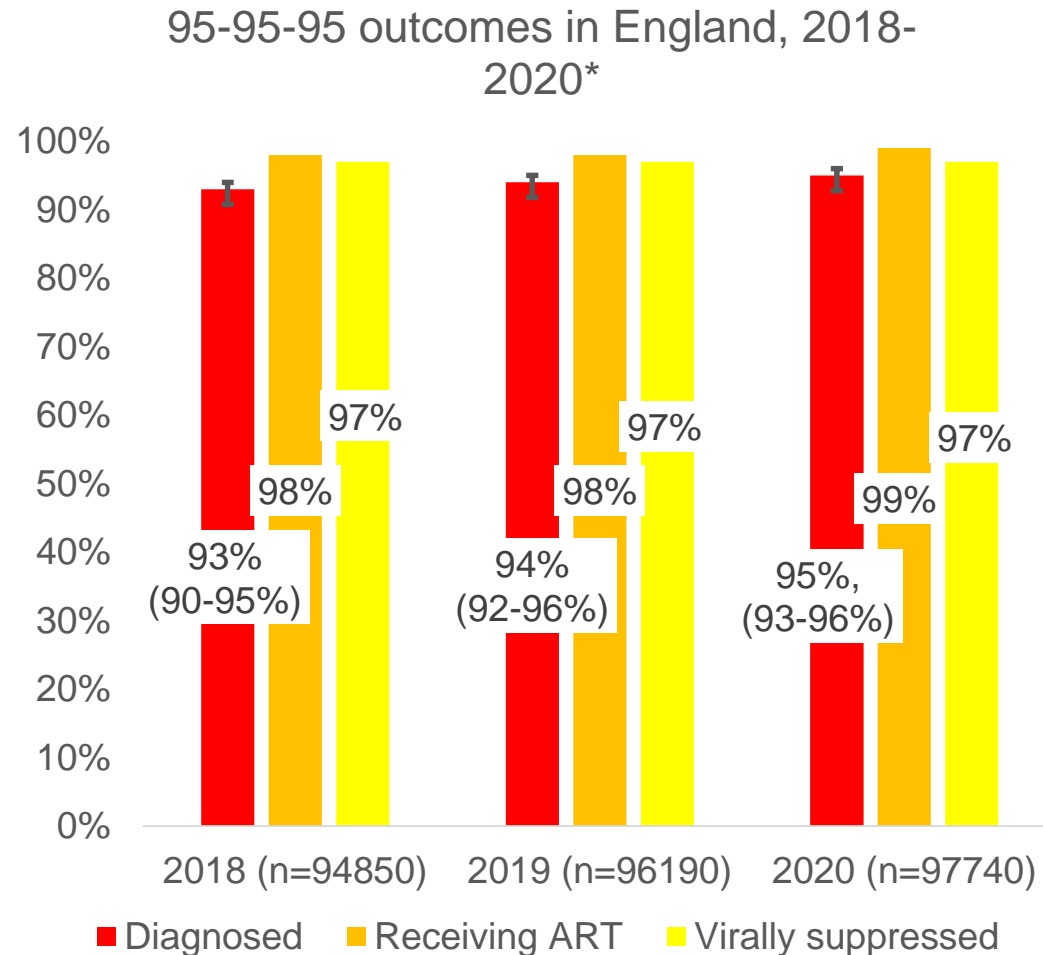# The 95-95-95 UNAIDS targets mask the underlying number of people with HIV with transmissible viral load: case study of England

Alison Brown, Veronique Martin, Nicky Connor, Ross Harris, Anne Presanis, Daniela De Angelis, Valerie Delpech

England has met the 95-95-95 targets in 2019 and 2020

95-95-95 outcomes in England, 2018-2020*

Bar chart showing Diagnosed, Receiving ART, and Virally suppressed outcomes:

- **2018 (n=94850):** Diagnosed 93% (90-95%), Receiving ART 98%, Virally suppressed 97%
- **2019 (n=96190):** Diagnosed 94% (92-96%), Receiving ART 98%, Virally suppressed 97%
- **2020 (n=97740):** Diagnosed 95%, (93-96%), Receiving ART 99%, Virally suppressed 97%

Legend: ■ Diagnosed ■ Receiving ART ■ Virally suppressed

Aims:

- Assumptions behind the 95-95-95 model

- Percentages mask number of people with transmissible virus

- Use 95-95-95 model as tool to show distribution of people living with transmissible virus to inform prevention activities.

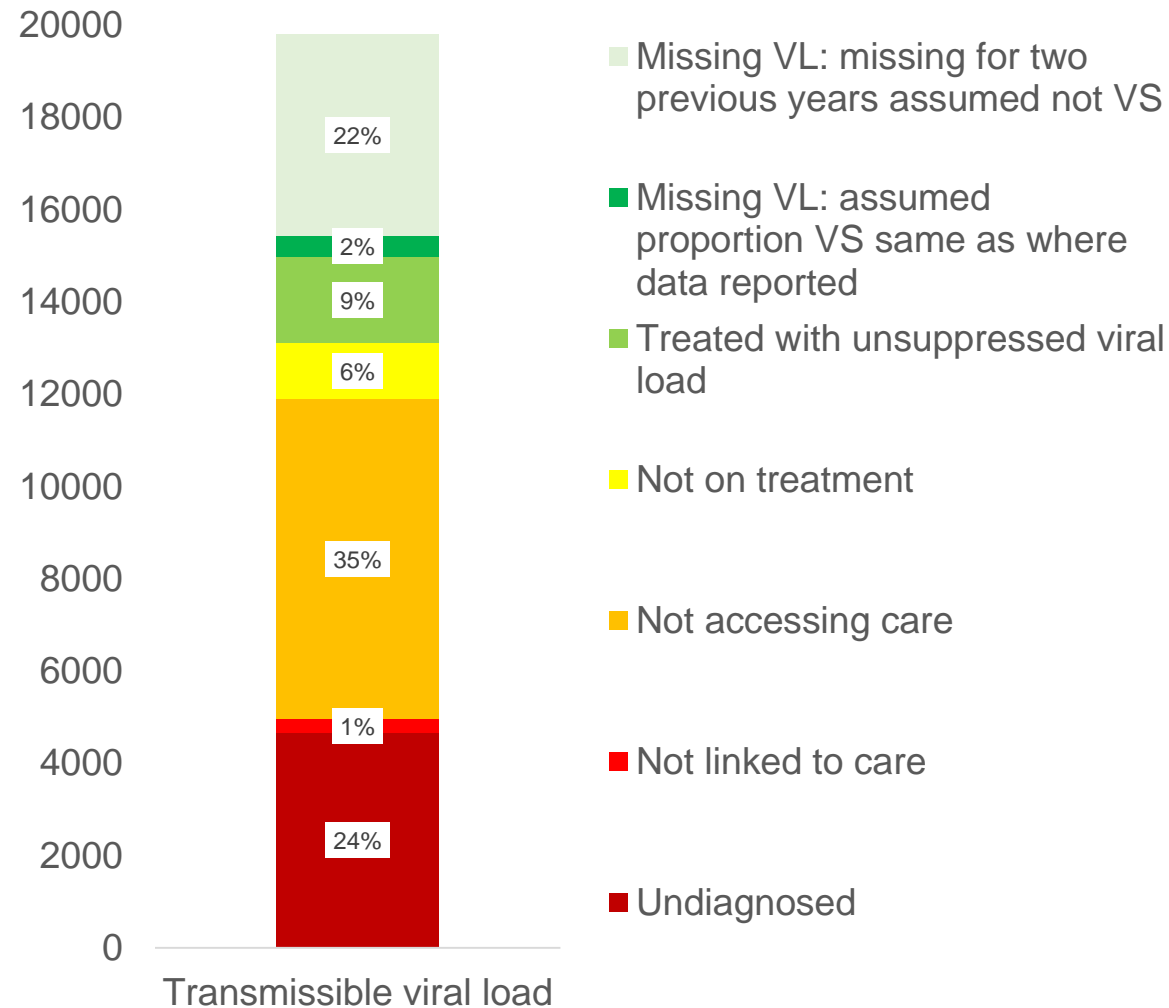*Proportion diagnosed is an estimate and presented with 95% credible intervals.

Methods - England

	Data source	Method	Attributes	Assumptions
Number living with HIV	Comprehensive data on HIV diagnosis and every subsequent patient attendance (HARS), and HIV testing data through GUMCAD (sexual health services)	Estimated prevalence of diagnosed and undiagnosed HIV prevalence through MPES* method.	Given as 95% credible interval range	Median value is taken. Model assumptions.
Number diagnosed	HARS	Those seen for care	Comprehensive	Misses those lost to follow up and those not linked to care
Number on ART	HARS	Those reported to be receiving treatment or VL<200 if ART data missing	Comprehensive	
Number virally suppressed	HARS	Those with VL <200 copies	Complete for about 80% of records	Those with missing information have same rate of VS as those without

# Comparison of standard and revised method: 2020*
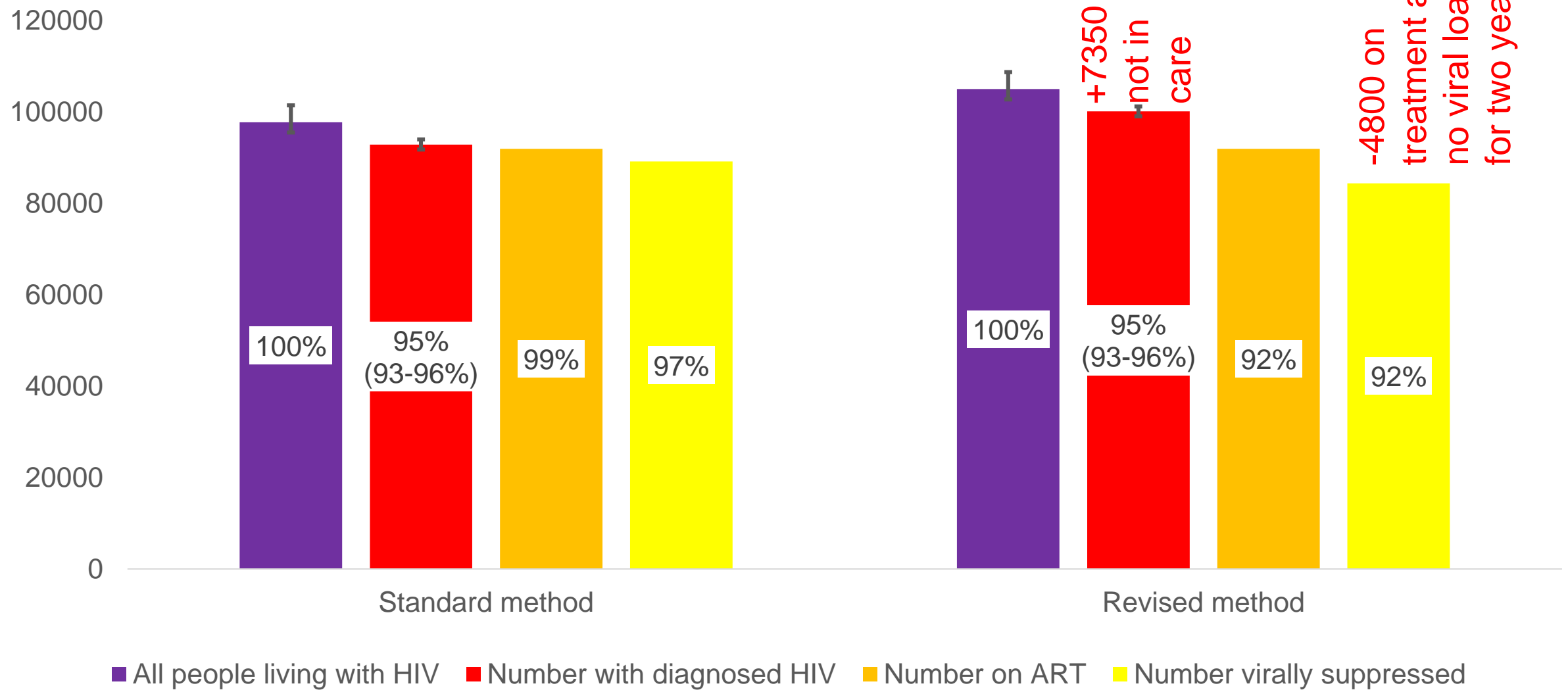
*Number living with HIV and proportion diagnosed are estimates and presented with 95% credible intervals.

Estimated number of people with transmissible levels of HIV: England, 2020

Bar chart "Transmissible viral load":
- Missing VL: missing for two previous years assumed not VS — 22%
- Missing VL: assumed proportion VS same as where data reported — 2%
- Treated with unsuppressed viral load — 9%
- Not on treatment — 6%
- Not accessing care — 35%
- Not linked to care — 1%
- Undiagnosed — 24%

Counterfactual scenarios	Number people with transmissible virus	% of people with HIV with transmissible virus
Median (95%CR estimate of undiagnosed infection)	19800 (18,880-22,100)	20% (20-22%)
Missing VL: assumed proportion VS same as where data reported	15,400	16%
Missing VL: missing for two previous year assumed no virally suppressed	19,800	20%

Estimated number of people with transmissible viral load by demographic and exposure group, England 2020
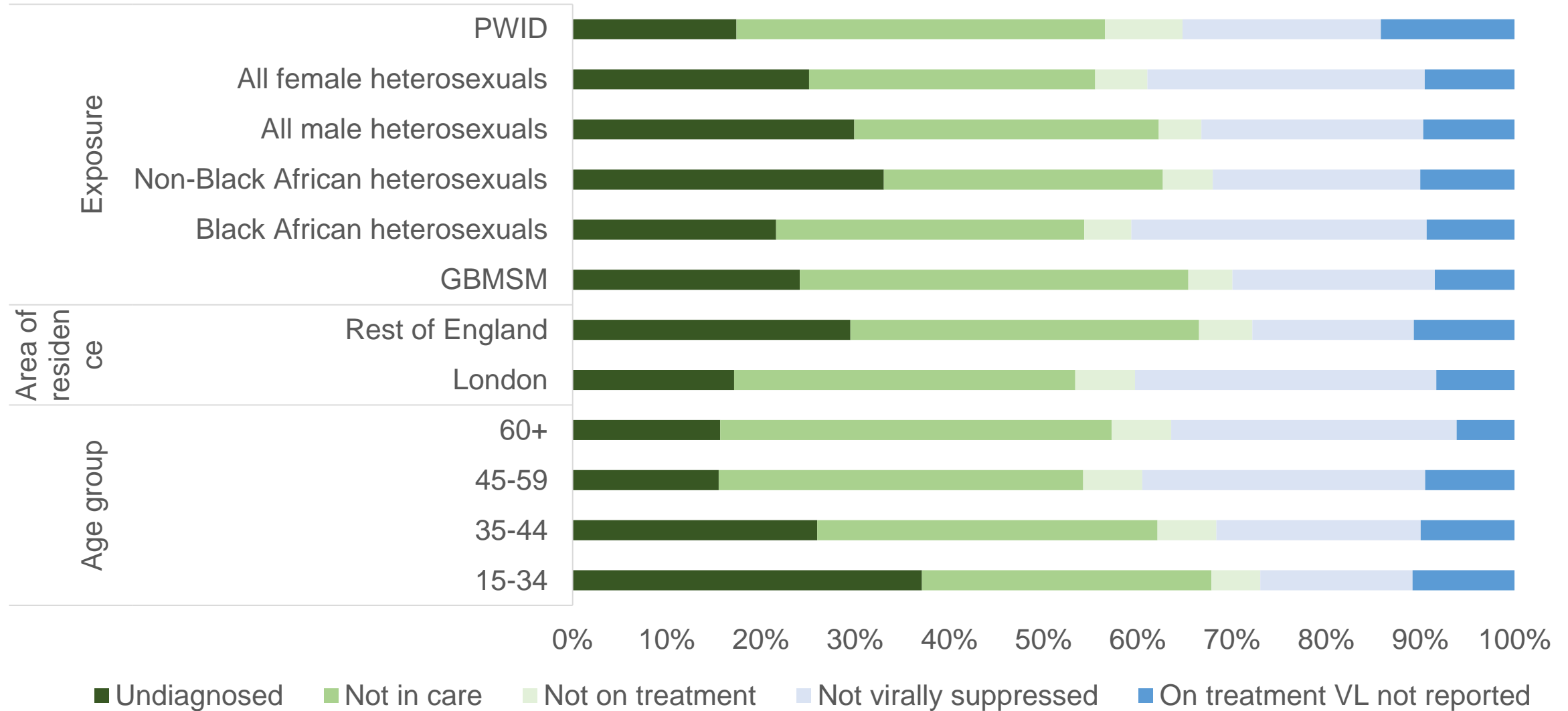
Limitations

- Estimating the undiagnosed population size will always have inherent uncertainty

- The number of people lost to follow up in 2020 is twice as high as in previous years.

- Due to changes in prescribing due to COVID-19, some still be virally suppressed

- Data on those leaving England unavailable – but follow up undertaken

Conclusion

- Standard method for calculating the 95-95-95 metric excludes those lost to follow up.

- The metric masks true number of people with transmissible viral load. In England, where the official estimates are 95-99-97, around 19,800 (15,000-22,000) people may have transmissible virus, equivalent to 20% (15-22%) of all people with HIV

- Calculating transmissible virus using the 95-95-95 model allows us to identify where to focus prevention efforts.