Optimizing Testing and Treatment of HIV-Exposed Infants: Creating Sustainable Markets for Point-of-Care Technologies within National Diagnostic Networks

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Prof. Soudre Room
Rainbow Towers Conference Centre

Organized by:

Twitter Hash Tag: #EIDInnovation
Integrating point-of-care EID HIV testing into diagnostic and clinical networks and services

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Summary: Challenges in the Pediatric Testing and Treatment Cascade

Challenge 1: Poor access to EID testing
- Only 42% of the 1.4 million HIV-exposed African children had access to EID testing in 2014
- More than 800,000 exposed infants are missed each year

Challenge 2: Delays in early infant testing
- WHO guidelines recommend testing at 6 weeks, 9 months and 18 months
- Most HIV-exposed infants receive their first test at age 6 months or later
- If untreated, 30% of HIV-infected infants will die before their first birthday

Challenge 3: Delays in the return of test results
- The median time from sample collection to delivery of test results ranges from 30 to 90 days depending on the country
- Only 50% of children who are tested receive their test results

Challenge 4: Delays in initiating HIV-positive infants on treatment
- Study in South Africa found a 10 week delay between positive diagnosis and initiation on treatment
- Study in Kenya found that 44% of positive infants were not initiated on treatment (never reached ART clinic), and
- 12% who were initiated on treatment were lost to follow up
Key Considerations for Integrating and Ensuring Uptake of Point-of-Care EID

- Supportive policy, regulatory and funding environment
- Strong links between diagnostic and clinical care services
- Placement at appropriate sites within diagnostic and clinical networks
- Availability of and access to appropriate point-of-care products
Elizabeth Glaser Pediatric AIDS Foundation (EGPAF): Presence, Programs and Progress

• Working in **15 countries** across Africa, India and Russia

• Supporting more than **7,000 health facilities**

• **1,200 staff** worldwide

• Since 1988, EGPAF has:
  • Provided more than **21 million women** with PMTCT services
  • Tested more than **19 million women** for HIV
  • Started nearly **1.4 million individuals** – including more than **114,000 children** – on antiretroviral treatment
EGPAF Work at National and Decentralized Levels

**National:** Technical assistance to MOH; participation in national technical working groups; advocacy for improved policies

**Regions/Provincial and Districts:** Comprehensive clinical, managerial, financial, data, supply chain, laboratory and systems assistance; Pediatric, adolescent and adult HIV testing, care and treatment, PMTCT, TB, MNCH, nutrition

**Health Facilities:** Training of health workers, Supportive supervision, Clinical mentorship and QI/QM initiatives

**Communities:** Community-based service delivery; Tracking & Tracing, Psychosocial Support Initiatives, Adherence; Community systems strengthening
Integrating Point-of-Care Testing into National EID Diagnostic Networks

Mapping of Diagnostic Networks to identify appropriate sites for point-of-care EID deployment.

Key factors to consider for POC placement:

- HIV prevalence
- PMTCT and ART coverage
- Patient volumes
- Current EID network coverage
- Availability of sample transport
- Road quality
- Time for return of results
- Proportion of results not returned
- Presence/link to pediatric HIV treatment
- Capacity for POC (e.g. staff, infrastructure, connectivity, QA, performance monitoring)
Placement Scenarios: Volume of Tests and Levels of Health Facilities

- **Health Posts, Outreach, Mobile Clinics**
  - <1 test volume per day
  - Portable point-of-care (not yet available)

- **Small Clinics**
  - 1-2 test volume per day
  - Point-of-care

- **Medium Clinics**
  - 2-8 test volume per day
  - Mix of conventional and point-of-care

- **District Hospital**
  - 8-10 test volume per day
  - Point-of-care hub for a network of clinics

- **Regional/Provincial Hospitals**
  - 10-16 test volume per day
  - Mix of conventional and point-of-care

- **Tertiary Hospitals**
  - >16 test volume per day
  - Conventional high throughput

Possible Diagnostics Mix: Conventional high throughput, Mix of conventional and point-of-care, Point-of-care, Point-of-care hub for a network of clinics, Portable point-of-care (not yet available).
POC EID Placement Scenarios: Achieving Key EID Objectives Within Different Health System Contexts

**Scenario 1:** Increase Access in Under-served Areas
- Tertiary Facilities
- Regional Facilities
- District Facilities
- Clinics and Health Posts

**Scenario 2:** Decrease Turn-Around Time In High-Volume Facilities
- Tertiary Facilities
- Regional Facilities
- District Facilities
- Clinics and Health Posts

**Scenario 3:** Maximize Access & Volume in Decentralized Areas
- Tertiary Facilities
- Regional Facilities
- District Facilities
- Clinics and Health Posts
- National Lab
- High-Throughput POC EID or near POC EID
- Health Posts
- Mobile Community
Selecting Appropriate Entry Points for Point-of-Care EID testing

Results of HIV testing among children under five in different service settings

- **Pediatric inpatient**: 22.5% HIV - and 14.2% HIV +
- **Nutrition Center**: 2% HIV - and 5% HIV +
- **Immunization (EPI)**: 3.3% HIV - and 3.3% HIV +
- **PMTCT well-functioning**: 2% HIV - and 14.2% HIV +
- **PMTCT poorly-functioning**: 5% HIV - and 3.3% HIV +

Source: Cohn J et al. Systematic literature review presented to the WHO guidelines committee, June 2015 (and submitted for publication).
Placement Must Ensure Strong Links to Care and Treatment: Availability of a Test is Not Sufficient

Source: Beard S, CDC, Center for Global Health (2015)
Health Services and System Changes Needed to Support the Integration of Point-of-Care Testing

POC EID connectivity = real time opportunities for program improvement
Expected Impact on the Testing and Treatment Cascade: Estimates from the UNITAID/EGPAF Project

POC EID will enable EGPAF to initiate 27,864 additional HIV-infected infants on life-saving treatment.

- **215,000 infants to be tested in 9 project countries**
Impact on Turn Around Time and ART Initiation: Will EID Mirror the Impact of Point-of-Care CD4?

**Uganda**
- **Time to ART initiation:** Reduced from 59 to 11 days

**Mozambique**
- **LTFU:** 50% increase in retention from diagnosis to ART initiation
- **ART Initiation:** 85% increase in ART initiation

Source: ¹MOH Uganda; ²Jani et al (2011)
Evaluation and Research to Capture and Share Knowledge

• **Impact studies** – on turn around time, delivery of test results, initiation of ART, etc.

• **Cost-effectiveness modeling** – to analyze the cost per test result returned, cost per child placed on treatment, etc.

• **Others, TBD**
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Thank you