

# Sustaining treatment adherence and viral suppression among HIV positive women through a robust peer approach



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## Background

- mothers2mothers (m2m) is an African non-profit organisation that unlocks the power of women to eliminate childhood AIDS and create healthy families. m2m trains and employs women living with HIV in sub-Saharan Africa as "Mentor Mothers". Through their training and employment, they become role models who help women and families at health facilities and in their communities access essential services and medical care, start on any treatment they need, and continue with their health journey. From an initial focus on prevention of mother-to-child transmission of HIV, m2m now delivers a range of services for newborns, children, adolescents and families, to ensure the whole community thrives, not just survives.
- Since 2001, m2m has created jobs for over 11,000 women living with HIV in sub-Saharan Africa, and these Mentor Mothers have reached over 11M women and children under two with lifesaving health services. In 2018, we achieved virtual elimination of mother-to-child transmission of HIV for our enrolled clients for the fifth year in a row. For more, see [www.m2m.org](http://www.m2m.org).
- In supporting clients living with HIV to adhere to their antiretroviral therapy (ART) it is necessary to maintain good health and achieve viral suppression.
- Through m2m's peer-led Mentor Mother Model, each one-on-one interaction with a client includes conducting an adherence assessment.
- Clients identified as having poor adherence to ART or un-suppressed viral load are provided with intensified education and enhanced support. The Mentor Mothers actively link eligible clients to a viral load test and assist clients to interpret the viral load result.

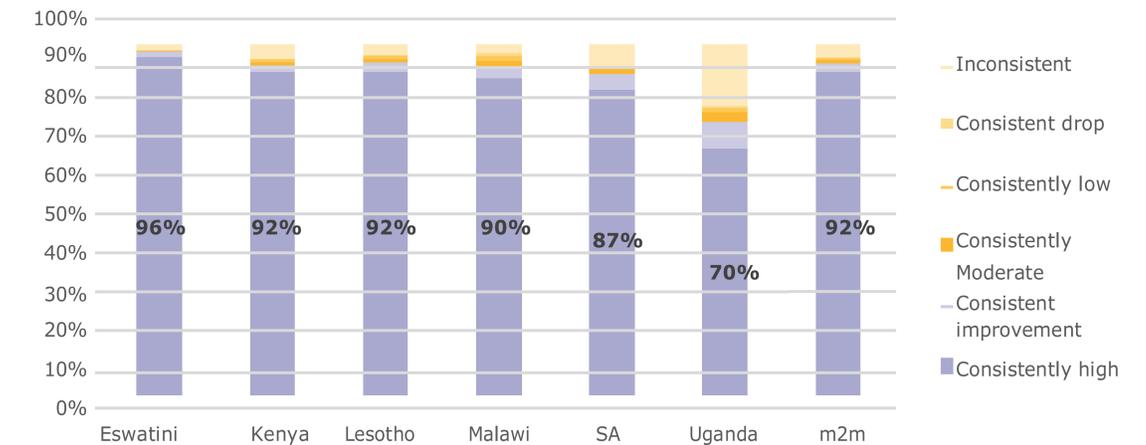
## Methods

- A retrospective cohort analysis was conducted among a sample of 5,372 pregnant women and new mothers who enrolled in the m2m programme between 1 January and 30 June 2016 in Eswatini, Kenya, Lesotho, Malawi, South Africa, and Uganda.
- The 7-day recall and 5-point adherence behaviour and efficacy scale were used to assess adherence to ART during all interactions with a Mentor Mother from enrolment until the end of 2018.

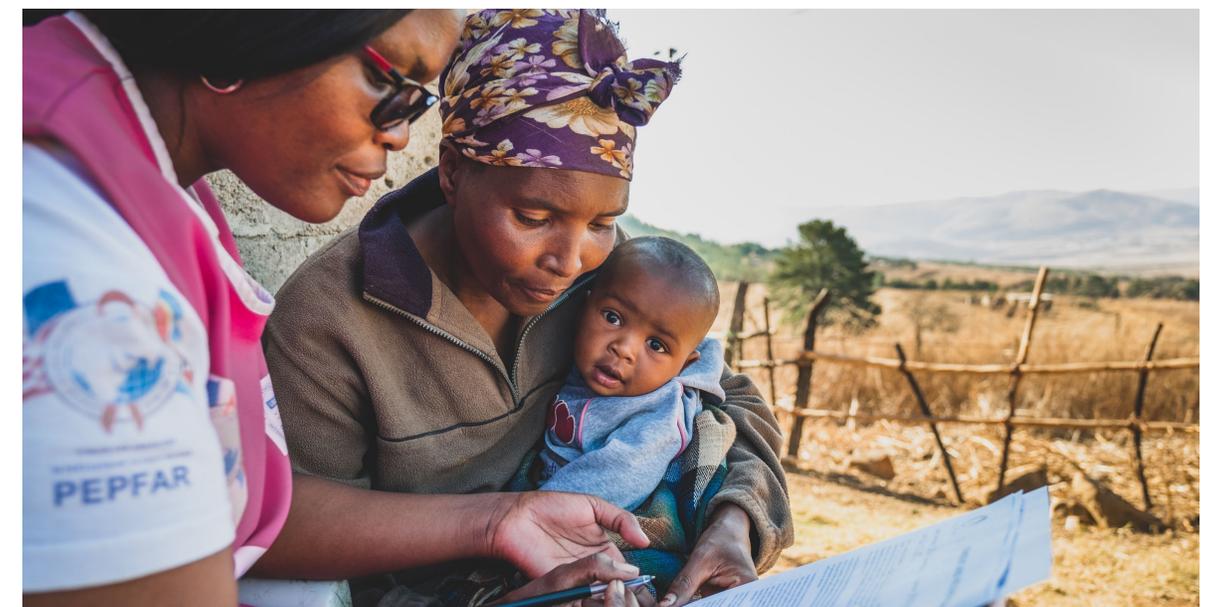
## Conclusion

- m2m's peer model is effective in supporting adherence to antiretroviral therapy.
- The available viral load test data indicate that most of m2m's HIV positive clients achieve viral suppression, thereby significantly reducing the risk of morbidity and mortality, greatly contributing to the prevention of HIV transmission from mother to child.

## Results



- Measured as the percentage of days in the past week that a client took medication, averaged over multiple measurements, 94% of the multi-country sample had an average adherence rate of >95% (n=5,372).
- Over 92% of the multi-country sample displayed consistently high levels of remaining adherent to ART, aggregated, only South Africa and Uganda achieved below 90% on this measure.
- A total of 1470 women had at least one viral load test recorded. Of these women, 92% achieved viral suppression, defined by the World Health Organization as a viral load below 1000 copies/ml.



# The effect of peer support and integrated service delivery in retention in care of PMTCT clients

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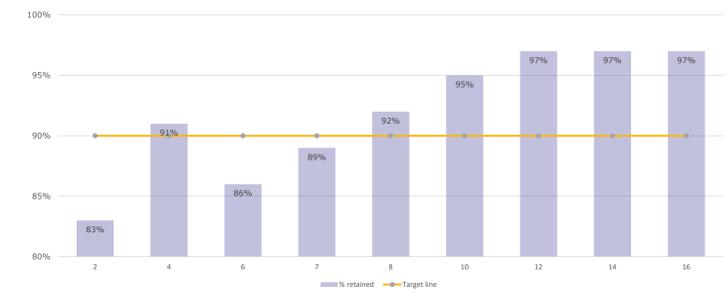
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- Since 2001, m2m has created jobs for over 11,000 women living with HIV in sub-Saharan Africa, and these Mentor Mothers have reached over 11M women and children under two with lifesaving health services. In 2018, we achieved virtual elimination of mother-to-child transmission of HIV for our enrolled clients for the fifth year in a row. For more, see [www.m2m.org](http://www.m2m.org).
- The need to strengthen bidirectional linkages between the health facilities and community strategically supports PMTCT clients through retention-in-care over time.
- Through a peer-based model that robustly acts as a support system for ART initiation among treatment-naïve clients.
- Retention in care among all HIV PMTCT clients through an integrated service platform (ISP) where Mentor Mothers are deployed both at facilities and in communities.
- The aim is to achieve early identification of clients and strengthening retention in care, treatment adherence and responsiveness to client needs thereby reaching the last mile.

## Methods

- Over 2,690 women, 48% of whom were treatment-naïve were enrolled across Eswatini, Kenya, Lesotho, Malawi, South Africa and Uganda.
- The retention-in-care on treatment (RIC) was assessed by reviewing each woman's ART pick-up history from facility records for 24 months.
- The probability of retention on ART at 24 months post-initiation by the number of contact sessions a client has with a Mentor Mother was assessed.
- Retention-in-care at various time points was compared between clients who attend the ISP versus those at facility-only sites.

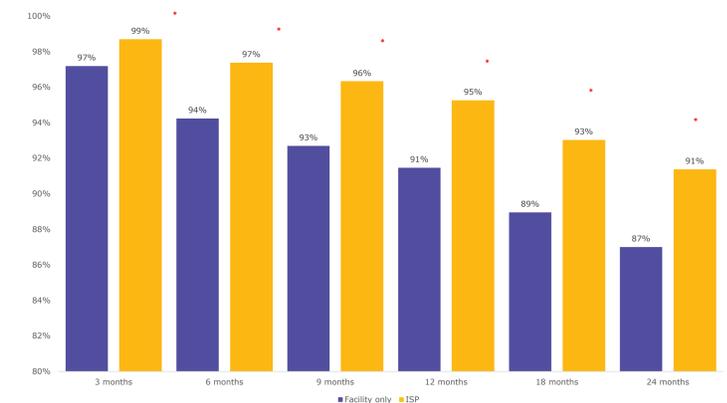
## Results

- Retention rate 24 months post-ART initiation was 94% among m2m's treatment naïve clients which increased with the number of Mentor Mother contacts a client had; however, a minimum of eight sessions is needed to reach the global target retention rate of 90% retention at 24 months (fig. 1).
- Retention peaks at 97% at 12 or more visits, suggesting that 12 visits may be the optimal number when balancing the goal of retaining clients in care and minimizing costs



## Conclusion

- The results demonstrate the effectiveness of m2m's ISP in achieving retention-in-care among clients.
- The variation in retention rates by ART exposure and Mentor Mother contact indicates the need for differentiated services to optimise client outcomes; m2m will continue strengthening our risk profiling and client triaging approaches.



# The role of peer lay health workers programmes and innovative scalable quality improvement solutions to improve final HIV diagnostic test uptake among HIV exposed infants

Fiona Burt<sup>1</sup>, Ann Marjorie N. Mbule<sup>1</sup>, Clare Hofmeyr<sup>1</sup>, Nakululombe Kwendeni<sup>1</sup>, Esca Scheepers<sup>1</sup> and Kathrin Schmitz<sup>1</sup>  
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- m2m's peer-led integrated service platform employs HIV positive women as 'Mentor Mothers' to deliver innovative and proactive approaches for uptake of PMTCT cascade services.
- These include HIV testing among HIV exposed infants (HEIs); those born to HIV positive women and babies of unknown HIV status.
- Final HIV test outcome must be established among all HEIs at 18-24 months. Lack of a final test outcome among all HEIs creates a key challenge to governments to accurately monitor our progress towards virtual elimination of mother to child transmission (eMTCT).

## Methods

- As part of m2m's routine services at facility-community, HEIs are followed up and linked to a continuum of care including EID and 18-24 months rapid diagnostic HIV testing.
- m2m deployed a quality improvement change package that included Mentor Mothers' review of monthly data on infant tests done versus scheduled; m2m's electronic active tracking system was instrumental.
- Mentor Mothers also participated in static and mobile immunization clinics to ascertain infant exposure status, proactively linking 18-24 months infants to rapid partner-led community-based HIV testing and provided household follow up integrated with early childhood development interventions.
- The analysis of uptake of HIV services among HIV-exposed infants (aged 0-2 years) draws on a stratified, representative sample of 69 sites in Eswatini, Kenya, Lesotho, Malawi, South Africa and Uganda. The sample included all HIV-positive index clients enrolled between January - June 2016.

## Results

- Uptake of the first DNA PCR test among HIV exposed infants across 69 implementing sites was an average of 87%. This figure ranged from 83% in Malawi to 98% in South Africa.
- Seventy-three (73%) of the HIV exposed infants had a final HIV test at 18-24 months (Eswatini at 68%, Kenya 61%, Lesotho 73%, Malawi 65%, Uganda 79% and South Africa 89%).
- Although not ideal, the final HIV test and results achieved are above reported national averages.

## Conclusion

- Peer lay health workers play a positive role in supporting infant testing and final outcomes of HEIs.
- However, there is a need to strengthen QA/QI approaches that allow for client-centered service delivery and maximize services integration in resource-limited settings



# Factors associated with self-reported adherence amongst HIV positive pregnant and breastfeeding women in an HIV peer support program: A multi-country, multi-level analysis

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- Since 2001, m2m has created jobs for over 11,000 women living with HIV in sub-Saharan Africa, and these Mentor Mothers have reached over 11M women and children under two with lifesaving health services. In 2018, we achieved virtual elimination of mother-to-child transmission of HIV for our enrolled clients for the fifth year in a row. For more, see [www.m2m.org](http://www.m2m.org).
- Consistent adherence to antiretroviral treatment is important for durable viral suppression, prolonged patient survival, and reduction of HIV transmission risk.
- Peer support programs using HIV positive lay health workers report high adherence amongst HIV positive pregnant and breastfeeding women.
- This study investigated multi-level factors associated with self-reported adherence amongst these women in an HIV peer support program.

## Methods

- We conducted a secondary analysis of data collected from HIV positive pregnant and breastfeeding women in Eswatini, Lesotho and South Africa between 2016 and 2018.
- We augmented the data with population data from national Demographic and Health Surveys.
- The sample consisted of 12,551 HIV positive women registered into the mothers2mothers’ Mentor Mother program at health facility level.
- Adherence was defined as consistently reporting high adherence, 95% of the times they were seen by a Mentor Mother using at least one of two adherence self-reporting tools.
- We performed multi-level mixed-effects parametric survival analysis to identify factors associated with adherence at every time point in the program.

## Results

- The median duration in the program in our sample from enrollment was 9 (IQR: 6-15) months. The median number of contact sessions with a Mentor Mother was 6 (IQR: 3-9).
- Every additional year in age at registration decreased adherence by 3% ( $p < 0.001$ ). An increase in the median number of contacts with postpartum women at the health facility increased adherence by 44% ( $p = 0.009$ ).
- An increase in the proportion of Mentor Mothers with high competence in ART initiation support and treatment monitoring increased adherence by 35% ( $p = 0.019$ ). An increase in the proportion of babies delivered in public healthcare facilities in a community linked to a health facility increased adherence by 1% ( $p = 0.004$ ).
- An additional month spent between contact sessions with a Mentor Mother, decreased adherence at every time point by 6% ( $p < 0.001$ ). Increase in the median daily caseload per Mentor Mother decreased adherence by 19% ( $p < 0.001$ ).

## Conclusion

- The results highlight the importance of having competent lay health workers in supporting client adherence to HIV treatment.
- Our finding also underscore the value of an optimum Mentor Mother caseload and an effective frequency and interval between contacts.



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- Regular testing cascades to early treatment initiation, achieving timely viral suppression and preventing mother to child transmission.
- HIV programs often prioritize HIV positive women over HIV negative women, negating the value of primary prevention.
- This study investigated the impact of using lay health workers to promote the uptake of HIV retesting services amongst HIV negative women receiving antenatal and postnatal care.

## Methods

- We conducted a secondary analysis of data collected from Eswatini, Lesotho and South Africa.
- The data included services provided by mothers2mothers’ Mentor Mothers which was collected using a mobile health application between 2016 and 2018.
- We cross-linked this data with population level data from the national Demographic and Health Surveys. The sample consisted of HIV negative antenatal and postnatal women registered into mothers2mothers’ Mentor Mothers program at health facility level.
- A total of 7604 clients who had being enrolled for a minimum of 6 months and a maximum of 12 months were included in the analysis.
- A multilevel mixed-effects Poisson regression analysis was performed to identify factors associated with the frequency of retesting amongst HIV negative women in the program.

## Results

- The median duration of participants in the program from enrollment was 8 months (IQR: 7-10 months) with the median number of HIV retests done being 2 (IQR: 1-2) the median number of contact sessions with a Mentor Mother being 5 (IQR: 3-5).
- Every additional Mentor Mother contact session increased retesting by 4% ( $p < 0.001$ ). An increase in the median number of contacts with HIV negative women at the health facility increased HIV retesting by 7% ( $p = 0.009$ ).
- With an additional month spent between contact sessions with a Mentor Mother, HIV retesting decreased by 11% ( $p < 0.001$ ).
- An increase in new pediatric HIV infections that occur during birth or an increase in the proportion of male-headed households in a community linked to a health facility reduced HIV retesting by 1% ( $p < 0.001$ ).

## Conclusion

- The results showed how routine engagement with Mentor Mothers increased retesting in antenatal and postpartum women.
- This information could help in extending PMTCT service packages to HIV negative women in high-prevalence areas.



# Multi-country review on final outcome in eMTCT in m2m countries

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- A core component of Mentor Mothers' work focuses on providing integrated care to eliminate mother-to-child transmission of HIV (eMTCT), which can occur during pregnancy, labour or breastfeeding
- Without treating both mother and child during this crucial period, the risk of vertical transmission ranges between 15% and 45%; with treatment, the risk drops to below 5% (known as virtual elimination).
- Option B+, which provides for the initiation of HIV-positive pregnant and breastfeeding women on lifelong antiretroviral therapy (ART), regardless of CD4 count, was rolled out to all m2m countries by the end of 2015. It has been a game changer in the fight to eliminate MTCT, as seen by large decreases in the number of new infections since its implementation.
- Despite these gains, keeping women on treatment and supporting them provide preventative ARVs to their children while adhering to the recommended breastfeeding practices remains difficult.

## m2m's PMTCT services for HIV-positive women and their infants

Mentor Mothers support HIV-positive pregnant women and new mothers to access care as early as possible, and to stay on treatment.

This support includes:

- 1) Household mapping for early identification, referral and linkage to PMTCT services for women who would otherwise never have accessed services
- 2) Active client follow-up for missed priority appointments (including antenatal care, facility deliveries, ART refills and adherence to ART)
- 3) Infant prophylaxis and HIV testing
- 4) Safer infant feeding methods (exclusive breastfeeding under six months of age or exclusive formula feeding).

## Methods

- A stratified, representative sample of 69 m2m sites was drawn from Eswatini, Kenya, Lesotho, Malawi, South Africa and Uganda.
- All pregnant women and new mothers enrolled into the m2m programme between 1 January and 30 June 2016 at these sites were included in the analysis. Data were collected for all interactions with a Mentor Mother from enrolment until the end of 2018.
- We construct a prevention of mother-to-child transmission (PMTCT) cascade by focusing on the subsample of 2,957 women who enrolled with m2m during pregnancy and were retained in m2m care post-delivery. These women therefore had the benefit of m2m support throughout the PMTCT period.



## Results

### Maternal ART initiation and infant prophylaxis

- The first step in the prevention of vertical transmission is the initiation of the mother onto lifelong ART. 100% of our sample had initiated on treatment, with 97% initiating before or during pregnancy.
- At birth, 93% of the infants in the sample were placed on the HIV-prophylaxis, nevirapine (NVP). At six weeks, NVP was discontinued and 82% of the infants were then given cotrimoxazole until the end of breastfeeding.

### Infant testing

- The PCR test is the first test an infant receives between the ages of 0 and 8 weeks. Test uptake was high across all m2m sites, averaging 89%. Receipt of the first test result, which can take several weeks, was slightly lower at 84%.
- The final test, conducted between the ages of 18 and 24 months, has a lower rate of uptake, averaging 75% across all countries. 73% of clients received the final test result.

### Infant status and ART initiation

- Combining those with a final test result and those who tested positive on an earlier test, we find that 73% of the sample had a final infant status at the end of the PMTCT period.
- Of these infants with a known status, the MTCT rate was 1.9%, significantly below the anticipated 5% MTCT rate amongst breastfeeding children. Of these infants, 88% were initiated onto ART.

## Conclusion

m2m remains committed to achieving virtual elimination of mother-to-child transmission as demonstrated by our performance across six of our programme countries.

We have observed that a number of health facilities have erratic supplies of laboratory reagents, ARVs and so forth, which make it difficult to achieve our service uptake targets among clients. Challenges with access to infant HIV tests continue to grow with increased fragmentation of service delivery in some health facilities where synergies and linkages between chronic HIV care and treatment and primary health care for mothers and children are limited.

m2m will continue to support uptake of services along the PMTCT cascade in the face of multiple health system challenges. Our interventions will go beyond linkage and referrals to acting as 'treatment buddies/supporters' for women unable to pick-up medication for themselves and their children. We will also place more focus on HIV testing services as part of task-shifting including dried blood sample (DBS) collection, rapid HIV testing and others.

