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Measuring endemic transmission of HIV in the UK: implications for HIV elimination

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Background

- Over the past 30 years, the HIV epidemic in UK concentrated in:
 - UK-born gay, bisexual and other men who have sex with men (GBM)
 - Heterosexuals born abroad
- 2019 UK government commitment to the elimination of HIV transmission
- Some evidence of declining HIV transmission in recent years; varies between groups
- Need to better understand endemic transmission and identify areas for HIV prevention
- **Aim:** to explore probable place of HIV acquisition in relation to country of birth among key populations

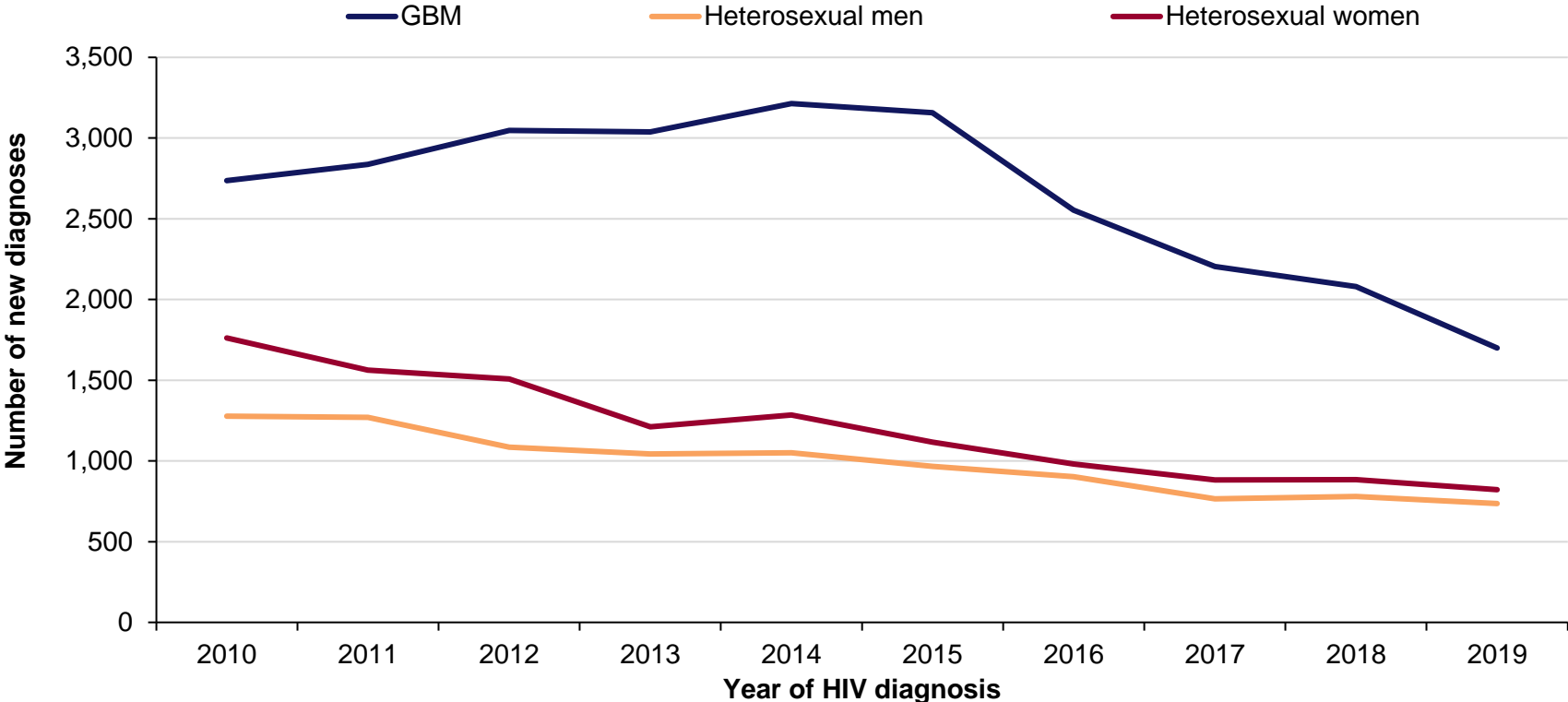
Methods

- **Data source:** national HIV surveillance data from the UK
- **Population:** adults (aged ≥ 15 years) diagnosed with HIV from 2010-2019 who acquired their infection through sex between men or heterosexual sex
- GBM and heterosexuals defined based on probable route of HIV acquisition
- **Trend analyses for GBM and heterosexual men and women:**
 - New HIV diagnoses by place of birth
 - Place of HIV acquisition among those UK born (clinician-reported)
 - Place of HIV acquisition among people born abroad (assigned by CD4 decline model)
 - Overall
 - First testing positive for HIV in the UK (not previously diagnosed abroad)

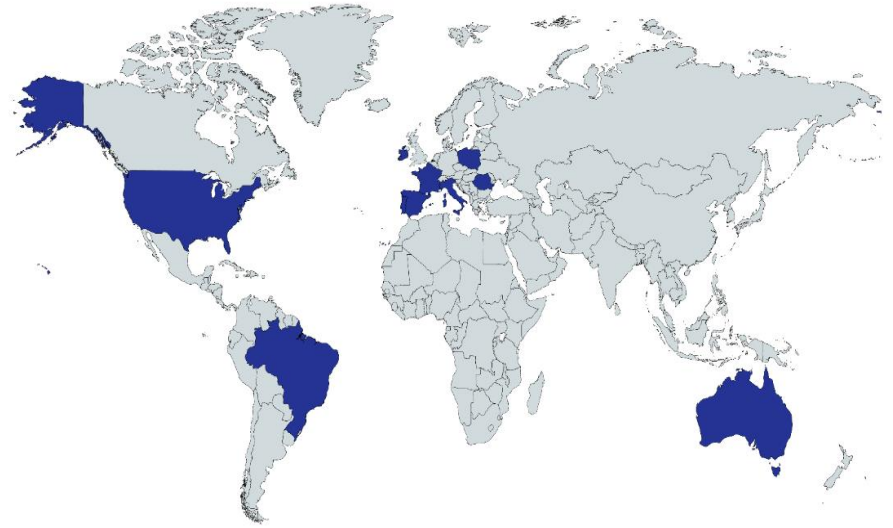
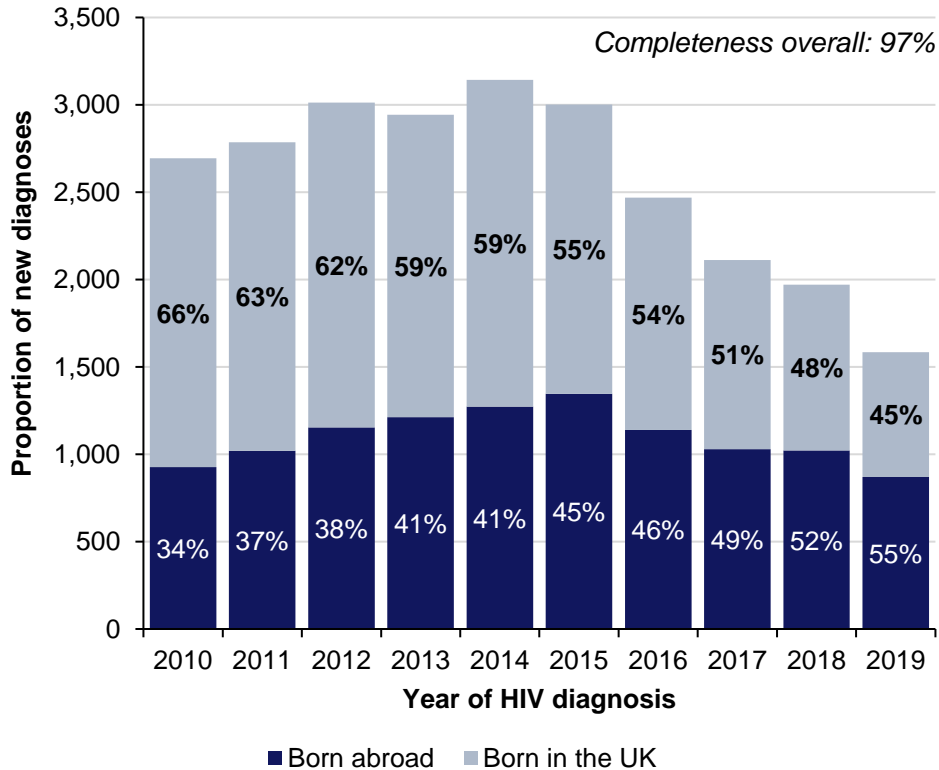
CD4 decline model

- Validated algorithm also applied in other European countries¹ to address potential misclassification of country of infection among people born abroad
- Model assumption that people of different ethnicities, ages and regions of birth have different CD4 declines over time
 - Developed using UK/Sweden HIV seroconverter data¹
 - Categorisation of place of acquisition based on estimated date of seroconversion, country of birth and year of UK arrival
 - Accounts for people diagnosed during seroconversion
- **Inclusion criteria:** known year of UK arrival (71%) and CD4 count within a year of diagnosis and prior to treatment initiation (73%)
- Overall, 53% of all people born abroad assigned place of HIV acquisition.

New HIV diagnoses by key population group: UK, 2010-2019

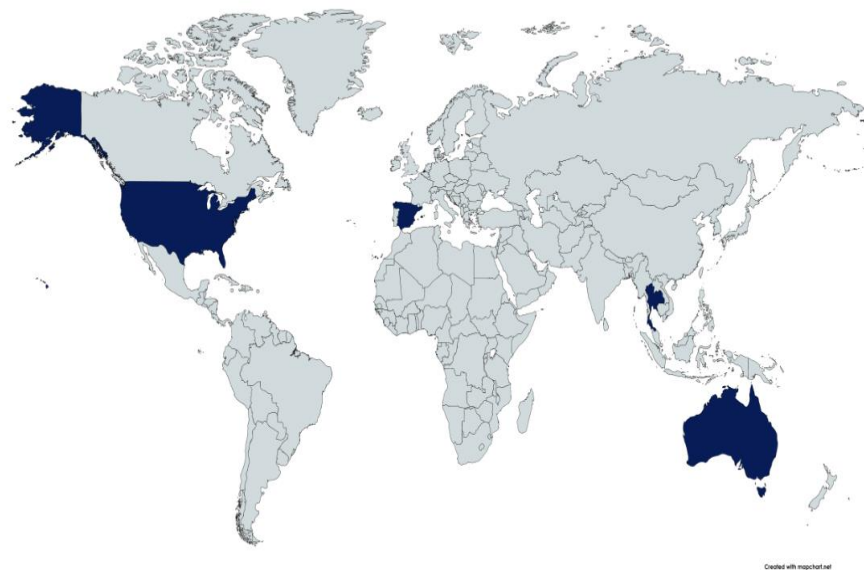
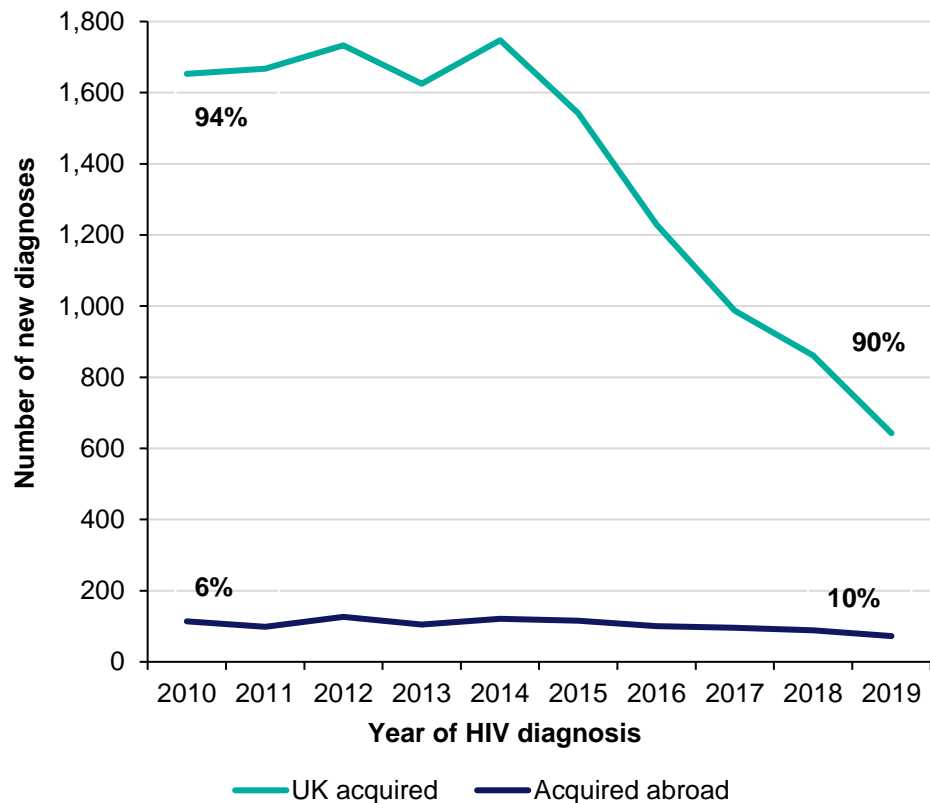


Place of birth among GBM newly diagnosed with HIV: UK, 2010-2019



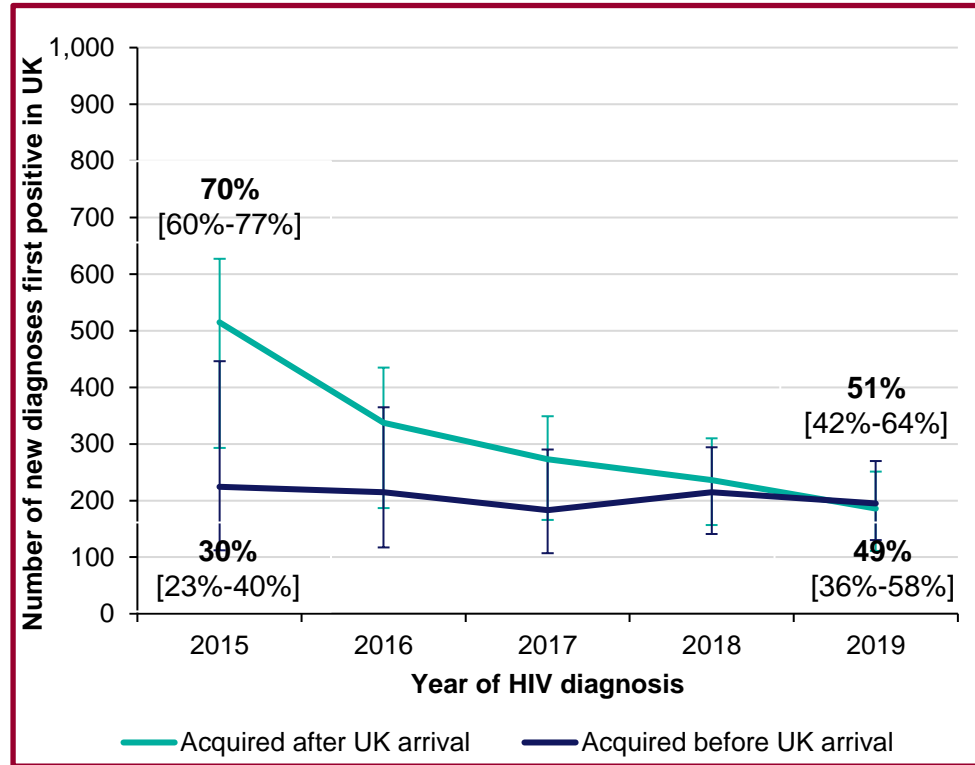
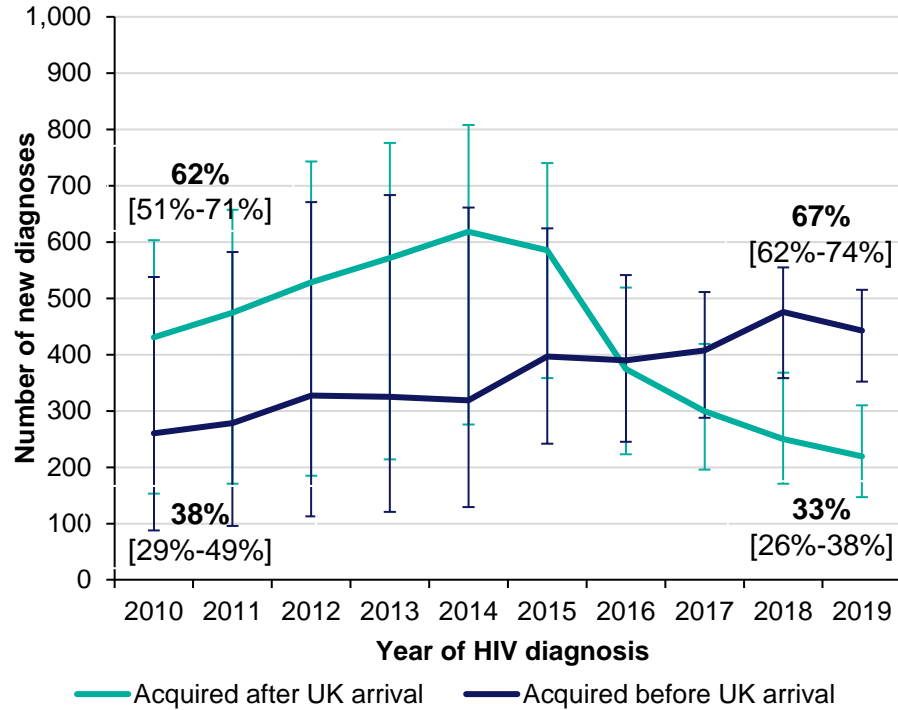
Most common countries of birth abroad among GBM:
Brazil, Spain, Poland, Italy, Portugal, USA, France, Ireland,
Australia, Romania

Place of HIV acquisition among UK-born GBM: UK, 2010-2019

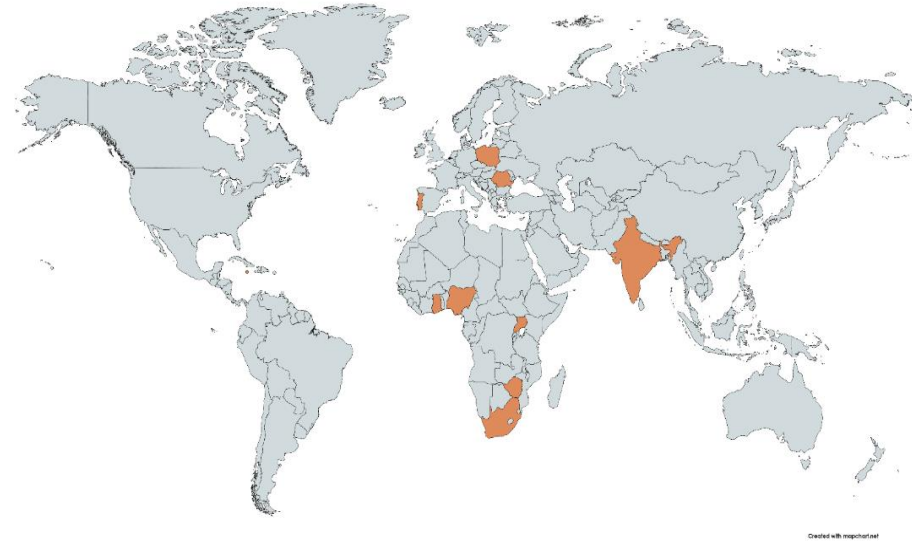
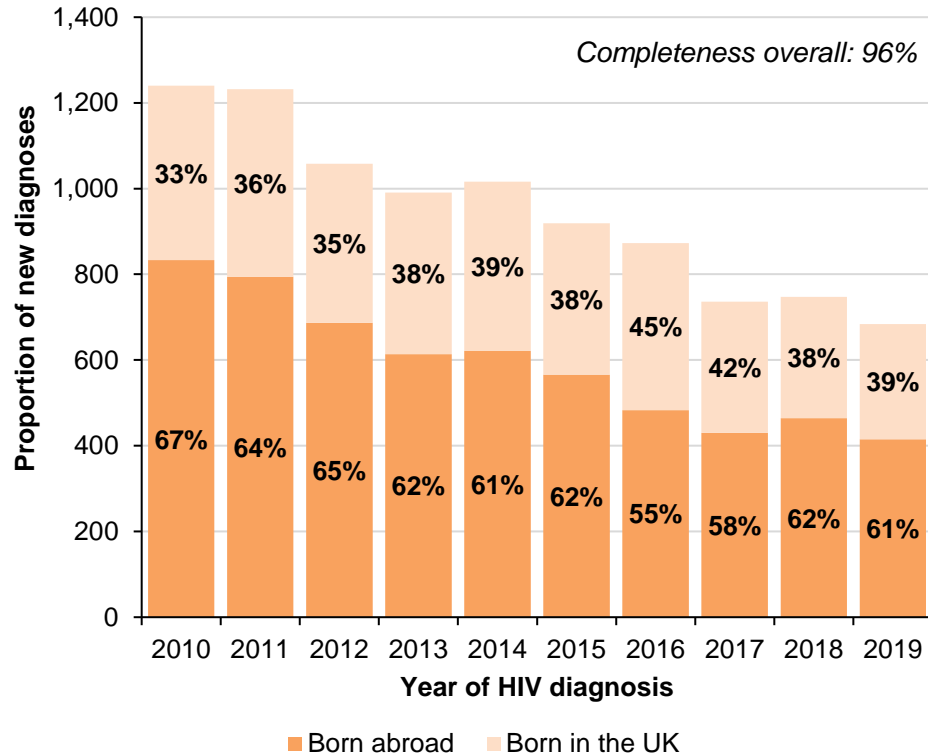


Most common countries of HIV acquisition among GBM: Thailand (15%), Spain (15%), USA (11%), Australia (7%), all other countries <5%

HIV acquisition pre- or post-migration among GBM born abroad: UK, 2010-2019

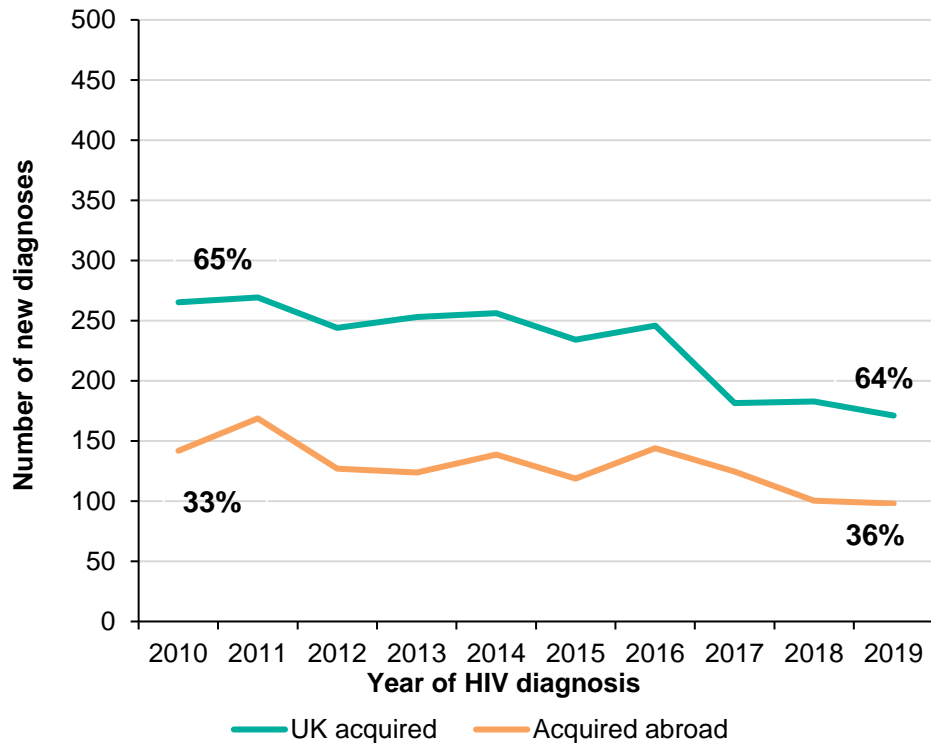


Place of birth among heterosexual men newly diagnosed with HIV: UK, 2010-2019



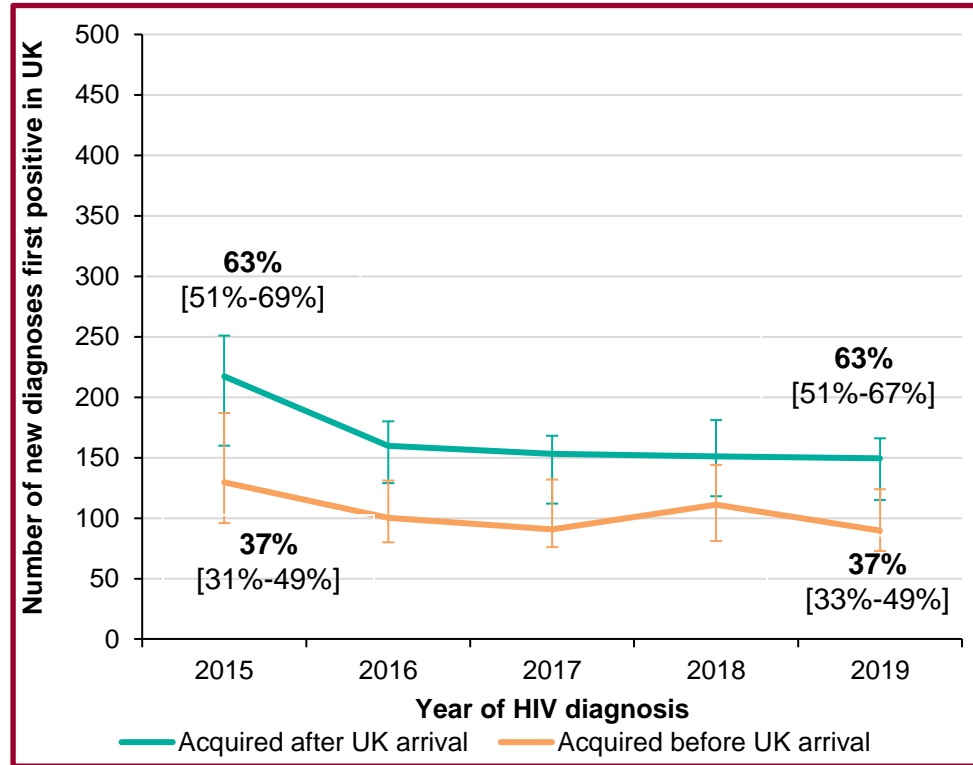
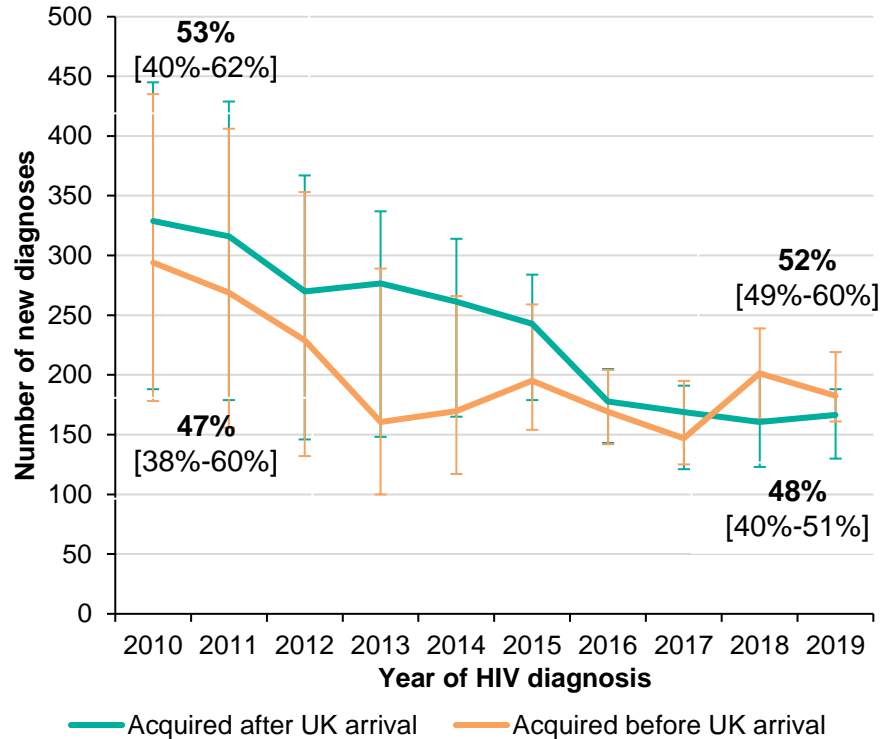
Most common countries of birth abroad among heterosexual men: Zimbabwe, Nigeria, Ghana, India, Jamaica, Romania, South Africa, Uganda, Poland, Portugal

Place of HIV acquisition among UK-born heterosexual men: UK, 2010-2019

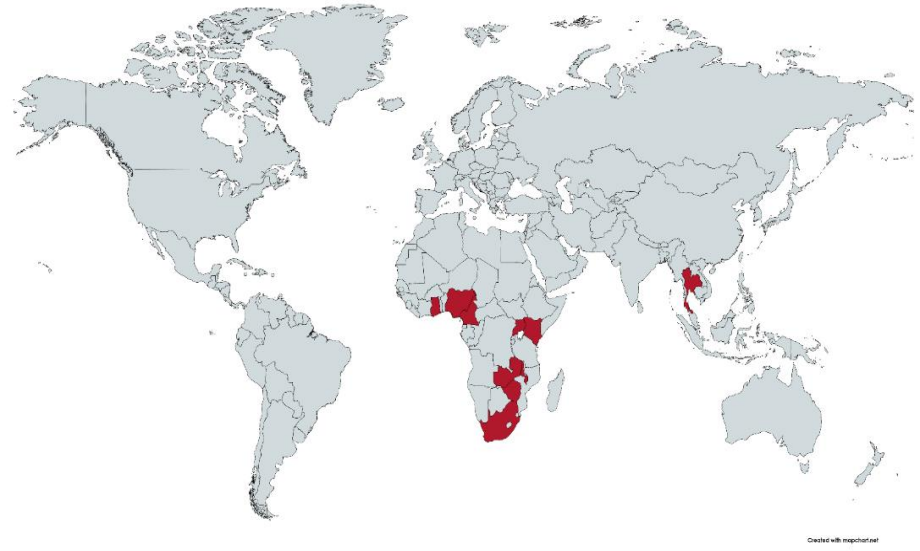
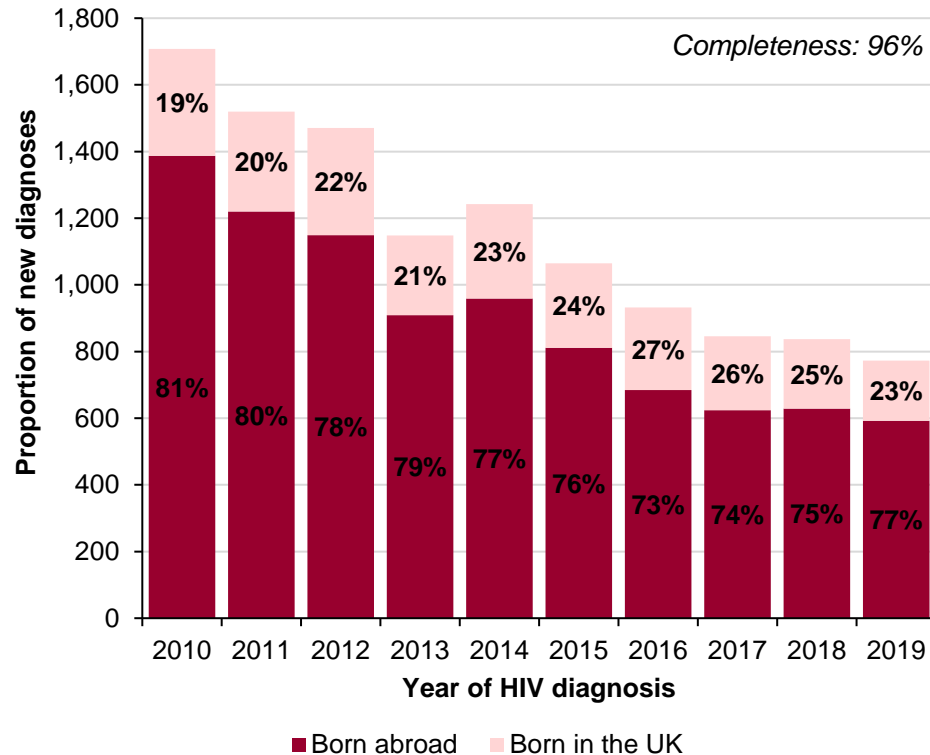


Most common countries of HIV acquisition among heterosexual men: Thailand (52%), South Africa (5%), all other countries (<5%)

HIV acquisition pre- or post-migration among heterosexual men born abroad: UK, 2010-2019

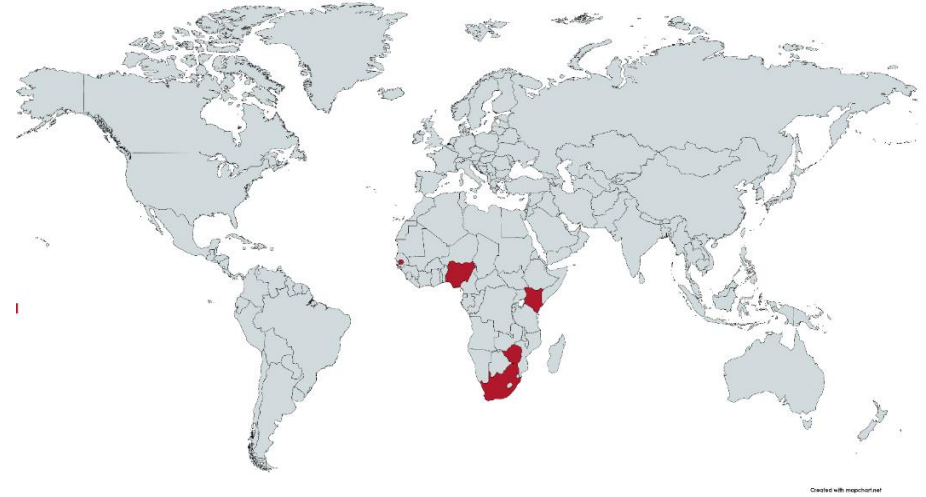
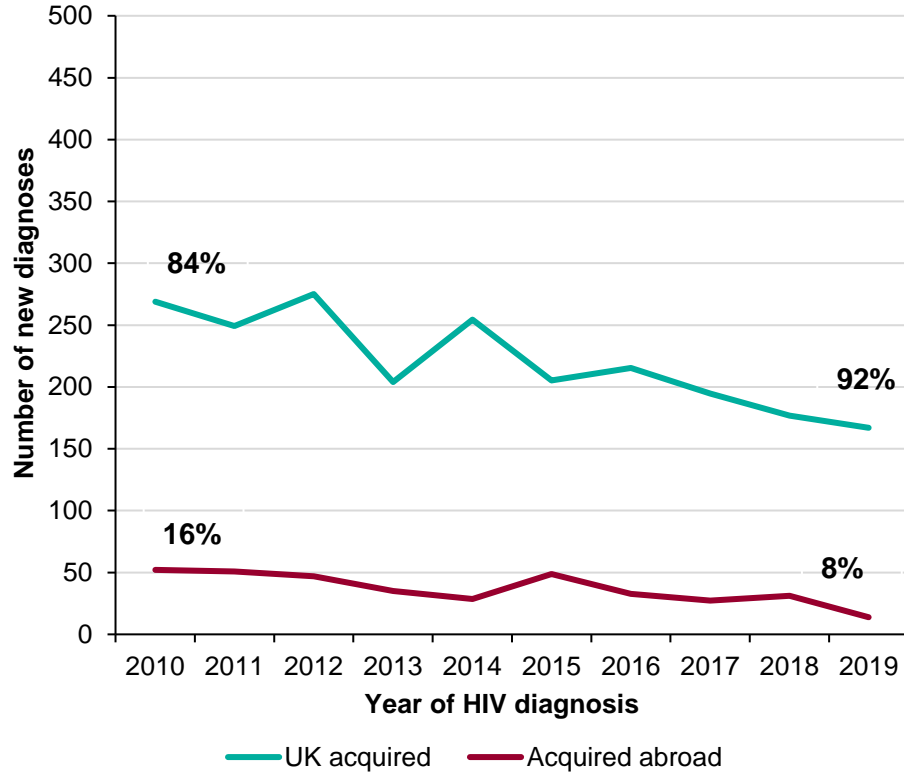


Place of birth among heterosexual women newly diagnosed with HIV: UK, 2010-2019



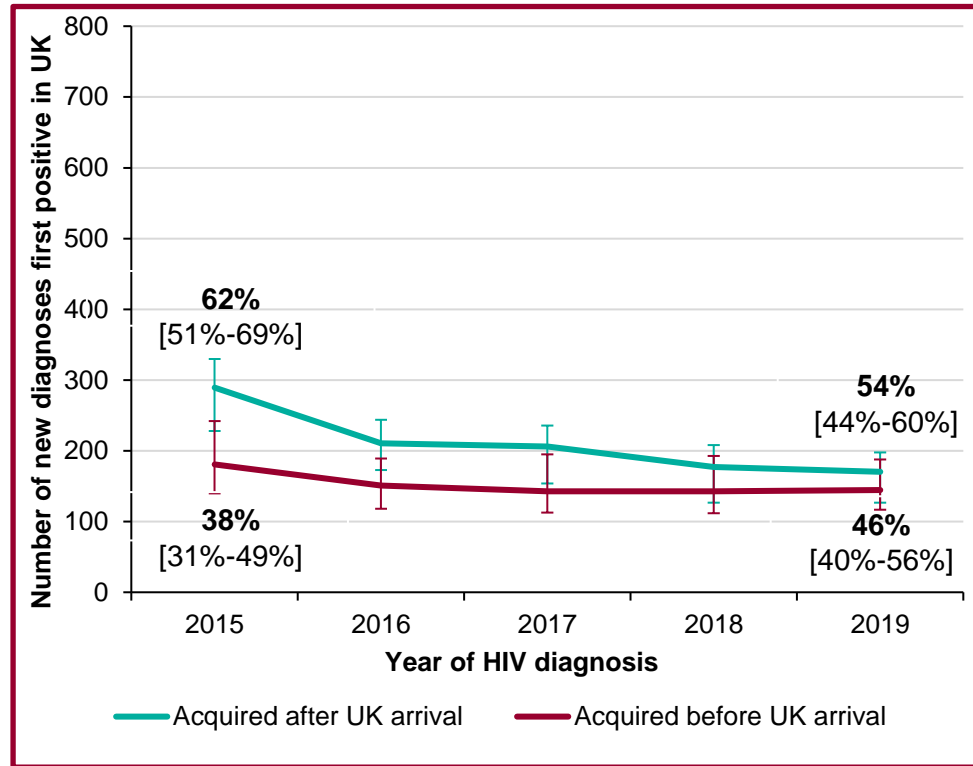
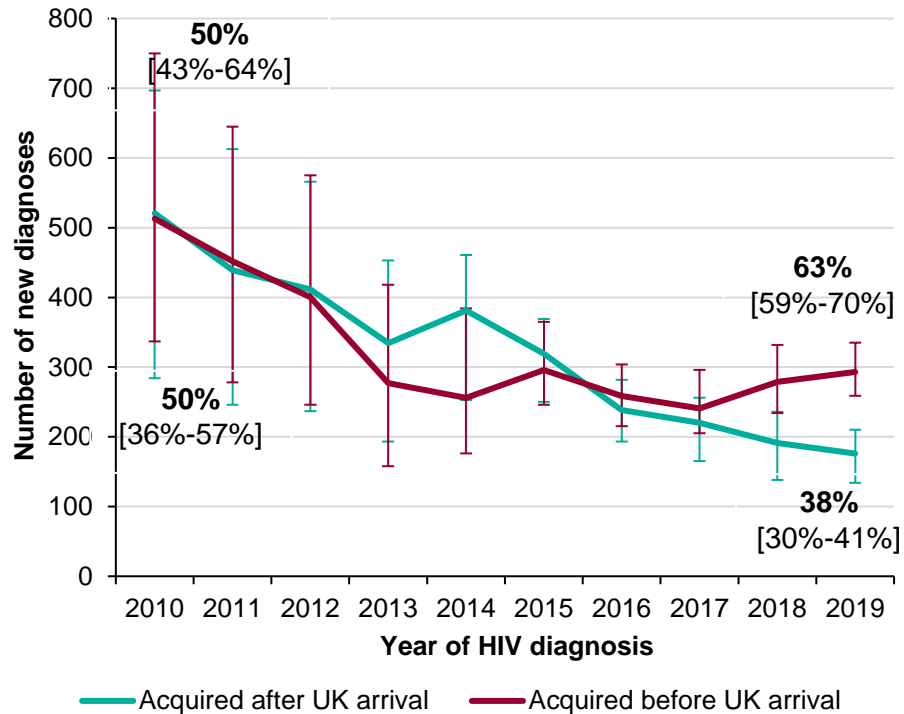
Most common countries of birth abroad among heterosexual women: Zimbabwe, Nigeria, Ghana, South Africa, Uganda, Zambia, Kenya, Thailand, Malawi, Cameroon

Place of HIV acquisition among UK-born heterosexual women: UK, 2010-2019



Most common countries of HIV acquisition among heterosexual women: Nigeria (11%), Zimbabwe (10%), South Africa (9%), Gambia (6%), Kenya (6%), all other countries (<5%)

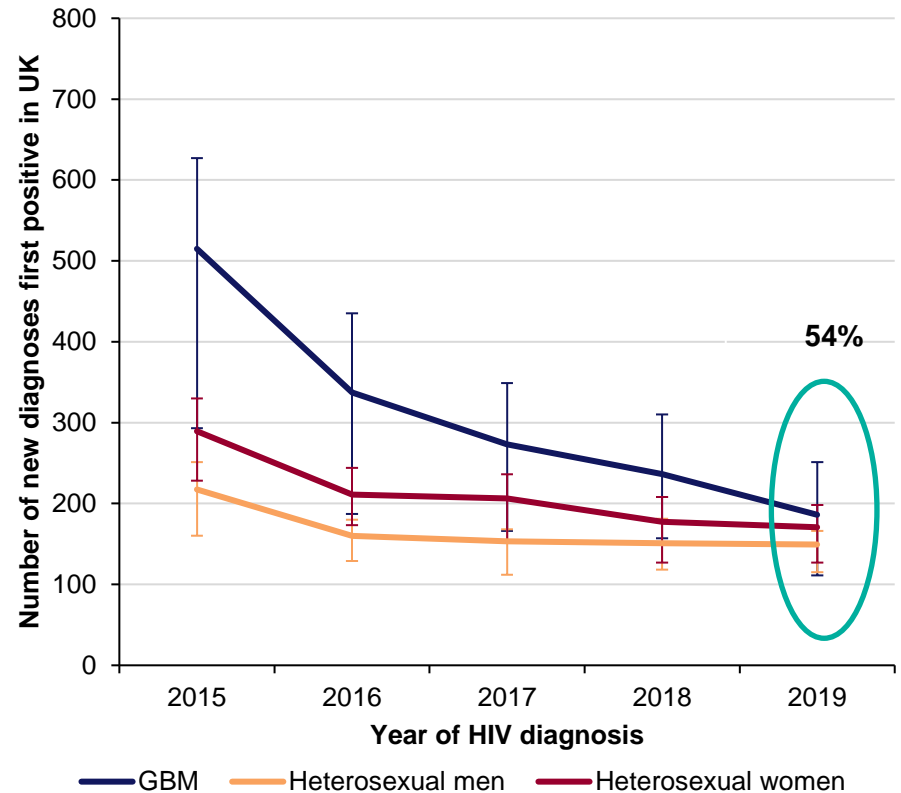
HIV acquisition pre- or post-migration among heterosexual women born abroad: UK, 2010-2019



Conclusions

- Most people born in the UK probably acquired HIV within the UK
 - Travel-associated infection most common among heterosexual men (>50% Thailand)
- Vast majority of people born abroad who acquired HIV prior to UK arrival also diagnosed with HIV before arrival.
- Among people born abroad and first testing positive in the UK:
 - Half of GBM acquired HIV in the UK
 - Majority of heterosexual men and women acquired HIV in the UK

HIV acquisition post-migration by key population group: UK, 2010-2019



Conclusions (2)

- Monitoring place of HIV acquisition is key, not only to track progress towards the elimination of HIV transmission in the UK, but to target prevention efforts.
- Limitations:
 - No data on travel after UK arrival among those born abroad
 - Data on whether diagnosed abroad before arrival to UK only available from 2015
 - Model only applicable to 53% of people born abroad – bias?