



VIII Jornada sobre Aspectes Rellevants de la Infecció del VIH Maneig a l'Atenció Primària i a l'Hospital

Condicionants del RCV en persones que viuen amb el VIH

Ricard Carrillo Muñoz

Metge de família

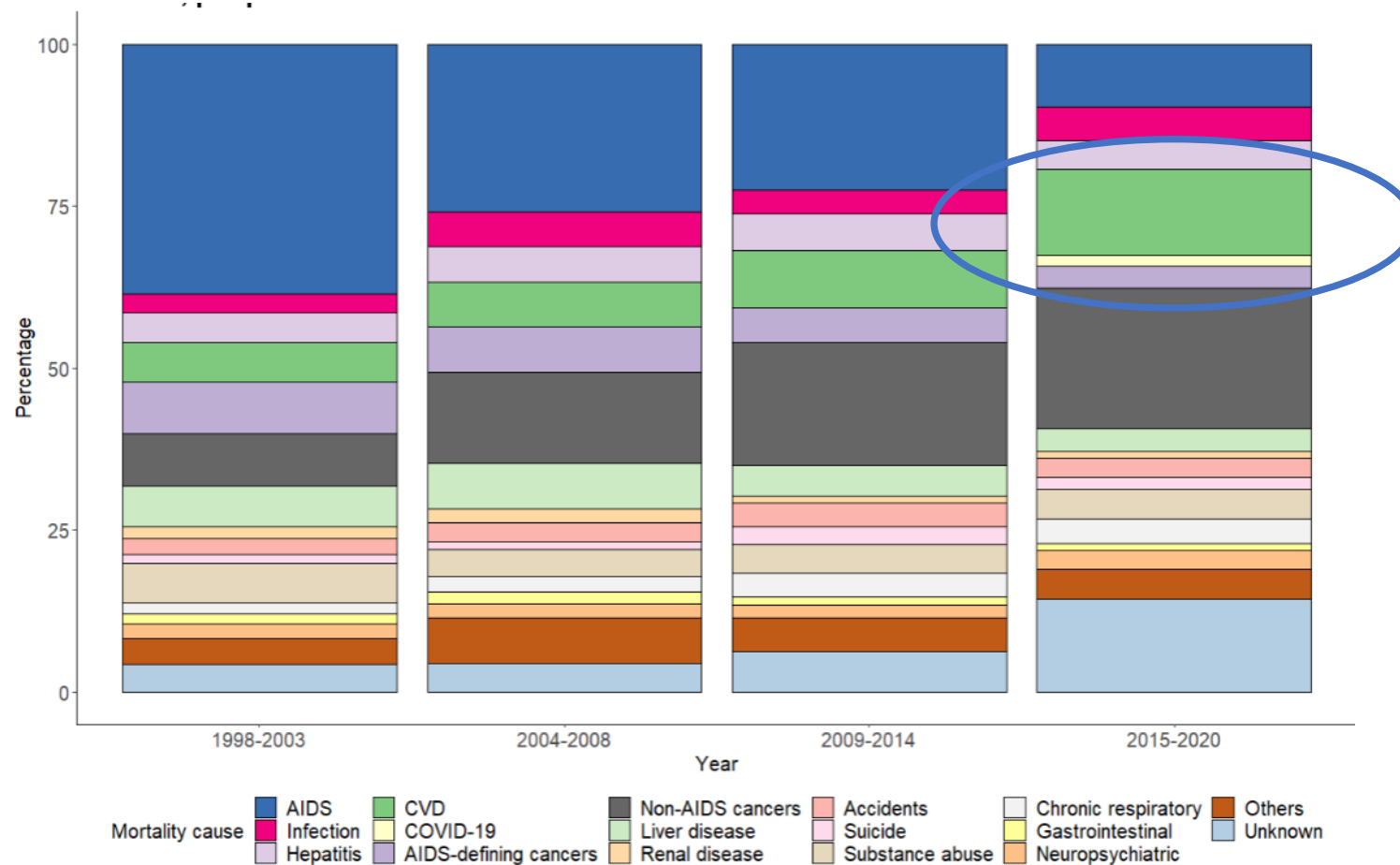
EAP Florida Sud – GAPiC Delta del Llobregat – ICS

UDMAFiC - Costa Ponent Metropolitana Sud

GdT VIH - CAMFiC

Barcelona, 4 de desembre de 2025

Causas de mort entre PVVIH a Catalunya i les Illes balears 1998-2020



Anàlisi retrospectiva que abasta 23 anys

Abreviatures: CVD (malaltia cardiovascular); COVID-19 (malaltia del coronavirus 2019).

Bruguera A, et al. Evolució de la mortalitat relacionada amb el VIH i no relacionada amb el VIH i predictors a la cohort PISCIS de persones que viuen a Catalunya i les Illes Balears, 1998-2020. <https://salutpublica.gencat.cat/ca/detalls/Article/epidemiologia-00007>

En comparació a la PG. Risc de MCV 2,16 (IC del 95%, 1,68-2,77)

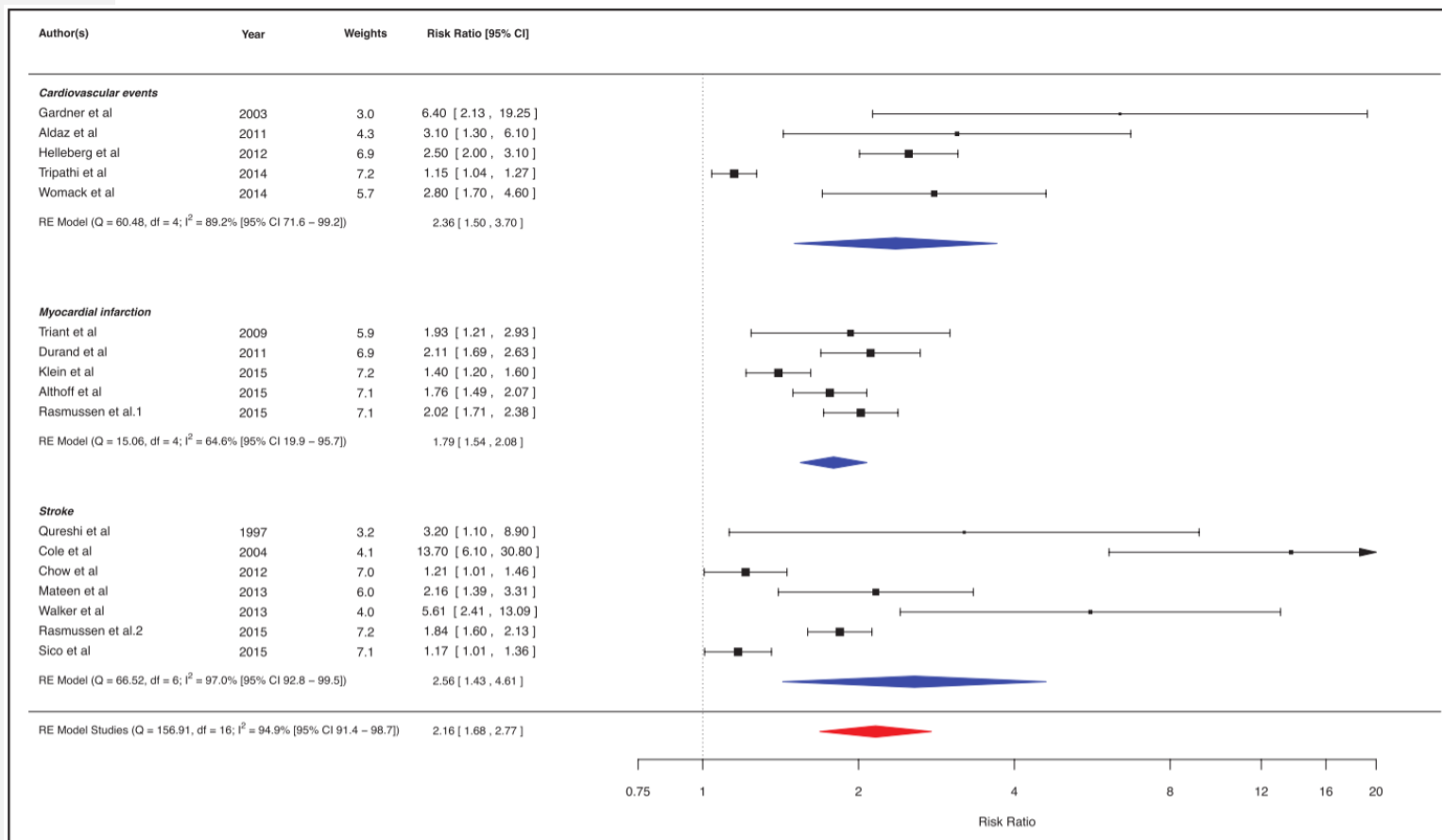


Figure 2. Forest plot.

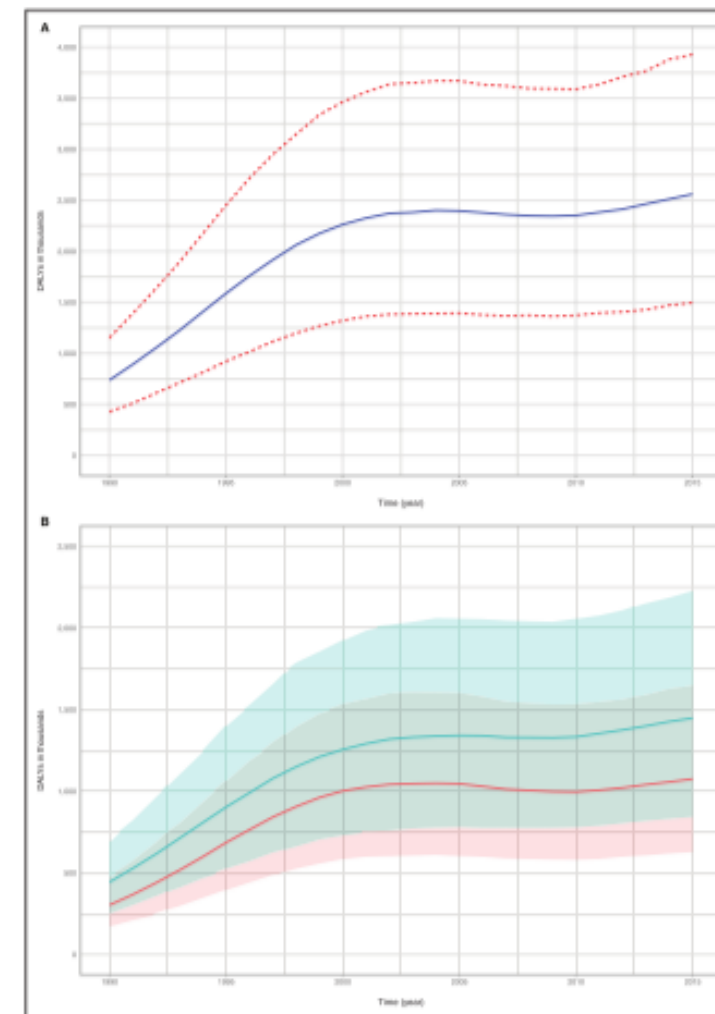


Figure 3. Disability-adjusted life-years. Temporal change in the disability-adjusted life-years (DALYs) of HIV-associated cardiovascular disease globally (A) and stratified by sex (B); red line represents central estimate, and blue dashed lines represent the 95% CI. (Continued)

Malaltia cardiovascular en dones

2021

Table 1. Frequency of Hypertension, Diabetes, Cardiovascular Disease, and Lung Disease in Women Stratified by Human Immunodeficiency Virus (HIV) Serostatus and Age Group

Comorbidity	18–44		45–64		65+	
	HIV+ no. (%)	HIV– no. (%)	HIV+ no. (%)	HIV– no. (%)	HIV+ no. (%)	HIV– no. (%)
HTN	940 (27)	432,490 (8)	3,310 (56)	1,492,890 (33)	930 (78)	2,616,330 (62)
T2DM	390 (11)	188,210 (3)	1,490 (25)	582,260 (13)	440(37)	999,270 (24)
CVD ^a	180 (5)	49,120 (1)	900 (15)	256,470 (6)	340 (29)	755,180 (18)
LD ^b	990 (29)	755,530 (13)	2,340 (40)	749,850(16)	500 (41)	922,740 (21)

Abbreviations: CVD, cardiovascular disease; HTN, hypertension; LD, lung disease; T2DM, type 2 diabetes mellitus.

^aCVD entails ICD-9 codes: 410, 411, 413, 433, 434, 435, 436.

^bLD entails ICD-9 codes: 491, 492, 493, 496.

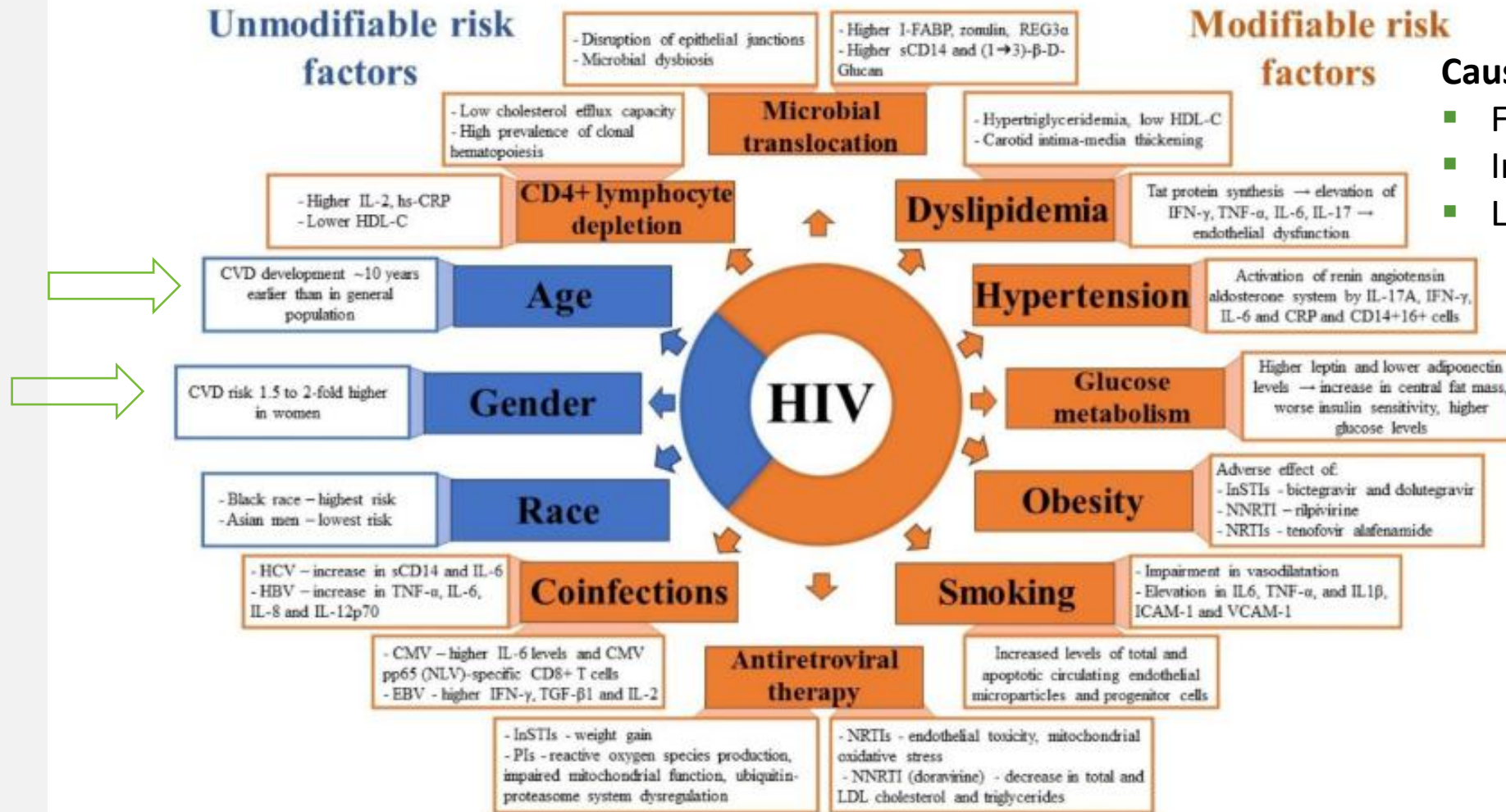
Burden of Hypertension, Diabetes, Cardiovascular Disease, and Lung Disease Among Women Living With Human Immunodeficiency Virus (HIV) in the United States

	Location	Number of participants	Number of HIV cases	Number of CVD events	Mean age (SD)	Outcome	Measure of effect	Effect estimate (95% CI)
Stroke								
Quince et al (1997)	Grady Memorial Hospital, USA	236	113	68	35 (6)	Cerebral infarction	Odds ratio	3.2 (1.1–8.9)
Cole et al (2004)	Baltimore-Washington Cooperative Young Stroke Study, USA	386	6	386	36	Ischaemic stroke	Odds ratio	13.70 (6.10–30.80)
Chow et al (2012)	Massachusetts General Hospital and Brigham and Women's Hospital, USA	36 731	4308	914	41 (12)	Ischaemic stroke	Hazard ratio	1.21 (1.01–1.46)
Mateen et al (2013)	Multicenter AIDS Cohort Study, USA	3945	1776	114	42	All stroke	Relative risk	2.16 (1.39–3.31)
Walker et al (2013)	Rural Hai district in northern Tanzania and urban Dar-es-Salaam, Tanzania	201	25	201	61 (13)	All stroke	Odds ratio	5.61 (2.41–13.09)
Marcus et al (2014) ⁴	Kaiser Permanente Southern California and Northern California, USA	282 368	24 768	1279	40 (10)	Ischaemic stroke	Incidence rate ratio	1.4 (1.2–1.7)
Rasmussen et al (2015)	Danish HIV Cohort Study	58970	5897	1785	Median 37 (IQR 31–44)	Stroke	Incidence rate ratio	1.84 (1.60–2.13)
Sico et al (2015)	Veterans Aging Cohort Study, USA	76 835	25 434	910	49 (9)	Ischaemic stroke	Hazard ratio	1.17 (1.01–1.36)
Benjamin et al (2016) ⁵	Malawi urban hospital; stroke cases and community controls	725	69	222	59	All stroke	Odd ratio	3.28 (2.05–5.25)
Alonso et al (2019) ⁶	Truven Health MarketScan Commercial Claims and Encounter and the Medicare Supplemental and Coordination of Benefits databases, USA	79 100	19 798	93	43 (13)	Stroke	Hazard ratio	2.3 (1.5–3.6)
Myocardial infarction								
Triant et al (2009)	Massachusetts General Hospital and Brigham and Women's Hospital, USA	70 357	487	..	Mid-50s	Acute myocardial infarction	Odds ratio	1.93 (1.21–2.93)
Lang et al (2010) ⁷	French hospital database on HIV	74 958	74 958	360	Not provided	Myocardial infarction	Standardised morbidity ratio	1.5 (1.3–1.7) men; 1.4 (1.3–1.6) women
Durand et al (2011)	Régie de l'Assurance maladie du Québec, Canada	27 734	7053	365	40 (11)	Acute myocardial infarction	Hazard ratio	2.11 (1.69–2.63)

So-Armah, K., Benjamin, L. A., Bloomfield, G. S., Feinstein, M. J., Hsue, P., Njuguna, B., & Freiberg, M. S. (2020). HIV and cardiovascular disease. In *The Lancet HIV* (Vol. 7, Issue 4, pp. e279–e293). Elsevier Ltd. [https://doi.org/10.1016/S2352-3018\(20\)30036-9](https://doi.org/10.1016/S2352-3018(20)30036-9)

	Location	Number of participants	Number of HIV cases	Number of CVD events	Mean age (SD)	Outcome	Measure of effect	Effect estimate (95% CI)
Klein et al (2015)	Kaiser Permanente Southern California and Northern California, USA	282 368	24 768	2803	40	Myocardial infarction	Incidence rate ratio	1.40 (1.20–1.60)
Althoff et al (2015)	Veterans Aging Cohort Study, USA	83 527	56 274	689	Mid-50s	Acute myocardial infarction	Hazard ratio	1.76 (1.49–2.07)
Rasmussen et al (2015)	Danish HIV cohort	58 970	5897	1238	Median 37 (IQR 31–44)	Myocardial infarction	Incidence rate ratio	2.02 (1.71–2.38)
Alonso et al (2019) ⁶	Truven Health MarketScan Commercial Claims and Encounter and Medicare Supplemental and Coordination of Benefits databases, USA	79 100	19 798	154	43 (13)	Myocardial infarction	Hazard ratio	1.2 (0.8–1.8)
Heart failure								
Freiberg et al (2017) ⁷	Veterans Aging Cohort Study, USA	98 015	31 523	2636	48 (10)	Congestive heart failure	Hazard ratio	1.41 (1.29–1.54)
Feinstein et al (2018) ⁹	HIV Electronic Comprehensive Cohort of CVD Complications (Northwestern Medicine), USA	7371	4640	152	40 (11)	Adjudicated heart failure	Hazard ratio	2.10 (1.38–3.21)
Alonso et al (2019) ⁶	Truven Health MarketScan Commercial Claims and Encounter and Medicare Supplemental and Coordination of Benefits databases, USA	79 100	19 798	223	43 (13)	Heart failure	Hazard ratio	2.8 (2.0–3.8)
Peripheral artery disease								
Alonso et al (2019) ⁶	Truven Health MarketScan Commercial Claims and Encounter and Medicare Supplemental and Coordination of Benefits databases, USA	79 100	19 798	98	43 (13)	Peripheral artery disease	Hazard ratio	0.9 (0.5–1.4)
Beckman et al (2019) ¹⁰	Veterans Aging Cohort Study, USA	91 953	28 714	7708	48 (10)	Peripheral artery disease	Hazard ratio	1.19 (1.13–1.25)
Lai et al (2018)	Taiwan Centers for Disease Control, HIV Surveillance Database	2 000 000	26 272	55	32 (10)	Peripheral artery disease	Standardised Incidence rate	0.87 (0.65–1.13)
Sudden cardiac death								
Iseng et al (2018) ¹¹	HIV specialty clinic in San Francisco, California, USA	2860	2860	30	Median 39 (IQR 33–45)	Sudden cardiac death	Standardised mortality ratio	4.46
Lai et al (2018) ¹²	Taiwan Centers for Disease Control, HIV Surveillance Database	General population	26272	82	32 (10)	Sudden cardiac death	Standardised Incidence rate	3.01 (2.39–3.73)

So-Armah, K., Benjamin, L. A., Bloomfield, G. S., Feinstein, M. J., Hsue, P., Njuguna, B., & Freiberg, M. S. (2020). HIV and cardiovascular disease. In *The Lancet HIV* (Vol. 7, Issue 4, pp. e279–e293). Elsevier Ltd. [https://doi.org/10.1016/S2352-3018\(20\)30036-9](https://doi.org/10.1016/S2352-3018(20)30036-9)



Causa multifactorial:

- FRCV independents clàssics
- Infeccions virals cròniques.
- La pròpia infecció per VIH.
 - Efectes adversos de la teràpia antiretroviral
 - L'efecte de la disminució i recuperació del recompte de cèl·lules CD4+

Fig. 1 Risk factors for cardiovascular disease among PLWH with underlying mechanisms

Cardiovascular Toxicology (2024) 24:1–14
<https://doi.org/10.1007/s12012-023-09815-4>

Human Immunodeficiency Virus as a Risk Factor for Cardiovascular Disease

Agnieszka Lembas^{1,2} · Andrzej Zalewski^{1,2} · Michał Peller³ · Tomasz Mikula^{1,2} · Alicja Wiercińska-Drapała^{1,2}

22 estudis. 103.370 participants

Nweke M, Ibeneme S, Pillay JD and Mshunqane N (2025) Characterization and risk stratification of coronary artery disease in people living with HIV: a global systematic review.
Front. Cardiovasc. Med. 12:1586019.
doi: 10.3389/fcvm.2025.1586019

2025

TABLE 3 Meta-analysis of potential risk factors of coronary artery disease (CAD) in people living with HIV (PLWH).

Factors	Reference	Odds ratio	95% CI	I^2 (%)	p-value	Variance in effect size type (p-value)	Risk responsiveness (Ri)	Risk weight (Rw)	Crw	Geo-coverage	Temporal coverage	Geo-temporal trend (GTT)
Age (years)	≥50	4.96	3.30–7.47	99.7	<0.001	0.461	0.73	3.58 ^U	3.58	6/6	3/3	1.00 (Adj: 0.87)
Sex	Female	0.90	0.45–1.79	87.19	<0.001	0.186	NS	–	–	5/6	3/3	0.83
Sexual orientation	Homosexuals	1.87	1.50–2.32	0.00	0.392	1.000	0.33	0.62 ^I	4.20	3/6	2/3	0.33 (Adj: 0.33)
Smoking	Currently/ever smoked	1.59	1.35–1.87	70.34	<0.001	0.260	0.53	0.84 ^L	5.04	4/6	3/3	0.67 (Adj: 0.59)
Alcohol use	Yes	0.71	0.41–1.25	67.52	0.024	1.000	NS	–	–	2/6	2/3	0.22
Duration of HIV	Living longer with HIV	8.51	0.39–184.73	98.78	<0.001	0.819	NS	–	–	3/6	2/3	0.33
History of AID-defining illness	Yes	1.61	1.24–2.08	0.00	0.097	1.000	0.60	0.97 ^L	6.01	4/6	3/3	0.67 (Adj: 0.64)
CD4 count	Lower values	0.78	0.35–1.75	96.83	<0.001	1.000	NS	–	–	3/6	3/3	0.5
Nadir CD4 count	Lower values	1.68	0.42–6.67	88.19	<0.001	1.000	NS	–	–	2/6	2/3	0.22
Viral load	High values	1.42	1.06–8.85	15.94%	0.212	1.000	0.38	0.53 ^I	6.54	4/6	3/3	0.67 (Adj: 0.60)
Overweight/obesity	≥24 Kg/m ²	1.81	1.33–2.48	38.67	0.097	>0.05	0.75	1.36 ^M	7.90	2/6	3/3	0.33 (Adj: 0.53)
Hypertension	Yes	4.90	2.71–8.86	94.54	<0.001	0.885	0.91	4.50 ^U	12.4	5/6	3/3	0.83 (Adj: 0.87)
Diabetes	Yes	2.64	1.86–3.74	45.73	0.082	0.368	0.50	1.32 ^M	13.72	3/6	3/3	0.50 (Adj: 0.5)
Dyslipidemia	Yes	2.15	1.41–7.75	0.00	0.448	1.000	1.00	2.15 ^U	15.87	3/6	2/3	0.33 (Adj: 0.67)
Family history of CVD	Yes	3.15	1.95–5.08	74.25	<0.001	1.000	0.71	2.24 ^U	18.11	3/6	3/3	0.50 (Adj: 0.61)
ART exposure	Yes	1.68	1.43–1.97	58.81	<0.01	1.000	0.63	1.06 ^I	19.17	2/6	3/3	0.33 (Adj: 0.48)
PI exposure	Yes	1.60	1.26–2.02	35.99	0.029	1.000	0.56	0.90 ^I	–	4/6	3/3	0.67 (Adj: 0.62)
Duration of PI exposure	High values	5.82	0.56–60.37	98.98	<0.001	1.000	NS	–	–	2/6	3/3	0.33
Abacavir exposure	Yes	1.60	1.21–2.11	64.38	0.004	1.000	0.71	1.14 ^I	–	2/6	2/3	0.22 (Adj: 0.47)
CRT (clinical): 14.8												
CRT (community): 8.0												

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ESTABLISHED IN 1812

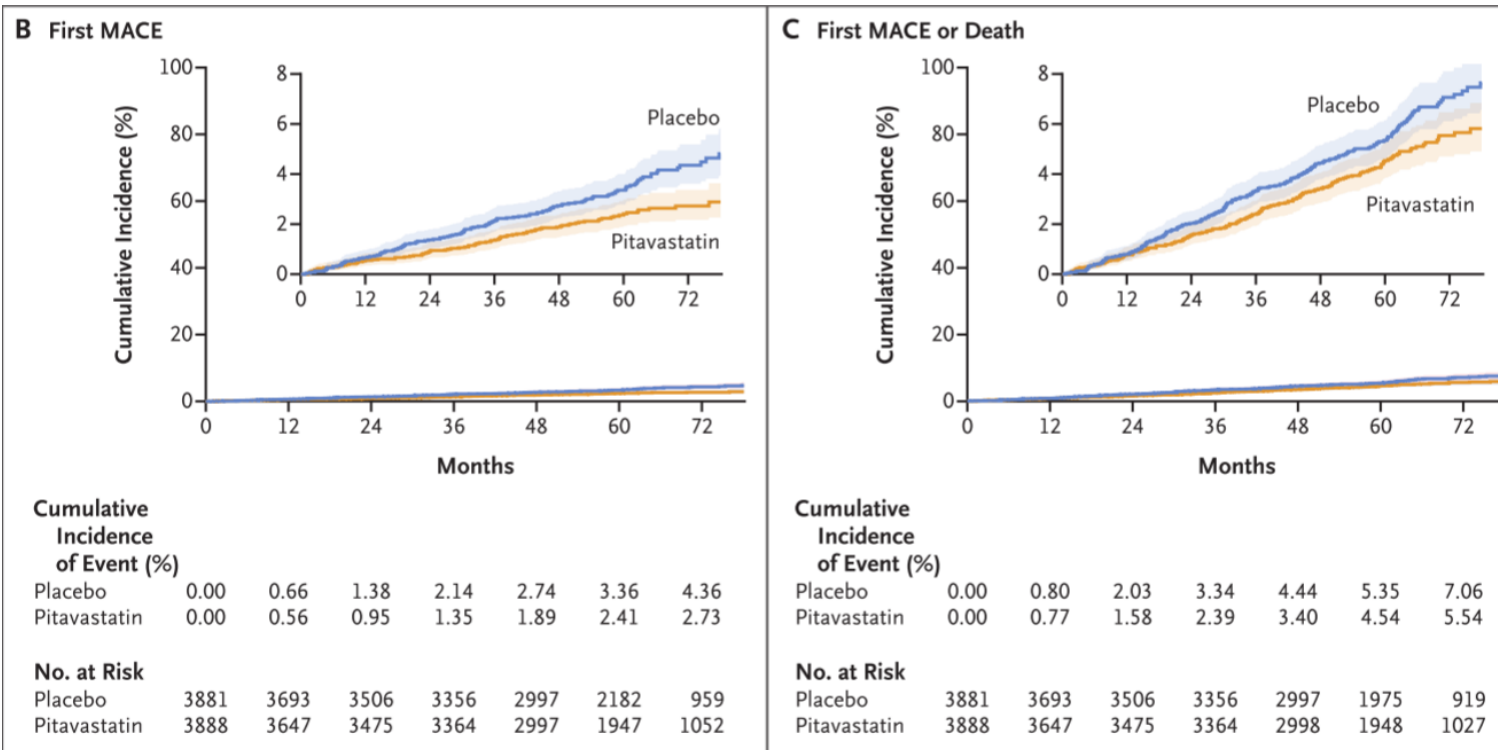
AUGUST 24, 2023

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Pitavastatin to Prevent Cardiovascular Disease in HIV Infection

Steven K. Grinspoon, M.D., Kathleen V. Fitch, M.S.N., Markella V. Zanni, M.D., Carl J. Fichtenbaum, M.D.,

- Assaig prevenció primària en PVIH, adults de 40-75a. en TAR i RCV baix-moderat (escala ASCVD).
- Inclusió nombre important de persones de sexe femení
- Mediana de risc 4,5% (2,1-7,0). Mediana seguiment 5 a.



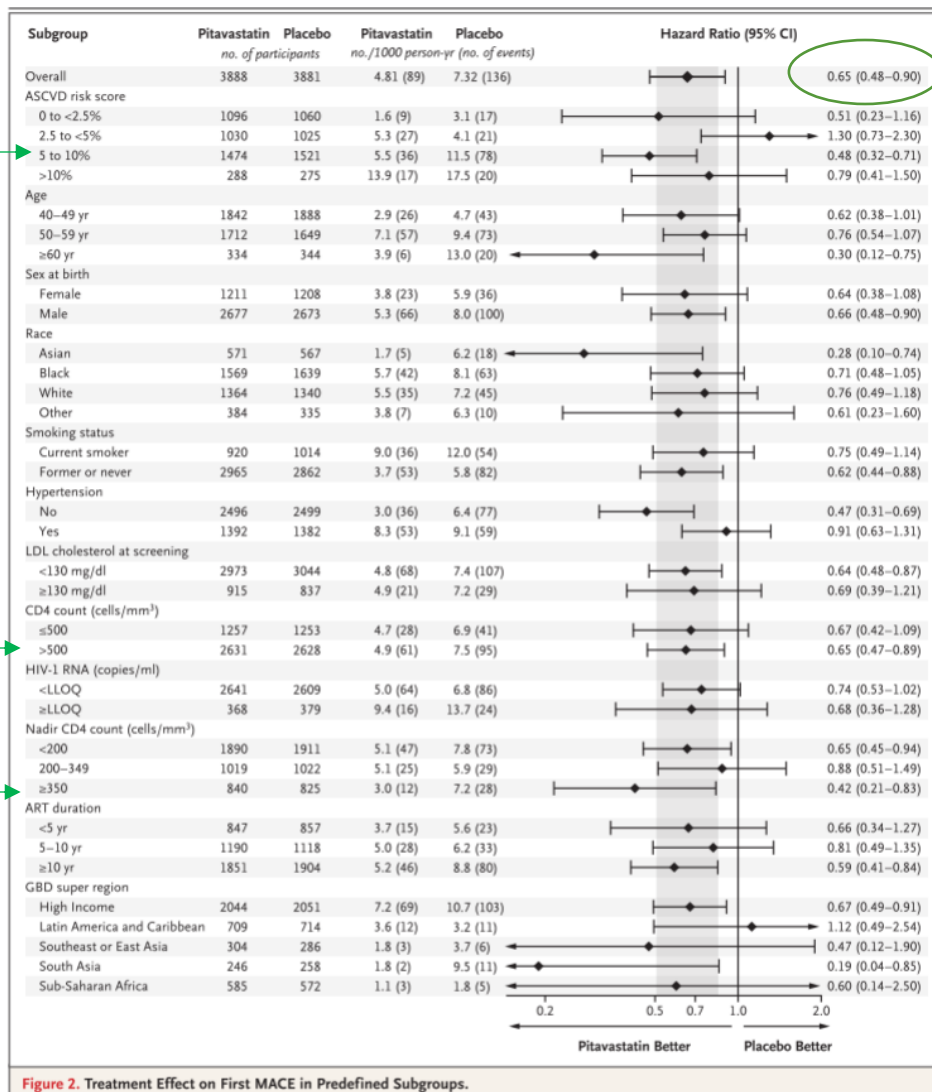
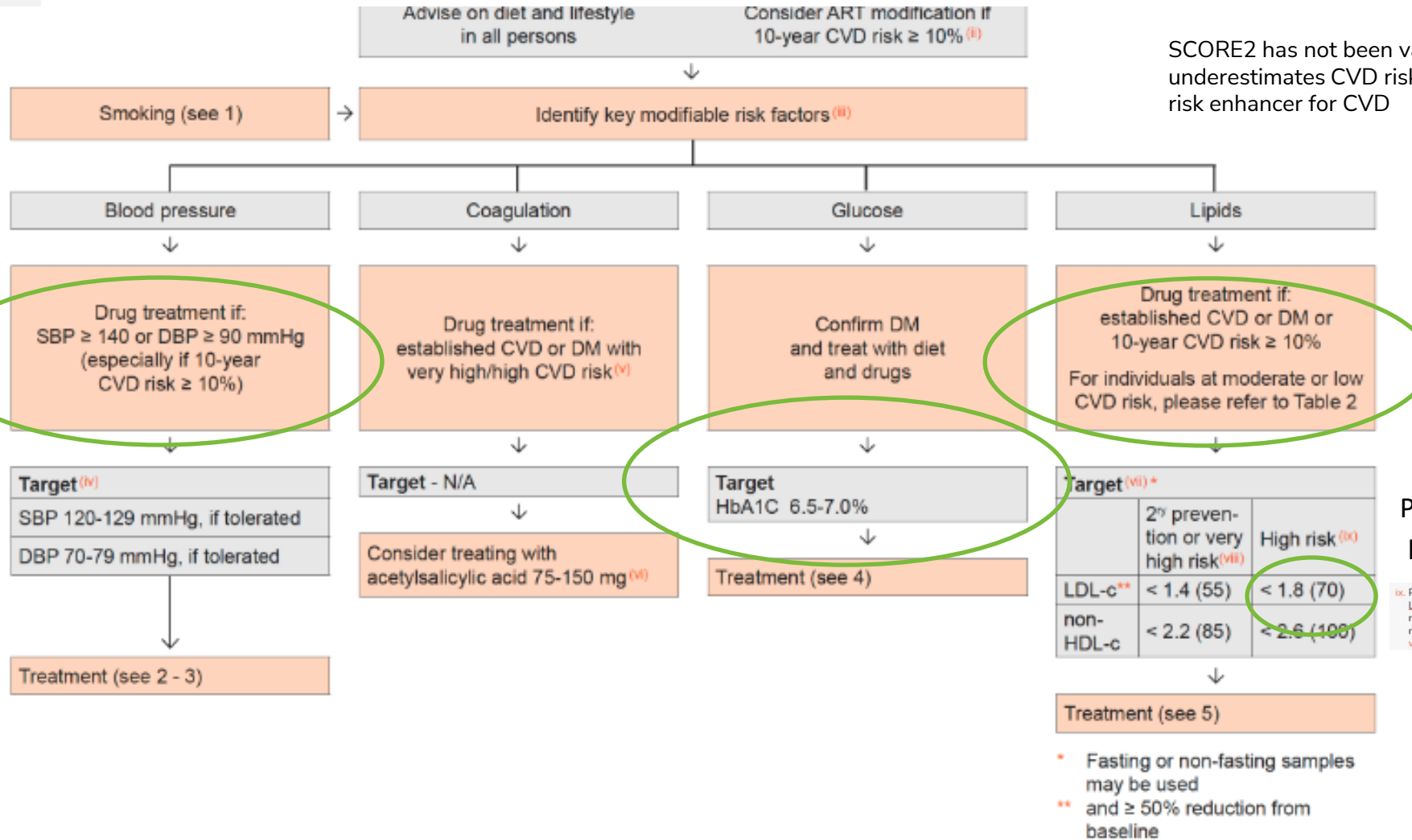


Figure 2. Treatment Effect on First MACE in Predefined Subgroups.

- Finalització prematura
- Reducció del 35 % (HR 0,65; IC 0.48-0.90) el risc esdeveniment cardiovascular major
- Reducció del 21% (HR 0,79; IC 0.65-0.96) risc combinat de mort i esdeveniment CV major
- La reducció del risc absolut major en persones amb risc intermig. NNT 35
- Si el risc estimat es <5%, NNT >100, Individualitzar

Table 2. Adverse Events.

Event	Pitavastatin (N = 3888)		Placebo (N = 3881)		Incidence Rate Ratio (95% CI)*
	No. with Event	Incidence Rate (95% CI) no./100 person-yr	No. with Event	Incidence Rate (95% CI) no./100 person-yr	
Nonfatal serious adverse event	695	4.16 (3.86–4.48)	694	4.13 (3.84–4.45)	1.01 (0.91–1.12)
Diabetes mellitus†	206	1.13 (0.99–1.30)	155	0.84 (0.72–0.99)	1.35 (1.09–1.66)
Myalgia, muscle weakness, or myopathy of grade ≥3 or treatment-limiting‡	91	0.49 (0.40–0.61)	53	0.28 (0.22–0.37)	1.74 (1.24–2.45)
Rhabdomyolysis of grade ≥3 or treat- ment-limiting	3	0.02 (0.01–0.05)	4	0.02 (0.01–0.06)	0.75 (0.17–3.37)§
Alanine aminotransferase elevation of grade ≥3	11	0.06 (0.03–0.11)	8	0.04 (0.02–0.08)	1.38 (0.56–3.43)§
Any adverse event¶	1304	8.88 (8.41–9.38)	1256	8.37 (7.92–8.84)	1.06 (0.98–1.15)



SCORE2 has not been validated in people with HIV and likely underestimates CVD risk estimation; HIV has been recognized as a risk enhancer for CVD

Prevençió primària

ix. Persons at high risk of CVD: Markedly elevated single risk factors, in particular TC > 8 mmol/L (> 310 mg/dL), LDL-c > 4.9 mmol/L (> 190 mg/dL), or BP $\geq 180/110$ mmHg. Familial hypercholesterolemia without other major risk factors. Persons with DM without target organ damage, with DM duration ≥ 10 years or another additional risk factor. Moderate CKD (eGFR > 30 - < 60 mL/min). CVD risk estimation calculator: www.heartscore.org/en_GB/

Level of <u>CVD</u> risk	People at very high risk of <u>CVD</u> : People with established <u>ASCVD</u> OR diabetes with target organ damage OR severe CKD (eGFR <30 ml/min/1.73m ²) OR SCORE2 ≥10% or >7.5% if under 50 years (see Table 1)	People at high risk of <u>CVD</u> : People with SCORE2 ≥5% to <10% or ≥ 2.5% if under 50 years (see Table 1)	People at low to moderate risk of <u>CVD</u> : People with <u>SCORE 2</u> <5%
Age ≥ 40 years	Recommend high-intensity statin therapy: Atorvastatin 40mg or 80mg OD Rosuvastatin 20mg or 40mg OD With LDLc target goal <55 mg/dL (1.4 mmol/L) and 50% decrease from baseline LDLc values See "Treatment Goals for LDL-c to Reduce Cardiovascular Risk in Individuals with High and Very High Cardiovascular Disease Risk"	Recommend moderate or high-intensity statin therapy depending on <u>CVD</u> risk category: <u>High-intensity statin**</u>: Atorvastatin 40mg or 80mg OD Rosuvastatin 20mg or 40mg OD <u>Moderate-intensity statin***</u>: Pitavastatin 4mg OD Atorvastatin 20mg OD Rosuvastatin 10mg OD With LDLc target goal <70mg/dL (1.8 mmol/L) and 50% decrease from baseline LDLc See "Treatment Goals for LDL-c to Reduce Cardiovascular Risk in Individuals with High and Very High Cardiovascular Disease Risk"	Consider moderate-intensity statin therapy: Pitavastatin 4mg OD Atorvastatin 20mg OD Rosuvastatin 10mg OD Shared medical decision between healthcare professional and the person under care

<https://tools.acc.org/ascvd-risk-estimator-plus/#!/calculate/estimate/>

App should be used for primary prevention patients (those without ASCVD) only.

Current Age ⓘ
Age must be between 20-79

Sex ⭐ ☒ Male ☐ Female

Race ⭐ ☒ White ☐ African American ☐ Other

Systolic Blood Pressure (mm Hg) ⭐
Value must be between 90-200

Diastolic Blood Pressure (mm Hg) ⭐
Value must be between 60-130

Total Cholesterol (mg/dL) ⭐
Value must be between 130 - 320

HDL Cholesterol (mg/dL) ⭐
Value must be between 20 - 100

LDL Cholesterol (mg/dL) ⓘ
Value must be between 30-300

History of Diabetes? ⭐ ☐ Yes ☒ No

Smoker? ⓘ ⭐ ☐ Current ⓘ ☐ Former ⓘ ☒ Never ⓘ

On Hypertension Treatment? ⭐ ☒ Yes ☐ No

On a Statin? ⓘ ⓘ ☐ Yes ☒ No

On Aspirin Therapy? ⓘ ⓘ ☐ Yes ☒ No

Do you want to refine current risk estimation using data from a previous visit? ⓘ ⓘ ☐ Yes ☒ No

Determine Therapy Impact ⓘ

View Advice ⓘ

⚠ Lifetime Risk Calculator only provides lifetime risk estimates for individuals 20 to 59 years of age.

5.2%
Borderline

**Current 10-Year
ASCVD Risk****

Lifetime ASCVD Risk: **50%** Optimal ASCVD Risk: **5.2%**

Low-risk (<5%)
 Borderline risk (5% to 7.4%)
 Intermediate risk (7.5% to 19.9%)
 High risk (≥20%)

SCORE2 and SCORE2-OP

Risk assessment models to estimate the 10-year risk of cardiovascular disease in Europe.

<https://www.escardio.org/Education/Practice-Tools/CVD-prevention-toolbox>

European Risk Regions

Based on SCORE2 and SCORE2-OP risk regions

HeartScore® uses the risk function from the SCORE2 and SCORE2-OP project. SCORE2 and SCORE2-OP are calibrated to **four European risk regions**, based on age- and sex-standardized CVD mortality rates:

Europe low risk regions

- Belgium
- Denmark
- France
- Israel
- Luxembourg
- Netherlands
- Norway
- Spain
- Switzerland
- United Kingdom of Great Britain and Northern Ireland

Access Europe low risk

SCORE2 and SCORE2-OP (ESC 2021)

CV risk estimation	< 50y	50-69y	> 70y
Low / moderate	< 2.5%	< 5%	< 7.5%
High	2.5-<7.5%	5-<10%	7.5-<15%
Very high	> 7.5%	>10%	> 15%

Càlcul als 10 a. morbimortalitat CV
(IAM, ictus i mortalitat) 40-89 a

Calculate your patients' 10-year risk of fatal and nonfatal cardiovascular disease events with two new algorithms, SCORE2 and SCORE2-OP (older persons), published in June 2021.

Your results

Examination date:
24 November 2025

Age: 60 (8/1965)

Sex: male

Systolic blood pressure:
115 mmHg

Total Cholesterol: 204 mg/dl

HDL-Cholesterol: 69 mg/dl

Current Smoker: No

⚠ Your 10-year risk of fatal and non-fatal CVD events is **3.7%**.

🔔 For a person of your age, the Guidelines consider a 10-year CVD risk to be high if above: **5%**

👤 Your Risk Age: because of your risk factors, your risk is similar to a **60** year old person with low risk factors. You can reduce risk further by becoming aware of your risk factors and by changing your lifestyle.

👍 STEP 1: Prevention goals for apparently healthy individuals

- 👍 Stop smoking and lifestyle optimization
- 👍 SBP less than 140 down to 130 mmHg if tolerated
- 👍 LDL-C less than 2.6 mmol/L (100 mg/dL) or non-HDL-C less than 3.4 mmol/L (131 mg/dL)

👁 Healthy Lifestyle Advice:

- 150 - 300 min/week of moderate intensity or 75 - 150 min/week of vigorous intensity aerobic physical activity, or an equivalent combination thereof

- Healthy diet recommendations include a Mediterranean or similar diet, replace saturated with unsaturated fats, reduce salt intake

👍 STEP 2: Intensified/additional prevention goals

- 👍 SBP less than 130 mmHg if tolerated
- 👍 LDL-C less than 1.8 mmol/L (70 mg/dL) or

Tabla: Valoración de categorías de riesgo cardiovascular a 10 años en las escalas propuestas por ESC y ACC/AHA

Categoría de riesgo ESC	ESC (Score 2/Score2-OP)	ACC/AHA (ASCVD; PCE)	Categoría de riesgo ACC/AHA
Bajo-moderado	<2.5% (edad<50 años) <5% (edad (50-69 años) <7.5% (edad≥70 años)	<5% (edad 40-75 años)	Bajo
Alto	2.5% -<7,5% (edad<50 años) 5-<10% (edad (50-69 años) 7.5%-<15% (edad≥70 años)	5%-<7.5% (edad 40-75 años)	Límite
Muy alto	≥7.5% (edad<50 años) ≥10% (edad (50-69 años) ≥15 % (edad≥70 años)	7.5%-19.9% (edad 40-75 años)	Intermedio
		≥20% (edad 40-75 años)	Alto

ESC: European Society of Cardiology; Score 2 OP: Score 2 Older Persons; ACC/AHA: American College of Cardiology/American Heart Association; ASCVD: Atherosclerotic Cardiovascular Disease; PCE: pooled Dadocohort equation.

No es disposa de referències comparatives entre les escales ASCVD / SCORE2-SCOREOP i la escala REGICOR
 $\geq 5\%$ ASCVD per població 40-75 a. = $\geq 5\%$ SCORE2/SCORE-OP
 Aproximació pràctica: 5% REGICOR = 5% ASCVD



DOCUMENTO DE POSICIONAMIENTO SOBRE EL USO DE ESTATINAS EN LA PREVENCIÓN
 PRIMARIA CARDIOVASCULAR DE LAS PERSONAS CON VIH

Tabla 5 Recomendaciones para el cálculo del riesgo vascular

Recomendación	Calidad de la evidencia	Fuerza de recomendación
Se recomienda el cálculo del riesgo vascular a todos los adultos de ≥ 40 años que no tengan una enfermedad vascular o que, por sus características, no sean de alto riesgo, mediante SCORE2 o SCORE2-OP (70 y 90 años).	Moderada	Fuerte a favor
Las tablas de riesgo constituyen una información complementaria y útil para ayudar a estratificar el riesgo y a tomar decisiones en el tratamiento de la dislipemia y de la HTA	Moderada	Fuerte a favor

HTA: hipertensión arterial.
Elaboración propia.

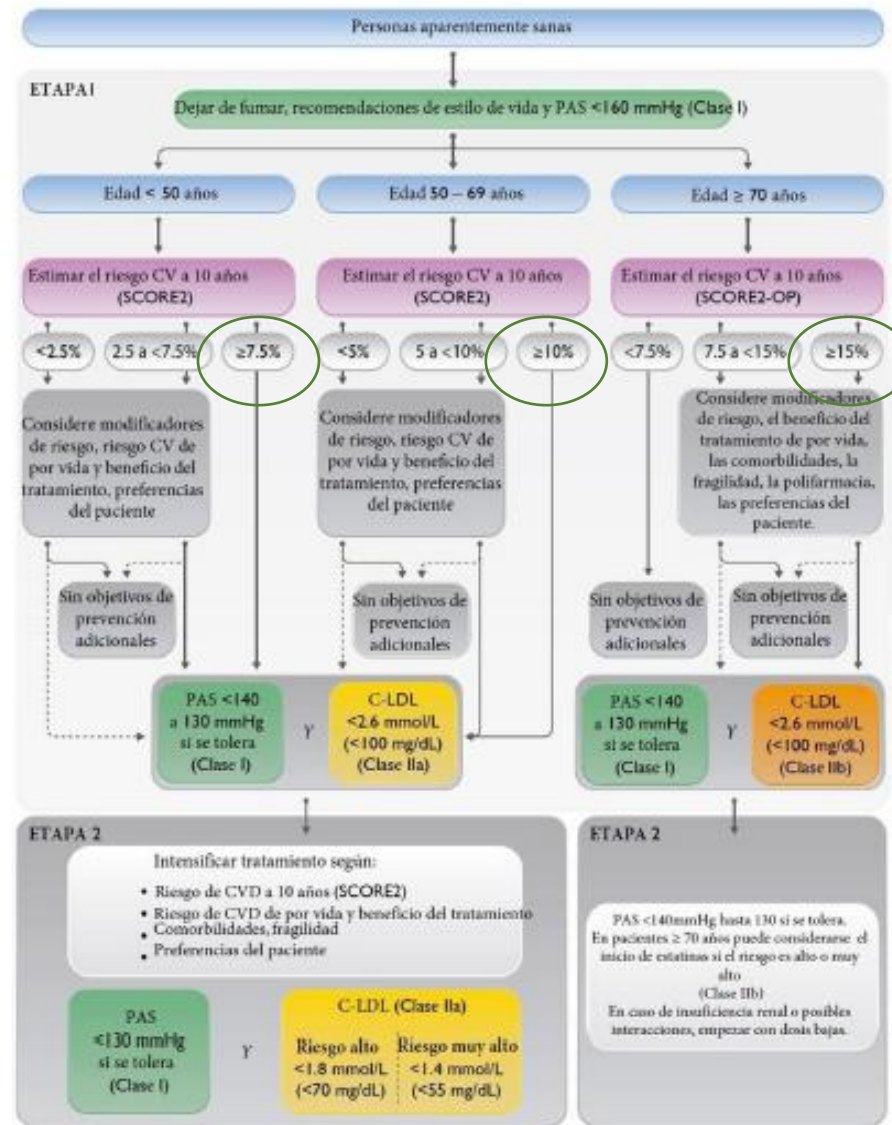


Figura 1 Cálculo del RV y tratamiento de los factores de RV para personas aparentemente sanas. Modificado de ⁵.

Tabla 2. Recomendaciones para la prevención primaria de enfermedad cardiovascular en personas con VIH de 40 a 75 años

Riesgo a 10 años (ASCVD)	Medidas no farmacológicas y farmacológicas
Cualquier riesgo	Optimización del estilo de vida: abandono del hábito tabáquico, limitar consumo de alcohol, ejercicio físico regular, dieta "cardiosaludable", restringiendo el consumo de dulces, bebidas azucaradas y endulzadas artificialmente y de carnes rojas
Riesgo elevado ($\geq 20\%$)	Estatinas a dosis altas: Atorvastatina 40–80 mg Rosuvastatina 20–40 mg
Riesgo intermedio-bajo (5–20%)	Estatinas a dosis moderadas: Pitavastatina 4 mg Atorvastatina 20 mg ^a Rosuvastatina 10 mg ^b
Riesgo bajo/muy bajo ($< 5\%$)	Estatinas a las mismas dosis que para riesgo intermedio ^c
Personas de 20 a 75 años con colesterol LDL ≥ 190 mg/dL	Estatinas a las mismas dosis que para riesgo intermedio ^d

$< 5\%$ = Estatina potencia moderada / individualitzar
 $> 5\%$ = Estatina potencia moderada

Pitavastatina i rosuvastatina menor risc d'interaccions

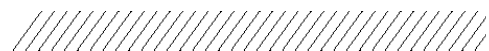
Tabla 3. Factores potenciadores del riesgo vascular (2)

Asociados a la infección VIH	No asociados a la infección VIH
Historia de viremia prolongada Nadir o CD4 actuales ≤ 350 cél/microL Historia de fracasos virológicos o falta de adherencia Síndrome metabólico, lipodistrofia, hígado graso Coinfección por VHC	Historia de familiar de primer grado con evento vascular precoz (hombres < 55 años, mujeres < 65 años) LDL ≥ 160 mg/dL de forma persistente o cLDL ≥ 190 mg/dL DM con edad 40-75 años Enfermedad renal crónica, preeclampsia, menopausia precoz Detección de aterosclerosis subclínica Lp(a) ≥ 50 m/dL o PCR-US ≥ 2 mg/L o apoB ≥ 130 mg/dL

- Se recomienda **evaluar el riesgo cardiovascular en todas las personas con VIH mayores de 40 años**, con la escala ASCVD preferentemente u otra escala validada teniendo en cuenta las posibles equivalencias de la estimación del riesgo cardiovascular. (Recomendación Grado AI)
- Se recomienda realizar un **abordaje global**, con una intervención en **modificaciones de estilo de vida, dieta mediterránea y ejercicio adecuado, evitar el sedentarismo y realizar actividad física regular, abandono del hábito tabáquico en todos los casos** y posteriormente prevención farmacológica y de forma más intensa cuanto mayor sea el riesgo cardiovascular. (Recomendación Grado AI)
- Si su riesgo **ASCVD <5 % a 10 años**, se considerará una estatina de potencia moderada. Se discutirá una evaluación integral de los riesgos y beneficios, y se procederá a tomar una **decisión informada individualizada** para la prescripción. (Recomendación Grado BI)
- Si su riesgo **ASCVD >5 % y <10% a 10 años**, se recomendará una **estatina de potencia moderada**. (Recomendación Grado AI)
- Si su riesgo **ASCVD >10% a 10 años**, se iniciará una **estatina según las guías de la población general**. En este supuesto, los objetivos de LDL-colesterol se estratificarán según las guías de la población general. (Recomendación Grado AI)
- La estatina de potencia moderada recomendada sería pitavastatina 4 mg como primera elección (Recomendación Grado AII) y como alternativas atorvastatina 20 mg (Recomendación Grado BII) o rosuvastatina 10 mg (Recomendación Grado BII)
- **La indicación de estatinas como prevención primaria en este grupo de población requiere para su inicio y mantenimiento la colaboración entre atención primaria y especializada**, y el reconocimiento del sistema público de salud. (Recomendación Grado BIII)

02

MPOC, MCV en
PVVIH



Shared risk factors and pathogenesis

- low lung function trajectory during childhood
- persistent exposure (smoking, air pollution)
- accelerated ageing

COPD

- respiratory symptoms
- airway disease
- alveolar destruction

Respiratory pathophysiology

- systemic inflammation
- Alveolus
- Capillary hypoxemia
- hyperinflation

Underlying comorbidities

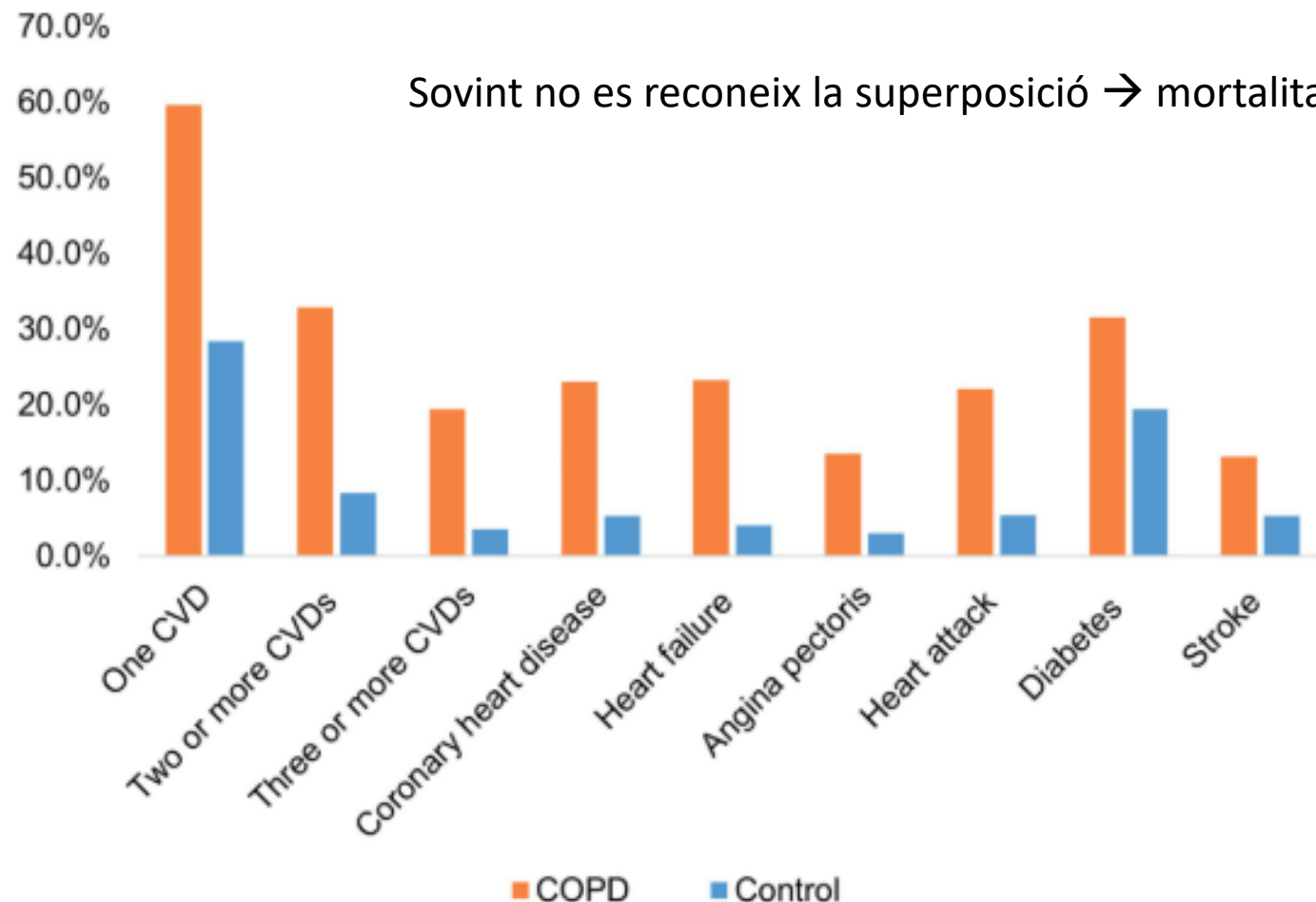
- hypertension
- diabetes mellitus
- sleep apnea

Cardiovascular pathophysiology

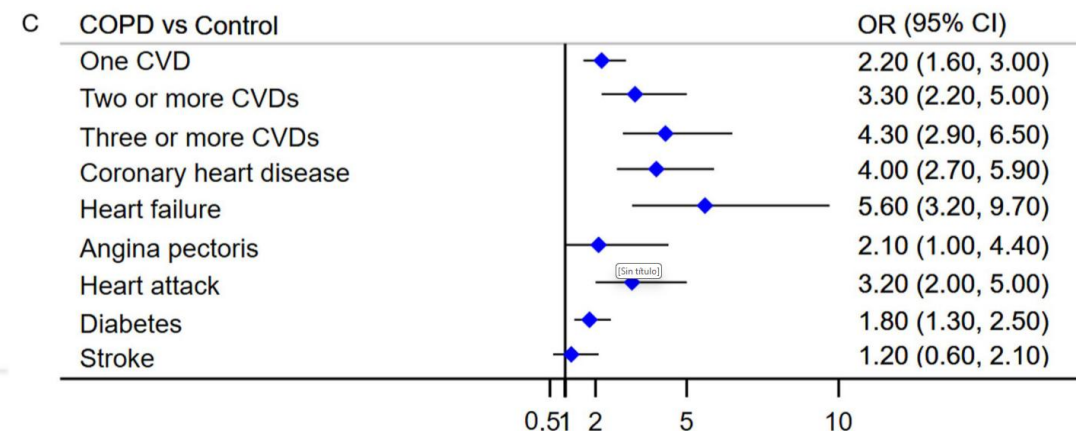
- impaired cardiac function
- endothelial dysfunction and accelerated atherosclerosis
- autonomic nerve disbalance

Cardiovascular disease

- myocardial infarction and heart failure
- thromboembolism and stroke
- arrhythmia and cardiac death



Sovint no es reconeix la superposició → mortalitat prematura possiblement evitable



Model ajustat per edat, sexe, raça, IMC, tabaquisme, nivell educatiu, renda, eosinofília i comorbiditats (asma, bronquitis crònica, i emfisema)

Fig. 2 Prevalence of CVD in COPD and control groups. COPD, chronic obstructive pulmonary disease; CVD, cardiovascular disease

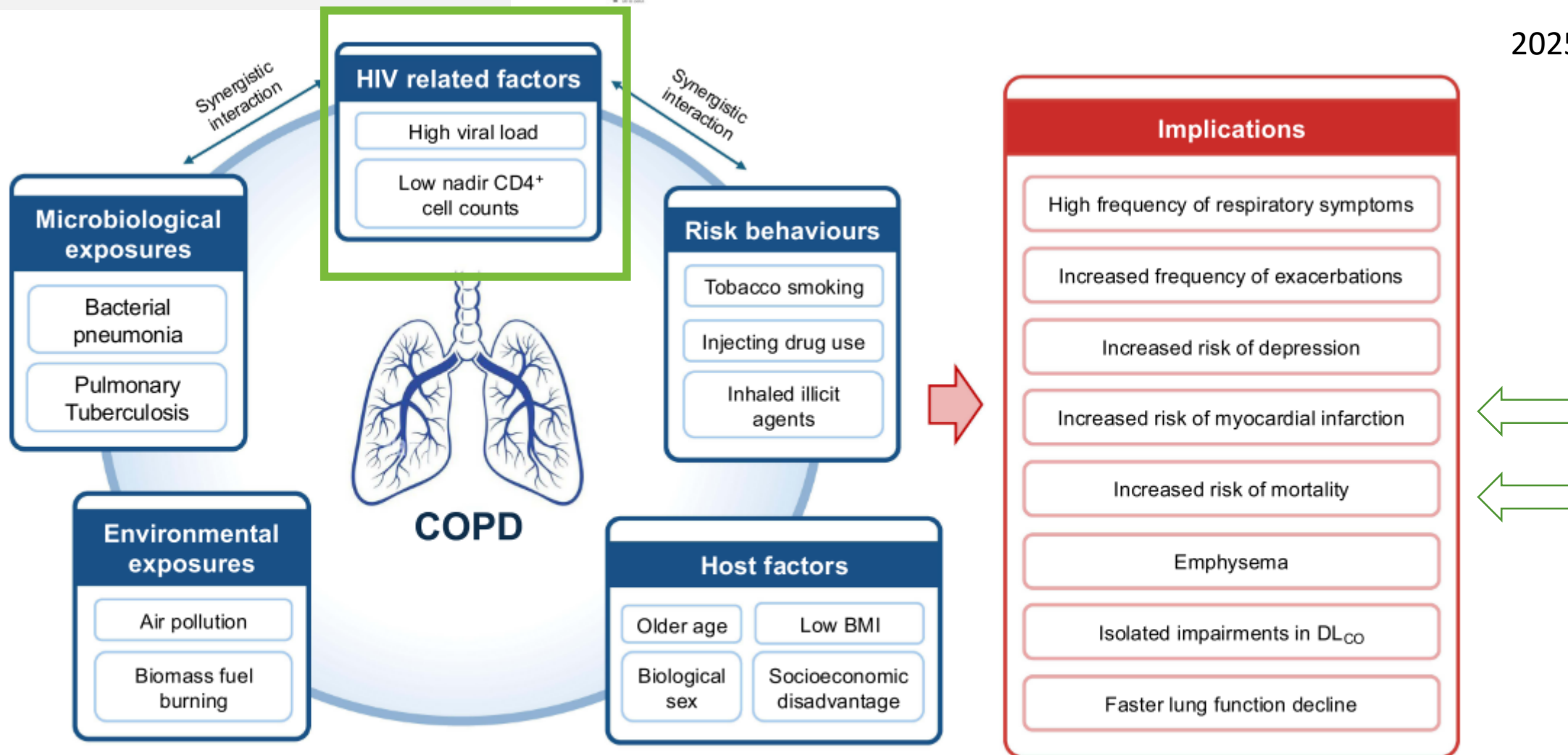


Figure 1 Drivers and implications of HIV-associated COPD. HIV interacts directly and indirectly with different factors to contribute to COPD pathogenesis with negative implications for patients.

Table I Proposed Taxonomy (Etiotypes) of COPD

2025

Classification (Etiotype)	Description
Genetically determined COPD (COPD-G)	Alpha-1 antitrypsin deficiency (AATD) Other genetic variants with similar effects acting in combination
COPD due to abnormal lung development (COPD-D)	Early life events, including premature birth and low birthweight, among others
Environmental COPD - Cigarette smoking (COPD-C) - Biomass and pollution exposure (COPD-P)	Exposure to tobacco smoke, including in utero or via passive smoking; vaping or e-cigarette use; cannabis use Exposure to household air pollution, ambient air pollution, wildfire smoke, occupational hazards
COPD due to infections (COPD-I)	Childhood infections, tuberculosis-associated COPD, HIV-associated COPD
COPD & asthma (COPD-A)	Particularly childhood asthma
COPD of unknown cause (COPD-U)	

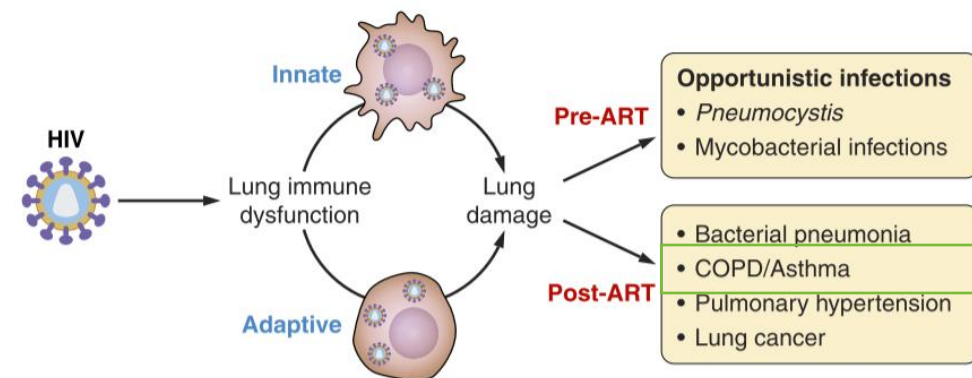
Notes: Adapted with permission from GOLD guidelines. *Global Initiative for Obstructive Lung Disease 2025 Report*. 2025:1–193. Available from: https://goldcopd.org/wp-content/uploads/2024/11/GOLD-2025-Report-v1.0-15Nov2024_WMV.pdf.⁶

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Epidemiologia MPOC en PVVIH

- Comorbiditat freqüent en PVVIH
- **Major prevalença que en PG**
- Prevalença global en PVVIH 10,5% (IC 95%: 6,2–15,7%)
- FR: Edat i tabaquisme. VIH
- Evolució més accelerada inclús en no fumadors
- Afecta a **població més jove**
- En dones:
 - MPOC més severa i evolució més ràpida que en homes
 - Major susceptibilitat als efectes perjudicials del tabac

GRAPHICAL ABSTRACT



REVIEW
Chronic Obstructive Pulmonary Disease in People with HIV: an Evidence-Based Review
Andrew T Read¹, Jane Akodu², Tristan J Barber^{2,3}, James P Brown¹, Fiona M Burns^{2,3}, John R Hurst^{1,4}, Robert F Miller^{2,3}, Marc CI Lipman^{1,2,4}
Physiological Reviews Review Article
PATHOGENESIS OF HIV-RELATED LUNG DISEASE: IMMUNITY, INFECTION, AND INFLAMMATION

2016

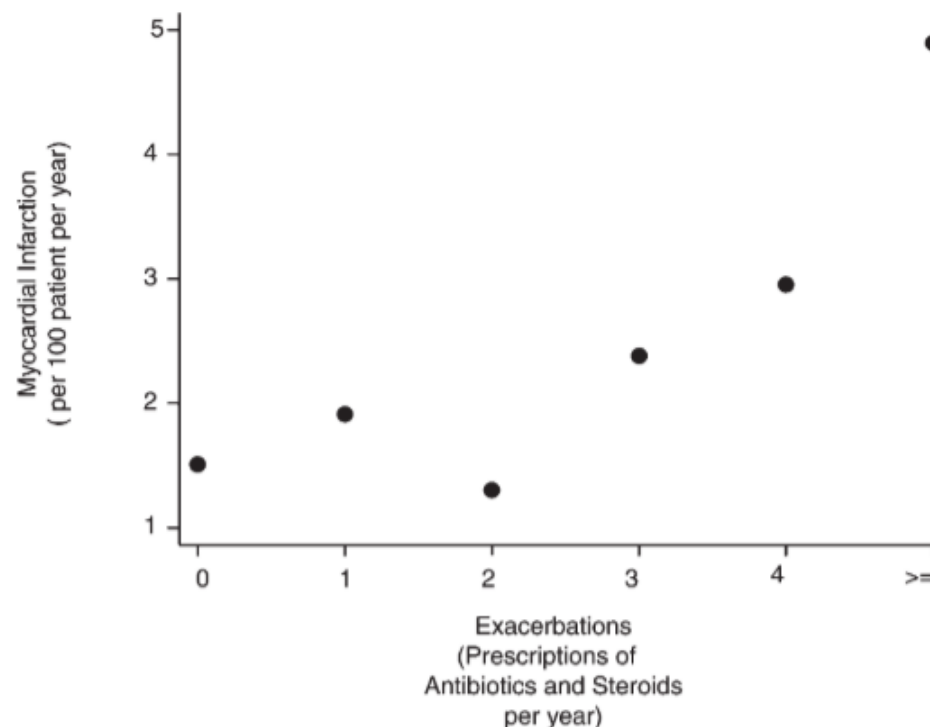
A. All patients by HIV status (N = 130,110)		
Risk Factor	IRR	95% CI
Age, per year	1.06 *	1.06 - 1.06
Female	1.37 *	1.09-1.73
Race (Referent: White)		
Black	0.70 *	0.65 - 0.75
Hispanic	0.56 *	0.48 - 0.66
Other/Unknown	0.56 *	0.46 - 0.67
Smoking Status (Referent: Never)		
Current	2.49 *	2.24 - 2.76
Past	1.75 *	1.55 - 1.98
Unknown	1.29 *	1.12 - 1.47
Alcohol-related diagnosis	1.55 *	1.42 - 1.68
HIV status (Referent: Uninfected)	1.54 *	1.44 - 1.65

	HIV-infected (N=34,319)		HIV-uninfected (N=86,492)	
Variable	IRR	95% CI	IRR	95% CI
Age	1.07 *	1.07 - 1.08	1.05 *	1.05 - 1.06
Female Gender	2.08 *	1.46 - 2.96	1.02	0.72 - 1.44
Race/Ethnicity (Referent: White)				
Black	0.68 *	0.60 - 0.77	0.66 *	0.61 - 0.73
Hispanic	0.54 *	0.40 - 0.73	0.54 *	0.44 - 0.66
Other/Unknown	0.76	0.55 - 1.05	0.53 *	0.42 - 0.68
Smoking Status (Referent: Never)				
Current Smoker	2.86 *	2.33 - 3.50	2.22 *	1.95 - 2.52
Past Smoker	1.78 *	1.38 - 2.29	1.62 *	1.39 - 1.88
Unknown	1.25	0.97 - 1.61	1.23 *	1.03 - 1.46
Alcohol-related Diagnosis	1.75 *	1.51 - 2.03	1.39 *	1.24 - 1.56
CD4 Cell Count (Referent: ≥ 350 cells/mm ³)			-	-
200-349	1.33 *	1.12 - 1.58		
<200	2.19 *	1.89 - 2.53		
HIV Viral Load ≥ 500 (Referent: <500 copies/ml)	1.26 *	1.09 - 1.45	-	-
Prescribed Antiretroviral Therapy	0.84 *	0.74 - 0.97	-	-

- Seguiment 1.428 PVVIH; 2.104 PG amb almenys una exacerbació (234.099 persones-any)
- PVVIH taxa més elevada d'exacerbacions (18,8 vs. 13,3 per 1.000 persones-any, P < 0,001).
- **PVVIH (sobretot CD4+ baix), és un factor de risc independent per les exacerbacions.**
- Les PVVIH són més susceptibles als danys derivats del tabaquisme i incrementen el risc d'exacerbacions

MPOC MCV en PG. Exacerbacions

- Les exacerbacions de l'MPOC i la pneumònia adquirida a la comunitat augmenten el risc d'esdeveniments cardiovasculars.
- En la reagudització de l'MPOC el risc és el doble que en la malaltia estable.
- El risc torna als nivells bàsics dins dels 5-30 dies següents al tractament de l'exacerbació.



Població general
2010

FIGURE 2. Annual rate of MI against the annual rate of exacerbation defined as prescription of steroids and antibiotics together. $\rho = 0.0131$; $P = .03$. See the Figure 1 legend for expansion of the abbreviation.

Defining the relationship between COPD and CVD: what are the implications for clinical practice?

Ann D Morgan, Rosita Zakeri and Jennifer K Quint

Thor Adv Respir Dis
2016; 16: 1-14
DOI: 10.1177/
1746127616666666
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EXPERT REVIEW OF CARDIOVASCULAR THERAPY
2024, VOL. 22, NOS. 4-5, 177-191
<https://doi.org/10.1080/14779072.2024.2333786>

REVIEW

Cardiovascular disease and risk in COPD: a state of the art review

Ricardo Polman^a, John R Hurst^b, Omer Faruk Uysal^b, Swapna Mandal^b, Dominik Linz^{c,d,e} and Sami Simons^f

Taylor & Francis
Taylor & Francis Group

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AIDS 2023 April 01; 37(5): 745-752. doi:10.1097/QAD.0000000000003405

COPD AND THE RISK FOR MYOCARDIAL INFARCTION BY TYPE IN PEOPLE WITH HIV

K CROTHERS, MD¹, Robin M NANCE, PhD^{1,2}, Bridget M WHITNEY, PhD³, Barbara N HARDING, PhD^{1,2}, Susan R BECKERT, MD, PhD⁴, Matthew J BUDOFF, MD⁵, William C MATHEWS, MD⁶, Laura BAMFORD, MD, MSc⁷, Edward R. CACAY, MD, MAS⁸, Joseph J ERON, MD, MPH⁹, Benita NAPPAYAK, PhD¹⁰, Richard D MOORE, MD¹¹, Joanne C KERLEY, MS, CRNP¹², Armando WILLIS, PhD, RD¹³, Grier BURKHOLDER, MD, MPPH¹⁴, Matthew J FERSTEN, MD¹⁵, Michael S SAAG, MD¹⁶, Mari M KIHATA, MD, MPH¹⁷, Isaac M CRANE, MD, MPH¹⁸, Joseph AC DELANEY, PhD¹⁹

European Society of Cardiology > Councils > Council for Cardiology Practice > CardioPractice

Cardiovascular risk in chronic obstructive pulmonary disease

Unadjusted incidence rates of MIs by type and causes of type 2 MI by COPD status

	Rate (95% CI) per 1000 PY No COPD	Rate (95% CI) per 1000 PY COPD
All MI	4.7 (4.2,5.3)	17.7 (13.8,22.8)
Type 1 MI	2.7 (2.3,3.2)	9.9 (7.1,13.8)
Type 2 MI	2.0 (1.6,2.4)	7.8 (5.4,11.4)
Type 2 MI due to sepsis	0.7 (0.5,1.0)	3.2 (1.8,5.8)
Type 2 MI due to all non-sepsis causes	1.2 (1.0,1.6)	4.7 (2.8,7.6)

COPD = chronic obstructive pulmonary disease

MI = myocardial infarction

Sensitivity analyses for risk of MI associated with COPD in adjusted Cox regression models in those without HCV, substance use, or detectable viral load at baseline

	Those without HCV N=10,200	Those without HCV and no current or former SU N=5,537	Those with HIV VL <=400 at baseline N=9,688
All MI	2.57 (1.76–3.74)	2.76 (1.60–4.78)	2.88 (2.05–4.04)
Type 1 MI	2.46 (1.54–3.92)	1.82 (0.87–3.81)	2.56 (1.64–4.01)
Type 2 MI	2.73 (1.44–5.19)	5.48 (2.42–12.39)	3.41 (2.02–5.75)

All models are adjusted for age, sex, race/ethnicity, nadir CD4 count, diabetes, treated hypertension, statin use, eGFR<30, study site, and smoking pack-years. Where patients with these risk factors are not excluded, models are also adjusted for HCV, substance use (AUDIT-C score; marijuana, methamphetamine, cocaine and illicit opioid use (never, former, or current)), and detectable HIV viral load.

AIDS 2023 April 01; 37(5): 745–752, doi:10.1093/QAD/00000000000001465

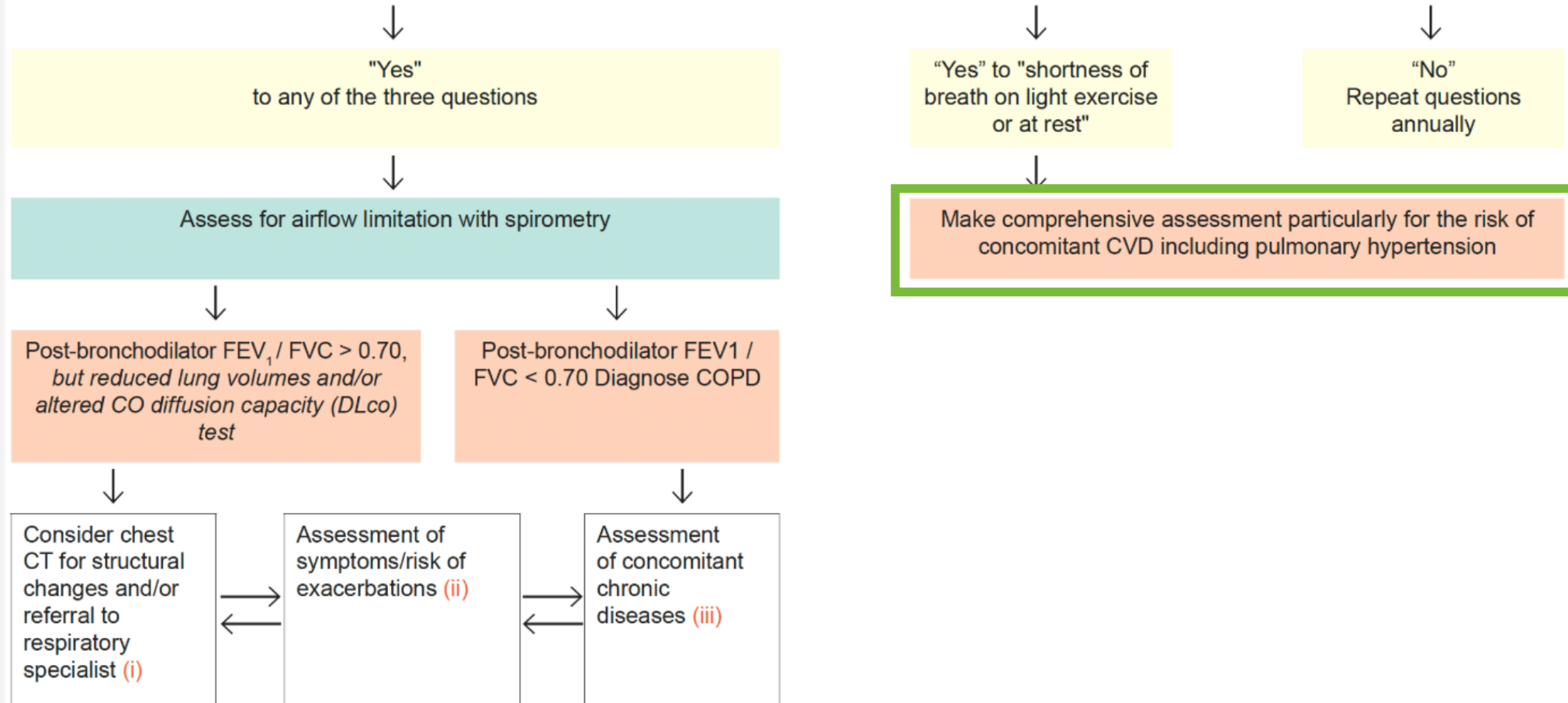
COPD AND THE RISK FOR MYOCARDIAL INFARCTION BY TYPE IN PEOPLE WITH HIV

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Screen for chronic lung disease. This is especially relevant in ever smokers and persons aged 50 years and older:

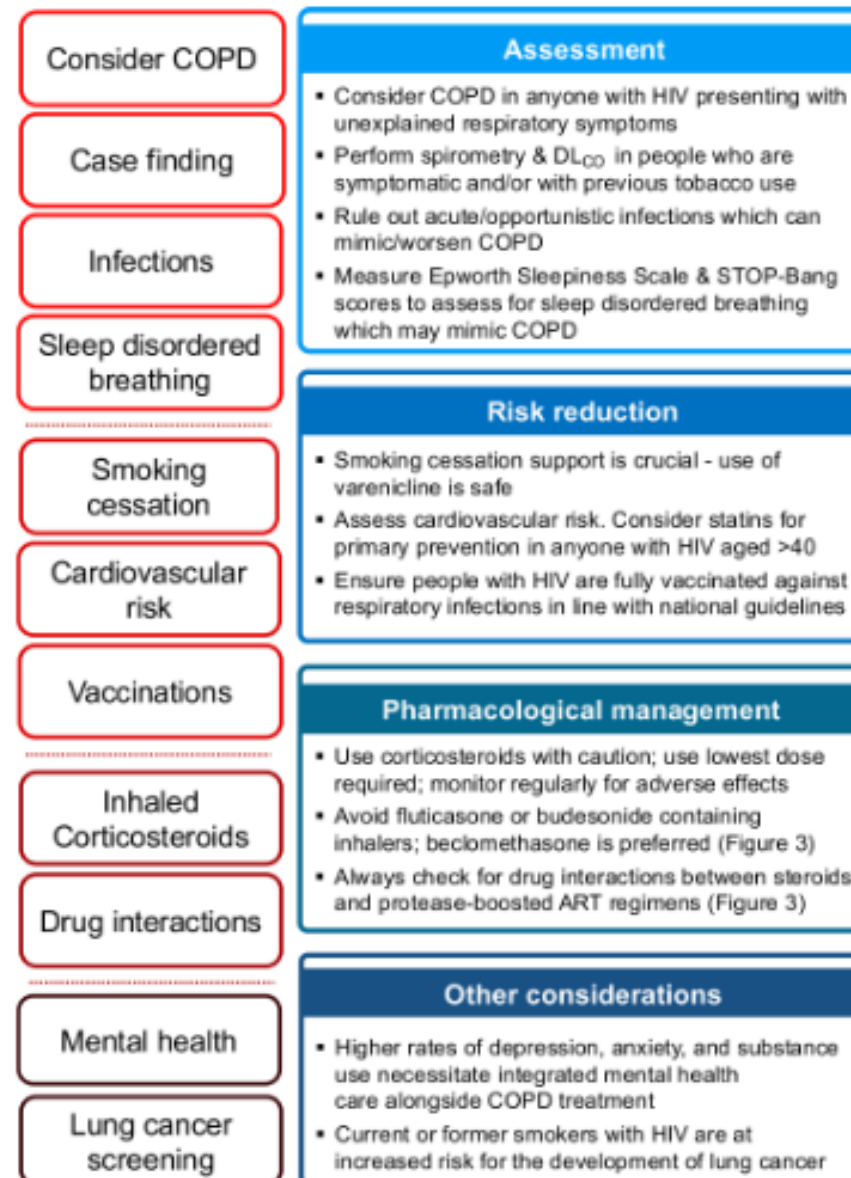
Do you have ANY of the following on a regular basis:

- a) shortness of breath when walking up a slight hill or hurrying on flat ground
- b) cough and/or sputum
- c) recurrent wheezing



COPD Maneig i tractament en PVVIH

2025



Chronic Obstructive Pulmonary Disease in People with HIV: an Evidence-Based Review

Andrew T Read, Jane Akodu, Tristan J Barber, James P Brown, Fiona M Burns, John R Hurst, Robert F Miller & Marc CI Lipman

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To link to this article: <https://doi.org/10.2147/HIV.S496211>



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Sociedad > **Sanidad**

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Las personas con VIH tienen casi el doble de riesgo de infarto que la población general

- Un estudio realizado en Catalunya revela que el riesgo es independiente de la edad, el sexo o la presencia de otras enfermedades
- El trabajo también detectó diferencias relevantes en el perfil metabólico de las personas con VIH: mayor frecuencia de tabaquismo activo, peores niveles de colesterol HDL o menor índice de masa corporal

1-12-2025

CO-11. HIV INFECTION IS STRONGLY ASSOCIATED WITH ACUTE MYOCARDIAL INFARCTION, INDEPENDENTLY OF AGE, GENDER, AND COMORBIDITIES: A SPANISH POPULATION-BASED COHORT STUDY

Sergi Rodríguez-Mercader¹, Juan Du¹, Esperanza Cañas¹, Itziar Arrieta¹, Jade Soldado¹, Irene Carbonell¹, Cecilia Canepa¹, Maria Jose Fernández¹, Marta Trenchs-Rodríguez², Alicia González-Mena¹, Natalia García-Giralt¹ and Roberto Güerri-Fernández¹

¹Hospital del Mar, Barcelona. ²CAP, Passeig Sant Joan, ICS, Barcelona.

Les PVVIH tenien taxes més altes de:

- Tabaquisme actiu (71,7% en comparació amb el 50,6%)
- Major incidència de colesterol HDL < 40 mg/dl (44,2% versus 17,4%)
- Triglicèrids elevats (≥ 150 mg/dl: 37,6% versus 31,6%)
- Índex de massa corporal reduït (24,4 vs. 27,9 kg/m²)
- Puntuacions de comorbiditat moderades a altes segons Charlson en comparació amb el grup de control

Incidència d'IAM

- 34,4 per 1.000 persones-any en PLWH i de 17,6 per 1.000 persones-any en els controls
- HR sense ajustar: risc significativament més alt en PLWH (HR: 1,897; IC 95%: 1,615-2,228).
- HR ajustat: risc augmentat va persistir (HR:1,838; IC 95%: 1,480-2,282).

El RCV en PVVIH no s'explica només per FRCV "clàssics"

Cal avaluar el RCV de les PVVIH al menys un cop a l'any

L'increment de risc no s'elimina amb una teràpia antiretroviral i la supressió viral

Maneig adequat en dones

Els factors de risc, especialment en pacients joves, s'han de considerar en clau VIH

Valorar les indicacions de prevenció primària

En casos de risc baix cal maneig individualitzat

L'MPOC i les malalties cardiovasculars coexisteixen freqüentment i augmenta el RCV

Alerta amb l'infradiagnòstic i subtractament de l'MPOC i MCV

La cessació del tabaquisme continua sent fonamental

Cal prevenir en mesura del possible les exacerbacions de l'MPOC

Es necessiten estratègies per reduir el risc en les persones amb VIH amb factors de risc i altres comorbiditats

MANEIG COMPARTIT



Guia d'ajuda per deixar de fumar en 4 passos

PROGRAMA ATENCIÓ PRIMÀRIA SENSE FUM

“He who knows syphilis knows medicine”

Sir William Osler (12 July 1849–29 December 1919)

The same may be said of HIV

Review

**Metabolic Complications of Chronic HIV Infection:
A Narrative Review**

