

Optimal timing for serological screening
for HIV exposed uninfected infants;
the later the better?

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Background

- HIV exposed uninfected (HEU) infants routinely tested¹:
 - HIV RNA PCR: birth, 6 weeks, 12 weeks
 - **HIV antibody: 18 months**
- Sero-reversion in infant – loss of maternal HIV antibodies

¹British HIV Association guidelines for the management of HIV in pregnancy and postpartum 2014

Background

- 4th generation antigen/antibody assay + repeat confirmatory testing
- *Assay incredibly* sensitive – low levels maternal antibody
- Leads to retesting

Methods

- Two NHS trusts – SMH, C&W
- Database of babies born to mothers with HIV
- DOB January 2013 – August 2016
- Nurse specialist records, case records (paper, electronic)

Methods

- Data collection:
 - Gestation
 - Breastfeeding status
 - Age at first and subsequent tests
 - Assay results

Methods

- 4th generation antibody/antigen assay
 - PHE: Screen and confirmatory tests
 - Both similar: *high sensitivity and specificity*
- **Gold standard** for early diagnosis of HIV 1 or 2
- **Architect** HIV Ag/Ab Combo – immunoassay
 - Not distinguish between Ag or Ab
- **Vidas** HIV Duo Ultra – enzyme linked fluoroassay
 - Different values for Ag and Ab

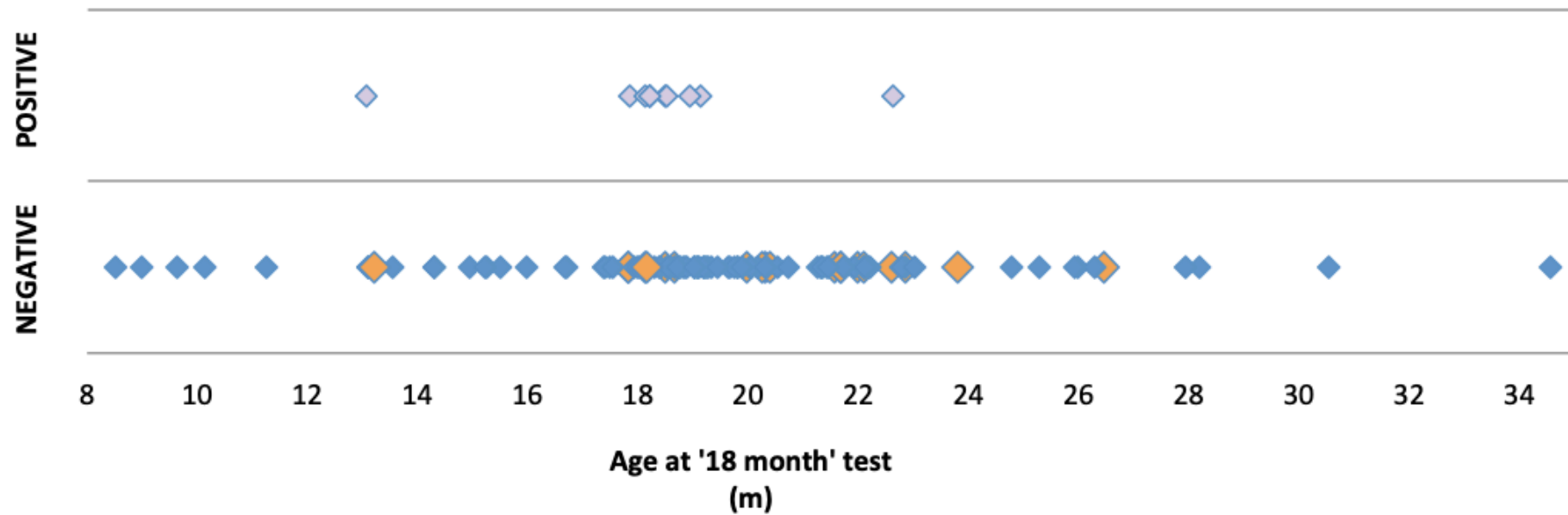
Results

- 142 infants
 - 0 infants had positive HIV PCR tests
- 21 (14.8%) patients excluded
 - 4 breastfed (different pathway)
 - 17 lost to follow up
- **121 infants**
 - 83% born at term (31-42w gestation)
 - Median age testing: 19.1 months (8.5-34.6)

Results

- '18 month' antibody test positive 10/121 = 8.3%
 - Median age **18.3** [IQR 18.1, 18.8] vs 19.2 [18.1, 21.5] months
 - Median gestation **38.5** weeks
- **7/10 reactive** on screening and confirmatory assays

Results



- ◆ Positive
- ◆ Negative
- ◆ Preterm <37/40

Results

- Further results available on **8/10** infants
- Second test:
 - Median age **21.3** months
- **5/8** non-reactive
- 3 remaining:
 - Non-reactive on **confirmatory** assay
 - Reactive, **HIV RNA PCR** negative
 - Reactive, **repeat 3rd** test at 29.4 months – non-reactive

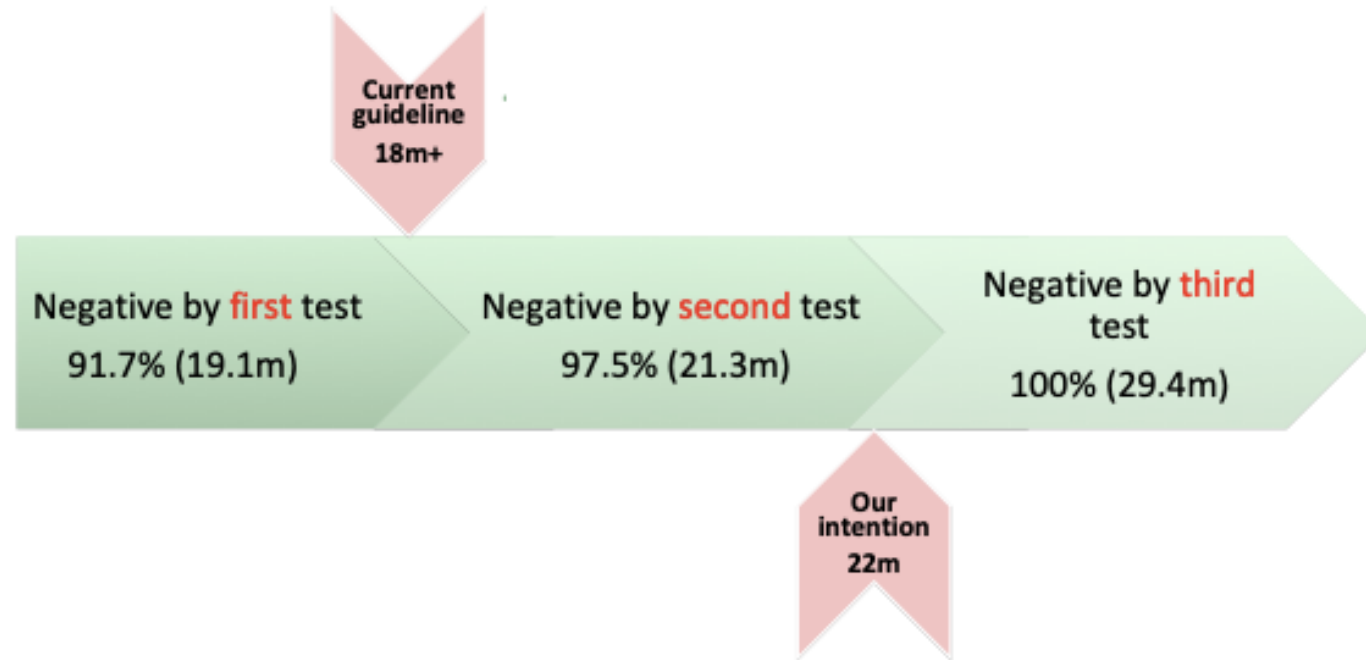
The 'positive ten'

Patient	Gestation	Age 1 st test (m)	Age 2 nd test (m)	Age 3 rd test (m)	Outcome
1	37	19.1	23.8		Negative
2	39	22.0	24.7	29.4	Negative
3	40	13.1			FU elsewhere
4	38	18.5	22.4		Negative
5	38	18.5	21.2		VL negative
6	40	18.2	20.8		Negative
7	39	18.1			FU elsewhere
8	37	17.9	20.5		Negative
9	38	18.9	20.9		Negative
10	41	18.2	21.4		Confirm negative
Mean	38.7	18.3	22.0	29.4	
Median	38.5	18.3	21.3	29.4	

Conclusion

- **8.3%** HEU infants required repeat serology
- Delaying to 22 months – reduce to **<2%**
- Reduced costs:
 - Emotional – parents and toddlers
 - Outpatient resources
 - Test costs: HIV serology £7, HIV RNA PCR £20

Changes to our practice

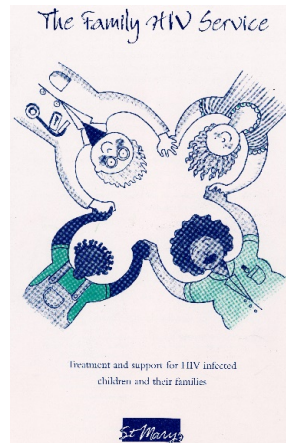


- *Postpone* HEU infant screening to 22 months
- If positive at 22 months → test **HIV RNA PCR**

Thank you

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Imperial College Healthcare 
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