

Substantial decline in HIV incidence between 2015 – 2018 among a prospective cohort of men who have sex with men in England

N Hanum¹, V Cambiano¹, J Sewell¹, F Lampe¹, A Rodger¹, A Speakman¹, N Nwokolo², D Asboe², R Gilson^{1,3}, A Clarke⁴, A Miltz¹, S Collins⁵, V Delpech⁶, P Kirwan⁶ and A Phillips¹ for the AURAH2 Study Group

¹University College London, London, ²Chelsea and Westminster Hospital NHS Foundation Trust, London, ³Central and North West London NHS Foundation Trust, London, ⁴Brighton and Sussex University Hospital NHS Trust, Brighton, ⁵HIV i-Base, London, ⁶Public Health England, London



Background

- Recent data reveal that new HIV diagnoses in the UK have declined among men who have sex with men (MSM).
- There are no data from UK prospective studies assessing HIV acquisition risk and associated factors.
- We estimated trends in HIV incidence between 2015 and 2018 in a prospective cohort study of initially HIV undiagnosed MSM.

Methods

- The prospective cohort study, Attitudes to and Understanding Risk of Acquisition of HIV over Time (AURAH2), recruited HIV negative MSM from three large sexual health clinics in London and Brighton from Nov 2014 – April 2016.
- Participants self-completed a baseline paper questionnaire at clinics, and subsequent four-monthly and annual online questionnaires, including information on HIV status, sexual behaviors, and PrEP use to March 2018.
- We used Poisson regression with robust standard errors to evaluate trends in incident HIV infection, adjusted for age.
- We considered additional adjustment for condomless anal sex (CLS) with two or more partners in the last three months, and use of PrEP (took PrEP in the past year, as reported in most recent annual questionnaire), to assess whether these factors explained any incidence trend.

Results

- This analysis includes 622 participants completing one or more online questionnaire (Table 1).
- 13 HIV seroconversion were reported during follow-up; overall incidence rate was 1.24 (95% CI 0.66 – 2.12) per 100 person-years (PY), the total follow-up time at risk was 1044 PY (Figure 1, Table 2).
- HIV incidence rate declined significantly from 2015 to 2018; age-adjusted incidence rate ratio (IRR) was 0.30 per calendar year; 95% CI 0.13 – 0.68; p = 0.004 (table 3).
- Over time, there was a small increase in prevalence of CLS with ≥ 2 partners and a substantial increase in PrEP use (Table 1).
- CLS with ≥ 2 partners was associated with higher risk of HIV seroconversion.
- PrEP use (reported by 1 of 13 seroconverters) was not significantly associated with incidence risk.
- The decreasing trend over calendar time in HIV incidence remained similar after additional adjustment for CLS ≥ 2 partners and PrEP use.

Conclusions

- In a prospective cohort of MSM closely followed over time, we found evidence of a substantial decline in HIV incidence from 2015 - 2018.
- This was not explained by changes in self-reported condomless sex, and is likely to be partially driven by changes in prevalence of infectious HIV in the community.
- The contribution of PrEP was difficult to ascertain due to limited power.

Limitations

- The data on HIV infections may be underestimated at present as linkage with Public Health England (PHE) data not completed.
- The decreasing trend could in part be a cohort effect.

Table 1. Description of the participants in the AURAH2 study completing at least one online questionnaire, 2015 – 2018 (N=622)

	Overall
Mean age at baseline, years (SD)	34 (11.3)
Gay	94%
White Ethnicity	84%
University level education	77%
Median number online questionnaires completed (IQR)	6 (3 – 7)
CLS with ≥ 2 partners*	
2015	36%
2016	35%
2017/2018	40%
PrEP use**	
2015	6%
2016	12%
2017/2018	25%

* proportion reported CLS in the last three months from the total number questionnaires
** proportion took PrEP in the past year, as reported in most recent annual questionnaire

Figure 1: HIV incidence among MSM participating in the AURAH2 study, 2015 - 2018

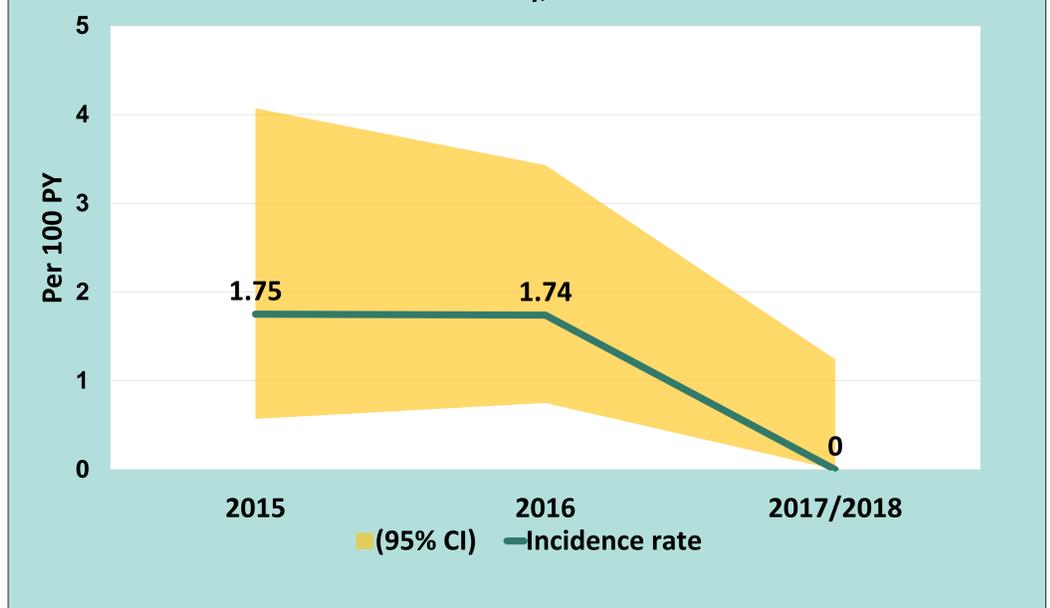


Table 2. HIV incidence among MSM participating in the AURAH2 study, 2015 - 2018

Calendar year	PY of follow-up	No. of seroconversions	Incidence rate per 100 PY (95% CI)
2015	286	5	1.75 (0.57 – 4.07)
2016	460	8	1.74 (0.75 – 3.43)
2017/2018	298	0	0 (0 – 1.24)
Overall	1044	13	1.24 (0.66 – 2.12)

Table 3. Factors associated with HIV seroconversion among MSM participating in the AURAH2 study, 2015 – 2018.

	unadjusted IRR (95% CI)	p-value	adjusted IRR (95% CI)	p-value
Calendar year	0.31 (0.14 – 0.67) [†]	0.004	0.30 (0.13 – 0.68) [‡] 0.31 (0.13 – 0.76) [§]	0.004 0.01
CLS with ≥ 2 partners	2.87 (0.94 – 8.76)	0.065	3.59 (1.10 – 11.70) [‡] 3.84 (1.16 – 12.63) [§]	0.03 0.03
PrEP use	1.19 (0.27 – 5.39)	0.81	0.58 (0.07 – 4.96) [‡] 0.64 (0.06 – 6.29) [§]	0.62 0.7

[†] incidence rate per calendar year

[‡] adjusted for age

[§] adjusted for age and all other variables in the table