



## REACHING THE UNREACHED: UNIVERSAL ACCESS TO HIV TESTING FOR PREGNANT WOMEN THROUGH COMMUNITY BASED TESTING IN WEST BENGAL, INDIA

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### KEYWORDS :

#### BACKGROUND:

India has an estimated annual 29 million pregnancy. HIV prevalence among pregnant women in India has considerably declined from 0.42% in 2000 to 0.22% in 2017. In order to achieve elimination of new Paediatric HIV infection, it is essential that every pregnant woman is screened for HIV. Until and unless this saturation of coverage is achieved, all HIV positive pregnancies cannot be detected and consequently there will be possibility of HIV infected live birth without getting PPTCT interventions. Therefore first target to achieve the goal of PPTCT is to ensure atleast 95% of pregnant women getting screened for HIV. As per recent data, The PPTCT services cover about 47 percent annual estimated pregnancies in the country. In the year 2015-16, 12.7 million pregnant women accessed this service. Of these, 11,918 pregnant women were HIV positive (1). Therefore it is evident that huge number of pregnant women is delivering without being tested for HIV. In order to bridge this gap, it is essential that HIV testing facility should be made available at every point where antenatal services are accessed. Facility based testing was not sufficient to take care of this situation in most of the states of the country. Apart from that, pregnant women after getting registered at sub-centre, go to facility a bit late during pregnancy and facility based screening followed by confirmation of HIV positivity happens in later part of pregnancy in most of the cases. This eventually delays initiation of anti retroviral treatment which is crucial for preventing HIV transmission from mother to child.

West Bengal is a low prevalent but highly vulnerable state in state in India with estimated annual pregnancy is around 1.7 million. With facility based HIV screening of the pregnant women, less than 30% pregnancies could be tested for HIV and this figure was persistent for a long. Auxiliary Nurse Midwife (ANM) plays crucial role in providing all kind all antenatal services to the pregnant women like pregnancy confirmation, registration, initial check up like blood pressure etc, Tetanus toxoid injection, Hemoglobin estimation etc and she is also performing card based malaria and other serological tests. Hence it was decided to scale up HIV screening of pregnant women using these field level workers.

Therefore community based HIV screening of pregnant women by the Auxiliary Nurse Midwife during Village Health Nutrition Day was launched in phased manner in the State in collaboration with state health department and state chapter of National Health Mission.

#### METHODS:

Village Health & Nutrition Day (VHND) is a universal platform to provide basic antenatal, post natal, infant and child care related services and to disseminate preventive and promotive aspects of health care, which will encourage them to seek health care at proper facilities. Pregnant women and children access antenatal, immunisation and nutrition supplementation services in Village Health & Nutrition Day clinics conducted in all villages in the country. These clinics are planned on a weekly basis by the Auxiliary Nurse Midwife placed at Health Sub centers, based on the need of the population. Therefore this platform was used to maximize HIV screening for pregnant women. Before launching the program preparatory activities were undertaken.

#### Strategic Planning:

After several rounds of discussions with state Maternal Health divisions, some strategies could be formulated as below.

- It was decided to perform HIV screening of pregnant women using Whole Blood finger prick HIV test kit which would be appropriate

for field level screening.

- Cold chain maintenance of HIV test kits- It was decided to transport and store HIV test kits at all levels using cold chain. Kits would be stored in refrigerator at block health facilities and a box of test kit would be earmarked for each sub centre from which requisite number of tests would be taken out before going for VHND/outreach VHND sessions and kits packaged in a ziplock pouch, would be transported through cold box. The unused test kits would be returned to same box in the refrigerator at the end of the day. This would be integrated in prevailing practice in case of transporting vaccines.
- Testing procedure: It was decided that HIV screening would be done using same prick for Hemoglobin estimation so that pregnant women would not have to suffer double prick for two different testing. Informed consent was asked to be taken in each occasion before performing HIV screening.
- Interpretation of Test result: The test result would be read as "Negative" and "Referred to ICTC". If any woman would be screened reactive, her reactive status would not be disclosed rather she should be linked with nearest HIV confirmatory centre/Integrated Counselling and Testing Centre (ICTC) for confirmation and future course of action. Necessary linkage matrix was developed to ensure mutual feedback between screening and confirmatory centre.

#### Preparation of state level uniform guideline:

Based on the above strategic planning a state level operation guideline was developed and that was disseminated as directive. Necessary dissemination was done with the district health administration.

#### Training:

Necessary module was developed for training target health care provider (i.e. ANMs) in cascade pattern. Arrangement for hands on training as well as video assisted demonstration for the Auxiliary Nurse Midwife was done. Orientation for district health officials and different cadre of health supervisors were done too elaborating their roles and responsibilities.

#### Record keeping and reporting:

No separate registers were developed for this program rather two columns were added to the existing Reproductive and Child Health register. No separate reporting format was developed but provision was made to document the HIV screening result as "Negative" and "Referred to ICTC" in existing Mother Child Tracking Card. The sub-centre wise report was asked to share with the Block Health Administrator and monthly report would be uploaded from block to the standard web based reporting portal as devised by National AIDS Control Organization.

#### Implementation:

The program was implemented in phased manner. Actually the program was introduced in 2010 in three districts and its performances faltered due to several logistic issues. Then the program was revamped and re introduced in 6 high prevalent districts during 2014 by State AIDS Control Society. This was phase one of the program. Based on initial success, the program was launched across the state (phase- two) with support from National Health Mission during 2016.

#### RESULT:

As per data reported in the official reporting portal of National AIDS Control Organization (NACO), the outcome in terms of number of

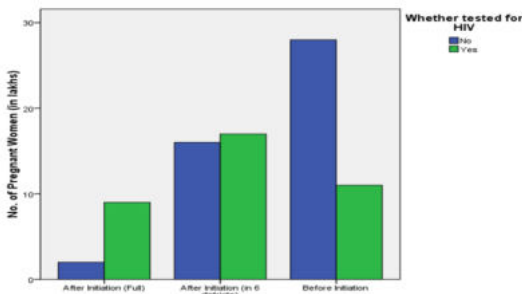
pregnant women getting screened for HIV has increased in phased manner in tune with phase wise implementation of community level HIV screening. The result is as follows based on the data retrieved from NACO reporting portal as on 23.1.17.

**Table-1**  
Distribution yearwise HIV screening of pregnant women and saturation of coverage against ANC registered

	Financial Year	No. of pregnant women tested for HIV	No. of pregnant women not tested for HIV	% of saturation
Before initiation of sub centre testing	2012-13	515499	1363538	27.43
	2013-14	577285	1389019	29.36
After initiation of sub centre testing in 6 districts	2014-15	880359	814577	51.94
	2015-16	898667	858995	51.13
After initiation of sub centre testing in all districts	2016-17 (Till Oct'16)	855783	157709	84.44

Therefore the table is self explanatory that before initiation of this program, the coverage of HIV screening among the ANC registered was less than 30%. After launching the program in six districts it soared up to a level more than 50%. Following initiation across the state it further increased to a level more than 84% as per reported.

**Table-2**  
Distribution of phasewise HIV testing coverage among the pregnant women



**Table-3**  
Distribution of pregnant women (in lakhs) by HIV testing status

		Whether tested for HIV		Total
		No	Yes	
After Initiation (Full)	Count	2	9	11
	Expected Count	6.1	4.9	11.0
After Initiation (in 6 districts)	Count	16	17	33
	Expected Count	18.3	14.7	33.0
Before Initiation	Count	28	11	39
	Expected Count	21.6	17.4	39.0
Total	Count	46	37	83
	Expected Count	46.0	37.0	83.0

**Table-4**  
Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	11.049 <sup>a</sup>	2	.004
Likelihood Ratio	11.535	2	.003
No of Valid Cases	83		

a. 1 cells (16.7%) have expected count less than 5. The minimum expected count is 4.90.

This demonstrates that there exists statistically significant association between phase-wise initiation of 'Community level testing of Pregnant Women' and 'No. of pregnant women got tested for HIV'; that is, scale-up of HIV testing facilities in phased manner has a positive impact on number of mothers got tested for HIV.

**Table-5**  
Symmetric Measures

		Value	Approx. Sig.
Nominal by Nominal	Phi	.365	.004
	Cramer's V	.365	.004
N of Valid Cases		83	

Phi and Cramer's V are both tests of the strength of association. We can see that the strength of association between the variables is very strong.

**DISCUSSION:**

This study clearly demonstrates that HIV screening among the pregnant women has increased significantly following introduction of Community level screening in the state of West Bengal. This is the most important step towards achieving elimination of Pediatric HIV. HIV testing was initially considered a job by designated Laboratory Technicians only. With the easier methods of HIV testing, now it can be done by lay providers also. Earlier coverage of rural pregnant were considerably low with introduction of this program it increased by manifolds. As per new HIV Counseling and Testing Services (HCTS) 2016 guideline(2) of Government of India, community based HIV screening with lay providers/testers have been strongly recommended. During March'2016, CDC has come up with a guideline on how to perform HIV screening in non clinical settings (3).

Similar studies have been conducted in different parts of the world with variable success rate. Findings from the US National Institute of Mental Health (NIMH) Project Accept showed the importance of community based HIV counselling and testing in improving program outcome (4). Another project was conducted by FHI 360 among key populations in the eThekweni and Ugu municipal districts of the KwaZulu-Natal province of South Africa to demonstrate effectiveness of the Comprehensive Community-Based HIV Prevention, Counselling and Testing Programme (CBCT). The project also helps to identify, develop and implement strategies to expand and strengthen high-quality, community-based HIV counseling and testing models for key populations in high-incident communities in South Africa (5). Another study conducted in Haiti which shows that community-based campaign for HIV testing within a package of services can serve as a model for other resource-poor settings to identify high-risk adolescents and youth, and curb the global HIV epidemic among adolescents as in Haiti, adolescents accounted for 40% new HIV infection (6). This study deals with only community based campaign to increase uptake of HIV testing. In another operational research program in rural areas of Swaziland, two models were employed to increase HIV screening uptake. One was home based and other was mobile based HIV testing and counselling and the uptake of HIV testing was found to be significantly high in the former group (7). Another study which involved community based approach to promote HIV testing in multi-disease campaign in Uganda found rapid increase in HIV testing among rural Africans but it was CHC based approach and single adult, young population could not be covered by this strategy (8). All these studies were conducted using rapid diagnostic HIV test kits and test were performed by trained health care providers but studies have been done using HIV self testing method using oral fluid of the individual. The same was conducted among the Sub-Saharan African Migrants and the acceptability of this testing method was higher among women, church and places where community leaders were engaged in awareness generation program (9). This is a kind of test is not yet recommended in India but some pilot studies are going on by Mamta Health Institute for Mother and child with funding from International HIV Alliance (10). So far all these studies mentioned above are target population like migrants, adolescents and other high risk groups. There are some studies which specifically deal with integration of HIV testing in routine ANC care at all level of service stations. A four sub Saharan African country based study envisages a need for integration of HIV testing into routine ANC service to increase opportunities for PMTCT programmes to reach HIV-positive pregnant women. Attention should be paid to the expansion of outreach services for women in rural settings. In this study it was also found HIV testing uptake was less among the pregnant women in rural Africa and among the poorest and less educated women (11). Similar study from Northern Vietnam also describes the need for scaling up HIV counselling and testing services to make it more accessible to the women. This also emphasizes the fact early uptake of HIV counselling and testing during pregnancy need wider distribution of testing services (12). Another sub Saharan Africa based study found that community HTC (including home, mobile, partner notification, key populations, campaign, workplace and self-testing) successfully reached target groups (men, young adults and first-time testers) with higher coverage than facility HTC. Community HTC also identified HIV-positive individuals at higher CD4 counts who were likely to be earlier in their disease course (13). Numerous community level barriers were found to exist (outside health care settings) for optimal uptake of PMTCT. To overcome these,

community based approaches were found to most effective to eliminate community level barriers. Another sub Saharan Africa based study found evidence of effectiveness of strategies targeting individuals and peer/family levels (e.g., providing household HIV testing and training peer counsellors to support exclusive breastfeeding) and at community level (e.g., participatory women's groups and home-based care to support adherence and retention) (14). In one study, home based HIV testing of pregnant women in Nyanza Province, Kenya found not only high HIV testing coverage among the pregnant women but it also increased male partner testing (15). This is further corroborated by another study in Kenya (16). Another Kenya based interesting study showed pregnant women who had never attended ANC were about 6 times more likely to newly test HIV-positive compared to those who had attended ANC, suggesting that the cascade of services for prevention of mother-to-child HIV transmission should optimally begin at the home and village level if elimination of perinatal HIV transmission was to be achieved (17). This clearly points out to the need of reaching pregnant women upto the level of the village which our effort could achieve. A systemic review and meta analysis based on Sub Saharan Africa demonstrated need of combination of facility and community based intervention to reduce different gaps in PMTCT program (18). Similar ideas were put forward in other studies. One Nigeria based study elaborated that Culturally-adapted, community-based programs could be effective in increasing HIV screening and ART among pregnant women in resource-limited settings (19).

After considering all these studies it is evident that reach of HIV testing should go upto the level of village at least to ensure saturation of HIV testing coverage of the pregnant women which is foremost important thing if we are contemplating on elimination of Pediatric HIV. For these vertically run HIV/AIDS control program can not reach to that extent rather it needs integration of HIV/AIDS control program with existing Government community health system. The same message was echoed in one Kenya based qualitative study (20).

Finally the state of West Bengal has been able to venture into this territory in a huge scale and has been successful in increasing the uptake of HIV screening among the pregnant women. This also needed integration with general health system of state for successful implementation.

### Recommendations:

Community based HIV testing of pregnant women during Village Health & Nutrition Day by Auxiliary Nurse Midwife is cost effective in resource limiting set up. This may be replicated in other states of areas to increase uptake of HIV screening of the pregnant women. This does not only increase the testing coverage, in same time it increases the probability of early diagnosis to initiate PPTCT services at the earliest. This is an example of convergence of National AIDS Control Program with the National Health System without which it would not have been possible.

### Acronyms:

**HIV-** Human Immunodeficiency Virus

**AIDS-** Acquired Immuno Deficiency Syndrome

**PPTCT-** Prevention of Parent To Child Transmission

**PMTCT-** Prevention of Mother To Child Transmission

**ICTC-** Integrated Counseling and Testing Centre

**ANM-** Auxiliary Nurse Midwife

**VHND-** Village Health & Nutrition Day Village Health & Nutrition Day

**NACO-** National AIDS Control Organization

**ART-** Anti Retroviral Treatment

**CBCT-** Community Based Counselling and Testing

### REFERENCES:

- 1) Prevention of Parent to Child Transmission(PPTCT) <http://naco.gov.in/prevention-parent-child-transmissionpptct>
- 2) National HIV Counselling and Testing Services (HCTS) Guidelines-2016 <http://www.indiahivinfo.naco.gov.in/naco/resource/national-hiv-counselling-and-testing-services-hcts-guidelines-2016>
- 3) HIV Testing in Nonclinical Settings [https://www.cdc.gov/hiv/pdf/testing/cdc\\_hiv\\_implementing\\_hiv\\_testing\\_in\\_nonclinical\\_settings.pdf](https://www.cdc.gov/hiv/pdf/testing/cdc_hiv_implementing_hiv_testing_in_nonclinical_settings.pdf)
- 4) Community-based HIV counselling and testing as a means of improving HIV programme performance- Olusesan Ayodeji Makinde [http://www.thelancet.com/journals/langlo/article/PIIS2214-109X\(14\)70265-7/abstract](http://www.thelancet.com/journals/langlo/article/PIIS2214-109X(14)70265-7/abstract)
- 5) Comprehensive Community-Based HIV Prevention, Counselling and Testing Programme for Reduced HIV Incidence (CBCT) <https://www.fhi360.org/projects/comprehensive-community-based-hiv-prevention-counselling-and-testing-programme-reduced-hiv>

- 6) programme-reduced-hiv Community-Based HIV and Health Testing for High-Risk Adolescents and Youth. Reif LK1, Rivera V1, Louis B2, Bertrand R2, Peck M2, Anglade B2, Seo G1, Abrams EJ3,4, Pape JW1,2, Fitzgerald DW1, McNairy ML1,5 <https://www.ncbi.nlm.nih.gov/pubmed/27509237>
- 7) Feasibility and effectiveness of two community-based HIV testing models in rural Swaziland. Parker LA1, Jobanputra K1, Rusike L2, Mazibuko S3, Okello V3, Kerschberger B2, Jouquet G1, Cyr J1, Teck R1. <https://www.ncbi.nlm.nih.gov/pubmed/25753897>
- 8) Uptake of Community-Based HIV Testing during a Multi-Disease Health Campaign in Rural Uganda Gabriel Chiamie, Dalsone Kwarisima, Tamara D. Clark, Jane Kabami, Vivek Jain, Elvin Geng, Laura B. Balzer, Maya L. Petersen, Harsha Thirumurthy, Edwin D. Charlebois, Moses R. Kanya, Diane V. Havlir Published: January 2, 2014 <http://journals.plos.org/plosone/article?id=10.1371/journal.pone.0084317>
- 9) Acceptability of a Community-Based Outreach HIV-Testing Intervention Using Oral Fluid Collection Devices and Web-Based HIV Test Result Collection Among Sub-Saharan African Migrants: A Mixed-Method Study Jasna Loos1, MA ; Lazare Manirankunda1, MD, MSc ; Tom Platteau2, MSc ; Laura Albers2, BN ; Katrien Frans3, MSc ; Tine Vermoesen3, BSc ; Fiona Namanya1, MA ; Christiana Nöstlinger1, PhD <http://publichealth.jmir.org/2016/2/e33/>
- 10) Engaging frontline community health workers in providing oral rapid HIV testing to pregnant women in India [http://mamta-himc.org/wp-content/themes/mamtaorg/images/oral\\_rapid\\_HIV\\_testing\\_in\\_India.pdf](http://mamta-himc.org/wp-content/themes/mamtaorg/images/oral_rapid_HIV_testing_in_India.pdf)
- 11) Antenatal care and uptake of HIV testing among pregnant women in sub-Saharan Africa: a cross-sectional study Jayleen K L Gunn,1 Ibtola O Asaolu,2 Katherine E Center,3 Steven J Gibson,4 Patrick Wightman,5 Echezona E Ezeanolue,6 and John E Ehiri,2 <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4718968/>
- 12) Early uptake of HIV counseling and testing among pregnant women at different levels of health facilities - experiences from a community-based study in Northern Vietnam Nguyễn Thị Thúy Hạnh,1,3 Tine Gammeltoft,2 and Vibeke Rasch3,4 <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3048486/>
- 13) Evaluating the efficiency of community-based HIV testing and counseling strategies in sub-Saharan Africa <https://digital.lib.washington.edu/researchworks/handle/1773/37124>
- 14) Community-based approaches for prevention of mother to child transmission in resource-poor settings: a social ecological review Joanna Busza,1, Damilola Walker2, Alana Hairston2, Alicia Gable2, Christian Pitter2, Stephen Lee2, Leila Katiray2, Rogers Simiyu3 and Daphne Mpofo4 <http://www.jiasociety.org/index.php/jias/article/view/17373/688>
- 15) Modeling the Cost-Effectiveness of Home-Based HIV Testing and Education (HOPE) for Pregnant Women and Their Male Partners in Nyanza Province, Kenya Sharma, Monisha ScM; Farquhar, Carey MD, MPH; Ying, Roger BS; Krakowiak, Daisy MPH, PhD; Kinuthia, John MBChB, MMed, MPH; Osoti, Alfred MBChB, MMed, MPH; Asila, Victor BSc; Gone, Molly BSc; Mark, Jennifer MPH; Betz, Bourke MS; Parikh, Saloni BS; Sharma, Monisha MS; Barnabas, Ruanne MD, DPhil; Farquhar, Carey MD, MPH [http://journals.lww.com/jaids/Fulltext/2016/08011/Modeling\\_the\\_Cost\\_Effectiveness\\_of\\_Home\\_Based\\_HIV\\_Testing.aspx](http://journals.lww.com/jaids/Fulltext/2016/08011/Modeling_the_Cost_Effectiveness_of_Home_Based_HIV_Testing.aspx)
- 16) Home-Based HIV Testing Among Pregnant Couples Increases Partner Testing and Identification of Serodiscordant Partnerships Krakowiak, Daisy MPH, PhD; Kinuthia, John MBChB, MMed, MPH; Osoti, Alfred O. MBChB, MMed, MPH; Asila, Victor BSc; Gone, Molly A. BSc; Mark, Jennifer MPH; Betz, Bourke MS; Parikh, Saloni BS; Sharma, Monisha MS; Barnabas, Ruanne MD, DPhil; Farquhar, Carey MD, MPH [http://journals.lww.com/jaids/Fulltext/2016/08011/Home\\_Based\\_HIV\\_Testing\\_Among\\_Pregnant\\_Couples.11.aspx](http://journals.lww.com/jaids/Fulltext/2016/08011/Home_Based_HIV_Testing_Among_Pregnant_Couples.11.aspx)
- 17) HIV Prevalence and Antenatal Care Attendance among Pregnant Women in a Large Home-Based HIV Counseling and Testing Program in Western Kenya Samson Ndege, Sierra Washington, Alice Kaaria, Wendy Prudhomme-O'Meara, Edwin Were, Monica Nyambura, Alfred K. Keter, Juddy Wachira, Paula Braitstein <http://journals.plos.org/plosone/article?id=10.1371/journal.pone.0144618>
- 18) Systematic review and meta-analysis of community and facility-based HIV testing to address linkage to care gaps in sub-Saharan Africa Monisha Sharma, Roger Ying, Gillian Tarr & Ruanne Barnabas [http://www.nature.com/nature/journal/v528/n7580/supp\\_custom/abs/nature16044.html](http://www.nature.com/nature/journal/v528/n7580/supp_custom/abs/nature16044.html)
- 19) Impact of a congregation-based intervention on uptake of HIV testing and linkage to care among pregnant women in Nigeria: The Baby Shower cluster randomized trial Echezona E. Ezeanolue, MD,1 Michael C Obiefune, MD,2 Chinenye O Ezeanolue, MD,3 John E. Ehiri, PhD,4 Alice Osuji, RN,2 Amaka G. Ogidigbo, MEd,2 Aaron T. Hunt, MPH,1 Dina Patel, MSN,1 Wei Yang, PhD,5 Jennifer Pharr, PhD,6 and Gbenga Ogedegbe, MD7 <http://europepmc.org/articles/pmc5042903>
- 20) Decentralising and integrating HIV services in community-based health systems: a qualitative study of perceptions at macro, meso and micro levels of the health system Lilian Otiso, Rosalind McCollum, Maryline Mireku, Robinson Karuga, Korrie de Koning, Miriam Taetmeyer DOI: 10.1136/bmjgh-2016-000107 Published 20 January 2017 <http://gh.bmj.com/content/2/1/e000107>