Original Research Article

Prevention of Mother to Child Transmission (PMTCT) of Human Immune Deficiency Virus (HIV) Services ~~(PMTCT)~~ in Teaching Hospital (Public)~~Hospitals~~); Access barriers and other determinants in Enugu State, Nigeria.

Accessing barriers and the other determinants of Prevention of Mother to Child Transmission (PMTCT) of Human Immune Deficiency Virus (HIV) Services at the Teaching Hospital Enugu State, Nigeria

ABSTRACT

Introduction

The most effective means of reducing Mother-to-Child transmission of HIV is to provide suppressive ART. PMTCT directly affects the achievement of Sustainable Development goals just. The unmet need for PMTCT services in Nigeria, particularly in Enugu state, is unacceptably high. This study aim to assess factors associated with access barriers and other determinants to PMTCT services in public health facilities in Enugu, Nigeria

Materials and methods

The study design was a facility-based analytical cross-sectional study. HIV positive nursing mothers who were accessing PMTCT services were studied. **P**re-tested questionnaire was used. Chi-square test and Binary logistic regression was done to for determinants of experience of any access barrier. Level of significance was determined at a p-value of ≤ 0.05

Results

Higher proportion of participants were in 30-34 age group 124, (45.1%), attained secondary education 144(52.4%) and provided for by their husbands 174(63.3%) The major barriers identified were; long waiting time at the facility 184[66.9%], distance of facility 161[58.5%], PMTCT being far away from other units 155[56.4%], Health workers talking to the clients in a degrading manner 151[54.9%], Stigma and discrimination from friends/neighbours 163[59.3%] and from health workers 123[44.7%] as well as being too busy with household chores 130[47.3%]. There were statistically significant association between experience of barriers with age in categories ($\chi 2=11.741$, $p=0.008$), religion ($\chi 2=5.381$, $p=0.020$), source of income ($\chi 2=8.817$, $p=0.032$) and ethnicity ($\chi 2=9.240$, $p=0.026$).

Conclusion

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Over ninety percent of respondents experienced a form of barrier. The major barriers include; long waiting time, distance to facility, location of PMTCT units, Health workers attitude, Stigma and discrimination from health workers as well as being too busy with household chores. There was no identified predictor of access barrier.

Keywords: Access, Barriers, Public tertiary facilities, PMTCT

INTRODUCTION

Human Immune-Deficiency virus (HIV) is a worldwide pandemic.[1] Mother-to-child transmission (MTCT) is when an HIV-infected woman passes the virus to her unborn baby. Mother-to-child transmission or vertical transmission of HIV remains the major means by which children under the age of 15 years are infected with HIV.[2,3] However one of the ~~the~~ most effective means of reducing mother-to-child transmission is to provide suppressive HAART ~~ART~~ to the mother in order to reduce the risk of vertical transmission, sustain the health status of the mothers therefore prolonging their life ~~life and health of the mother~~ while the child is growing up.[4,5]

In most parts of the world, HIV infection is increasing faster among women than men and the trend is more apparent in sub-Saharan Africa where women comprise 58% of existing HIV infections.[6] This can be attributed to poverty, poor health services as well as ignorance. Without interventions, there is a 30-45% chance that a baby born to an HIV-infected mother will become infected with virus.[6] MTCT directly affects the achievement of Sustainable Development goals just as it impacted negatively on these three MDGs [MDG 4,5 and 6].[7]

The strategy of preventing the transmission of HIV from HIV positive mothers to their infants during pregnancy, labour, delivery and breastfeeding can be achieved by the use of antiretroviral drugs(HAART), safer infant feeding practices and other interventions.[8,9] Although Anti-

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Retroviral Therapy (ART) is available in most countries in Sub-Saharan Africa, data indicate that less than 10% of HIV-infected pregnant women in Sub-Saharan Africa have access to PMTCT servcises.[10] Prevention of mother-to-child transmission of HIV coverage has increased in recent years but remains low in sub-Sahara Africa.[11]

Most infant HIV infections could be averted, but the problem is that very few of the world's pregnant women are being reached by prevention of mother-to-child transmission services.[12] One of the best opportunities for progress against HIV lies in preventing mothers from passing on the HIV virus to their children. Most of those infected children will die before their fifth birthday.[13] Advances in medical treatment has contributed to saving of many of these young lives. Pregnancy provides a unique opportunity for implementing prevention strategies by preventing the transmission of HIV from mother to child.[13]

In Nigeria PMTCT coverage was about 11% in 2011. This means that there is a big margin from the National PMTCT targets which estimates**;** that at least 90% of pregnant women should have access to quality HIV testing and counseling , 90% of all HIV positive pregnant women and HIV exposed infants have access to more efficacious ARV prophylaxis, 90% of HIV positive pregnant women have access to quality infant feeding counseling and 90% of all HIV exposed infants have access to early infant diagnosis (EID) services all by 2015.[14] Enugu state has an HIV sero-prevalence of 5.1% from 2010 National HIV Sero-Prevalence Sentinel Survey.[15]

About 14% deliveries take place under skilled health care attendants with most deliveries outside two of the tertiary institutions in the state, University of Nigeria Teaching Hospital(UNTH) and Enugu State Teaching Hospital (ESUTH). It is, therefore, evident that the unmet need for PMTCT services in Nigeria, particularly in Enugu state, is unacceptably high.[3] This study aim to

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assess factors associated with ~~access~~ barriers access and other determinants to PMTCT services in public health facilities in Enugu, Nigeria

MATERIALS AND METHODS

Study area

The study was conducted in the Enugu Metropolis. Enugu is located in the Southeast geopolitical zone of Nigeria. There are four (4) public tertiary health institutions which are the University of Nigeria Teaching Hospital (UNTH), Federal Neuropsychiatric Hospital, National Orthopaedic Hospital and Enugu State University Teaching Hospital (ESUTH). There are six district hospitals, 36 cottage hospitals and 366 primary health care centres, including comprehensive health Centres, health centres, and health posts. However, only 2 facilities offer comprehensive PMTCT services. These public facilities studied were University of Nigeria Teaching Hospital (UNTH) and Enugu state University Teaching Hospital (ESUTH).

Study Design and Data Collection

An analytical cross-sectional study was done. Pre-tested, interviewer administered, semi-structured questionnaires were used to collect information on demographic and access barriers to PMTCT. Data was collected between February and July 2015 by four trained field workers.

Study population.

The study consisted of HIV positive women receiving care for PMTCT during pregnancy, childbirth and postnatal care. Also women who had babies in the twelve months preceding the study and were still receiving care for PMTCT were included in the study. This is because PMTCT services are provided to mothers until 12 months after delivery, when they are either

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transferred to adult ART clinic if they do not become pregnant in the period or remain in the PMTCT clinic if they become pregnant.

Sample Size and sampling technique

The sample size was calculated using $\mathbf{n = Z^2pq/d^2}$ where confidence level [z] was 95%, prevalence of access to PMTCT services in specialist health care facilities in Nigeria [p] was 11%[3] and margin of error [d] was 5%. This gave 165 after adding 10% wrong response, however 275 respondents were studied.

The records of patients who had received PMTCT services in the past twelve months PMTCT services in each of the selected centres were obtained to get the sampling frame. From the hospital records of the patients for PMTCT services that were seen and noted from January to December the previous year [268 for UNTH and 210 for ESUTH], proportionately 154 for UNTH and 121 for ESUTH were studied to make up 275 clients. Patients that satisfied the inclusion criteria were recruited consecutively at the facilities using pre-determined proportions till the stated number of respondents were completed ~~gotten~~.

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Data analysis

Data was collected and analyzed using IBM Statistical Packages for Social Sciences (SPSS) version 20. Results were summarized using percentages and presented in tables. Chi-square test was used for association between sociodemographic variables and experience of any access barrier. Logistic regression was done for determinants of experience of any access barrier. Level of significance was determined at a p-value of ≤ 0.

Ethical consideration

Ethical clearance was obtained from the Health Research Ethics Committee of UNTH, Ituku-Ozalla. Permission was obtained from heads of the various health facilities and written informed

consent was obtained from each participant before administering the questionnaire

Confidentially was ensured throughout the study and even beyond.

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RESULTS.

Table 1: Socio-demographic characteristics of respondents

Variables	Frequency (n =275)	Percent
Age		
<25	8	2.9
25-29	89	32.4
30-34	124	45.1
≥35	54	19.6
Mean ± SD	**31.02 ± 3.80**	
Marital Status		
Single	9	3.3
Married till date	242	88.0
Others	24	8.7
Educational level		
No formal education	10	3.6
Primary	50	18.2
Secondary	144	52.4
Tertiary	71	25.8
Employment status		
Unemployed	67	24.4
Trader	125	45.5
Artisan	33	12.0
Civil / public servant	46	16.7
Farmer	2	0.7
Religion		
Christian	244	88.7
Moslem	31	11.3
Source of income		
Husband	174	63.3
Self	61	22.2
Husband and self	36	13.1
Relatives	4	1.5
Ethnicity		
Igbo	165	60.0
Hausa	25	9.1
Yoruba	25	9.1
Others	60	21.8
Parity		
1-2	62	22.5
3-4	172	62.5
≥5	41	4.9

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Table 1 shows the socio-demographic characteristics of respondents. Higher proportion were in the 30-34 age group 124 (45.1%), still married 242 (88.0%), attained secondary education 144 (52.4%), were traders 125(45.5%), were Christians 244 (88.7%), were provided for by their husbands 174 (63.3%), were Igbos 165 (60.0%) and had 3-4 babies 172(62.2%).

Table 2: Barriers influencing access to PMTCT services.

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Variables	n = 275 Yes n(%)	No n(%)
Logistic factors		
Lack of transportation	137(49.8)	138(50.2)
Distance to health facility	161(58.5)	114(41.5)
Location of clinic	28(10.2)	247(89.8)
Cost of registration	17(6.2)	258(93.8)
Long waiting time in the hospital	184(66.9)	91(33.1)
Institutional/facility factors		
PMTCT center very far away from other units	155(56.4)	120(43.6)
Separate from other hospitals	15(5.5)	260(94.5)
Different clinic from where other patients are seen but same hospital	141(51.3)	134(48.7)
Health Workers factors		
HWs talk carelessly of our positive result	30(10.9)	245(89.1)
HWs treat us different from other women	77(28.0)	198(72.0)
HWs are unfriendly	109(39.6)	166(60.4)
HWs pass comments about us	81(29.5)	194(70.5)
HWs speak to us in degrading manner	151(54.9)	124(45.1)
HWs ignore HIV patients when they call on them in labour	104(37.8)	171(62.2)
Stigma And Discrimination factors		
Attitude of health workers	123(44.7)	152(55.3)
Stigmatization by health workers	28(10.2)	247(89.8)
Stigmatization by friends and neighbours	163(59.3)	112(40.7)
Treatment by your family members as Cost of registration they know you are HIV positive	39(14.2)	236(85.8)
Treatment by your community to people living with HIV/AIDS	33(12.0)	242(80.0)
Personal reasons		
Too busy with house hold chores	130(47.3)	145(52.7)
Did not understand was referred to PMTCT center	31(11.3)	244(88.7)

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Lost referral letter	29(10.5)	246(89.5)
Fear of side effects of drugs	17(6.2)	258(93.8)
Overall experience of any barrier	***251(91.3)***	***24(8.7)***

Table 2 The major barriers due to logistic factors were; long waiting time at the facility 184[66.9%], distance of facility 161[58.5%] and lack of transportation 137[49.8%], Institutional factors included; PMTCT being far away from other units 155[56.4%] and PMTCT clinic different from other clinics within the same hospital 141[51.3%], Health workers factors were; talking to the clients in a degrading manner 151[54.9%] and 109[39.6%] complained they were treated in unfriendly manner. Stigma and discrimination were; from friends/neighbours 163[59.3%] and from health workers 123[44.7%]. Some personal reasons that constituted obstacles were; being too busy with household chores 130[47.3%], did not understand their referral to PMTCT clinic 31[11.3%], losing referral letter 29[10.5%] and 17[6.2%] feared side effects of ART drugs. Generally 251(91.3%) experienced at least a form of barrier.

Table 3: Relationship between socio-demographic characteristics and experience of barriers

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Socio-demographic	n = 275		Bivariate analysis χ^2 (p value)	Multivariate analysis AOR(95%CI)
	Poor Freq(%)	Good Freq (%)		
Age				
<25	8(100.0)	0(0.0)		1
25-29	75(84.3)	14(15.7)	11.741 (0.008)	1.1(0.9-1.3)
30-34	103(83.1)	21(16.9)		5.3(0.4-6.8)
≥35	54(100.0)	0(0.0)		5.8(0.8-7.2)
Marital Status				
Single	8(88.9)	1(11.1)	1.785 (0.410)	NA
Married till date	209(86.4)	33(13.6)		
Others	23(95.8)	1(4.2)		

Educational level				
No formal education	7(70.0)	3(30.0)	3.166 (0.367)	NA
Primary	44(88.0)	6(12.0)		
Secondary	128(88.9)	16(11.1)		
Tertiary	61(85.9)	10(14.1)		
Employment status				
Unemployed	57(85.1)	10(14.9)		
Trader	110(88.8)	15(12.0)	2.491 (0.778)	NA
Artisan	27(81.8)	8(18.2)		
Civil / public servant	42(91.3)	4(8.7)		
Farmer	2(100.0)	0(0.0)		
Religion				
Christian	217(88.9)	27(11.1)	5.381 (0.020)	1
Moslem	23(74.2)	8(25.8)		2.1(0.9-3.3)
Source of income				
Husband	149(85.6)	25(14.4)		1
Self	58(95.1)	3(4.9)	8.817 (0.032)	0.6(0.9-1.3)
Husband and self	31(86.1)	5(13.9)		1.9(0.7-7.6)
Relatives	2(50.0)	2(50.0)		2.0(0.5-3.4)
Ethnicity				
Igbo	152(92.1)	13(7.9)		1
Hausa	20(80.0)	5(20.0)		0.9(0.1-4.4)
Yoruba	19(76.0)	6(24.0)	9.240 (0.026)	1.1(0.9-1.3)
Others	49(81.7)	11(18.3)		0.8(0.2-5.1)
Parity				
1-2	55(88.7)	7(11.3)		
3-4	147(85.5)	25(14.5)	1.702 (0.427)	NA
≥5	38(92.7)	3(7.3)		

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Table 3 shows that there were statistically significant association between experience of barriers with age in categories ($\chi2$=11.741, p =0.008), religion ($\chi2$=5.381, p =0.020), source of income ($\chi2$= 8.817, p=0.032) and ethnicity ($\chi2$=9.240, p=0.026). It also shows that those aged 30-34 years were about 5.3 times (AOR 5.3, 95% CI: 0.4-6.8) while those ≥35 years were 5.8 times (95% CI: 0.6-7.2) more likely not to experience barriers than those aged below 25 years. Moslem were 2.1 times (AOR 2.1, 95% CI: 0.9-3.3) more likely not to experience barriers than Christians. Those whose do not depend on any one for income were about 0.6 times likely (AOR 0.6, 95% CI: 0.9-1.3) while those that depend on relatives were about 2.0 times (AOR 2.0, 95%

CI: 0.5-3.4) more likely to experience barriers than those catered for by their husband. Hausas were 0.9 times (AOR 0.9, 95% CI: 0.1-4.4) and people from other tribes 0.8 times (AOR 0.8, 95% CI: 0.2-5.1) likely to experience barriers than Igbos.

DISCUSSION

Some of the major factors that the respondents reported that affected their uptake of PMTCT in the study included; long waiting time, distance to facility, location of PMTCT units, Health workers attitude, Stigma and discrimination from friends/neighbours and health workers as well as being too busy with household chores. The long waiting may be due to lots of documentation done for the patient with lots of forms filled as directed from donor agencies. Also shortage of health staff may be contributory. Distance to facility as a barrier is expected as a major public facility studied is located over 20km from the city. This makes people accessing the facility whether from Enugu metropolis and other catchment areas to spend much time on transit. This is enough reason to discourage some clients from accessing care. The implication is that if not well addressed can negatively affect PMTCT services uptake.

Other previous studies had similar findings of distance to facilities, frequency of visits required and shortage of (trained) clinic staff as barriers.[16-18] Shortage of health workers can lead to their being overwhelmed with high patient volume and contributing to long waiting-times of services.[16-18] In Zimbabwe, some identified barriers and challenges faced by participants include long waiting times (46%), unreliable access to laboratory testing (35%) and high transport costs (12%), perceived long queues (50%), competing life priorities, such as seeking food or shelter (33%) and inadequate referral information (15%).[10]

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Identifying attitude of Health workers as major barrier from this study is very discouraging and unhealthy. HIV-positive women require emotional and moral support from health workers because they usually experience discrimination in other places. The negative attitude of these health workers denies these clients the crucial role of providing support and care to these HIV positive women which is expected. This discourages many clients, affects access and ultimately adherence to care. While some studies reported negative attitude of health care providers as being associated with reasons for underutilization of health centres by pregnant women,[19,20] other studies identified the negative health worker attitude as common barriers to returning to facilities to access PMTCT care.[16,19-21]

Stigma and discrimination experienced by these pregnant women as a barrier to accessing PMCTC was documented in this study and other previous studies. Some of the respondents in a similar study indicated that even though people living with HIV/AIDS were accepted and supported in their community, the challenge of rejection and fear of being avoided was still widespread in the community.[22] The International Centre for Research on Women in their study in Botswana and Zambia found that HIV/AIDS-related stigma and discrimination create circumstances that fuel the spread of HIV.[23] The gravity of stigma is so much that many patients prefer to bear the cost of transportation to access services in facilities far away from their residences than put themselves at risk of being recognized and news about their status spread. There is need for more training of health workers on PMTCT services as this will help reduce their negative attitude, stigma and discrimination to clients as well as improve their knowledge on PMCT. This will in turn enrich the content of information they pass onto the clients accessing PMTCT services. Also, the masses should be educated on HIV and the need to stop stigmatizing

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against people infected with HIV to reduce stigma and discrimination which is a major barrier to the fight against HIV

Some personal reasons for not accessing health care included being too busy with house hold chores. This is disappointing. It shows that they do not appreciate their condition or the commitments made by government and other funding bodies to protect their unborn babies. This even though is a form as opportunity cost should not be much of a barrier as documented in this study. Similarly other personal reasons from this study and other studies include forgetting to attend clinics and to take drugs as well as difficulties in administering infant prophylaxis due to adverse side effects as constraining factors affecting PMTCT access. [15.16,23]

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CONCLUSION

Some of the major barriers affecting uptake of PMTCT included; long waiting time, distance to facility, Health workers attitude, Stigma and discrimination as well as being too busy with household chores. Age, religion, source of income and ethnicity influenced barriers to PMTCT care. No predictor of access barrier was identified. There is need for more training of health workers especially and education of masses on the need to change their attitude towards people accessing PMTCT.

CONFLICT OF INTEREST

All authors declare no conflict of interest.

REFERENCES

1. Gayle H. D, Hill GL .Global Impact of Human Immunodeficiency Virus and AIDS; https://www.ncbi.nlm.nih.gov ›

2. Okagbue RN. An investigation into the factors affecting the utilization of mother to child transmission services by human immuno-deficiency virus positive women in Onitsha, Anambra State, Nigeria. Available at uir.unisa.ac.za

3. Nkwo P. Prevention of mother to child transmission of Human Immunodeficiency Virus: The Nigerian perspective. Ann Med Health Sci Res. 2012; 2:56-65.

4. Arulogun OS, Adewole IF, Alli OL, Adesina AO. Community Gate Keepers' awareness and perception of prevention of mother-to-child transmission of HIV services in Ibadan, Nigeria. Afr J Reprod Health. 2007 ;11(1):67-75.

5. Lala MM, Rashid HM. Vertical Transmission of HIV. The Indian Journal of Pediatrics, 2010; 7(11):1270

6. UNAIDS World AIDS Day Report, 2011. Available at http://www.unaids.org. Accesses 20/10/18

7. Hopra M, Lawn J, Sanders D, Barron P. Achieving the health millennium development goals for South Africa: challenges and priorities. Lancet.2009 ;374:1023–1031..

8. UNAIDS Nigeria Profile, HIV and AIDS in Nigeria. 2007 Available at www.avert.org/aids-nigeria. Accesses 20/10/18

9. UNAIDS/WHO, Question and Answer III, Duer, HIV and AIDS in Nigeria.2005 Available at www.avert.org/aids-nigeria. Accesses 20/10/18

10. Auxilia M, Winfreda C, Keatinge J, Lynda SC, Godfrey W, Elizabeth M et al. Factors associated with access to HIV care and treatment in a prevention of mother to child transmission programme in urban Zimbabwe. Journal of International AIDS Society.2010; 13:38.

11. WHO. Prevention of mother-to-child transmission of HIV/AIDS programmes. Available atwww.who.int Accesses 20/10/18

12. UNICEF: Preventing mother-to-child transmission (PMTCT) of HIV factsheets on the status of national pmtct responses in most affected countries, 2010. Available at www.unicef.org/aids. Accesses 20/10/18

13. FMOH. National Guidelines on implementation of PMTCT; HIV/AIDS in Nigeria2012; Abuja, Nigeria

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14. De Cock KM, Fowler MG, Mercier E, de Vincenzi I, Saba J, Hoff E, et al. Prevention of mother-to-child HIV transmission in resource-poor countries: translating research into policy and practice. JAMA.2000; 283:1175–1182.

15. Painter TM, Diaby KL, Matia DM, Lin LS, Sibailly TS, Kouassi MK, et al. Women's reasons for not participating in follow up visits before starting short course antiretroviral prophylaxis for prevention of mother to child transmission of HIV: qualitative interview study.Br Med J. 2004;329(7465):543–6

16. Chinkonde JR, Sundby J, Martinson F. The prevention of mother-to-child HIV transmission programme in Lilongwe, Malawi: why do so many women drop out.Reprod Health Matters. 2009;17(33):143–51

17. Theilgaard ZP, Katzenstein TL, Chiduo MG, Pahl C, Bygbjerg IC, Gerstoft J, et al. Addressing the fear and consequences of stigmatization – a necessary step towards making HAART accessible to women in Tanzania: a qualitative study. AIDS Res Ther. 2011;8:28

18. Etifit RE, Samson-Akpan PE. Utilization of antenatal and delivery services by pregnant women in Calabar Municipality, Cross River State, Nigeria. Nigerian Journal of Nursing, 2008; 1:49-58.

19. Moth IA, Ayayo AB Kasaje DO. Assessment of utilisation of PMTCT services at Nyanza Provincial hospital, Kenya. SAHARA J: Journal of Social aspects of HIV/AIDS Research Alliance/SAHARA, Human Sciences Research Council [SAHARA], 2005;2(2):244-250.

20. Duff P, Kipp W, Wild TC, Rubaale T, Okech-Ojony J. Barriers to accessing highly active antiretroviral therapy by HIV-Positive women attending antenatal clinic in a regional hospital in western Uganda. Int J Womens Health. 2012;(4):227-33.

21. Federal Ministry of Health, Nigeria. National HIV/AIDS and Reproductive Health Survey, 2005. Abuja: Federal Ministry of Health

22. Nkonki LL, Doherty TM, Hill Z, Chopra M, Schaay N, Kendall C. 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 Res Ther. 2007;4:27

311 23. Laher F, Cescon A, Lazarus E, Kaida A, Makongoza M, Hogg RS, et al. Conversations with
312 mothers: exploring reasons for prevention of mother-to-child transmission (PMTCT) failures
313 in the era of programmatic scale-up in Soweto, South Africa. AIDS Behav. 2012;16(1):91–8
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