



Integrated Screening Outcomes Surveillance Service

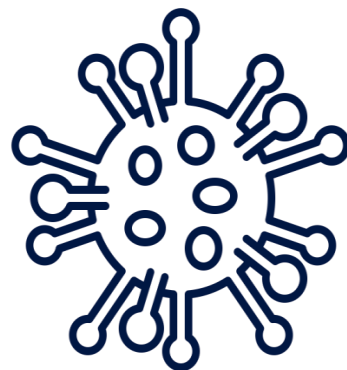
## Increasing numbers of pregnancies to women with vertically-acquired HIV in the UK: 2006-21

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# Background

- As a result of improving health strategies, the number of reproductive-aged women with vertically-acquired HIV (WVHIV) has been increasing globally
- However, knowledge gaps on their characteristics and pregnancy outcomes exist
- In the UK there are approximately 700 pregnancies in women living with HIV every year and the vertical transmission rate is under 0.3%
- We present population-level pregnancy outcome data for this important emerging sub-group of pregnant women with vertically acquired HIV



# ISOSS methods

- The **Integrated Screening Outcomes Surveillance Service (ISOSS)** conducts surveillance on behalf of the NHS Infectious Diseases in Pregnancy Screening Programme (IDPS)
- **All pregnancies to women living with HIV in the UK\*, their infants and any children diagnosed with HIV (<16yrs age) are reported to ISOSS.**
- **Long term follow-up of all children living with HIV is carried out by the Children's HIV and AIDS Reporting System (CHARS)**
- Data have been collected for >30 years, and concurrent paediatric and maternity reporting streams offer a unique opportunity to link historical paediatric reports of women diagnosed as children and seen for paediatric care in the UK to pregnancy reports.

\*England only service since 2020

# Definitions and analysis objectives

- WWHIV: women diagnosed <14 years of age with no other risk factors reported
- No pregnancies in women with vertically-acquired HIV reported prior to 2006
- Analysis dataset: all pregnancies with known outcomes reported between 01/01/2006 and 31/12/2021

## Objectives

- To describe maternal and pregnancy characteristics of WWHIV and trends over time
- To assess birth and infant outcomes of WWHIV
- To compare specific characteristics and outcomes in WWHIV with those in women living with likely heterosexually-acquired HIV (WHHIV)

# Results

17,478 pregnancies were reported to ISOSS and among these 96.4% (16,866) were in women with likely heterosexually acquired HIV

**Mode of maternal HIV acquisition of reported pregnancies, 2006-2021**

EDD* year	Vertical	Heterosexual	Other risk
2006-09	15 (0.3%)	5195 (97.0%)	145 (2.7%)
2010-13	41 (0.8%)	5003 (97.3%)	97 (1.9%)
2014-17	63 (1.5%)	4029 (95.9%)	110 (2.6%)
2018-21	83 (3.0%)	2639 (96.5%)	58 (2.3%)
<b>Total</b>	<b>202</b>	<b>16866</b>	<b>410</b>

\*EDD= Estimated date of delivery

- 202 (1.6%) pregnancies in 131 women with vertically-acquired HIV reported
- 10-fold increase in proportion of pregnancies in WVHIV over the period (p<0.001)

# Maternal socio-demographics (202 pregnancies)

Characteristic	n (%)
<b>Region of birth</b>	
UK	80 (39.6%)
Africa	108 (53.5%)
Other	14 (6.9%)
<b>Ethnicity</b>	
White	25 (13.5%)
Black African	127 (68.7%)
Other	33 (17.8%)
<b>Age at EDD</b>	
<20 years	38 (18.8%)
20-24	73 (36.1%)
25-30	70 (34.7%)
≥30	21 (10.4%)

40% of pregnancies to WWHIV are in those born in UK vs 15% for women with WHHIV,  $p < 0.001$

Median age at delivery 24 years (Q1:20 - Q3:27) vs 33 years (Q1:29-Q3:37) for WHHIV

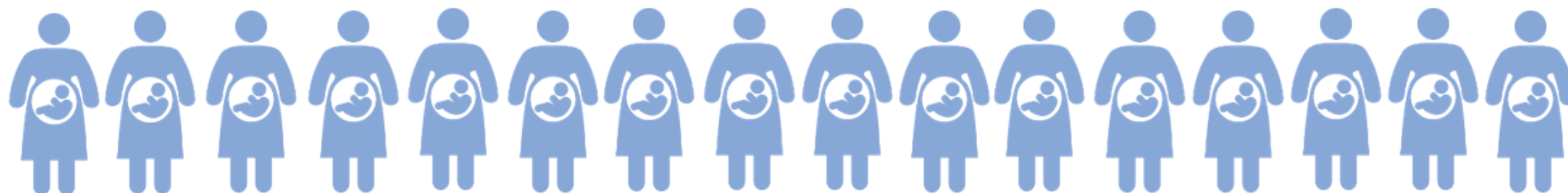
## WVHIV: Timing of diagnosis ( $n=131$ )

- Median age at diagnosis was 6 years (Q1:2 -Q3:11) and 22 women were diagnosed at age <1year
- 61.8% (81/131) were diagnosed in the UK
- 85.5% (112/131) of women were reported to ISOSS in childhood as part of paediatric surveillance:
  - 37% diagnosed due to symptoms as a child
  - 9% diagnosed following their mother's diagnosis
  - 50% diagnosed following other family member's diagnosis
- Overall, 18% of women (23/131) had history of an AIDS-defining illness and of these 12/23 had an AIDS-defining illness at diagnosis

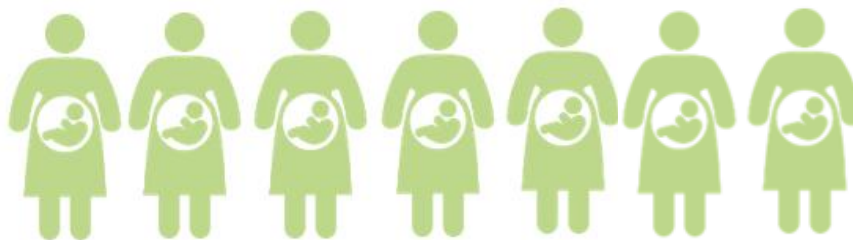
# Number of pregnancies

Of 131 women with vertically-acquired HIV:

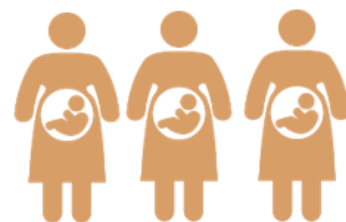
81 women had **one** pregnancy



34 women had **two** pregnancies



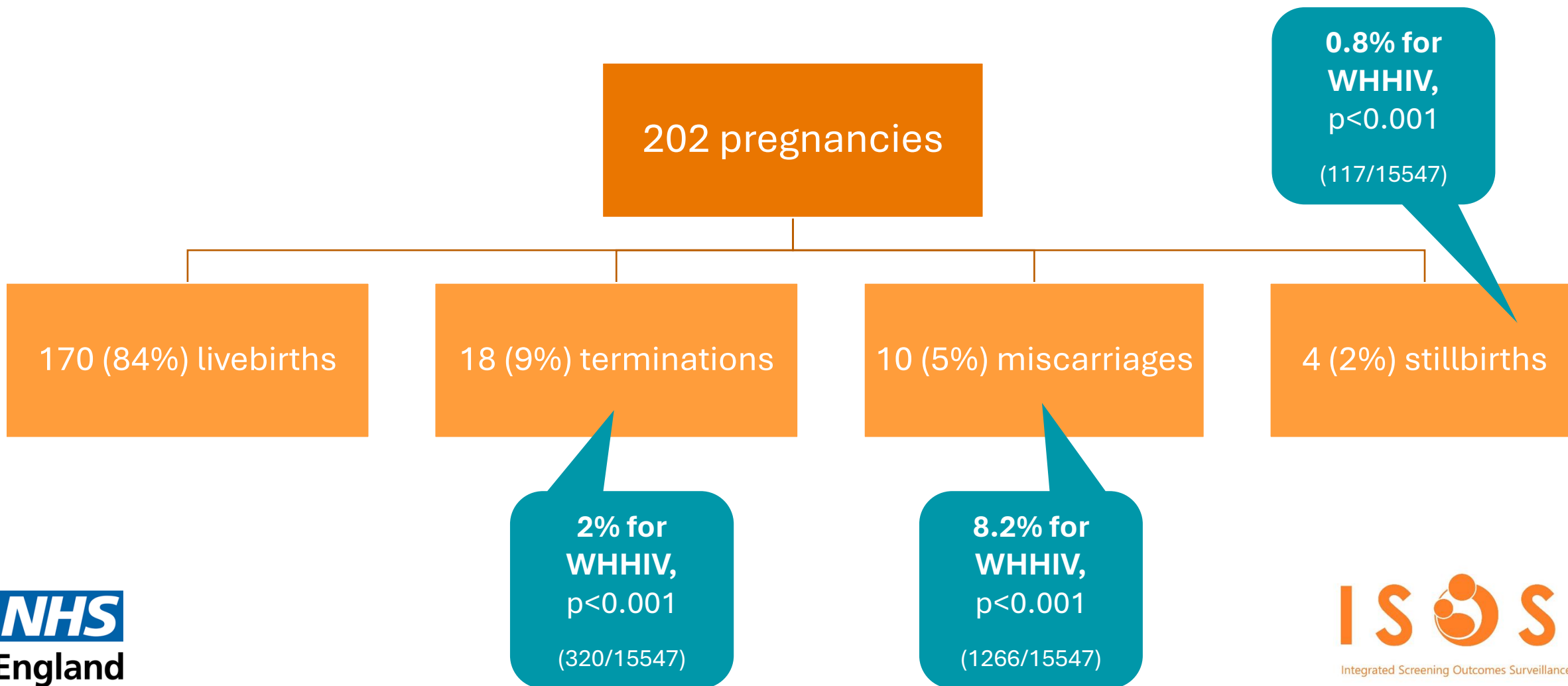
16 women had **≥three** pregnancies



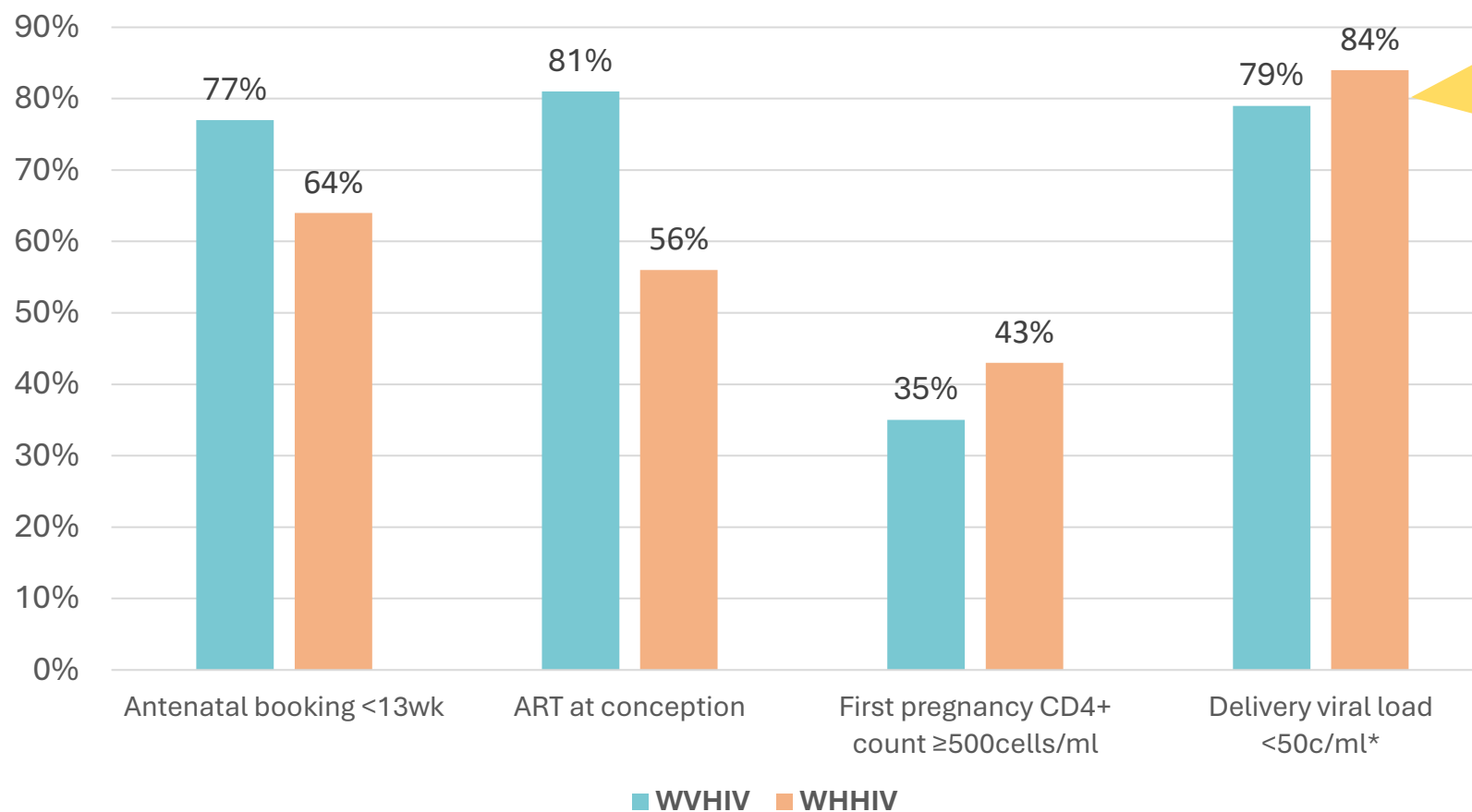
4/16 women had 4 or 5 pregnancies



# Pregnancy outcomes



# Pregnancy characteristics in WVHIV vs WHHIV, 2006-21



Restricting to pregnancies conceived on ART: 82% of WVHIV had delivery VL <50 vs 94% WHHIV, p<0.001

# Pregnancy characteristics - trends over time

Characteristic	WVHIV		WVHIV	
	2006-10	2016-21	2006-10	2016-21
Antenatal booking <13wk	57%	84%	52%	73%
ART at conception	48%	88%	37%	79%
First pregnancy CD4 $\geq$ 500	29%	38%	32%	57%
Delivery viral load <50 c/ml*	55%	87%	74%	93%

- Significant increases over time in proportion of pregnancies where booking <13 weeks, ART at conception and delivery viral load <50 for both WVHIV and WWHIV.
- CD4  $\geq$ 500 only significant for pregnancies in WWHIV

# Pregnancy outcomes: live and stillbirths

Infant outcome	WVHIV	WHHIV	p-value
<b>Gestational age (weeks)</b>			
≥37	142 (81.6%)	13219 (87.5%)	<0.001
35-36	9 (5.2%)	917 (6.1%)	
≤34	23 (13.2%)	964 (6.4%)	
<b>Birthweight (kg)</b>			
≥2.5	126 (75.5%)	12669 (86.3%)	<0.001
1.5-2.5	33 (19.8%)	1605 (10.9%)	
<1.5	8 (4.8%)	400 (2.7%)	
<b>Mode of delivery</b>			
Elective caesarean	55 (32.2%)	5297 (35.3%)	0.291
Emergency caesarean	51 (29.8%)	3702 (24.7%)	
Vaginal	65 (38.0%)	6015 (40.1%)	

**Congenital anomaly rate: 5.7%** (95% CI: 2.7%, 10.6%) among deliveries to WVHIV vs 4.3% (4.0%, 4.7%) to WHHIV

**1 transmission among 150 infants (0.67%)** among deliveries to WVHIV with known infection status, compares to 0.88% for WHHIV

# Conclusions

In this growing sub-population of women living with HIV in the UK, **HIV-related markers have improved over time**, with one known case of second-generation vertical transmission.

The **antenatal screening programme is key to supporting engagement** in the antenatal period, and successes reflect the strength of existing clinical pathways and specialist paediatric services.

Despite most being on ART at conception, **WVHIV are more likely to have detectable delivery viral load** perhaps reflecting complex clinical history, possible adherence, and drug resistance issues.

Further work is needed to explore adverse birth outcomes including higher preterm delivery rate.

As numbers increase, **ongoing surveillance of this population** through ISOSS and CHARs enables monitoring of emerging trends and exploration of related areas such as sequential pregnancies and longer-term outcomes in children born to WVHIV.

# Acknowledgements

A big thank you to all respondents to ISOSS and CHARS and the rest of the ISOSS/CHARS team

**ISOSS carries out this work on behalf of the NHS Infectious Diseases in Pregnancy Screening Programme:** [www.gov.uk/guidance/infectious-diseases-in-pregnancy-screening-programme-overview](https://www.gov.uk/guidance/infectious-diseases-in-pregnancy-screening-programme-overview)

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 More information on ISOSS: [www.ucl.ac.uk/isoss](http://www.ucl.ac.uk/isoss)

*The ISOSS HIV Annual Report 2023 is available on gov.uk*

