Strengthening Early Infant Diagnosis Implementation:

Quality Improvement Project Highlights from EGPAF Nigeria

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Johnson & Johnson

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Pediatric AIDS Foundation
Fighting for an AIDS-free generation

Early Infant Diagnosis (EID) Optimization Project Overview

In 2020, the number of children who acquired HIV in 21 focus countries was nearly three times greater than the UNAIDS framework's global target. Nigeria, among the top five focus countries, accounted for nearly two-thirds of children who acquired HIV in 2020. The country has a mother-to-child [vertical] transmission rate of 25%. In support of the shared goals to increase overall Early Infant Diagnosis (EID) coverage in Nigeria, Johnson & Johnson funded EGPAF Nigeria's EID Optimization project which was implemented in 11 comprehensive health facilities in Rivers and Taraba States.

The project aimed to provide technical assistance to increase overall EID coverage by leveraging existing resources including the current EID testing platforms, EID sample and result processing logistics, and the support network of Mentor Mothers. The project objectives were to: 1) identify key barriers in the EID cascade in the two states then, 2) utilize EGPAF's validated Program Optimization Approach (POA) to train and support health providers to apply Quality Improvement (QI) approaches to the identified gaps and, finally, 3) share promising tools and resources for adaptation in other similar settings. These activities culminated in generating evidence including a toolkit to strengthen national EID implementation.

What were we trying to improve?

In order to gain an understanding of the EID process, QI teams began by using process flow charts to illustrate the starting and ending points (circles), key steps (rectangles), and decision points (diamonds). First, teams created a process flow chart representing the existing process as it happened at facilities. Then, teams drew a process flow chart representing the desired process in accordance with the

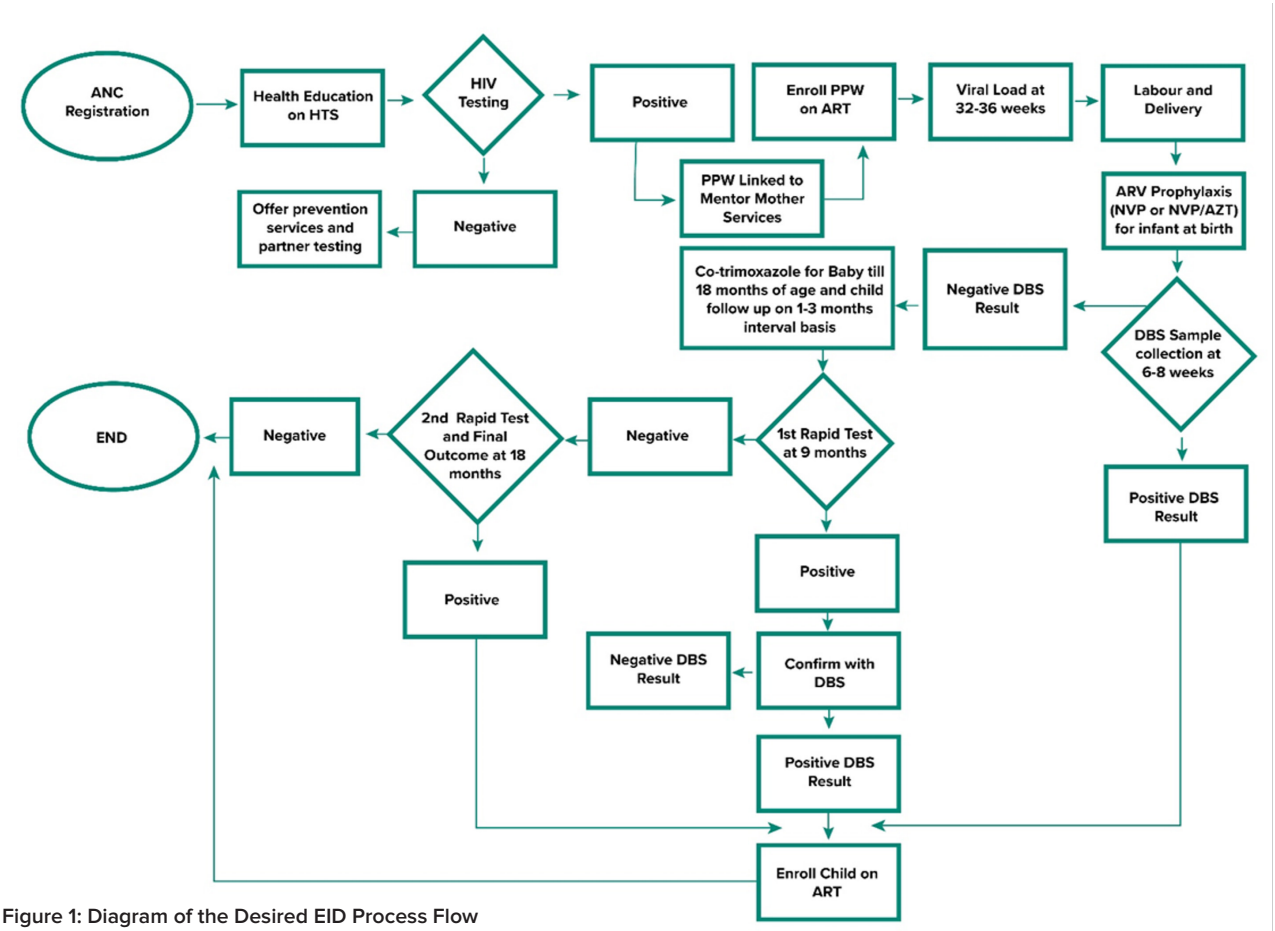


Figure 1: Diagram of the Desired EID Process Flow

National guidelines (Figure 1). By comparing current process flow charts with desired and seeking out differences, teams were able to determine steps where the current process deviated from the desired process and thus could indicate areas for improvement.

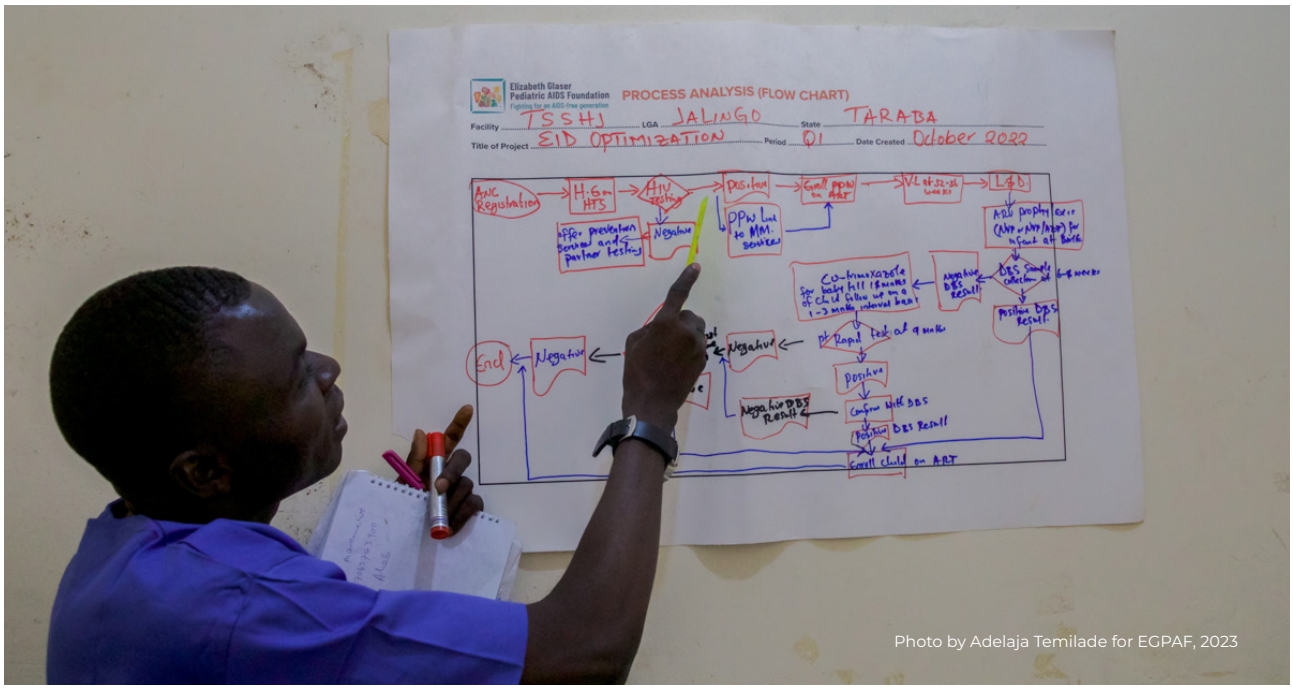


Photo by Adelaja Temilade for EGPAF, 2023

How were we trying to improve it?

Implementation of QI followed a collaborative process (Figure 2). Teams began by undertaking a baseline assessment to identify gaps and areas to strengthen, then engaged in the POA Workshop to build their capacity in QI/POA processes that could be used to address these gaps. Through continuous QI coaching, mentorship, and supervision, QI teams were activated and supported to implement QI projects. QI documentation was identified as an area to strengthen during the implementation phase, thus a Learning Session was held to bolster capacity in this area. At the end of the QI projects, an EID Toolkit and package of other deliverables were developed in order to synthesize lessons learned from the project and disseminated.

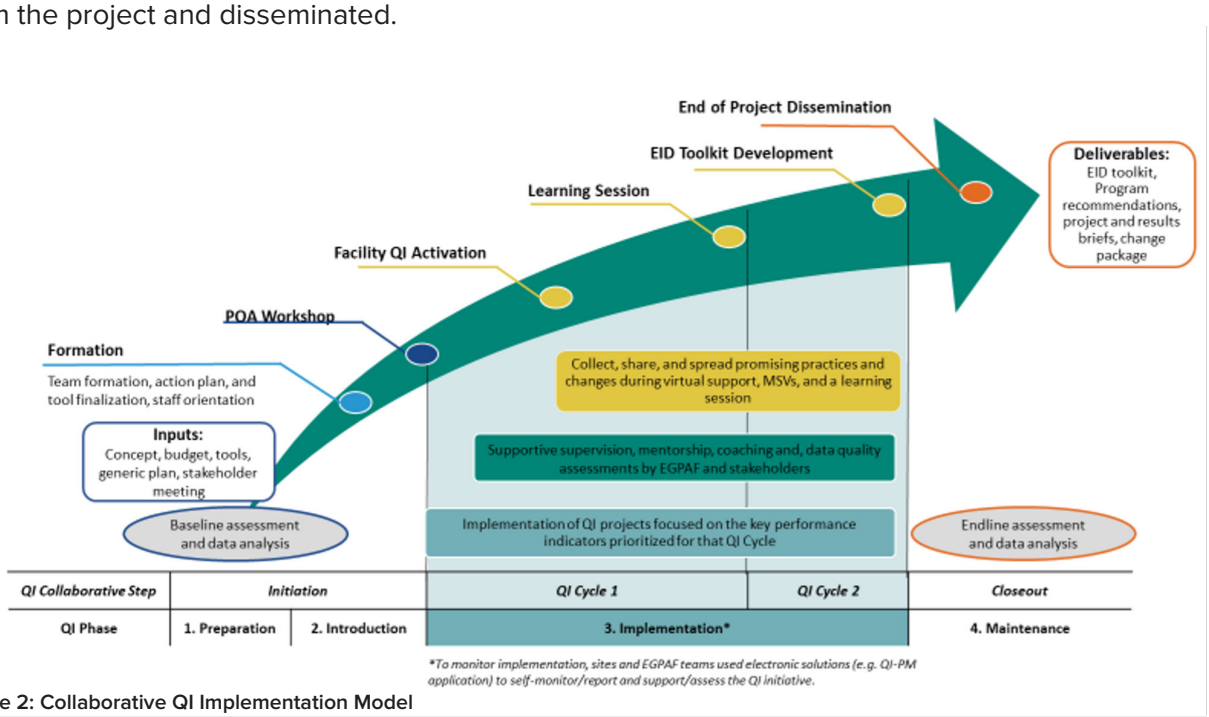


Figure 2: Collaborative QI Implementation Model

What do our results show?

QI was the approach deployed to improve EID coverage in the two states where the project was implemented. Firstly, healthcare workers (HCWs) from the implementing facilities were trained on QI and its application to improve EID coverage. These trainees were shown how to properly outline the process flow of the EID cascade, identify bottlenecks in the cascade, conduct root cause analysis of the underlying issues contributing to the bottlenecks, and plan interventions aimed at combatting those root causes.

Following the training, facilities followed the QI guidance to improve the EID coverage in their respective facilities by activating a functional QI team and meeting monthly to discuss the challenges/ factors hampering the improvement of EID coverage in the facilities. Then, planned and implemented interventions as QI projects aimed at improving their EID services. QI's key principles helped the facilities take charge of their implementation with guidance and technical assistance from EGPAF. Table 1 captures the main ways that facility-level QI teams made these improvements by testing change interventions.

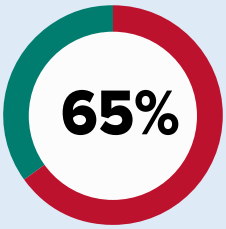
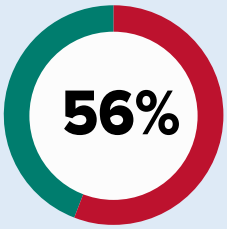
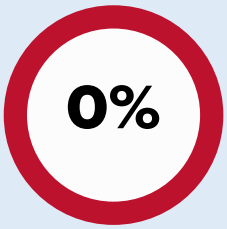
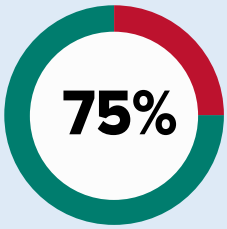
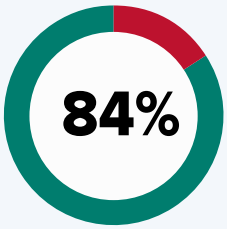
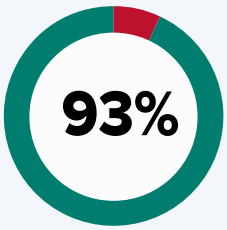
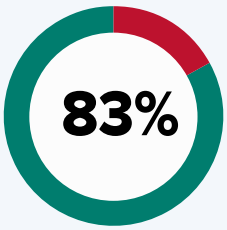
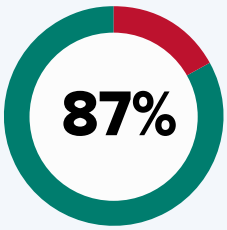
Table 1: Specific changes introduced to improve EID performance

Change Concept	Problem being addressed	Change ideas tested	Evidence that changes led to improvement	Scale of implementation
HCW Capacity Building	DBS samples rejection at the PCR due to improper DBS sample collection by HCWs	Training of HCWs on proper DBS sample collection and storage	100% DBS sample acceptance at the PCR lab following the training for the period of 6 months of monitoring the change	1 facility tested the change
EID Testing at 6-weeks	Sup-optimal coverage for DBS sample collection for EID testing at 6 weeks	• Clustering of clients based on location for DBS sample collection • Home visit tracking of clients for DBS sample collection • Working closely with community gatekeepers from the localities especially areas with insecurity to collect DBS samples • Collaborating with unsupported TBAs and FBOs for DBS sample collection and enrollment of HIV-positive pregnant women into PMTCT for those not yet enrolled.	100% DBS collection of HEIs on the line list as evident in the QI project documentation data	3 facilities tested the change

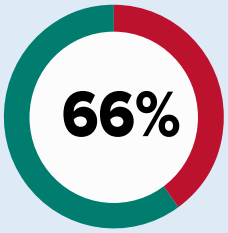
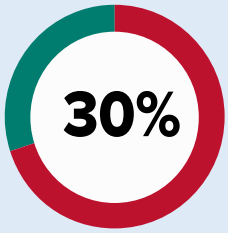
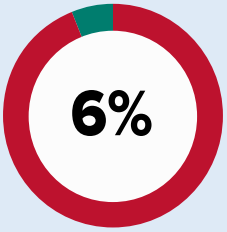
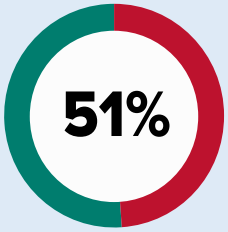
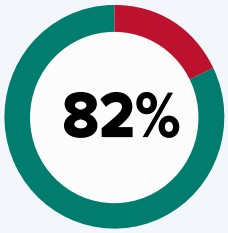
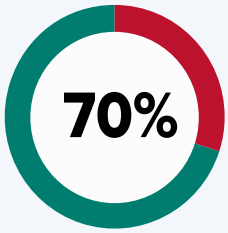
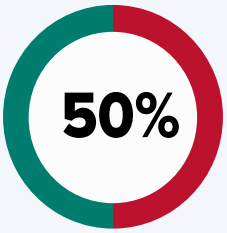
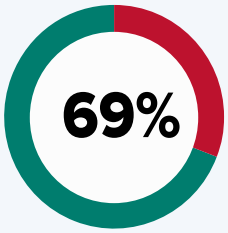
Change Concept	Problem being addressed	Change ideas tested	Evidence that changes led to improvement	Scale of implementation
Focus on the "What"	Sub-optimally low testing coverage for HIV Exposed Infants at 9 months and 18 months (Final Outcome) of life reflecting the quality of EID services	• Updating of contact details of clients and line listing of HEIs eligible for 1st rapid testing at 9 months • Clustering of clients based on location and effective use of available resources for testing at home • SMS reminders and Phone calls to clients • Pairing of Mentor Mother to follow up on TBAs, FBOs, unsupported sites • Provision of transportation assistance at the facility	100% testing of HEIs eligible for 9 months and final outcome testing respectively as evident in the QI project documentation data	17 facilities Tested the change
Improving the competencies of HCWs on Documentation	Knowledge gap of HCWs on proper documentation of EID services and no QI projects documentation in the facilities	• Training of HCWs on documentation of QI and EID services • Assessment of facilities' EID documentation tools • Onsite follow-up, coaching and mentoring of HCWs on proper documentation • Virtual coaching and mentoring of HCWs • Provision of documentation tools for QI	Improved quality of EID data reported and documentation of QI projects	17 facilities tested the change
Link and Learn Session	Slow pace of QI understanding and implementation by some facilities	• Conducting learning sessions involving facilities' QI leads and selected QI team members to cross-learn on the various innovative strategies adopted and implemented at health facilities aimed at improving EID coverage • Facilities sharing experiences (including success stories and challenges) on QI implementation in their respective facilities	Improvement in the QI project implementation and documentation with increased interest and motivation	11 facilities tested this change

From the data in Table 2 below, the EID coverage at 6 weeks showed a 20% increase from 65% (220 out of 339) at baseline to 84% (312 out of 372) at endline. There were improvements in the EID result return rate as well from 56% (178 out of 317) at baseline to 93% (338 out of 364) at endline. HEI testing coverage at 9 months was significantly improved from 0% (1 out of 534) at baseline to 83% (387 out of 469) at endline. Results also revealed an increase in the documented final outcome from 75% (344 out of 458) to 87% (534 out of 612).

Table 2: EID Result for Rivers State

	EID Coverage at 6 weeks	EID Result Return Rate	HEI Testing Coverage at 9 Months	HEI Documented Final Outcome Coverage
Baseline				
Endline				
Key	**Green** – EID coverage **Red** – No EID Coverage	**Green** – EID result return rate **Red** – EID results Not returned	**Green** – HEI testing coverage at 9 months **Red** – Not covered	**Green** – HEI documented final outcome **Red** – Not covered

From the data in Table 3 below, the EID coverage at 6 weeks showed a 16% increase from 66% (350 out of 527) at baseline to 82% (464 out of 568) at endline. There was a significant improvement in the EID result return rate as well as from 30% (132 out of 447) at baseline to 70% (390 out of 558) at endline. HEI testing coverage at 9 months was also significantly improved from 6% (25 out of 424) at baseline to 50% (295 out of 587) at endline. There was an increase in the documented final outcome from 51% (124 out of 243) to 69% (410 out of 596).

Table 3: EID Result for Taraba State				
	EID Coverage at 6 weeks	**EID Result Return Rate**	**HEI Testing Coverage at 9 Months**	**HEI Documented Final Outcome Coverage**
Baseline				
Endline				
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Key Challenges

There were challenges encountered during the QI implementation as the team tested changes and during the commencement of the QI at the facilities, which included:

1. HCWs' knowledge gap on emerging practices in EID services, thereby posing a challenge during QI project implementation.
2. The need for continuous coaching of HCWs on the QI approach, documentation, and data collection despite capacity-building sessions
3. Hesitancy among HCWs to fully participate in QI activities and be committed to following the QI processes at the start of implementation.
4. Motivation of HCWs at some facilities and low desire to be involved in making changes through QI
5. Stockout of Rapid Test Kits (RTKs) for HEIs affecting the implementation of QI projects involving rapid testing

Moving Forward

For smooth implementation of QI initiatives and projects for EID, the following should be taken into consideration:

1. Continuous training and retraining of HCWs on emerging practices in EID, QI, or any other area is imperative so HCWs can be fully equipped with the required clinical and QI knowledge to implement QI projects in this area

2. Ministries of Health through the various agencies/departments should be involved and lead the QI implementation to encourage buy-in and ownership at all levels.

3. Timely submission and accurate quantification of commodities such as dried blood spot and rapid test kits using Combined Report and Requisition Form (CRRF) by facilities to mitigate stockouts

4. QI gives the power to effect change at the facilities. Intensive orientation should be provided to HCWs so they understand the benefits of QI and how it can be used to improve service delivery.

5. Improve documentation on tools and registers to analyze the processes, and identify gaps and challenges for better evaluation and performance review for evidence.

6. Feedback from and involvement of the clients should be encouraged and used to drive demand for quality of services.

Contact Information

For more information on the EGPAF Nigeria and EID POC Optimization project, please contact
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