

# A Quality Improvement Collaborative (QIC) Approach to Improve Early Infant Diagnosis (EID) and Antiretroviral Therapy Initiation at 25 Health Facilities in Lusaka Urban District, Zambia

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## Background

- In Zambia, expanding HIV Early Infant Diagnosis (EID) testing coverage and rapid ART initiation among children determined to be HIV infected are national priorities but EID is suboptimal and time to initiate ART upon receipt of positive test results often exceeds the national standard of 2 weeks, despite rollout of a national strategy, guidelines and training.
- In collaboration with MOH, HRSA, CDC Zambia, and local Implementing Partners (IP), ICAP at Columbia University designed and implemented a Quality Improvement Collaborative (QIC) to improve reporting of EID test results and rapid ART initiation among HIV-infected infants at 15 high priority health facilities (HF) in Lusaka between March 2017 and February 2018.
- In March 2018, ICAP scaled up to an additional 10 sites within Lusaka district for the final 3 months of intensive implementation at 25 HF's.
- The QIC aim was to improve the percent of all HIV infected infants (age 0-12 months) initiated on ART within two weeks of being identified via EID testing from 23% to 90% between March 2017 to May 2018.

## Methods

- A QIC is an organized network of HF's that work together on a focused topic area where QI teams implement changes for improvement using QI methods, typically, for a limited time (12 to 18 months).
- Key leadership stakeholders develop a shared aim statement, indicators, and measurement plan and conduct quarterly forums for data review and peer to peer learning. Aggregate data are collected at baseline and throughout implementation.
- In March 2016, ICAP provided training on QI methods and EID guidelines for 76 health care workers followed by monthly QI coaching visits.
- During implementation, each HF QI team works to: identify and prioritize contextually appropriate interventions; conduct rapid iterative tests of change using plan-do-study-act (PDSA) cycles; collect monthly data using District Health Information System (DHIS2); and analyze progress using run charts.
- ICAP convened five quarterly meetings during which HF QI teams reviewed data, compared progress to the aim, and shared intervention experiences.
- A final learning session enabled the teams to synthesize lessons learned and identify the most effective interventions creating a package of all successful interventions (change package) implemented at site level which was shared with MOH for dissemination.

## Results

- Over the 15-month implementation period, QI teams tested and identified successful interventions focused on: health worker training through mentoring and supportive supervision, data quality, caregiver education, workflow processes and community engagement.
- These interventions improved the return of positive results to caregivers from an average of 48% during baseline to an average of 85% during implementation demonstrating a 37% change;
- ART initiation for HIV-infected infants improved from 46% on average during baseline to 82% on average during implementation (37% change);
- ART initiation within 2 weeks of diagnosis improved from 25% on average during baseline to 62% on average during implementation (37% change);
- It took on average 1.4 months (median 1, range 0-7 months) for HF's to reach the 90% target of initiating ART within two weeks of diagnosis and this was sustained for an average of 2.9 months (median 2, range 0-9 months).

Table 1. QIC baseline and implementation results

Indicator	Baseline	Implementation	Change
	Original 15: Jan16-Dec16* Scale Up 10: Jan17-Dec17	Original 15: Mar17-May18 Scale Up 10: Mar18-May18	
Percent of HEIs tested who receive EID DBS within two months of birth	77%	84%	7%
Percent of HEIs tested who are identified as positive	3%	3%	0%
Percent of HEIs identified as positive who receive their results	48%	85%	37%
Mean time between positive EID DBS result and initiating ART	35 days	14 days	- 21 days
Mean time between testing with EID DBS and initiating ART	76 days	41 days	- 34 days
Percent of HIV+ infants initiated on ART	46%	82%	37%
Percent of HIV+ infants initiated on ART the same day positive test are received	10%	19%	8%
Percent of HIV+ infants initiated on ART within two weeks of receiving positive test results	25%	62%	37%

\* ICAP implemented 12 months of the QIC at 15 high priority health facilities (HF) in Lusaka between March 2017 and February 2018. In March 2018, ICAP scaled up to an additional 10 sites within Lusaka district for 3 months implementation at 25 HF's.

Figure 1. Progress to the ART Initiation Aim

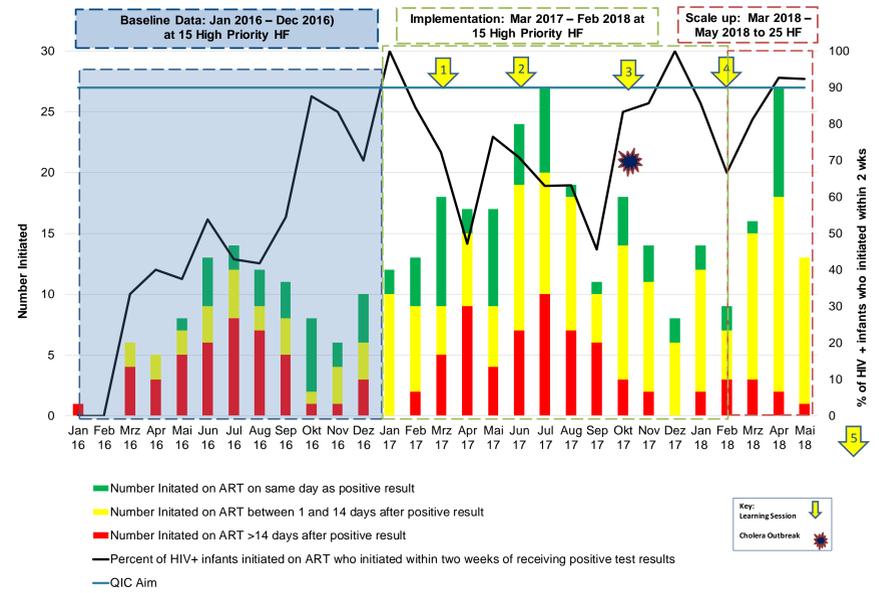


Figure 2. Rapid and sustained achievement to the QIC aim.

Original 15 sites achievement in blue boxes, Scale up 10 sites achievement in red boxes.



Table 2. Examples of facility QI team change interventions

Examples of Successful Change Interventions
Reinforce proper documentation practices among all MCH lay counselors
Assign nurses to supervise lay counselor documentation practices
Provide targeted, one-on-one health education talks to HIV infected mothers
Recruit and engage mentor mothers to provide health education from the peer perspective
Introduce Family Care Buddies to increase retention in care
Screen Under Five Cards upon arrival and prioritize services for those in need of HIV testing
Develop and display a flowchart to illustrate MOH standard of care
Develop and utilize inter-facility communication system to enable confirmed patient transfers
Engage facility-based Linkage Officer to facilitate communication of DBS test results with MCH staff
Screen post-natal discharge cards upon arrival at post-natal care for HIV testing
Develop and utilize tracking list to follow-up on missing DBS results
Engage community-based volunteer peer mothers in active tracking and follow-up
Convene sensitization meeting to engage religious leaders in the community
Engage safe mother action groups (SMAGs) in tracking and follow-up activities

## Conclusion

- The QIC approach improved EID coverage and ART initiation by helping facilities generate local innovations to ensure rapid return of results to caregivers and timely ART initiation.
- In addition to building QI capacity and improving targeted outcomes, the QIC resulted in a "change package" of successful initiatives that will be disseminated within Zambia.
- Ongoing effort is required to ensure that improvements are sustained over time.