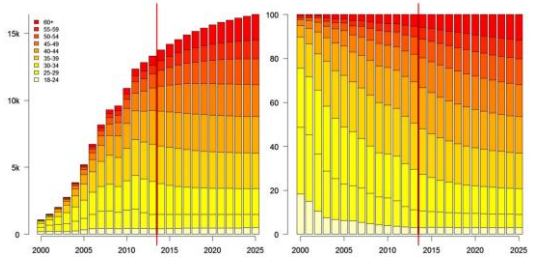
Kirby Institute

Increasing cardiovascular disease incidence in HIV+ adults in Asia: Projections for 2017-2026

Rimke Bijker | Nov 6, 2017

Background

- Risk of cardiovascular disease (CVD)
  - ➢ Asian HIV+ population is aging



Puhr et al (2017). *JAIDS*, 74(5): e146-148

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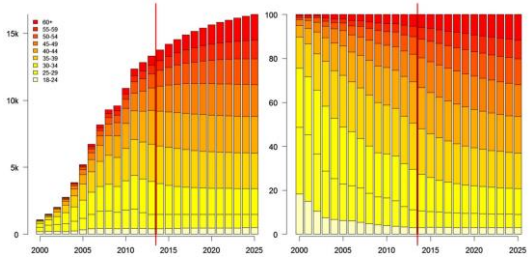

  - Traditional risk factors (dyslipidaemia, diabetes, hypertension, smoking)

  - HIV specific risk factors (low CD4, high viral load, ART)

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Background

Aims

- To project the incidence of CVD events in HIV+ populations in the Asian region over a 10-year period

- To compare the projected incidence across subgroups
  - Gender
  - Age group
  - Country income group
  - ART regimen
  - Diabetes

Study population

- TREAT Asia HIV Observational Database (TAHOD)
- 20 clinical sites, 12 Asian countries and territories

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- Inclusion criteria:
  - 18+ years
  - on cART
  - Alive
  - Clinic visit in last 2 years
  - No previous CVD
  - CVD risk data available

CVD risk prediction algorithms

Please fill out the following form consisting of 13 items.

1. Age:	40	yr
2. Gender:	Male / Female	
3. Previous smoker?	Yes / No	
4. Smoker?	Yes / No	
5. Family CVD history?	Yes / No	
6. Diabetes?	Yes / No	
7. Abacavir treatment?	Yes / No	
8. PI exposure:	1	yr
9. NRTI exposure:	0	yr

www.chip.dk/Tools-Standards/Clinical-risk-scores

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→ 5-year risk score = 10%

CVD incidence model

- Based on the 2010 D:A:D algorithm
  - Traditional risk factors
  - HIV specific: Current ABC, duration of IDV and LPV
  - Conversion risk to projected numbers

Friis-Moller (2010) *Eur J Cardiovasc Prev Rehabil*, 17:491-501

CVD incidence model

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- CVD incidence per yearly increment
  - Incorporating age and sex-adjusted mortality
  - Number of events for: t = 2017, 2018, .., 2026.
  - Effect of aging, continuous ARV exposure

Friis-Moller (2010) *Eur J Cardiovasc Prev Rehabil*, 17:491-501

CVD incidence model

- Assumptions
  - Patients remains on current ARV regimen
  - If patient stopped ABC<6 months ago, this still has an effect the first year, but not thereafter
  - If family history of CVD was unavailable, chance of having this was based on prevalence in rest of the population

Results

Patient characteristics at most recent visit (N=3406)	
Gender	
Men	69%
Women	32%
Age group (years)	
≤40	30%
40-49	41%
>50	29%
HIV exposure category	
Heterosexual	68%
Homosexual	24%
Other	8%
Country income group	
High	36%
Upper-middle	38%
Lower-middle	31%
Median time from ART start (years [IQR])	8.1 (5.8-12.5)
Median CD4 count (cells/uL [IQR])	543 (397-703)
Median log HIV viral load (copies/mL [IQR]) [a]	1.3 (1.3-1.6)

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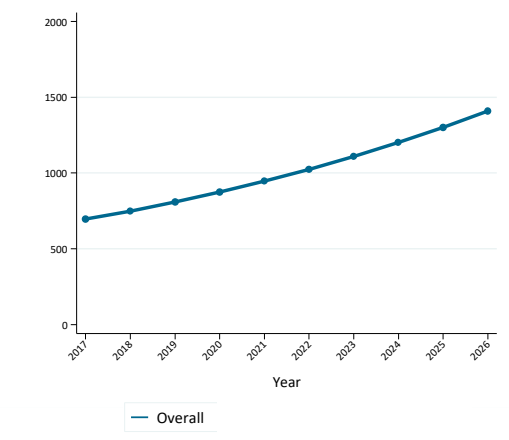
IQR=interquartile range; ART=antiretroviral therapy; PI=protease inhibitor. [a] 77 missing.

Results

Cardiovascular risk profile at most recent available assessment	
Diabetes	18.3%
Systolic blood pressure >140 mmHg	22.6%
Total cholesterol ≥5.2 mmol/L	38.8%
HDL <1.0 mmol/L	23.6%
Currently smoking	20.2%
Ever smoked	39.7%
Family history of CVD[a]	13.4%
Currently receiving ABC	16.4%
Median LPV exposure (years[IQR])	3.4 (1.4-6.2)
Median IDV exposure (years[IQR])	1.3 (0.3-3.5)

HDL=high-density lipoprotein cholesterol; CVD=cardiovascular disease; ABC=abacavir; LPV=lopinavir; IDV=indinavir. IQR=interquartile range. [a] Of 34.5% of patients who had this data available

Estimated CVD event rate for 2017-2026



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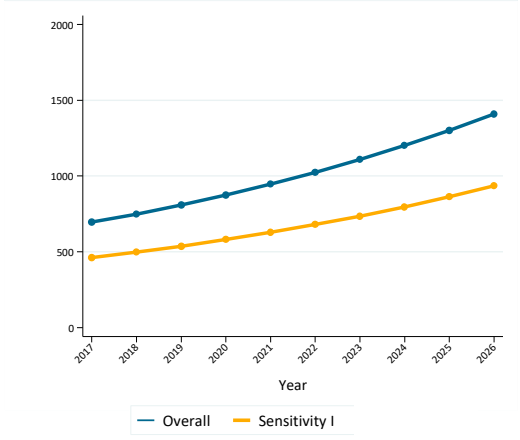

Sensitivity I represents projections adjusted for differences between CVD incidence in D:A:D countries and TAHOD countries.

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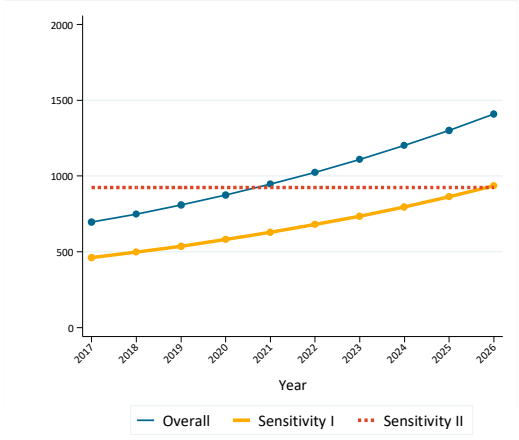
Estimated CVD event rate for 2017-2026



Sensitivity II represents estimated incidence for 2015 based on general population rates and increased risk for the HIV-positive population.

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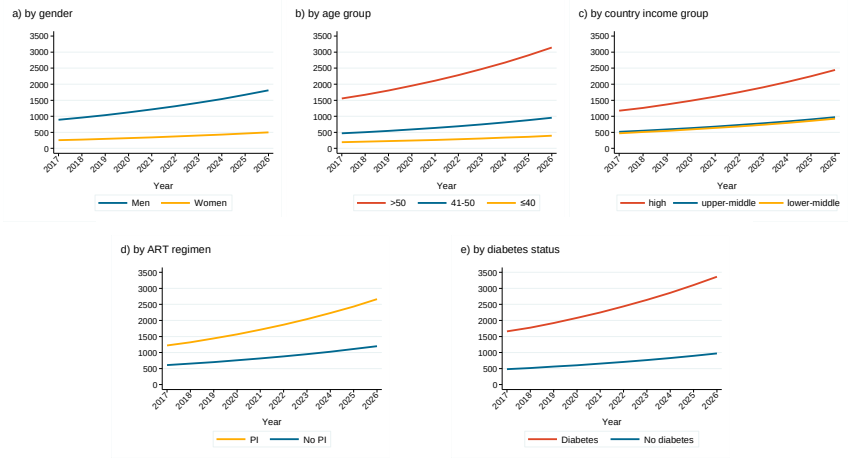
Estimated CVD event rate by subgroups



Limitations

- **D:A:D risk score based on mostly European population**
- **Critique on risk scores**
- **Generalisability**

Conclusions

Doubling of CVD events in the next decade

Need for risk screening

- Men
- Older patients
- PI regimen
- Diabetes

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Therapeutics Research • Education • AIDS Training
TREAT ASIA

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