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Nurse- and Midwife-Led HIV Services in Eastern and Southern Africa: Challenges and Opportunities for Health Facilities

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Abstract

In eastern and southern Africa, much is unknown about implementation of nurse-initiated and managed antiretroviral therapy (NIMART). The purpose of this study was to identify perceived barriers and facilitators of NIMART for the prevention of mother-to-child transmission and pediatric HIV services in high-volume, high HIV-burden health facilities across this region. A total of 211 nurses, midwives, and nurse midwives and 62 supervisors from 30 health facilities in 11 countries participated in this mixed-methods evaluation. The findings show that although nurses, midwives, and nurse midwives clearly had the authority to provide NIMART services, they did not necessarily feel that they were well prepared and supported to do so. Deficits in supportive supervision and clinical mentorship were viewed as substantial challenges to effective provision of NIMART for the prevention of mother-to-child transmission and pediatric HIV services—particularly with respect to pediatric HIV services. Health facilities have important opportunities to advance NIMART practice through strengthening these aspects of in-service support.

Key words: antiretroviral therapy, clinical mentorship, nurse-led models of care, pediatric HIV services, PMTCT, supportive supervision

In 2018, approximately 37.9 million people globally were living with HIV and 23.3 million were receiving treatment (Joint United Nations Programme on HIV/AIDS, 2018a). Over the past decade, the number of new HIV infections has steadily decreased, as more people have obtained HIV care and antiretroviral therapy (ART). To build on this success, Joint United Nations Programme on HIV/AIDS (UNAIDS) initiated the Fast-Track Strategy, which aims to end the AIDS epidemic by 2030. Global benchmarks to be achieved by the year 2020 focus on accomplishment of the "90-90-90" targets: 90% of all people living with HIV (PLWH) know their HIV status, 90% of all people diagnosed with HIV are receiving sustained ART, and 90% of all people receiving ART are virally suppressed (Joint United Nations Programme on HIV/AIDS, 2014). The second set of global benchmarks aim to increase these same three indicators to 95% by 2030 (Joint United Nations Programme on HIV/AIDS, 2014). Recently, UNAIDS reported that global financial resources to meet the Fast-Track targets are close to sufficient; however, the institution warned more progress is needed to combat viral transmission if these resources are to be sustainable (Joint United Nations Programme on HIV/AIDS, 2017a).

Encouragingly, the eastern and southern Africa region showed the most progress toward the Fast-Track targets, which is where more than half the global population of PLWH (20.6 million) reside (Joint United Nations Programme on HIV/AIDS, 2017a, 2018a). From 2010 to 2018, the number of new HIV infections in this region declined by 28%, compared with a decline of approximately 16% globally (Joint United Nations Programme on HIV/AIDS, 2019a). Similar to other parts of the world, this decline was greater among children than among adults. Unlike in other regions, however, women and girls are disproportionately affected by HIV, accounting for approximately 61% of the total number of PLWH in eastern and southern Africa as compared with 52% of PLWH globally (Joint United Nations Programme on HIV/AIDS, 2018a). Young women ages 15 to 24 are especially vulnerable due to the complex workings of gender inequity (e.g., child marriage, transactional sex between

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young women and older men, lack of access to sexual and reproductive health services; Joint United Nations Programme on HIV/AIDS, 2014). Although these women only consist of approximately 10% of the region's population, they account for 26% of new infections (Joint United Nations Programme on HIV/AIDS, 2017a). Children living with HIV in this region continue to suffer as well. Despite improved prevention of mother-to-child transmission (PMTCT) services and decreasing new infections among children between 0 and 14 years of age, problems related to early viral load testing, timely treatment, and gaps in the HIV care continuum persist (Joint United Nations Programme on HIV/AIDS, 2014, 2016a). To address these disparities and deficiencies and to support the Fast-Track Strategy, additional initiatives are being implemented to promote better HIV care for women, adolescent girls, and children. Such initiatives include Start Free, Stay Free, AIDS Free (continuing the work of the Global Plan), DREAMS, the Accelerating Children's HIV/AIDS Treatment Initiative (ACT), and the All In campaign (Joint United Nations Programme on HIV/AIDS, 2014, 2015a, 2015b, 2019b; Saul et al., 2018; The United States President's Emergency Plan for AIDS Relief & Children's Investment Fund Foundation, 2017).

Although improving access to HIV care does not always translate to sustained care and treatment, ART initiation for all PLWH regardless of CD4 count is a critical first step in eliminating this epidemic (Granich et al., 2016; World Health Organization, 2015). According to UNAIDS, approximately 62% of all PLWH had access to ART in 2018 (Joint United Nations Programme on HIV/AIDS, 2018a). In eastern and southern Africa, this percentage was even higher at 67%, with 72% of adult women and 59% of adult men receiving treatment (Joint United Nations Programme on HIV/AIDS, 2017a, 2018b). Despite the rapid progress achieved over the past decade, 20.6 million people in eastern and southern Africa are living with HIV and only approximately 13.8 million are receiving treatment. This ART coverage gap of almost 7 million is the largest of any region globally (Joint United Nations Programme on HIV/AIDS, 2014, 2017a). To reach the Fast-Track 2020 targets in eastern and southern Africa, more than 5 million additional PLWH will need to know their status, initiate ART, and achieve viral suppression (Joint United Nations Programme on HIV/AIDS, 2016b). ART coverage is falling short in this region for several reasons, including high-HIV prevalence, insufficient government resources, low household income level and high costs of treatment, and shortage of providers authorized to provide HIV care (Joint United Nations Programme on HIV/AIDS, 2016b, 2017a).

Despite some increases in the numbers and density of skilled health workers in the past 10–15 years, sub-Saharan Africa as a whole continues to experience health worker shortages, particularly with respect to physicians (World Health Organization, 2014). Rural health facilities are often staffed by providers, such as nurses, midwives, nurse midwives, and clinical officers, with physicians providing care on a more limited basis or largely at higher-level health facilities (World Health Organization, 2008, 2014). When these nonphysician providers are not authorized to initiate and manage ART, access to this critical intervention is drastically limited. Using World Health Organization (WHO) data, a 2014 study of 15 eastern and southern African countries delineated the ratio of health care providers per 1,000 population—physician ratios range from 0.01 to 1.06, whereas nurse ratios ranged from from 0.24 to 3.20 (Zuber et al., 2014). At the time of this study, WHO recommended a minimum of 2.3 skilled health workers per 1,000 population; however, the current recommended ratio is 4.45 per 1,000 population (World Health Organization, 2016a). By either threshold, most countries in this region are lagging behind in terms of health workforce coverage. For more information on health worker ratios in specific countries, see reports on WHO's Global Health Observatory (e.g., World Health Organization, 2018a).

Despite overall workforce shortages in this region, there are far more nurses, midwives, and nurse midwives than physicians. As such, it is critically important that these providers have a more definitive role in the provision of ART. Such expansion of scope of practice for clinical tasks across different health care cadres is often referred to as "task shifting" or, preferably, "task sharing," a term that implies a team-based (vs. hierarchical) approach that may result in more efficient and higher-quality care (Olson, 2012). According to WHO recommendations, nurses are authorized to perform most of the HIV clinical tasks that other clinicians perform, with the key exception of prescribing third-line ART regimens and evaluating drug resistance (Joint United Nations Programme on HIV/AIDS, 2017b; World Health Organization, 2016b).

Nurse-initiated and managed antiretroviral therapy (NIMART) is a term that describes the role nurses, midwives, and nurse midwives play in providing HIV care and treatment services. Specifically, NIMART is a form of task sharing in which nurses provide advanced clinical services, including diagnosing and clinical staging of HIV, prescribing first- and second-line ART, and managing many treatment-related conditions and opportunistic infections (Gross et al., 2015; Joint United Nations Programme on HIV/AIDS, 2017b). Although nurses, midwives, and nurse midwives in eastern and southern Africa

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often receive some training on NIMART and can prescribe ART according to Ministry of Health guidelines, training and regulation for this practice varies widely across countries and is not always officially recognized (i.e., nurses may or may not receive specialized credentials; Crowley & Mayers, 2015; Gross et al., 2018; Zuber et al., 2014). Lack of official recognition can lead to confusion in scope of practice and task sharing, diluting potential advances in access to care and ART coverage. This problem is augmented when there is no legal protection for health workers if they act outside their scope of practice (Amref Health Africa, 2017; Crowley & Mayers, 2015).

In addition to improved access to care, NIMART offers advantages in cost effectiveness, health system efficacy, and strengthened relations between health facilities and communities due to the greater presence of nurses, midwives, and nurse midwives at the community level (Zachariah et al., 2009). A systematic review that included 11 studies in six African countries found that HIV task sharing between physicians and nurses was associated with improved morale and confidence among nurses, higher levels of patient retention and lower levels of loss-to-follow-up among patients (compared to physician-managed ART), and higher levels of patient satisfaction (Iwu & Holzemer, 2014). However, most sites in this study implemented NIMART in different ways and to different extents, highlighting the problem of standardization of care. Other challenges to NIMART include maintaining quality and safety, overcoming professional and institutional resistance, and managing job dissatisfaction due to increased workload and poor salaries (Zachariah et al., 2009). These challenges notwithstanding, NIMART appears to be an essential part of any strategy to increase access to HIV care and improve ART coverage. It is critical at this juncture to better understand to what extent NIMART is being implemented in high-HIV burden health facilities and what conditions support and do not support the successful implementation of this model of care—both at the facility level and within the broader health care system.

To begin to address this knowledge gap, this study sought to identify challenges and opportunities for NIMART services in high-volume, high-HIV burden health facilities across eastern and southern Africa—specifically in relation to services for pregnant and breastfeeding women (PBFW), HIV-exposed infants (HEIs), and children and adolescents (hereinafter referred to as Peds). The specific study goals were to (a) evaluate perceptions of nurses, midwives, and nurse midwives regarding NIMART barriers and facilitators; (b) assess NIMART barriers and facilitators from the perspectives of clinical supervisors; and (c) triangulate the findings from the above two components to elicit a more comprehensive understanding of conditions affecting current NIMART practice.

This study was conducted as part of a broader needs assessment that aimed to understand and improve quality of NIMART at 30 health facilities in 11 eastern and southern African countries including Eswatini (formerly Swaziland), Ethiopia, Kenya, Lesotho, Malawi, Mozambique, Rwanda, Tanzania, Uganda, Zambia, and Zimbabwe. These countries were part of the 17 countries that comprised the African Health Professions Regional Collaborative (ARC), an initiative supported by the President's Emergency Plan for AIDS Relief through the US Centers for Disease Control and Prevention (CDC) and implemented by the Emory University Nell Hodgson Woodruff School of Nursing, in partnership with the Commonwealth Nurses and Midwives Federation, and the East, Central and Southern Africa Health Community. The overarching purpose of ARC (2011–2017) was to build professional and collective capacity among national nurse and midwife leaders (chief nursing officers in ministries of health, registrars of nursing and midwifery councils, presidents of nursing/midwifery professional associations, and academic representatives)—particularly with respect to HIV services for women and children (Gross et al., 2015; Gross e, 2011). In this sense, ARC's work contributed to the mission of current UN initiatives and the overall goal to end the AIDS epidemic by 2030.

Methods

Data were collected by ARC country teams with coordination from ARC faculty at Emory University and the CDC in 2016. Facilities were selected in consultation with CDC country offices based on the overall volume and high burden of HIV patients. Three strategies were employed to understand implementation and quality of NIMART services for PMTCT and pediatric HIV care: (a) questionnaires with health providers (nurses, midwives, and nurse midwives); (b) in-depth qualitative interviews (IDIs) with clinical supervisors; and (c) a facility audit based on a capability maturity model for NIMART developed by ARC faculty. Ethical approval was granted by the CDC and Emory University Institutional Review Board; this assessment was reviewed by the CDC in accordance with human subjects' protections procedures and was determined to be a non-research, program evaluation. No personal identifiers were collected from participants at any stage of the evaluation process.

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Quantitative Methods

African Health Professions Regional Collaborative Country Teams collected quantitative data through administration of a closed-ended questionnaire to a convenience sample of nurses, midwives, and nurse midwives. Any of these providers who were also acting as clinical supervisors were excluded from participation in the quantitative component because they were invited to participate in the qualitative component. We aimed to include 10–15 participants in hospital settings and 5–10 in primary care settings. Potential participants were identified by clinic supervisors in a manner that minimized disruption to facility services. After providing informed consent, participants were given at least 2 hours to complete the self-administered questionnaire (either in Portuguese for Mozambique facilities or English for all other facilities). A trained member of the assessment team facilitated this process in all countries, providing initial instructions and remaining present for the duration of administration to answer any questions and collect the questionnaires. The full questionnaires contained background information and questions regarding self-confidence and perceived competence in providing HIV services, perceptions of respectful care, a knowledge assessment, and a series of questions about specific facilitators for NIMART with respect to PMTCT and pediatric HIV services. The questions in this final category were the focus of the current assessment and were derived from accepted task sharing standards relative to HIV services (Iwu & Holzemer, 2014). Questionnaire items are shown in Table 1, and participants responded according to a four-level Likert scale (*strongly disagree, disagree, agree*, and *strongly agree*).

Prior to data analysis, standard data cleaning procedures were performed in Microsoft Excel, including separating data by the three types of HIV services—specifically services for PBFW, HEI, and Peds. Descriptive statistics were then calculated for the total sample by service type (i.e., frequency counts and percentages for categorical variables). After examining the results for each type of service, responses within these services were analyzed by facility, country, and provider type (nurse, midwife, nurse midwife).

Table 1. Assessed Facilitators for NIMART

	Questionnaire Item
1	My preservice education prepared me with the knowledge and skills needed to provide this care effectively.
2	My training at this facility has prepared me with the knowledge and skills needed to provide this care effectively.
3	At this facility, I have access to clinical supervision and support (e.g., clinical mentor) to provide this care effectively.
4	At this facility, I receive feedback on the HIV services I provide based on chart reviews or other assessments.
5	At this facility, I have the authority (and am supported by the facility policy) to provide this care effectively.
6	At this facility, I have the time that is needed to provide this care effectively.
7	Relations between the different types of health workers at this facility are good and facilitate the collaboration needed to provide this care effectively.
8	In general, patients and community members trust the health workers at this facility to provide this care effectively.

Note. Each item was assessed in relation to HIV services for (a) pregnant and breastfeeding women, (b) HIV-exposed infants, and (c) children and adolescents. NIMART = nurse-initiated and managed antiretroviral therapy.

Qualitative Methods

In-depth qualitative interviews were conducted with a purposeful sample of clinical supervisors of nurses, midwives, and nurse midwives who provided PMTCT or pediatric HIV services in the health facility. We anticipated conducting 2–3 IDIs per facility, understanding that this range may widen depending on facility size. After providing informed consent, participants were asked open-ended questions regarding facility characteristics and the provision of HIV services by nurses, midwives, and nurse midwives in the facility. Specifically, the interview guide contained questions regarding task sharing practices, competence and motivation among providers, and barriers and facilitators for NIMART services. Interviews were conducted by trained members of the assessment team (one member per country), who recorded participants' responses by hand. Interviewers were fluent in both English and local languages, and interviews were conducted in the participants' language of choice. Notes taken during interviews were recorded in the language used, and subsequently translated into English (if needed) by the original interviewer. All responses were reviewed for accuracy by each ARC country team, who sought additional clarification as needed. Hard copy written responses

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documented on the interview guide were transcribed into standardized electronic data forms using Microsoft Word that the ARC faculty provided to the ARC country teams. Digital audio-recordings were not used due to limited resources within ARC country teams.

Initial qualitative analyses occurred in the field, where ARC country teams (with support from ARC faculty) completed a series of worksheets to define key barriers and facilitators for NIMART in each facility and to prioritize problems of focus for quality improvement projects. First, an interview summary form was used to derive key concepts and salient categories from individual IDIs. Next, a facility summary form was completed that compared and contrasted concepts from the interview summaries to elicit the combined perspectives of the supervisors interviewed at each facility. The facility summary form assisted teams to synthesize the IDI findings for multiple facilities in one country and develop a refined list of priority problems that could potentially be addressed with a quality improvement project. A finalized data analysis was conducted by Emory ARC team members by extracting key concepts from the data and summary forms and developing detailed lists of the barriers and challenges as well as the facilitators and opportunities identified across the 11 countries.

Triangulation of Findings

After their respective analyses, results from the quantitative and qualitative components were examined in light of each other to identify commonalities and distinctions between the responses of nurses, midwives, and nurse midwives as compared with those of the clinical supervisors. Specifically, results from the questionnaire items (regarding barriers and facilitators for NIMART) were compared and contrasted to those produced from the IDIs on the same topic. When a qualitative theme was identified across multiple health facilities, it was then compared with responses for the quantitative item in the questionnaire that it most closely corresponded to for each clinical service type and across all countries. Finally, summaries of findings were written, including descriptions of similarities and differences in the responses between providers and supervisors.

Results

A total of 30 different health facilities were included in this study (1–4 health facilities per country), including 12 districts or referral hospitals and 18 health centers or clinics (Table 2). The total number of questionnaire respondents was 211, with most facilities having between six and 12 participants (except for one facility in Mozambique, which had only a single participant). These participants self-identified with one of three professional titles: nurse ($n = 86$), midwife ($n = 19$), or nurse midwife ($n = 106$). Participants who responded to less than 50% of the questionnaire items (in any of the three types of services evaluated) were excluded ($n = 11$), bringing the final number of questionnaire respondents to 200. All questionnaire items consisted of positively worded statements that require Likert responses and are shown in Table 1. A total of 62 clinical supervisors participated in the IDIs, with the number of supervisors per facility ranging from 1 to 6, with 2–3 being typical.

Quantitative Results

Although preservice training was not provided by the participating facilities, perceptions of previous training provide a useful point of comparison to perceptions of facility-based in-service training. For each of the three types of HIV services (PBFW, HEI, and Peds), 59.5–66.5% of nurses, midwives, and nurse midwives across all participating countries responded *strongly agree* or *agree* that their preservice training had effectively prepared them to provide NIMART services (Figures 1–3). However, even higher proportions reported that the in-service training at their current facility prepared them with the necessary knowledge and skills. Specifically, positive responses (i.e., *strongly agree* and *agree* combined) for current in-service training were 11.5% higher than for preservice training with respect to PMTCT services for PBFW, 13.0% higher for HEI services, and 7.5% higher for Peds services.

Areas that nurses, midwives, and nurse midwives perceived most negatively (i.e., *disagree* and *strongly disagree* responses) were related to supervision and mentorship. For each type of service, having supportive supervision and getting feedback on work performance received the highest number of negative responses among all items assessed (Figures 1–3). With respect to PMTCT services for PBFW, the proportion of negative responses (*disagree* and *strongly disagree* combined) among all participants regarding supportive supervision was 34.5%; this proportion was 36.0% for HEI services and 42.5% for Peds HIV care. Performance feedback on care provided was viewed similarly, with 36.0% of negative responses for HIV services for PBFW, 37.0% for HEI services, and 43.5% for Peds HIV services. The response *strongly disagree* was selected by nearly 10% of participants, regardless of service type for this item; this was the highest proportion of *strongly disagree* responses after preservice training, which was most evenly distributed across the four response options.

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Table 2. Health Facilities and Participants by Country

Country	Total Participant Health Facilities in Country, Number	Facility Type, Number		Total Number of Nurse, Midwives, and Nurse Midwives Participating, Number (Questionnaires)	Provider Type, Number			Clinical Supervisors, Number (In-Depth Interviews)
		District/ Referral Hospital	Health Center		Nurse	Midwife	Nurse Midwife	
Eswatini	1		1	5	3		2	2
Ethiopia	3	3		22	18	3	1	3
Kenya	2	1	1	19	4		15	4
Lesotho	3	1	2	16			16	7
Malawi	3	1	2	23	1		22	8
Mozambique	3	2	1	13	1		12	6
Rwanda	3		3	12	12			5
Tanzania	2	1	1	31	14		17	11
Uganda	3	2	1	30	9	14	7	8
Zambia	3	1	2	26	16	2	8	3
Zimbabwe	4		4	14	8		6	5
Total	30	12	18	211	86	19	106	62

Despite a perceived lack of supportive supervision and clinical mentorship, the majority of participants reported that they had sufficient authority to provide NIMART. This trend largely held for each type of service: (a) 83.5% of nurses, midwives, and nurse midwives responded *strongly agree* or *agree* that they possessed the authority to provide HIV care for PBFW, (b) 76.5% responded in this manner for HEI, and (c) 70.0% for Peds. The only items that ranked more positively than authority to provide care were positive staff relations and patient relations (Figures 1–3). The final item assessed—having adequate time to provide effective care—was fairly stable across service types, with 60–65% of respondents agreeing and 33–38% of respondents disagreeing.

Participants' responses followed similar trends across all three service types but were least positive for Peds HIV

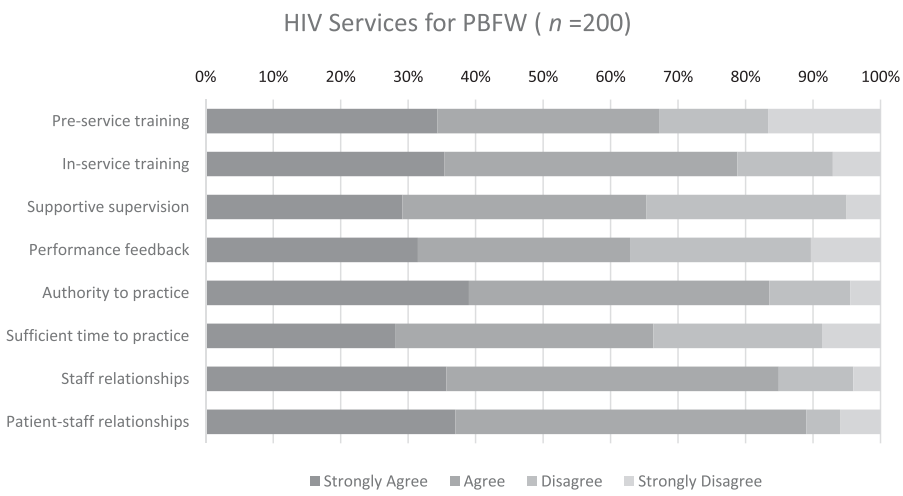

Figure 1. Perceptions of HIV services for pregnant and breastfeeding women (PBFW) among nurses, midwives, and nurse midwives.

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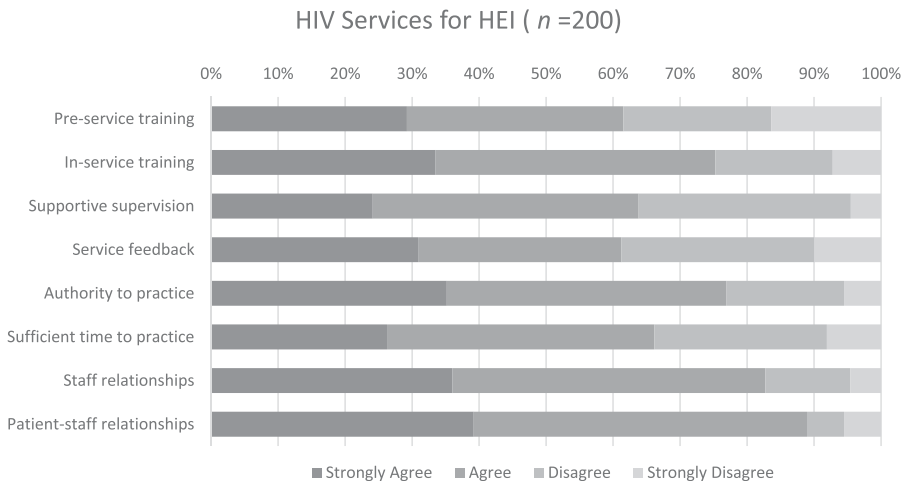

Figure 2. Perceptions of HIV services for HIV-exposed infants (HEI) among nurses, midwives, and nurse midwives

services as compared with services for PMTCT for PBFW or HEI. This result is at least partially due to differences among provider types. We found that, compared with midwives and nurse midwives, nurses responded more positively to items assessing Peds HIV services. For example, only 35.4% of nurses responded *disagree* or *strongly disagree* with regard to supportive supervision (item #3), compared with 53.3% among the midwives and 46.6% among the nurse midwives. This finding is not surprising, given differences in training and roles between nurses, midwives, and nurse midwives in many of the countries. No other discernable patterns were detected with respect to professional title or facility type (hospital as compared with health center), either across or within countries.

Cumulative negative responses never outweighed positive responses for any items (Figures 1–3), but more variation was observed when data at the selected facilities were examined by country. For example, negative responses among nurses, midwives, and nurse midwives at the facilities in Rwanda outnumbered their positive responses for all eight of the NIMART items (Figure 4). Regardless, *authority to practice* still received the highest percentage of positive responses (47.2%), which aligns with the broader trend of providers understanding that they have authority to provide care even though they lack facility-based support to do so effectively. Responses in the Zambian facilities follow trends seen in the total sample, except that preservice training was perceived slightly more favorably (80.0%) than in-service training (76.0%). The contrast seen in Figure 4 is likely due in part to sampling differences between specific facilities in Rwanda and Zambia—particularly with respect to sample size and

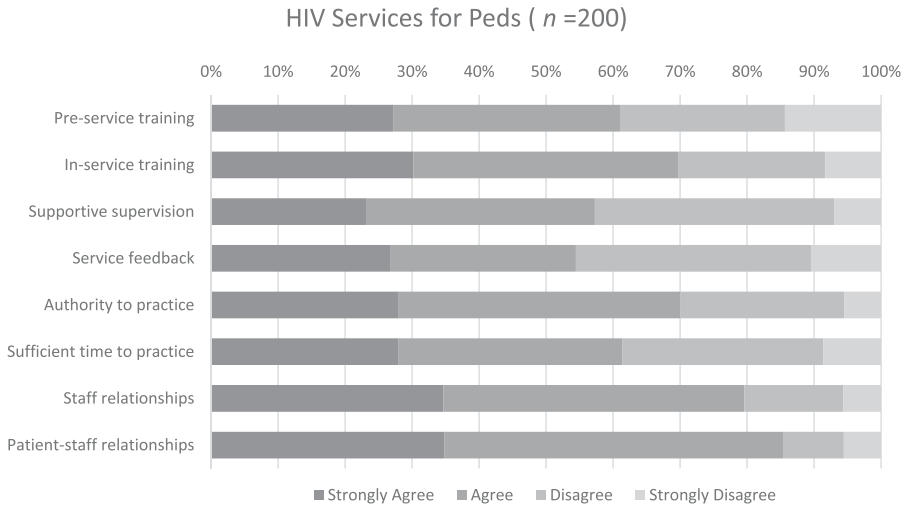

Figure 3. Perceptions of pediatric HIV services among nurses, midwives, and nurse midwives. *Note*. Peds = children and adolescents.

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cadre type/training (Table 2). It may also reflect differences in the scale of these HIV epidemics, with Rwanda having a relatively low prevalence of HIV among children and women of reproductive age. However, far more rigorous study is needed to accurately assess country-level differences in NIMART services.

Qualitative Results

In-depth qualitative interviews with clinical supervisors identified numerous barriers related to NIMART provision in their health facilities (Table 3). Problems identified in at least 20 of the 30 facilities (66.7%) included deficiencies in preservice training (n = 24, 80%), staff shortages in HIV clinic areas (n = 23, 76.7%), and either inadequate supplies or insufficient space for effective provision of services (n = 25, 83%). Challenges that clinical supervisors in at least 10 facilities (33.3%) spontaneously described included high workloads (n = 18, 60%), poor provider competence in pediatric HIV services (n = 14, 46.7%), poor overall facility capacity for pediatric HIV services (n = 15, 50%), and lack of clinical mentorship (n = 12, 40%). Additional problems that were identified in fewer than 10 facilities included poor staff attitudes or low motivation, high staff turnover, and lack of career or monetary incentives.

Not unexpectedly, supervisors interpreted many of the barriers and challenges they discussed as potential opportunities for improved NIMART services. In response to perceived deficiencies in preservice training, supervisors in 23 health facilities (76.7%) across nine countries identified opportunities for strengthening in-service training for nurses, midwives, and nurse midwives. They expressed a need for additional staff (25 facilities, 83.3%) and for more space (23 facilities, 76.7%). Supervisors in 15 health facilities (50%) noted that pediatric HIV services were inadequate and suggested specific actions to help improve these services, such as extending the dates and time pediatric services are offered to ensure that children who attend school can access care and designating an area in the facility as an "adolescent corner" with movies and food as incentives and comfort measures for youth. Less commonly voiced opportunities included offering career or monetary incentives to improve motivation and developing relationships with community stakeholders. Supervisors in one facility mentioned improved communication among health providers and departments as an important opportunity.

Triangulation of Findings

The barriers and potential facilitators identified in the IDIs overlapped with results from the items assessed by the questionnaire. Across all service types and facilities, nurses, midwives, and nurse midwives viewed preservice training, supportive supervision, and receiving feedback on performance less favorably than the other NIMART facilitators assessed. Clinical supervisors in 24 of the 30 facilities (80%) also identified preservice training as a problem, and those in 16 facilities (53.3%) discussed continuous mentorship programs as an

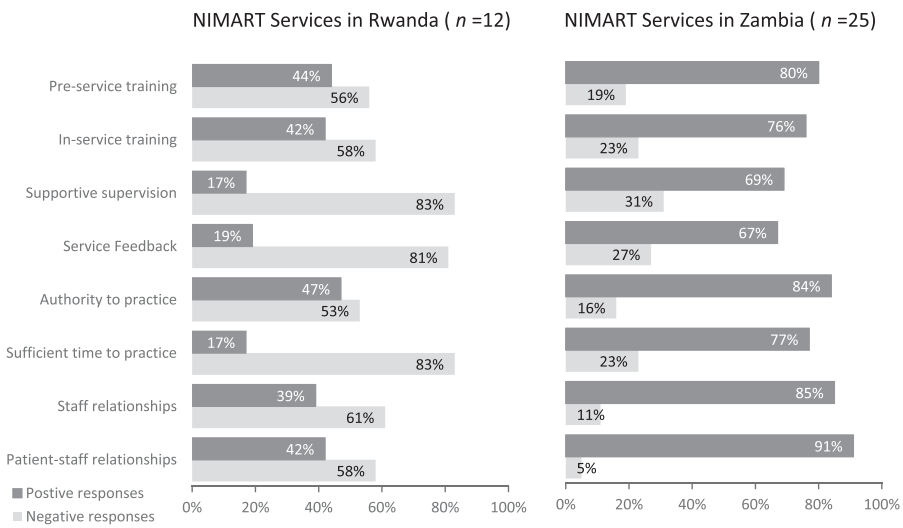

Figure 4. Perceptions of NIMART services in Rwandan and Zambian health facilities among nurses, midwives, and nurse midwives for all service types. NIMART Services in Rwanda (n =12); NIMART Services in Zambia (n =25). *Note*. NIMART = nurse-initiated and managed antiretroviral therapy.

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Table 3. Barriers or Challenges and Facilitators/Opportunities Identified by Clinical Supervisors

	Eswatini	Ethiopia			Kenya		Lesotho			Malawi			Mozambique			Rwanda			Tanzania		Uganda			Zambia			Zimbabwe				Total Facilities
	1	1	2	3	1	2	1	2	3	1	2	3	1	2	3	1	2	3	1	2	1	2	3	1	2	3	1	2	3	4	
Barriers and Challenges																															
Inadequate supplies or space	■	■	■	■	■	■	■	■	■	■		■	■	■	■					■	■	■	■	■	■	■	■	■	■	■	25
Knowledge gap from inadequate pre-service training	■	■	■	■	■	■	■	■	■	■	■	■		■		■	■	■	■	■	■	■	■	■			■		■		24
General staff shortage	■	■		■	■	■	■	■	■	■		■			■	■	■	■		■	■		■	■	■		■	■	■	■	23
High staff workload	■				■	■	■	■		■	■	■	■	■		■	■	■			■	■	■					■		■	18
Poor facility capacity for peds services overall	■		■		■		■	■	■	■	■		■	■	■					■	■			■				■			15
Poor competence for peds services among nurses/midwives/nurse midwives	■	■			■			■		■	■					■	■		■	■	■			■		■			■		14
Lack of clinical mentorship		■			■	■			■	■				■		■		■	■					■		■	■				12
Poor attitudes or low motivation among nurses/midwives/nurse midwives		■	■		■			■		■										■	■		■								8
High staff turnover		■	■	■				■		■				■																	6
Nocareer or monetary incentives			■							■											■										3
Inadequatetime to provide care	■																													■	2
Lack of community trust		■																													1
Poor relations among facility staff																		■													1
Facilitators and Opportunities																															
Increase staff	■	■		■		■	■	■	■	■	■	■	■	■	■		■	■		■	■	■	■	■	■		■	■	■	■	25
Strengthen in-service training		■		■	■	■	■	■	■	■	■	■				■	■	■	■	■	■	■	■		■	■	■		■	■	23
Provide adequate supplies and space	■	■		■	■	■	■	■	■				■	■	■	■				■	■	■	■	■	■	■	■	■	■	■	23
Strengthen capacity for peds services	■				■		■	■	■	■		■	■			■	■	■		■		■			■			■	■		16
Develop programs for supportive supervision and clinical mentorship		■	■	■	■	■		■		■				■				■	■	■				■	■	■	■	■			16
Offer monetary incentives			■																												1
Improve communication between providers and departments											■																				1
Strengthen relationships with community level stakeholders			■																												1

Note. Peds = children and adolescents.

important opportunity to strengthen NIMART. Among supervisors in all 11 countries, only those from one hospital in Mozambique reported that a mentorship program was currently in place. Results for Peds HIV services were also consistent; supervisors in half of the facilities raised concerns about provider competence or inadequate capacity with respect to other aspects of this care, which was reflected in the lower proportion of positive responses among nurses, midwives, and nurse midwives regarding care for this population.

Triangulation largely supported findings within countries and within individual facilities. For example, negative responses on staff relations outnumbered positive responses among nurses, midwives, and nurse midwives in one health center in Rwanda, whereas supervisors at that facility also discussed poor relationships and communication difficulties. A few inconsistencies were also noted; for example, in Ethiopia, supervisors at two referral hospitals described lack of community trust as being a significant barrier to NIMART practice, yet the questionnaire responses from nurses, midwives, and nurse midwives were highly positive for patient relationships. Although community trust and patient–provider relationships are not the same concepts, they both reflect relationship dynamics and interface between health providers and users from the perspectives of nurses, midwives, and supervisors.

Discussion

The findings suggest that deficiencies in preservice training and insufficient clinical (in-service) support present substantial challenges to effective provision of NIMART for PMTCT and pediatric HIV services. Although the nurses, midwives, and nurse midwives in the

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facilities assessed clearly had the authority to provide NIMART services, a substantial proportion did not feel that they were well prepared or well supported to deliver this care. These results are consistent with other studies describing the lack of supportive supervision and clinical mentorship for HIV services in the region (Green et al., 2014; Mabelane et al., 2016; Smith et al., 2016). In particular, this evaluation revealed perceived weaknesses in pediatric HIV services, and especially with regard to preservice training. As nursing and midwifery councils accredit preservice educational programs, specific attention should be given to curriculum requirements to strengthen competencies in pediatric HIV care.

Participants also identified staff shortages and facility infrastructure deficits as significant barriers to NIMART provision, but such problems reflect challenges beyond the facility level. The United Nations High-Level Commission on Health Employment and Economic Growth (comprised members from the WHO, the Organization for Economic Co-operation and Development, and the International Labour Organization), has defined 10 recommendations for transforming the health workforce and enabling change, with the first focusing on creating health sector jobs with the right skills in the right numbers and places (World Health Organization, 2018b). In working toward this recommendation, the report specifies that first it must be understood why there are not more nurses, midwives, and nurse midwives assigned to high-volume, high-HIV burden health facilities in the public sector. Transparency with respect to allocation of financial resources is also needed so that appropriate recommendations can be made to Ministries of Health regarding what changes will make the most impact. Future studies should then examine the effect of increases in staff, space, or other infrastructure investment on NIMART services and coverage of care.

Additional challenges at the system level that manifest in facility-level deficits in clinical capacity quality of care include educational accrediting processes and professional regulatory structures. However, established standards may not be routinely implemented and enforced—particularly in settings with highly limited resources and/or lack of political will. Despite these issues, however, health facilities can still take steps to improve NIMART support. For example, formal in-service training programs offer an excellent opportunity to strengthen clinical competence regardless of preservice educational experience, and more effort should be directed toward developing ongoing, standardized programs. Such training may be especially needed in settings where nurses, midwives, or nurse midwives are delivering services to populations they may be underprepared to serve, such as midwives caring for HEI or other pediatric patients. For standardized programs to be successful at the facility level, supervisors must be willing and supported to train less-experienced health workers. They must understand the current needs of their staff and anticipate future needs of the health system (e.g., supplies, skills mix, and competencies; World Health Organization, 2014). Health workers also need to be motivated to participant in additional training.

Although not prominent in this assessment, other studies have found that motivation among health facility staff can also be an important factor. In a previous analysis of 17 countries in the east, central, and southern Africa region, some nurses, midwives, and nurse midwives reported poor attitudes and low motivation when engaging in task sharing, often due to a lack of financial incentive or nonremuneration (Iwu & Holzemer, 2014; Smith et al., 2016). This response is understandable as these providers often take on additional tasks even when they lack accreditation or approval by professional regulatory bodies (Crowley & Mayers, 2015). Although efforts to incorporate NIMART have been modestly successful in some settings, its long-term success may depend on the empowerment of providers through measures such as official recognition upon completion of standardized training, salary increases, higher levels of trust and support from physicians, or some combination of incentives and upward job mobility (Green et al., 2014; Mabelane et al., 2016).

In terms of future research, a more comprehensive understanding is needed regarding current practices and processes for supportive supervision and clinical mentorship in high-volume, high-HIV burden facilities. In particular, we need more information about the training clinical supervisors receive and whether it qualifies them to provide support to nurses, midwives, and nurse midwives. We then need to understand how supervision and mentorship can be both effectively and efficiently improved to best support health providers offering NIMART services. As related to specific service delivery settings, the design, testing, and adoption of successful training, supervision, and mentorship programs are key measures that health facilities can take to strengthen NIMART practice. More rigorous studies that examine the impact of NIMART on health outcomes in various settings are also needed.

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Limitations

The primary limitation of this assessment is that the results are not generalizable beyond the facilities in which data were collected. Although the findings may be relevant for other facilities with similar patient demographic and health system characteristics, it cannot be inferred that they are representative of country or that general trends between countries exist (e.g., health facilities in Rwanda vs. Zambia). Further study that includes careful consideration of context is needed to ascertain where countries (and sub-country regions) stand with respect to NIMART before policy recommendations can be made beyond individual facilities. Better understanding of specifically what aspects of facility-based supervision and mentorship need strengthening is also warranted. A final limitation concerns data quality. Because this project was highly committed to capacity building for ARC country teams, a primary goal was to provide team members with training and experience in needs assessment and quality improvement processes. ARC faculties were thus not present at each step of data collection with each individual team. However, efforts were made to minimize potential problems related to data quality, including the provision of highly detailed training materials and training sessions (both remote and face-to-face) prior to and during data collection. Overall, we estimate that the impact was modest and largely consisted of missing data from some countries.

Conclusion

This evaluation can be used to inform health facilities that seek to establish or strengthen NIMART practice in one or more of the types of services examined. The findings reinforce the message that although challenges related to preservice education, staffing, infrastructure, and the like cannot be resolved at the facility level alone, there remain opportunities to strengthen NIMART practice through standardized in-service trainings, specific protocols for ongoing supportive supervision, and formal clinical mentorship programs. Taking advantage of these opportunities may be a critically important step toward meeting the Fast Track Strategy to the AIDS epidemic by 2030.

Key Considerations

- ❍ Despite structural challenges involving preservice education, staff workload, and facility infrastructure, participants identified a number of steps that facilities can take to improve their nurse-initiated and managed antiretroviral therapy (NIMART) services; specifically, offering standardized in-service training, providing formal clinical mentorship programs in prevention of mother-to-child transmission and pediatric HIV services, and developing specific protocols for ongoing supportive supervision.
- ❍ Both health care systems and individual health facilities should consider investing more resources into designing, implementing, and evaluating these interventions.
- ❍ Long-term success of any interventions to strengthen NIMART may be enhanced by the empowerment of nurses, midwives, and nurse midwives through some combination of professional incentives and upward job mobility.

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Disclosures

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