

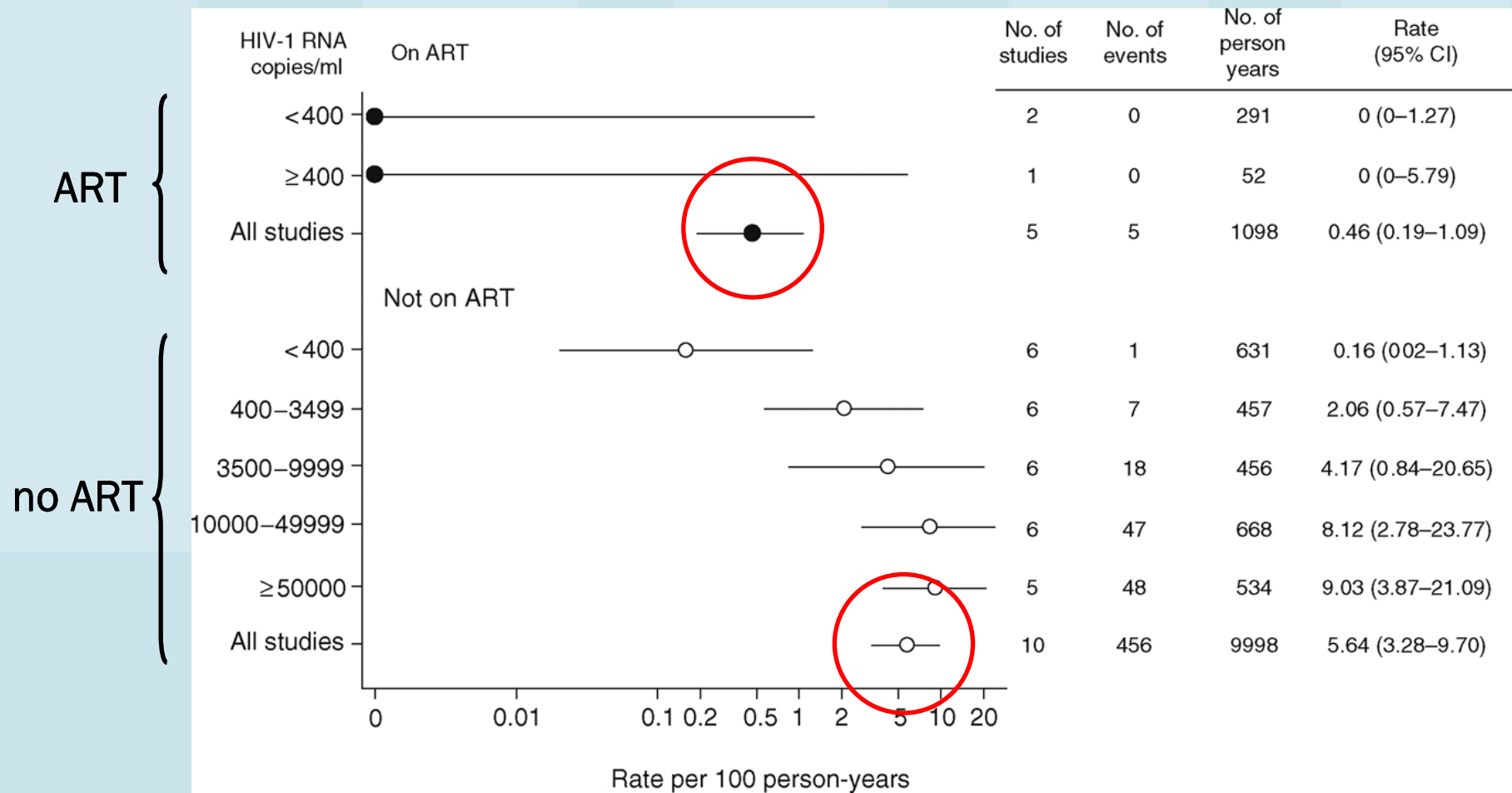
Limited contribution to new infections from HIV-infected MSM on suppressive combination treatment

Ard van Sighem

Stichting HIV Monitoring, Amsterdam, NL

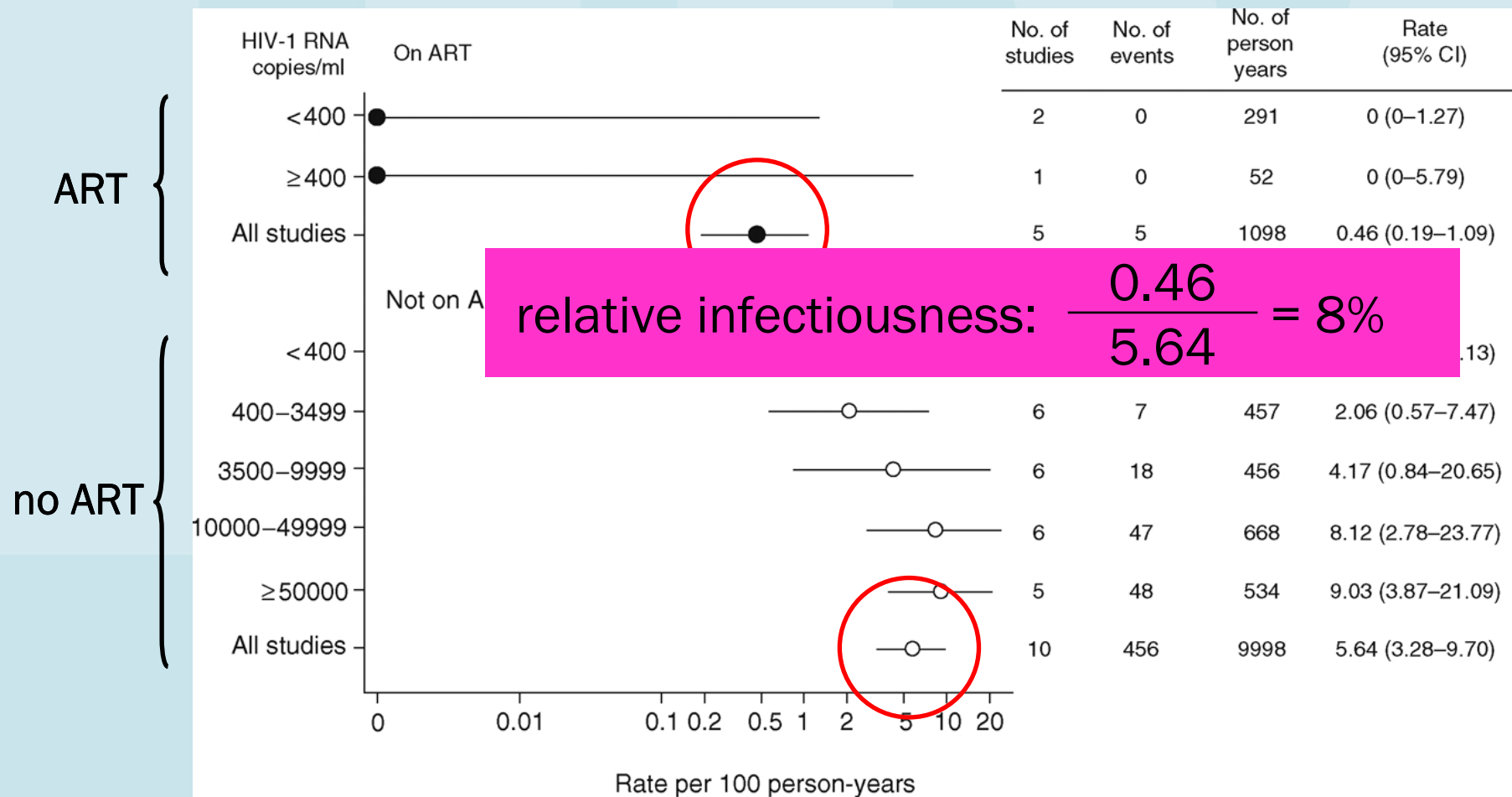
15th IWHOD, Prague, 24-26 March 2011

Infectiousness and treatment



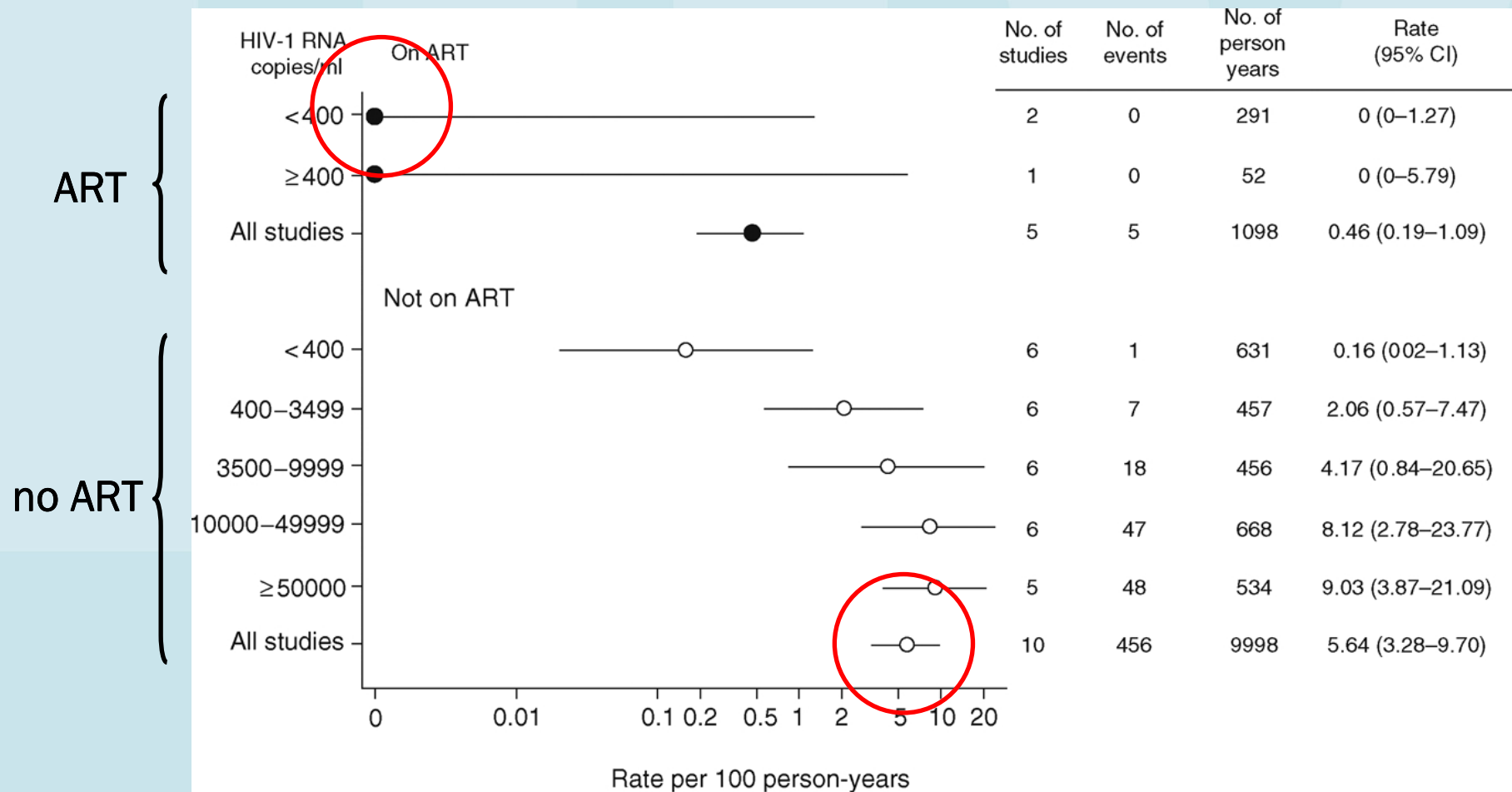
Attia *et al.*, AIDS 2009

Infectiousness and treatment



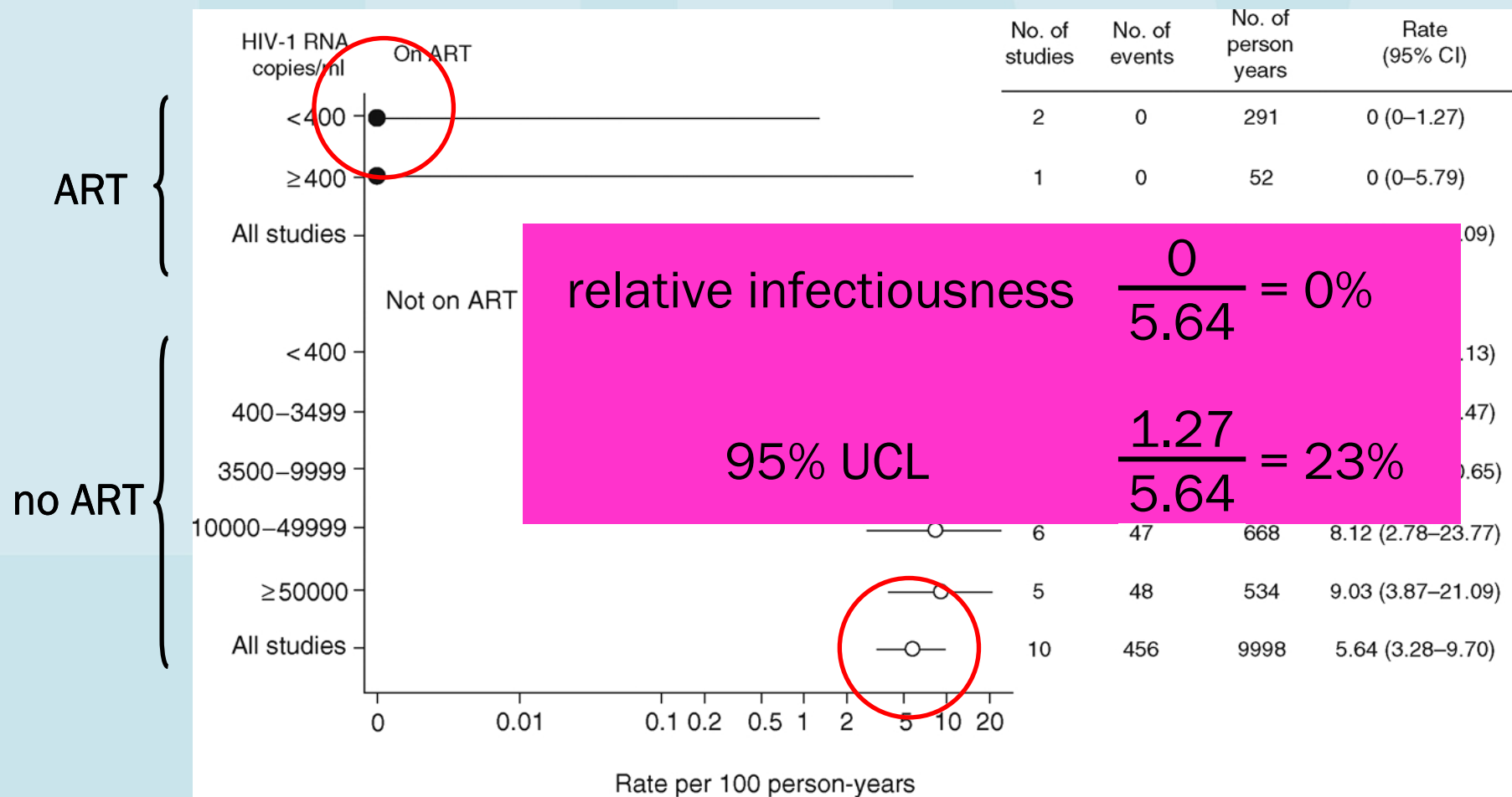
Attia *et al.*, AIDS 2009

Infectiousness and treatment



Attia *et al.*, AIDS 2009

Infectiousness and treatment



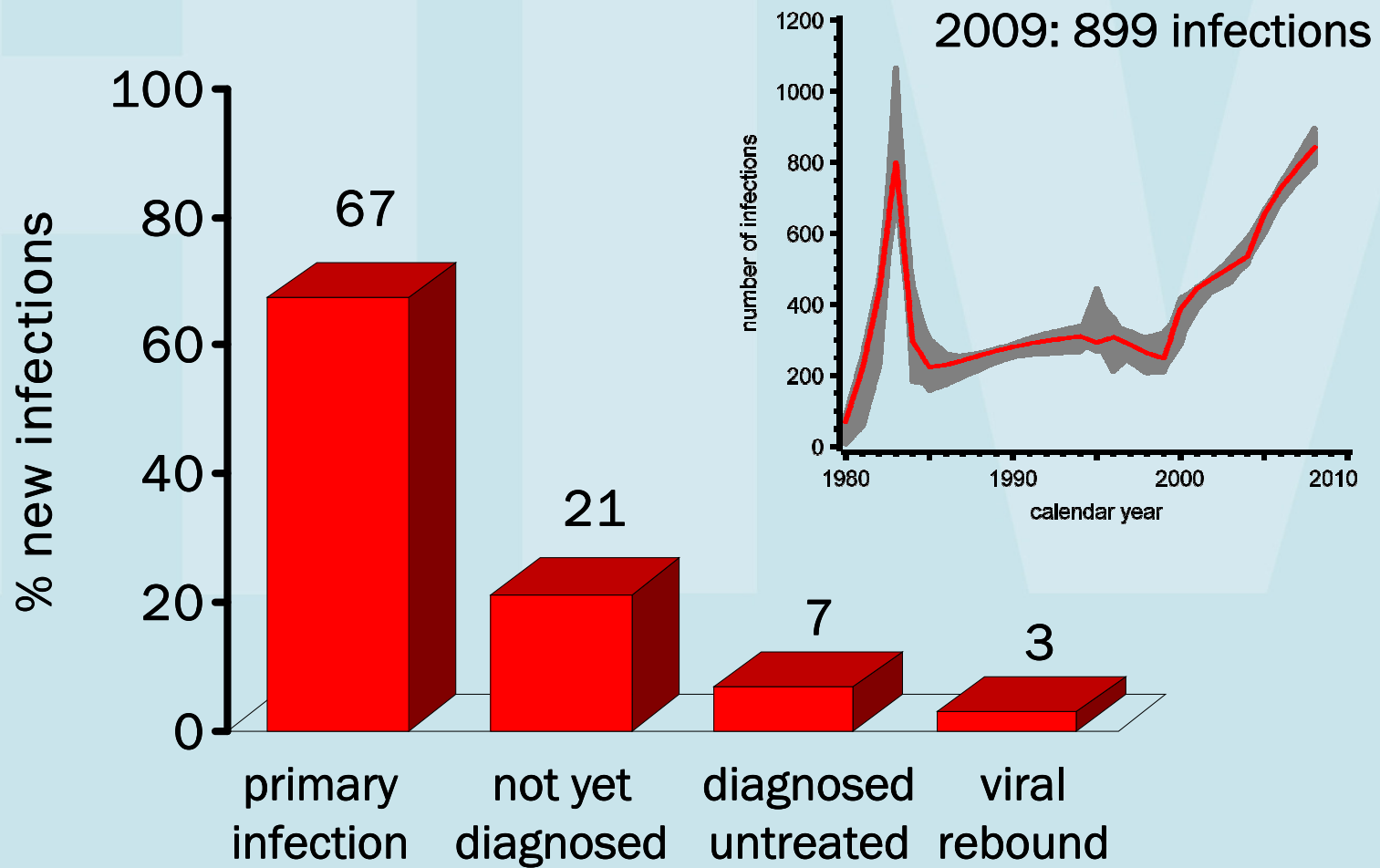
Attia *et al.*, AIDS 2009

What is the impact of non-zero probability of transmission during successful treatment on the HIV epidemic amongst MSM?

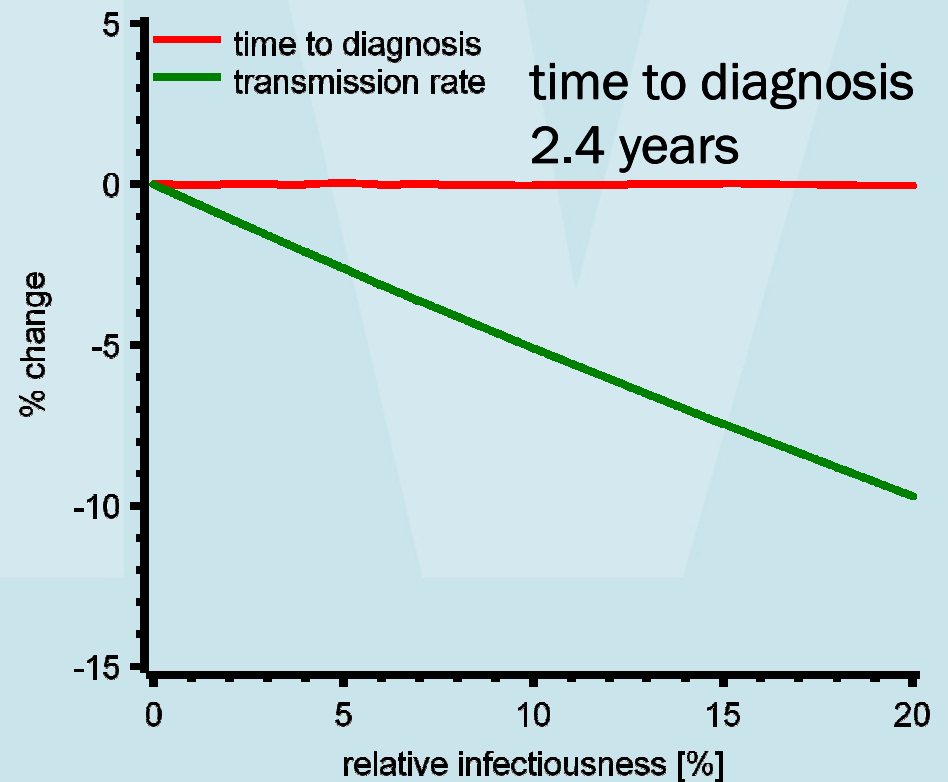
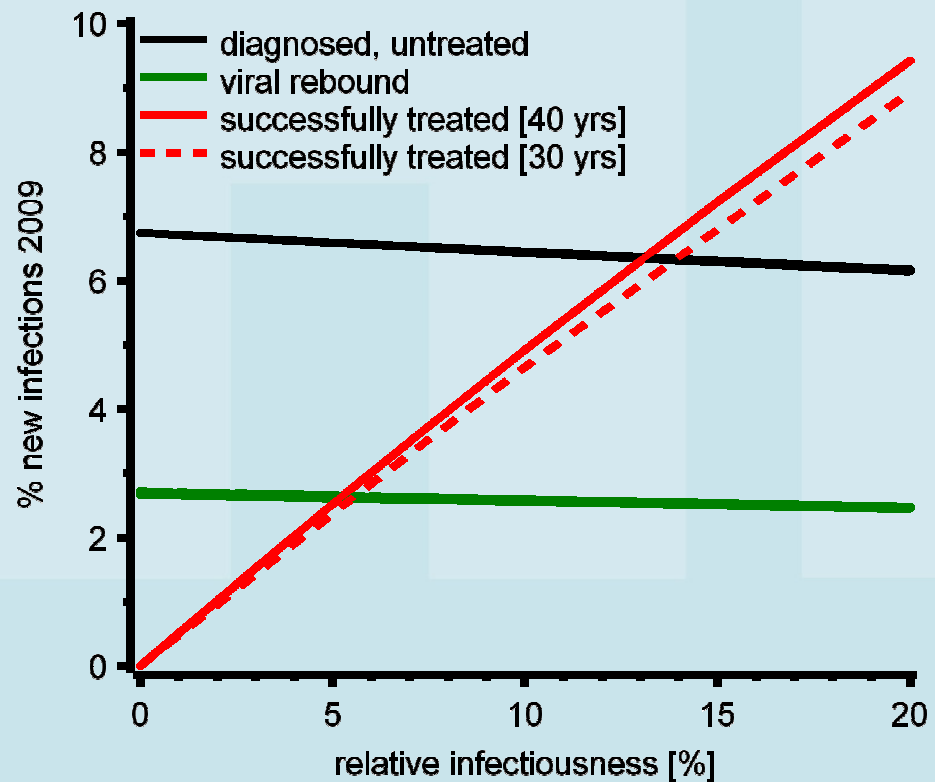
Transmission model

- Mathematical model explaining observed trends in HIV and AIDS diagnoses since 1980 (Bezemer *et al.*, AIDS 2008; Epidemics 2010).
- Simultaneously estimate changes in
 - transmission rates (“risk behaviour”)
 - time from infection to diagnosis
- Infectiousness depends on stage of infection:
 - higher during primary infection and AIDS
 - high during episodes of viral rebound
 - no transmission during viral suppression

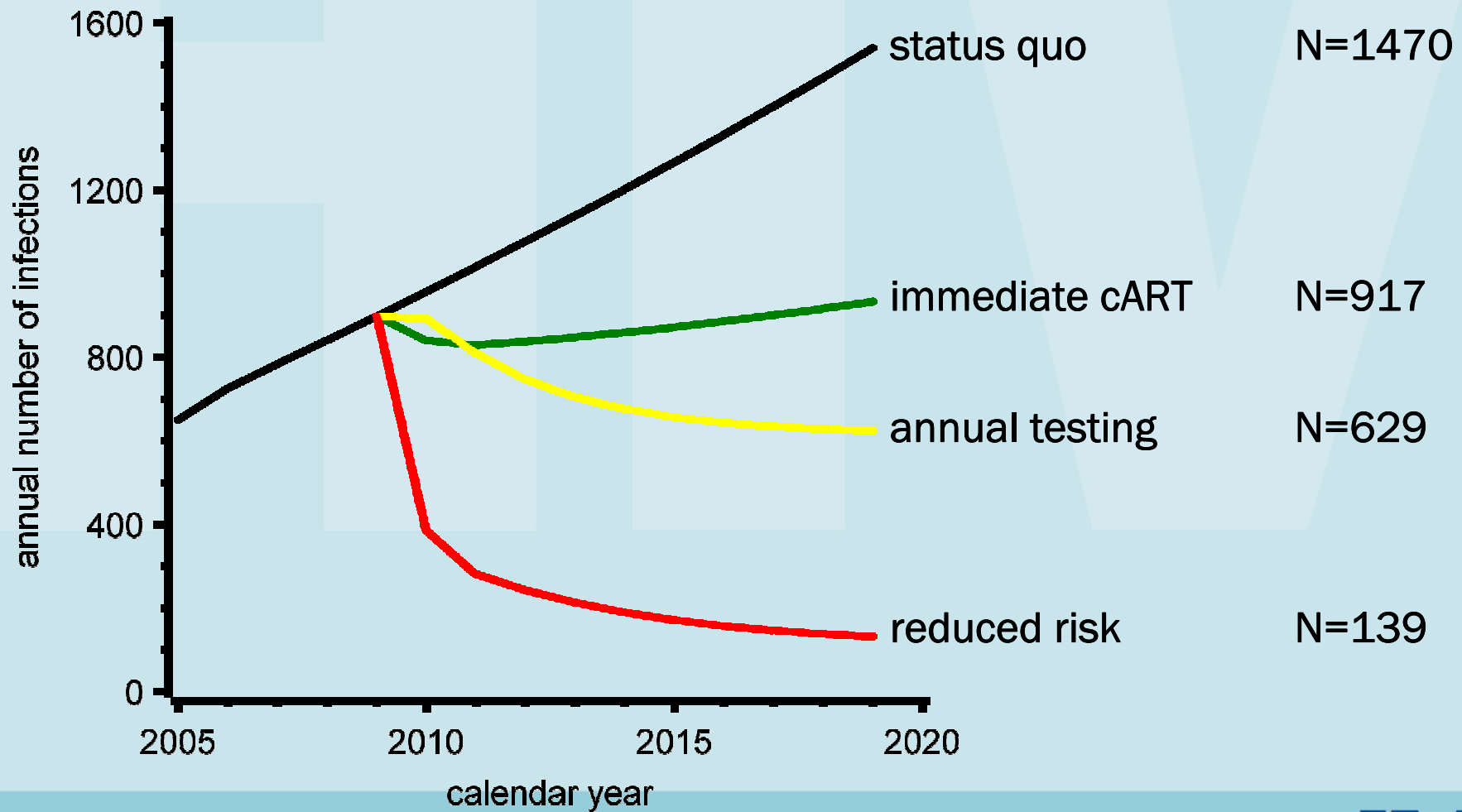
Contribution to new infections 1



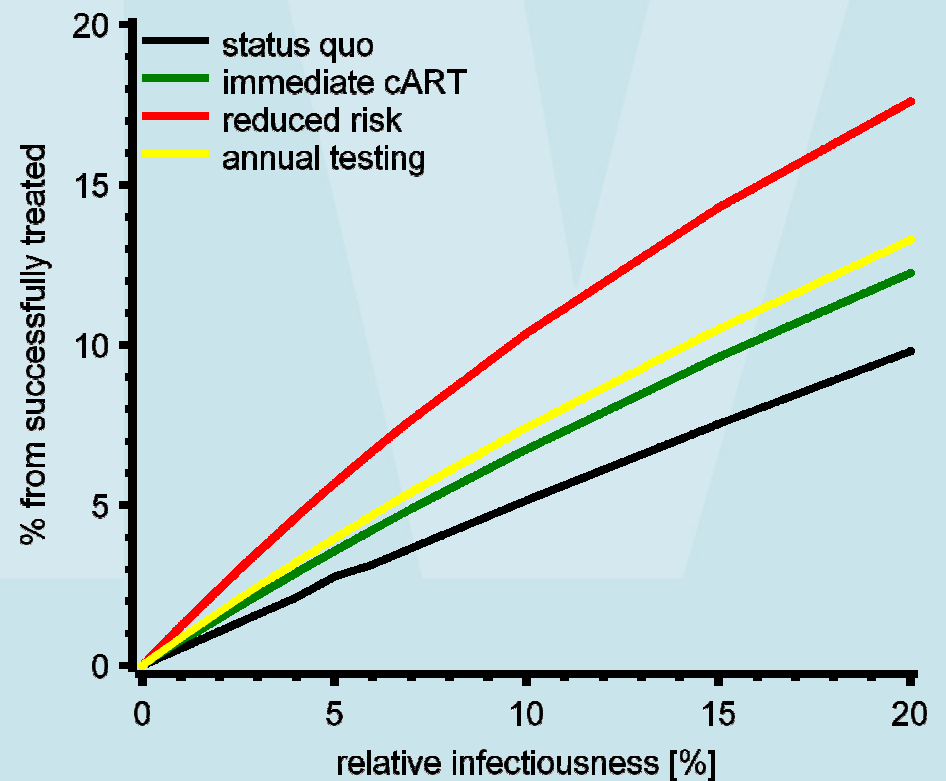
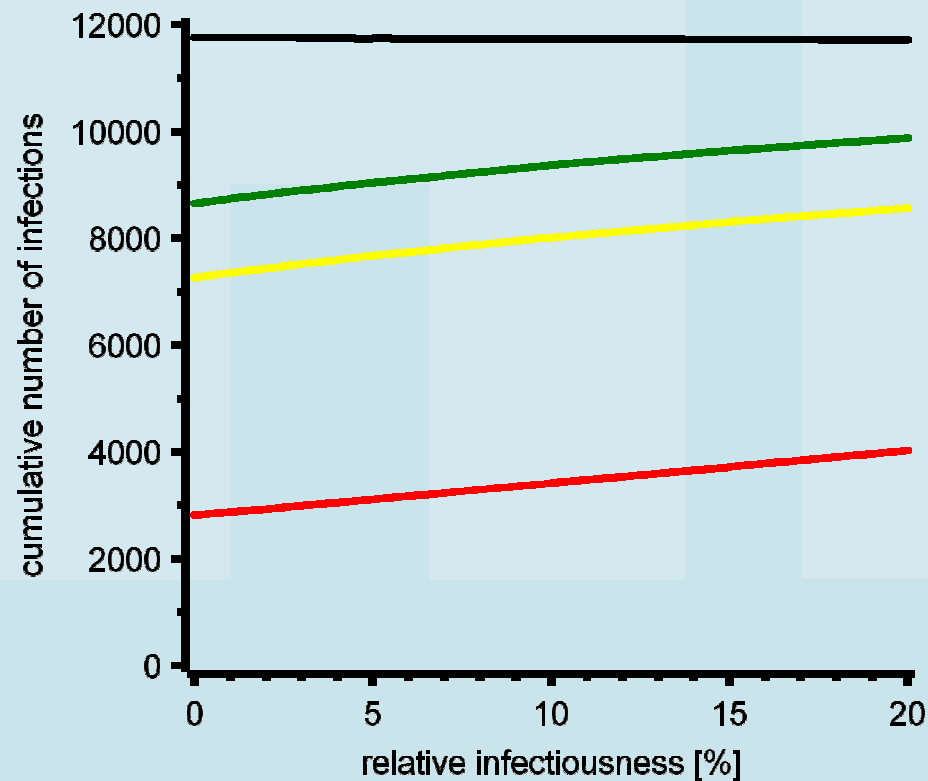
Contribution to new infections 2



Controlling the epidemic



Infections 2010 – 2018



Summarising...

- The contribution to new infections by patients on suppressive treatment is limited.
- Transmission from treated patients is more important in the presence of interventions.
- The risk of transmission may be larger
 - in the presence of other STIs.
 - when perceived protection leads to increased risk behaviour.

Acknowledgements

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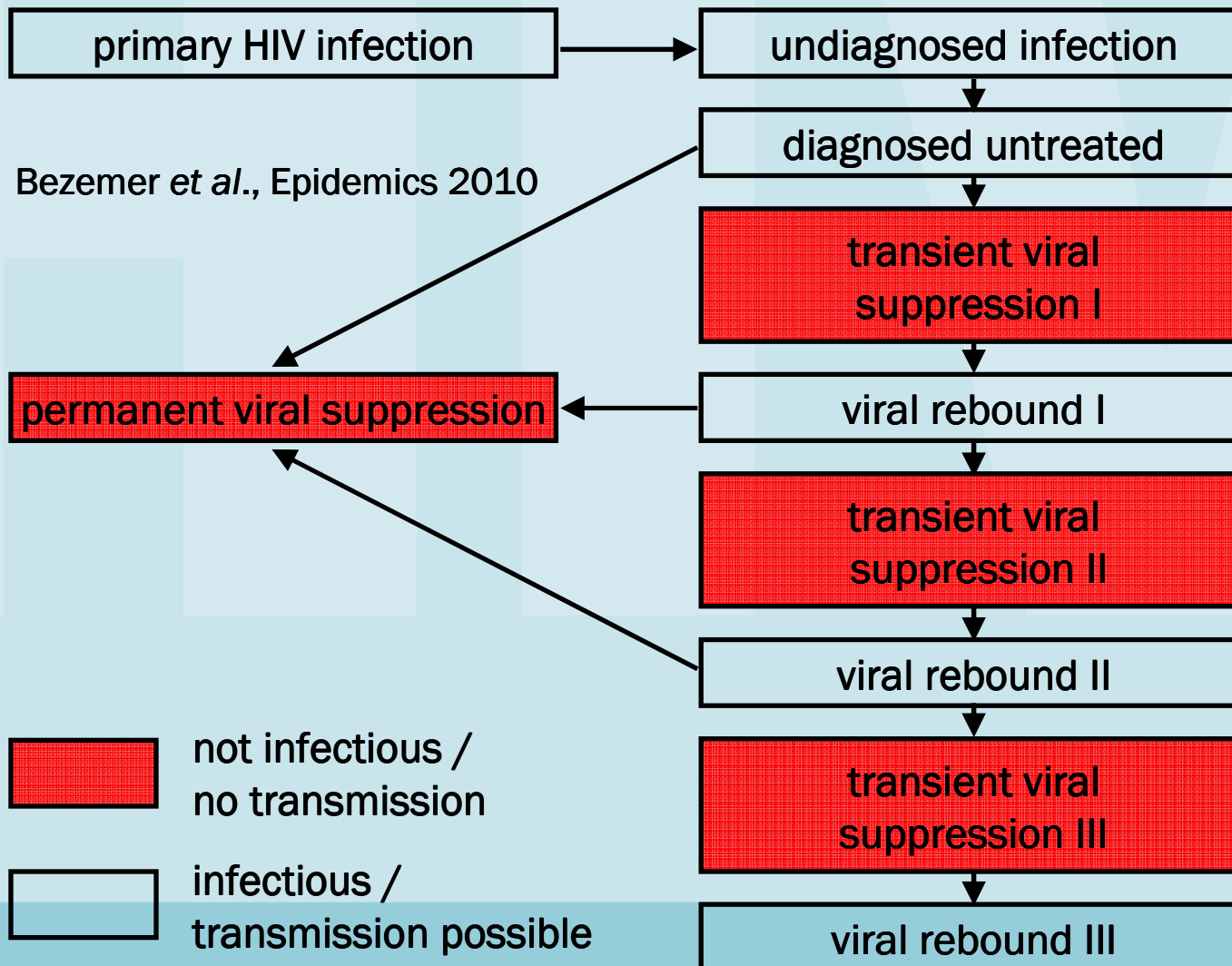
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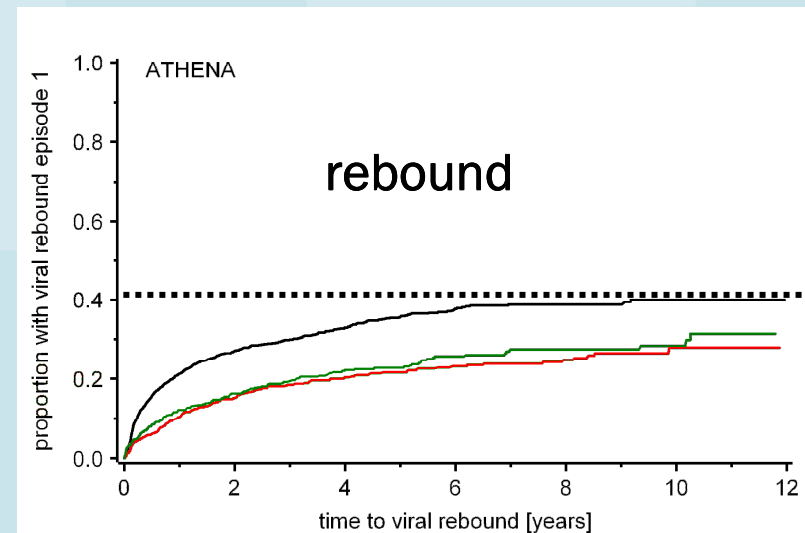
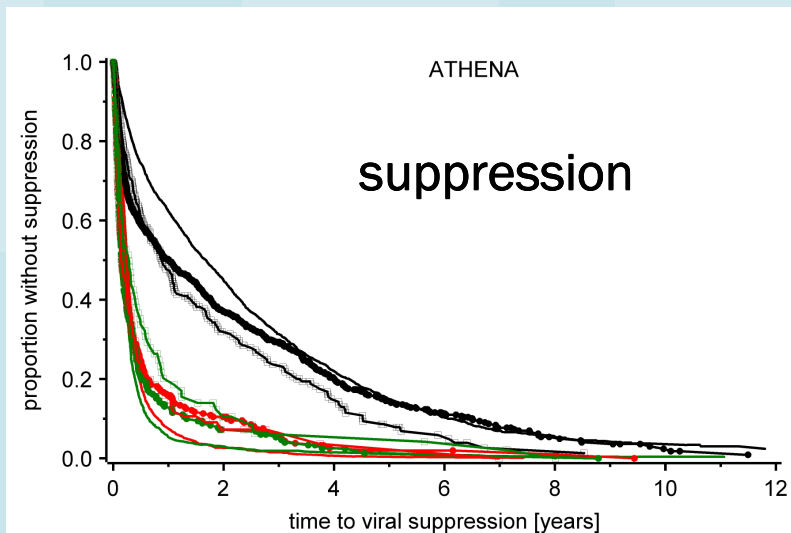
Christophe Fraser

Transmission model I

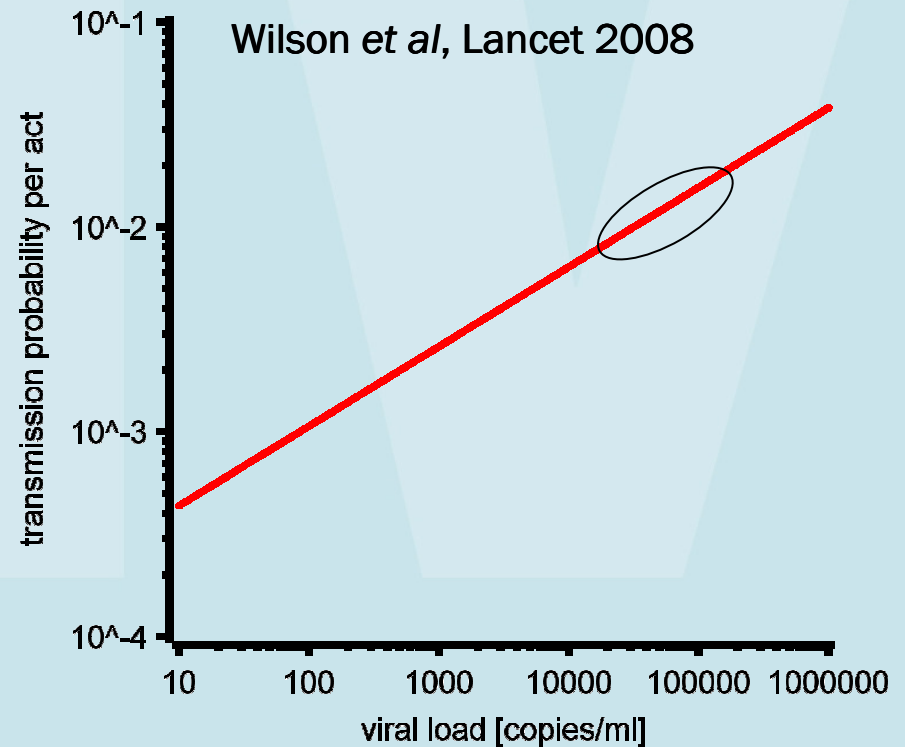
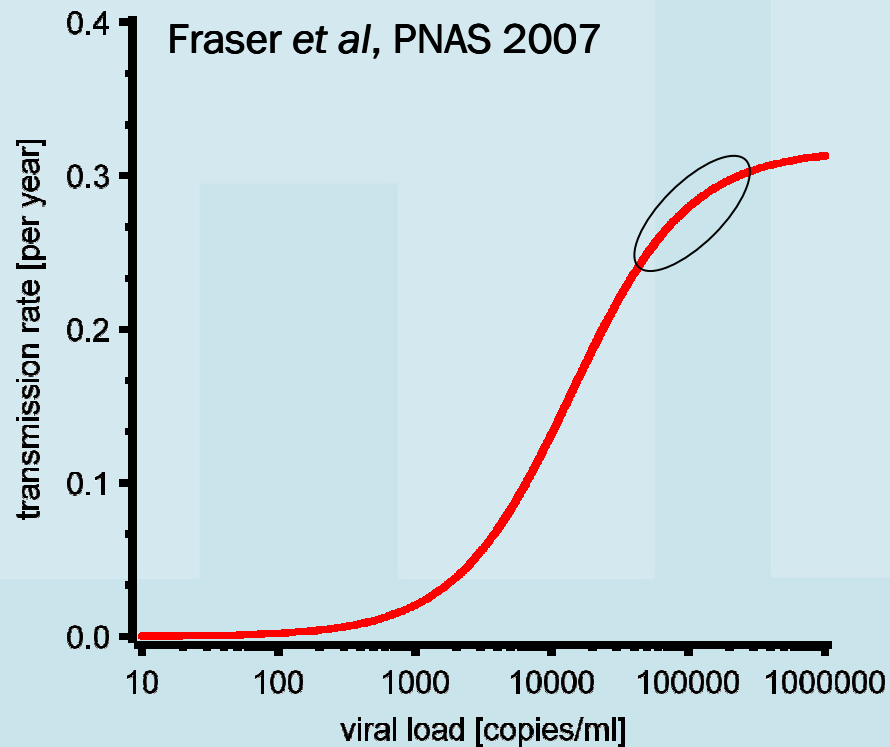


Suppression and rebound

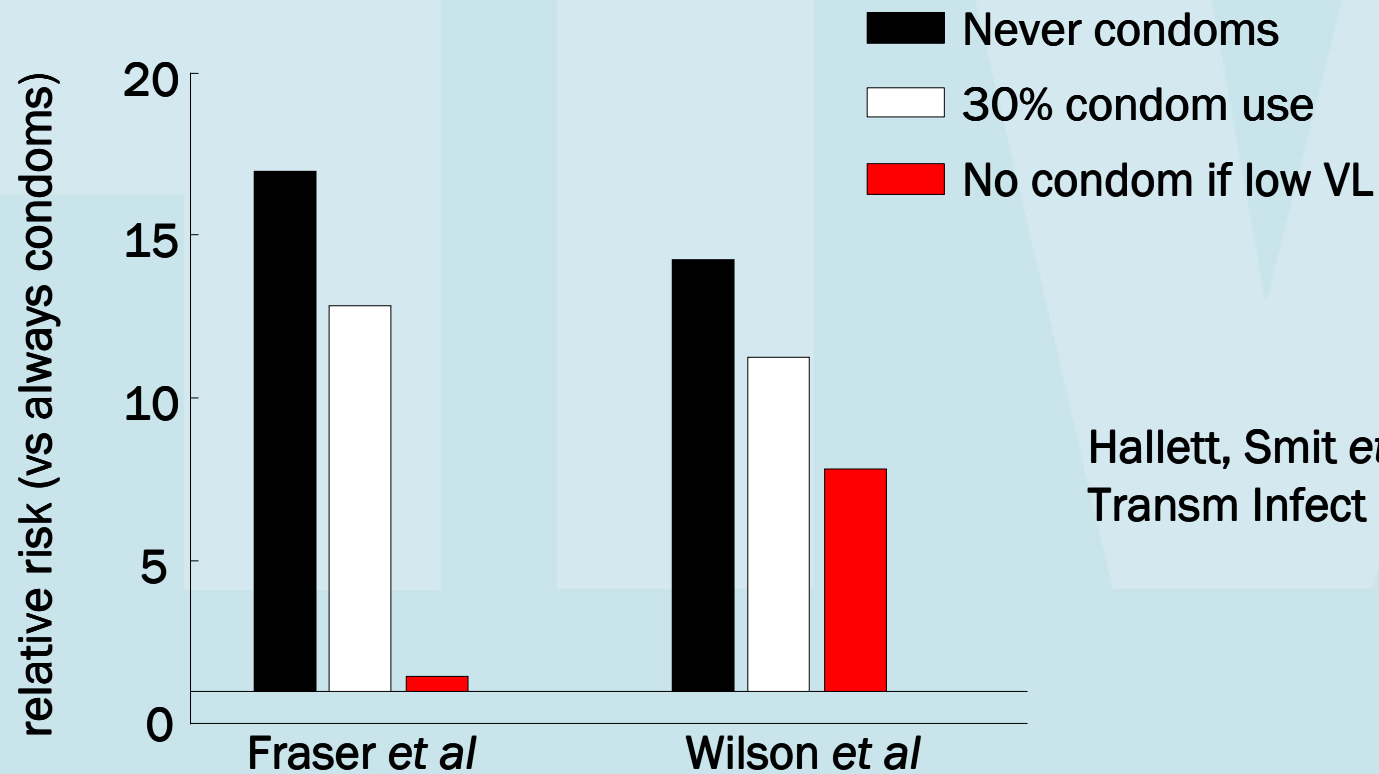
- Rates of viral suppression and rebound estimated with parametric survival and cure models.
- Suppression: RNA <1000 copies/ml
Rebound: RNA >1000 copies/ml



Viral load and transmission



Viral load and transmission



Hallett, Smit *et al*, Sex Transm Infect 2011