Impact of Point-of-Care EID Testing into the National EID Program: Pilot Experiences from Malawi

International AIDS conference
Durban, South Africa
21st July 2016

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Background of the Malawi EID Program

1. Malawi has 650 health facilities that do HIV exposed child follow-up[1]

2. Dried Blood Spot (DBS) sample collection for EID is done at these sites

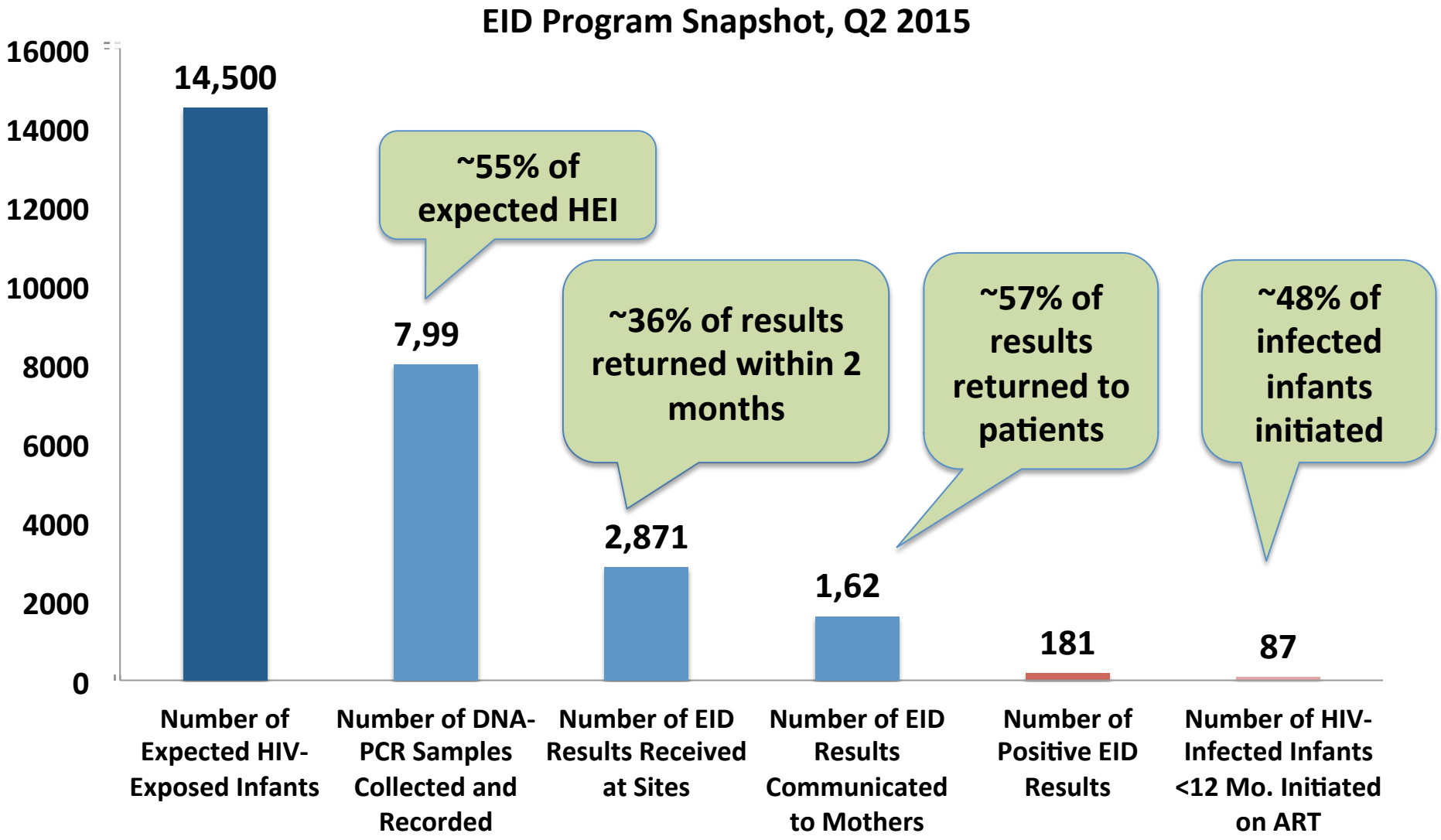
3. The country has 9 conventional labs that provide EID testing

4. About 34,512 EID tests were done in 2015[2]

Source: 1. Integrated HIV Program Report Q3 2015, Ministry of Health, Malawi
2. LIMS Data accessed at www.eidmalawi.org on 15 July 2016 at 16:10

Loss to Follow Up (LTFU) of HIV Exposed Infants (HEI)

➔ **High estimated number LTFU of HEI at different stages of the cascade**



POC EID Pilot Design

Objectives

- To assess the operational characteristics of a device to ***inform an optimal national deployment strategy*** scale up is made
- To understand the **patient impact of implementing POC** EID technologies on test turnaround times, retention, and ART initiation

Methods

- ***Period***: from September 2015 to June 2016
- ***Sites Selection***: devices were placed at 7 sites
- ***Baseline data***: data on conventional testing was collected retrospectively for same number of months preceding EID POC implementation at POC sites

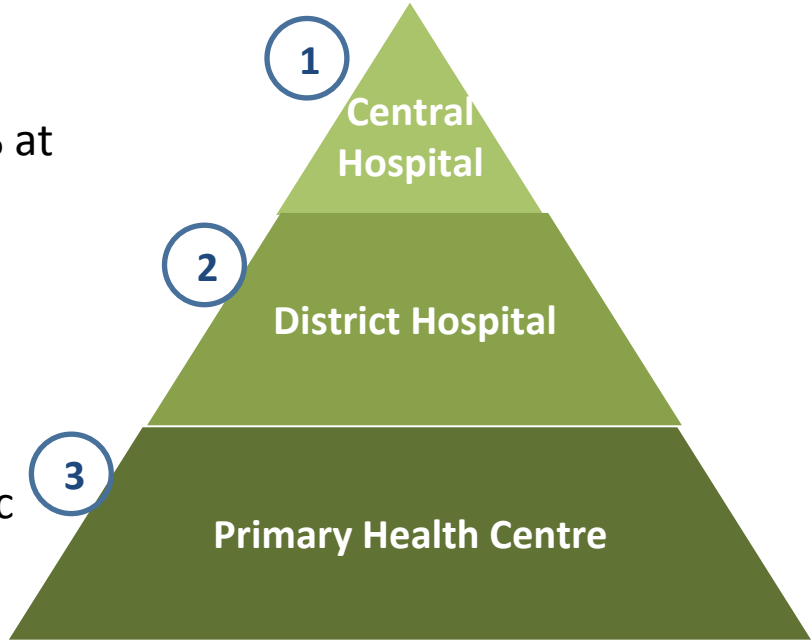
Study Population

- ***Mother-infant pairs (MIPs)*** attending post-natal care services in need of EID testing
- ***Babies less than 12 months of age*** (national EID guidelines)

Site selection

Inclusion criteria:

- **High burden:** HIV prevalence among women >10% at each site
- **High volume:** High EID volumes maximize patient impact based on 2014 LIMS data
- **Strong buy-in:** Sites expressed interested in implementing POC EID
- **Patient / clinic flow:** Facility-specific patient / clinic flow informed device placement strategies



Device placement strategies within a facility

- ✚ Testing at various entry points → **Device in a common lab** (1) (2)
- ✚ In-patient testing → **Device in pediatric ward** (1)
- ✚ Testing from mother-infant-pair (MIP)clinic → **Device in MIP clinic** (2) (3)
- ✚ Testing all HEIs in peripheral low volume sites → **Device shared between 2 primary HCs or networked with peripheral sites** (3)

Preliminary Findings – Device Utilization

➔ **Device utilization: Hospitals appear to be the "sweet spot" for POC EID, while device sharing by rural health centres can maximize device utilization as well**

Device Utilization By Type of Facility during the study period

Facility Type by Device Placement	Number of POC Tests/ Site	Proportion of Total Tests
ART clinic - Central Hospital	102	12.6%
Pediatric Ward -Central hospital	87	10.7%
Lab – District hospital	222	**27.4%**
Mother Infant Pair Clinic – District hospital	155	**19.0%**
Rural Health Centre	71	8.7%
Rural HC Sharing	176	**21.6%**
Total	**813**	**100%**

Preliminary Findings – Entry point Deployment

➔ **POC is likely to help find more HIV positive infants when deployed in the pediatric wards**

Percentage of HIV Positive Infants by entry point within a clinic during the study period

Entry Point	HIV Test Result		Total	% Positive
	Positive	Negative		
PMTCT/ART/MIP	18	697	715	3%
Pediatric Ward - Inpatient	21	23	44	**48%**
Pediatric Ward - Outpatient	6	48	54	11%
Total	**45**	**768**	**813**	**6%**

Preliminary Findings – Patient Impact

➔ **POC testing allows for significantly reduced test turnaround times along the testing and treatment cascade as well as improved ART initiation rates**

	Conventional	POC
TAT: sample collection to results received	56 days	0 days
TAT: sample collection to ART initiation	38 days	0 days
Proportion of results received within 60 days	41%	100%
Proportion of HIV+ patients starting ART	51.6%	91.1%

Preliminary Findings - Acceptability

➔ **POC EID user acceptability was largely positive for all operators**

User Acceptability of the POC Device (n=20 Operators interviewed)	
Ease of use	95% of operators
Ability to better treat and manage HIV-positive infants	95% of operators
Patients willing to wait for results	85% of operators
Patients willing to come back the next day	65% of operators
Device suitable for non-lab staff	95% of operators
Device suitable for all types of health facilities	55% of operators

Operational Challenges

Challenges During Implementation of POC EID	
Tracking ART initiation of referrals	When infants are managed by a referring facility
Poor documentation and weak linkages	Children discharged/transferred out from inpatient care immediately after a test and before initiating treatment
Device down times	Absence of a local service/maintenance point
Short shelf-life of test cartridges	Especially earlier batches which expired in six months
Difficulty to control device operation	Some people learned to operate the device on the job without formal training
Delayed in-patient initiation	Delayed initiation of treatment among HIV-positive infants receiving in-patient care due to unstable medical conditions

Key takeaways and Recommendations

- **POC machine largely accepted by end users including non-lab staff**
- **District Hospitals appear to be the "sweet spot" for maximizing POC EID utilization, while device sharing by rural health centers can increase device utilization as well**
- **Pediatric ward seems the main entry point to identify HIV+ babies.**
- **A number of operational challenges remain to be addressed.**
- **Final findings to be published soon**
- **MOH and partners should consider decentralization of EID testing using POC devices in order to allow for wider access to EID testing**

Feedback? Questions?

Health facilities piloting EID POC testing in Malawi

Zikomo!

Thank You!