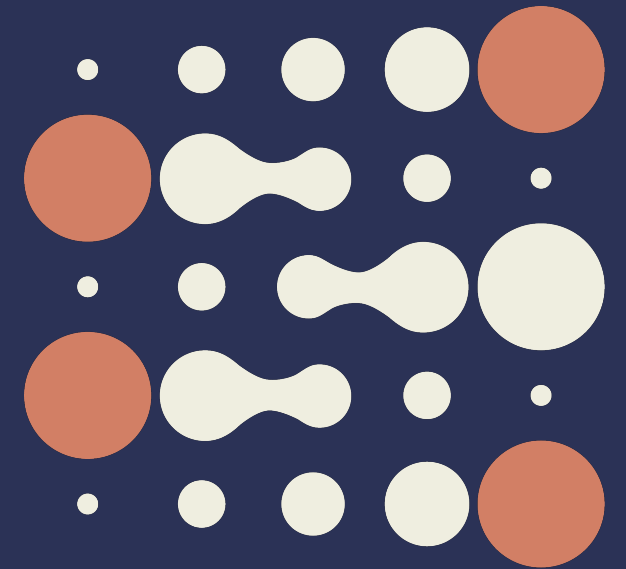


Global HIV Epidemiology and intersection with HPV and cervical cancer burden

Dr Gary Clifford

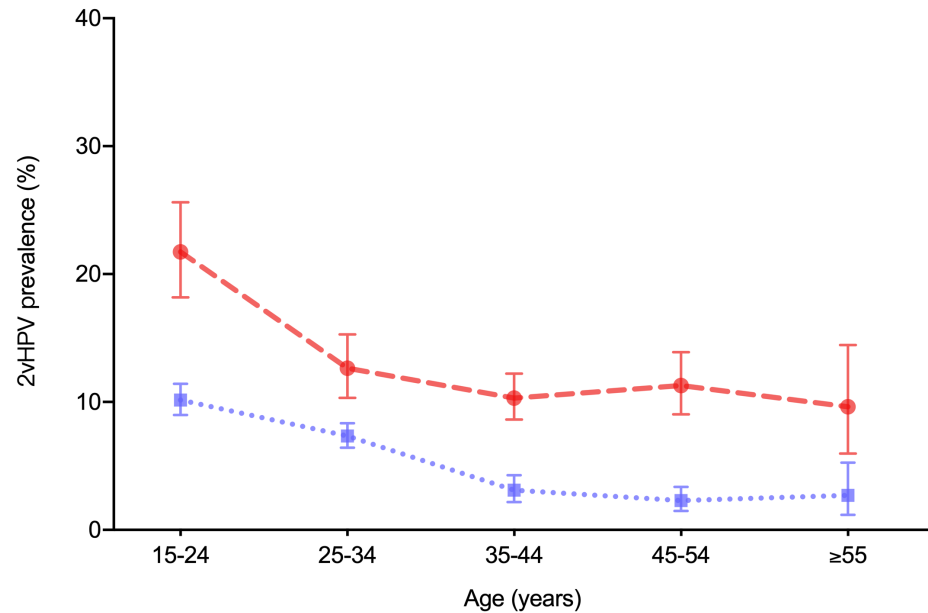
Deputy Head
Early detection, Prevention and Infections Branch
IARC/WHO

International Agency
for Research on Cancer



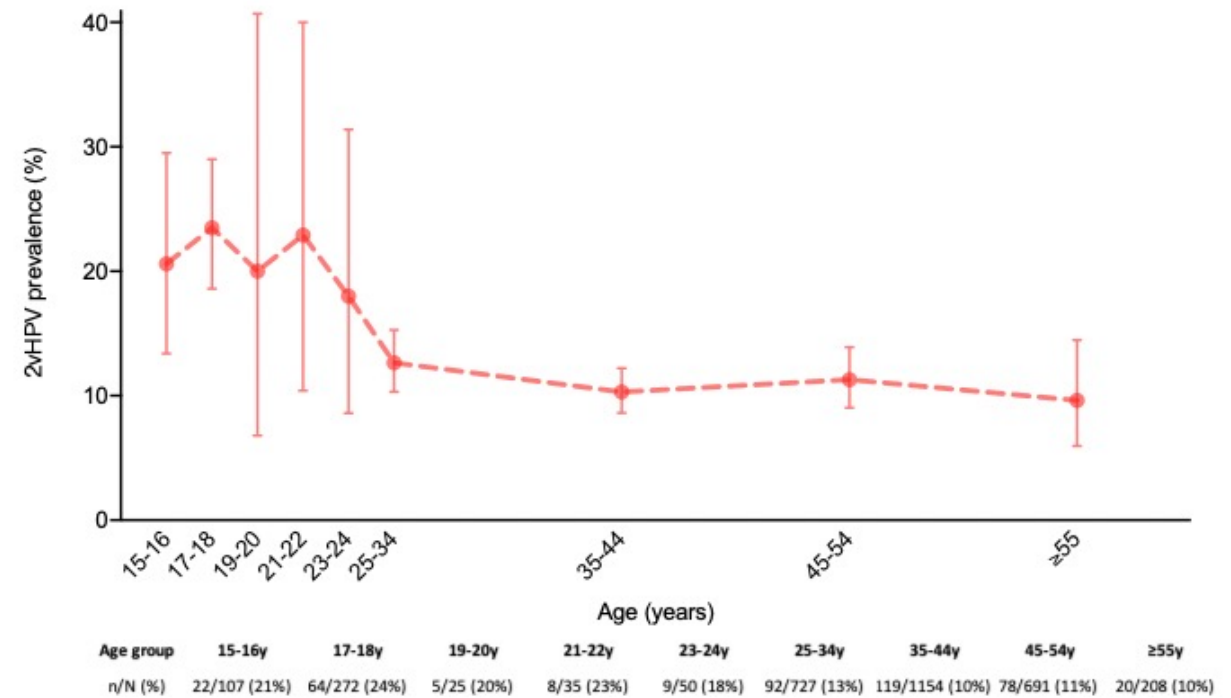
Age-specific HPV prevalence is high in sexually active females living with HIV, already among adolescents

cervical HPV16/18 prevalence, by HIV status



● HIV+ (n=3277)	108/497 (21.7%)	92/727 (12.7%)	119/1154 (10.3%)	78/691 (11.3%)	20/208 (9.6%)
■ HIV- (n=7900)	245/2413 (10.2%)	216/2942 (7.3%)	36/1160 (3.1%)	25/1089 (2.3%)	8/296 (2.7%)

cervical HPV16/18 prevalence in WHIV, by finer young age



Age group	15-16y	17-18y	19-20y	21-22y	23-24y	25-34y	35-44y	45-54y	≥55y
n/N (%)	22/107 (21%)	64/272 (24%)	5/25 (20%)	8/35 (23%)	9/50 (18%)	92/727 (13%)	119/1154 (10%)	78/691 (11%)	20/208 (10%)

Adapted from Wei et al, J Infect Dis, in press

Women living with HIV at higher risk of:

- HPV acquisition/incidence
 - HPV persistence
 - Progression from HPV infection to cervical lesions
 - Prevalence of CIN2/3
 - Cervical Cancer (~ 6-fold)
-
- Risks are reduced by timely cART/higher CD4

Lui G et al, AIDS, 2018

Kelly et al, Lancet HIV 2018

Stezle et al, Lancet Global Health, 2020

Cervical cancer Incidence in WLHIV in South Africa 2004-2014

Age category	Cervical cancer cases	Person-years	ASIR (95% CI)
16-19	5	93 000	5.4 (2.3-13.0)
20-29	485	1 700 000	28.5 (26.1-31.1)
30-39	2864	3 550 000	80.7 (77.8-83.7)
40-49	3441	2 200 000	156 (151-162)
50-59	1883	877 000	215 (205-225)
60-69	520	215 000	242 (222-264)
70-79	113	27 000	412 (343-496)
80-89	10	3 000	297 (160-553)

Dhokotera et al. [Abstract O19].17th International Conference on Malignancies in HIV/AIDS, October 2019

Cervical cancer incidence in WHLIV, even on ART, varies by world region

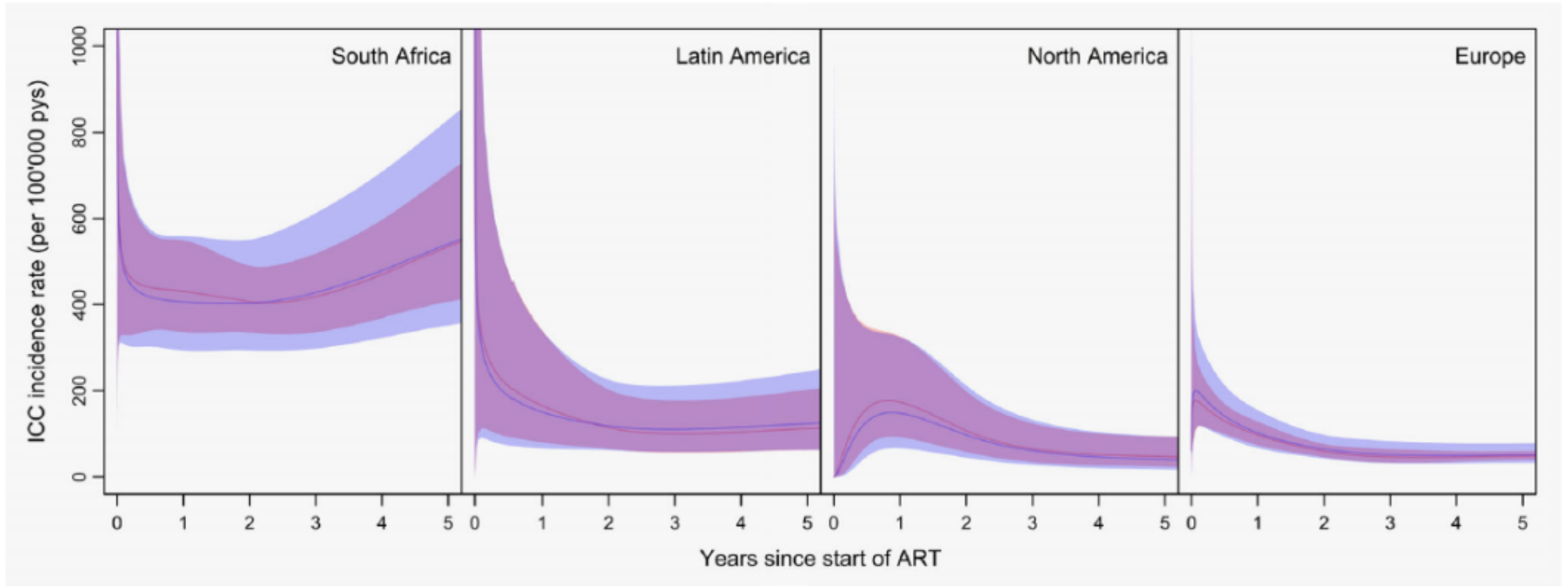


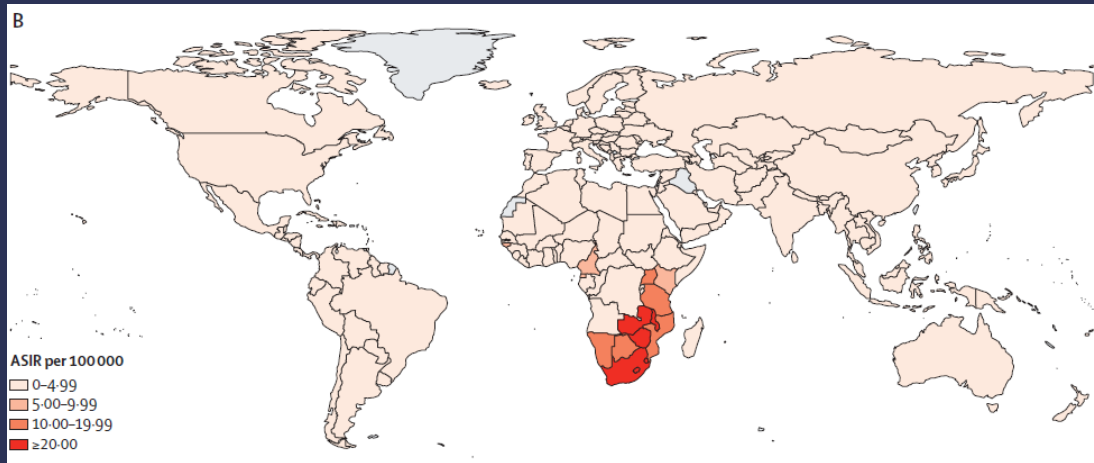
Figure 2. Regional ICC incidence rates with 95% confidence intervals by time since ART initiation, predicted from the crude model (red) and the main adjusted model (blue) for women who initiated an NNRTI-based regimen between 2008 and 2014, at age 31–50 years, with a CD4 cell count of 200 cells/ μ l.

5% of global burden of cervical cancer attributable to HIV

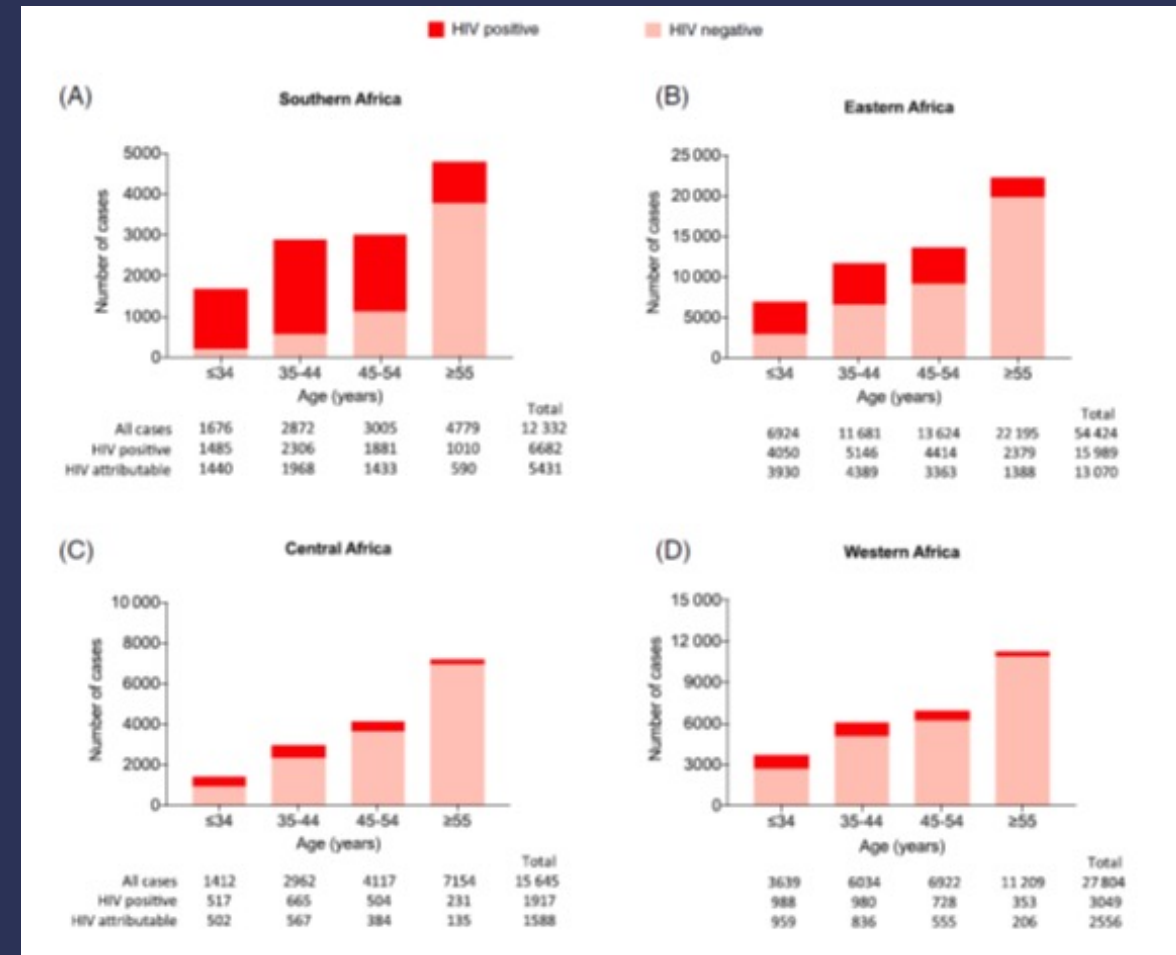
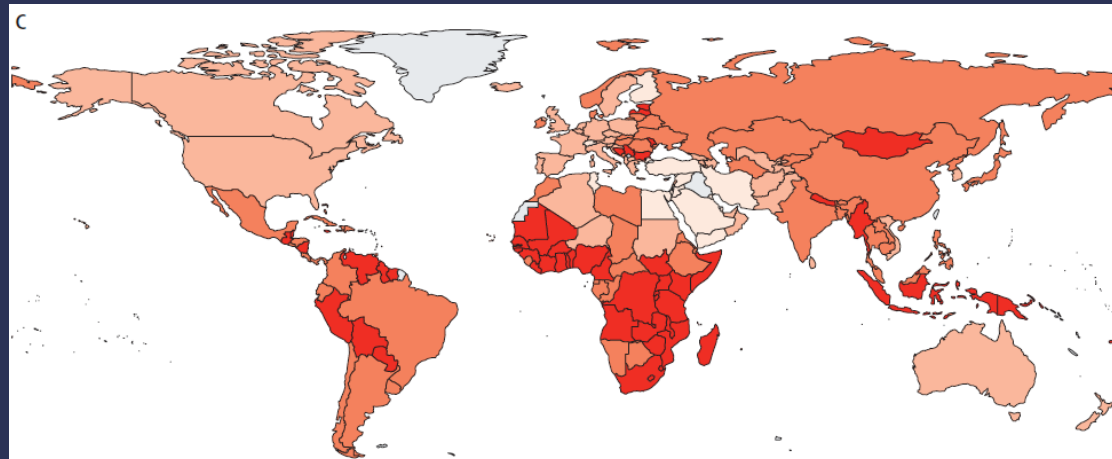
Estimates of the global burden of cervical cancer associated with HIV
Stelzle D et al, *Lancet Global Health*, 2020

HIV-attributable cervical cancer burden occurs at younger age
Ibrahim Khalil A et al. *Int J Cancer*, 2021

HIV-attributable cervical cancer incidence

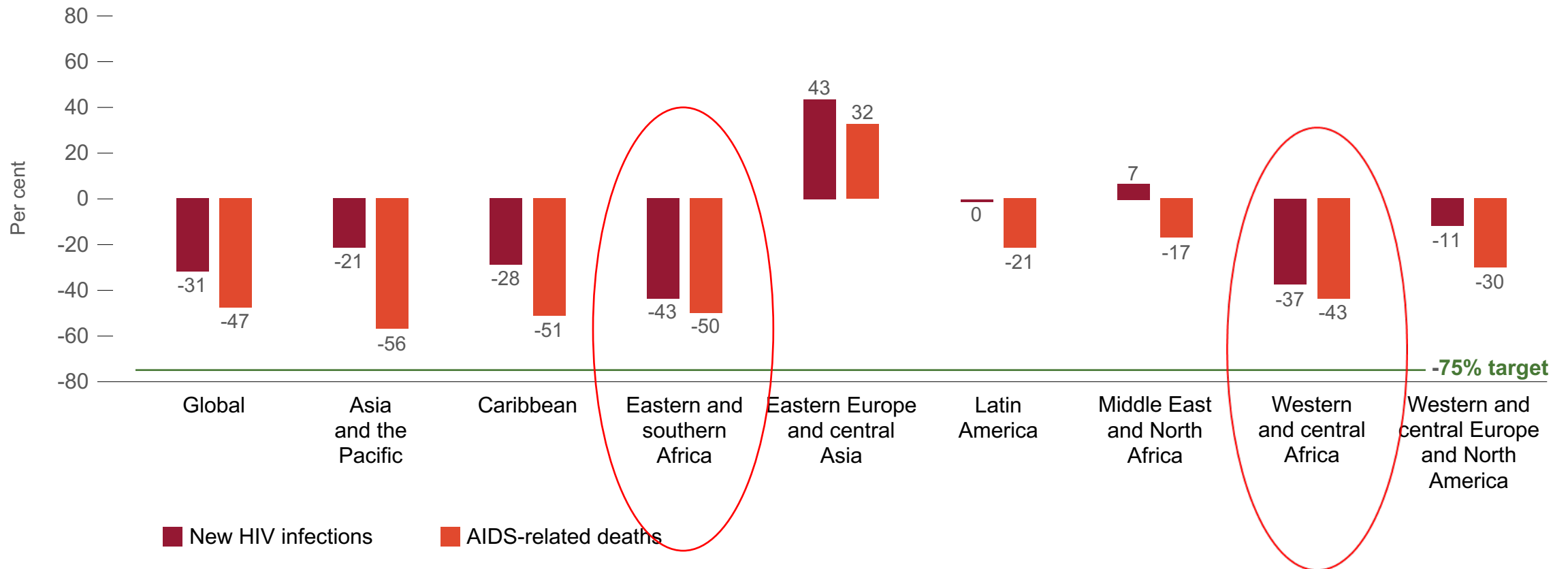


HIV-independent cervical cancer incidence



Number of new HIV infections are decreasing, particularly in sub-Saharan Africa, due to HIV control programs

Change in new HIV infections and AIDS-related deaths, by region and global, 2010–2020



Important shifts in the age-distribution of persons living with HIV

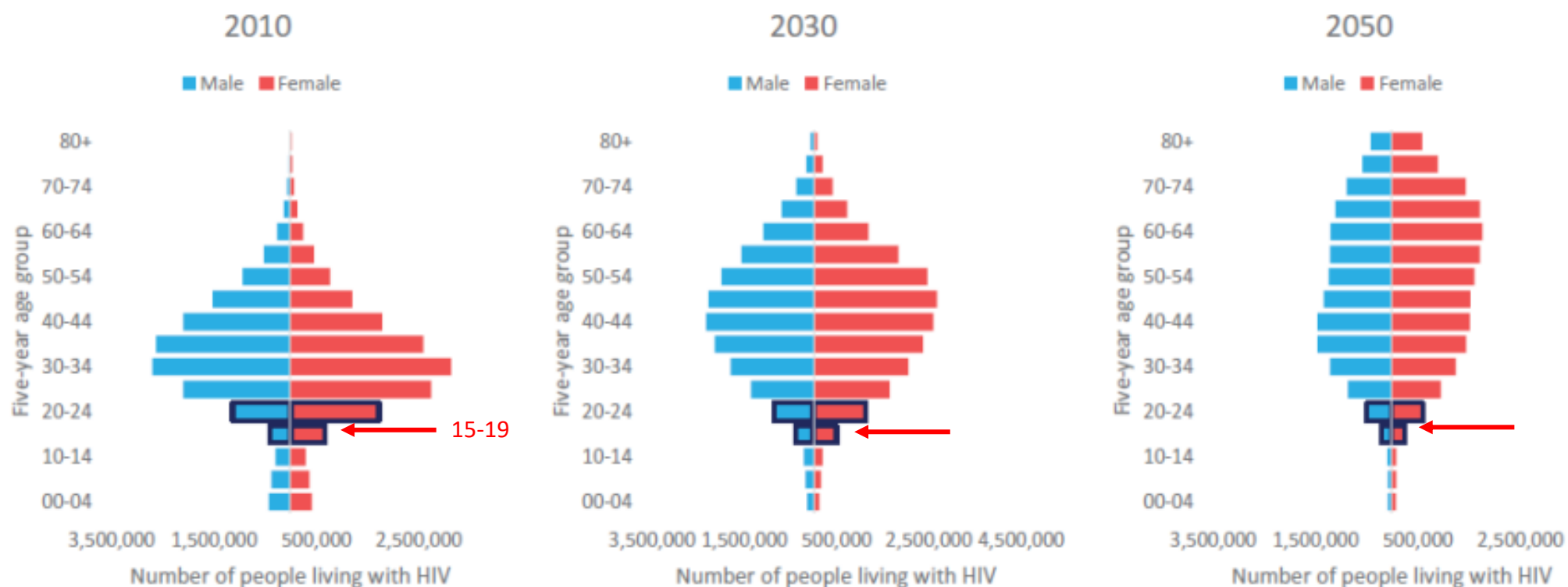


Figure 2. Number of people living with HIV by age and sex, 2010, 2030 and 2050, UNAIDS 2018 estimates.

HIV incidence in 15-19 year olds is decreasing and predicted to decrease further: UNAIDS

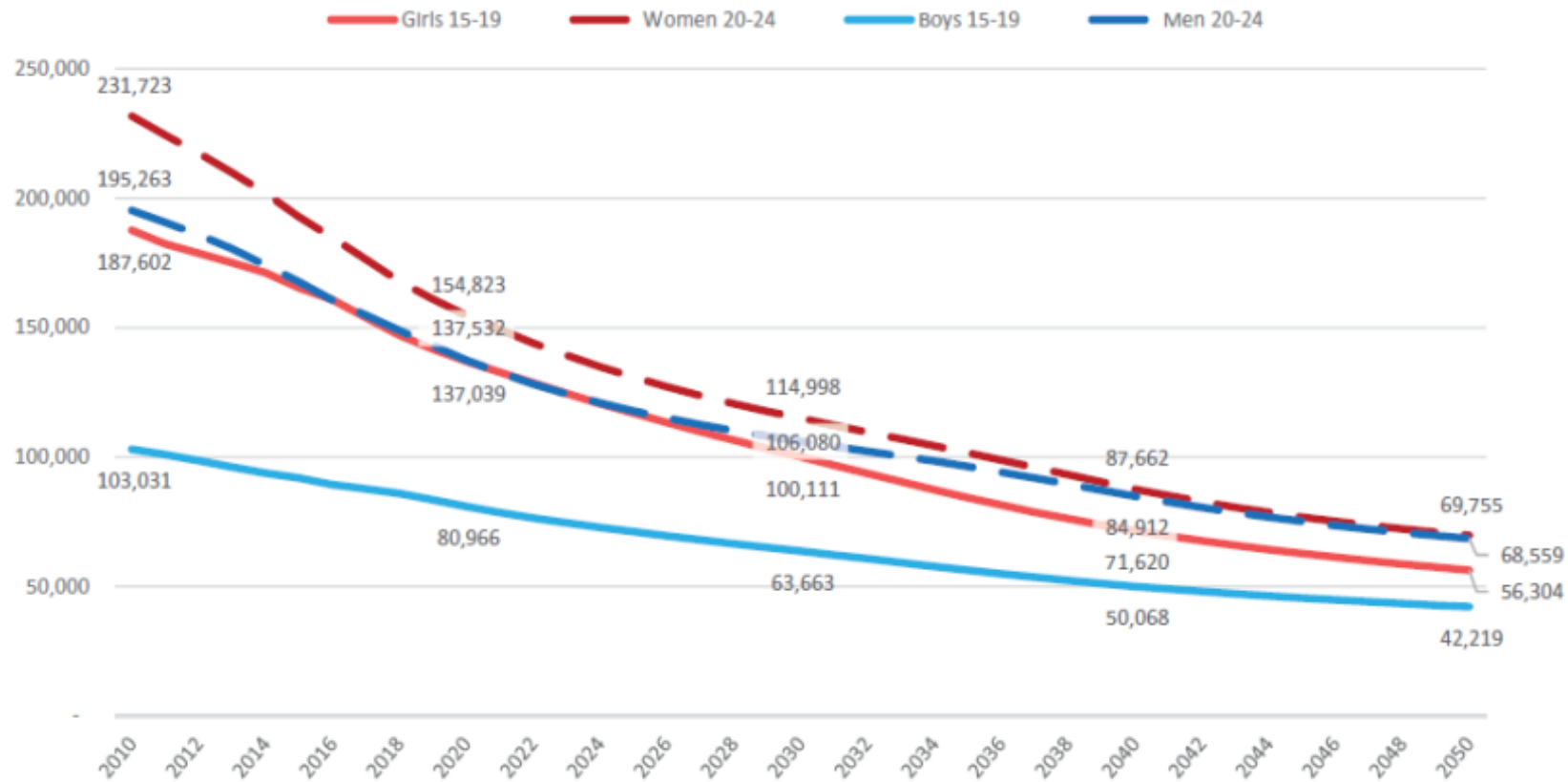
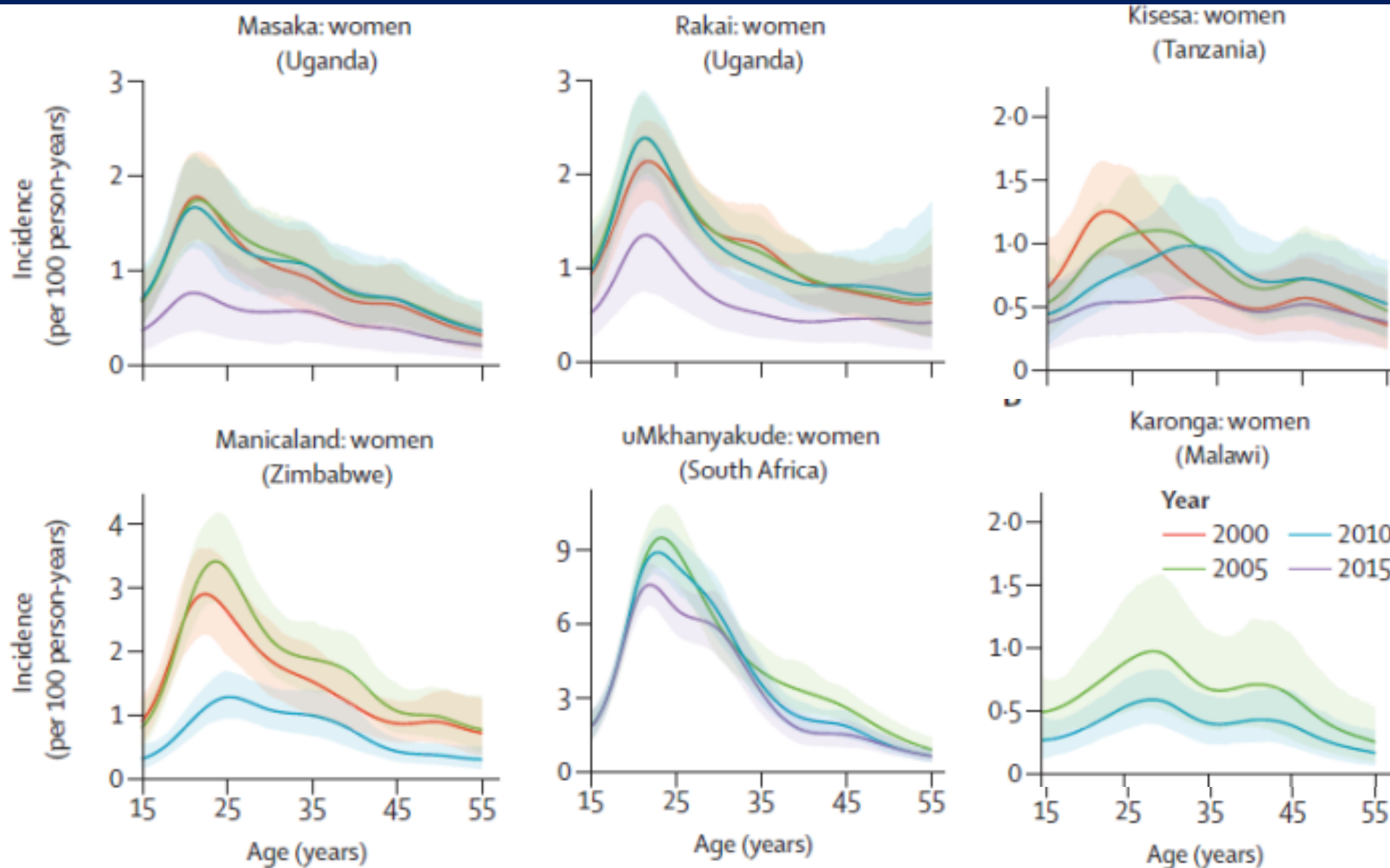


Figure 3. Number of new HIV infections among adolescent and young people, by sex and five-year age group, 2010–2050, UNAIDS 2018 estimates.

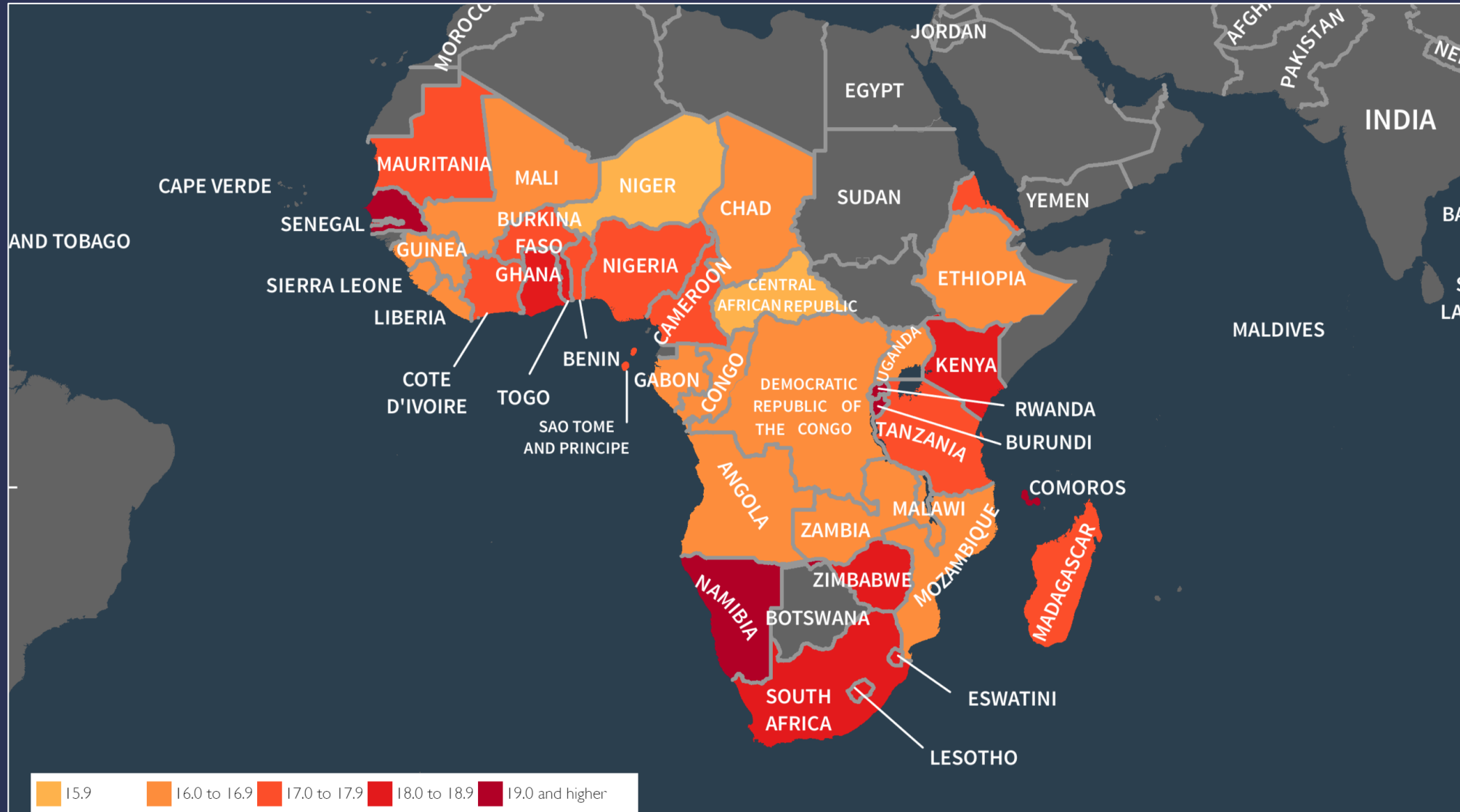
HIV incidence increases between 15 and 19 years (but age-specific incidence going down over time)



Age patterns of HIV incidence in eastern and southern Africa: a modelling analysis of observational population-based cohort studies

Risher KA et al, Lancet HIV, 2021

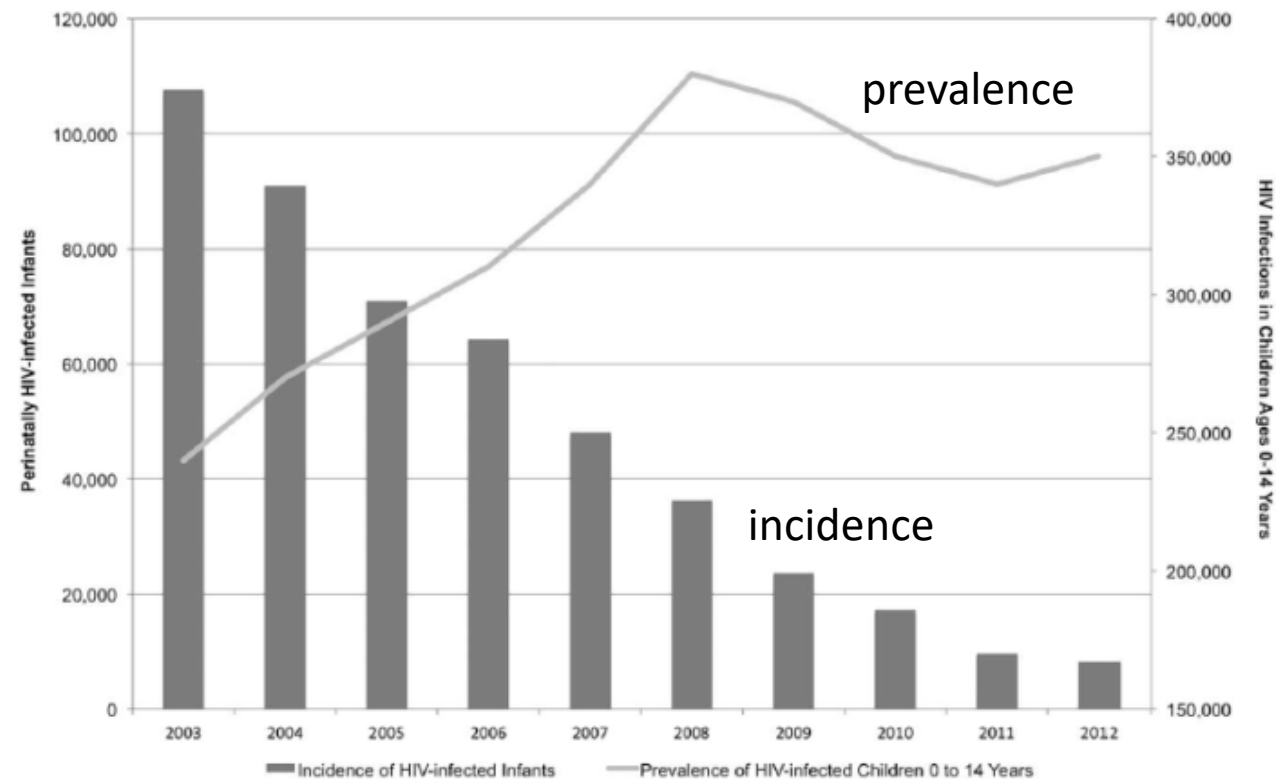
WHO DHS surveys : median age at sexual intercourse



New HIV infections in children decreasing, but waves of HIV-infected children on ARV still entering into adult care (15 years+)

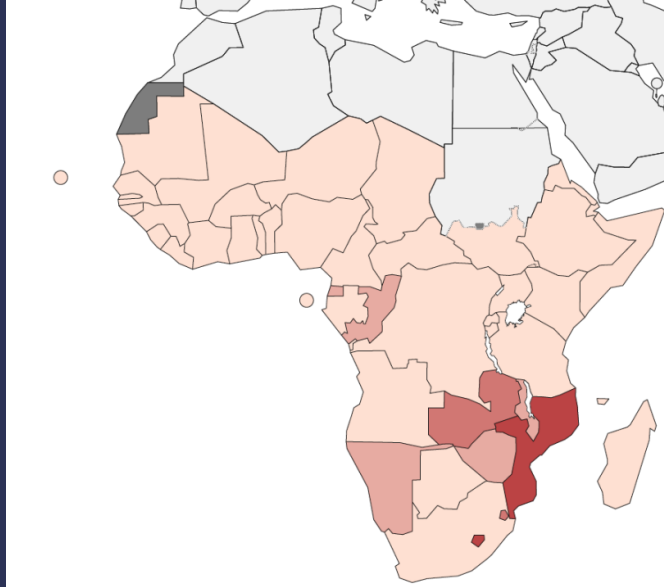
Figure 2 Systematic review: Perinatally HIV-infected infants in South Africa, total HIV-infected children aged 0–14 and the approaching wave of HIV-infected adolescents expected to enter adult care by 2023.

Zanoni BC et al.
BMJ Global Health, 2016
South Africa

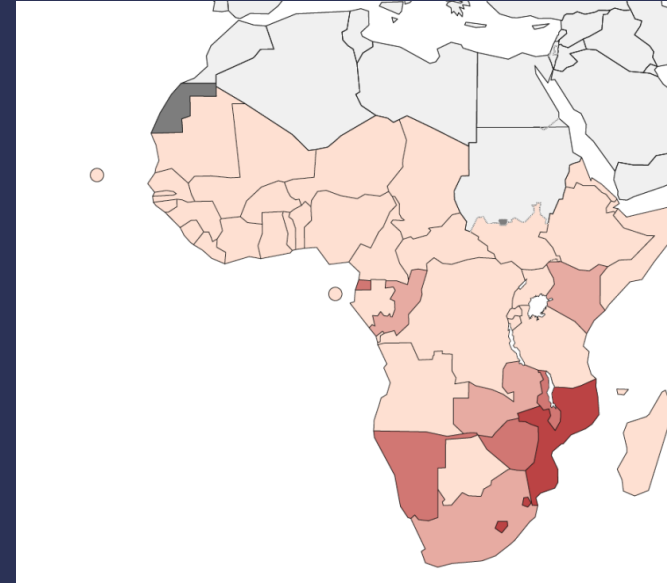


Age-specific HIV prevalence in young females in sub-Saharan Africa: IHME/UNAIDS 2019

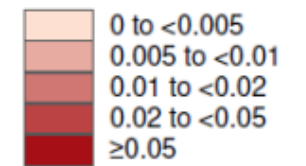
1-4 years



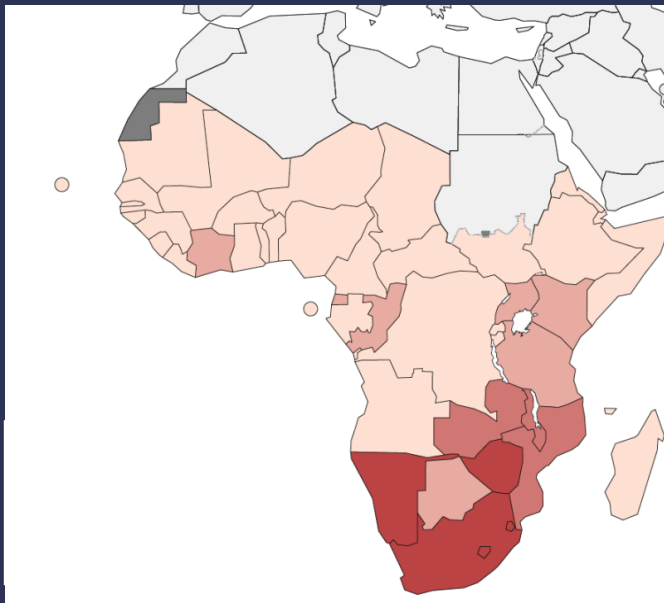
5-9 years



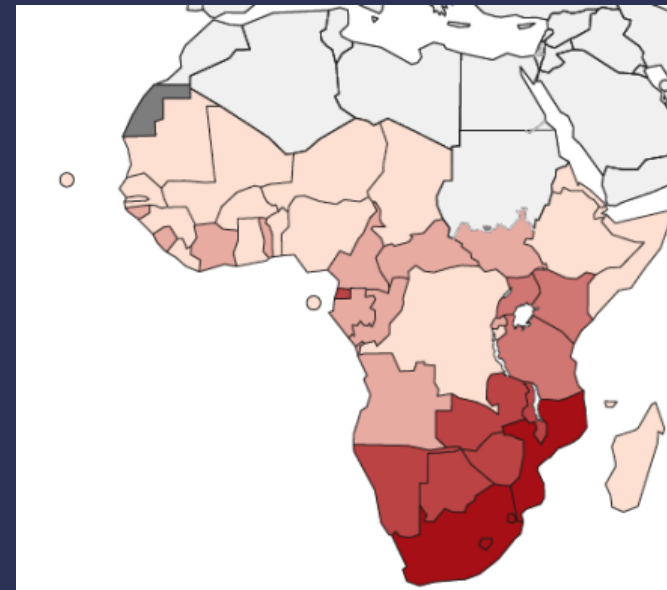
HIV prevalence



10-14 years



15-19 years



Estwatini = 7.1%
Lesotho = 6.2%
South Africa = 5.6%
Mozambique = 5.6%