Elizabeth Glaser Pediatric AIDS Foundation
Fighting for an AIDS-free generation

RESEARCH RESULTS BRIEF

The IMPROVE Study in Lesotho

An integrated management team intervention package to improve maternal and child health outcomes

WHAT WAS THE "IMPROVE" INTERVENTION?

Multidisciplinary integrated management teams

Clinicians and facility- and community-based lay health workers met regularly to coordinate patient-focused, outcome-oriented maternal and child health (MCH) /prevention of mother-to-children transmission (PMTCT) services for all women.

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Enhanced PHDP-focused counseling, skills-building training, and job aids

All health cadres (nurses, counselors, lay health workers) trained together in joint positive health, dignity, and prevention (PHDP) skills to facilitate a team approach, ensure consistent messaging, and to improve patient-centered care as well as linkages and referrals to other services.

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Increased early community-based counseling and support

All antenatal care (ANC) attendees received 1 to 2 additional home or community visits at 2-7 days and/or 9-14 days after first ANC visit, with particular attention given to HIV-positive women to minimize immediate and early loss to follow up.

WHO PARTICIPATED IN THE STUDY?

613 HIV-positive pregnant women and their infants

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390 HIV-negative pregnant women and their infants

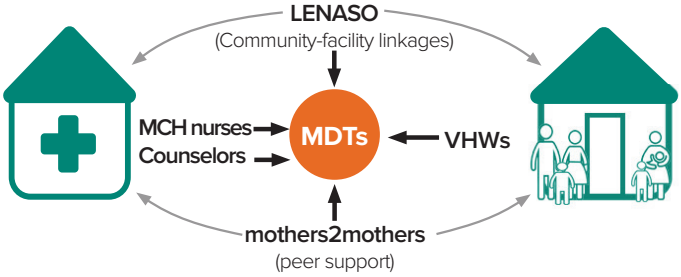
Receiving health services at 12 health facilities (6 IMPROVE intervention sites and 6 control/ standard care sites) in Maseru District, Lesotho. Participants and their infants were seen every 3 months and followed until 12-24 months postpartum.

WHAT DID THE STUDY EXPLORE?

- **EFFECTIVENESS:** Did participant outcomes and health seeking behaviors improve among participants in IMPROVE sites vs. control sites?
- **PATIENT SATISFACTION:** Were participants in IMPROVE sites more satisfied with services than participants in the control sites?
- **HEALTH CARE WORKER ATTITUDES:** What did health workers at facility and community levels think of the IMPROVE model?
- **COSTING:** What were the added costs associated with implementation of the IMPROVE intervention?

HOW DID THE MULTIDISCIPLINARY TEAMS WORK?

Multidisciplinary teams (MDTs) were formed using a participatory approach with existing MCH/PMTCT service providers, including facility-based providers, linkage and peer supporters, and village health workers (VHWs). MDTs at each site then established a system for regular communication and coordination among all MCH/PMTCT service providers and met monthly to identify barriers to care and generate solutions.



HOW DID THE MDTs CHANGE THE DELIVERY OF SERVICES?

Each site MDT identified gaps or challenges and actively worked to find solutions. Examples include:

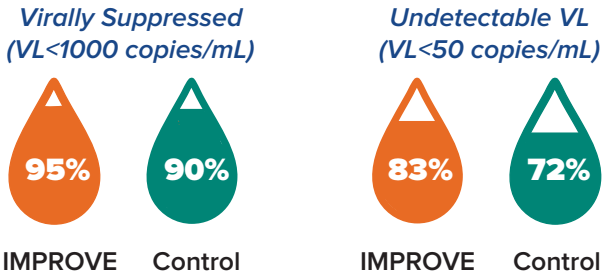
Long wait times between service points for pregnant women with patients bringing their own blood and urine specimens to the lab and waiting for results.	MCH nurses transported blood specimens to the lab and collected results, while urine testing was transferred to the MCH clinic.
Women had to pay to access toilets to give urine samples for pregnancy confirmation.	Negotiated with administration to waive fees for pregnant women.
HIV-negative women were not scheduled for HIV re-testing.	Monitoring systems developed to ensure repeat testing is scheduled as per MOH guidelines.
Minimal collaboration and communication between facility staff, partners providing peer support and linkages, and VHWs providing MCH/PMTCT services.	All cadres retrained on the MOH tracking tool with a focus on consistent use for community tracing of women with missed visits.

WHAT WERE THE KEY PATIENT OUTCOMES?

Maternal ART Adherence

HIV-positive women at IMPROVE sites were **significantly more likely** to report consistent good adherence (taking medication correctly >95% of the time) to antiretroviral therapy (ART) at 12 months postpartum compared to HIV-positive women at the control sites.

Maternal Viral Load (VL)

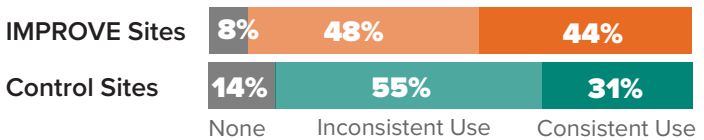


While viral suppression was high among participants, rates of viral suppression and undetectable viral load were **higher** among women in IMPROVE sites compared to control sites at 12 months postpartum.

HIV Retesting

HIV-negative women at IMPROVE sites were **significantly more likely** to be retested for HIV in late pregnancy (36 weeks gestation to delivery). HIV retesting from birth to 12 month postpartum was also **higher** in IMPROVE sites, however the difference between the two groups diminished over first 12 months after delivery.

Use of Modern Contraception



At each postpartum visit, participants were asked about their use of "modern contraception", which included barrier methods (condom, diaphragm, etc.), pills, injections, implants, intrauterine devices (IUDs), or sterilization. Women in IMPROVE sites were **significantly more likely** to consistently use modern contraception than women in control sites.

Counseling and Support - Patient Satisfaction

While overall satisfaction with services was high, both HIV-positive and HIV-negative at the IMPROVE sites were **significantly more satisfied** with the amount of information and advice received on pregnancy, infant feeding, infant health, HIV treatment, and HIV prevention. While services were mostly rated as good or excellent, **significantly more** women at IMPROVE sites rated services as excellent compared to control sites.

WERE THERE ADDITIONAL KEY FINDINGS?

Maternal and Child Health Outcomes

74% of HIV-positive women knew their HIV status before attending ANC.

The proportion of women delivering in health facilities was non-significantly higher in IMPROVE compared to control sites (92% vs 85% for HIV-positive women; 94% vs. 89% for HIV-negative women).

Birth outcomes were not significantly different across arms. Compared to HIV-negative women, however, HIV-positive women were **2-3 times more likely** to have adverse pregnancy outcomes such as miscarriage, still birth, and low birth weight, or to die during follow-up.

During the study, **10 infants tested HIV-positive** (4 from IMPROVE sites; 6 from control sites) and **one infected infant died**.

During the study, **4 mothers seroconverted** (1 from IMPROVE sites; 3 from control sites) and **12 mothers died** (10 HIV-positive and 3 HIV-negative).

Depression

Proportion of Women with Symptoms of Moderate to Severe Depression During Pregnancy

While there was no significant difference between study arms, HIV-negative women were **significantly more likely** to report symptoms of moderate to severe depression than HIV-positive women during pregnancy (14% vs. 9%). While this was an unexpected finding, HIV-positive pregnant women do receive more health and support services than HIV-negative women. The additional services may help to reduce depression symptoms in pregnant women living with HIV. Less than 10% of all women reported signs of moderate-severe depression postpartum with no difference by arm.

Stigma

HIV-positive women in IMPROVE sites were **consistently less likely** to report concern about stigma from partners and friends than those in control sites through 18 months postpartum.

HIV Prevention

HIV-negative women were asked about how confident they felt in taking actions to prevent HIV transmission. Women in IMPROVE sites were **significantly more likely** to report being confident about convincing their partner to take an HIV test and discussing HIV or sexual behavior with their partner.

In both arms, women were reported being **less confident** about:

- correctly using a condom when one or both partners have been drinking alcohol;
- refusing or avoiding sex if they and their partners do NOT have a condom; and
- correctly putting a condom on their partner when having sex.

WHAT DID HEALTH WORKERS THINK OF THE IMPROVE INTERVENTION?

- Health workers in all focus group discussions reported that the various cadres of health workers **collaborated well** overall.
- Health workers felt they **provided better care** to patients due to improved knowledge, interdisciplinary care, attitudes, and communication with women after implementing the IMPROVE intervention.
- Health workers recommended that the IMPROVE intervention **be incorporated into national service delivery.**

WHAT WAS THE EFFECT OF THE IMPROVE INTERVENTION ON SERVICE DELIVERY COSTS?

- The IMPROVE intervention proved to have **minimal additional costs** in the five services areas - ANC, family planning, PMTCT, postnatal care, and pediatric ART.
- The IMPROVE intervention has the potential to improve coordination of care at a **relatively low cost** to existing services.
- Scale-up of the intervention would not require a significant amount of financial support or significant human resources.

WHAT LESSONS WERE LEARNED?

- Collaboration between partners (VHWs, LENASO, M2M) and facility staff reduces duplication of activities and improves working relationships.
- Improved communication between health facilities and community service providers is essential to build trust.
- There is a lack of clear systems for cross-district (or even cross-catchment area) linkages for follow-up of mother baby pairs, which jeopardizes retention in care and reporting accuracy.
- Active monitoring of new MOH policies and guidelines is needed to ensure effective implementation at facility and community levels.

CONCLUSIONS

- The IMPROVE intervention is a low cost, adaptable approach to improve the delivery of MCH/PMTCT services.
- The multidisciplinary team approach led to improved coordination and communication among service providers and established a structure for jointly identifying and addressing service delivery challenges.
- Patients at IMPROVE sites were more satisfied with their care and had significant improvements in outcomes, particularly ART adherence and HIV retesting in late pregnancy.

Additional Resources on the IMPROVE Study:

Tukei VJ, Hoffman HJ, Greenberg L, et al. *Adverse Pregnancy Outcomes Among HIV-positive Women in the Era of Universal Antiretroviral Therapy Remain Elevated Compared With HIV-negative Women*. Pediatr Infect Dis J. 2021 Sep 1;40(9):821-826. doi: 10.1097/INF.0000000000003174.

USAID's Project SOAR Website. Final Study Report, "Optimizing Maternal and Child Health Outcomes Through Use of Multidisciplinary "IMPROVE" Teams in Lesotho".