

Track C: Epidemiology overview

- **Determinants of HIV transmission**
- **Current HIV progression and impact of HAART**
- **Interaction between HIV, tuberculosis and malaria**
- **Developments in epidemiological methods**
- **Good and bad news from surveillance**



Epidemiology - 'knowledge from populations'



Track C: The epidemiology team

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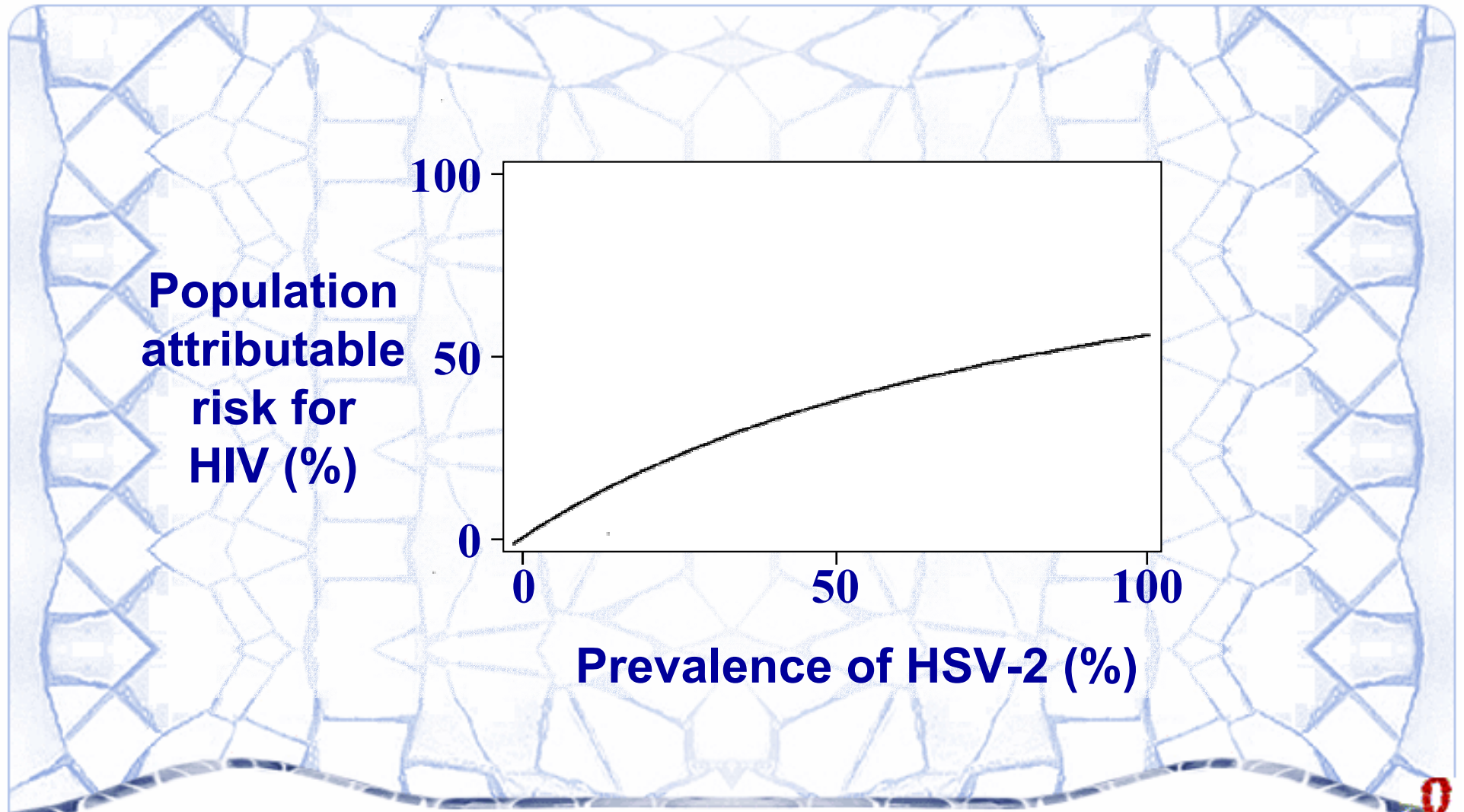
Noel Gill
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Epidemiology - people and places



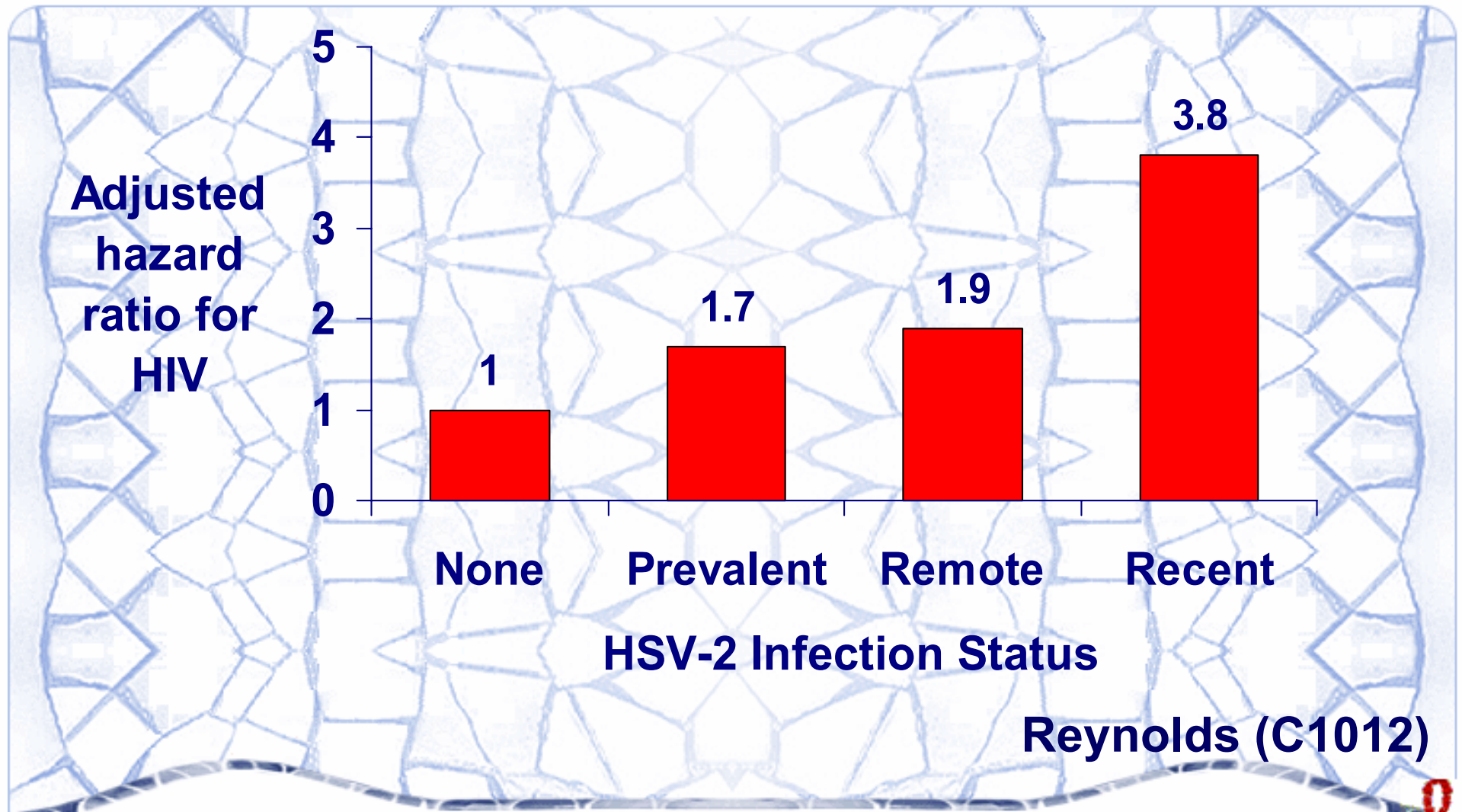
Proportion of HIV attributable to HSV-2



Meta-analysis: Wald & Link. J Infect Dis 2002



Risk of HIV-1 by time of HSV-2 infection



Non-curable STIs facilitate HIV transmission



Determinants of sexual transmission

- **Semen virus load peaks 3 weeks after infection**
- **Per act transmission may be 20 times greater at this time**
Pilcher (C1487)
- **Protective effect of circumcision in the Luo ethnic group**
Agot (C1486)



Factors raising and lowering risk



Determinants of progression

Progression of HIV-1 infection

No differences according to virus sub-types or CRFs in Cameroon & Senegal, or the UK

Bourgeois (C2143), Easterbrook (C2144)

Effectiveness of HAART

Benefits of treatment sustained through 2000 in Italy and Spain

Of those on treatment, progression is faster in drug users

Pezzotti (C1444), Perez-Hoyos (C4737)



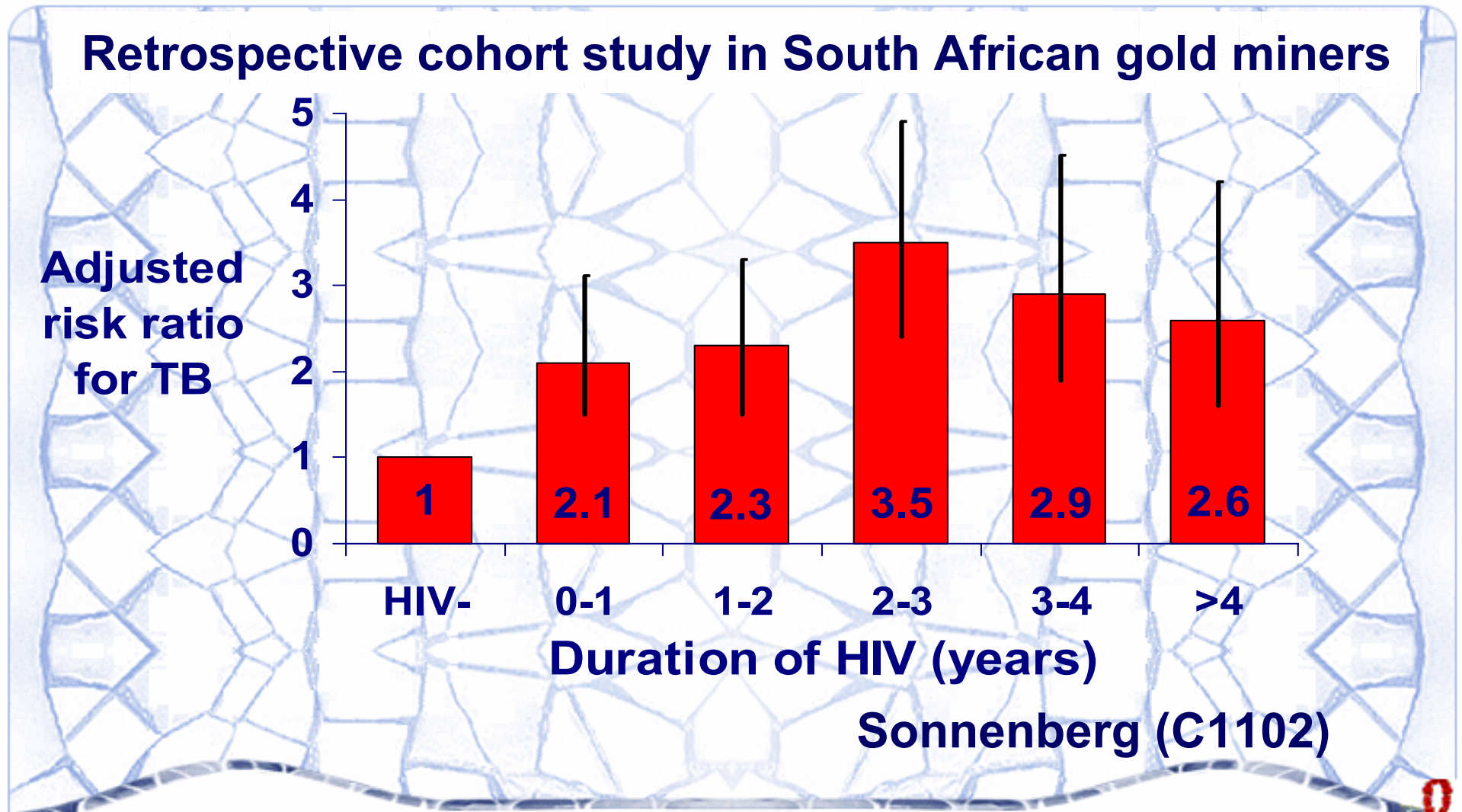
The population effectiveness of HAART is persisting



Interaction with tuberculosis



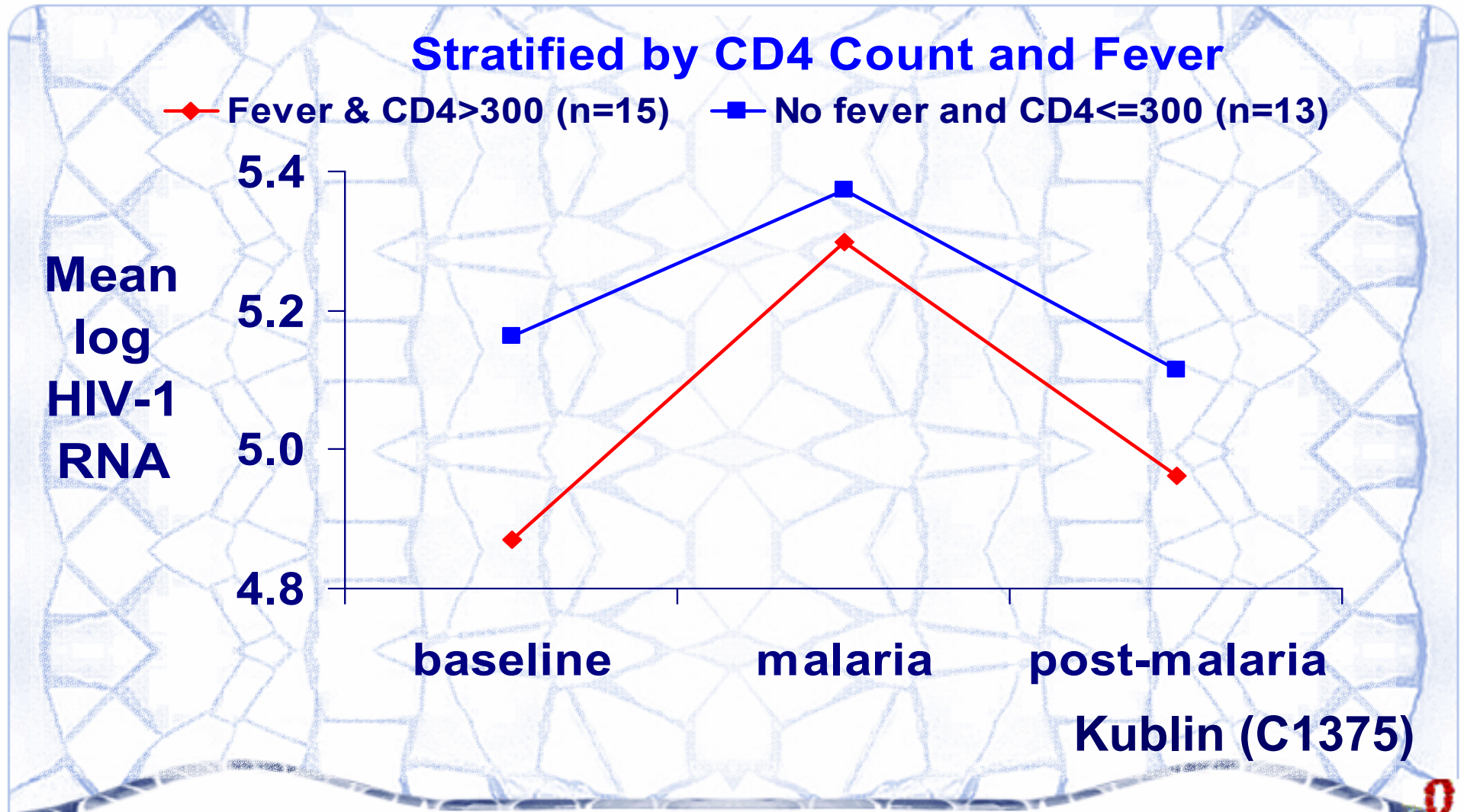
Incidence of TB by duration of HIV



Upward revision of tuberculosis estimates



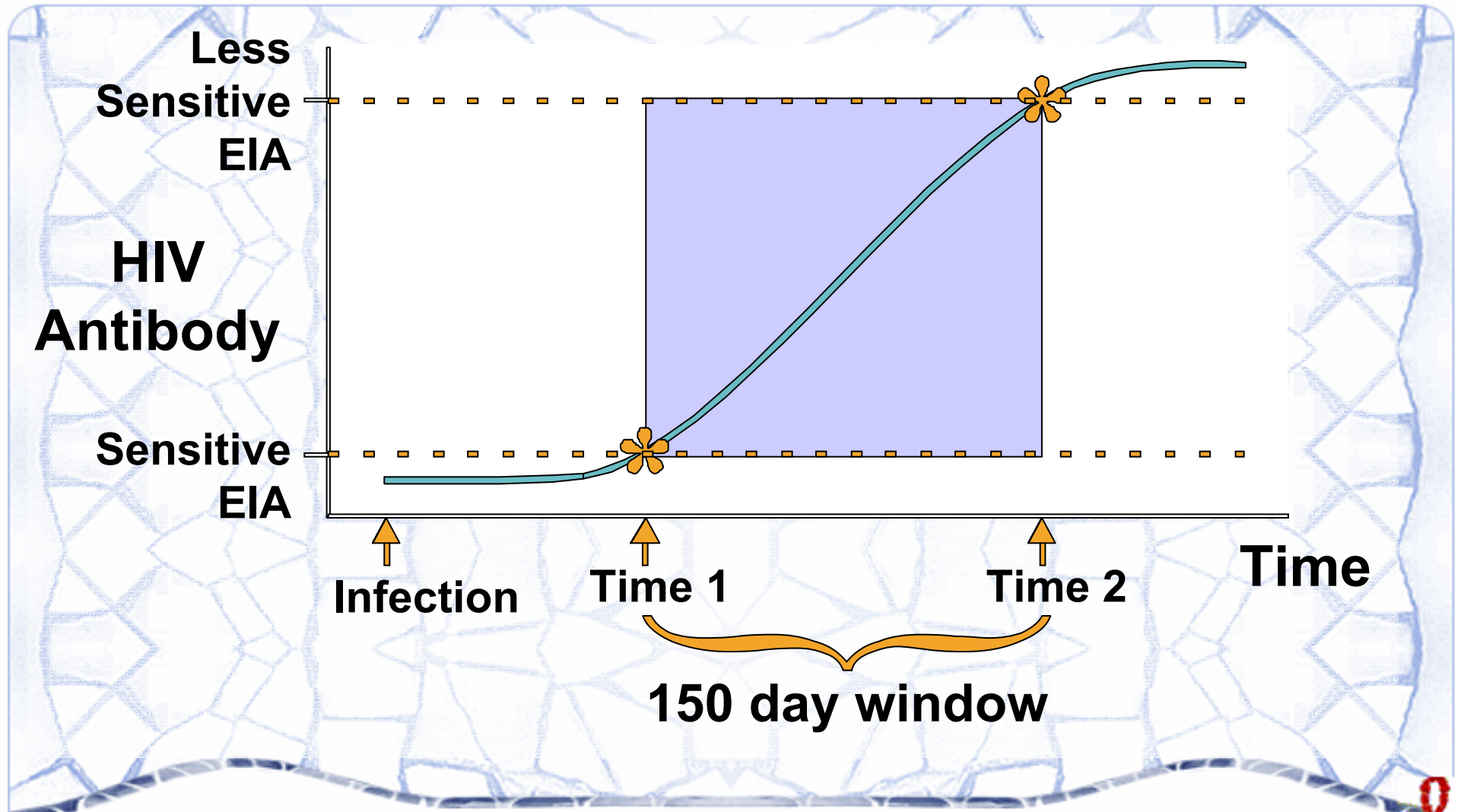
Malaria parasitaemia and HIV virus load



Large interaction between malaria and HIV



Single specimen assays for recent HIV infection



Measurement of HIV incidence



Single specimen measures of HIV incidence

- **Female sex workers in Honduras - 2.5% p.a.**
Cleghorn (C3502)
- **Anonymous HIV tests in Brazil - 3% p.a.**
De Freitas Oliveira (C11053)
- **Homosexual men in Amsterdam - increase to
between 4% and 5% p.a.**
Dukers (C1144)
- **Stored specimens from Bangkok drug users
- 17% p.a. in 1996**
Hu (C4866)



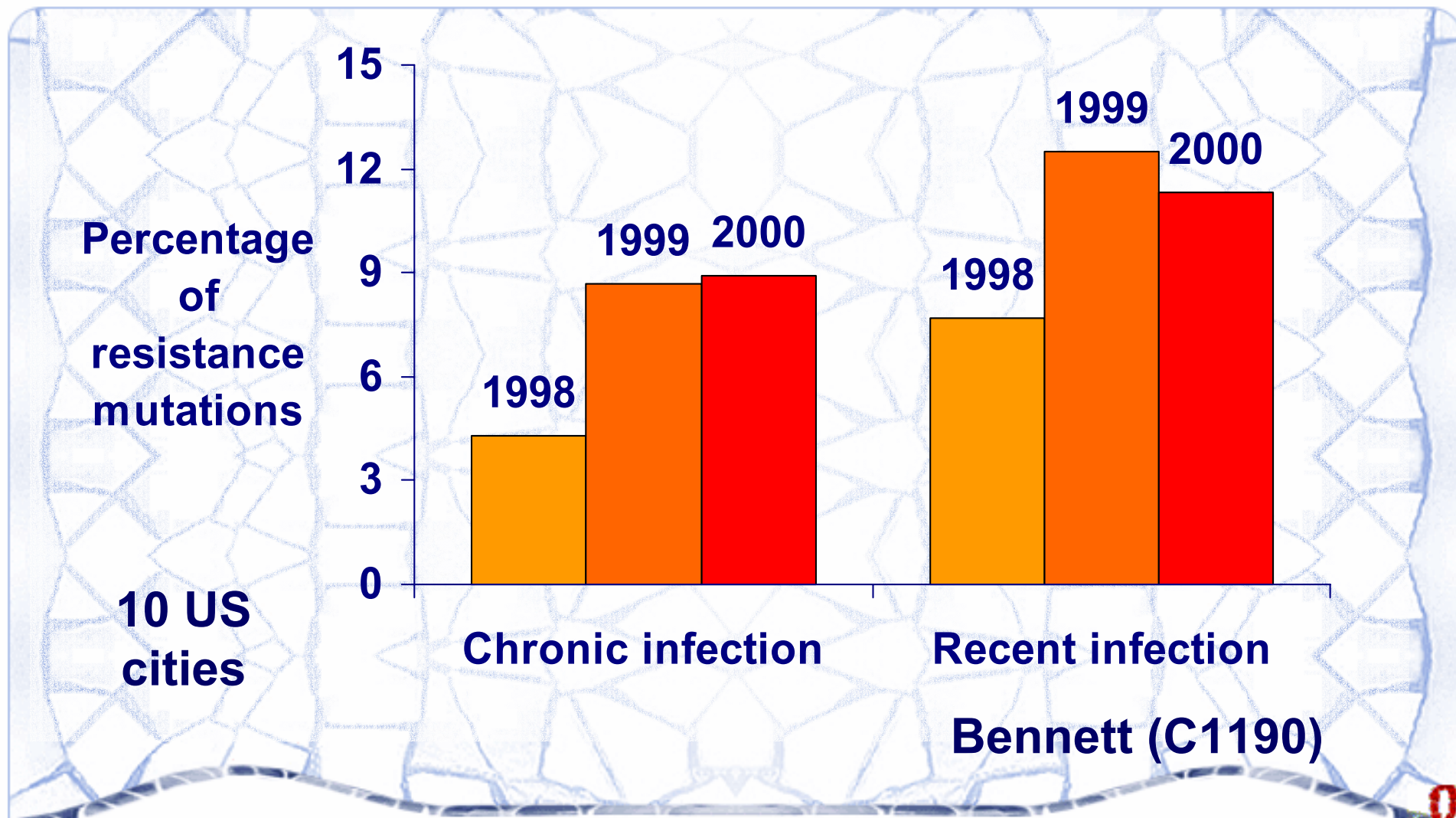
Applications of the detuned and other assay methods



Resistance and sub-type surveillance



Resistance in newly diagnosed HIV infections



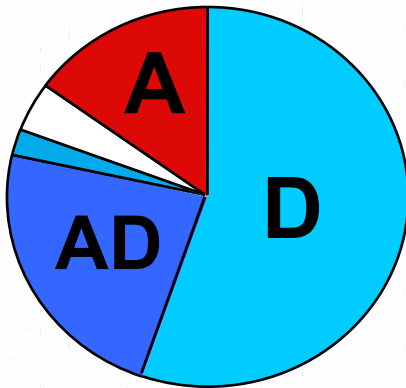
Surveillance of virus resistance
HIV Res-Net (WHO/IAS)



Surveillance of virus subtypes

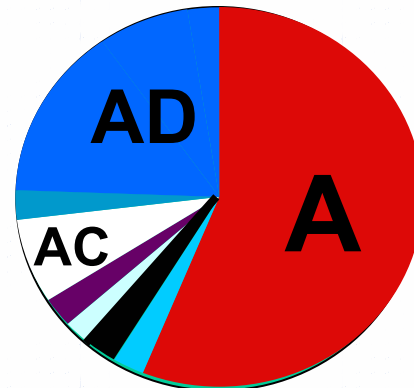
UGANDA

n = 47



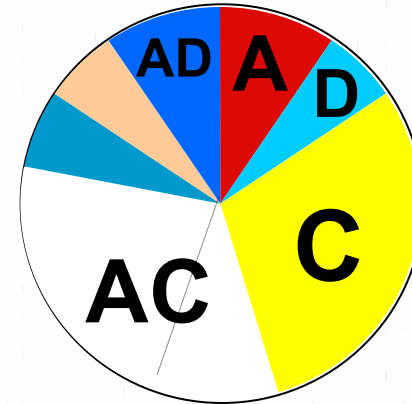
KENYA

n = 41

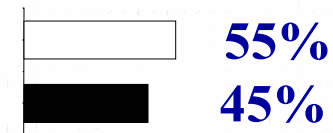
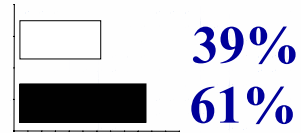


TANZANIA

n = 64



**Recombinant
Subtypes**

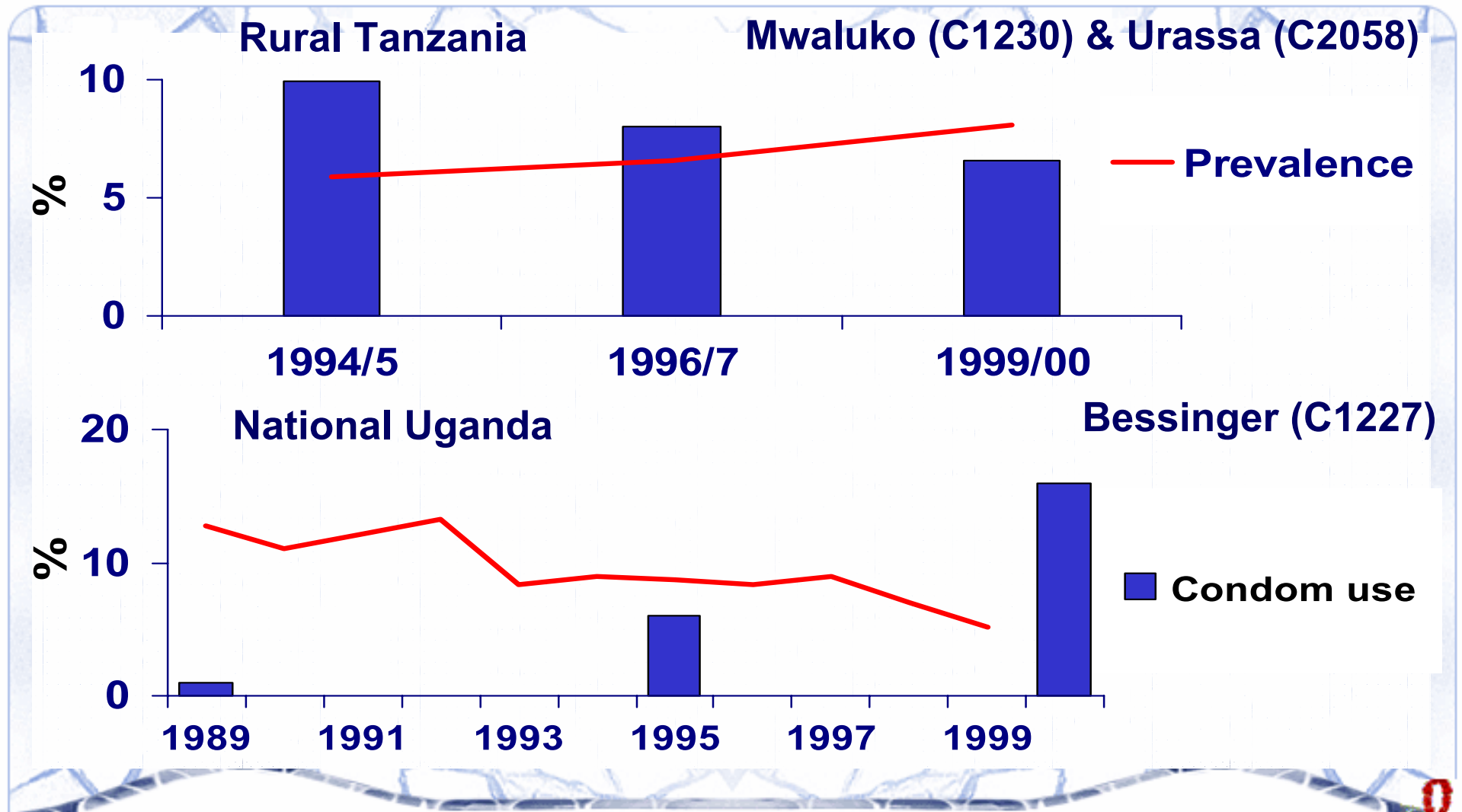


McCutcheon (C1193)

Trial similar vaccines in different countries



Behavioural surveillance



Good and bad news from Africa



Surveillance of prevalence and incidence

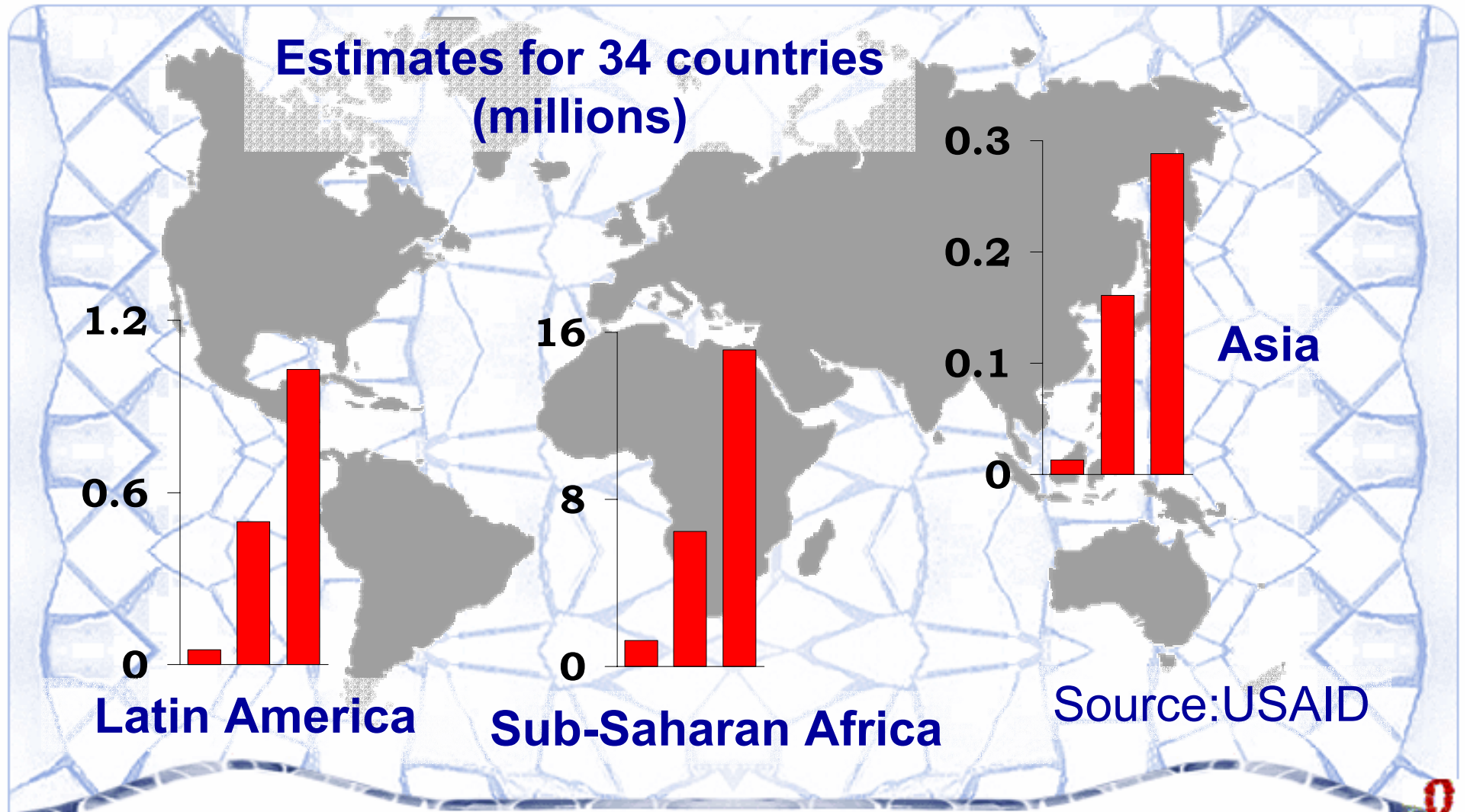
- **Intensification of the epidemic in Botswana**
Masupu (C6070)
- **Higher rural prevalence than expected in Kenya**
Marum (C2056)
- **Increasing HIV diagnosis rate in Lagos**
Badaru (C3325)
- **Steady diffusion of HIV to high risk groups throughout China**
Qu (C6072)



The mounting impact



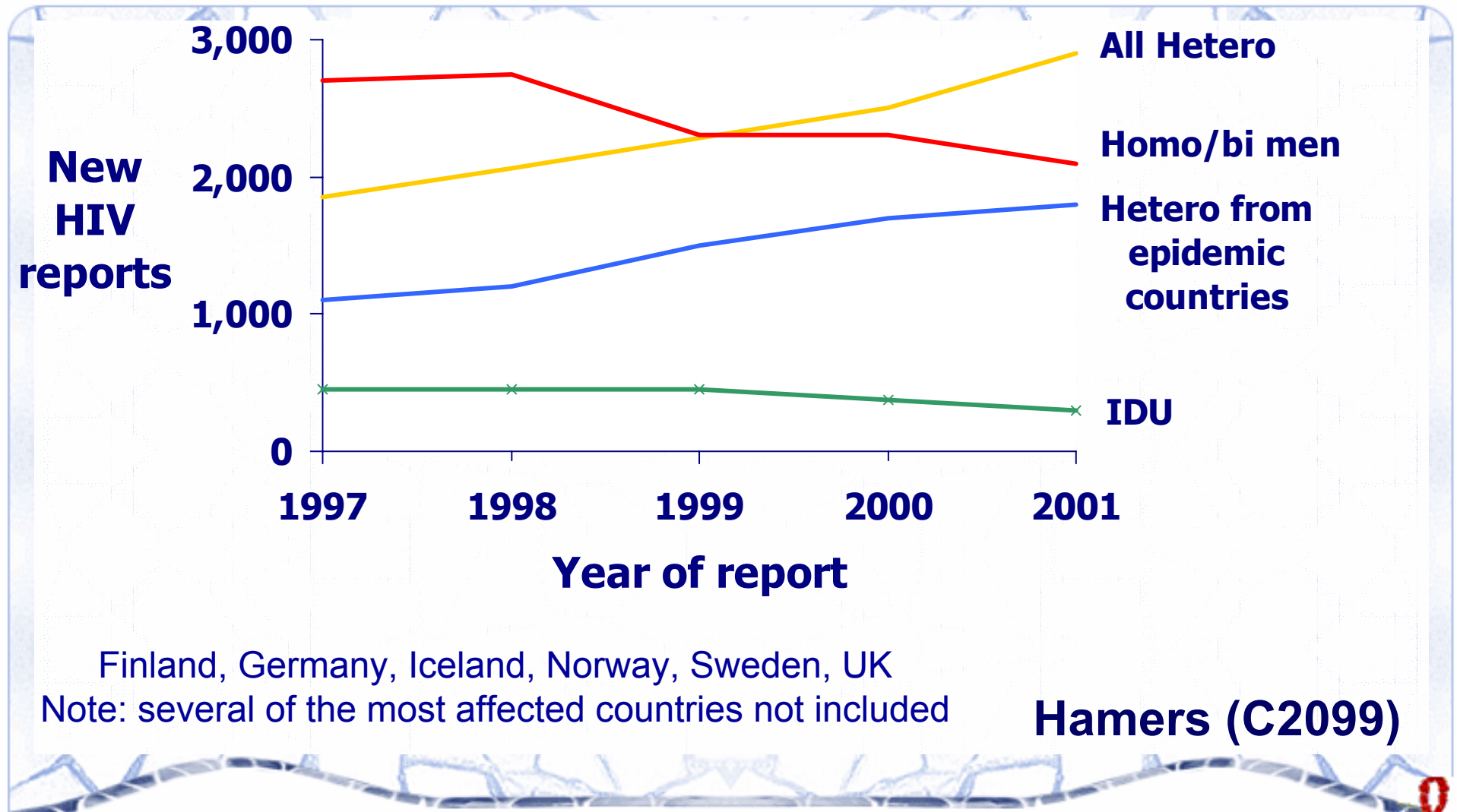
Orphan estimates 1990, 2000 & 2010



Orphans are at high risk of premature death



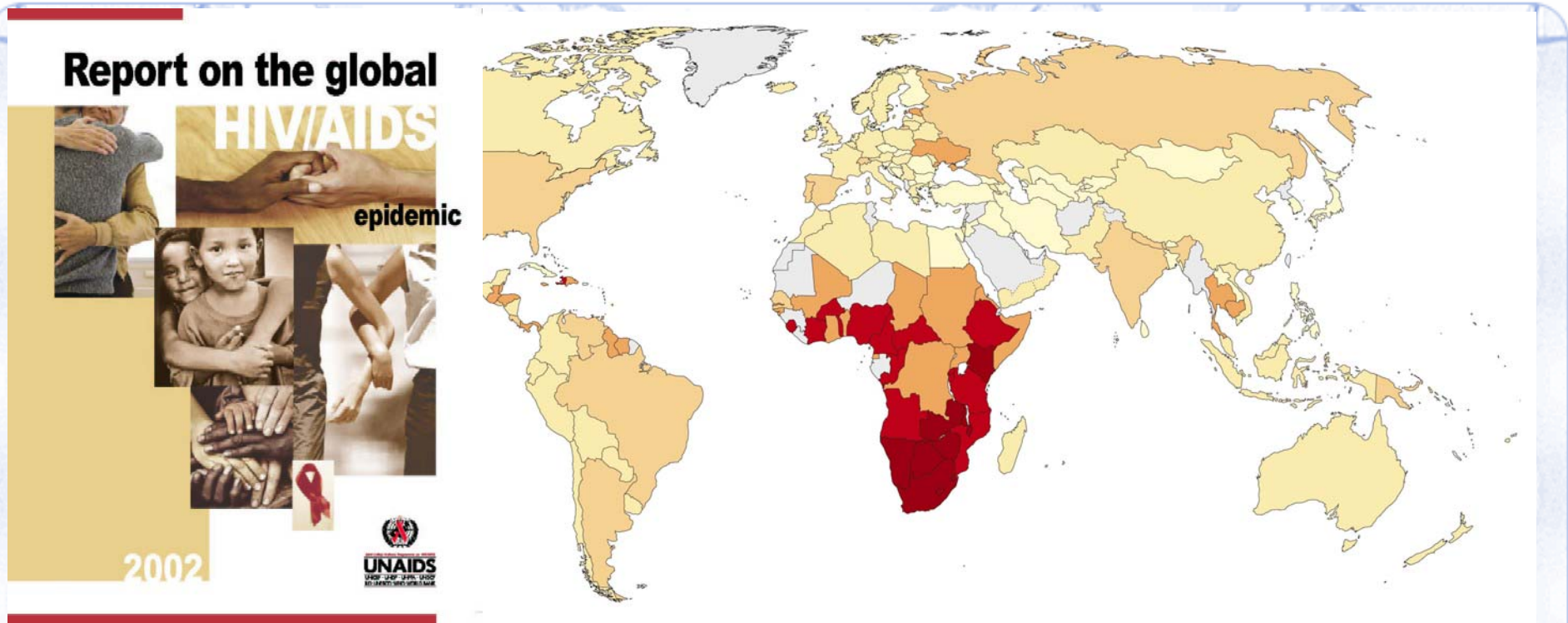
New HIV reports in 7 West European Nations



Disproportionate effect of HIV on mobile and migrant people



UNAIDS: Report on the global epidemic



Surveillance information can compel action



Knowledge and **commitment** for action

