

# Laboratory Test Data for Near Real-time Longitudinal Cohort Monitoring of HIV

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Best Practices and Innovations in  
Paediatric HIV and TB Care and Treatment

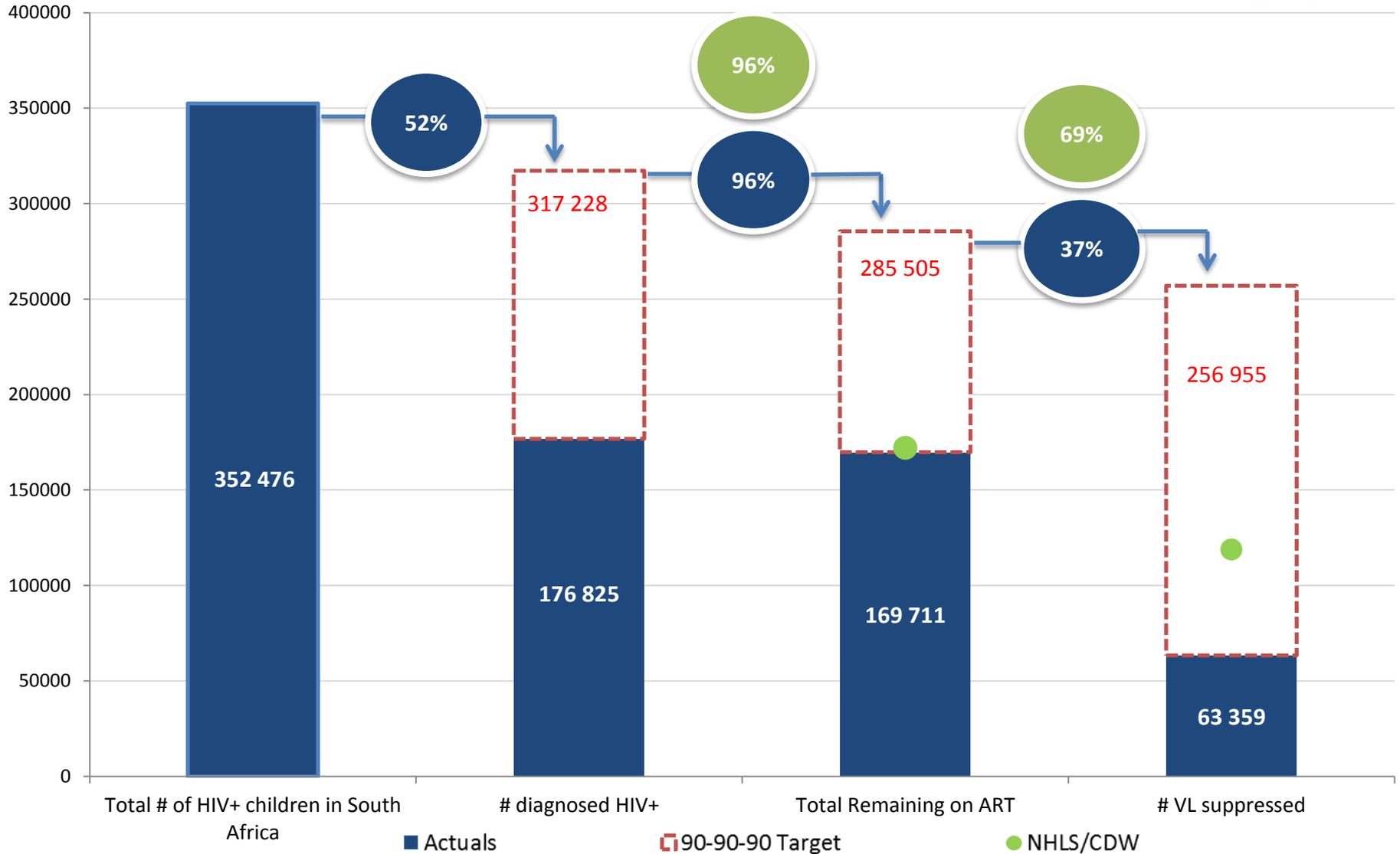
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# INTRODUCTION

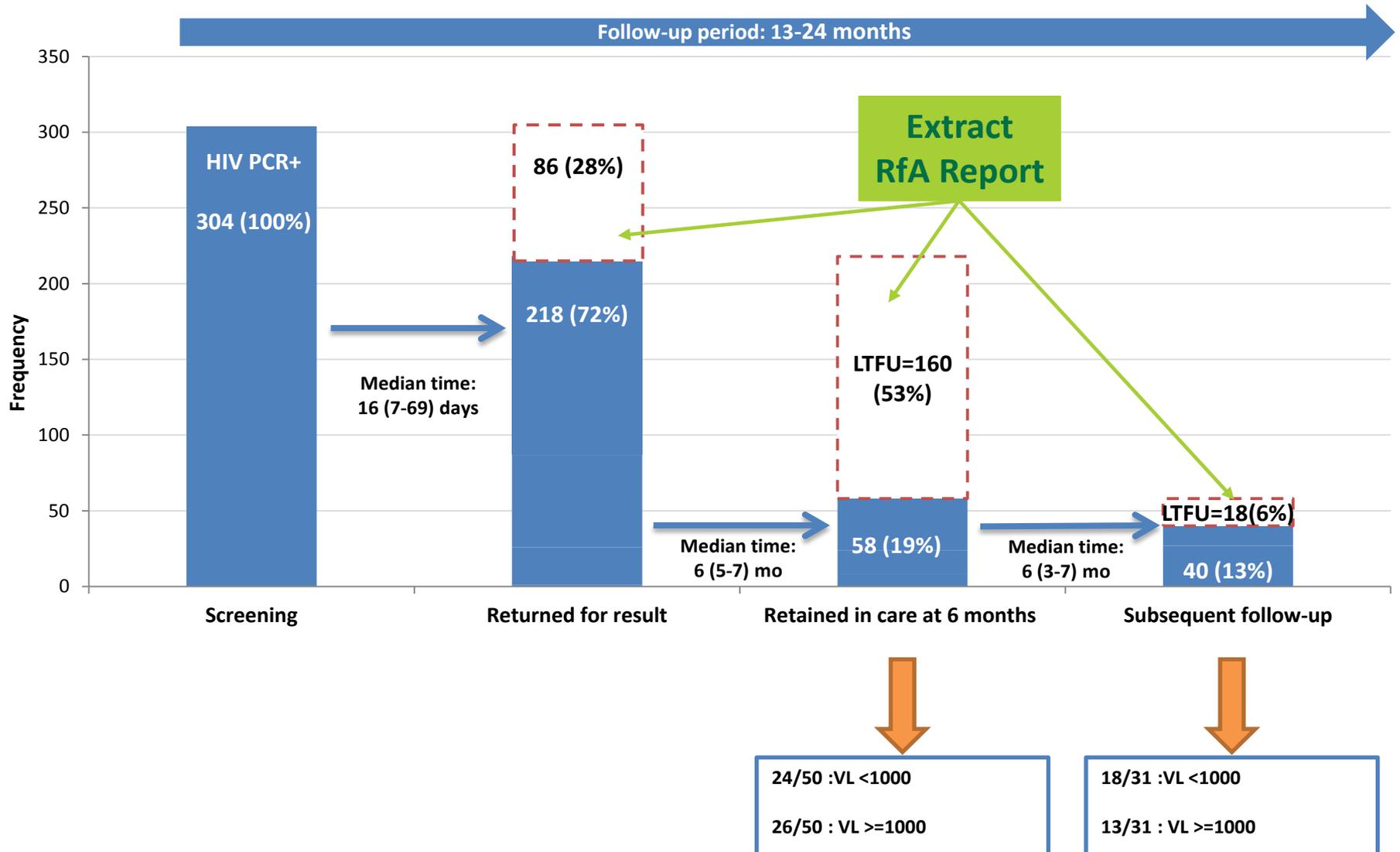
- National Health Laboratory Service's Corporate Data-Warehouse (NHLS CDW) HIV laboratory test results at facility level for 80% of S.A's population
- HIV PCR and VL test results in NHLS CDW used e.g.
  - Monitor uptake and coverage of EID (incl. birth testing)
  - Assist in clinical care ('Results for Action' Reports for 0-19 years)
- We demonstrate the potential for NHLS CDW to
  - **Perform near real-time Paediatric HIV Surveillance at district level**  
**UNAIDS 90-90-90 cascade** and **Longitudinal Cohort Monitoring** to measure targets and identify specific patients, with virological failure or loss to follow up, for tracing
  - **Provide analysis of programmatic data**  
Describe **age at diagnosis** within the infant testing program

# S.A. Paediatric 90:90:90 Cascade

## 2016

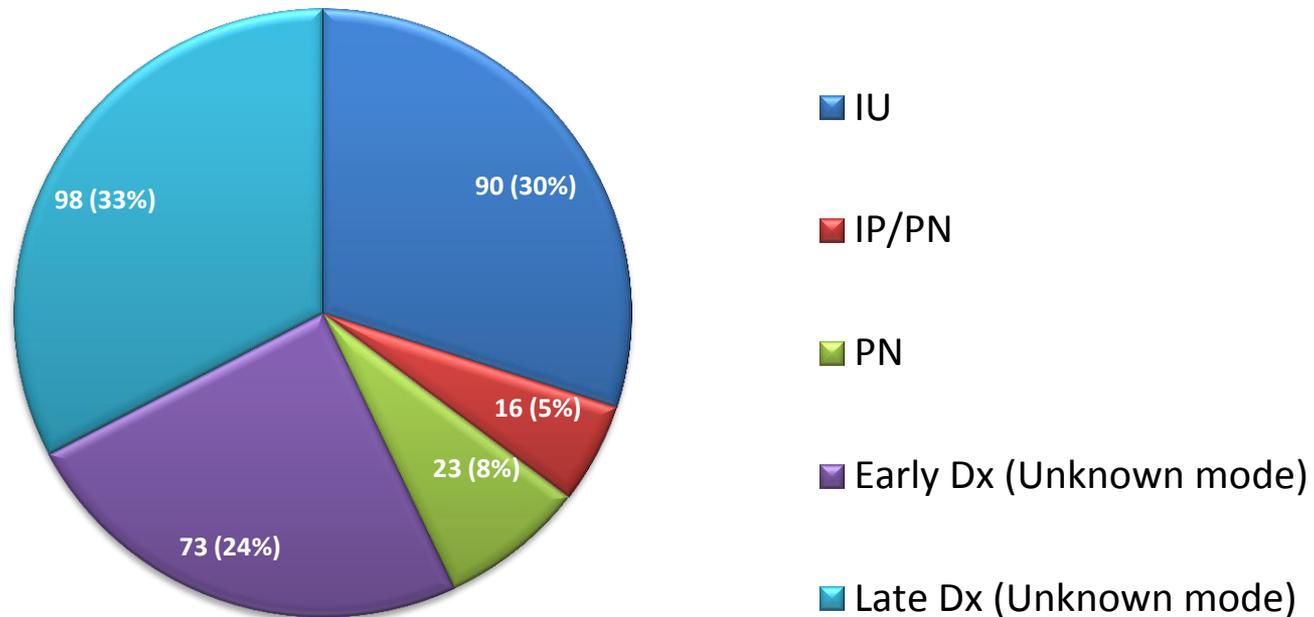


# Longitudinal Cohort Monitoring of HIV PCR Positive Infants 2015/16



# Modes of HIV Transmission

2015/16



**IU** *in-utero*, **IP** intra-partum, **PN** post-natal

**Early Dx** <3 months of age

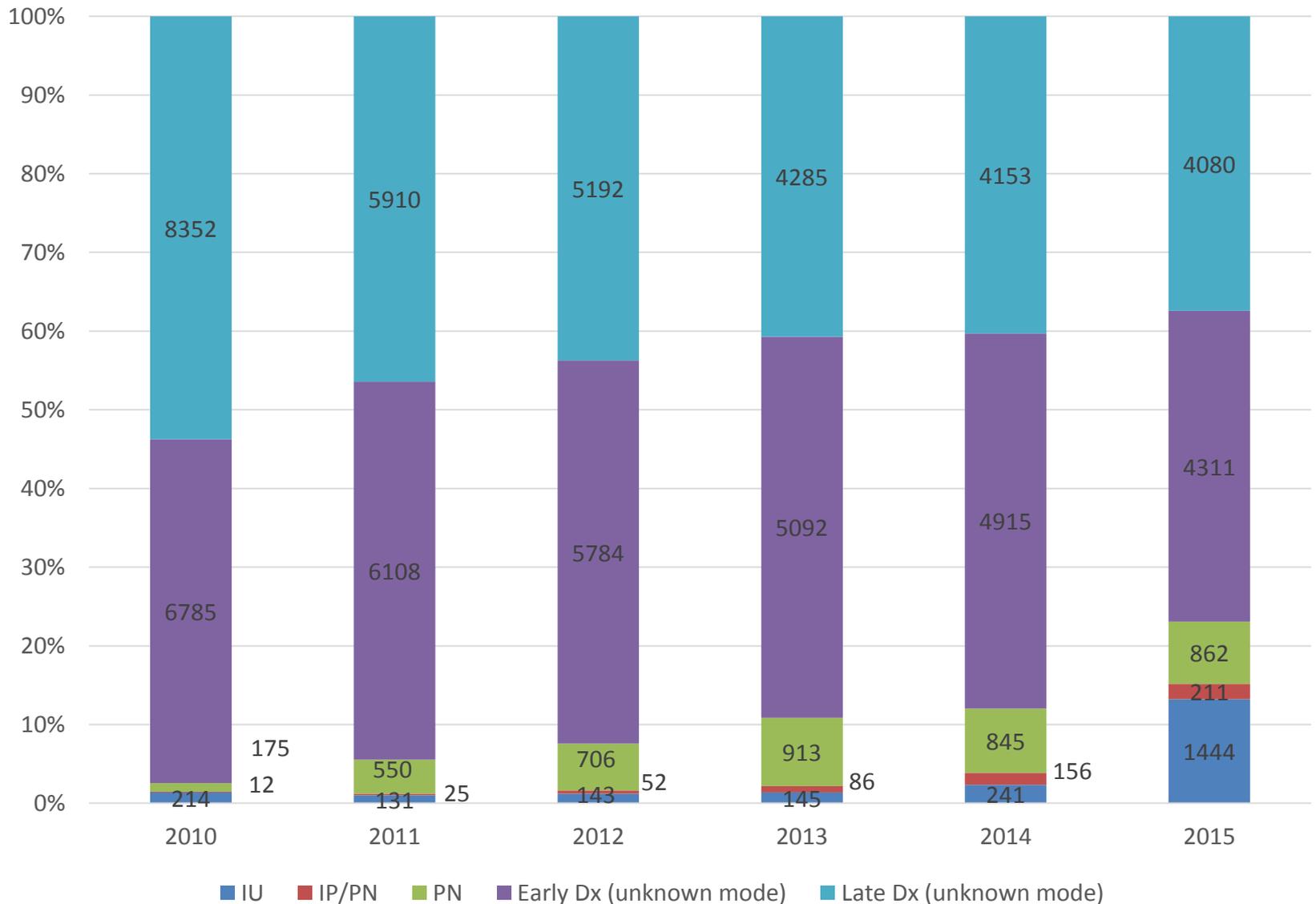
# NHLS CDW: Age at 1<sup>st</sup> HIV PCR Pos

- NHLS CDW - effective EID monitoring within the National PMTCT program for <2mo olds
  - 2010 – 2015:
    - EID coverage 54% – >85%
    - Early MTCT rates 4.3% – 1.5%
- **BUT only 1/3<sup>rd</sup> of all HIV PCR positive results from infants <2mo**
- Absence of a *unique patient identifier* – no de-duplication of positive HIV PCR results in older infants
- Using a probabilistic linking algorithm, we define age at first positive PCR result and describe the burden of late infant diagnosis from 2010 – 2015

# Age at 1<sup>st</sup> HIV PCR Pos (2010 – 2015)

- Of all HIV PCR positive infants, 1<sup>st</sup> HIV PCR positive occurred in 37% aged <2 months and 49% aged <3 months
- 36 485 infants tested PCR positive ≥3 months of age:
  - **postnatal infection:** 4 513 (12%)  
previous negative PCR result at <3 months
  - **late presenters:** 31 972 (45% of total PCR pos)  
suggests poor access to care among HIV-infected MIP pairs
- 2010 – 2015, the annual number of
  - **postnatal infections** increased from 175 to 862 infants  
(1.1 – 7.9% of total PCR pos)
  - **late presenters** decreased from 8 352 to 4 080  
(54 – 37% of total PCR pos)

# Modes of HIV Transmission (2010 – 2015)



# Age at 1<sup>st</sup> HIV PCR Pos (2010 – 2015)

- Late presentation for first PCR pos test *declined* from 2010 – 2015
- In 2015, despite high EID coverage, late presentation accounted for *more than a third* of infections in infants suggesting poor access to care among HIV-infected mother-infant pairs
- Late presenters likely represent different modes of transmission, including *in-utero*, intrapartum and postnatal infections, and threaten efforts to eliminate MTCT
- De-duplicating routine laboratory PCR data can readily be incorporated into the NHLS CDW for *more effective & comprehensive paediatric HIV surveillance*

## NHLS CDW Presentation:

Prof Gayle Sherman, A Haeri Mazanderani; Wits, NICD

- 1) Until satisfactory Tier.net coverage is achieved, the NHLS CDW represents an opportunity to deliver **near real time Paediatric HIV Surveillance** (e.g. Longitudinal Cohort Monitoring) and retrospective analysis (e.g. age at first HIV PCR positives)
- 2) Development is once off and costly, but maintenance can be undertaken by an NICD core team. Total cost is far less than for national surveys.
- 3) Reporting is rapidly **scalable** via online access or email distribution however, **ongoing training** is required to maximize use in the field

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NHLS CDW and team

All co-authors