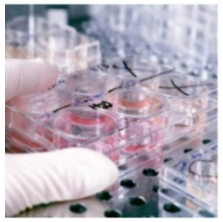
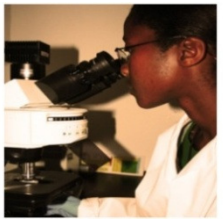
NATIONAL INSTITUTE FOR COMMUNICABLE DISEASES
Division of the National Health Laboratory Service


First year implementation of HIV birth testing amongst HIV-exposed infants in Gauteng Province, South Africa

J.I. Ebonwu, A. H. Mazanderani, S.N. Dube,
P. Mutevedzi, G.G. Sherman

GAUTENG PROVINCE
HEALTH AND SOCIAL DEVELOPMENT
REPUBLIC OF SOUTH AFRICA

INTRODUCTION

- Without ART, HIV-related mortality peaks at 2-3 months of age in South Africa
- Early infant diagnosis and prompt linkage to care are critical in paediatric HIV care
- Universal birth HIV PCR testing supports UNAIDS 90-90-90 strategy
  - Detects intra-uterine infections
  - Opportunity for early ART intervention

INTRODUCTION

- Universal birth PCR testing of HIV-exposed neonates introduced in South Africa on 1st June 2015

- **Previously**
  - Testing done at **6 weeks** of age
  - Targeted birth testing in 'high risk' neonates

INTRODUCTION

- **Missed diagnostic opportunities (MDOs)** occur where specimen collected for HIV PCR test fail to yield positive or negative results
  - Errors prior to testing
  - Errors during the testing process

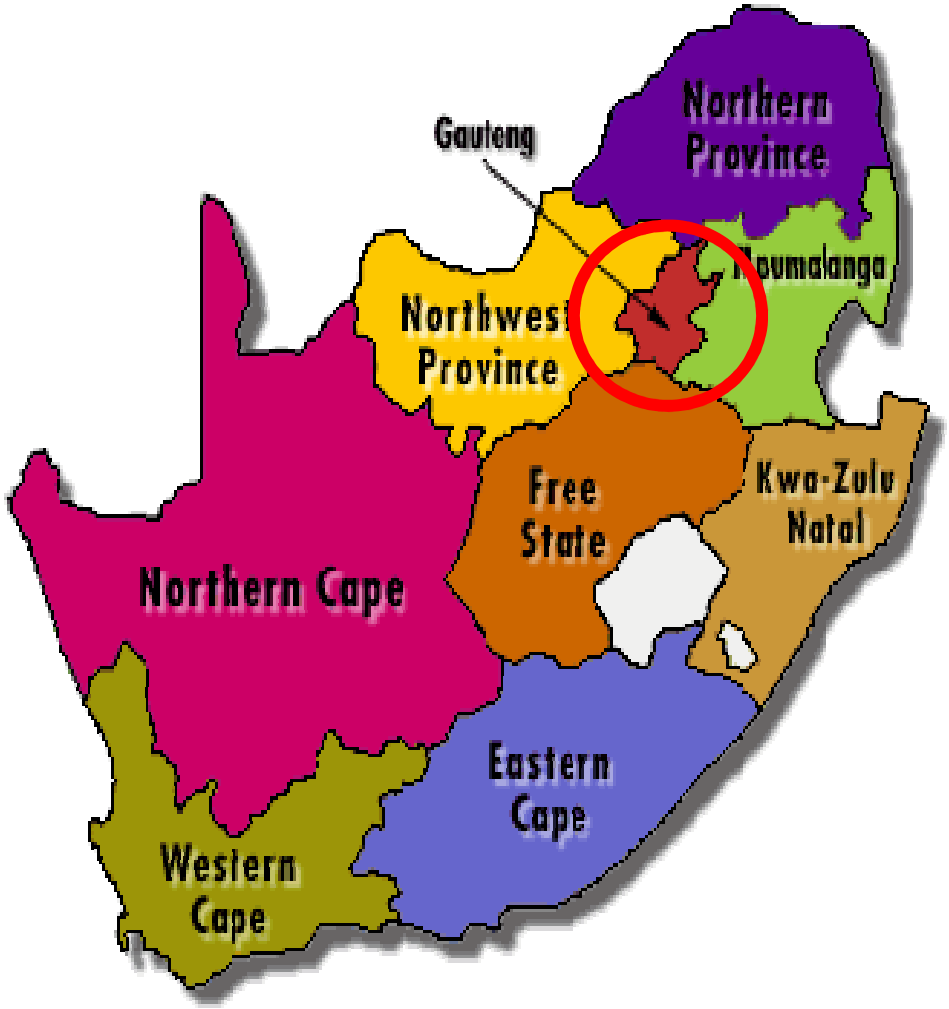
OBJECTIVES

- Describe the uptake of birth HIV PCR testing June-May 2015/2016, in comparison to same time periods in the fiscal years 2012-2014

/

- Determine the estimated intra-uterine HIV transmission rate one year following implementation of the new guidelines

STUDY SETTING



- **Districts in Gauteng**
  - City of Johannesburg (CoJ)
  - City of Tshwane (CoT)
  - Ekurhuleni (Eku)
  - Sedibeng (Sed)
  - West Rand (W/Rand)

METHODS

- All the HIV PCR test data for Gauteng, for the fiscal years 2012-2016 (June-May)
- Extracted from Corporate Data Warehouse (CDW)
  - Electronic central repository of the South African NHLS
- Classification of number of HIV PCR tests done
  - <7 days **(Birth testing)**
  - 7 days to <2 months **(6 weeks testing)**
  - 2 to <3 months **(10 weeks testing)**

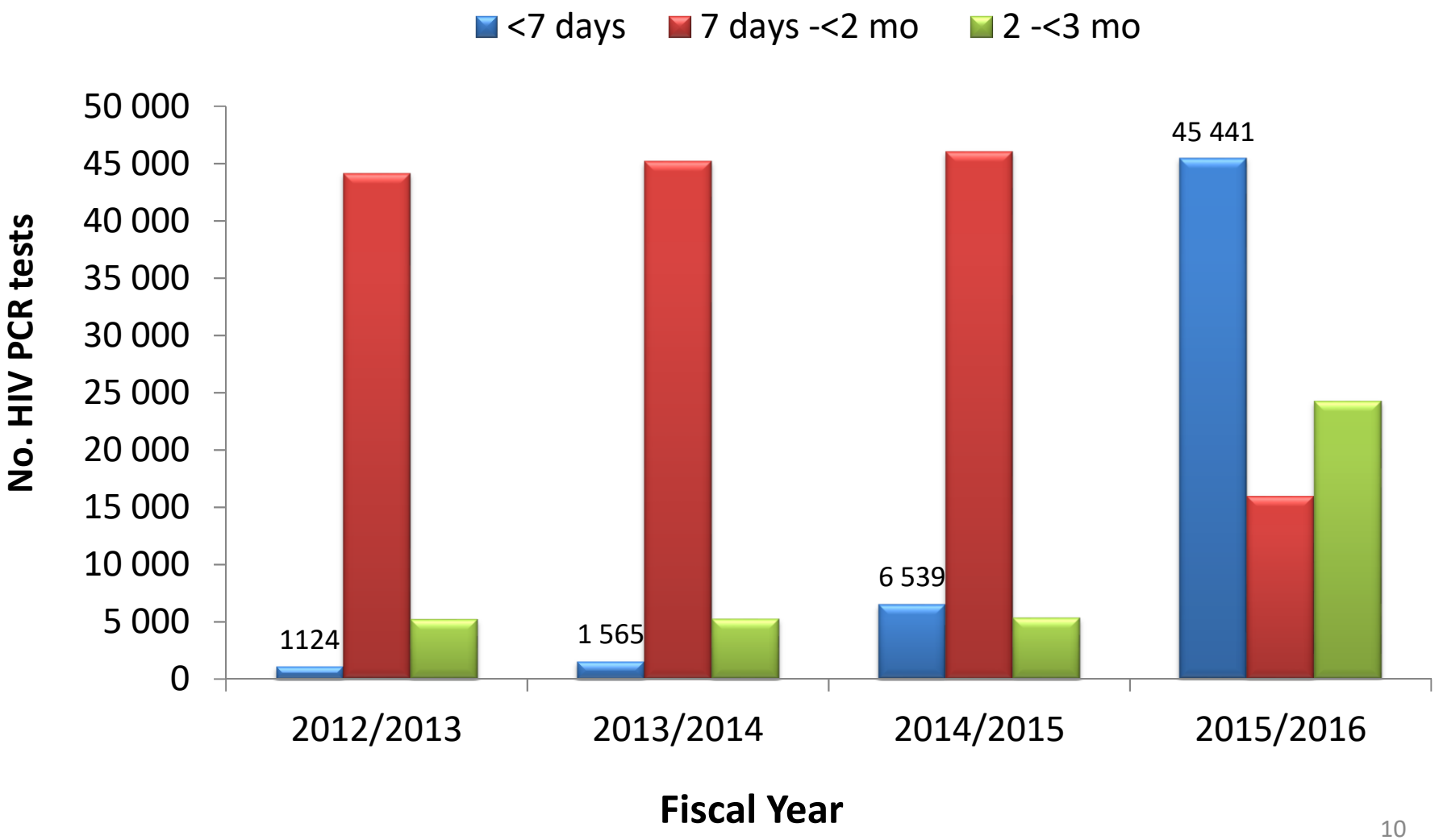
METHODS

- Birth testing coverage
  - proportion of HIV PCR tests at **<7 days** over the number of HIV-exposed neonates requiring testing
- Number requiring testing
  - *(total live births x maternal HIV seroprevalence)*
- Intra-uterine HIV transmission rate
  - positivity rate of all HIV PCR specimens in neonates **<7 days** old

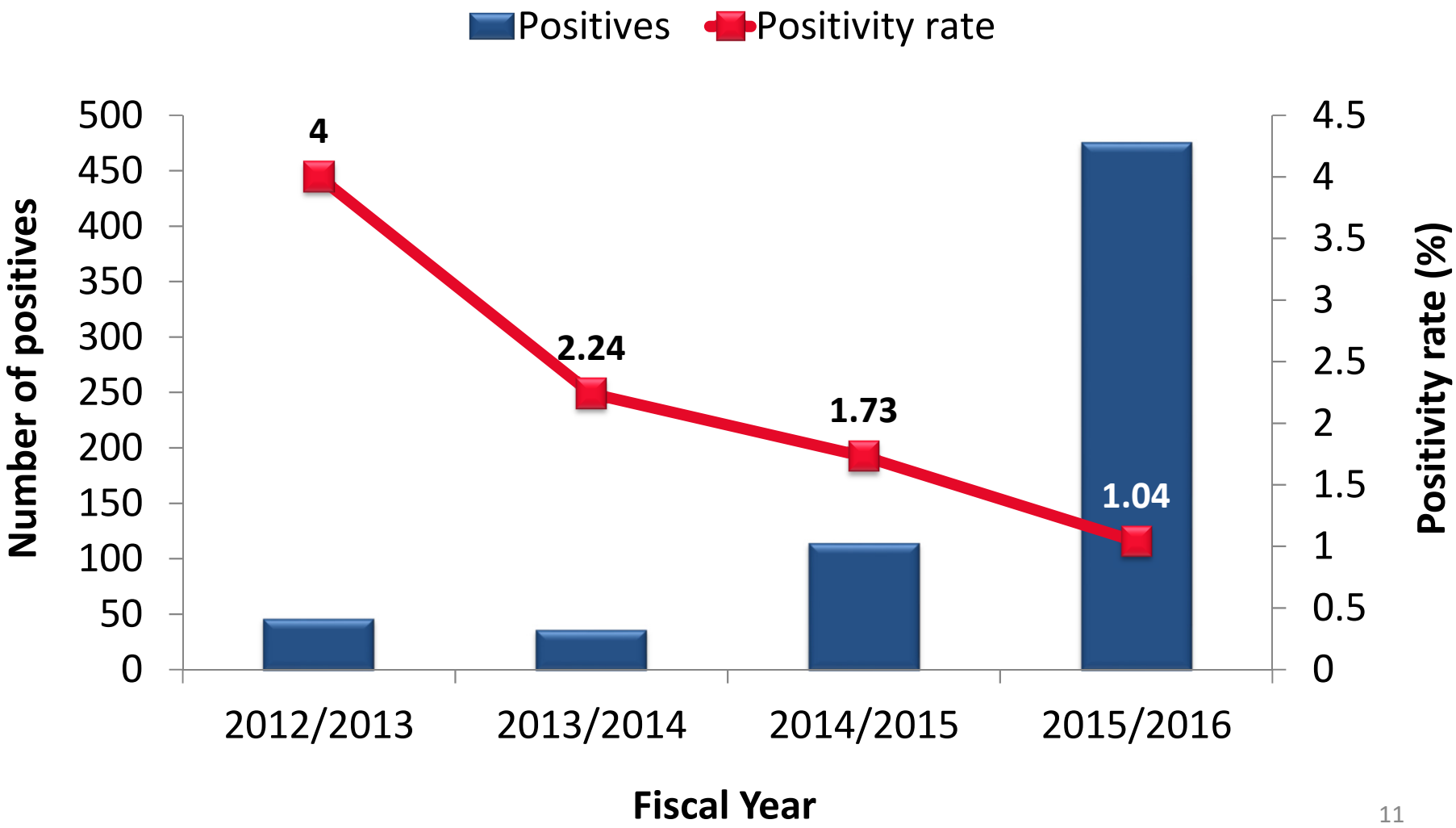
METHODS

- Missed diagnostic opportunities (MDOs) classified according to the rejection code:
  - **Clinic error**
    - Insufficient sample
    - Sample unsuitable for testing
    - Clerical error
  - **Laboratory error**
    - Invalid result: PCR inhibition
    - Laboratory error not specified
  - **Indeterminate result**
    - Test is inconclusive (not clearly positive or negative)

HIV PCR testing at different time points in Gauteng, 2012-2016 (June – May)

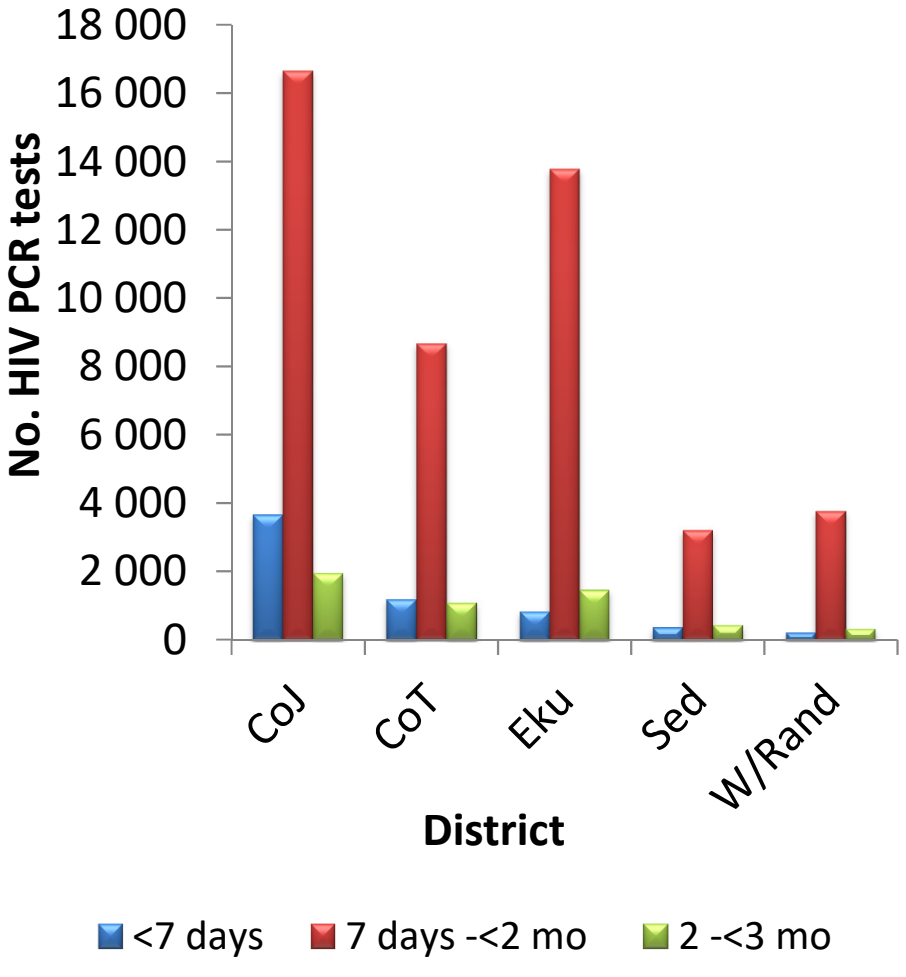


HIV PCR positivity at <7 days testing in Gauteng, 2012-2016 (June – May)

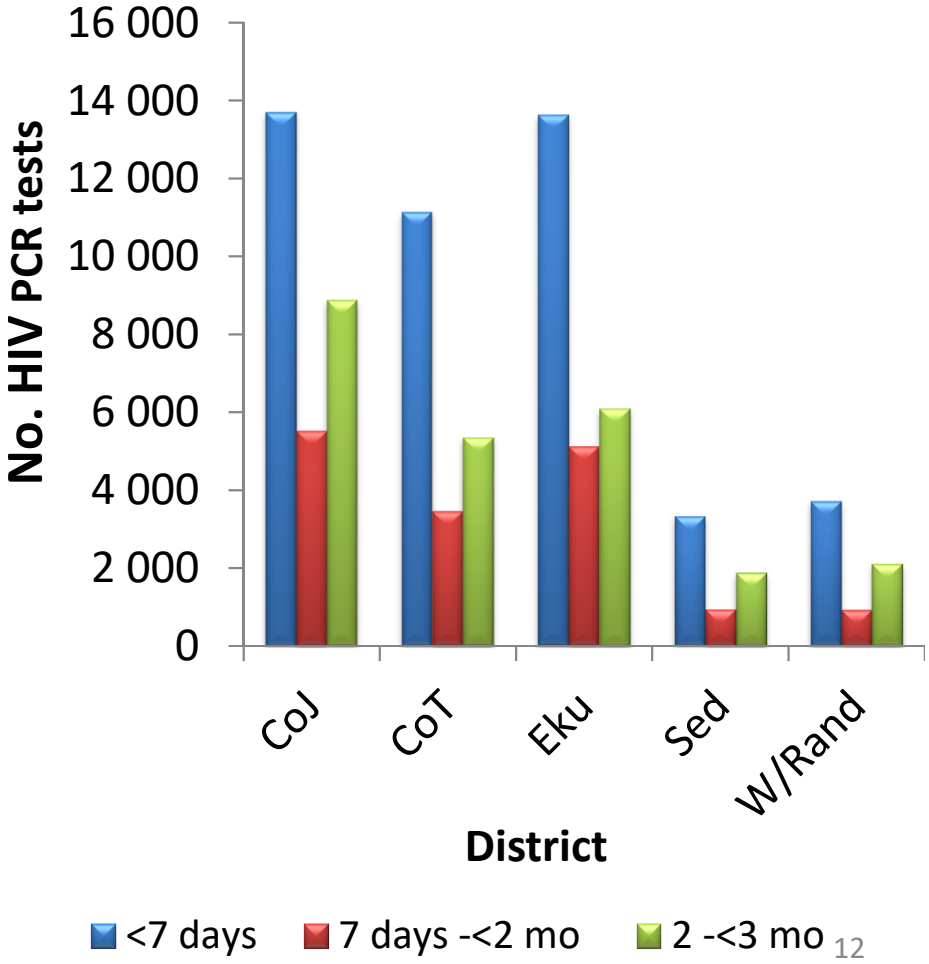


HIV PCR testing at different time points in Gauteng by district, 2014-2016 (June – May)

2014/2015 (Pre-guideline)



2015/2016 (Post-guideline)



Birth HIV PCR testing coverage in Gauteng, June-May 2015/2016

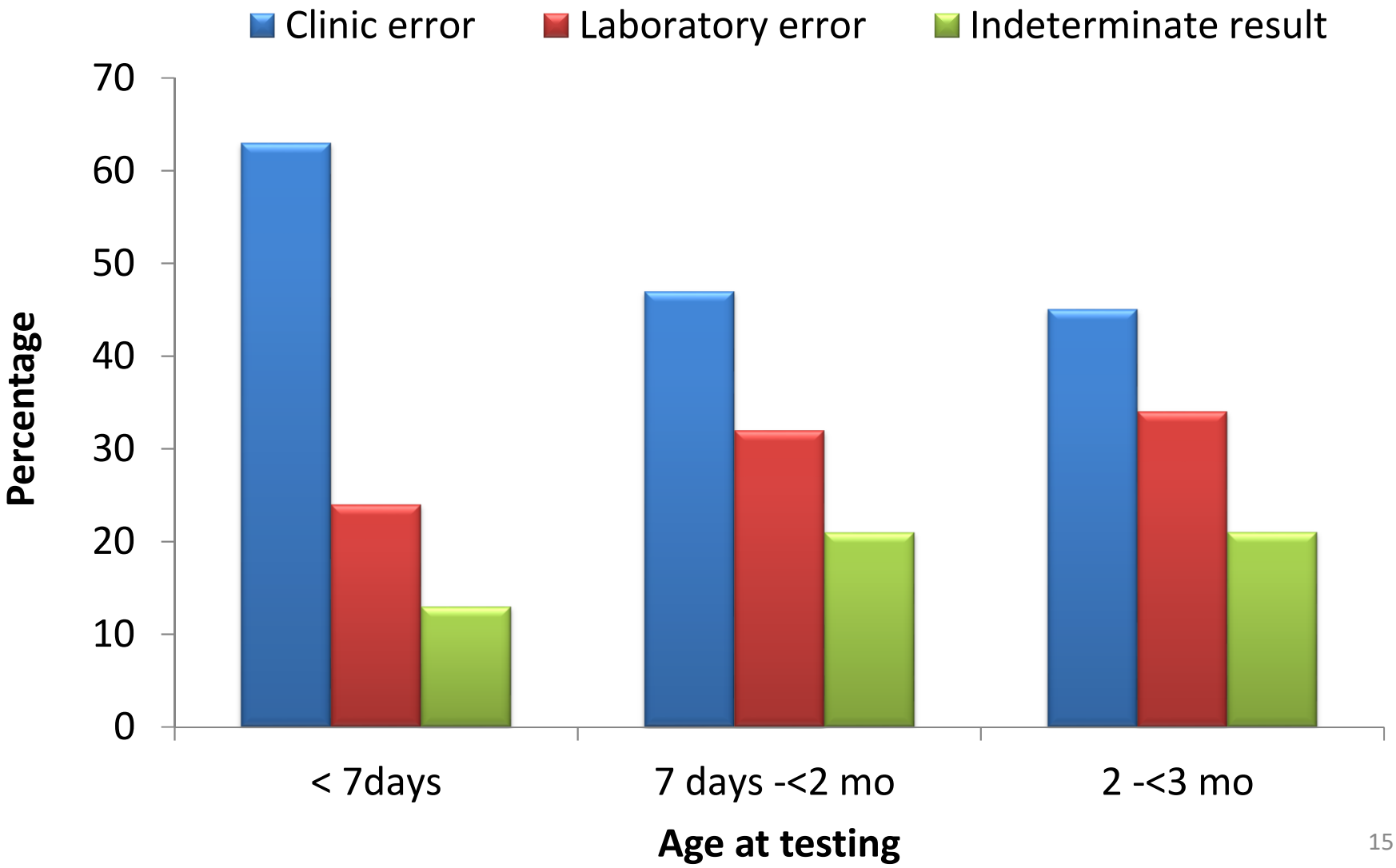
- Provincial Birth testing coverage estimated at **79%**
- Some districts doing better than others

District	Birth Coverage (%)
CoJ	77
CoT	98
Eku	**68**
Sed	81
W/Rand	77

Proportion of HIV PCR tests with no results at different time points in Gauteng, June-May 2015/2016

	<7 days	7 days - <2 mo	2 - <3 mo
Total PCR tests	45,441	15,970	24,270
MDOs	1,815	536	433
% error	**4%**	**3.4%**	**1.8%**

Classification of MDOs at different time points in Gauteng, June-May 2015/2016



DISCUSSION

- Satisfactory result for change in program following one year of implementation
- Universal birth testing for all HIV-exposed neonates can be achieved in Gauteng
  - will assist in **earlier detection** and **treatment** of intra-uterine HIV infections

DISCUSSION

- MDOs have implications for patient care
  - Delayed diagnosis and treatment initiation
- MDOs lead to wastage of resources both within the clinic and laboratory

LIMITATIONS

- **It is uncertain if:**
  - The same neonates testing negative at birth were tested at 6- or 10- weeks of age
  - HIV PCR positive neonates received confirmatory testing
  - Not all MDOs require a result
    - Those rejected due to duplicate registration were not counted in the data presented

RECOMMENDATIONS

- Successful linkage of HIV positive neonates into care
- Repeat testing at 10 weeks of age for those who test negative at birth
- Increased birth testing coverage across the districts
- Address MDOs in order to reduce associated delayed diagnosis and resource wastage

ACKNOWLEDGEMENTS

- Public Health Surveillance and Response – NICD
- Sue Candy and the CDW team at NHLS
- Centre for HIV and STIs – NICD
- Gauteng Department of Health
- UNICEF

Thank you