

HIV & Cardiovascular Disease in 2026

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CARDIAC AND
VASCULAR

Financial Disclosures

- None

Question 1



40 y/o women living with HIV.
Would you consider
her ❤️ risk ?

Objectives

- ❑ Increase **awareness** about current status of that cardiovascular disease (CVD) in people living with HIV.
- ❑ Explain **how** HIV factors contribute to HIV-associated CVD
- ❑ Improve clinician ability to **assess cardiovascular risk** by incorporating HIV-specific risk enhancers.
- ❑ **Translate REPRIEVE** findings into routine clinical practice.
- ❑ **Evidence-based prevention strategies** to the Caribbean context

WHY ARE WE HERE?



The Global HIV Burden in 2026

Women and girls represent **53%** of all PLWH globally



41.0
million

People living with HIV globally in 2025
[35.3–47.5M]

1.2M

New HIV infections
in 2025
[950,000–1.7M] — a **42%
reduction** from 2.1M in
2010



570K

AIDS-related deaths in
2025
[430,000–780,000] — a **57%
reduction** from peak (2004)



32.1M

People on antiretroviral
therapy (ART) in 2025
Up from 7.6M in 2010



78%

Of all PLWH accessing treatment
in 2025
[59–94%]

88%

Knew their HIV status in 2025
[67–>98%] — **5.0M remained
undiagnosed**

65%

Of PLWH reside in the WHO
African Region
Region of the Americas: 4.2M PLWH

The Caribbean HIV Success Story



340K

People living with HIV in the Caribbean (2024)



15K

New HIV infections annually



-62%

Decline in AIDS-related deaths since 2010 — largest of any UNAIDS region



-21%

Decline in new infections since 2010

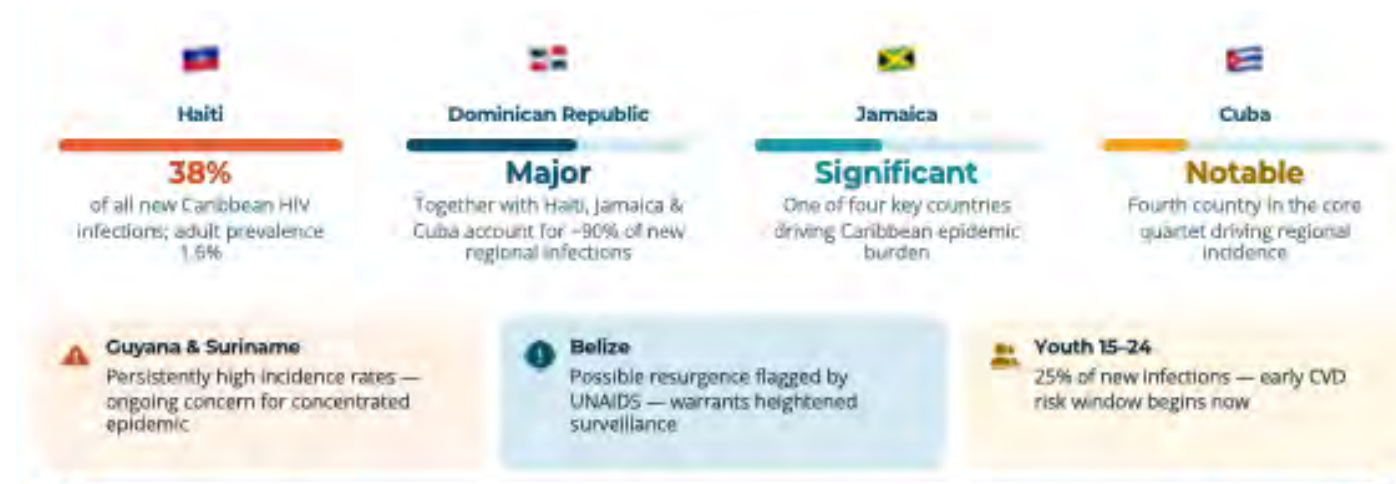
Treatment Cascade Progress



The Caribbean's HIV success story has created a new challenge: preventing cardiovascular disease in an aging HIV population.

Source: UNAIDS Caribbean Regional Profile 2024

Caribbean HIV Prevalence 2nd Highest

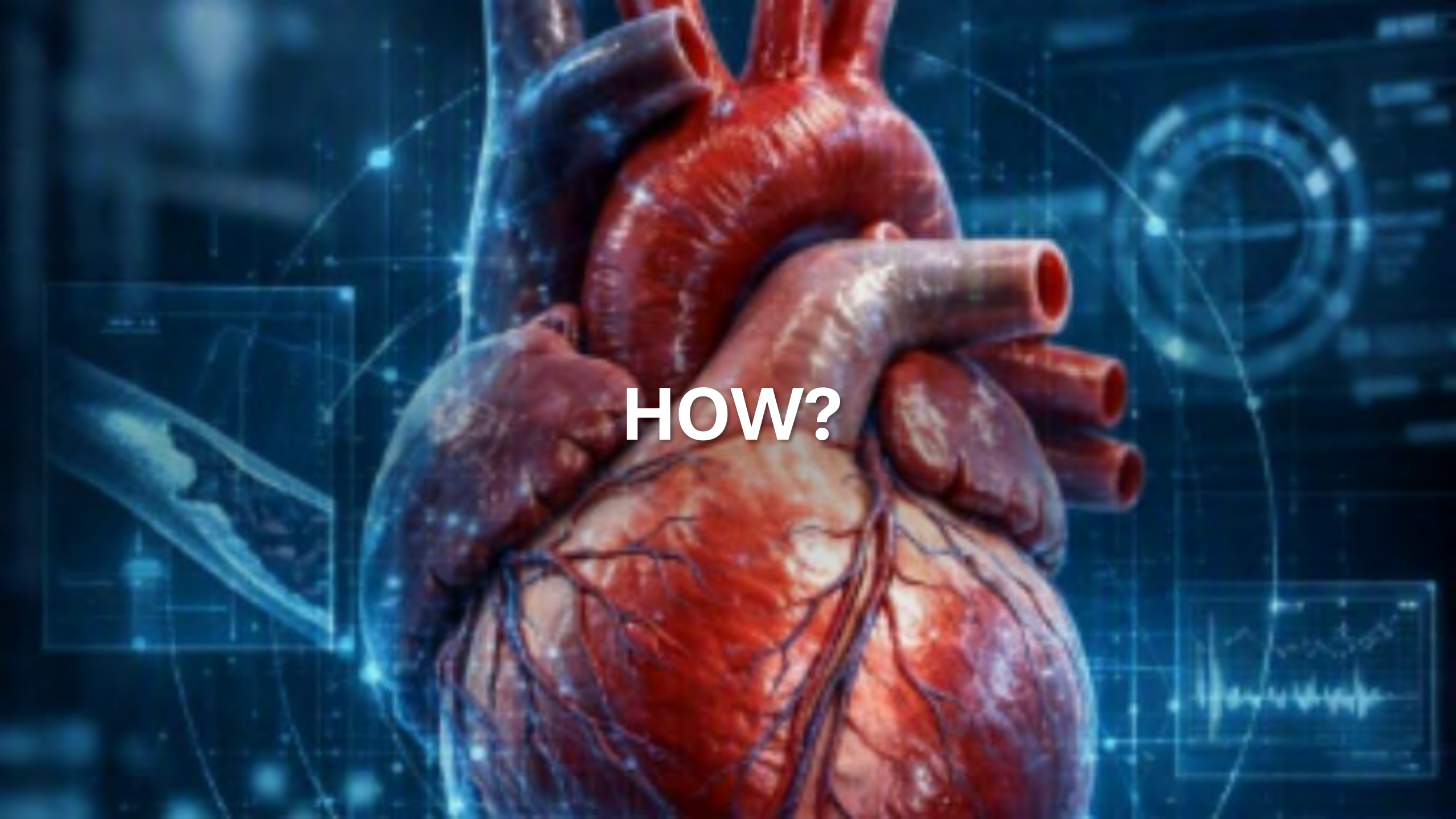




The Caribbean HIV Landscape & CVD Burden

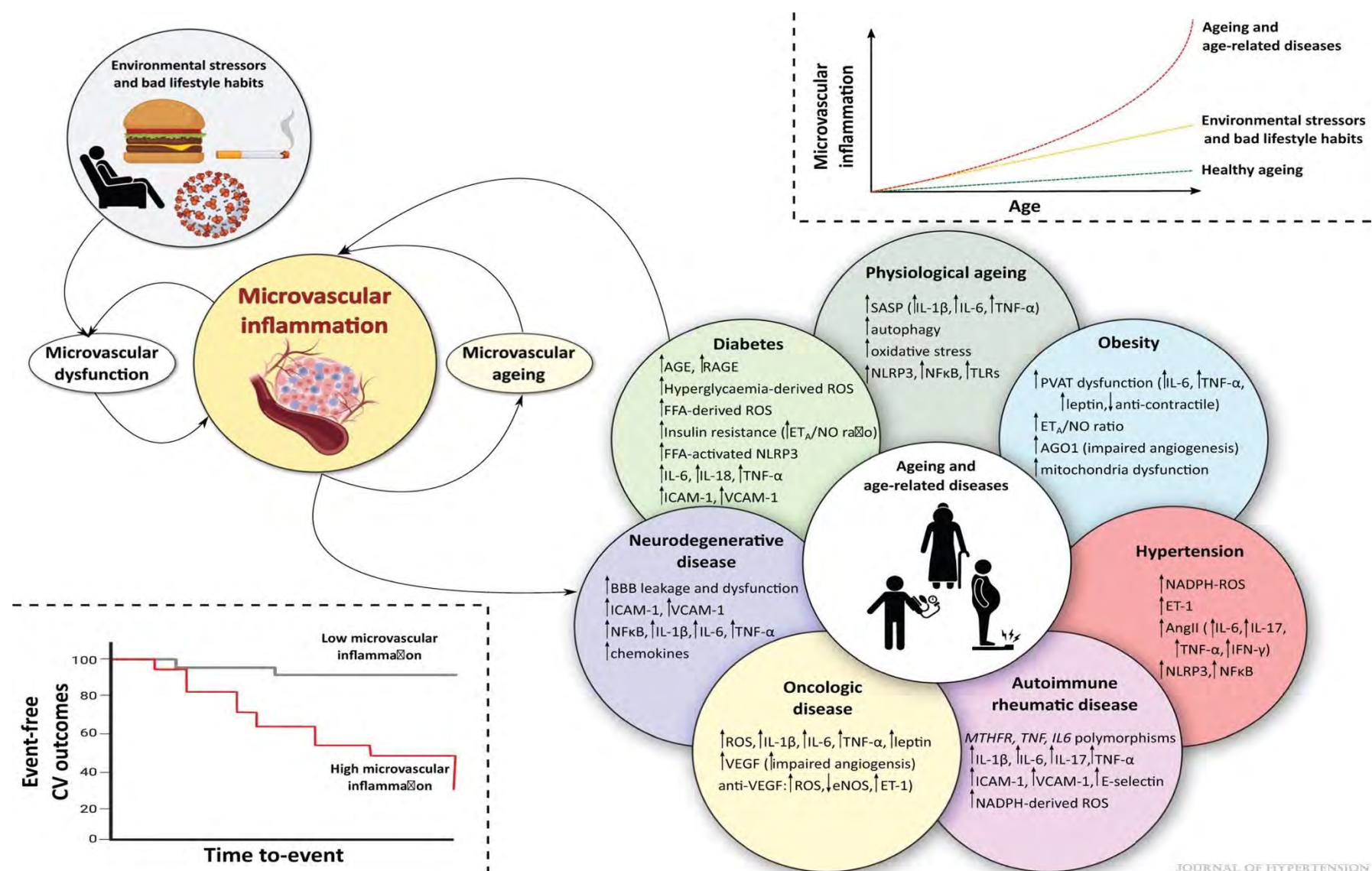
**HIV success in the Caribbean
has created a new frontier :
cardiovascular disease.**

-  340,000 people living with HIV in the Caribbean
-  -62% decline in AIDS-related deaths since 2010
-  CVD is now the #1 cause of non-AIDS death in PLHIV



HOW?

INFLAMMATION



INFLAMMATION → CVD

HIV

A close-up photograph of a camera lens resting on a bed of green moss. The lens is positioned centrally and its glass element reflects a lush, green forest scene with tall trees and dense foliage. The word "HIV" is superimposed in a bold, red, sans-serif font over the center of the lens's reflection. The background is a soft-focus view of the same forest, creating a sense of depth and connection between the lens, the reflection, and the environment.

HOW



Traditional Risk Factors

HIV-Specific Risk



ASCVD

Coronary & Cerebrovascular

MI · Stroke / TIA · Coronary plaque · Revascularization



HEART FAILURE

HFpEF & HFrEF

Myocardial fibrosis · Inflammation · Both preserved & reduced EF



PAD / VASCULAR

Peripheral Arterial Disease

Endothelial dysfunction · Arterial stiffness · Peripheral ischemia



ARRHYTHMIA / SCD

Electrical & Sudden Death

Atrial & ventricular arrhythmias · Sudden cardiac death signals



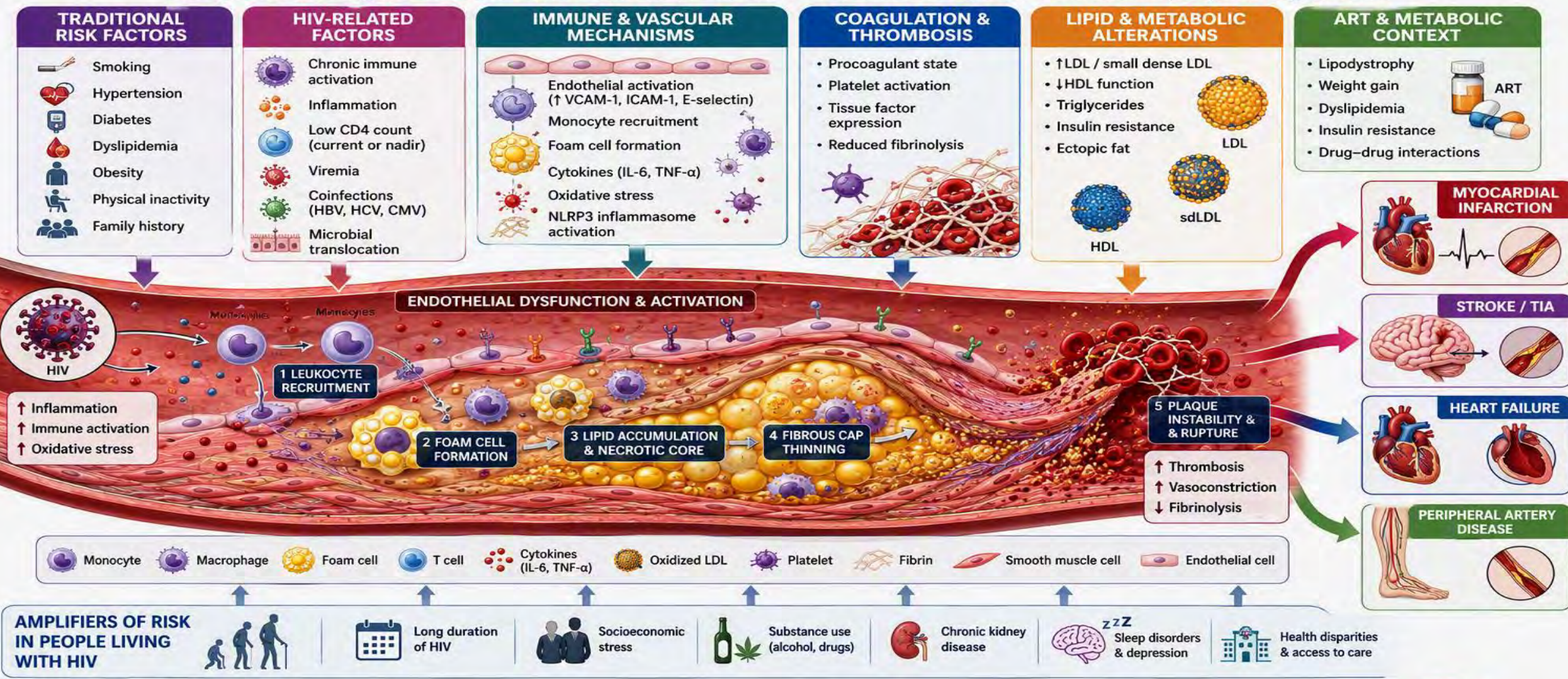
PULMONARY

HIV-Associated PAH

Pulmonary arterial hypertension · Right heart strain

HIV-ASSOCIATED CARDIOVASCULAR PATHOBIOLOGY

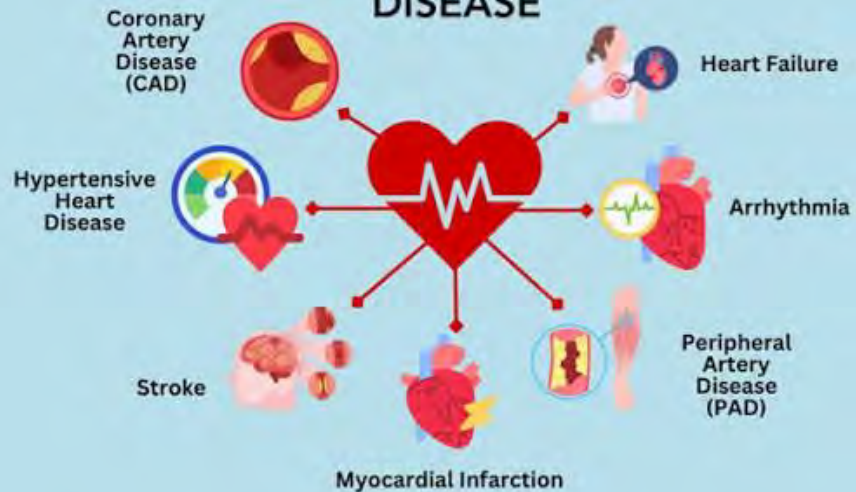
Multiple interacting mechanisms drive atherosclerosis and adverse cardiovascular outcomes in people living with HIV



EARLY RECOGNITION + AGGRESSIVE RISK-FACTOR MANAGEMENT = REDUCED CARDIOVASCULAR RISK

- ✓ Lifestyle Optimization
- ✓ Smoking Cessation
- ✓ BP Control
- ✓ Lipid Management (Statins)
- ✓ Diabetes Care
- ✓ Adherence to ART
- ✓ Regular Follow-Up

TYPES OF CARDIOVASCULAR DISEASE



HIV multiplies CVD risk across every cardiac outcome — undetectable viral load does not equal zero risk.

2.58x

Cardiac Arrest

Highest excess risk of all CVD subtypes

1.90x

Stroke — 90% higher risk

1.72x

Ischemic Heart Disease

1.71x

Heart Failure — 71% higher risk

1.60x

Myocardial Infarction — 60% higher risk

1.38x

Total CVD — 38% higher overall

Luo et al., BMJ Global Health 2026 — 35 cohort studies, 199 effect estimates, 4.17M PLHIV [11]

Question 1



Q: *Would you prescribe a statin?*

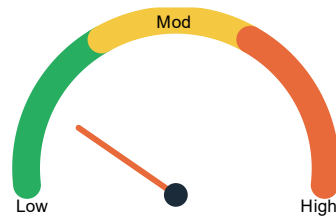
- 40-year-old women with HIV
- viral suppression
- LDL 110 mg/dL
- ASCVD risk of 2%

A:

Risk Calculators Miss HIV Risk

PCE

Pooled Cohort Equations



Underestimates

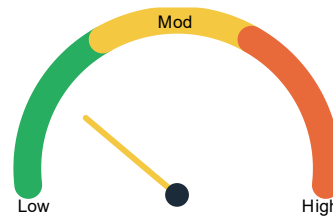
Points to "low" — misses true HIV risk

Traditional Only

- Developed without PLHIV — cohort exclusion limits applicability
- Misses HIV-driven inflammation — IL-6, hsCRP, immune activation not captured
- HIV patients with events frequently classified as **low-to-intermediate risk** by PCE
- Does not account for nadir CD4, viral history, or ART exposure

PREVENT

AHA PREVENT Score



Partial Capture

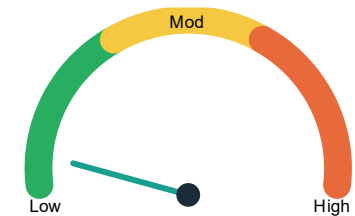
Improved but still misses HIV-specific factors

Incomplete

- Incorporates **kidney function & social determinants** — improvement over PCE
- Still calibrated without HIV-specific cohorts — HIV inflammation gap persists
- HIV risk enhancers remain external to the model — must be **layered on top**
- Better calibrated in diverse populations, but HIV still not explicitly modeled

SCORE₂

ESC European Risk Model



Underestimates

Validated in Europe — not calibrated for HIV

Traditional Only

⚠️ LIMITED IN CARIBBEAN

- European-derived — baseline risk calibrated to European CVD rates, not Caribbean
- Limited applicability to **Caribbean PLHIV** — different risk profiles, ethnicity, access
- ESC 2025 now recommends statins for **ALL PLHIV ≥40** — bypasses SCORE2 limit
- No validated regional calculator exists for the Caribbean — major evidence gap



HIV risk ≠ calculator risk

Use calculators as a floor, not a ceiling — then layer HIV-specific factors to guide statin decisions.

Evidence & Guidelines:

The REPRIEVE Era

★ The first landmark RCT to prove statin benefit for primary CVD prevention specifically in people living with HIV

- ❑ **REPRIEVE transformed HIV cardiovascular prevention** from expert opinion to evidence-based medicine.
- ❑ **REPRIEVE changed** the conversation from treating cholesterol to preventing cardiovascular events in people living with HIV.

The REPRIEVE Trial

Statin Therapy for Primary Prevention of Cardiovascular Disease in People Living With HIV



CVD PREVENTION
SAVES LIVES



Population

Adults with HIV
on ART, age 40–75,
low–moderate CVD risk



Randomized

Double-blind,
placebo-controlled,
event-driven



Primary Endpoint

Major adverse cardiovascular
events (MACE): CV death, MI,
stroke, or revascularization

RANDOMIZED GROUP 1 Pitavastatin 4 mg Daily

n = 3,888



- ✓ Preferred statin in REPRIEVE
- ✓ Well tolerated
- ✓ Lower potential for drug–drug interactions
- ✓ Proven reduction in MACE



Balanced
Groups



Total
Participants
N = 7,769

RANDOMIZED GROUP 2 Placebo Daily

n = 3,881

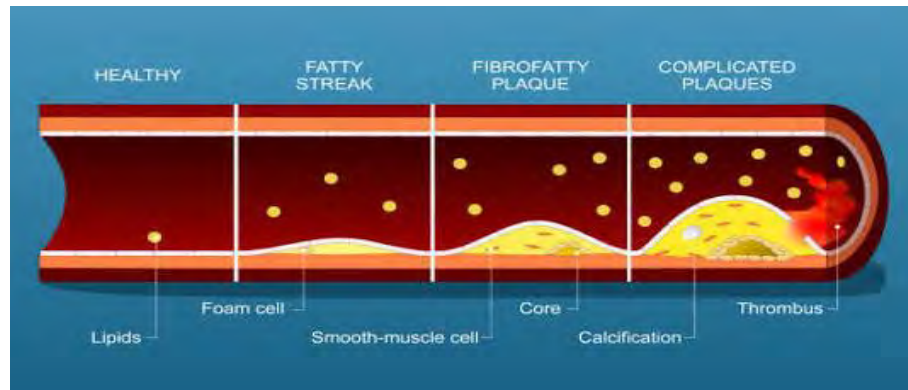


- ✓ Identical in appearance
- ✓ Same follow-up
- ✓ Same standard of HIV care

Clinical Impact in 2026

⌚ BEFORE REPRIEVE

- **Step 1:** Calculate risk score (PCE / SCORE2)
- **Step 2:** Statin if threshold met
- **HIV status:** Not incorporated in risk algorithm



⌚ AFTER REPRIEVE — 2026 AHA/ACC

- **Step 1:** Calculate risk score (PCE / SCORE2)
- **Step 2:** Layer HIV-specific enhancers:
 - HIV duration + nadir CD4 + viremia history + ART exposure
- **HIV = formal risk-enhancing factor**
- Earlier statin consideration for PLHIV ages 40–75
- U.S.: NIH panel + ACC/AHA/HIVMA expanded primary prevention recommendations



HIV-Specific Risk Enhancers — The Clinical Checklist

Five HIV-specific questions at every clinic visit refine cardiovascular risk beyond ASCVD scores.



Long HIV Duration

More than 10 years of infection → cumulative vascular burden

DURATION



Low Nadir CD4 Count

<200 cells/mm³ → deeper immune depletion, greater residual inflammation

IMMUNITY



History of Viremia or Failure

Prior viral rebounds drive persistent inflammation even after re-suppression

VIREMIA



Older ART Regimen Exposure

Thymidine analogues and older PIs → metabolic and lipid toxicity

ART HISTORY



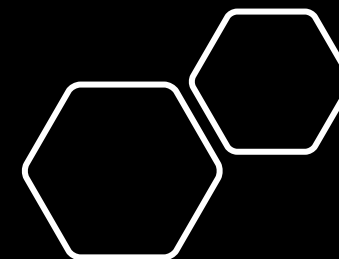
Coinfections

Hepatitis C and CMV independently amplify cardiovascular risk

COINFECTION

A large, solid orange circle serves as the background for the text.

What to do Next?



#1 Blood Pressure



Hypertension — The Most Actionable Target

One-third of hypertension in REPRIEVE was undiagnosed — measuring BP at every visit is the most impactful intervention.



36%

Hypertension Prevalence
in the REPRIEVE cohort



31%

Previously Undiagnosed
of that hypertension was undetected



39%

Uncontrolled HTN
of known hypertension was uncontrolled



BP Target

<130/80 mmHg — standard guidelines apply in PLHIV



Preferred Agents

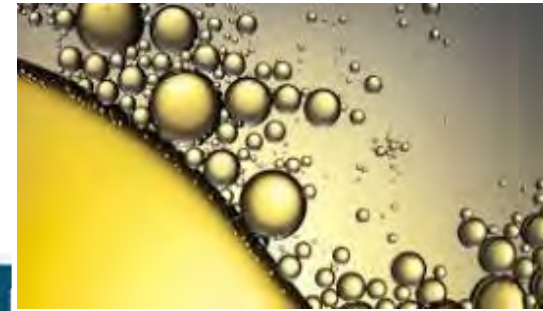
ACE inhibitors / ARBs (renal protection); watch CCB interactions with boosted PIs



Caribbean Context

HTN rates very high throughout the region — dual burden amplified in PLHIV

#2 Lipids (Statins)



Statin	Status
Pitavastatin	PREFERRED
Rosuvastatin	PREFERRED
Pravastatin	SAFE
Atorvastatin	CAUTION
Fluvastatin	SAFE
Simvastatin	CONTRAINDICATED
Lovastatin	CONTRAINDICATED

Always verify interactions before prescribing: [Liverpool HIV Drug Interaction Checker \(hiv-druginteractions.org\)](http://hiv-druginteractions.org)

Lipid Management Beyond Statins

Atherogenic dyslipidemia in PLHIV is more than LDL — targeting the full lipid profile matters.

Classic HIV Lipid Pattern

↑ Triglycerides · ↓ HDL · Small Dense LDL (most atherogenic)



Fibrates

Severe hypertriglyceridemia; check DDIs with gemfibrozil + statins



Omega-3 Fatty Acids

Adjunctive TG reduction; minimal ART interactions



Ezetimibe

Additive LDL-lowering; safe with most ART regimens



Goal

Comprehensive lipid control — not just LDL target



Monitor lipids: at ART initiation · 3–6 months later · then annually

ART and Metabolic Risk

ART Class / Agent	Key Metabolic / CVD Effect	Clinical Signal	Risk Level
TAF vs. TDF	TAF associated with greater lipid increases; TDF may be more lipid-neutral	Lipid profile worsening with TAF switch	MONITOR LIPIDS
INSTIs(dolutegravir, bictegravir)	Associated with weight gain; metabolic monitoring needed	Weight gain → increased DM & CVD risk	MONITOR WEIGHT
Boosted PIs(darunavir/r, lopinavir/r)	Dyslipidemia, insulin resistance; older PIs carry greatest risk	↑LDL, ↑TG, insulin resistance	USE CAUTION
Abacavir (ABC)	Cardiovascular signal debated; ongoing research	MI signal in some cohorts, not conclusive	DEBATED
Thymidine Analogues(older ART)	Mitochondrial toxicity, lipodystrophy — significant metabolic burden	Lipoatrophy, dyslipidemia, lactic acidosis	

❶ **Key Principle: ART-related metabolic effects are a recognized contributor to HIV-associated CVD alongside chronic inflammation : ART choice matters.**

Case 2**45-year-old Dominican woman**

 **ART Regimen** Darunavir/Cobicistat (boosted PI) + backbone NRTI

 **Lipids**

LDL	HDL	TG	HbA1c
138 mg/dL	42 mg/dL	220 mg/dL	6.1%

 **10-yr PCE Risk** **7.5%** (low-intermediate)

Prior Viremia ✓

 **History** Detectable viral load 3 years ago — HIV risk enhancer present

#3 Glucose



Diabetes: Rising Tide in HIV Clinics

ART metabolic effects and HIV-associated insulin resistance are driving rising T2DM rates — screen aggressively.



Screening Protocol

- HbA1c every 6 months in PLHIV — standard of care
- Screen earlier if ART change, weight gain, or family history
- HbA1c target: <7% unless comorbidities warrant individualization



Risk Drivers in PLHIV

- ART-related insulin resistance + HIV-associated metabolic changes
- INSTIs (dolutegravir, bictegravir): associated with weight gain → increased DM risk
- Rising obesity rates in the Caribbean — compounding metabolic burden



HbA1c Treatment Target

Generally <7% — individualize based on comorbidities

#4 Smoking Cessation



Smoking prevalence is highest among PLHIV compared to the general population — quitting is the single most impactful intervention.



ASK

Smoking status at every visit — document and trend over time



ADVISE

Provide a clear, direct recommendation to quit at every encounter



ASSIST

Offer pharmacotherapy — see options on the right



CARIBBEAN CONTEXT

Tobacco use culturally embedded — brief motivational counseling at each visit is essential



Quitting smoking reduces CVD risk more than any other single intervention in PLHIV ^[3]



#5 Physical Activity & Weight Management

Exercise reduces inflammation and CVD risk: 150 minutes per week is the prescription.



150 min/week

Target: moderate-intensity aerobic activity



2× per week

Resistance training — reduces visceral adiposity, improves lipids



BMI + Waist

Track both — central adiposity is the key CV driver

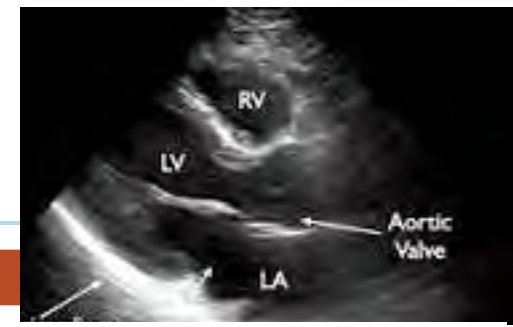
- **Anti-inflammatory:** Exercise reduces IL-6 and hsCRP — directly addressing HIV-related inflammation
- **Caribbean diet counseling:** Reduce processed foods, salt, and sugar; obesity rising as a dual epidemic
- **Accessible options:** Walking, swimming, cycling — low-cost, feasible in any Caribbean setting

"Taking your HIV medications protects your immune system. Exercise protects your heart."

Heart Failure in PLHIV

PLHIV have 1.7× higher heart failure risk — both HFpEF and HFrEF occur, through distinct mechanisms.

1.7× Higher Heart Failure Risk in PLHIV



HFpEF — Preserved EF

More common in older PLHIV

- Hypertension + chronic inflammation as primary drivers
- Myocardial stiffness; diastolic dysfunction
- Increasingly prevalent with aging HIV population



HFrEF — Reduced EF

HIV cardiomyopathy; systolic impairment

- Myocardial fibrosis and direct HIV cardiomyopathy
- Persistent immune activation and ART effects
- CMV coinfection amplifies myocardial damage

Anticoagulation & Atrial Fibrillation in PLHIV

PLHIV have higher AF incidence — DOACs are preferred over warfarin, but ART interactions must be checked.



AF Incidence

Higher in PLHIV

vs. general population — driven by chronic inflammation, immune activation, and traditional risk factors

⚠️ Warfarin: Avoid

Unpredictable INR — NNRTIs induce CYP2C9; PIs inhibit CYP2C9. Multiple ART interactions make dosing unreliable.

🔍 Always Verify DDIs

Liverpool HIV Drug Interaction Checker — hiv-druginteractions.org

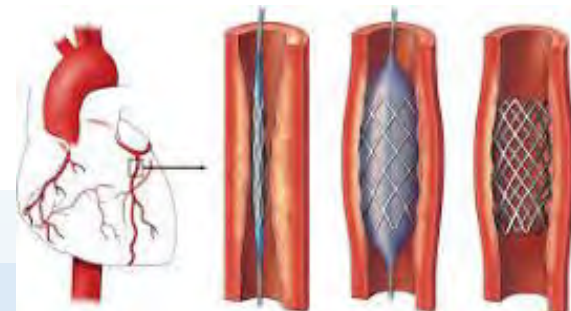
DOAC Options — ART Interaction Profile

Agent	Status	ART Interaction Notes
Apixaban	PREFERRED	Safest profile with most ART regimens — first-choice DOAC in PLHIV
Rivaroxaban	CAUTION	Interactions with boosted PIs — may need dose adjustment or avoidance
Dabigatran	CAUTION	P-gp substrate — significant PI interactions; use with care
Warfarin	AVOID	Multiple CYP2C9 interactions with NNRTIs & PIs; unpredictable INR

🩺 Antiplatelet Considerations

- ⚡ Clopidogrel + boosted PIs — CYP2C19 inhibition reduces clopidogrel activation → consider alternative antiplatelet in high-risk patients
- ⚡ Aspirin — No longer recommended for primary prevention; continue for secondary prevention per standard guidelines

Established CAD on a Boosted PI: Statin & Antiplatelet Decisions



60-year-old Trinidadian Man

HIV + Known CAD (Prior MI, 2 years ago)

- ART Regimen: Darunavir/cobicistat + emtricitabine/tenofovir alafenamide (TAF)
- Current Therapy: Aspirin 81 mg + clopidogrel (6 months post-PCI)
- LDL Goal (Secondary Prevention): <70 mg/dL

⚠️ Cobicistat (CYP3A4 + P-gp inhibitor) — check ALL drug interactions before prescribing

Stroke and Peripheral Vascular Disease

Stroke risk is 90% higher in PLHIV — ischemic mechanisms predominate, driven by both traditional and HIV-specific factors.

RR 1.90

Stroke risk in PLHIV — **90% higher** than the general population

BMJ Global Health 2026 — 35 cohort studies, 4.17M PLHIV [2]

Stroke Mechanisms

- Ischemic predominant
- Cardioembolism
- HIV-associated coagulopathy
- Accelerated carotid atherosclerosis

 **Women with HIV** have higher ischemic stroke risk in subgroup analyses — sex-specific vigilance required.



CARIBBEAN HIV CLINIC CARDIOVASCULAR PREVENTION PATHWAY



From Screening to Long-Term Cardiovascular Health

1 SCREEN EVERY ADULT WITH HIV



At every visit:

- BP
- Smoking status
- Weight/BMI & Waist
- Diabetes symptoms
- ART review
- Family history of CVD



All PLWH ≥ 40 years
or younger with risk
factors: Assess risk
annually



Evidence-based care. Context-adapted. Patient-centered.

Assess. Address. Protect.



PLWH can live long. Let's protect their hearts.



Five Reflection Questions

Before you leave today — reflect on your practice.

- 1  Do you consider HIV a cardiovascular risk enhancer when making prevention decisions?
- 2  True or False: Virally suppressed HIV patients have the same CV risk as people without HIV? **FALSE**
- 3  Would this patient have received a statin before REPRIEVE? (The 52-yr Jamaican from Case 1)
- 4  What is the biggest HIV-CVD prevention barrier in your country?
- 5  What will you change in your practice **NEXT WEEK?**

“ By the end of this talk, I hope everyone answers 'always' to question 1.





The 10 Commandments of HIV-CVD Prevention

A practical checklist to transform every HIV clinic visit

- 1 ✓ **Maintain viral suppression** — it IS a cardiovascular intervention
- 2 ✓ **Measure blood pressure** at every visit
- 3 ✓ **Screen lipids annually** (or after ART change)
- 4 ✓ **Screen HbA1c annually**
- 5 ✓ **Ask about smoking** at every visit; offer cessation support
- 6 ✓ **Calculate ASCVD risk** + apply HIV-specific risk enhancers
- 7 ✓ **Consider pitavastatin or rosuvastatin** for eligible PLHIV ages 40–75
- 8 ✓ **Check ART interactions** before all cardiovascular prescriptions
- 9 ✓ **Counsel on physical activity** (150 min/week) and healthy diet
- 10 ↻ **Reassess and document** CVD prevention plan annually





CALL TO ACTION

- in the Caribbean, HIV care has successfully extended life.
 - The next frontier is ensuring those added years are free from cardiovascular disease.
-
- what is the one change you will make in your practice next week?

Thank You!

- cmartinez5@miami.edu



Every HIV visit is a prevention visit — five actions take less than five minutes.

The 5-Step HIV Visit CVD Protocol

1

MEASURE

Blood Pressure

Measure at every visit. Record and trend over time. Uncontrolled HTN is the most actionable CVD target.

2

SCREEN

Lipids & HbA1c

Fasting lipids and HbA1c annually. Sooner if ART change or weight gain detected.

3

COUNSEL

Smoking Status

Ask at every visit. Offer cessation pharmacotherapy — varenicline is safe and preferred in PLHIV.

4

CALCULATE

ASCVD Risk + HIV Enhancers

Annual ASCVD risk + HIV-specific enhancers. Consider statin for eligible PLHIV ages 40–75.

5

CHECK

ART Drug Interactions

Before ANY new cardiovascular prescription. Use Liverpool DDI Checker — hiv-druginteractions.org



Maintain viral suppression — taking your HIV medications is also a cardiovascular prevention strategy.

"Five minutes at every HIV visit can prevent the first heart attack."