



DEPARTMENT OF HEALTH AND HUMAN SERVICES

# Laboratory Challenges

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Expanding Access to Pediatric HIV/AIDS  
Care and Treatment in Ethiopia

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# Laboratory Services (1)

- **Laboratory diagnosis of HIV infection:**
  - HIV Antibody test (EIA and Rapid test) at all ART/PMTCT and VCT sites
  - Children < 18 months of age: DNA PCR (or RNA PCR) test (planned)
- **Staging of disease progression, and monitoring of antiretroviral toxicities**
  - CD4 count
  - CBC, differential, hemoglobin, etc
  - ALT, creatinine, serum glucose, etc

# Laboratory Challenges (1)

- **Infrastructure: Laboratory spaces**
- **Equipment: availability, maintenance**
- **Trained manpower**
- **Laboratory supplies, test kits and reagents**
- **QA program**
  - **Standard guidelines, protocols, SOPs, EQA, etc...**
  - **HIV rapid testing**
  - **Accreditation of laboratories**

# Laboratory Challenges (2)

- Procurement, inventory and supply chain management
- Coordination of activities among partners
- The high turnover of trained staff from sites and the need to retrain
- Lack of communication between the laboratory and clinic
- Resource leverage

# **Pediatric diagnosis -Challenges (1)**

- **An essential first step in caring for HIV-infected children is accurate and early diagnosis of HIV**
- **Children who are infected with the virus before birth, at birth, or through breastfeeding may not exhibit any symptoms**
- **Antibody tests for infants may yield false positive results for up to 18 months.**

## Pediatric diagnosis -Challenges (2)

- DNA PCR is the preferred virologic method for diagnosis in infancy
- DNA PCR method requires
  - *Skilled technicians*
  - *Dedicated laboratory space and equipment (PCR, hood, cold chain, power source, and all the required accessories)*
  - *Test kits*
  - *Logistic support*

# Way forward (1)

- Standardize best laboratory practices
- Standardize and decentralize training
- Provide for uniform quality assurance measures among laboratories
- Provide for common equipment and supportive maintenance
- Establish umbrella service contracts to cover needed equipment, and logistic support

## Way forward (2)

- Establish tiered laboratory service:  
Strengthen referral linkages
- Regional referral centers for complex testing methodologies and QA
  - *Infant diagnosis*
  - *Viral load*
  - *Drug resistances*
  - *EQA services*

**Thank You**