

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

Helen Peters, Kate Francis, Rebecca Sconza, Laura Smeaton, Claire Thorne

The Integrated Screening Outcomes Surveillance Service, part of the NHS Infectious Diseases in Pregnancy Screening Programme, based at UCL Great Ormond Street Institute of Child Health



## Background

- In the UK there are approximately 900 pregnancies to women living with HIV every year and the vertical transmission rate is under 0.3%
- Worldwide, increased availability of antiretroviral therapy (ART) and earlier treatment has resulted in a growing number of reproductive-aged women with vertically-acquired HIV (WVHIV)
- However, knowledge gaps on their characteristics and pregnancy outcomes exist
- Building on previous work (Byrne et al 2017<sup>1</sup>) we present population-level pregnancy outcome data for this important emerging cohort in the UK

## Objectives

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

## Results

- 17,478 pregnancies were reported overall, including **202 (1.6%) pregnancies to 131 WVHIV**
- Over the period there was a 10-fold increase in the proportion of pregnancies in WVHIV from 0.3% (15/5011) in 2006-09 to 3.5% (83/2403) in 2018-21, while there was a decrease in the proportion of pregnancies to WHHIV ( $p < 0.001$ )

## Maternal characteristics: diagnosis and socio-demographics

- Median age at diagnosis among WVHIV was 6 years (IQR:2-11) with 22 women were diagnosed in their first year of life
  - 62% (81/131) were diagnosed in the UK, and 85% (112/131) were reported to ISOSS in childhood
  - 18% (23/131) had history of an AIDS-defining illness and of these 52% (12/23) had an AIDS-defining illness at HIV diagnosis
- 54% of pregnancies to WVHIV were in African-born women vs 74% for WHHIV; 37% were UK-born compared to 15% for WHHIV,  $p < 0.001$
- Median age at delivery was 24 years (IQR: 20-27) for WVHIV vs 33 years (IQR: 29-37) for WHHIV

## Pregnancy characteristics

- 81 WVHIV had one pregnancy, 34 had two, 16 had  $\geq$ three
- Differences in key pregnancy characteristics for WVHIV ( $n=202$ ) vs WHHIV ( $n=16,866$ ) are shown in Figure 1

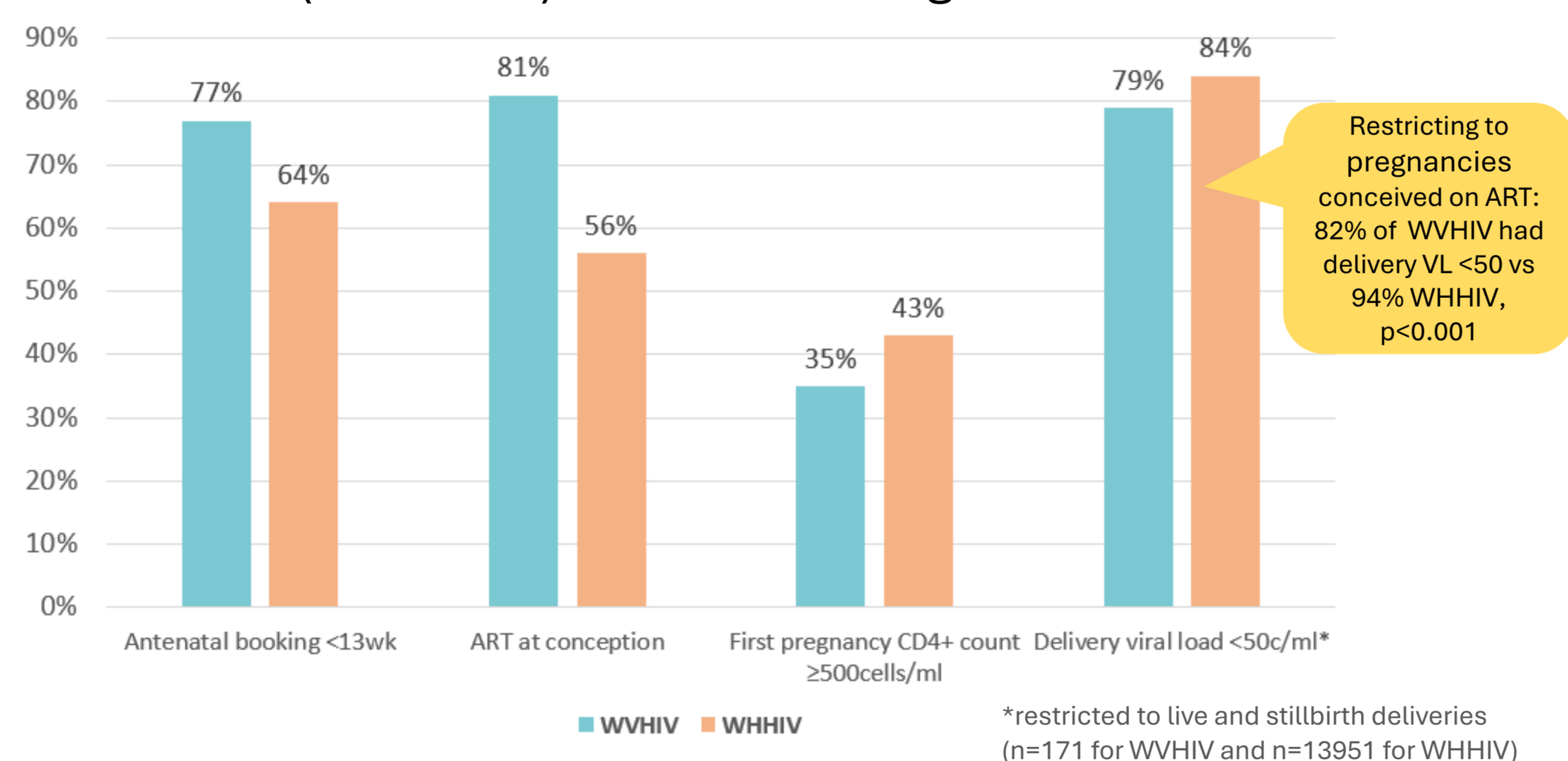


Figure 1: Comparison of characteristics of pregnancies in WVHIV vs pregnancies in WHHIV, 2006-21

## TRENDS OVER TIME

Characteristic	WVHIV		WHHIV	
	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%*

† restricted to live and stillbirth deliveries  
\* significant trend over time ( $p < 0.05$ )

Figure 2: Time trends in pregnancy characteristics among WVHIV and WHHIV, 2006-21

## Methods

- The Integrated Screening Outcomes Surveillance Service (ISOSS) is part of the NHS Infectious Diseases in Pregnancy Screening Programme commissioned by NHS England
- 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.
- Definition of WVHIV:** women diagnosed <14 years of age with no other risk factors apparent
- Analysis dataset:** pregnancies with known outcomes reported to ISOSS between 01/01/2006 and 31/12/2021 (no pregnancies to WVHIV <2006)

## Pregnancy outcomes

Pregnancy outcomes for WVHIV were: 170 livebirths (84%), 10 miscarriages (5%), 18 terminations (9%) and 4 stillbirths (2%)

Table 1: Pregnancy outcomes among live and stillbirth deliveries

Infant outcome	WVHIV	WHHIV	p-value
Gestational age (weeks)			
$\geq 37$	142 (81.6%)	13219 (87.5%)	<0.001
35-36	9 (5.2%)	917 (6.1%)	
$\leq 34$	23 (13.2%)	964 (6.4%)	
Birthweight (kg)			
$\geq 2.5$	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%)	
Mode of delivery			
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%)	

Preterm birth and low birth weight more common among pregnancies in WVHIV than WHHIV

- Congenital condition rate: 5.7% (95% CI: 2.7%, 10.6%) among deliveries to WVHIV vs 4.3% (4.0%, 4.7%) to WHHIV
- Of infants born to WVHIV with complete follow-up, one was diagnosed HIV-positive (1/150, 0.66%)

## Conclusions

- WVHIV are a growing sub-population in the UK and HIV-related markers have improved over time
- There has been one case of second-generation vertical transmission
- Further work is needed to understand why fewer WVHIV have undetectable VL at delivery, in order to optimise outcomes
- Other areas of interest in this group includes sequential pregnancies and longer-term outcomes of children born HIV-free.