



# Increasing prevalence of gestational diabetes in women living with HIV in the UK and Ireland

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# Background



Current UK guidelines recommend selective screening 24-28 weeks based on known risk factors for GD:

- Ethnicity
- Family history of diabetes
- Body Mass Index ( $>30 \text{ kg/m}^2$ )

- Risk of gestational diabetes (GD) is increasing proportionally to that of type 2 diabetes globally
- Risk factors for women living with HIV (WLWH) are poorly understood
- Conflicting evidence on the effect of antiretroviral therapy (ART) and more specifically, PI-based regimens on GD risk
- Aim of this study was to understand the characteristics of WLWH who had GD and key birth outcomes, and investigate risk factors for developing GD

# Methods



Integrated Screening Outcomes Surveillance Service

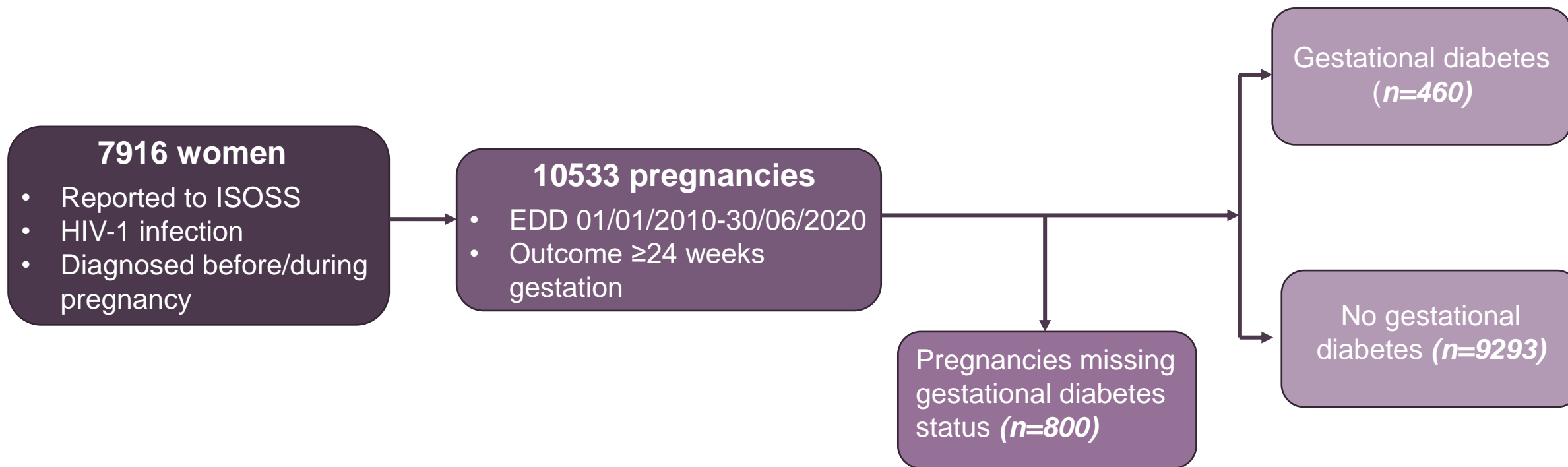
- Collects population-level surveillance data from all pregnant women living with HIV in the UK and Ireland\*
- Data include HIV infection history, test results, pregnancy and birth outcomes

\*Ireland until 2019 and England only from 2020

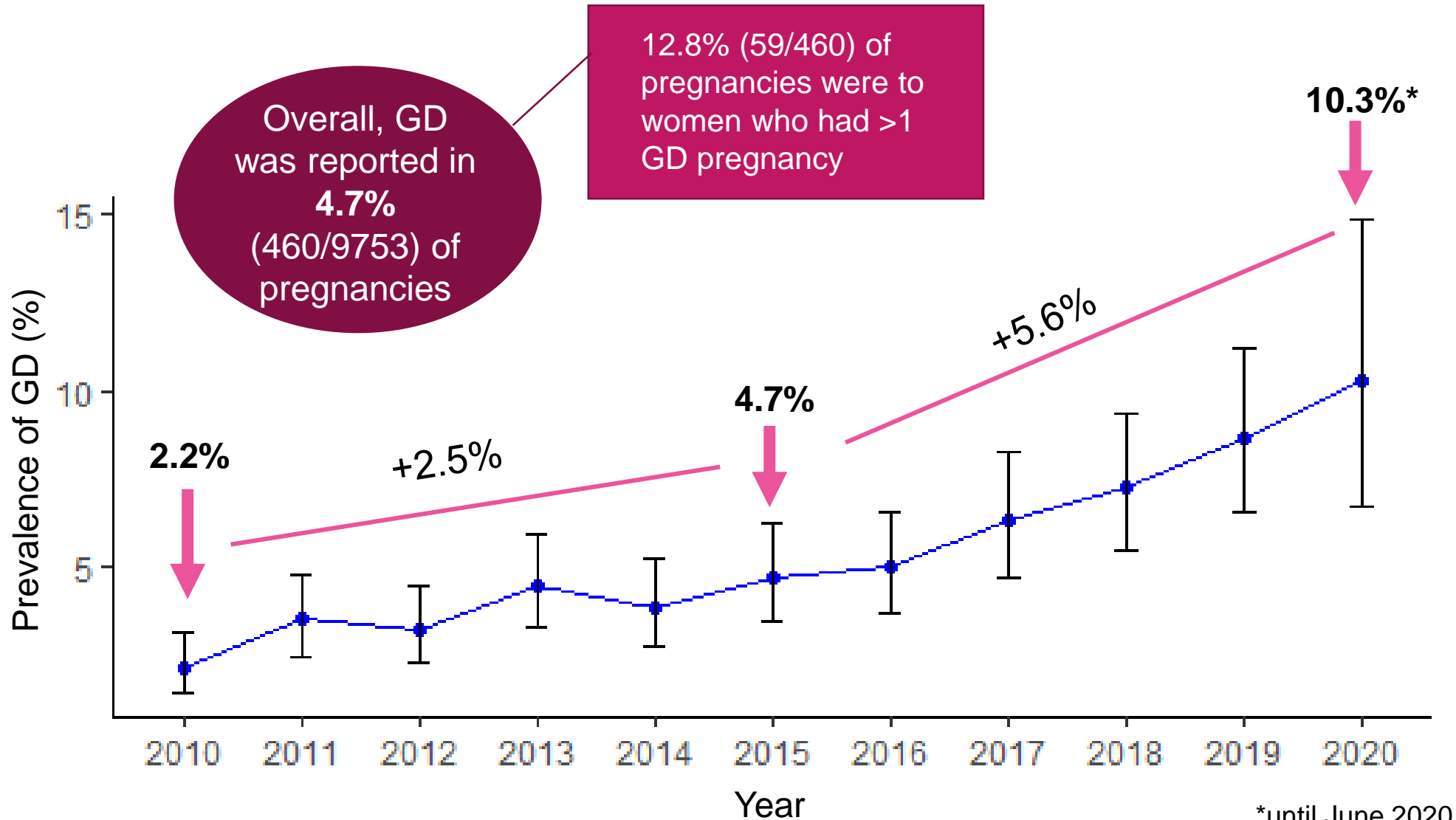
## STATISTICAL ANALYSIS

- Multivariable logistic regression model with complete case analysis included covariates assessed for their association with GD using chi-squared tests ( $p < 0.05$ )
- Regression model fitted using generalised estimating equations (GEE) to account for multiple pregnancies per woman
- Sensitivity analyses conducted to evaluate effect of universal antiretroviral therapy from 2015 on risk factors for GD

# Overview of study population



# Results



Median maternal age was **33 years** (q1:29 – q3:37)

**71.8%** of pregnancies were to Black African women

**63.9%** of pregnancies were to women on treatment at conception

# Results – risk factors and outcomes

<i>Risk factor</i>	<b>GD (n=460, %)</b>	<b>No GD (n=9753, %)</b>
<b>≥35 years</b>	60.9	40.9
<b>ART at conception</b>	73.6	63.9
<b>Asian</b>	5.2	2.8
<b>PI-based regimens</b>	51.3	58.9
<b>CD4 &lt;350</b>	19.0	26.8

<i>Pregnancy Outcome</i>	<b>GD (n=460, %)</b>	<b>No GD (n=9753, %)</b>
<b>Stillbirth</b>	1.30	0.60
<b>Emergency Caesarean</b>	33.5	23.8
<b>Preterm delivery</b>	15.7	10.9
<b>Fetal Macrosomia</b>	8.2	4.8

- More women with GD were ≥35 years, on ART at conception and Asian compare to women without GD
- Adverse pregnancy outcomes occurred more frequently for women with GD compared to women without GD

# Results – statistical analysis

<i>Risk Factor</i>	OR	(95% CI)	GEE-aOR	(95% CI)
<b>Year of estimated date of delivery <sup>a</sup></b>	1.15	(1.11-1.18)	1.12	(1.08-1.16)
<b>Maternal age at delivery (years)</b>				
<25	1		1	
25-34	1.95	(1.10-3.44)	1.76	(0.97-3.19)
≥35	4.10	(2.34-7.19)	3.28	(1.80-5.97)
<b>Maternal ethnicity</b>				
White	1		1	
Black African	1.62	(1.22-2.16)	1.55	(1.13-2.12)
Black Caribbean	1.65	(0.93-2.91)	1.72	(0.94-3.14)
Asian	2.86	(1.75-4.69)	2.60	(1.46-4.63)
Other	1.39	(0.75-2.58)	1.09	(0.50-2.38)
<b>Maternal CD4 cell count (cells/μL)</b>				
≥350	1		1	
<350	0.63	(0.49-0.81)	0.74	(0.57-0.96)
<b>On treatment at conception</b>				
No	1		1	
Yes	1.58	(1.28-1.96)	0.98	(0.77-1.25)
<b>PI use in pregnancy</b>				
No	1		1	
Yes	0.73	(0.61-0.89)	0.89	(0.72-1.10)

<sup>a</sup> Year adjusted as a continuous variable in logistic regression models. Data reported by September 2020 for deliveries occurring 1 January 2010 and 30 June 2020.

- 9066 (93%) pregnancies had complete data on maternal risk factors
- Advanced maternal age (≥35 years) and Asian ethnicity remained significant risk factors in sensitivity analyses
- ART was not associated with GD risk in whole population and sensitivity analyses

# Conclusion

- Overall **prevalence of GD found in this study (4.7%, 95% CI: 4.3-5.2%)** was **slightly higher** than the **pooled prevalence of GD reported for Europe & America** in a recent systematic review and meta-analysis (3.6% and 3.19% respectively)
- In the UK, **prevalence of GD among WLWH has increased significantly in the last 10 years**, even after accounting for ageing population
- **Advanced maternal age** was **most strongly associated with increased odds of GD** and this is not accounted for in current screening guidelines
- **Limitations** include missing data and being unable to account for weight indices such as BMI which is a known risk factor for GD in analyses



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- For any queries, please get in touch: [i.bukasa@ucl.ac.uk](mailto:i.bukasa@ucl.ac.uk)

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

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