

Health System Concerns Related to TasP and Most At Risk Populations

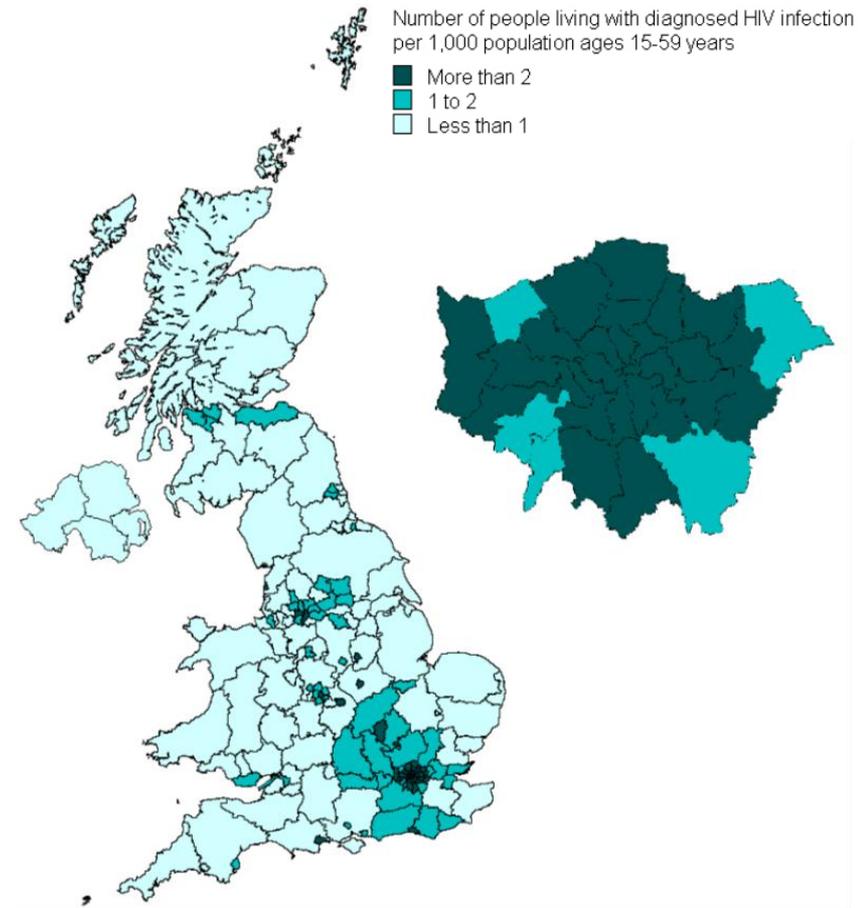
Example from the United Kingdom *Impact of TasP on the MSM epidemic*

Dr Valerie Delpech

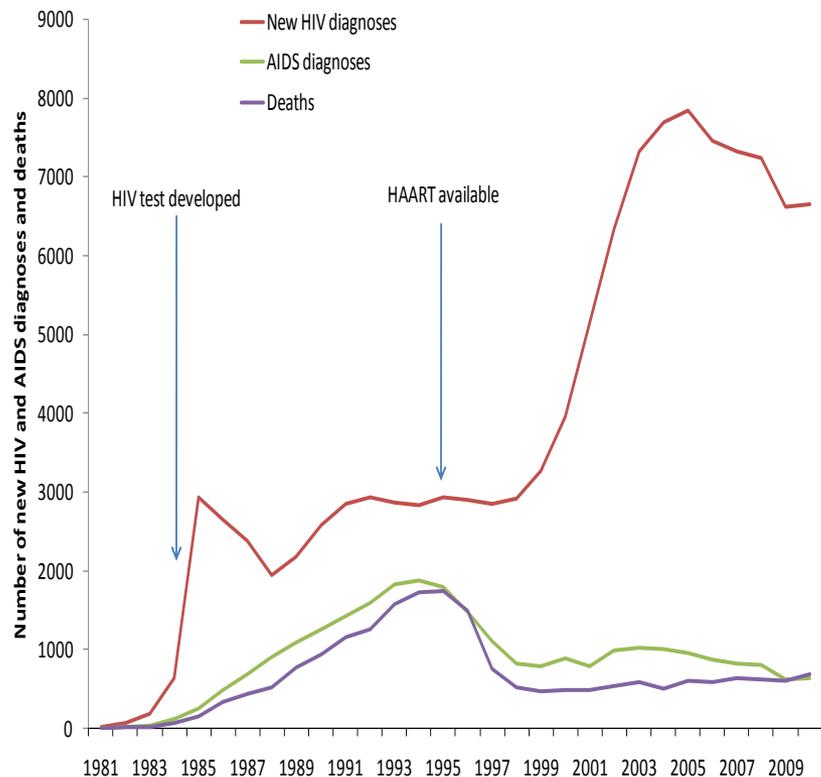
Context

- Population of 60.5 million
- NHS provides free and open access HIV & STI care
- 200 HIV clinics & 240 STI clinics
- Robust surveillance and monitoring system of all newly diagnosed and persons accessing HIV care and treatment

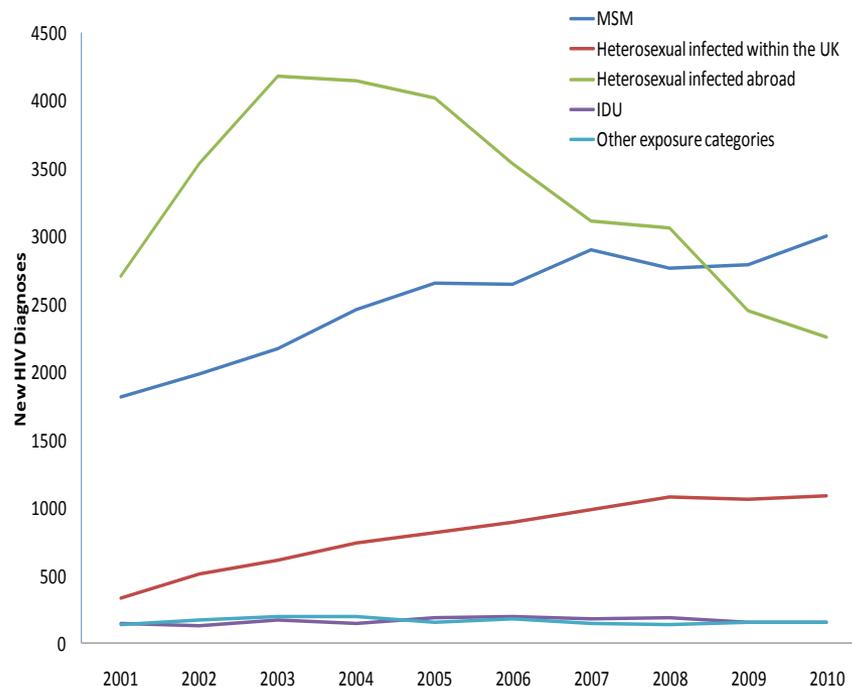
- 100,000 living with HIV in 2012, 26% undiagnosed
- Cumulative 27,000 AIDS diagnoses, 20,000 deaths
- Overall prevalence is low 0.15%
- Epidemic concentrated in MSM, Africans communities & persons who inject drugs



New HIV and AIDS diagnoses and deaths United Kingdom



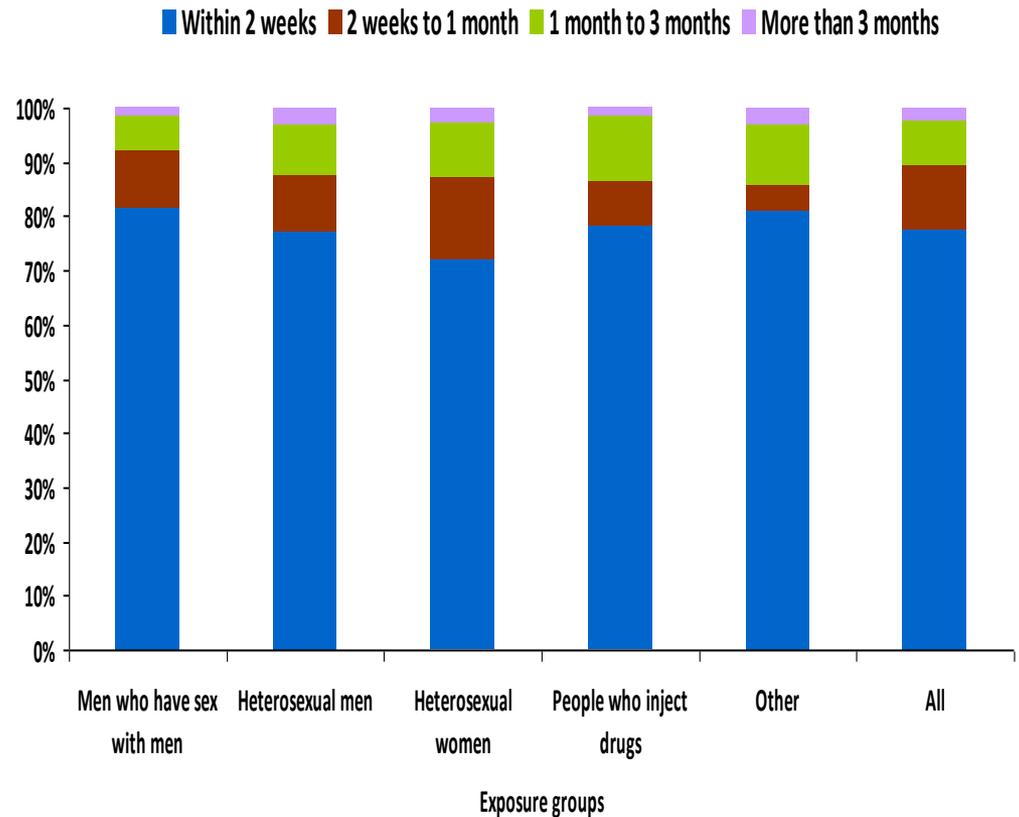
New HIV diagnoses by exposure group



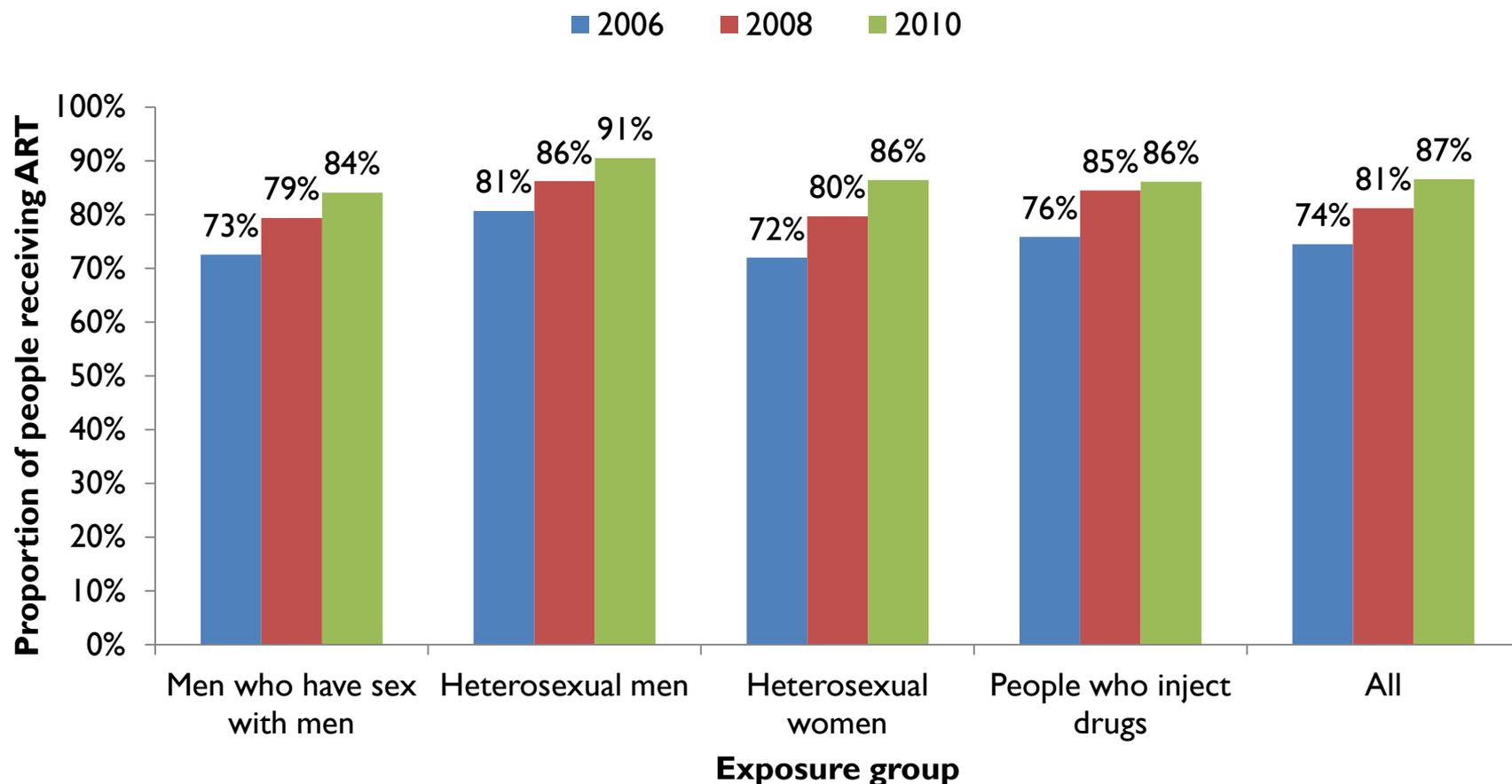
HIV care and treatment, UK

Integration into HIV care following HIV diagnosis:
First CD4 count reported by exposure group: UK, 2010

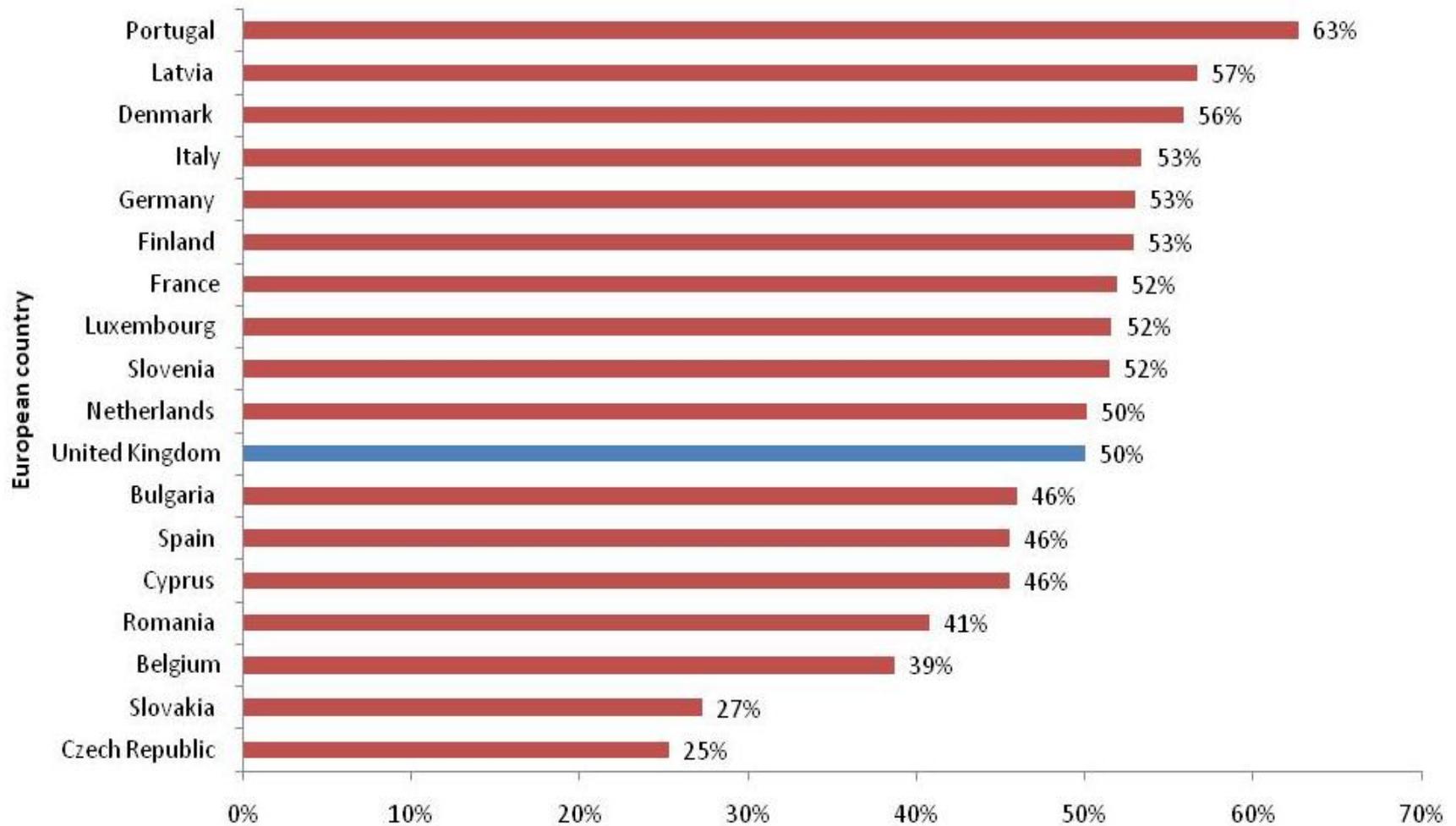
- Access to HIV care in the UK is excellent
 - >95% in care within 3 months
 - > 95% retained in care annually
- £900 million spent on HIV treatment in 2010/11 (£13,900 for each patient)
- HoL report calls from a refocus on HIV prevention



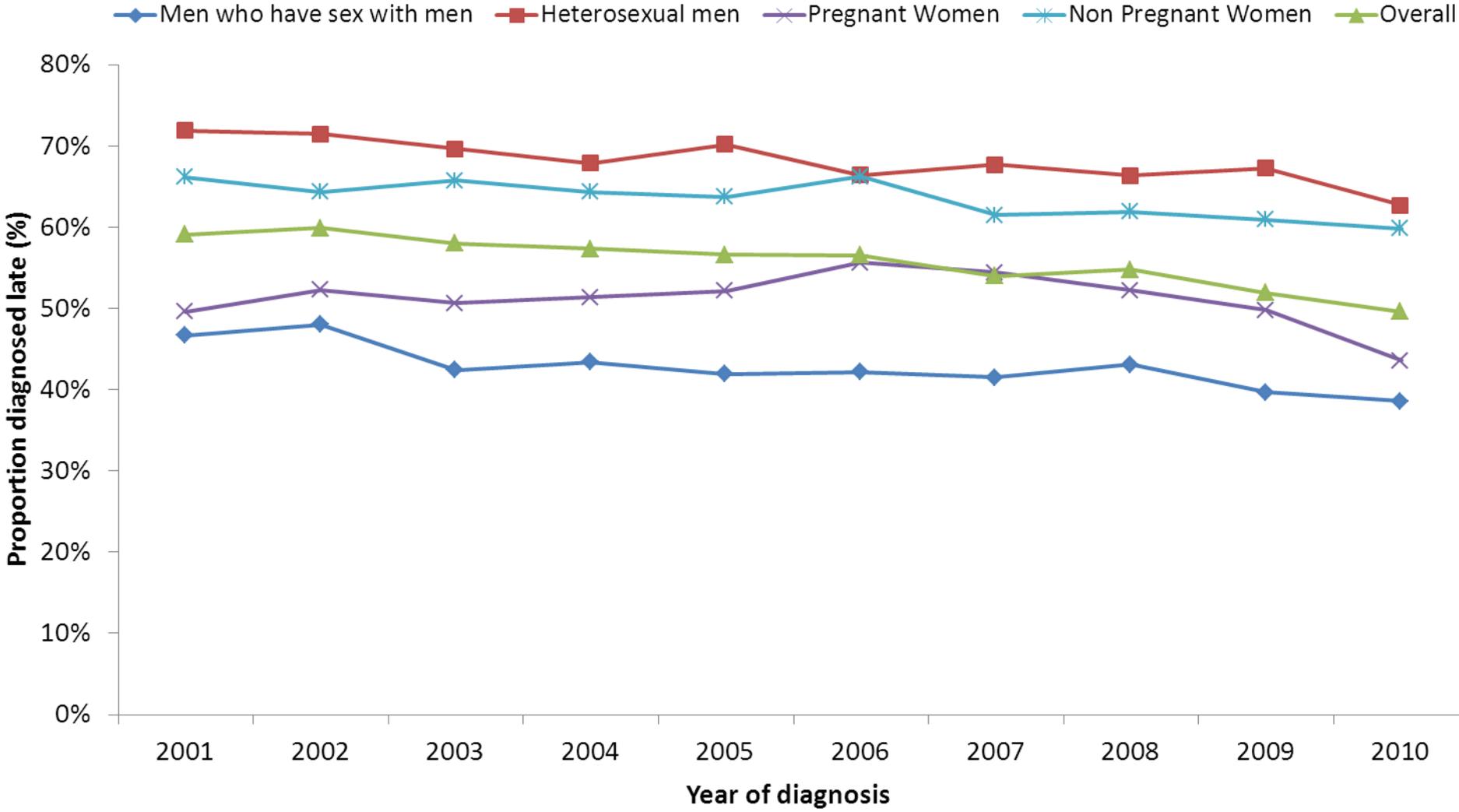
Proportion of persons with a CD4 count <350 cell per mm³ receiving antiretroviral therapy (ART) by exposure group: UK, 2010



Late HIV diagnoses (CD4 <350 cells/mm³) in Europe 2010

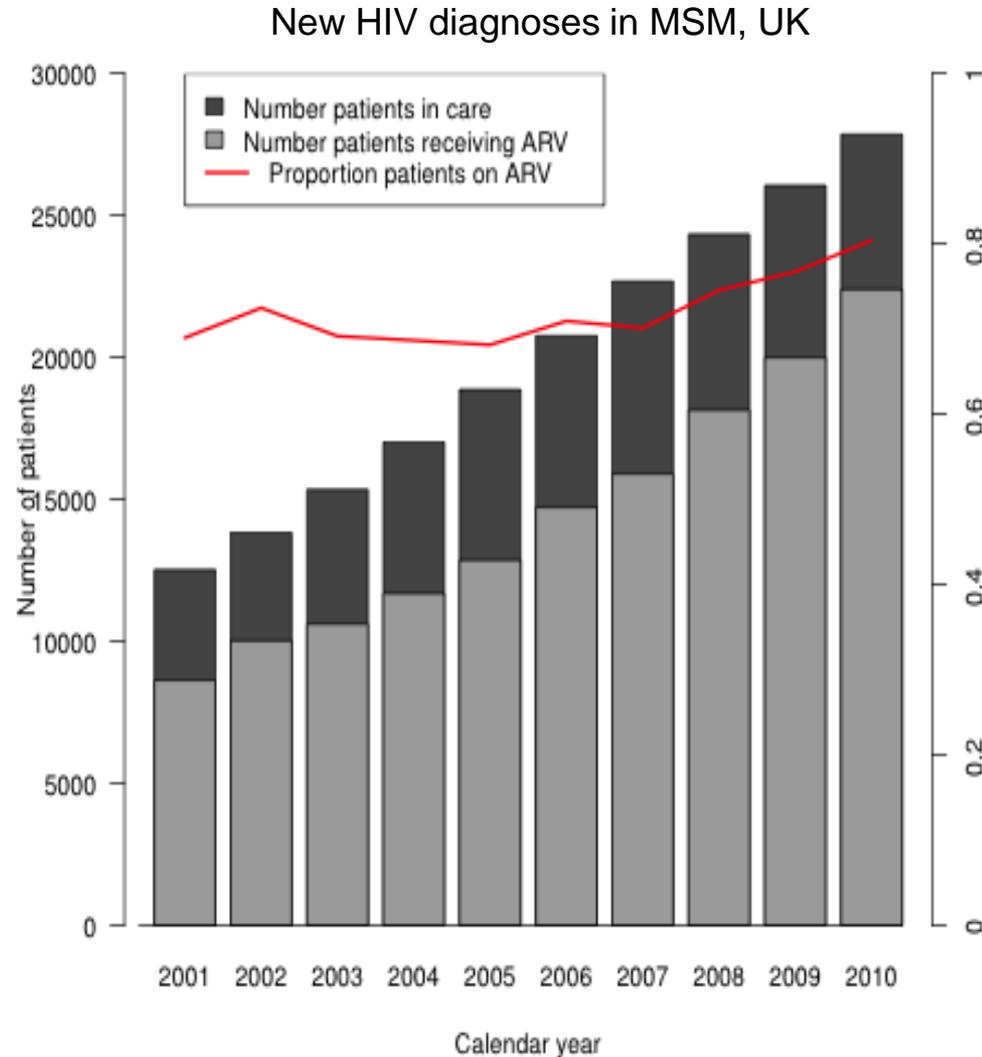


Late diagnoses of HIV (<350 cells/mm³) by exposure group: United Kingdom



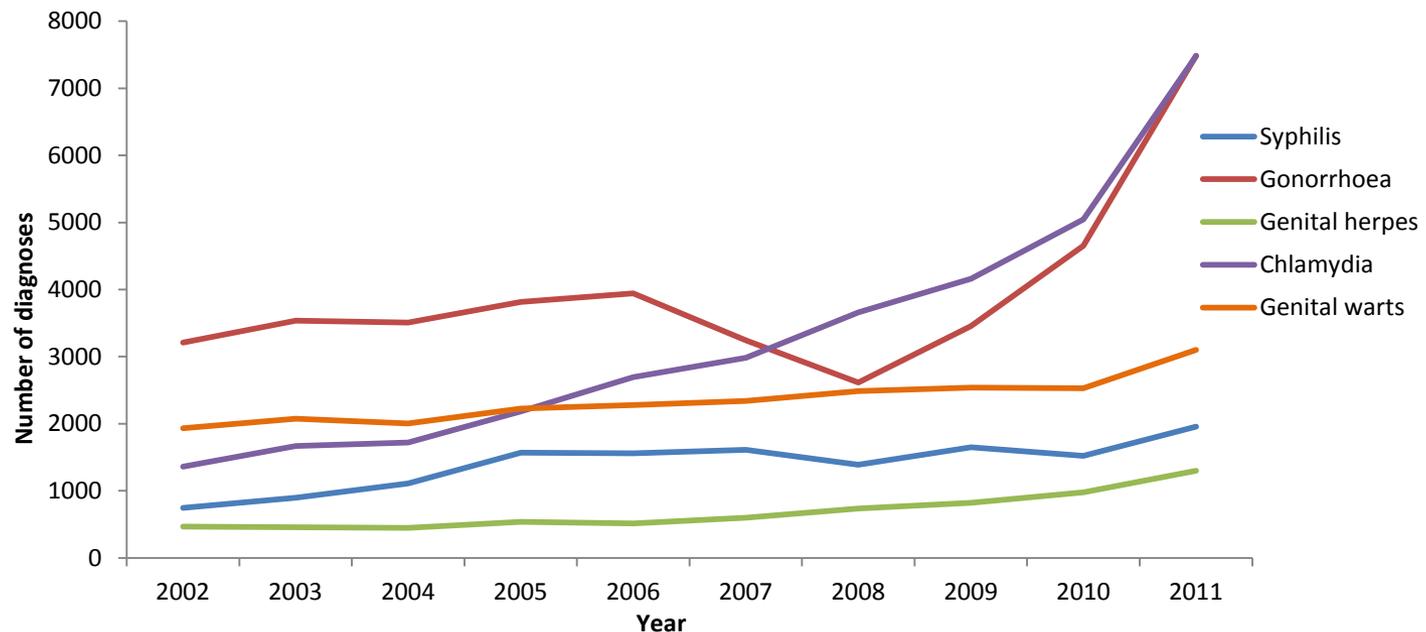
HIV epidemic in MSM living in the UK

- 500,000+ MSM (3.4% of the adult male population)
- 40 000 MSM living with HIV, 26% undiagnosed
 - 9% prevalence in London,
 - 3% outside
- 80% of diagnosed MSM on ART, 84% of MSM with CD4<350
- Access to & retention in care >95% throughout period
- Background of increasing STIs



STIs in MSM, UK

- Experienced largest increase in new infections (all age groups) in 2011*
- Improved and increased testing
- Ongoing unsafe sexual behaviour – HIV transmission and STI outbreaks (e.g. LGV, Shigella)



Men who have sex with men: New STI diagnoses (GUM), 2002-2011, England

* For cases in men where sexual orientation was recorded.

LGV: lymphogranuloma venereum

HIV epidemic in MSM, UK

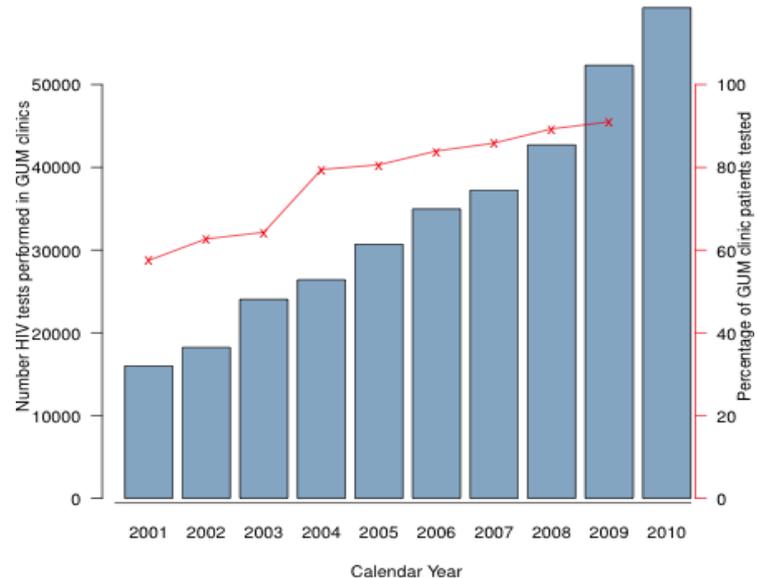
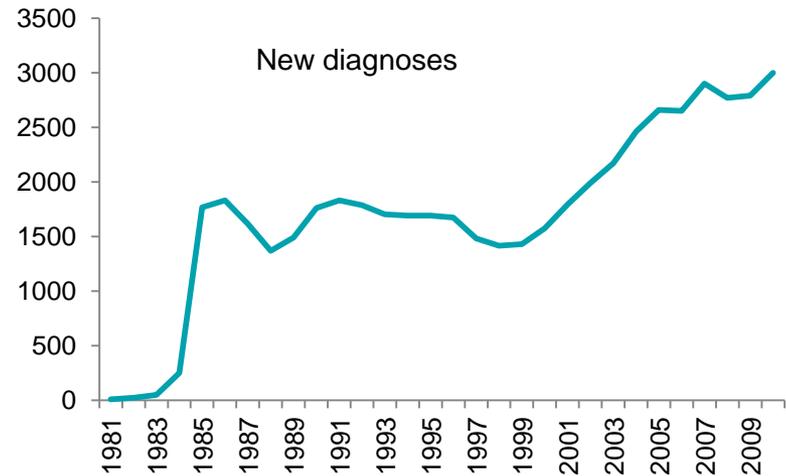
Despite high ARV coverage and retention in care.....

- Year on year increase in new diagnoses
- >3,000 in 2010, >25% are recently acquired (RITA)

Impact of testing

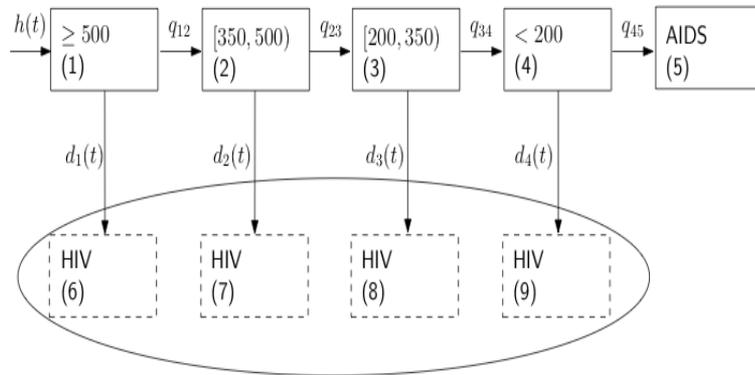
HIV Testing

- >85% in STI clinics
- 3.7 fold increase in testing from 16,000 in 2001 to 59,300 in 2010
- MSM accepting a test increased from 58% to over 90%
- In 2010, estimated 15 - 25% of all MSM aged 15-59 tested



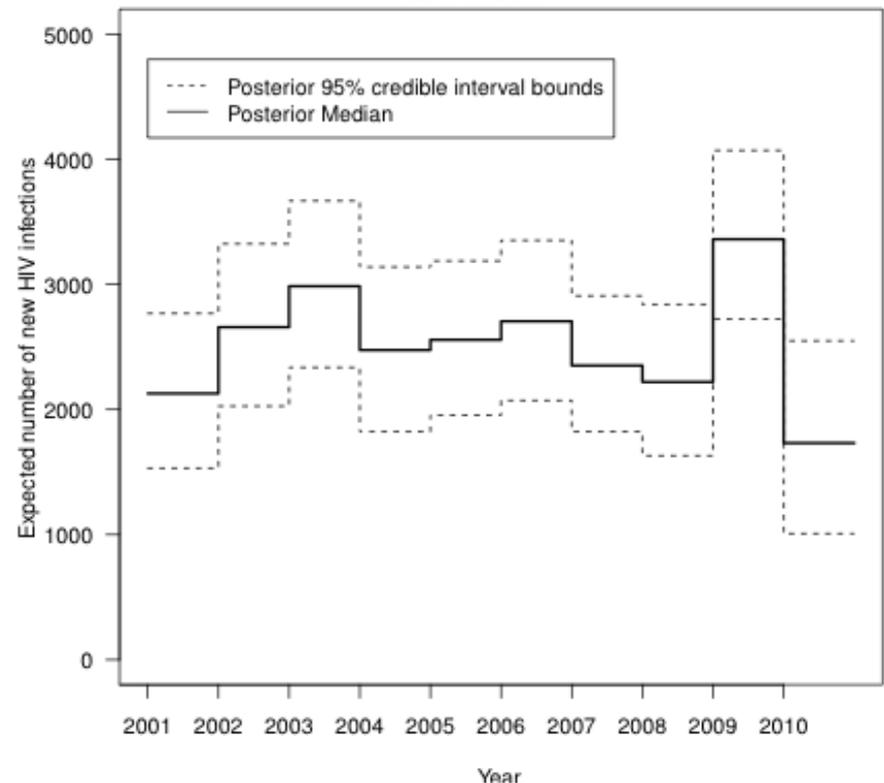
No evidence of a decline in HIV incidence

Results of a multi-state model for population-level CD4 progression, leading to HIV and AIDS diagnoses, *Birrell et al*

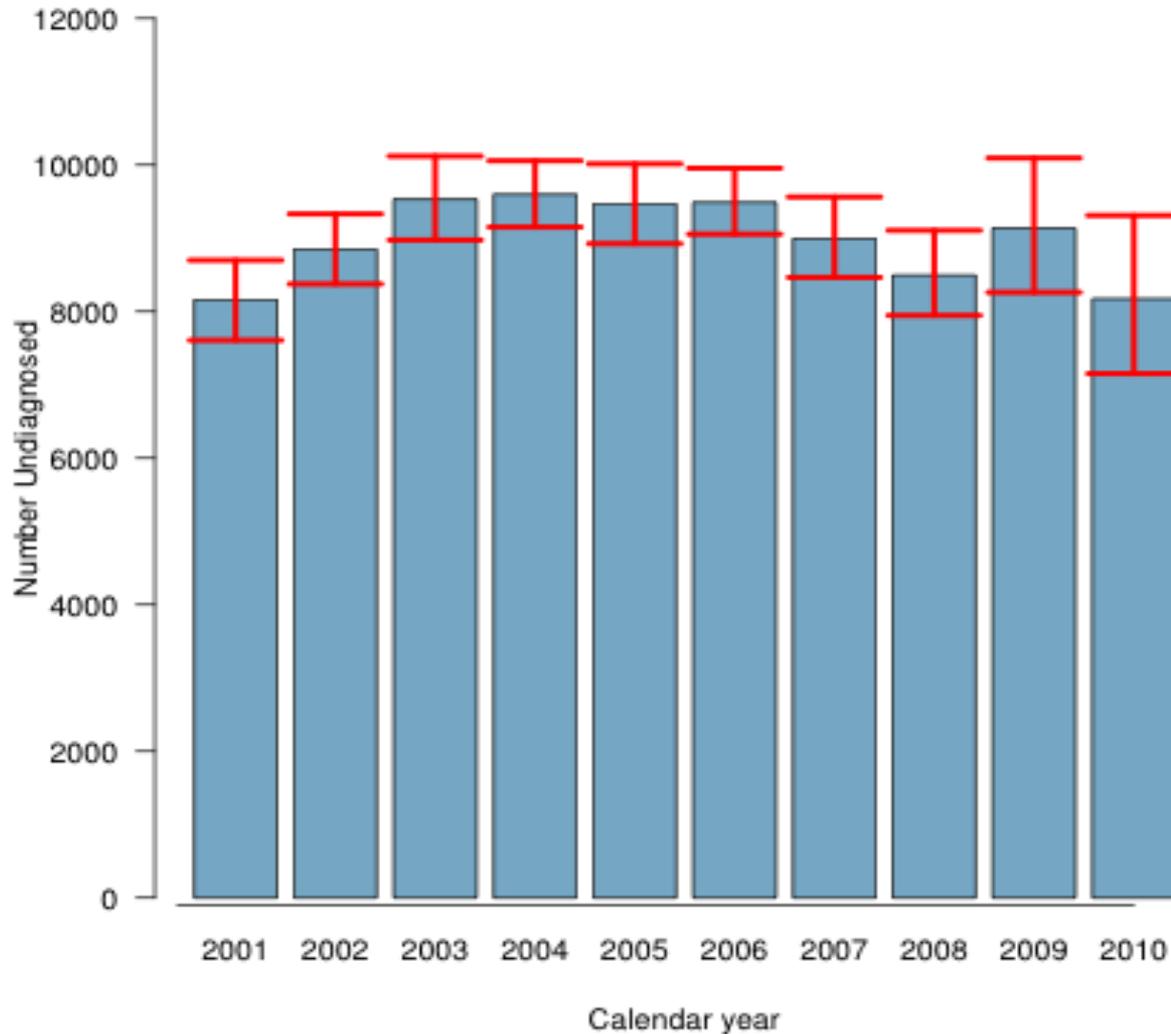


- Back calculation approach based on CD4 count at diagnosis & AIDS
- Estimates both infection and diagnosis rates
 - High incidence rates
 - Decrease in time-to-diagnosis
- Findings consistent with other incidence models (*Presanis & Phillips*)

Annual HIV incidence in MSM, 2001- 2010, England & Wales



Undiagnosed infections in MSM; England & Wales 2001-2010, *Birrell et al*



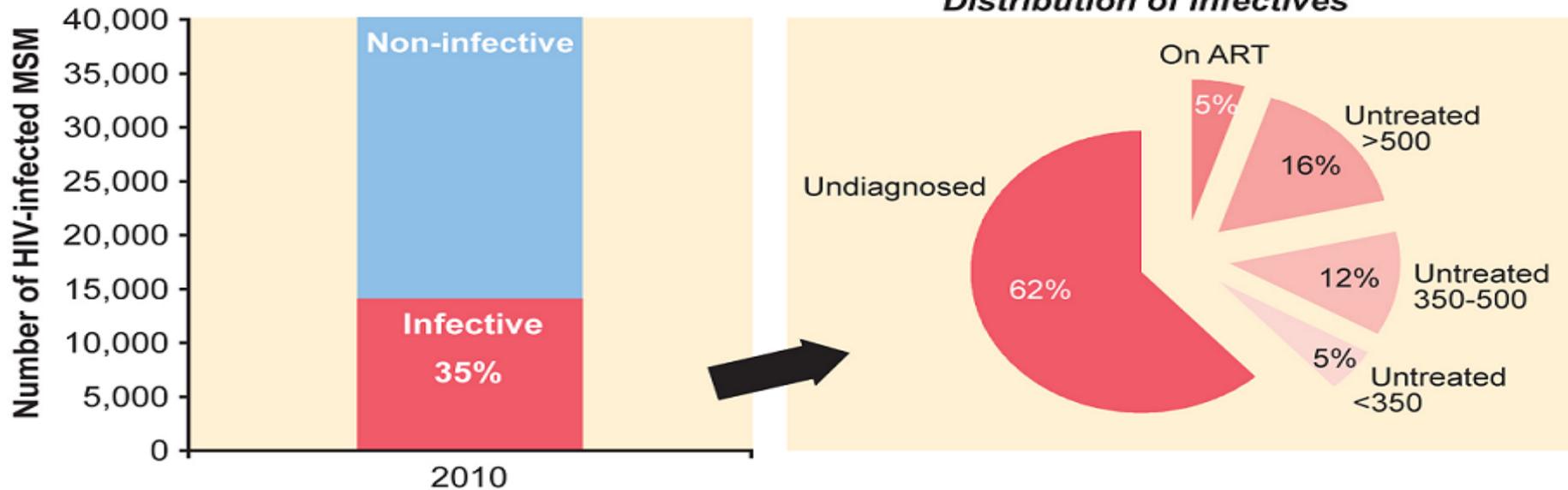
TasP among MSM in the UK

- Despite substantial progress of 'test and treat' prevention policies over the past decade in the UK, there is no evidence of a reduction in the incidence of HIV infection in MSM

Failure of TasP? Why?

- *Brown et al* – Analyses of Infectivity (viral load >1500 copies/ml) among diagnosed & undiagnosed MSM.
 - 35% (14,000) of 40,000 men were estimated to be infective in 2010, of whom 62% are undiagnosed, 33% diagnosed but untreated, and 5% on ART.
 - Infective MSM among the diagnosed untreated population fell from 5,200 in 2006 to 4,600 in 2010 with only a modest decline in median VL

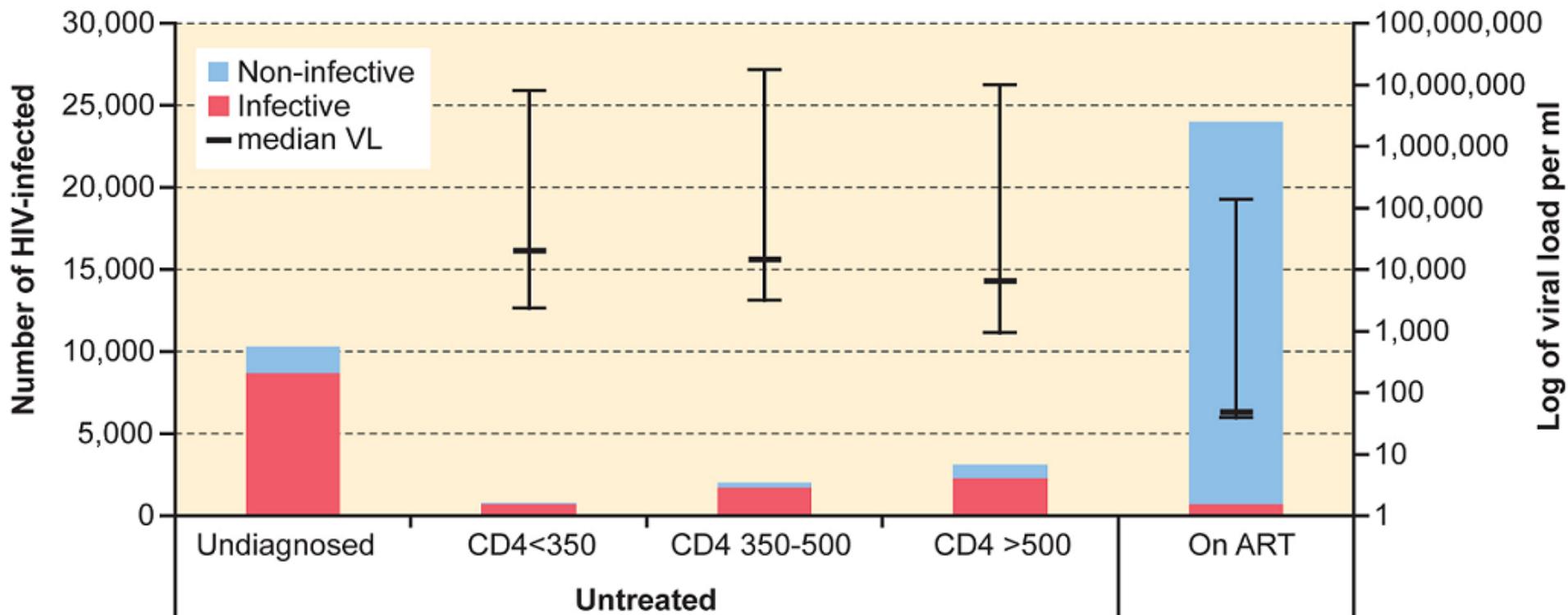
Distribution of infectives* among HIV-infected MSM, UK: 2010, *Brown et al*



* viral load >1500 copies/ml

Extending ART to all MSM with CD4 counts <500 cells/mm³ would reduce infectivity from an estimated 35% to 29% and, in combination with halving the undiagnosed, to 21%.

Number of HIV-infected MSM, and proportion infective* by diagnostic and treatment status and median viral load (with interquartile range): UK: 2010

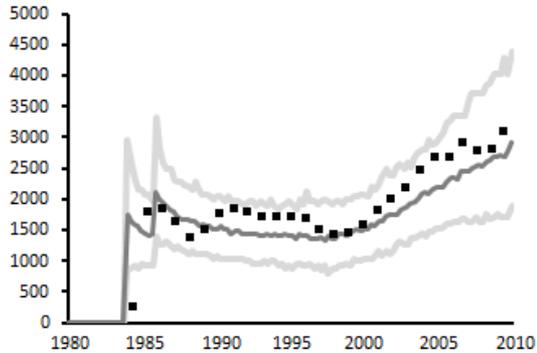


Increased HIV incidence in MSM despite high levels of ART-
induced viral suppression:
analysis of an extensively documented epidemic
A.Phillips et al

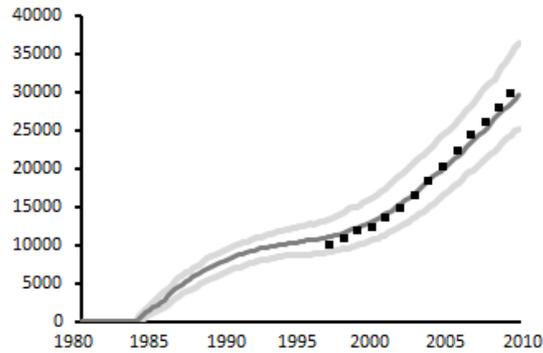
- Modeling of HIV epidemic in MSM in the UK using a individual based simulation of transmission, progression and effect of ART
- Large range of surveillance data (1981-2010), Natsal and other behaviour data from variety of sources
- Individual-based stochastic computer simulation model
- Assumes all transmission take place via condomless anal sex with an infective partner
- Sexual behaviour modelled as the number of short (3 months) vs long-term partners

Phillips et al – model fits

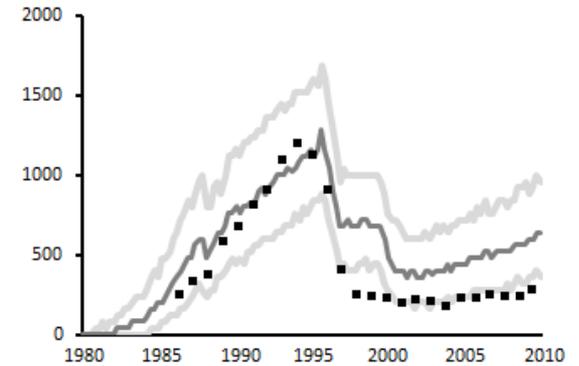
Number diagnosed per year



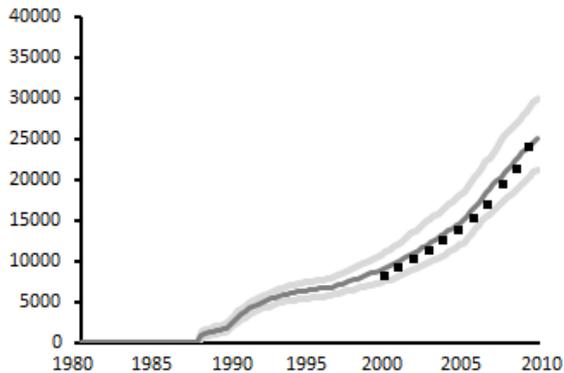
Number seen for care per year



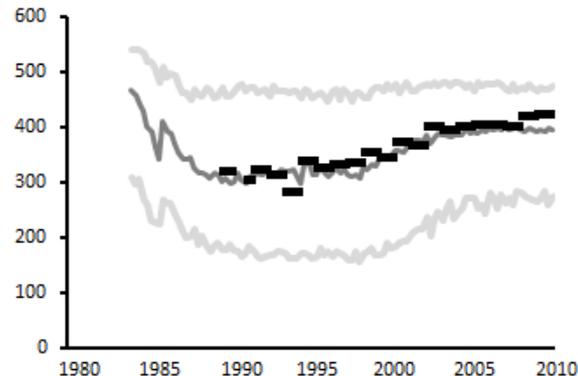
Number of deaths per year



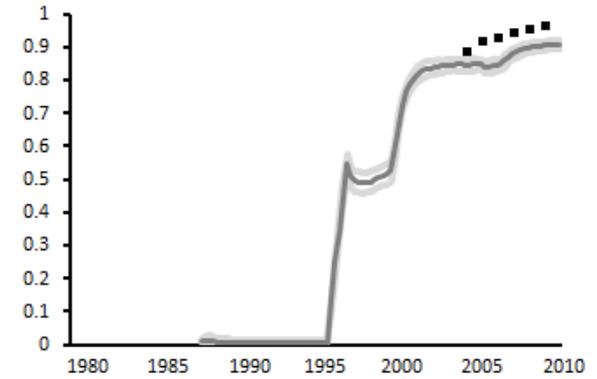
Number on ART per year



Median CD4 count at diagnosis

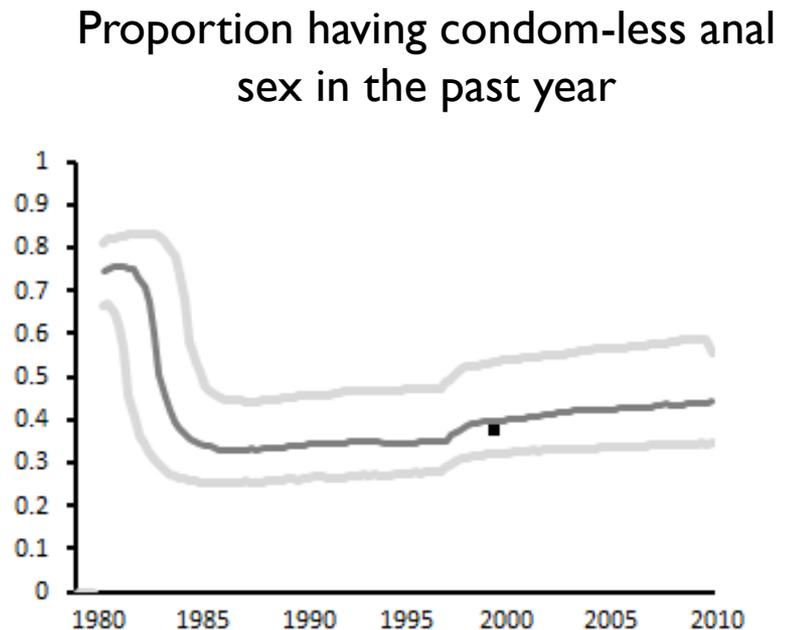
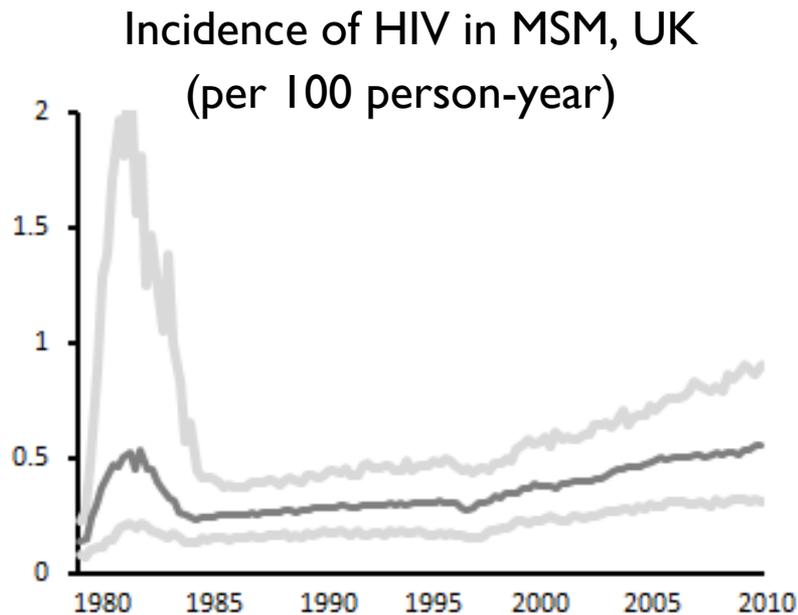


Proportion of men on ART with viral load <500

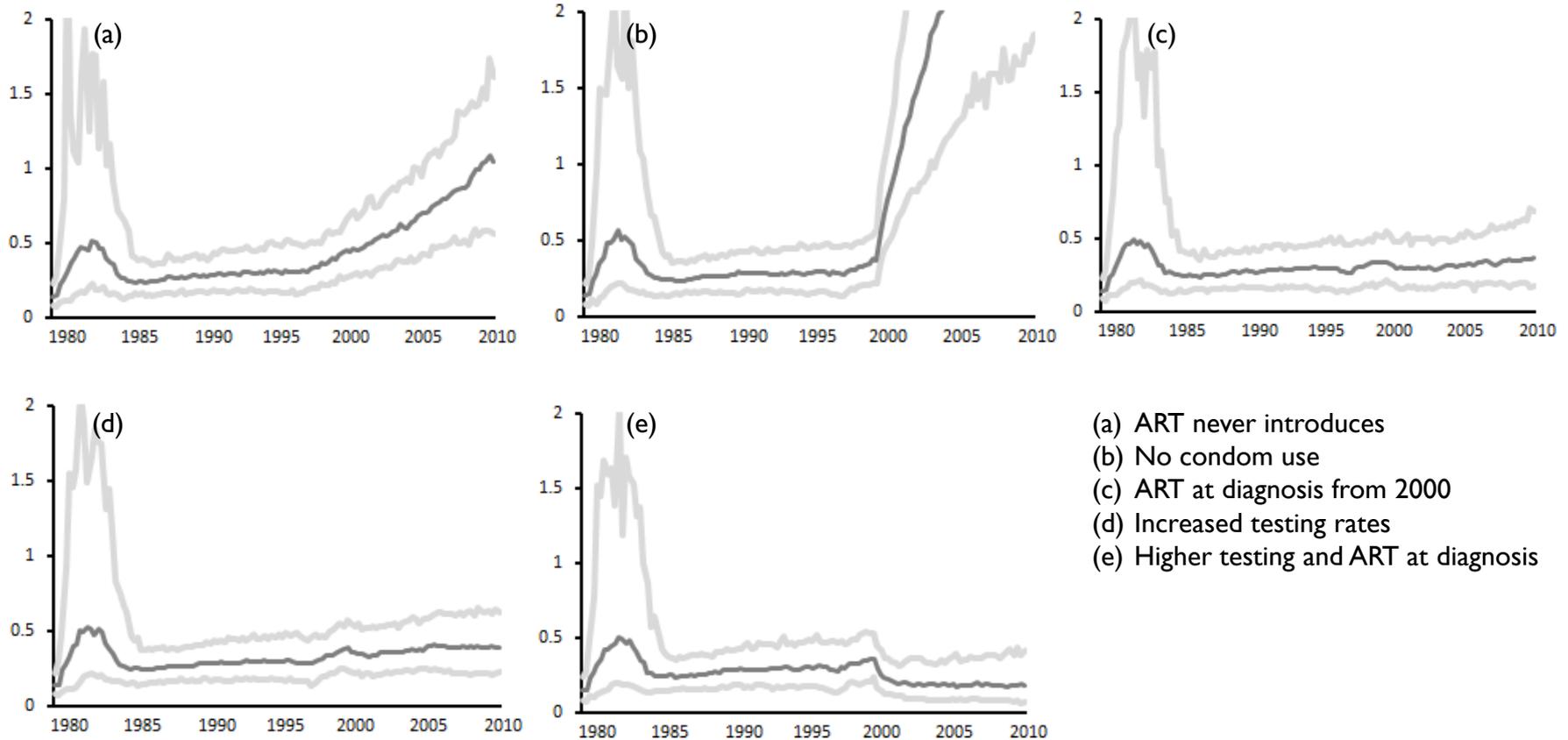


Key Findings

- High incidence in early 1980s declined in response to condom use
- Incidence increased after the introduction of ART due to a modest rise in condomless sex (26%)
- In 2010, 48% (34-64) of new infections were acquired from undiagnosed men in primary infection, 34% other undiagnosed, 10% diagnosed ART naïve, 7% ART exp



Counter – factual scenarios

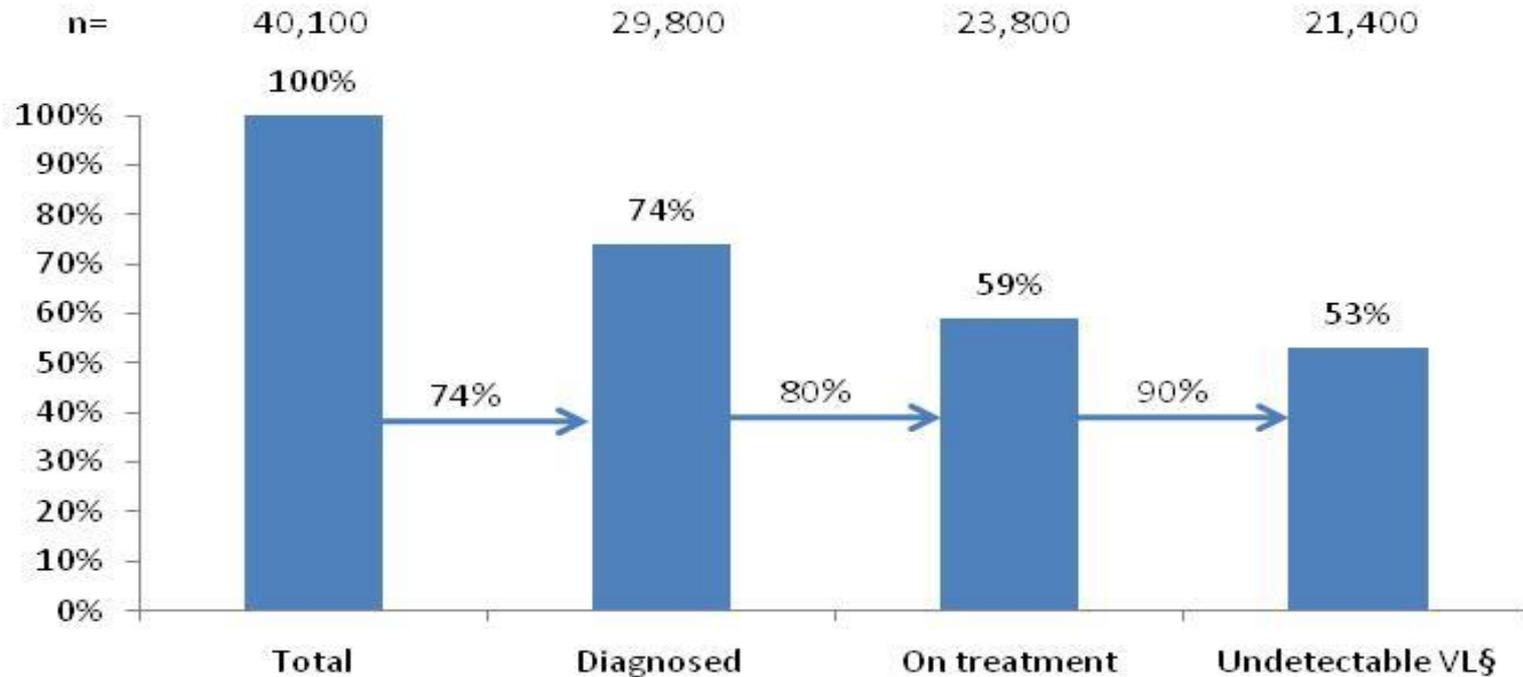


(b) Cessation of all condoms in 2000 would have resulted in a 400% increase in incidence
(e) A policy of higher (68% testing yearly) and testing and ART would have resulted in a 62% lower incidence

Conclusions

- Access to HIV testing and treatment coverage and care is excellent in the UK
- Despite this, there is no evidence of a reduction in the incidence of HIV infection in MSM, the group most at risk of acquiring HIV in the UK
- Undiagnosed remain source of 60%-80% transmissions
 - 34-60% of transmission occur from men in primary HIV infection (first few months)
- Much high rates of testing are required to reduce late diagnoses
- However even with higher testing rates, 'test and treat' policy will be insufficient to eliminate transmission without other interventions
- Health Promotion remains key
 - Safer sex campaigns and behavioural interventions
 - Address structural and societal barriers which fuel the epidemic
 - Role of partner notification needs expanding,
 - Further research to assess public health benefit of PreP

MSM living with HIV by diagnosis, treatment and viral load status: UK, 2010



* Numbers were adjusted by missing information and rounded to the nearest 100.

§ Viral load <50 copies/ml after HIV treatment initiation in the year of initiation.

Acknowledgements

- Conference organisers
- Andrew Phillips, Paul Birrell and Alison Brown
- HIV & GUM physicians and all those who contribute to HIV & STI surveillance
- *Colleagues at the HIV & STI Department, HPA*

In particular Anthony Nardone, Alison Brown, Meaghan Kall, Adamma Aghaizu, Saria Desai, Cuong Chau, Zheng Yin, Graeme Rooney, Alan Hunter, Alan Darbin, Rajani Raghu, Gwenda Hughes & Noel Gill



Thank-you

www.hpa.org.uk

