25th January 2018 Waterloo
Third Age Learning

HIV and AIDS in Africa: A Forgotten challenge

Dr. Alan Whiteside OBE

Outline

The Communicable Disease Context

Where AIDS came from and what we did

Location

- Transmission probability (and hence people)
- Geography

Timing and treatment

Impact: social, economic and demographic

Responses

- Donors
- Governments

Conclusion

Communicable Diseases

Definition: an infectious **disease** transmissible (from person to person) by direct contact with an affected individual or the individual's discharges or by indirect means (a vector).

Droplet contact: the respiratory route, the resultant infection is airborne disease.
Fecal-oral transmission: foodstuffs or water become contaminated (people not washing their hands or untreated sewage in drinking water). Or door handles!
Sexual transmission: sexually transmitted disease STD or STI
Oral transmission: direct oral contact (kissing) indirect contact (sharing a glass)
Direct contact: athlete's foot, and warts
Vehicle Transmission: transmission by an inanimate reservoir (food, water, soil).
Vertical transmission: directly from the mother to an embryo, foetus or baby during pregnancy or childbirth.
Iatrogenic transmission: due to medical procedures.
Vector-borne transmission: transmitted by a vector, an organism that does not cause disease itself but transmits infection by conveying pathogens from one host to another.

Prevention of Communicable Diseases (the science)

Note disease can only be communicated if it is present. The best way to avoid Drug Resistant TB is to not have TB in the population

Droplet contact: masks, tissues, atmosphere control also known as the respiratory route, and the resultant infection can be termed airborne disease.
Faecal-oral transmission: hygiene, washing hands, sewage treatment
Sexual transmission: ABC and other methods - more later in the programme
Oral transmission: direct oral contact (kissing) indirect contact (sharing a glass)
Direct contact: athlete's foot, and warts, cover affected parts
Vehicle Transmission: transmission by food, water, soil. Avoid contact
Vertical transmission: directly from mother during pregnancy or childbirth. Various interventions.
Iatrogenic transmission: due to medical procedures. Medical safety.
Vector-borne transmission: vector control.
Zoonotic transmission: various interventions esp tracking and control.

Prevention of Communicable Diseases (social science)

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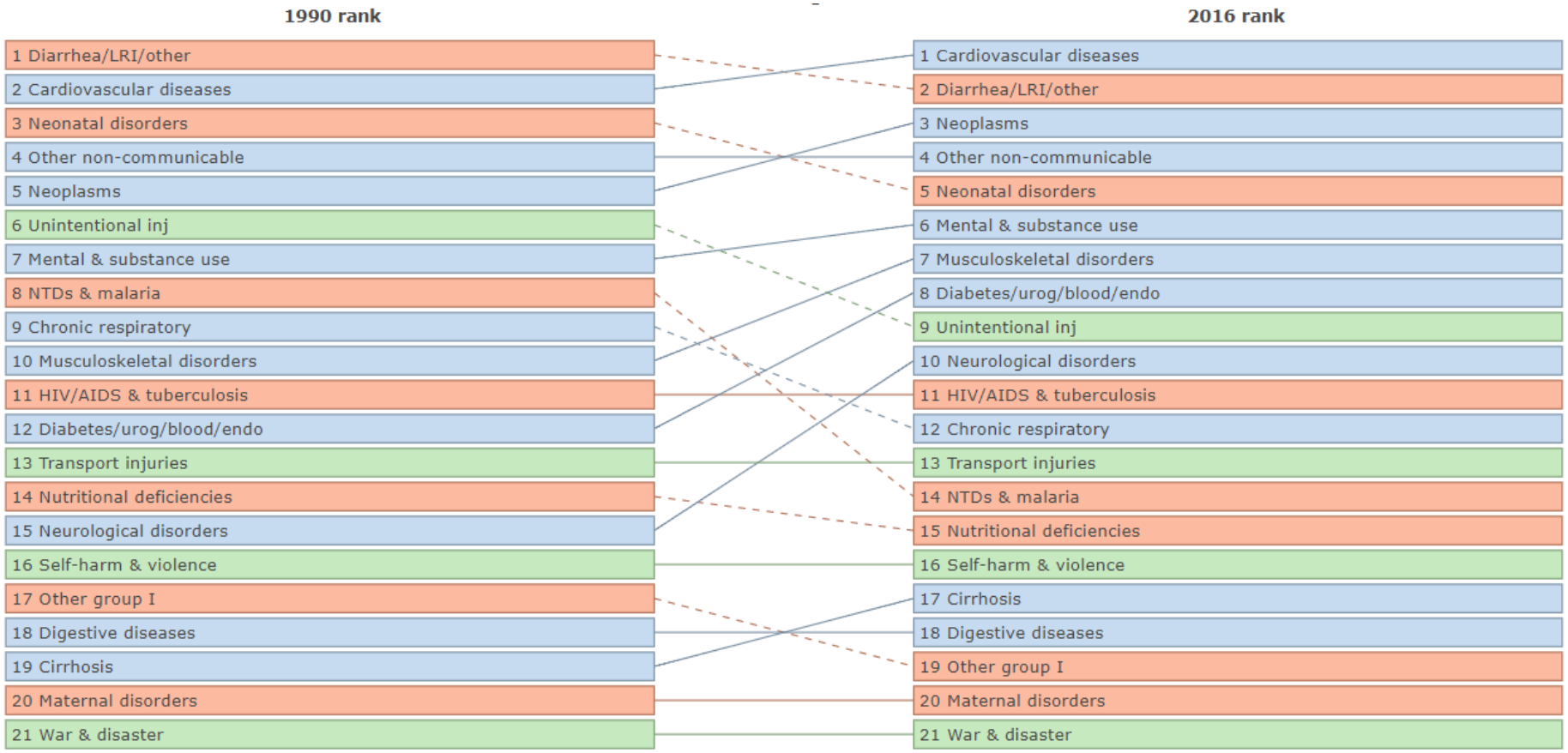
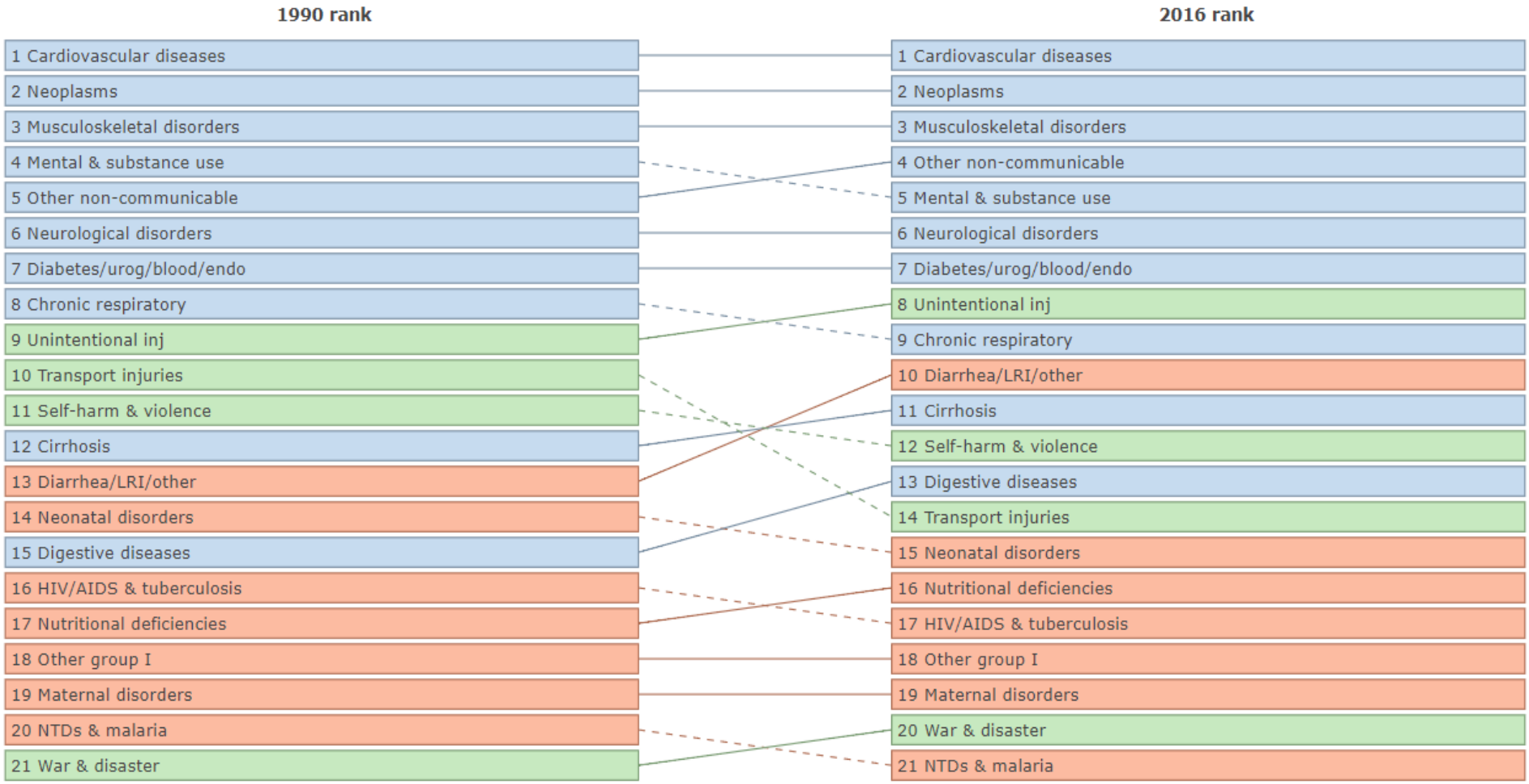
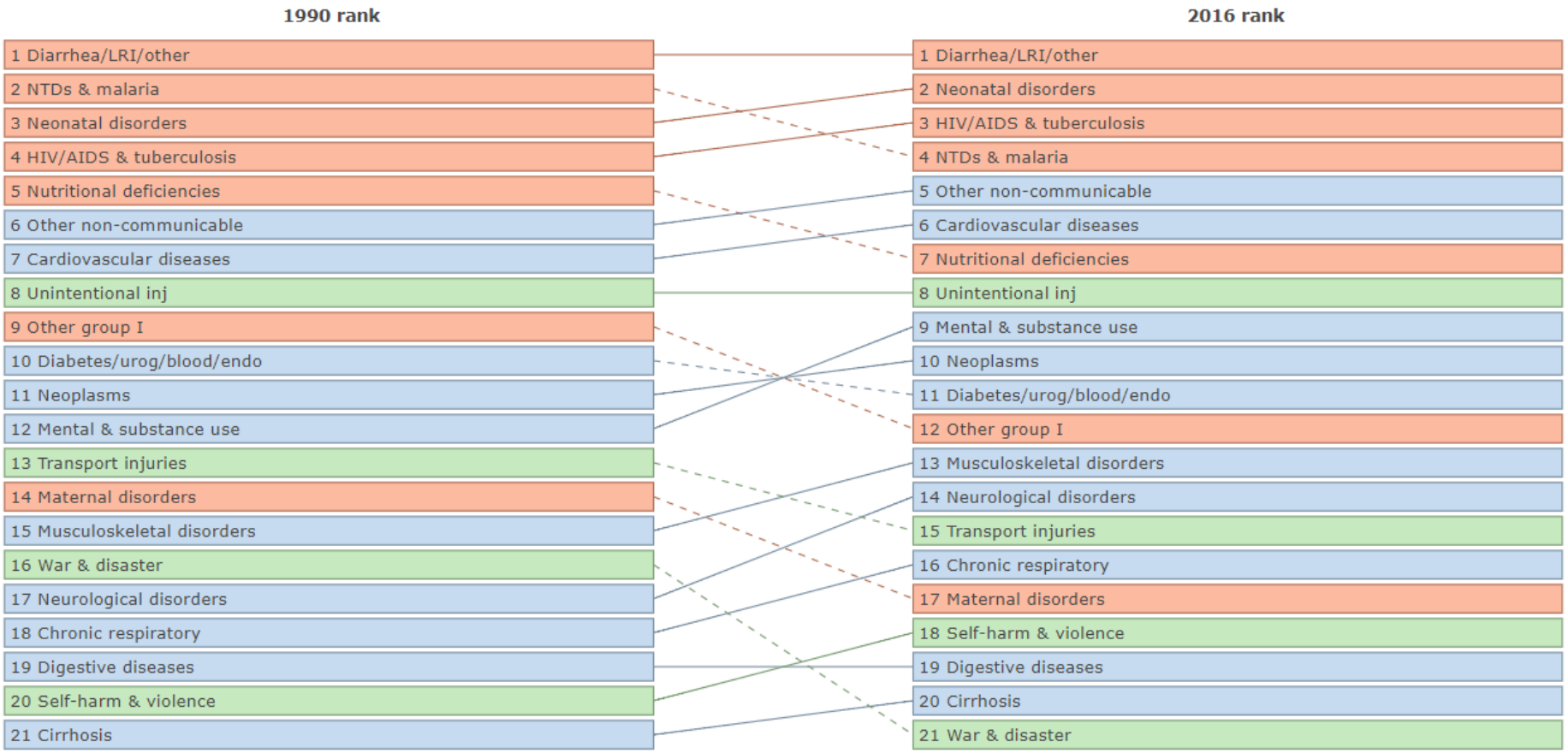
Burden of Disease, Global



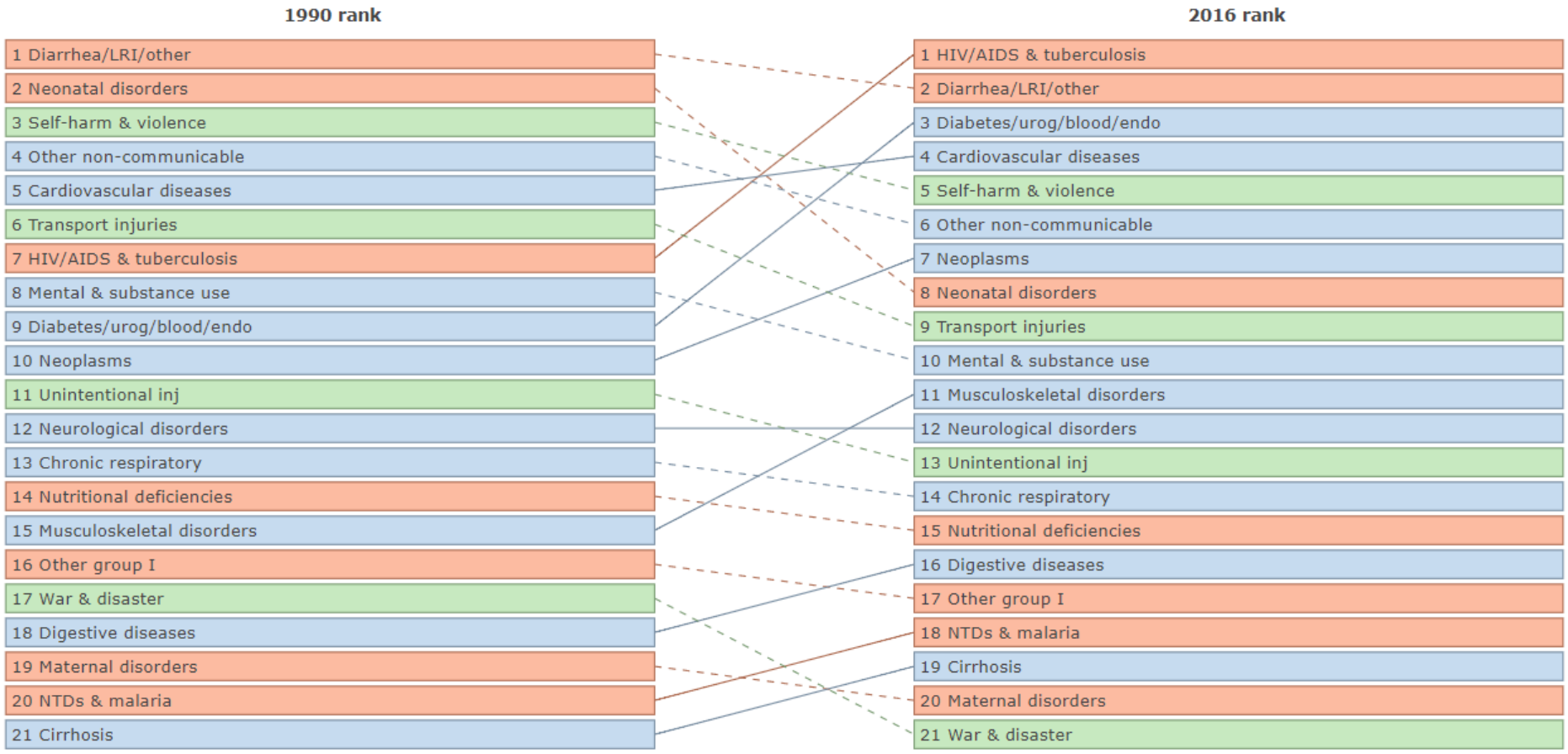
Burden of Disease, Germany



Burden of Disease, Sub-Saharan Africa



Burden of Disease, South Africa



The Environment

1940s Antibiotics

1955 Polio vaccine

1964 Measles vaccine

1967 Heart transplant

1967 British Sexual Offences Act, decriminalizing homosexual relations for men age 21+; 18 in 1994 and 16 in 2001

1969 Stonewall Inn riots New York City – birth of gay rights

1970's rubella, chicken pox, pneumonia, and meningitis vaccines

1978 first test tube baby

1980 the eradication of smallpox

1981 cases of acute immune failure in gay men, blood transfusion recipients, haemophiliacs primarily in New York and San Francisco MMWR

HIV & AIDS Key Dates and Points

HIV identified 1981 pathogen discovered 1983

Cases recorded in Central Africa 1985

HIV is deadly and for life!

ART 1996 but $10000+

2000 Durban International AIDS Society Conference

2003 Global Fund and PEPFAR, mass treatment

2009 Denialism over

2015 end of MDGs which had one on HIV

SDGs from 2016 to 2030 and AIDS is just one target

Are HIV and AIDS Unique?

- Biologic
  - Retrovirus
  - Time frame
  - Numbers
- Transmission mechanisms
  - Sex, especially where there is vulnerability
  - Mother to child
  - Blood and blood products
- Location
  - By country (eastern and southern Africa)
  - By population (IDU, MSM, Sex workers)

Transmission is

Men to women

Women to men

Men to men

Women to children

Contaminated blood and blood products

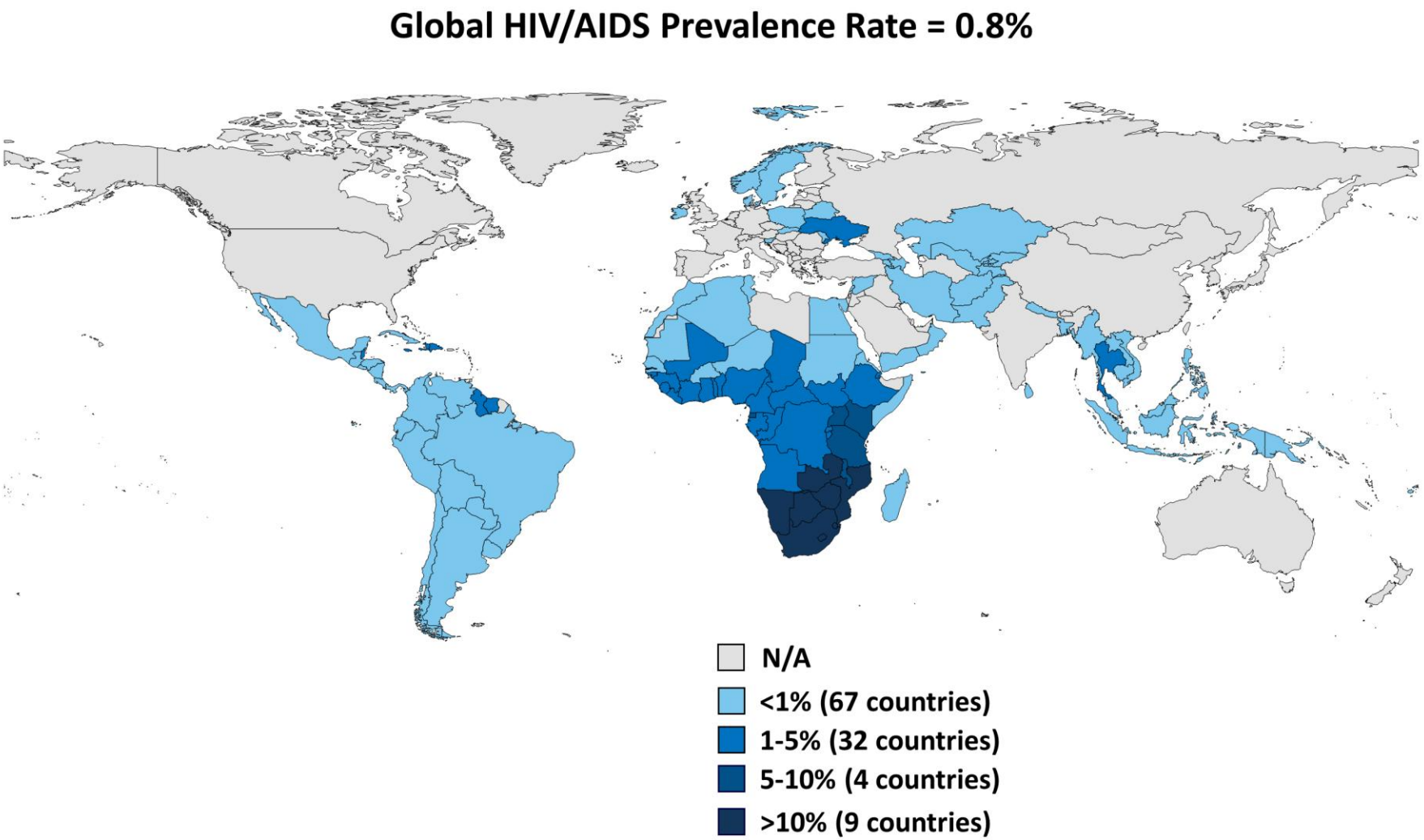
Injecting drug equipment

Nosocomial

Table 3 - Routes of Exposure and Risk of Infection

Type of Exposure	Risk per 10 000 exposures
Sexual Transmission	
Receptive penile-vaginal intercourse (female risk)	8
Insertive penile-vaginal intercourse (male risk)	4
Insertive anal intercourse (man's risk)	11
Receptive anal intercourse (male and female risk)	138
Fellatio	low
Parenteral Transmission	
Blood transfusion	9250
Needle-sharing	63
Needle stick	23
Transmission from Mother to Infant	
Without treatment	1:4
With treatment	less than 1:10

Adult HIV Prevalence Rate, 2014

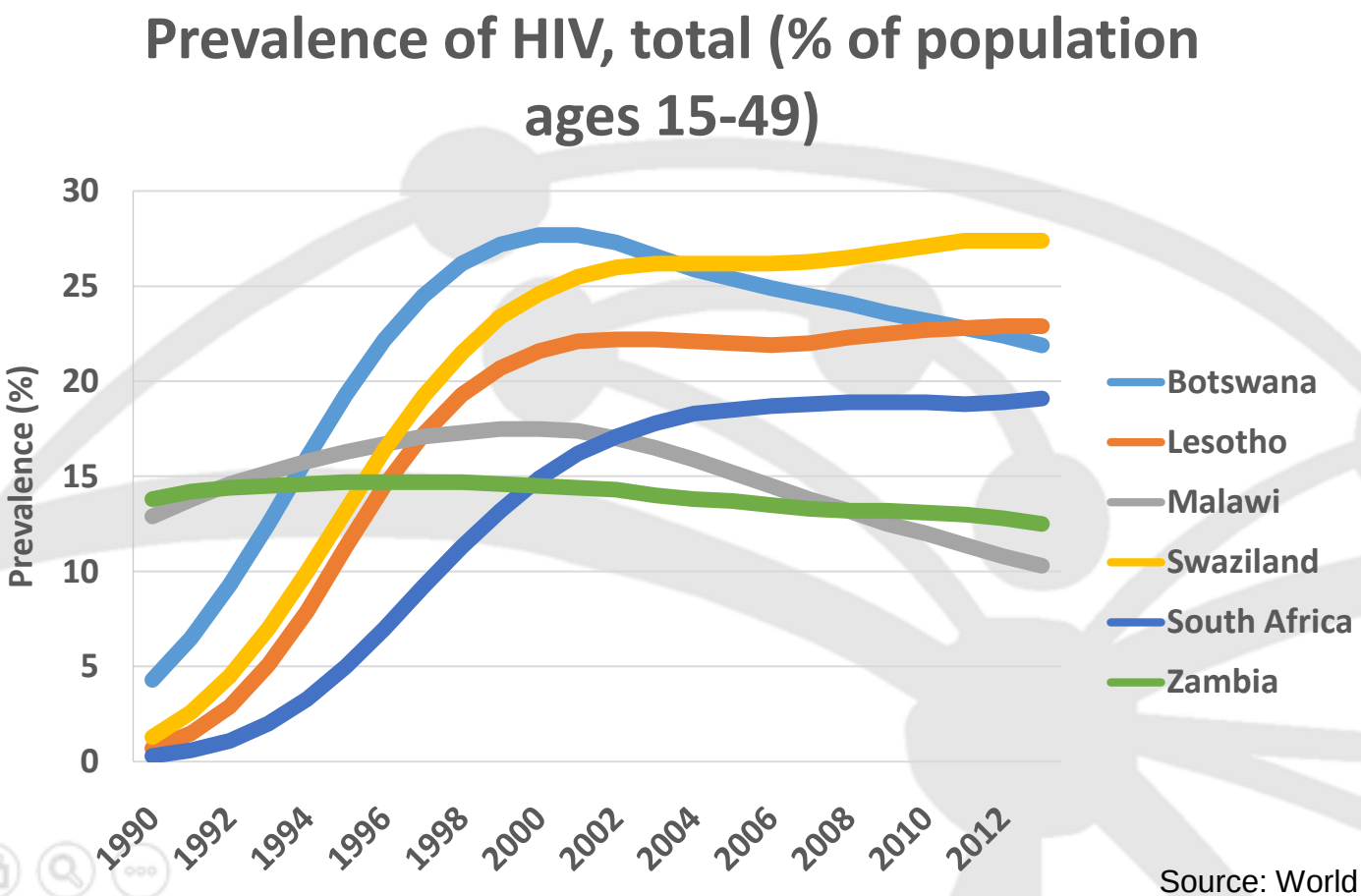


NOTES: Data are estimates. Prevalence rates include adults ages 15-49.
SOURCE: Kaiser Family Foundation, based on UNAIDS, How AIDS Changed Everything; 2015.

Key Features of the Epidemic Four epidemiological scenarios:

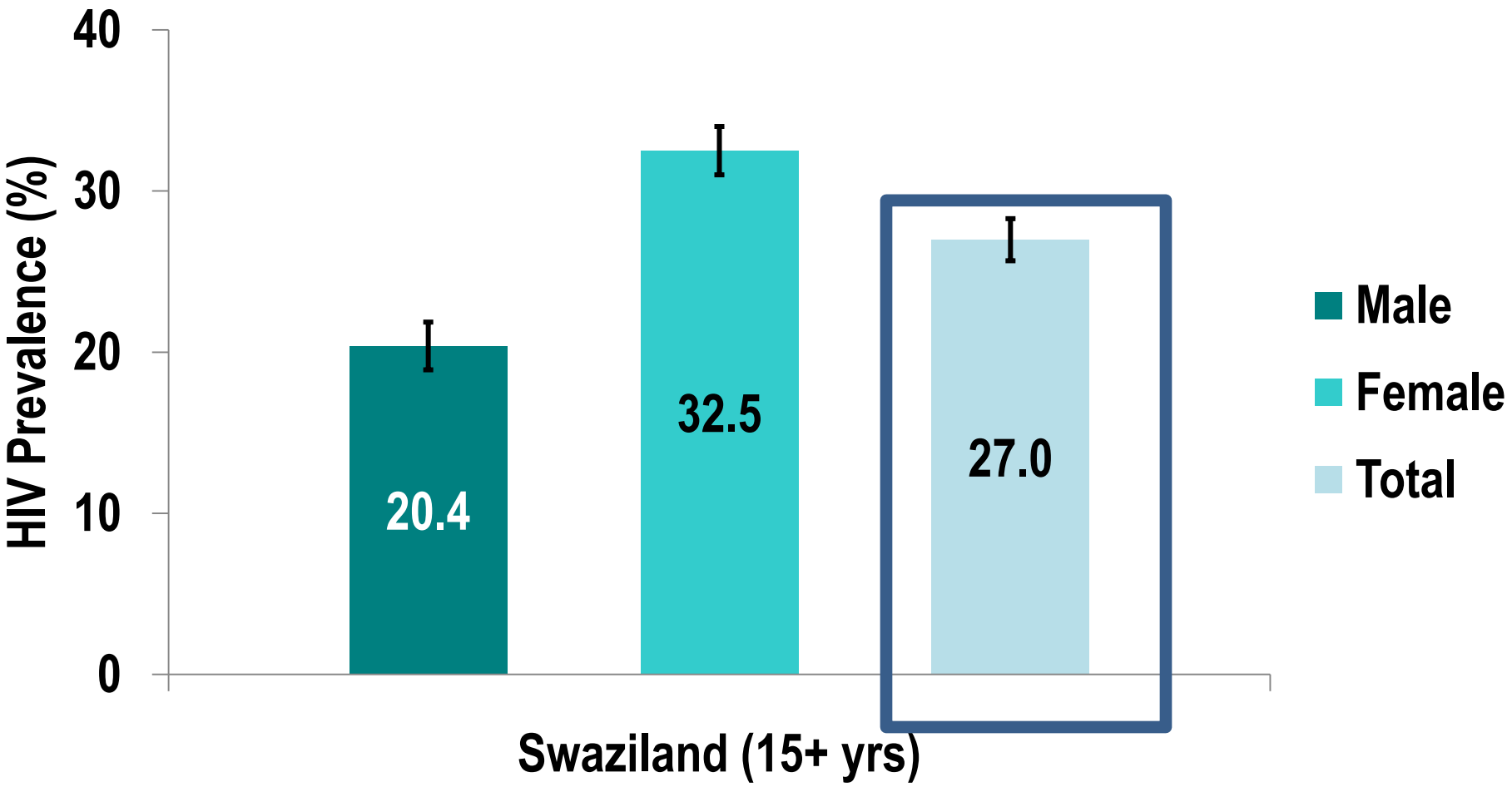
- Low-level: HIV not spread to significant levels in any sub-population, networks of risk diffuse. STIs and vulnerable populations monitored.
- Concentrated: prevalence high enough in sub-pops: MSM, IDUs, FSW to maintain the epidemic, virus not circulating in general population.
- Generalised: HIV prevalence between 1–5% in pregnant women. Enough HIV in general pop for sexual networking to drive epidemic.
- Hyper-endemic: HIV established in general population above 15% in adults: extensive heterosexual multiple concurrent partner relations with low and inconsistent condom use. All sexually active persons are at risk.
- There are no instances of countries being 'promoted up' from categories, some have been 'relegated down'.

Exceptional Epidemics: Hyper-endemic Countries

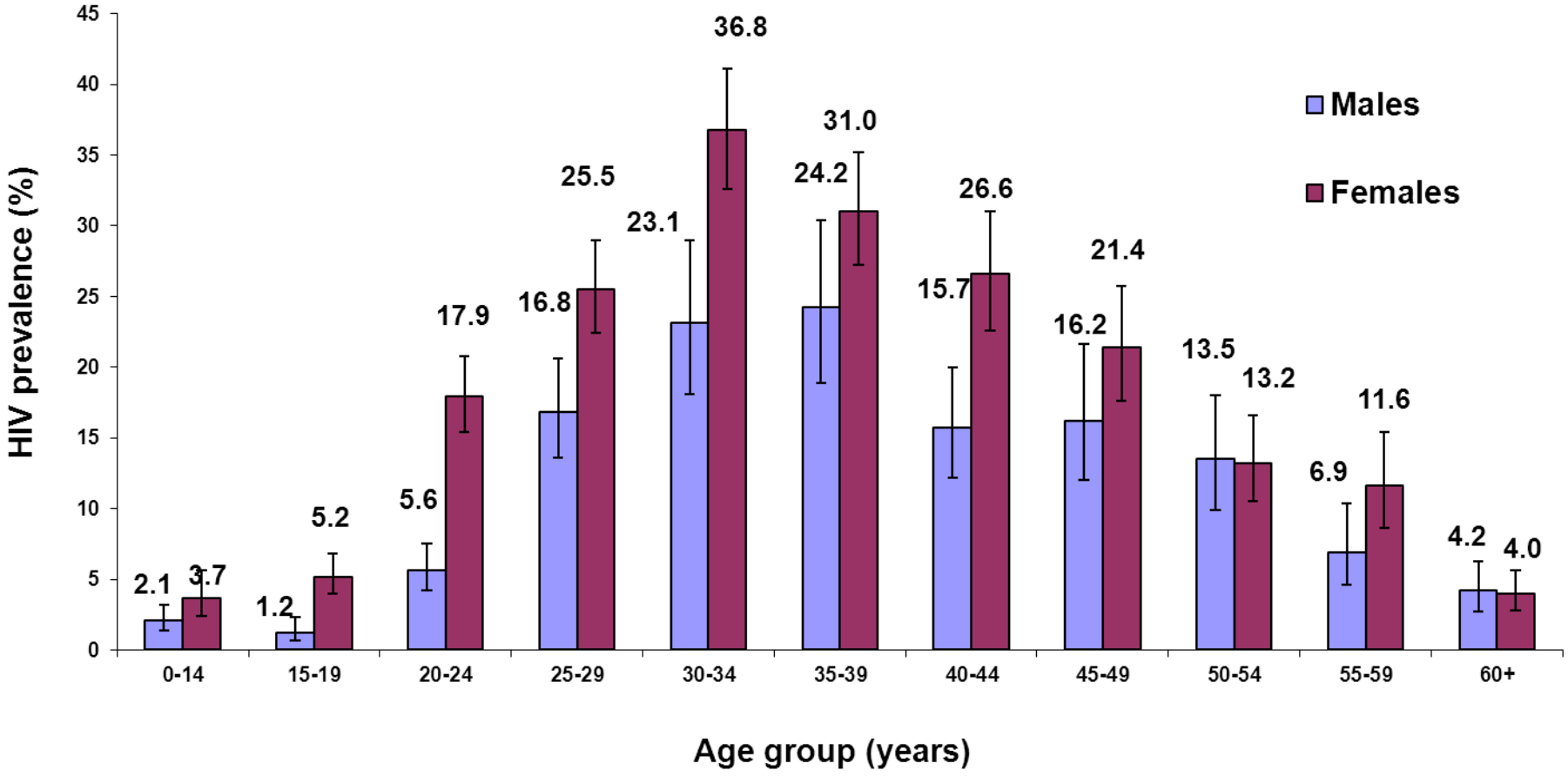


Source: World

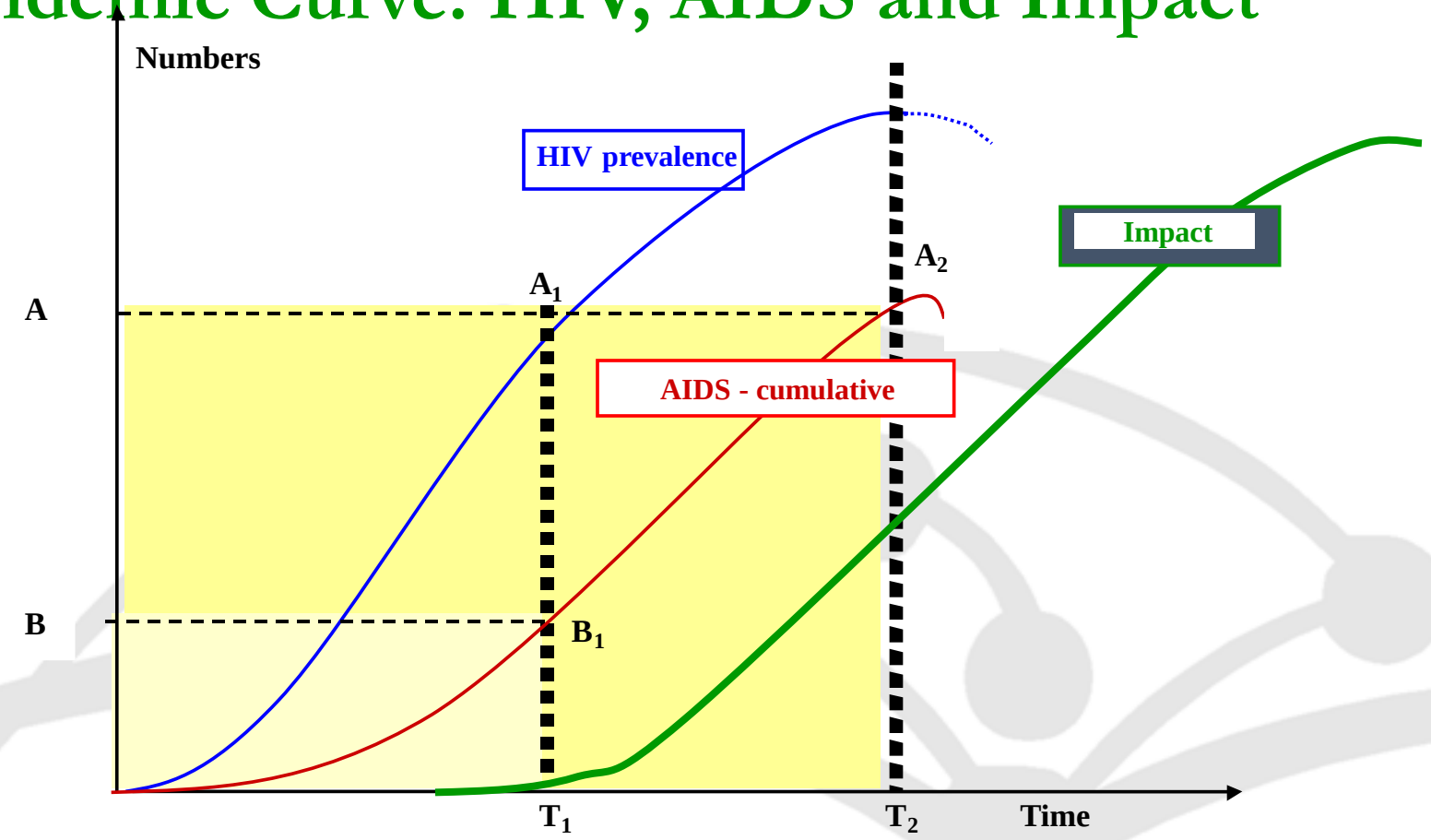
SHIMS 2, 2016 HIV Prevalence by Sex



HIV prevalence by age and sex, South Africa, 2012



Epidemic Curve: HIV, AIDS and Impact



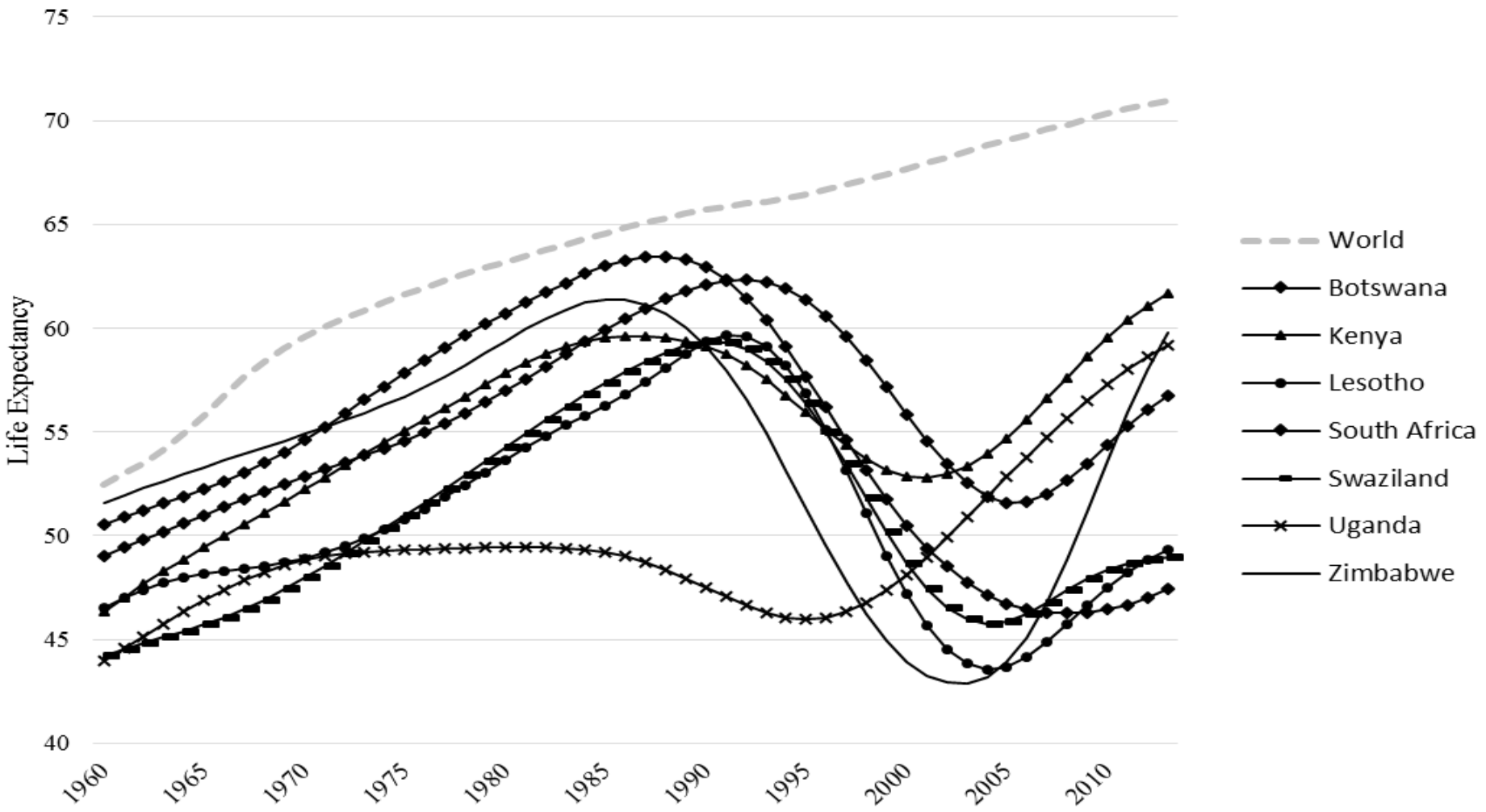
What about the impact?

Demographic

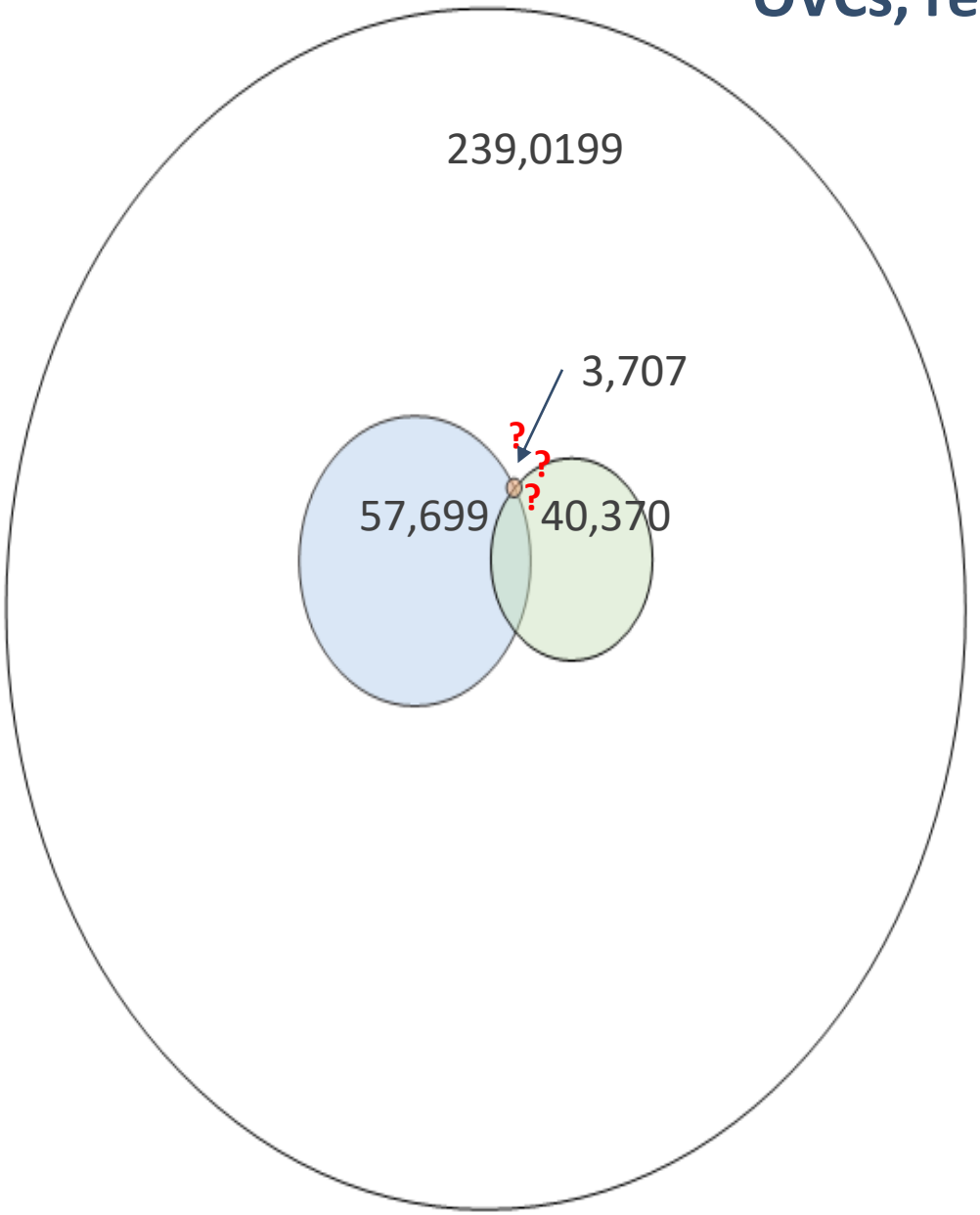
Economic

Social

Changing life expectancy AIDS



Overlap of Primary School Children: OVCs, repeaters & dropouts (2013)



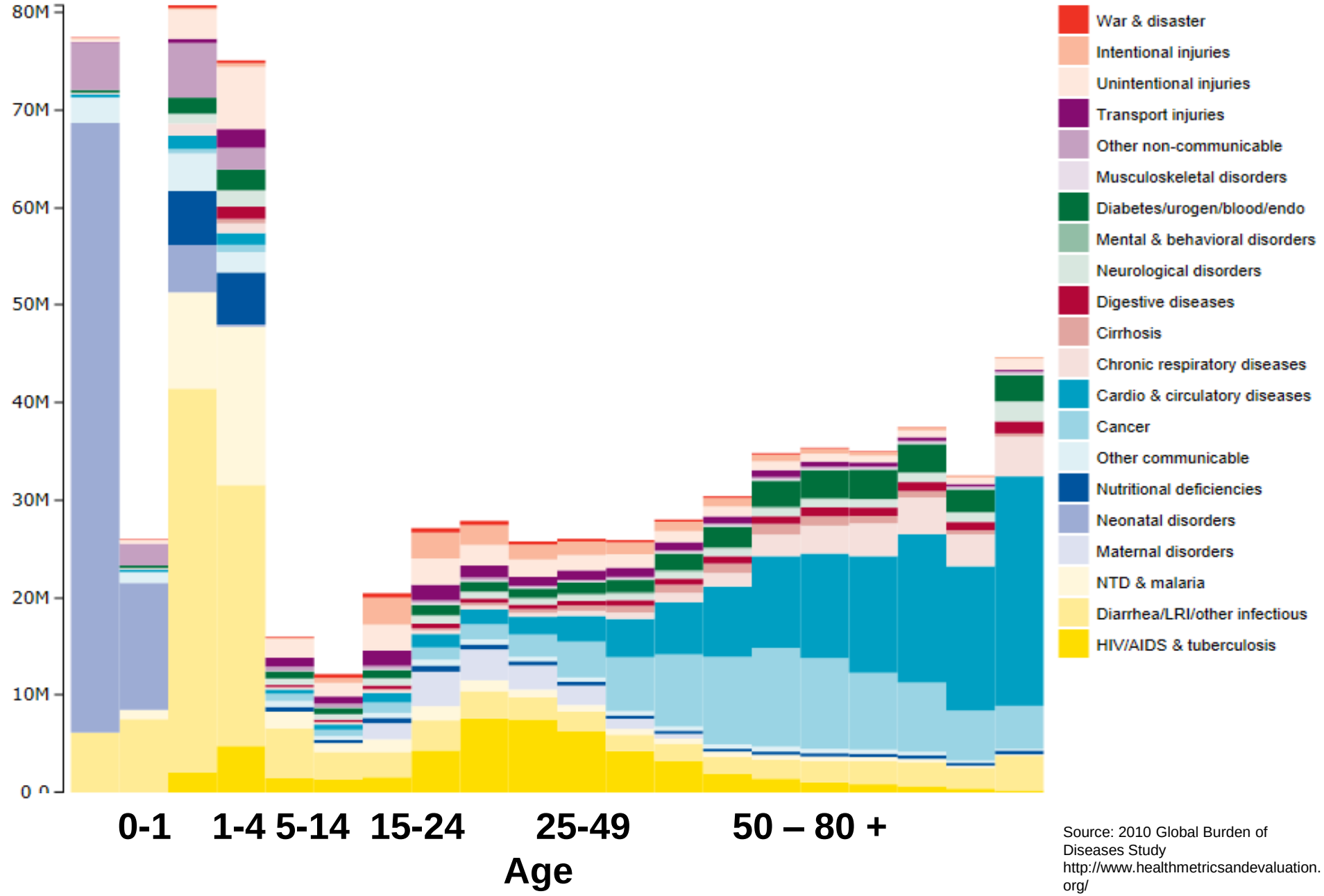
Total Primary School Enrollment

OVCs

Repeaters

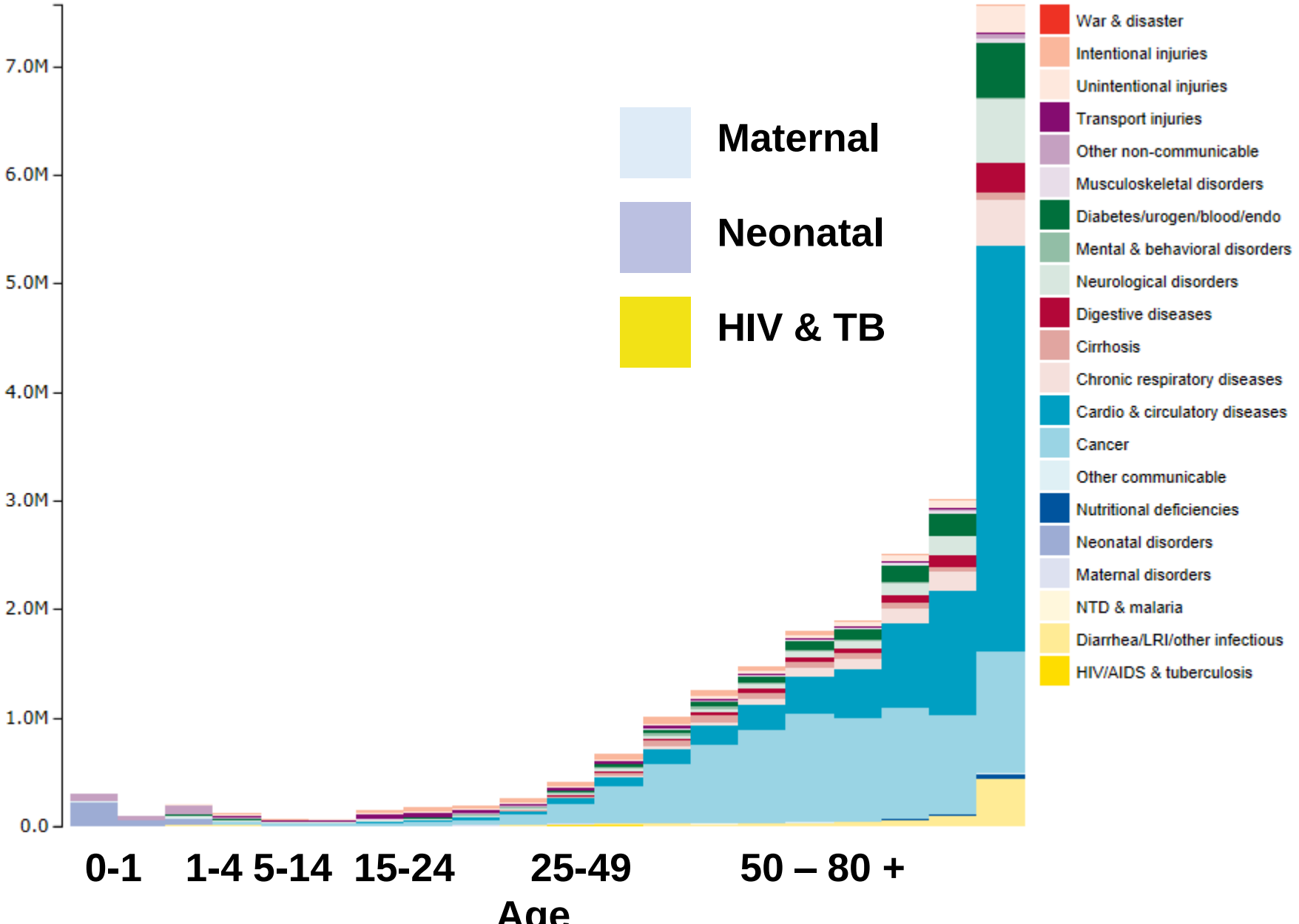
Dropouts

Years of life lost (women) by cause: Global, 2010



Source: 2010 Global Burden of Diseases Study
http://www.healthmetricsandevaluation.org/

Years of life lost (women): Western Europe 2010



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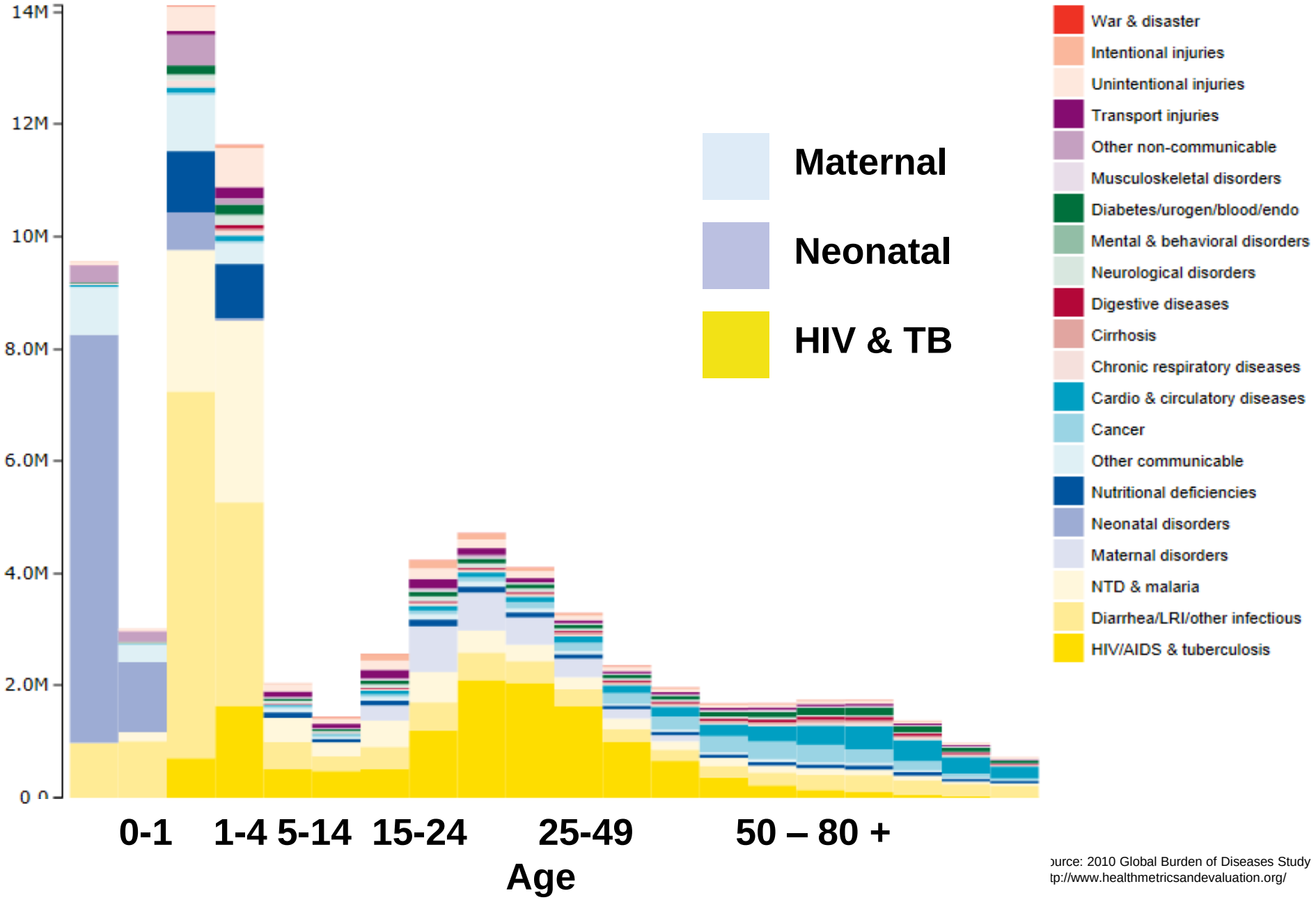
Years of life lost (women): Eastern Africa, 2010



ource: 2010 Global Burden of Diseases Study
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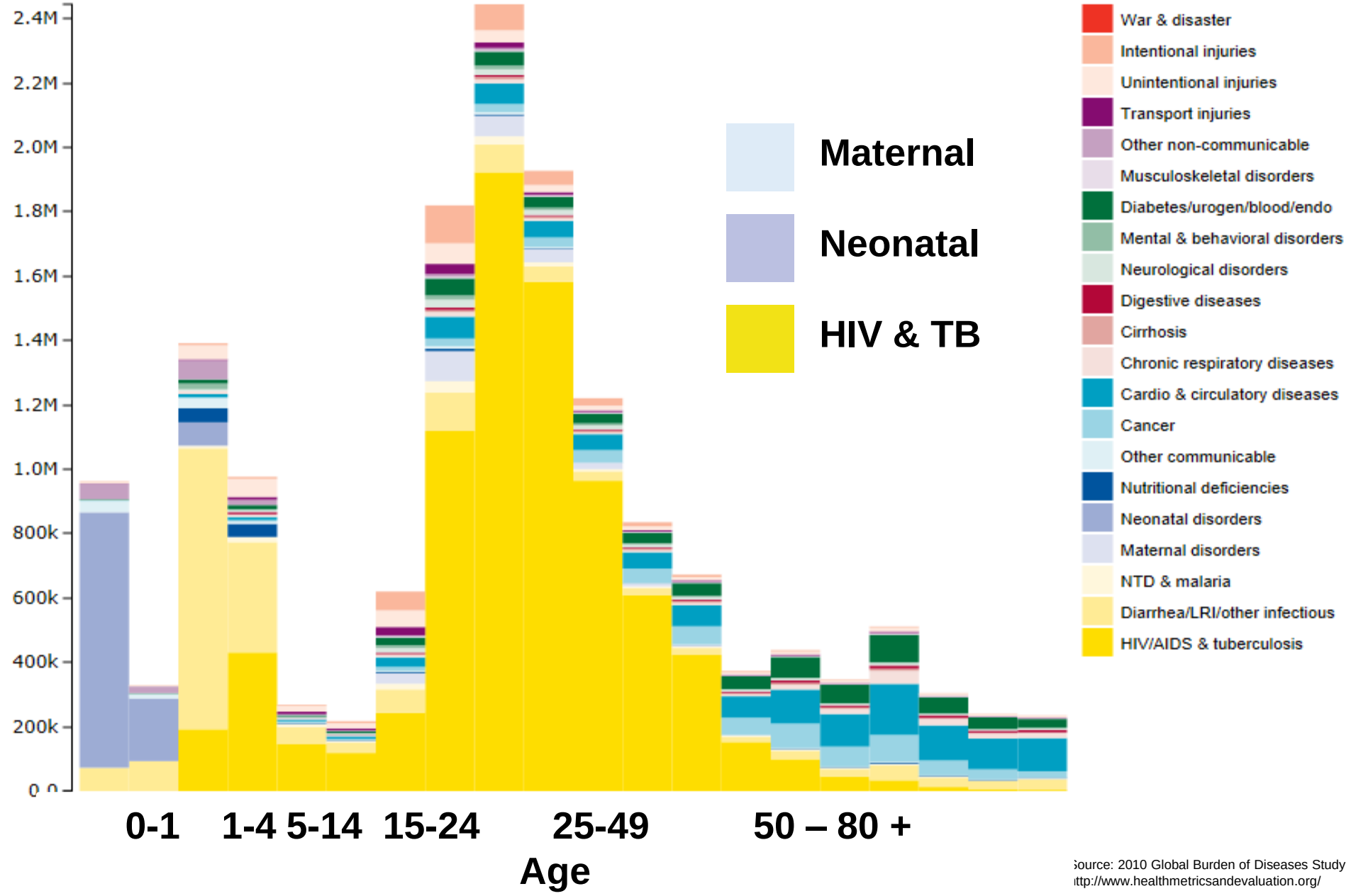
Years of life lost (women): Southern Africa, 2010



Source: 2010 Global Burden of Diseases Study
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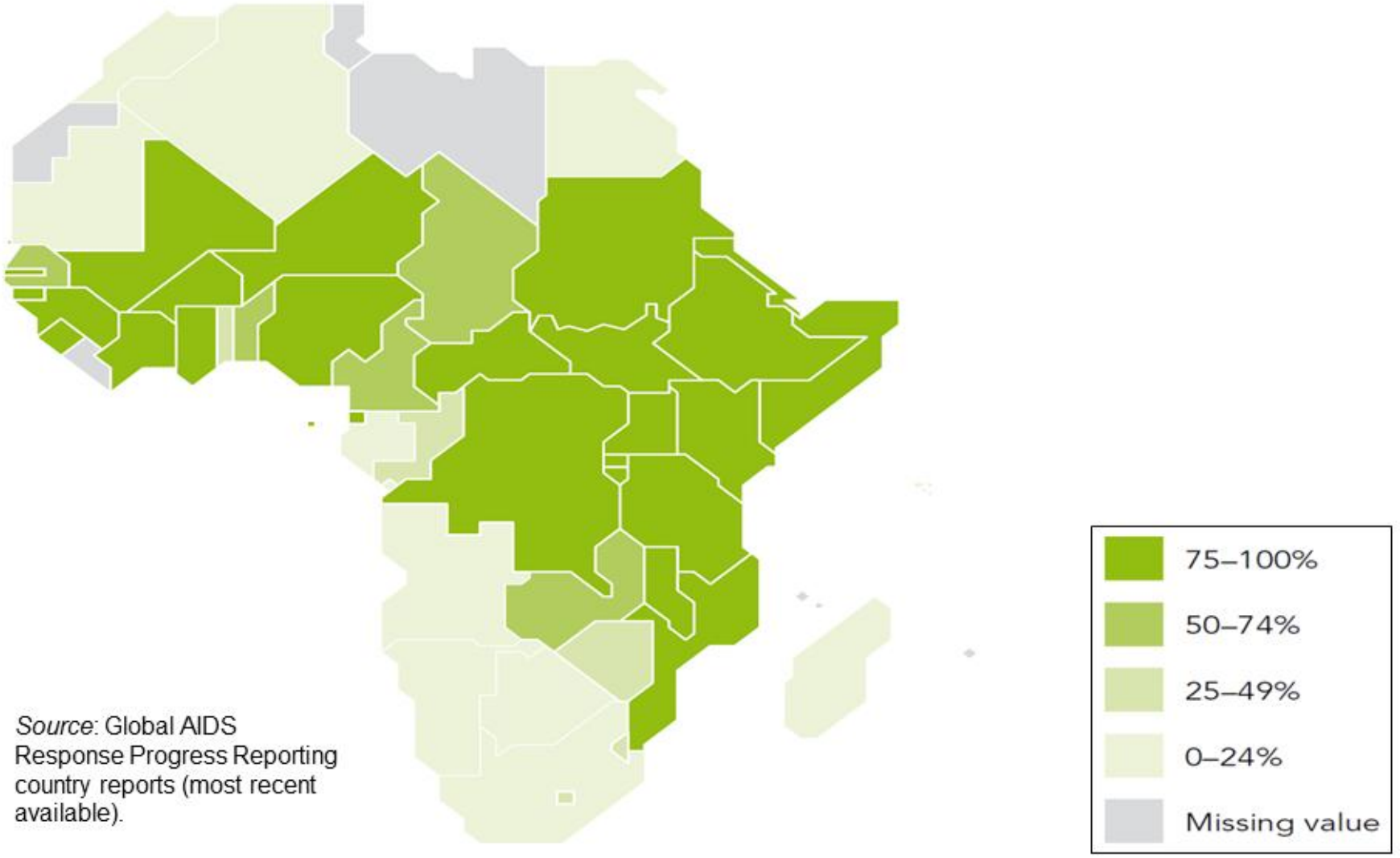
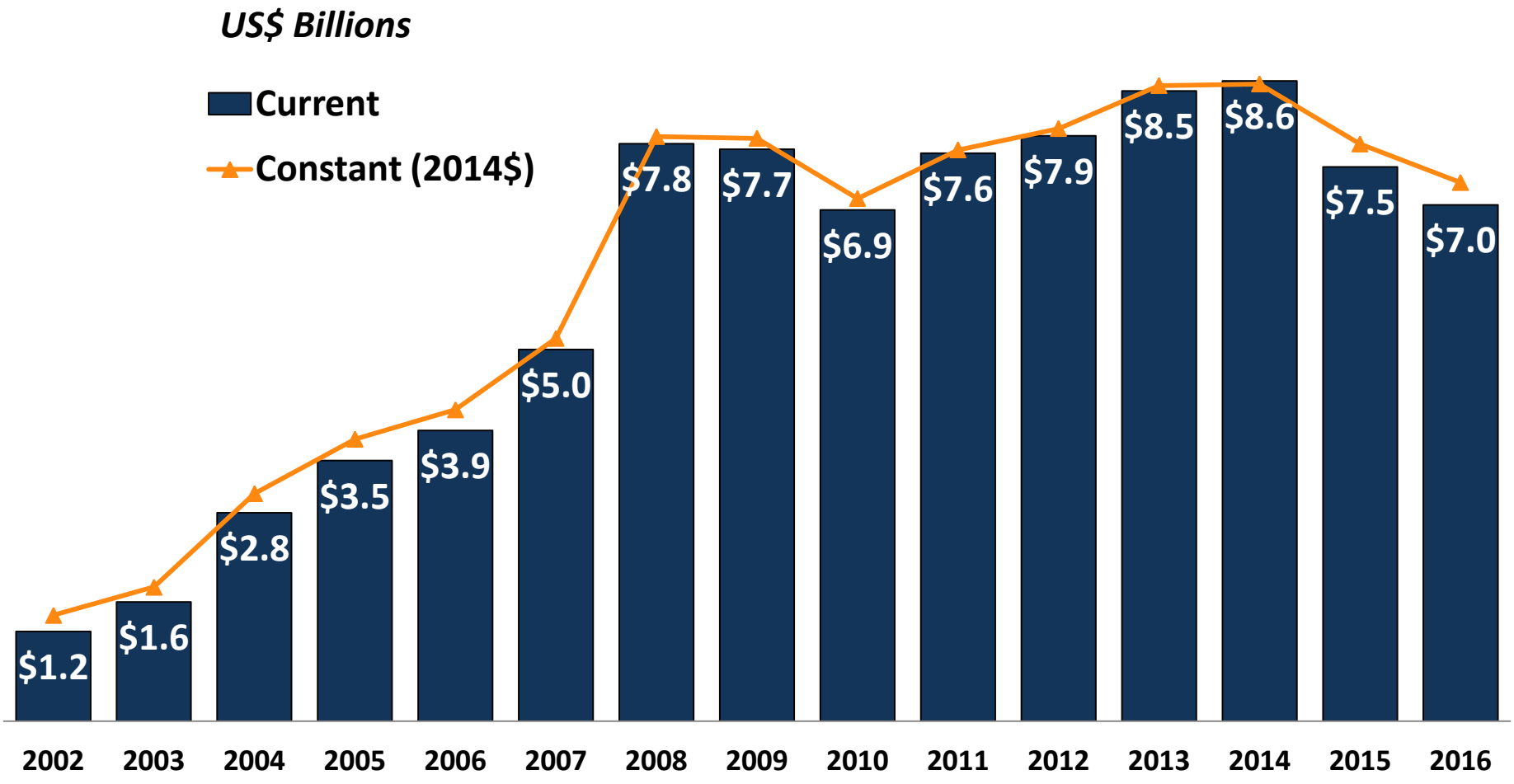
Donor Dependency of HIV Treatment and Care in Africa



Source: Global AIDS Response Progress Reporting country reports (most recent available).

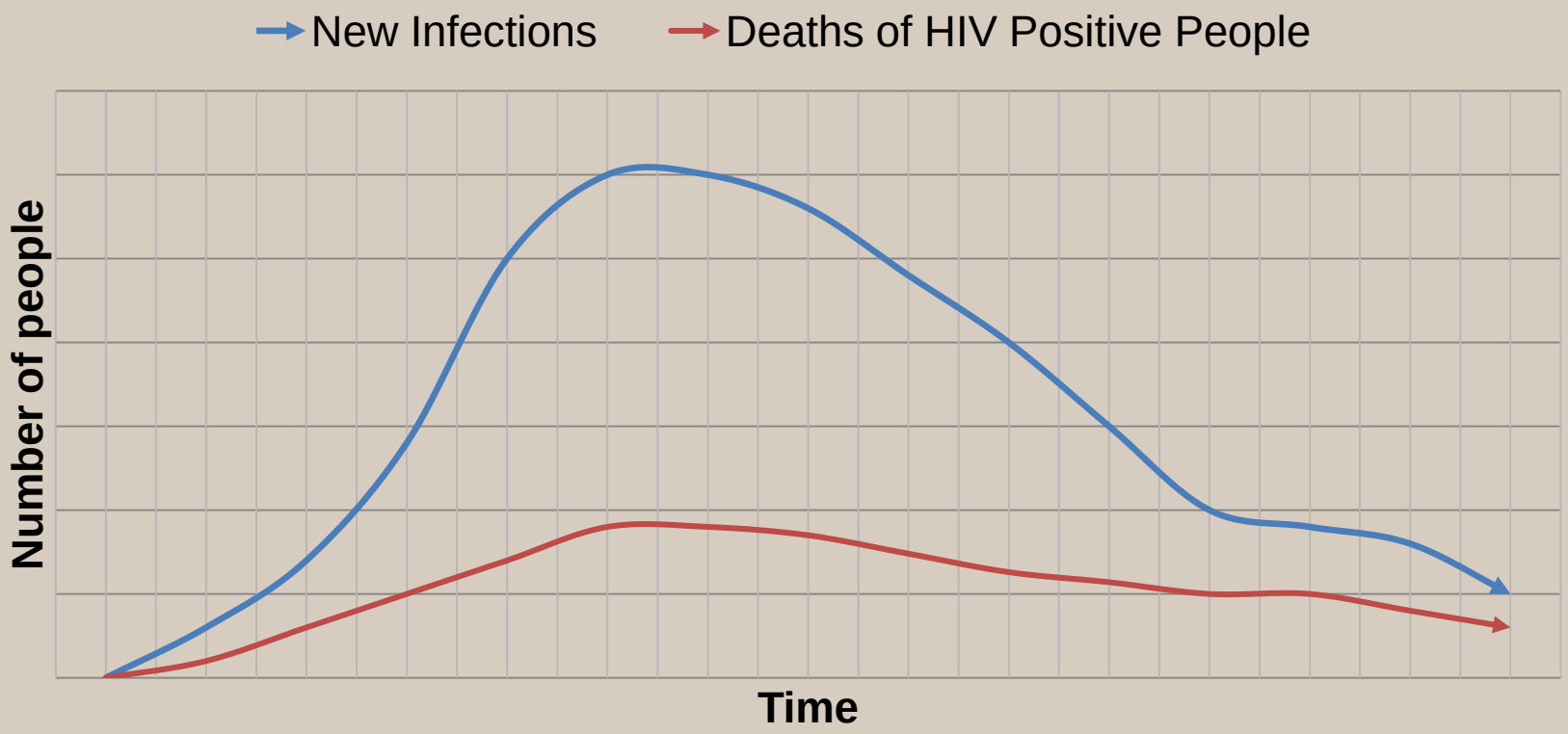
Figure 29

Donor Government Disbursements for HIV, 2002-2016



SOURCES: UNAIDS and Kaiser Family Foundation analyses; Global Fund to Fight AIDS, Tuberculosis and Malaria online data queries; UNITAID Annual Reports and direct communication; OECD CRS online data queries.

Understanding Curves: New Infections and Deaths



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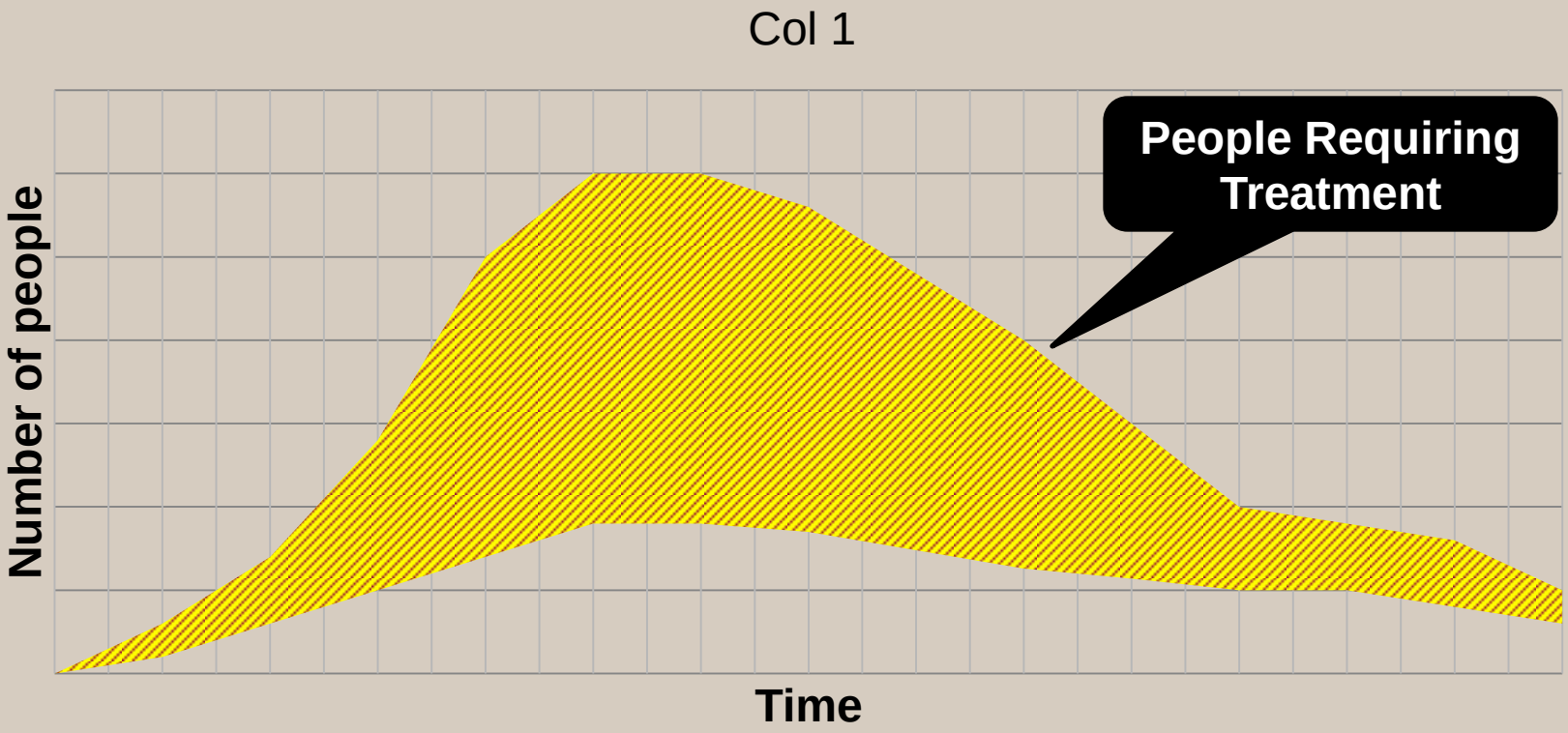
Treatment Requirements



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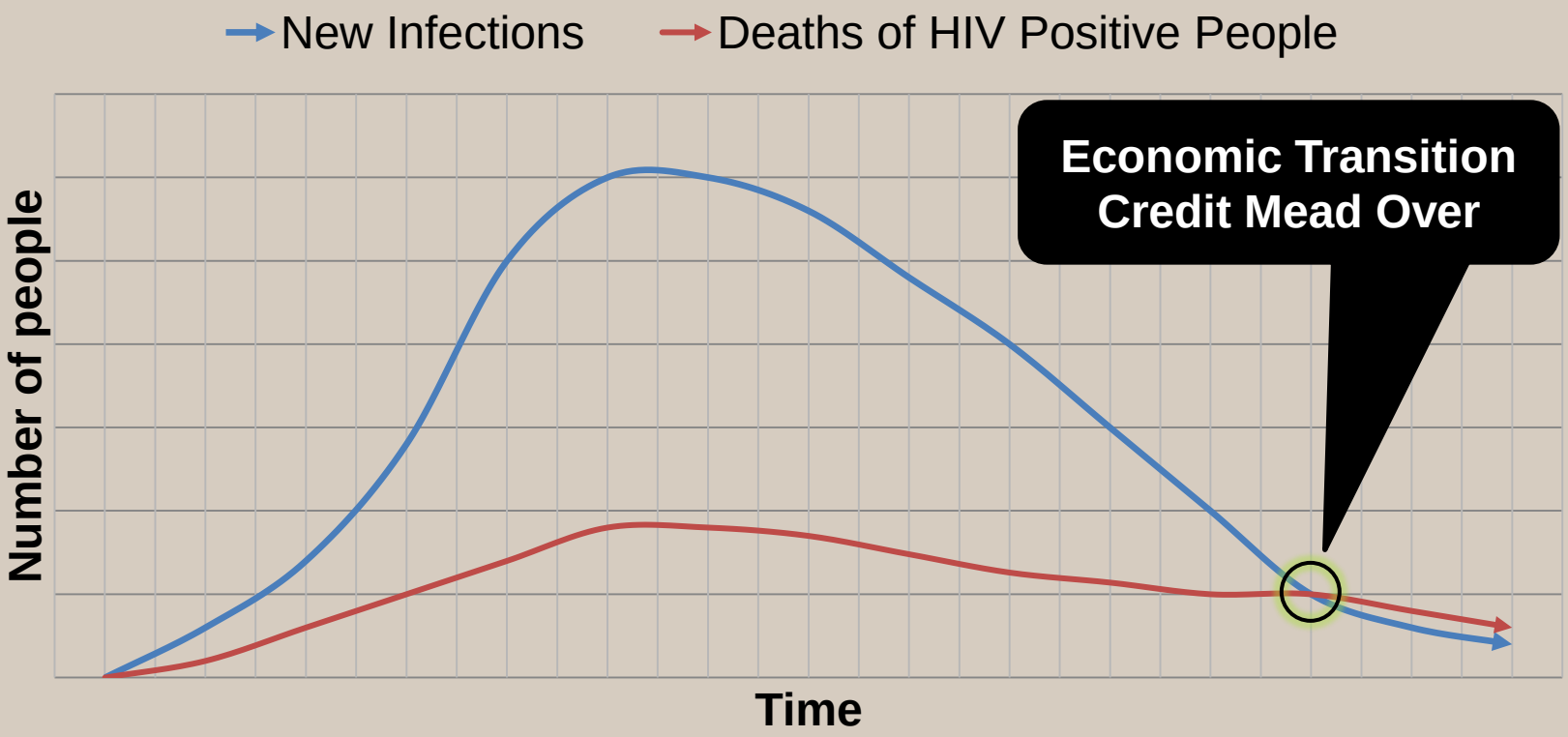
Economic Transition



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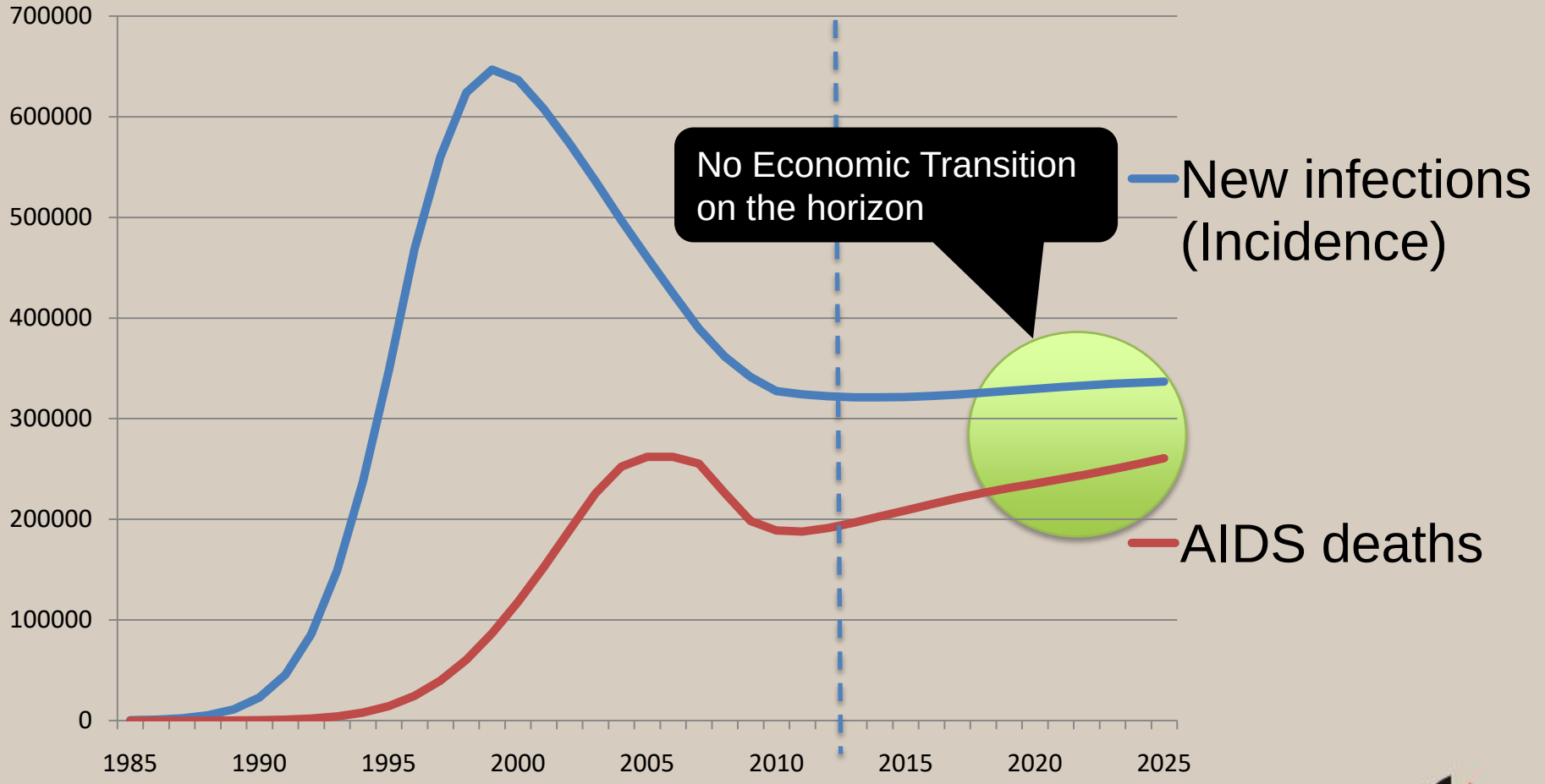
Data from South Africa



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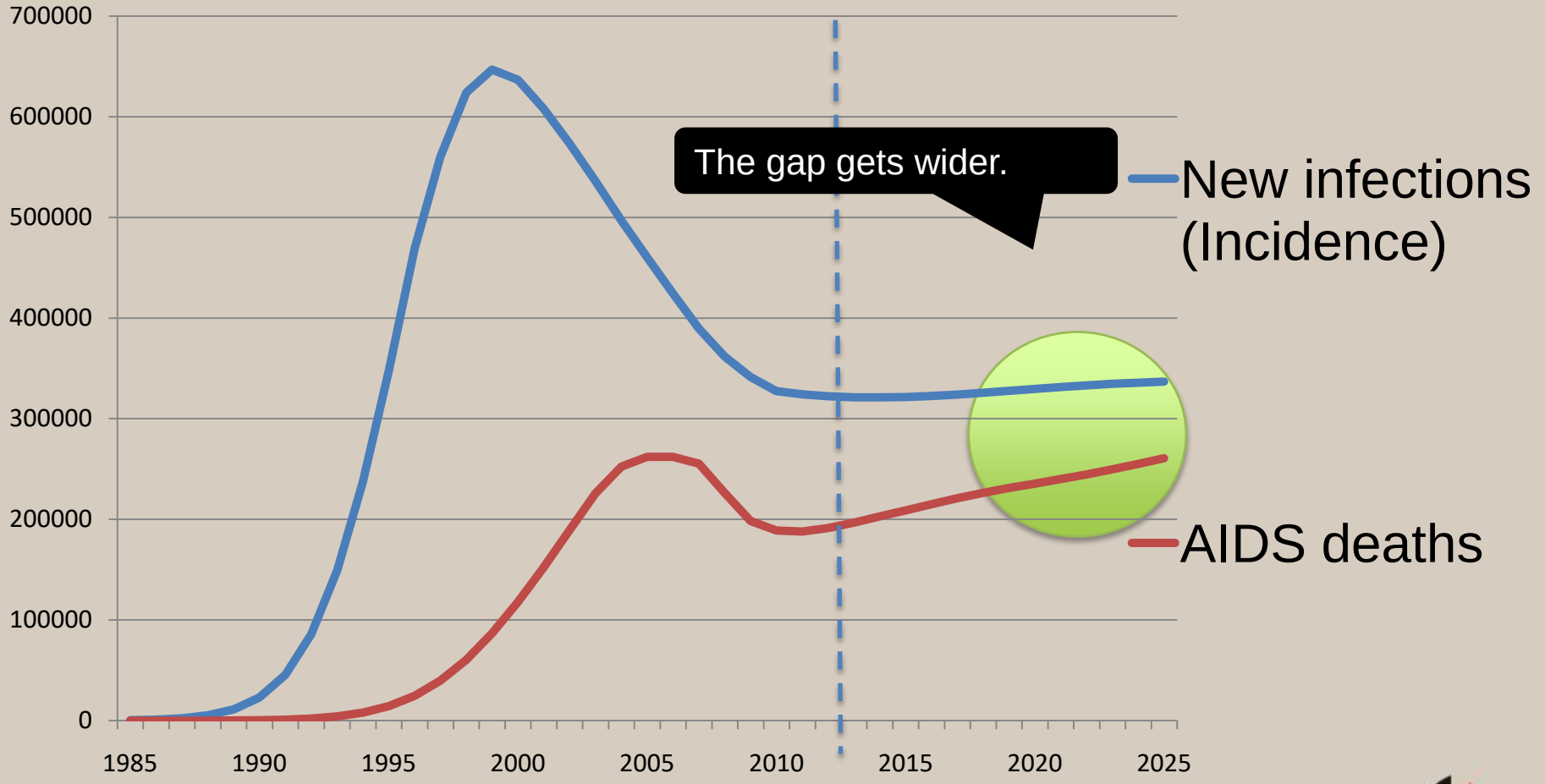
Any NCD as to population ages



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Conclusion. Forgotten and Irrelevant?

It depends on:

Where

For whom

- who is affected
- who cares

We need to see HIV and AIDS in context – it is no longer the poster child of infectious disease.