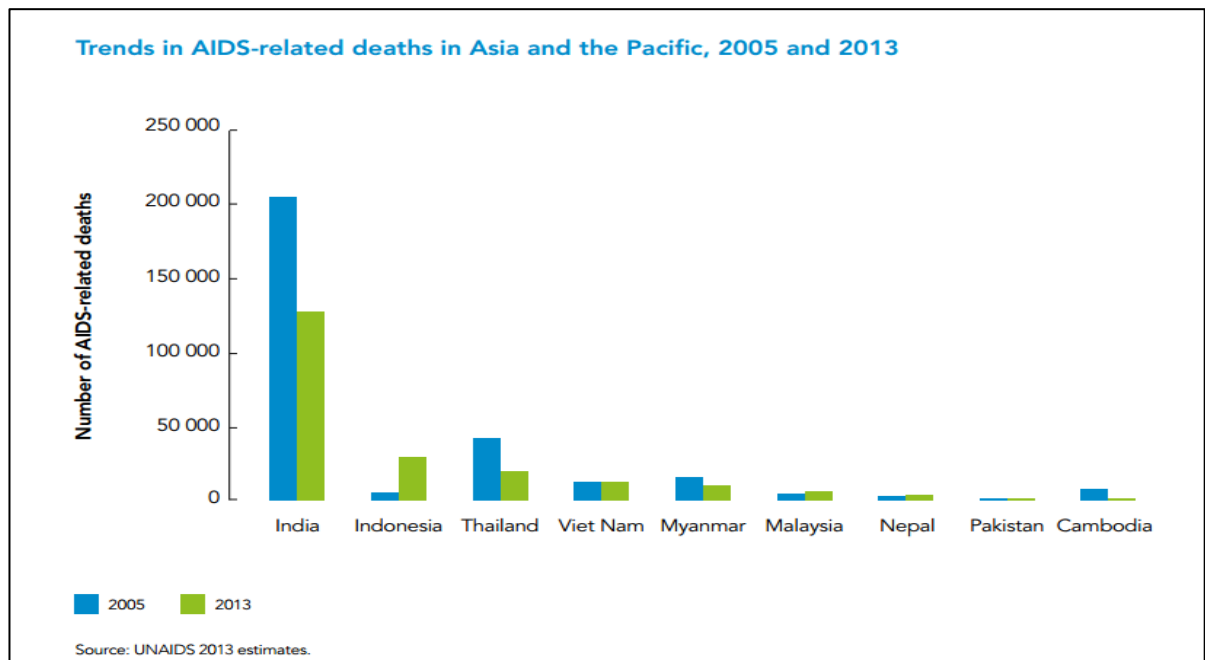
Process Indicators – must be met for at least two years

- More than 95% of pregnant women, both who know and do not know their HIV status, received at least one antenatal visit
- More than 95% of pregnant women know their HIV status
- More than 95% of HIV-positive pregnant women receive antiretroviral drugs

Source:

http://www.unaids.org/en/resources/presscentre/pressreleaseandstatementarchive/2015/june/20150630_cuba

Annexure VI.



Annexure VII:

In 2011, adult HIV prevalence was estimated at $\leq 0.75\%$ in all states excluding Manipur. States with adult HIV prevalence higher than the national average of 0.27% include Andhra Pradesh, Mizoram, Nagaland, Karnataka, Goa, Maharashtra, Odisha, Gujarat, Tamil Nadu and Chandigarh. (Figure 3.21)

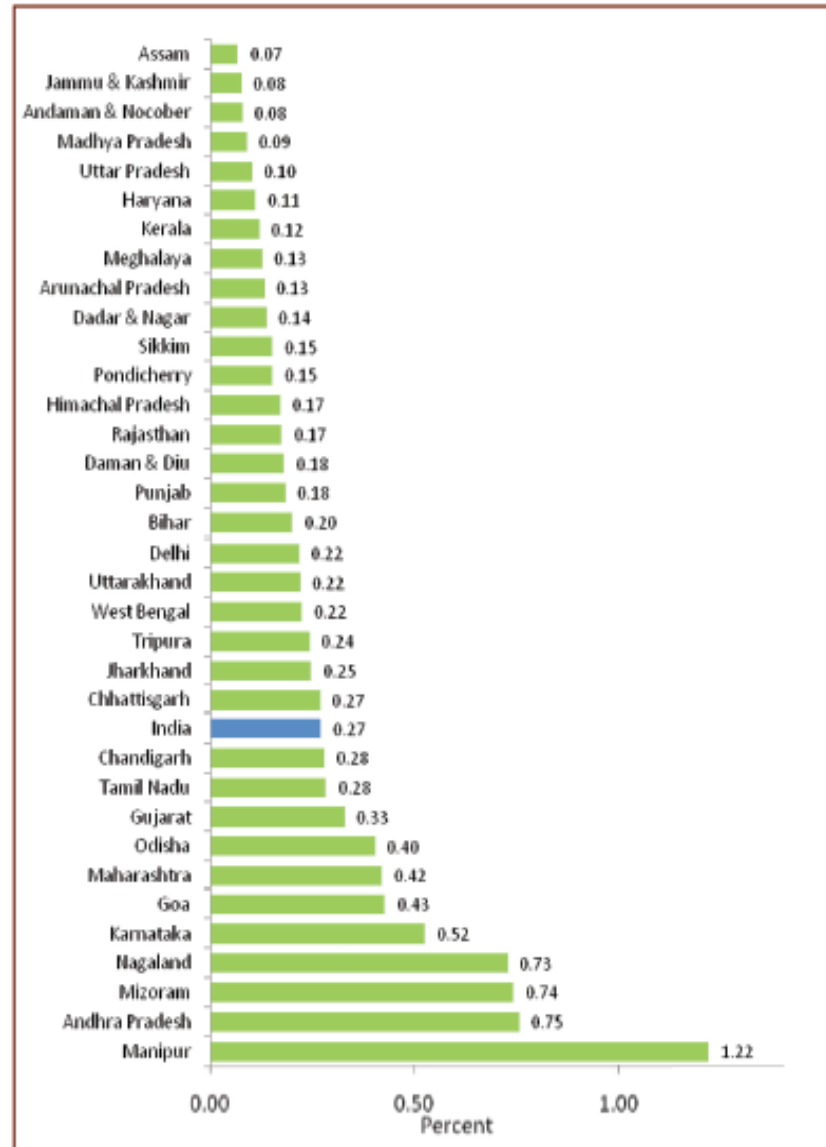
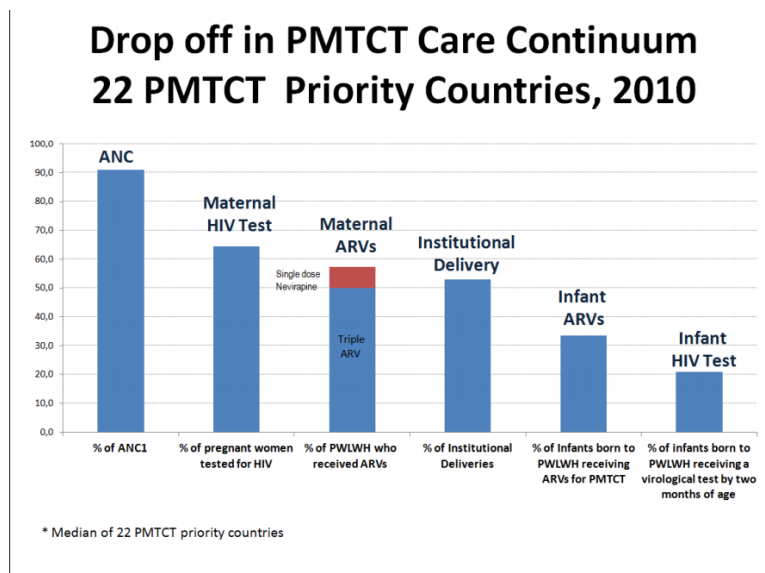


Figure 3.21: State-wise Estimated Adult (15-49 Years) HIV Prevalence (%), 2011

Annexure VIII



Source: World Vision, 2010.

Annexure IX

Year - wise distribution of results of PPTCT program in Chandigarh

Table 1: Year - wise distribution of results of PPTCT program

Year	Number of ANC women counselled and tested for HIV	Number of positive (% out of number of HIV tested)	Number of ANC women delivered in hospital (% out of number of HIV-positive)	Number of live births to ANC women who were positive (% out of total deliveries)	Number of mother-baby pair receiving NVP	Positive DBS of babies at 6 weeks/ 6 months/ 18 months	Number of HIV-positive women receiving ART (% out of number of HIV-positive)
April 2011-March 2012	3226	11 (0.34)	9 (81.81)	9 (100)	9 (100)	0/0/0	3 (27.27)
April 2012-March 2013	3063	14 (0.45)	13 (92.86)	12 (92.31)	11 (91.67)**	0/0/0	8 (57.14)
April 2013-March 2014	2801	5 (0.18)	5 (100)	5 (100)	3 (60)	1/1/1	None (0)
Total	9090	30 (0.33)*	27 (90)	26 (96.30)	23 (88.46)	1	11 (30)

*One IUD, 2 ectopic and 1 pregnancy was medically terminated, **One mother delivered during transportation to the hospital so NVP could not be given. ANC: Antenatal care, ART: Antiretroviral treatment, DBS: Dried blood spot, PPTCT: Prevention of parent-to-child transmission, NVP: Nevirapine

Source: Gupta V, Kaur M, Chavan K, Gupta V, Johar N, Chander J. Success of the HIV Program in preventing parent-to-child HIV transmission: A three-year experience from a tertiary care hospital in North India. Indian J Med Microbiol [serial online] 2016 [cited 2016 Aug 19];34:248-68. Available from: <http://www.ijmm.org/text.asp?2016/34/2/248/180360>

Annexure X:

State-wise Allocation/Releases and Expenditure under National AIDS Control Programme in Western and Central India (2000-2001 to 2008-2009)						
(Rs. in Lakh)						
Year	Goa	Gujarat	Madhya Pradesh	Maharashtra	Western & Central India	India
2000-2001						
Allocation/Releases	72.73	681.78	542	1296.58	2593.09	12346.5
Expenditure	92.78	528.96	361.49	1241.73	2224.96	9111.83
2001-2002						
Allocation/Releases	99	1188.3	780.5	1598.65	3666.45	18843.4
Expenditure	97.32	933.08	471.12	858.47	2359.99	17390.6
2002-2003						
Allocation/Releases	170.5	1295.19	521.5	2293.5	4280.69	20482.1
Expenditure	85.36	1071.62	453.54	2345.07	3955.59	17398.7
2003-2004						
Allocation/Releases	200	1477.62	490	2120	4287.62	20163
Expenditure*	60.12	730.31	240.33	1641.23	2671.99	14694.4
2004-05						
Allocation	163.50	1997.30	855.50	3287.50	6303.80	31052.7
2005-06						
Allocation	275.00	2854.09	491.00	3265.22	6885.31	39222.6
2006-07						
Allocation	415.00	1731.46	790.50	5588.00	8524.96	49691.7
2007-08						
Allocation	391.02	3175.10	1310.09	6923.83	11800.04	67941.9
2008-09 #						
Allocation	224.33	1987.85	942.62	2786.67	5941.47	24970.7

Abbr. : AIDS: Acquired Immune Deficiency Syndrome.

Note: *: Figures are Provisional.

#: Till Nov., 2008.

Source: Compiled from various official sources.

Available at: IndiaStats.com

Annexure XI:
Underspent Funds:

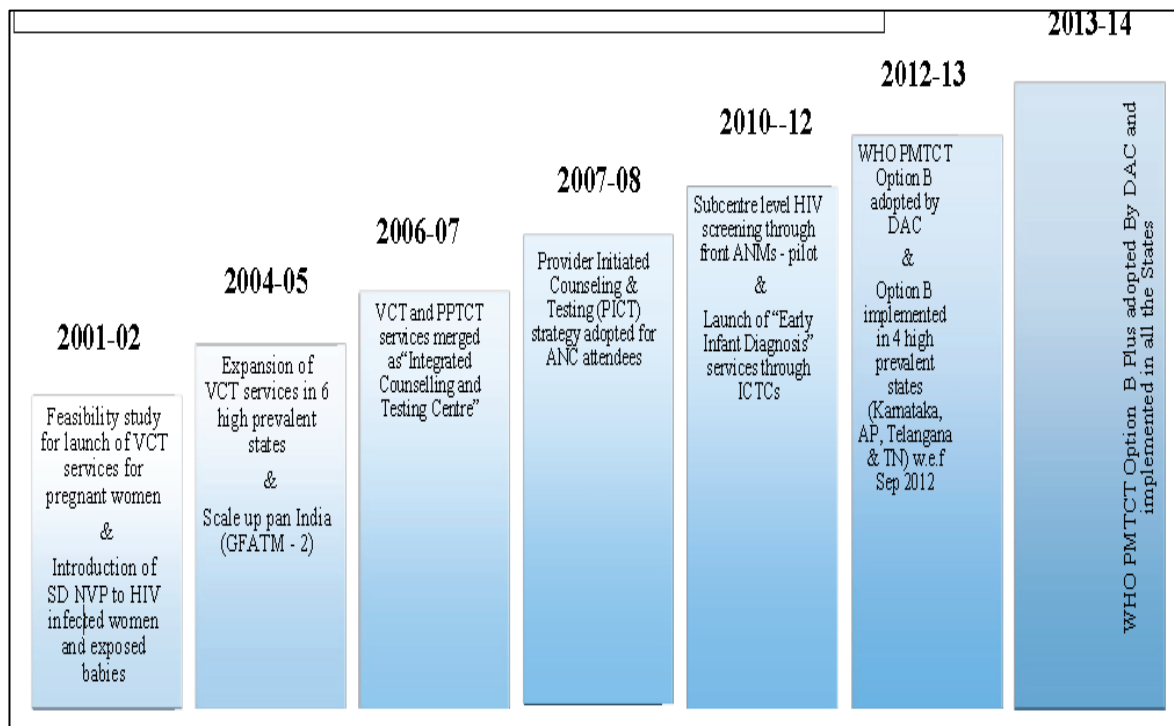
Funds Allocation and Expenditure to NGOs by State AIDS Control Society (SACSs) in Maharashtra (2010-2011 to 2013-2014-Upto 31.07.2013)								
(Rs. in Lakh)								
State	2010-11		2011-12		2012-13		2013-14 (Upto 31-07-2013)	
	Allocation	Expenditure	Allocation	Expenditure	Allocation	Expenditure	Allocation	Expenditure
Maharashtra SACS	7976.57	5993.41	7966.88	6941.84	8457.43	7547.40	8609.99	1929.00
Mumbai MC ACS	2328.38	1837.31	2290.52	1948.28	2732.66	1978.56	705.82	360.25
India	90789.38	71831.29	95213.99	74531.29	96038.27	80844.81	63508.97	14257.75

Source: Lok Sabha Unstarred Question No. 1837, dated on 16.08.2013.
Available at: IndiaStats.com

Annexure XII:

PPTCT Services Evolution in India

The evolution of PPTCT services over the years is shown below:



Source: NACO technical report

Annexure XIII:

India				
Counseling & Testing Services (Up to Feb 2012)		No. Tested	No. HIV Positive	
Total in 2011-12		1,78,31,334	2,66,919	
Pregnant Women in 2011-12		78,10,066	14,349	
No. of ICTC		9,448		
No. of Mother-Baby Pairs Received Nevirapine in 2011-12		11,981		
Laboratory Services (Up to Mar 2012)		No. of NRL	No. of SRL	No. of CD4 Machines
		13	117	264
Care, Support & Treatment (Up to Mar 2012)				
No. of ART Centres		355	No. of Link ART Centres	725
No. of CCCs		253	No. of PLHA Regd (Cumulative)	15,29,031
Total No. of PLHA on 1st line ART (Cumulative)		5,16,412		
Finance (Up to Mar 2012) - *Provisional Figures		Allocation	Release*	Expenditure*
Amount (in Crore Rupees)		1,500.00	NA	1,304.96
				87.0
National AIDS Control Programme Phase-III (2007-12)				STATE FACT SHEET 7

Annexure XIV:

Maharashtra

Counseling & Testing Services (Up to Feb 2012)		No. Tested	No. HIV Positive
Total in 2011-12		3,73,080	1,825
Pregnant Women in 2011-12		1,25,335	69
No. of ICTC		233	
No. of Mother-Baby Pairs Received Nevirapine in 2011-12		61	

Laboratory Services (Up to Mar 2012)	No. of NRL	No. of SRL	No. of CD4 Machines
	0	5	9

Care, Support & Treatment (Up to Mar 2012)			
No. of ART Centres	8	No. of Link ART Centres	9
No. of CCCs	7	No. of PLHA Regd (Cumulative)	16,305
Total No. of PLHA on 1st line ART (Cumulative)	6,536		

Finance (Up to Mar 2012) - *Provisional Figures	Allocation	Release*	Expenditure*	% Exp.
Amount (In Lakh Rupees)	3,243.17	3,001.38	2,687.01	82.9

National AIDS Control Programme Phase-III (2007-12)

STATE FACT SHEET | 27

Annexure XV:

Prevention of Parent to Child Transmission (MSACS)

Indicator	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15
Target	15,32,387	17,97,500	17,36,349	14,00,000	15,00,000	18,75,655
Tested (Total)	8,99,329 (58.6%)	9,48,818 (52.7%)	12,05,420 (69.4%)	12,38,342 (88.45%)	14,48,112 (96.54%)	19,27,842 (102.78 %)
HIV +ve (new Detected)	3,054 (0.3%)	2,734 (0.3%)	2,294 (0.2%)	1,642 (0.13%)	1438 (0.09%)	1,385 (0.07%)
HIV +ve Deliveries	3,114	2,037	2,488	2,158	2,449	1,786
Live Births	2,835	1,884	2,078	1,969	2,033	1,731
MB Pair	2,718 (78%)	1,861 (68.1%)	1,980 (86.31%)	1,897 (116%)	1783 (123.99 %)	1,717 (123.97 %)
Pre ART Linkages	1,732 (49.45%)	1,930 (70.59%)	1,923 (83.82%)	1,494 (91%)	1,361 (94.97%)	1,342 (96.89%)
18 months testing of babies	1381	1122	1347	1670	1850	1454
Positive	213 (15.4 %)	167 (14.8%)	217 (16.1%)	253 (15.1%)	173 (9.35%)	130 (8.94%)

Annexure XVI:



Status of HIV in Maharashtra

- Population of Maharashtra - 112 million (Census 2011)
- Estimated Pregnant mothers - 1.91 million
- 1.44 million pregnant women tested for HIV in 2013-14.
- HIV prevalence among pregnant women attending ANC clinics, 2012-13 (*Source: HSS 2012-2013*): 0.40%
- *Maharashtra Stands 8th highest in the country for HIV prevalence in ANC*



Source: MSACS available from: http://mahasacs.org/images/PDFs/website_data1.pdf