



# I nuovi scenari nella gestione di HIV : Invecchiamento e cronicità

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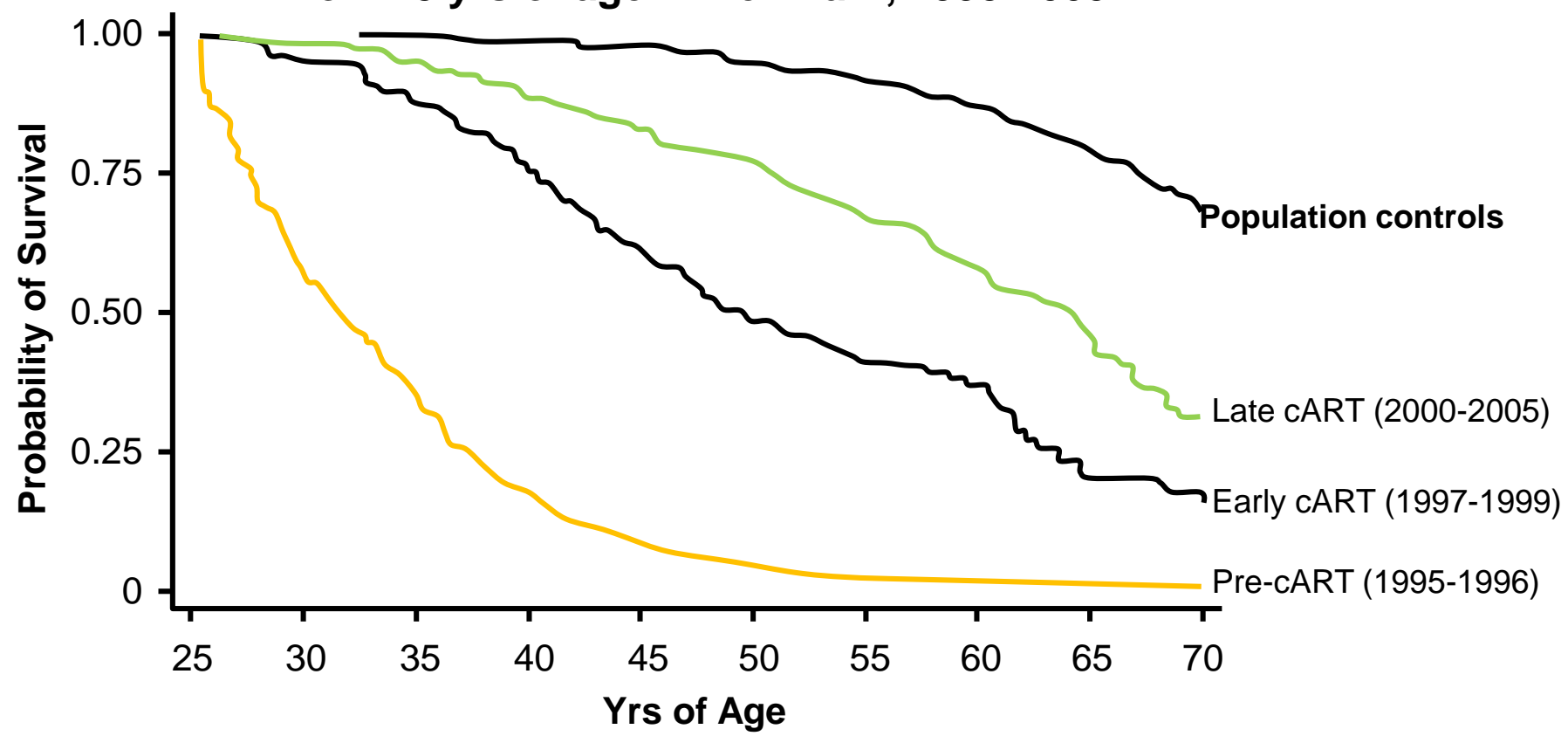
## Infezione HIV – 30 anni dopo cosa è cambiato ?

- **Epidemiologia** : infezione a prevalente trasmissione sessuale
- **Terapia antiretrovirale** :
  - inizio precoce terapia
  - farmaci efficaci e ben tollerati
  - cronicizzazione della infezione



# Survival is improved but a Discrepancy Still Remains Compared With Uninfected Controls

Survival of persons with and without HIV infection from 25 yrs of age in Denmark, 1995-2005



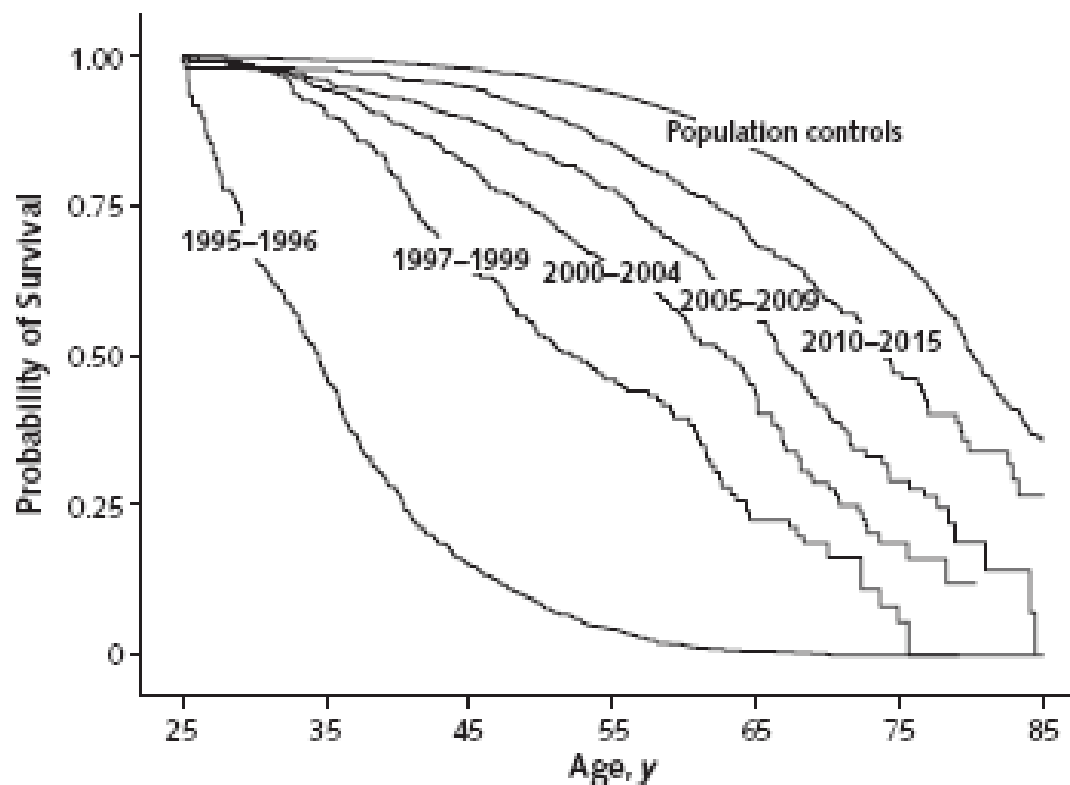
Lohse N, et al. Ann Intern Med. 2007;146:87-95.

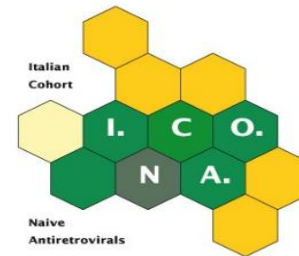


# Update of Survival for Persons With HIV Infection in Denmark

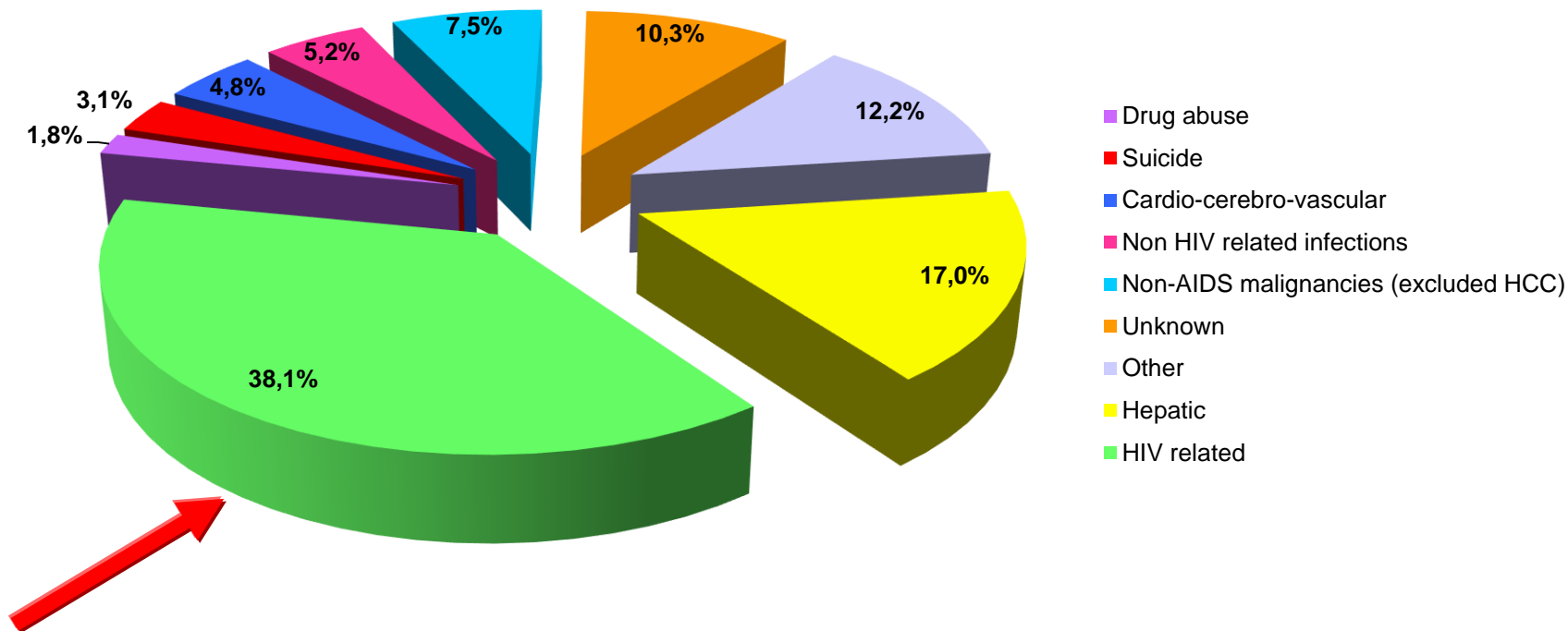
Lohse et al .

**Data 1995-2015**



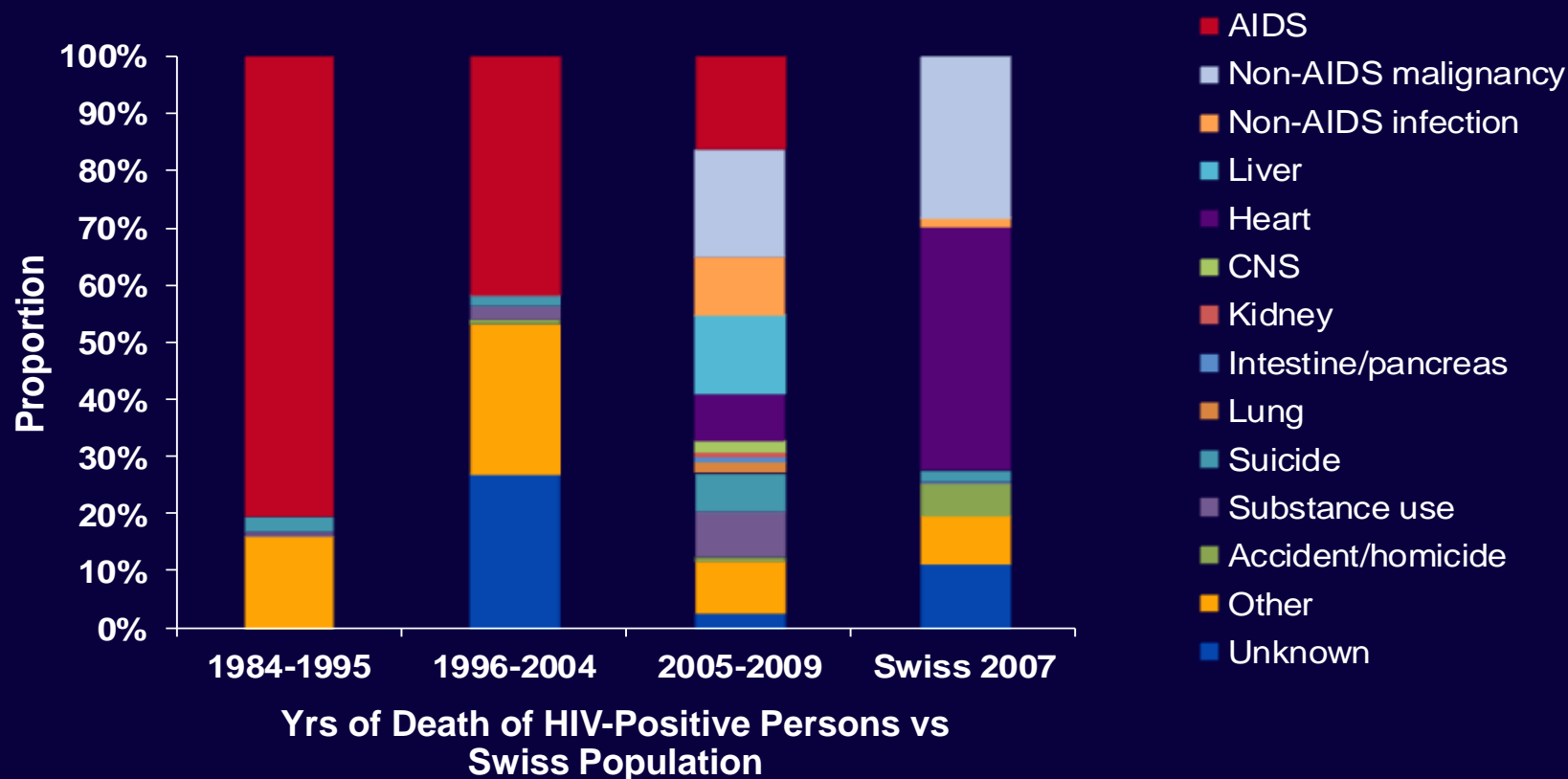


### Cause of death, n= 813



# Changing Patterns of the Causes of Death in the Swiss HIV Cohort

Causes of Death in Participants in the Swiss HIV Cohort Study in 3 Different Time Periods, and in the Swiss Population in 2007



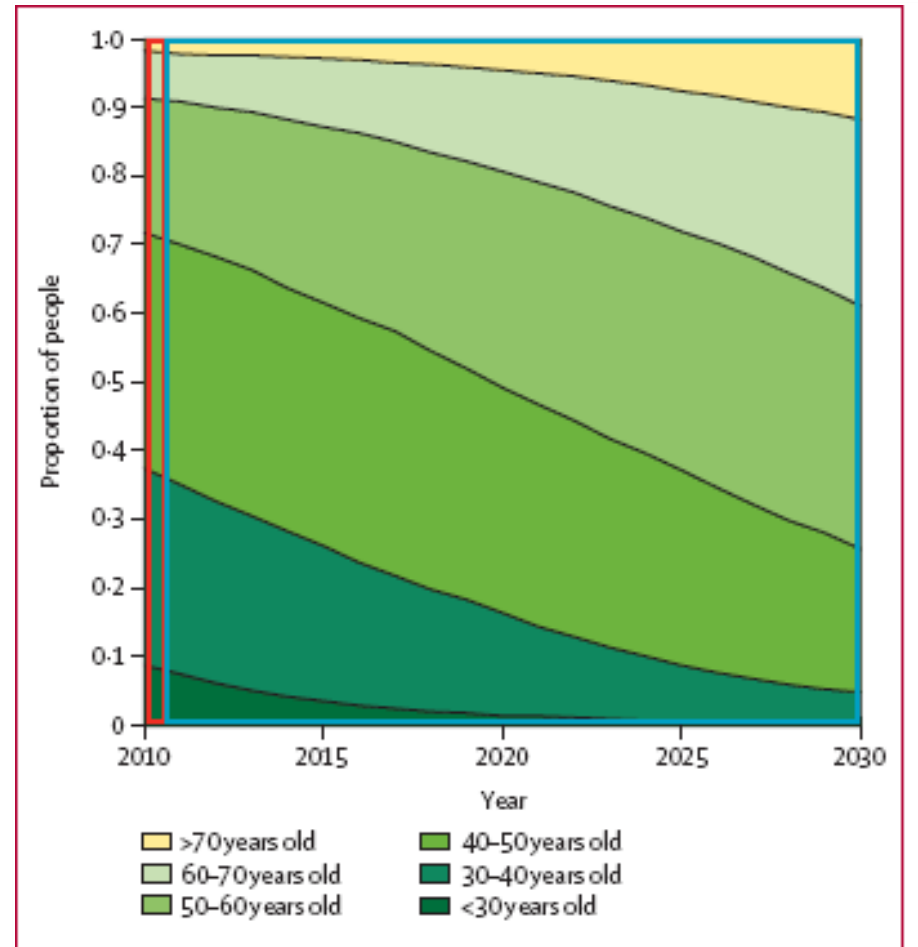
# Future challenges for clinical care of an ageing population infected with HIV: a modelling study

**ATHENA: Observational cohort of 10,278 HIV-positive pts in the Netherlands**

## **Modeling study projections:**

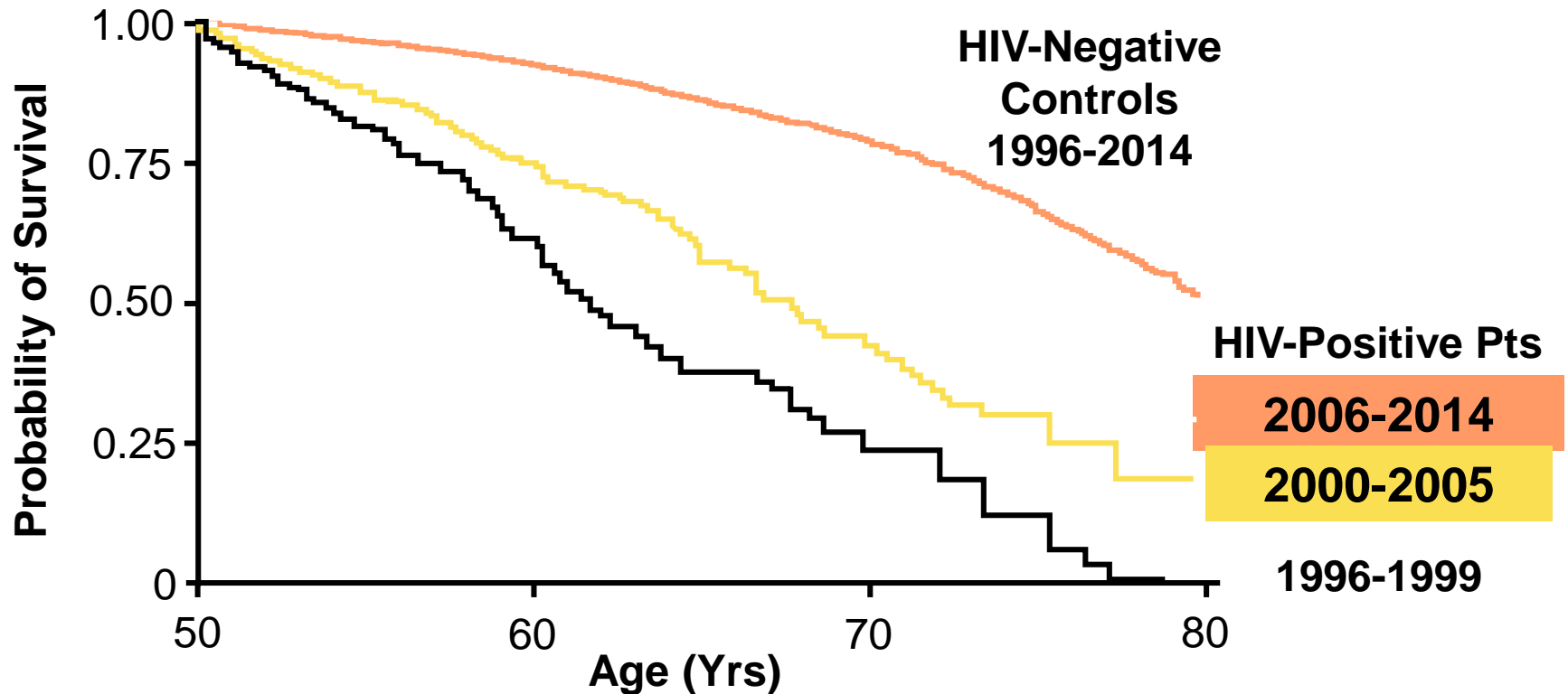
**Proportion of HIV-positive pts  $\geq$  50 yrs of age to increase from 28% in 2010 to 73% in 2030**

**Median age of HIV-positive pts on combination ART to increase from 43.9 yrs in 2010 to 56.6 yrs in 2030**



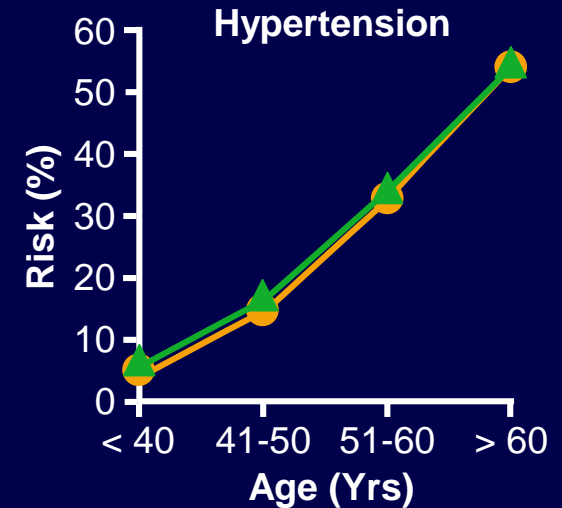
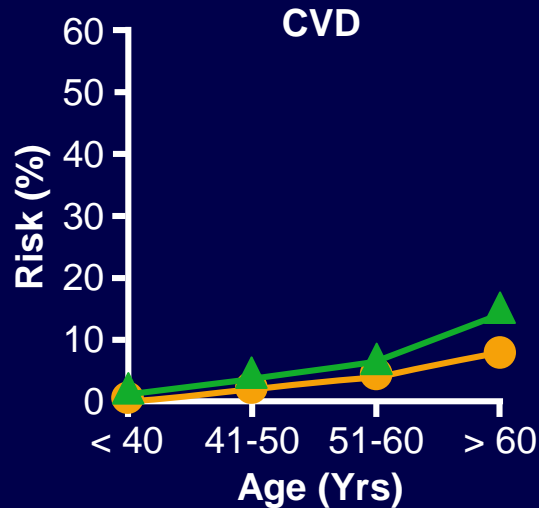
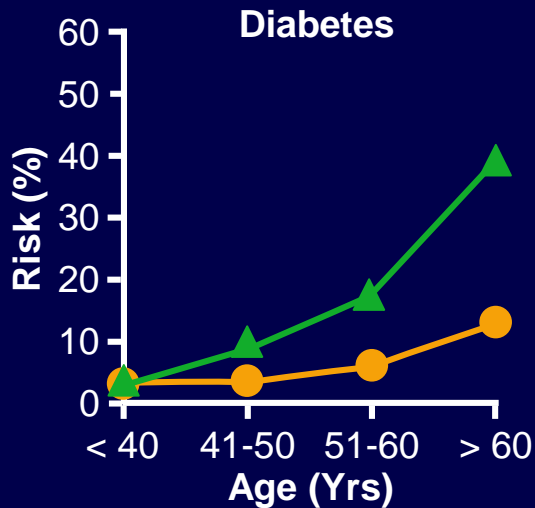
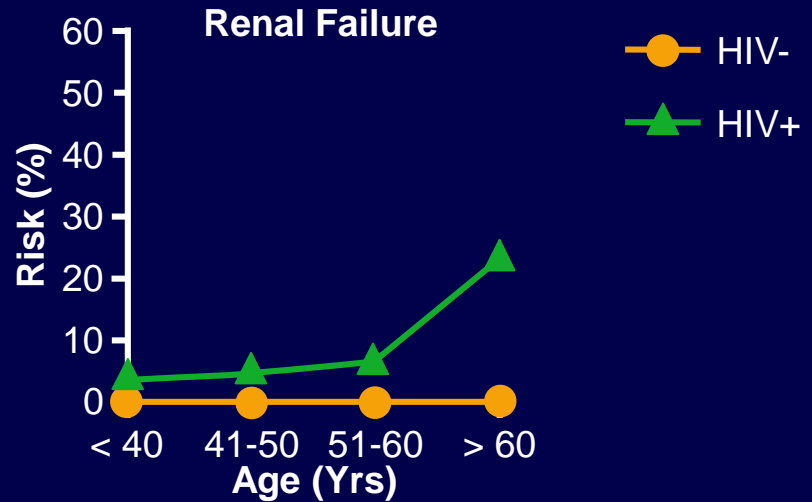
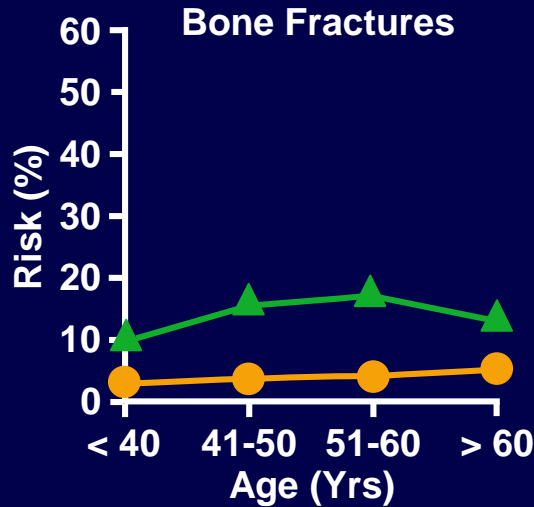


# Decreased Life Expectancy in Older HIV+ Adults in Modern ART Era





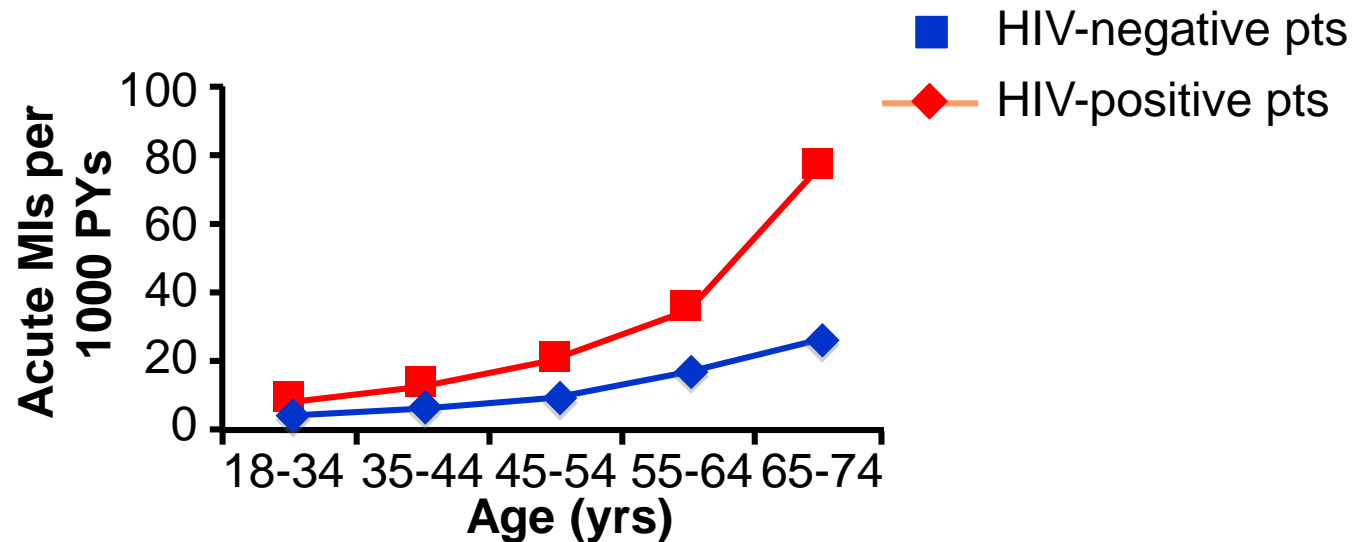
# HIV Pts More Likely to Experience Bone Fractures, CVD, Diabetes, Renal Failure





# HIV e rischio CV

- Rischio IMA è maggiore in HIV-positive pts<sup>[1]</sup>
- HIV infection è un fattore di rischio per stroke<sup>[2]</sup>
- Maschi HIV hanno una maggiore prevalenza di placche ateromatose coronariche <sup>[1,3]</sup>

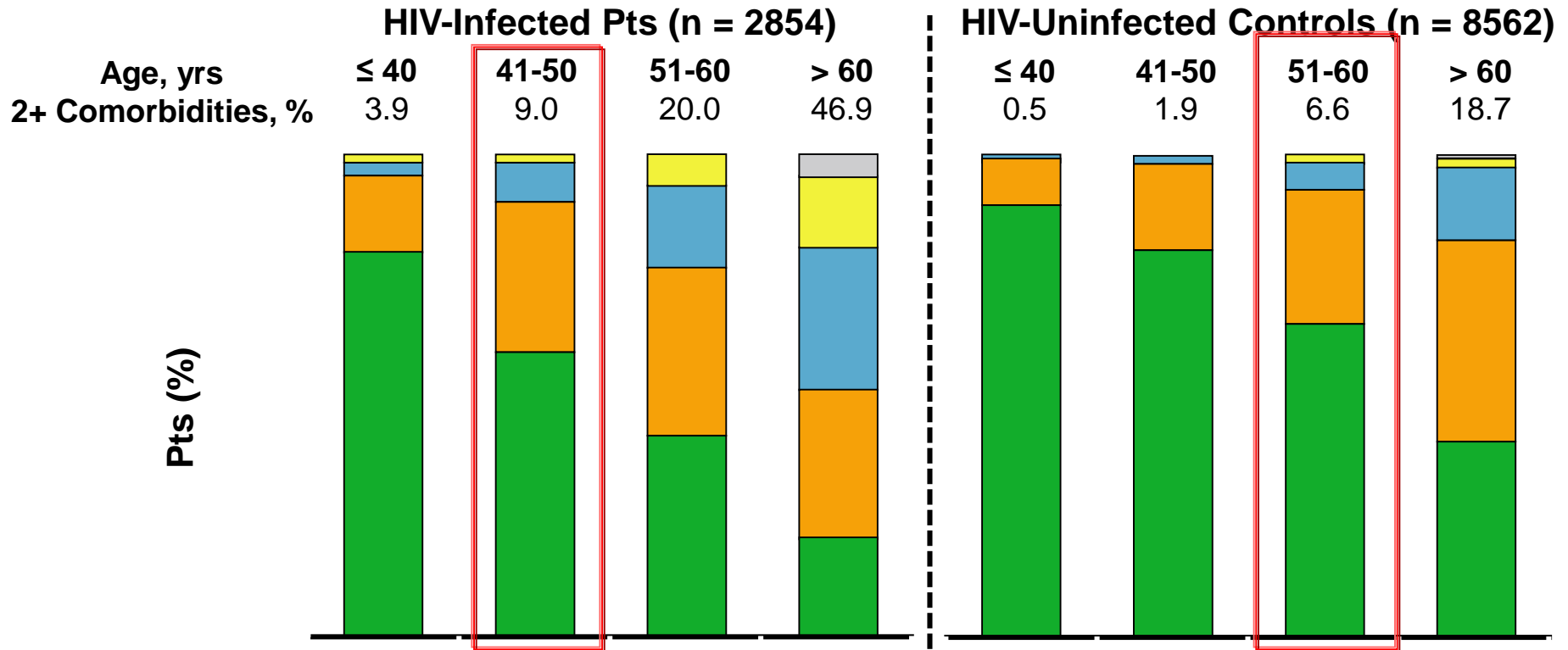
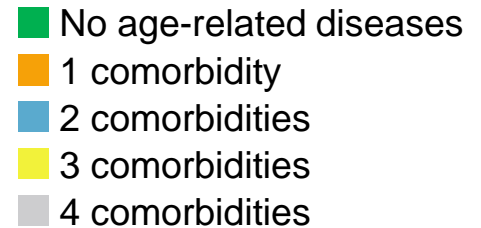


1. Triant VA, et al. J Clin Endocrinol Metab. 2007;92:2506-2512. 2. Chow FC, et al. J Acquir Immune Defic Syndr. 2012;60:351-358. 3. Post WS, et al. Ann Intern Med. 2014;160:458-467.



# Comorbidities Increase With Age and With HIV Infection

- Single-center, case-control study

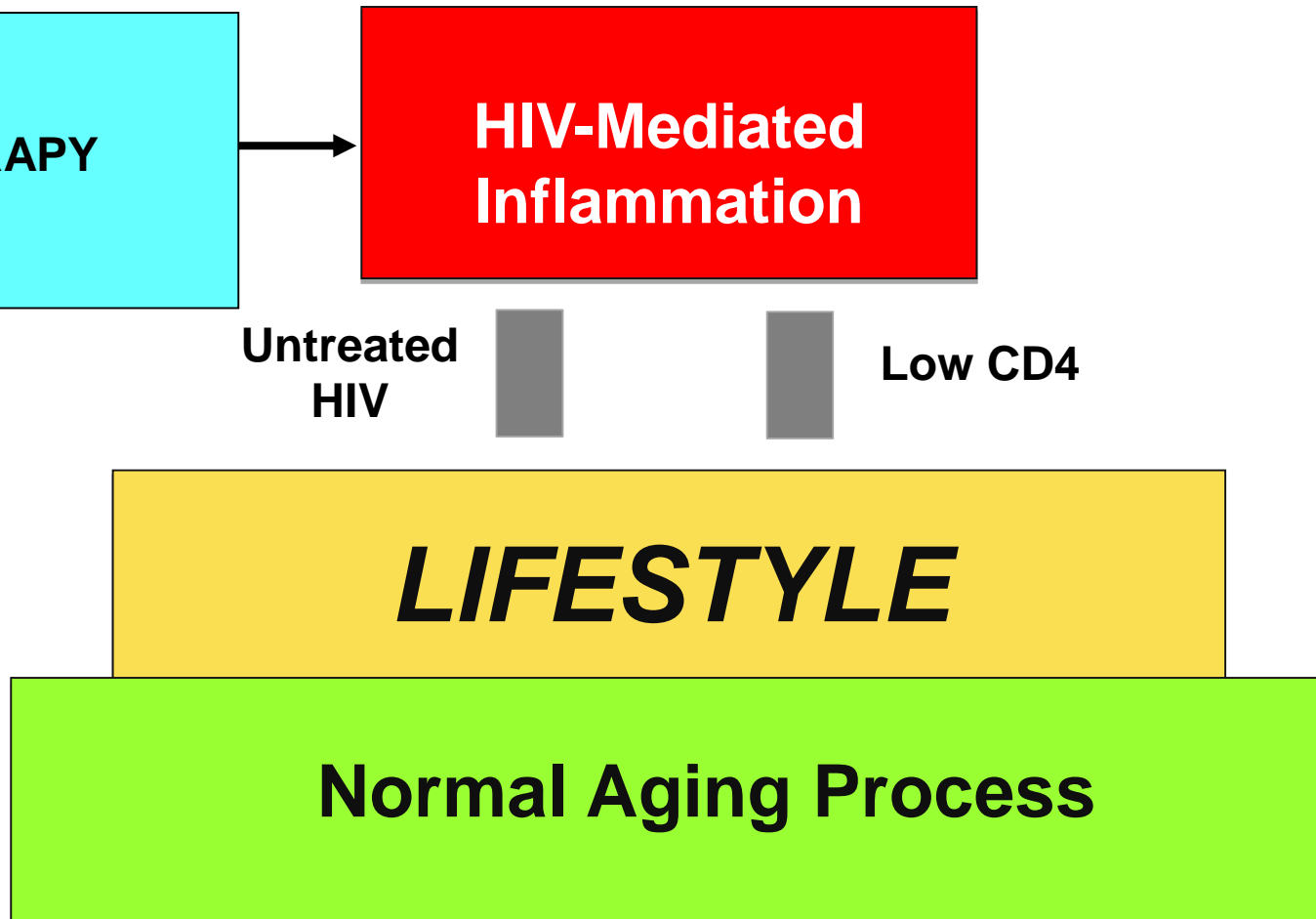


\*Comorbidities: bone fractures, CVD, diabetes, HTN, hypothyroidism.

Guaraldi G, et al. Clin Infect Dis. 2011;53:1120-1126.



# Aging With HIV

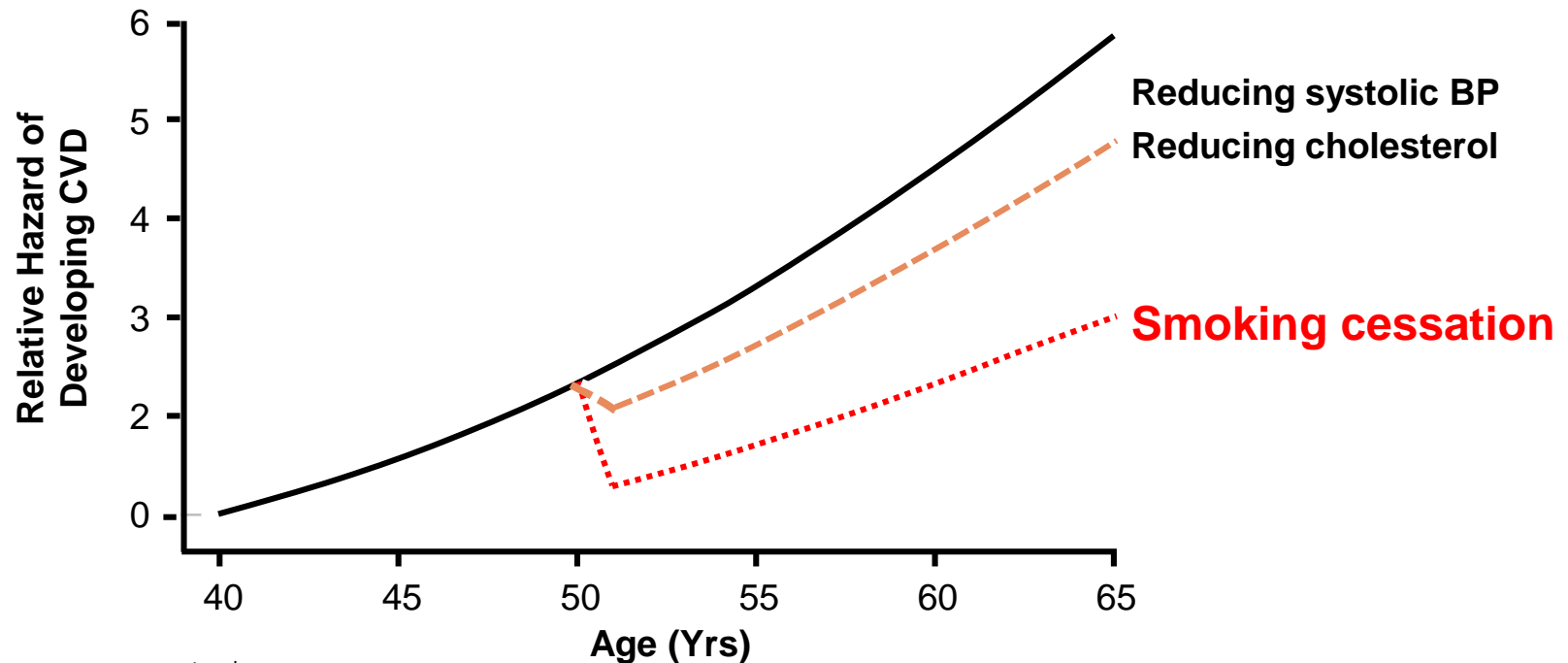




# La riduzione dei fattori di rischio CV è efficace anche nei soggetti HIV

- Effective treatment of modifiable risk factors, such as smoking, cholesterol, and BP can significantly reduce an individual's CVD risk

Model for Change in Relative Risk of CVD From Smoking Cessation, Reducing Cholesterol,\* or Reducing Systolic BP<sup>†</sup> in a Cohort of 24,323 HIV-Positive Pts Without Prior CVD (D:A:D Study)

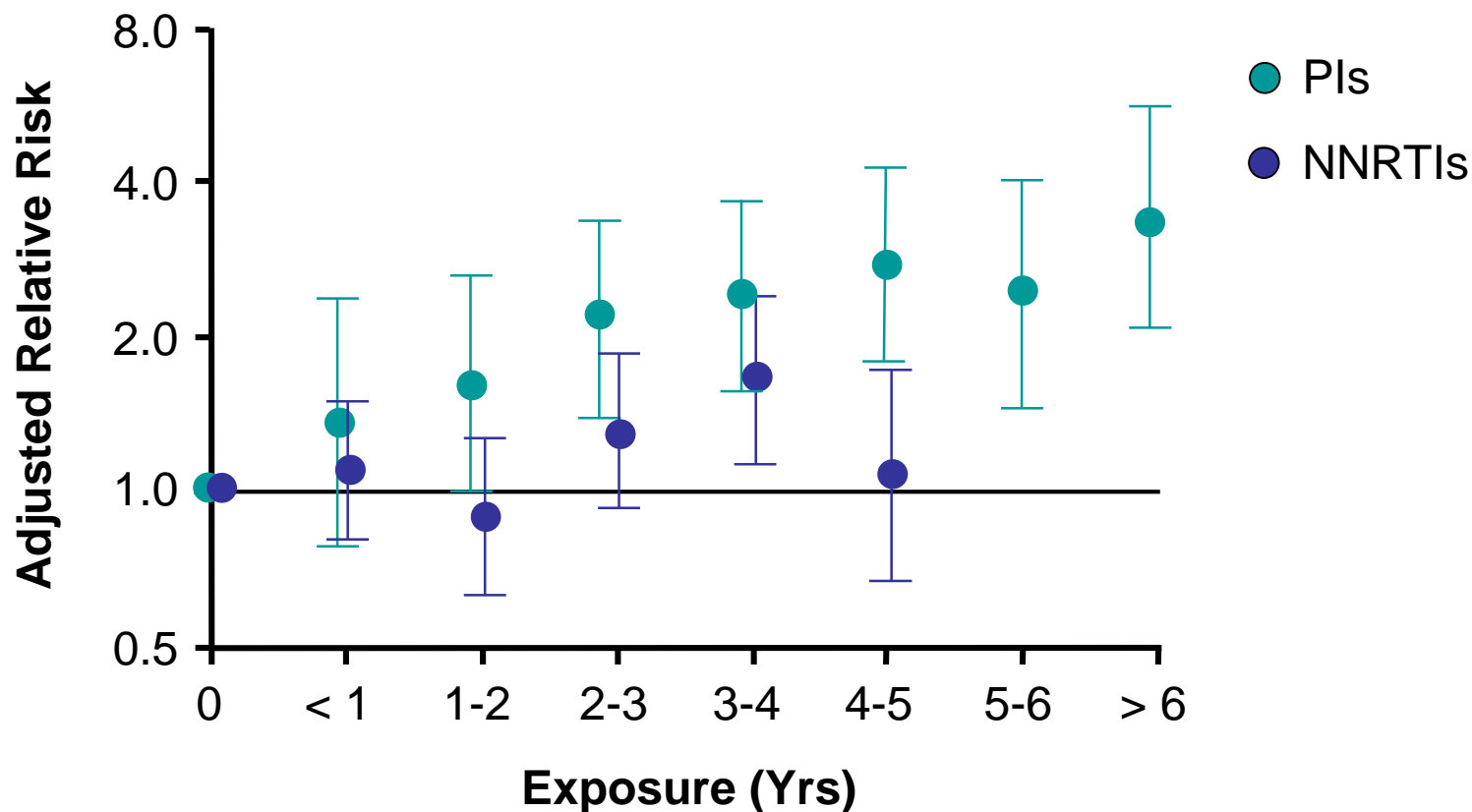


\*Reduced by 1 mmol/L. <sup>†</sup>Reduced by 10 mm Hg.

Petoumenos K, et al. HIV Med. 2014;15:595-603.



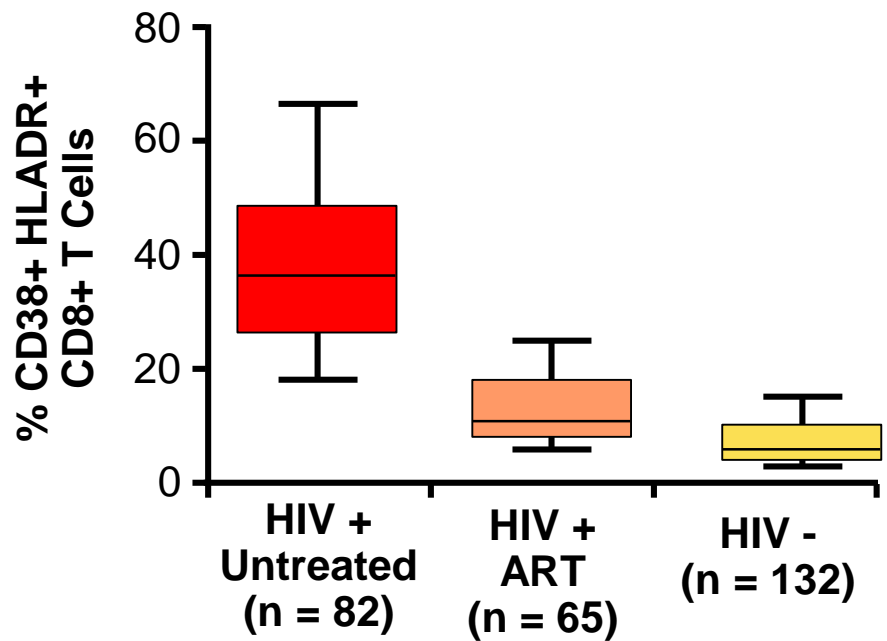
# D:A:D Study: rischio di IMA ed esposizione alla terapia antiretrovirale





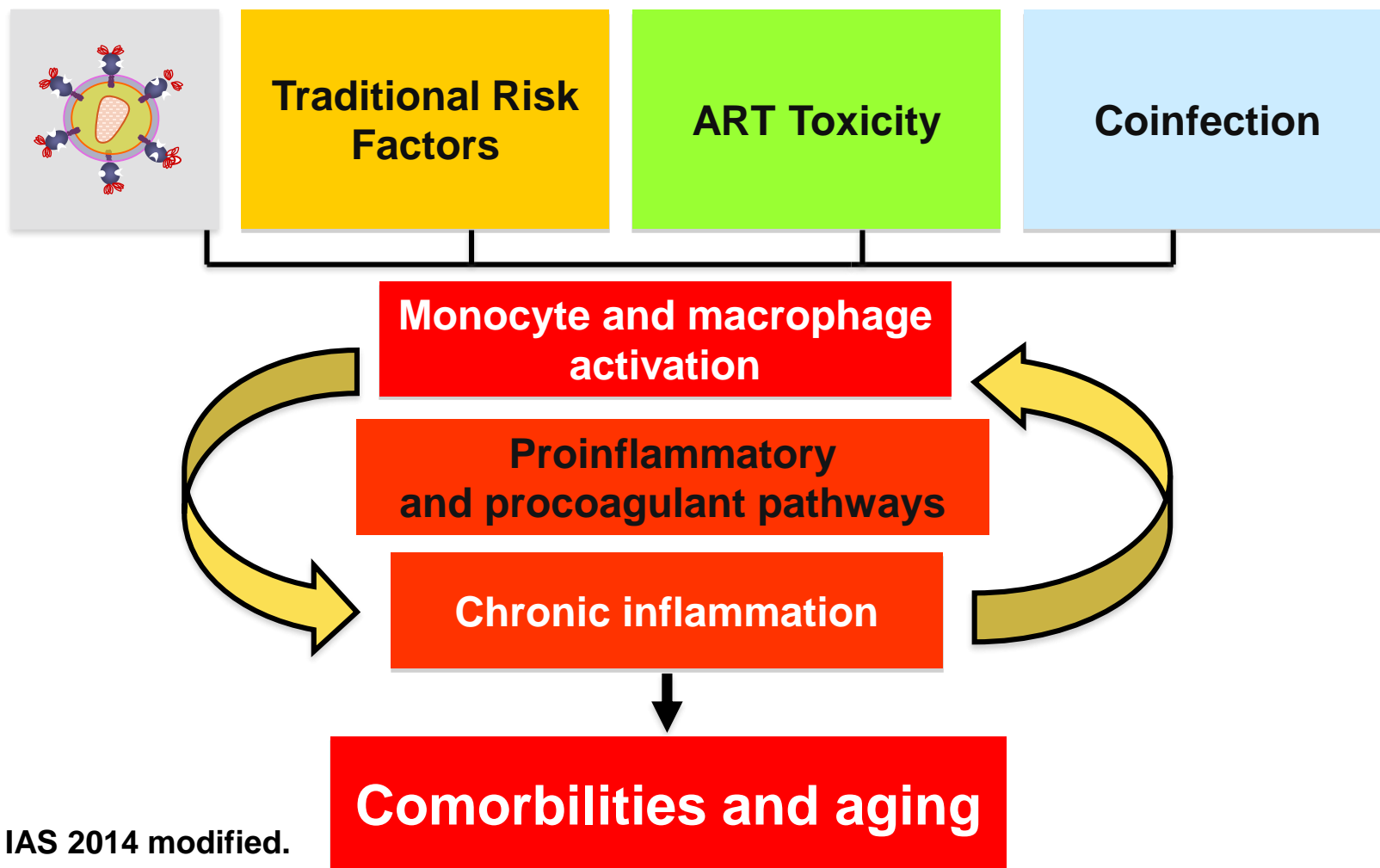
# Chronic Inflammation Persists in the Setting of Treated HIV Infection

- T-cell activation higher in treated HIV vs controls<sup>[1]</sup>
- Lipopolysaccharide higher in treated HIV vs controls<sup>[2]</sup>
- Tissue factor elevated in treated HIV vs controls<sup>[3]</sup>





# Factors Contributing to “inflammaging” in HIV-Positive Pts







# **HIV: cronicità ed invecchiamento**

## **Gestione assistenziale integrata e multidisciplinare**

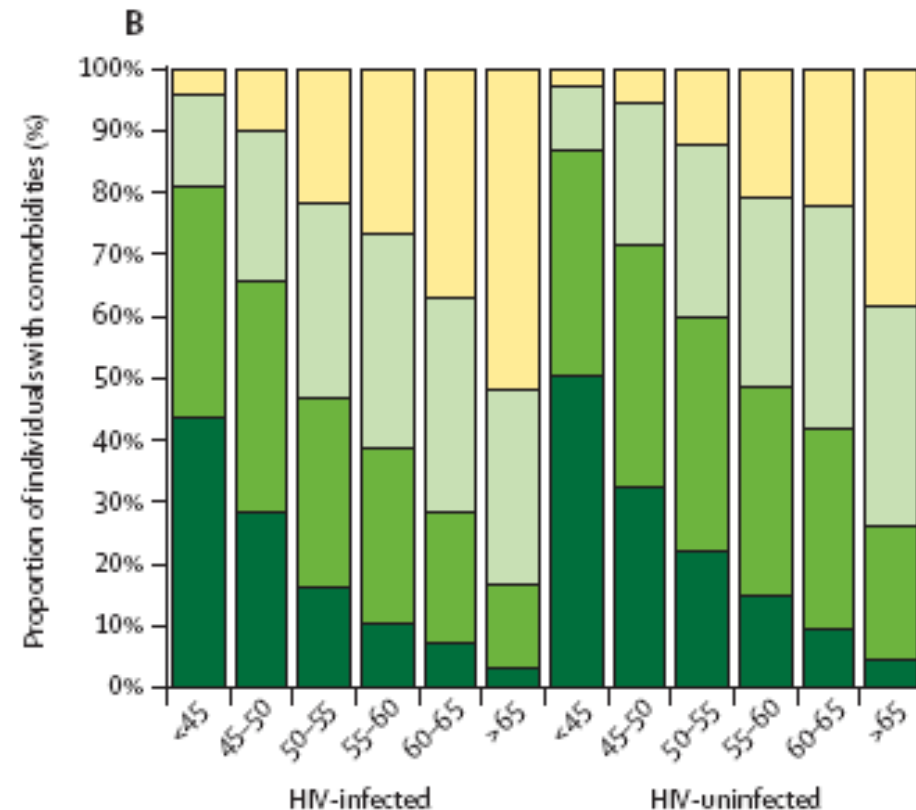
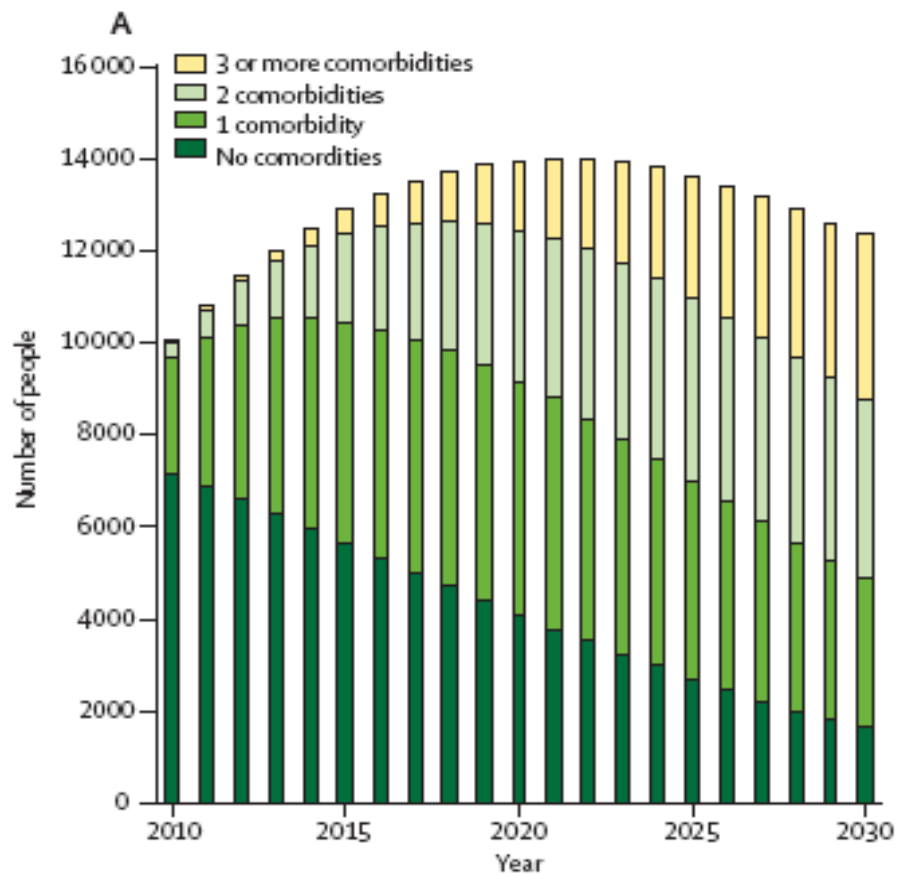
- **Gestione specialistica diagnostica e terapeutica**
- **Valutazione patologie HIV correlate**
- **Valutazione multidisciplinare delle comorbidità**

# Future challenges for clinical care of an ageing population infected with HIV: a modelling study

Lancet Infect Dis 2015;  
15: 810-18

## 2030:

- **84%** of HIV+ pts will have  $\geq 1$  NCD
- **28%** of HIV+  $> 3$ NCDs
- **54%** of HIV+ pts will be prescribed meds other than ART





# **HIV: cronicità ed invecchiamento**

## **Gestione assistenziale integrata e multidisciplinare**

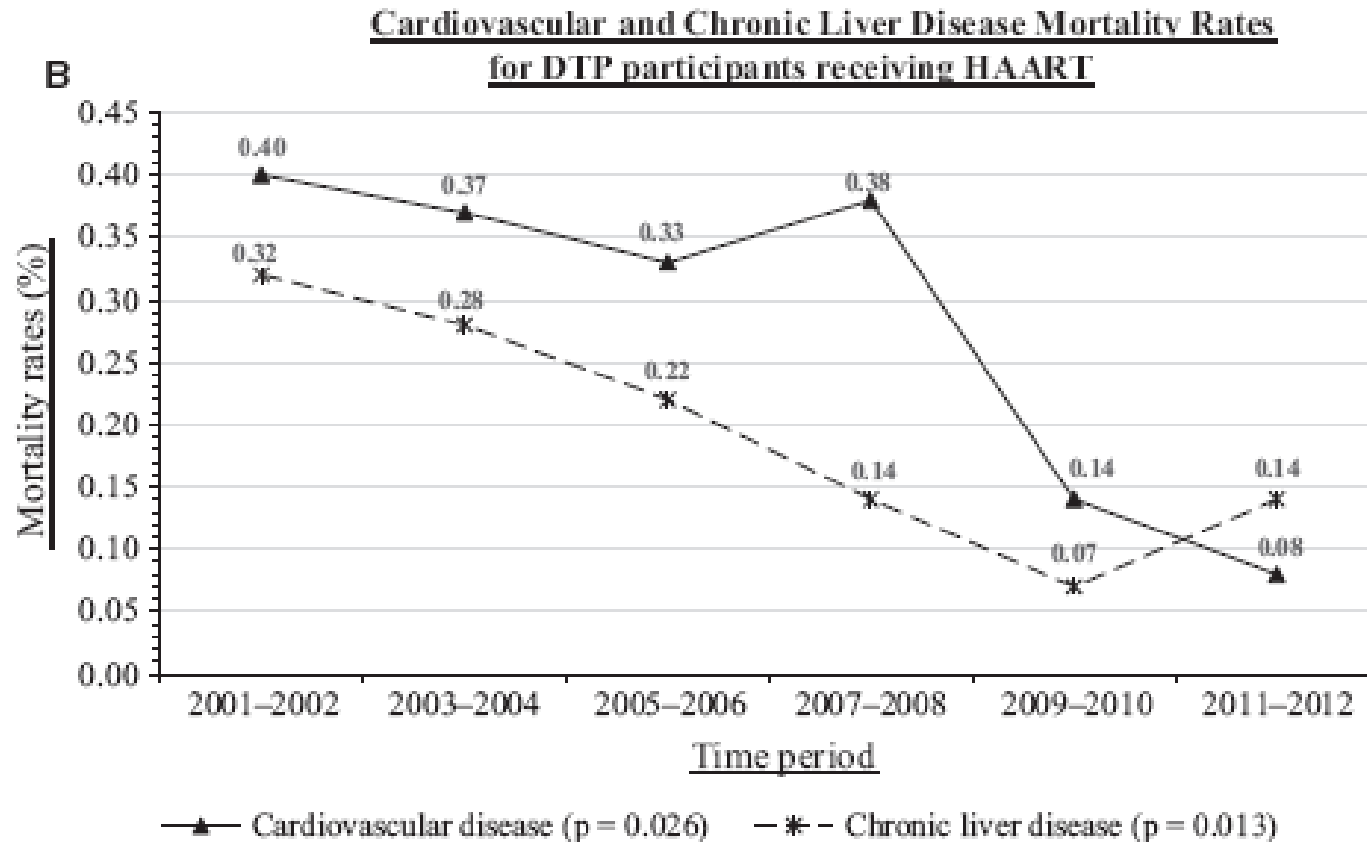
- **Prevenzione delle comorbidità**
- **Nuovi farmaci?**
- **Nuove strategie terapeutiche?**



# Reductions in all-cause and cause-specific mortality among HIV-infected individuals receiving antiretroviral therapy in British Columbia, Canada: 2001–2012\*

*HIV Medicine* (2016), 17, 694–701

CC Cheung,<sup>1</sup> E Ding,<sup>2</sup> P Sereda,<sup>2</sup> B Yip,<sup>2</sup> L Lourenco,<sup>2</sup> R Barrios,<sup>2,4</sup> JSG Montaner,<sup>1,2</sup> RS Hogg,<sup>2,3</sup> V Lima<sup>1,2</sup> and DM Moore<sup>1,2</sup>





# **HIV: cronicità ed invecchiamento**

## **Gestione assistenziale integrata e multidisciplinare**

- **Organizzazione rete polispecialistica e multidisciplinare**
- **Integrazione servizi territoriali**
- **Supporto sociale**
- **Gestione disabilità**



# Frailty, Disability, and Functional Impairment in Older HIV Pts

## Impairment (body function):

Osteoarthritis



## Limitations (activity):

Slow chair rise time,  
slow gait



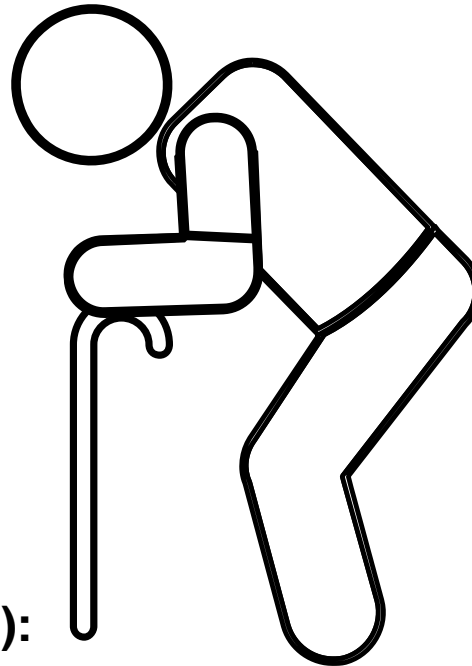
## Frailty (vulnerability):

Slow walking speed,  
low activity, fatigue



## Disabilities (participation):

Requires cane but ramp into home and no stairs in home



## Impairment:

History, exam, x-ray

## Limitations:

Short Physical Performance  
Battery Timed walk

## Frailty:

Fried's frailty phenotype

## Disability:

Activities of daily living,  
independent activities of  
daily living

# INVECCHIARE IN SALUTE E CRONICITÀ I CASI HIV, HCV

