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RESEARCH

The need for further integration of services to prevent mother-to-child transmission of HIV and syphilis in Mwanza City, Tanzania

Rebecca Balira [a,*], David Mabey [b], Helen Weiss [c], David Anthony Ross [c], John Changalucha [a], Deborah Watson-Jones [b,d]

[a] National Institute for Medical Research (NIMR), Mwanza, Tanzania
[b] London School of Hygiene and Tropical Medicine, London, UK
[c] MRC Tropical Epidemiology Group, London School of Hygiene and Tropical Medicine, London, UK
[d] Mwanza Intervention Trials Unit, NIMR, Mwanza, Tanzania

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ABSTRACT

Objective: To assess the operational integration of maternal HIV testing and syphilis screening in Mwanza, Tanzania. *Methods:* Interviews were conducted with 76 health workers (HW) from three antenatal clinics (ANC) and three maternity wards in 2008–2009 and 1137 consecutive women admitted for delivery. Nine ANC health education sessions and client flow observations were observed. *Results:* Only 25.0% of HWs reported they had received training in both prevention of mother-to-child transmission (PMTCT) and syphilis screening. HIV and syphilis tests were sometimes performed in different rooms and results recorded in separate registers with different formats and the results were not always given by the same person. At delivery, most women had been tested for both HIV (79.4%) and syphilis (88.1%) during pregnancy. Of those not tested antenatally for each infection, 70.1% were tested for HIV at delivery but none for syphilis. *Conclusion:* Integration of maternal HIV and syphilis screening was limited. Integrated care guidelines and related health worker training should address this gap.

1. Background

Maternal HIV and syphilis infections are important public health problems. The WHO has called for the global elimination of mother-to-child transmission (MTCT) of both HIV and syphilis [1,2], which would help improve a broad range of maternal and child health outcomes. Interventions for the prevention of MTCT (PMTCT) of HIV include comprehensive antenatal and postnatal reproductive and child health services, HIV counseling and testing, provision of antiretroviral therapy, optimal obstetric care, and safer infant feeding practices [3,4]. Interventions for the prevention of congenital syphilis include screening of pregnant women and providing infected women, and their sexual partners, curative treatment with benzathine penicillin [5] along with prevention services.

Despite syphilis screening of pregnant women being a recommended policy in many low-resource countries [6], in reality, infants of HIV-infected mothers who receive antiretroviral therapy prophylaxis and successfully complete steps along the PMTCT cascade may still die from congenital syphilis due to lack of maternal syphilis services [6]. A 2013 global analysis of antenatal surveillance data estimated that, in Africa, annually, more than 535 000 women with active syphilis become pregnant [7]. Untreated syphilis in pregnancy is associated with adverse clinical outcomes for the infant, including stillbirth, fetal and neonatal death, prematurity, and low-birth weight. Further, over 50% of pregnant women with untreated syphilis experience adverse pregnancy outcomes [7–9].

Antenatal care (ANC) services are the entry point for PMTCT of HIV services through HIV counseling and testing of pregnant women. Additionally, WHO recommends the integration of PMTCT services with maternal and child health services [10,11]. The introduction of PMTCT in ANC offers an excellent opportunity to leverage the investment in HIV prevention services to strengthen other maternal health interventions, such as syphilis screening and treatment, family planning, and malaria prevention, and can lead to high uptake of these services. A study conducted in Zambia documented an increase in maternal syphilis screening from 62.5% to 80.8% following introduction of PMTCT services in ANC [12,13].

PMTCT of HIV and maternal syphilis services are potentially suited for integration since they target the same population (pregnant women). Further, the interventions necessary to diagnose HIV and syphilis in pregnancy (testing, ideally at first pregnancy visit) are similar

* Corresponding author at: National Institute for Medical Research, Mwanza Center, PO Box 1462, Mwanza, Tanzania. Tel.: +255 783 584 115/+255 763 127896; fax: +255 28250 0654.
E-mail address: rbalira@yahoo.com (R. Balira).

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Table 1
Training in PMTCT topics and syphilis testing among antenatal care and maternity ward health workers.

Facility type and name	ANC				Maternity				Overall total
	Makongoro	NDH	Igoma	Total	BMC	STRH	NDH	Total	
Total number of staff interviewed	6	3	6	15	23	33	5	61	76
Percentage trained in									
HIV testing	66.7	33.3	50.0	53.3	73.9	45.5	60.0	57.4	56.6
VCT for PMTCT	50.0	33.3	16.7	33.3	73.9	51.5	20.0	57.4	52.6
Provision of ARV for PMTCT	50.0	33.3	16.7	33.3	56.5	33.3	00.0	39.3	38.2
Infant feeding counseling	33.3	33.3	33.3	33.3	56.5	39.4	20.0	44.3	42.1
Optimal obstetric care	33.3	33.3	00.0	20.0	52.2	27.3	20.0	36.1	32.9
PMTCT record keeping	50.0	33.3	16.7	33.3	39.1	30.3	00.0	31.1	31.6
PMTCT guidelines (2007)	50.0	00.0	66.7	46.7	65.2	36.4	20.0	45.9	46.1
Any of the PMTCT subjects above	100.0	66.7	83.3	86.7	82.6	69.7	80.0	75.4	77.6
Syphilis testing	33.3	33.3	66.7	46.7	43.5	12.1	20.0	24.6	28.9
Both syphilis testing and any of the PMTCT subject above	33.3	33.3	66.7	46.7	39.1	9.1	00.0	19.7	25.0

Abbreviations: ANC, antenatal care; ARV, antiretroviral; BMC, Bugando Medical Center; NDH, Nyamagana District Hospital; PMTCT, prevention of mother-to-child transmission; STRH, Sekou-Toure Regional Hospital; VCT, voluntary counseling and testing.

and can be performed onsite in ANC clinics with limited equipment. The integration of PMTCT of HIV services with maternal syphilis screening services is cost-efficient, saving providers' and clients' time [14]. Thus, the integration of services has the potential to increase uptake of each individual intervention and to lead to improved maternal and reproductive health [6,11].

In Tanzania, HIV testing is recommended for pregnant women with an unknown HIV status when admitted for delivery and HIV-positive women are administered antiretroviral prophylaxis antenatally [4]. Similarly, maternal syphilis screening is national policy in Tanzania [5], recommending that women who missed a syphilis screening test during ANC are tested at delivery so that early treatment can be given to the infant and mother, as appropriate. Further, there is no policy for integration of PMTCT of HIV and maternal syphilis screening services. As part of a larger operational research study on PMTCT of HIV and maternal syphilis screening implementation, the present article reports the extent of integration of the two programs at the facility level in Tanzania.

2. Materials and methods

The present study was conducted at three reproductive and child health clinics, Nyamagana District Hospital (NDH), Makongoro Regional Reproductive and Child Health Clinic, and Igoma Health Center; and three maternity wards, Bugando Medical Center (BMC), Sekou-Toure Regional Hospital (STRH), and NDH—all located in Mwanza City, Tanzania. All study ANC facilities offered maternal services for PMTCT of HIV and syphilis daily.

The data were gathered from four research activities:

(1) A structured questionnaire was administered to 28 health workers (HWs) at the ANC facilities and 61 HWs at the maternity wards between September 2008 and July 2009. Information collected included their key work activities and training on PMTCT of HIV and syphilis management.
(2) A structured observation was undertaken assessing the flow of activities at the facility when women attended their first ANC visit during a new pregnancy. Two client flow observations were conducted at each ANC clinic, one during a day when the clinics were offering vaccination services to children (a very busy day) and one during a day when they were not (a less busy day). For each observation, the movements of one randomly selected woman attending her booking visit at the clinic in the morning were followed. The observation was used to determine the services that were offered to the women, the time spent at each station accessing different services, and the overall time spent in the ANC facility for that visit.
(3) To understand the content and delivery of the health education talk that is routinely offered to pregnant women at their ANC visits, three health education sessions were observed at each ANC facility. A tool adapted from the 2007 UNAIDS tools for evaluating quality and contents of counseling for HIV testing uptake [15] was used to document points covered during the health education talks and to assess the quality and content of the information that was provided.
(4) Finally, a cross-sectional study of all pregnant women who were admitted for delivery in the maternity wards at BMC and STRH

Table 2
Time spent and distance covered by pregnant women attending antenatal clinic booking visits, three antenatal clinics in Mwanza.[a]

	Nyamagana		Makongoro		Igoma	
	Day 1[b]	Day 2[c]	Day 1[b]	Day 2[c]	Day 1[b]	Day 2[c]
Total time spent at the facility (min)	335	275	280	178	255	217
Waiting time before receiving any service (min)	180	135	20	30	45	20
Total waiting time from one station[d] to another (min)	105	75	187	80	145	136
Range of waiting times between stations (min)	5–50	5–30	7–60	0–30	5–60	26–70
Total time spent accessing services at different stations (min)	50	65	73	68	65	71
Range of time spent accessing services (min)	5–15	5–30	3–25	3–30	3–20	4–28
Total distance covered within the clinic (km)	0.10		0.35		0.05	
Total number of stations	5		6		4	

[a]Each column represents data on one woman.
[b]Busy day.
[c]Less busy day.
[d]Refer to Figs. 1–3 for the different stations visited by the woman at each visit.