

Best Practice: Preventing Cardiometabolic Complications in HIV

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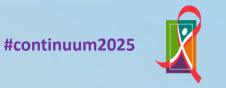
Continuum 2025 • June 10-12, 2025 • San Juan

Disclosures



No conflicts of interest to report

Outline



- Background
- Cardiometabolic complications of HIV
- Risk based assessment
- Risk based prevention strategies
- Future approaches

Story of Baraka, PLHIV aging with HIV







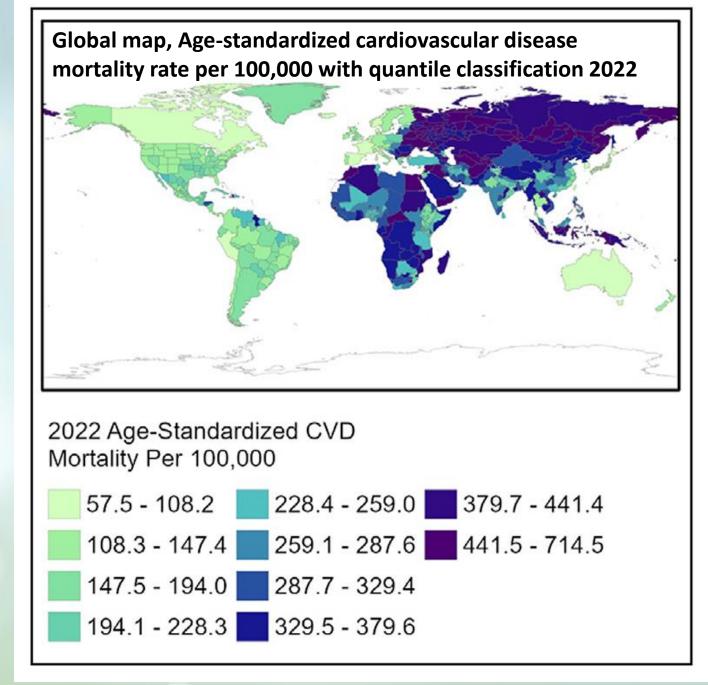






Background

- CVD is the top cause of death globally
 - Over 80% of deaths occur in LMICs



Mensah, G, Fuster, V, Murray, C. et al. JACC. 2023

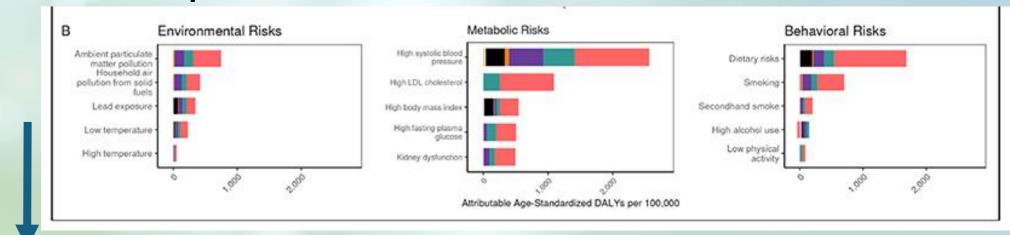
Background



- CVD is the top cause of death globally
 - Over 80% of deaths occur in LMICs



Shared risk factors that are preventable

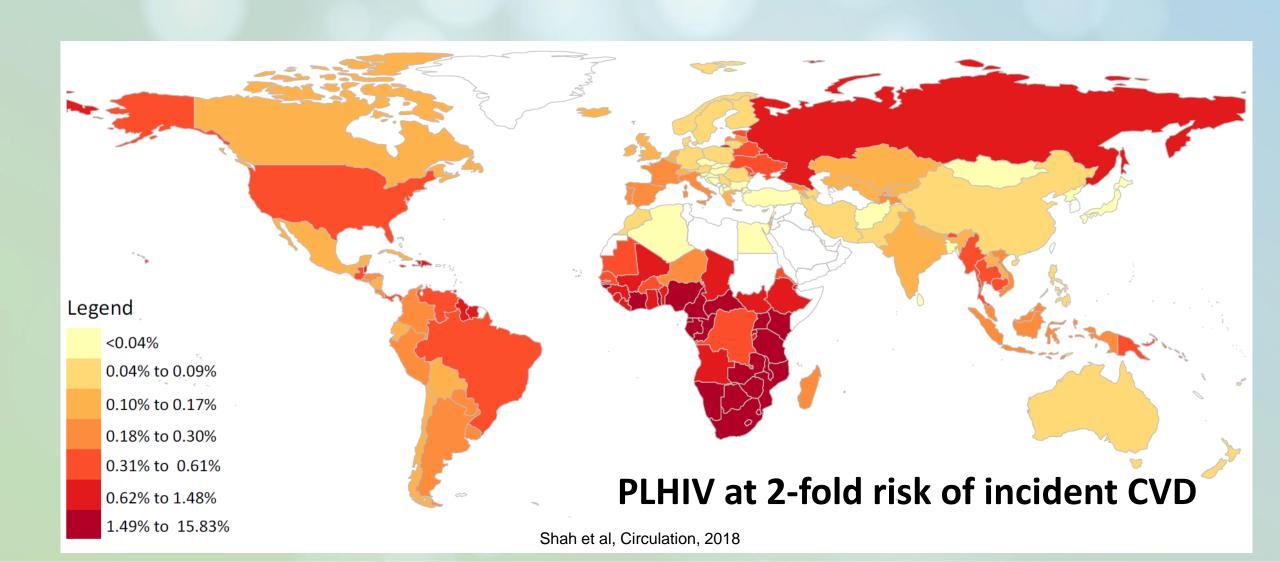


Mensah, G, Fuster, V, Murray, C. et al. JACC. 2023

People living with HIV (PLHIV) are living longer, often with comorbidities

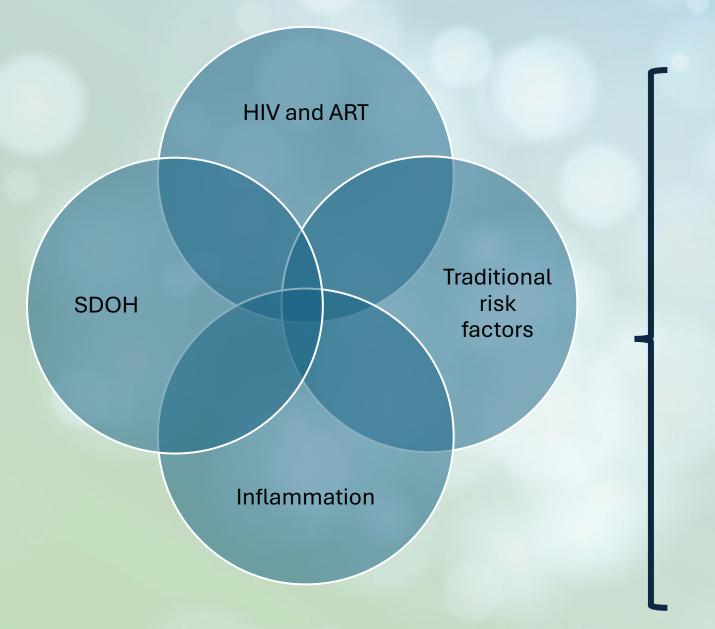


What is the global burden of cardiovascular disease due to HIV?



Risk factors of Cardiovascular disease in HIV

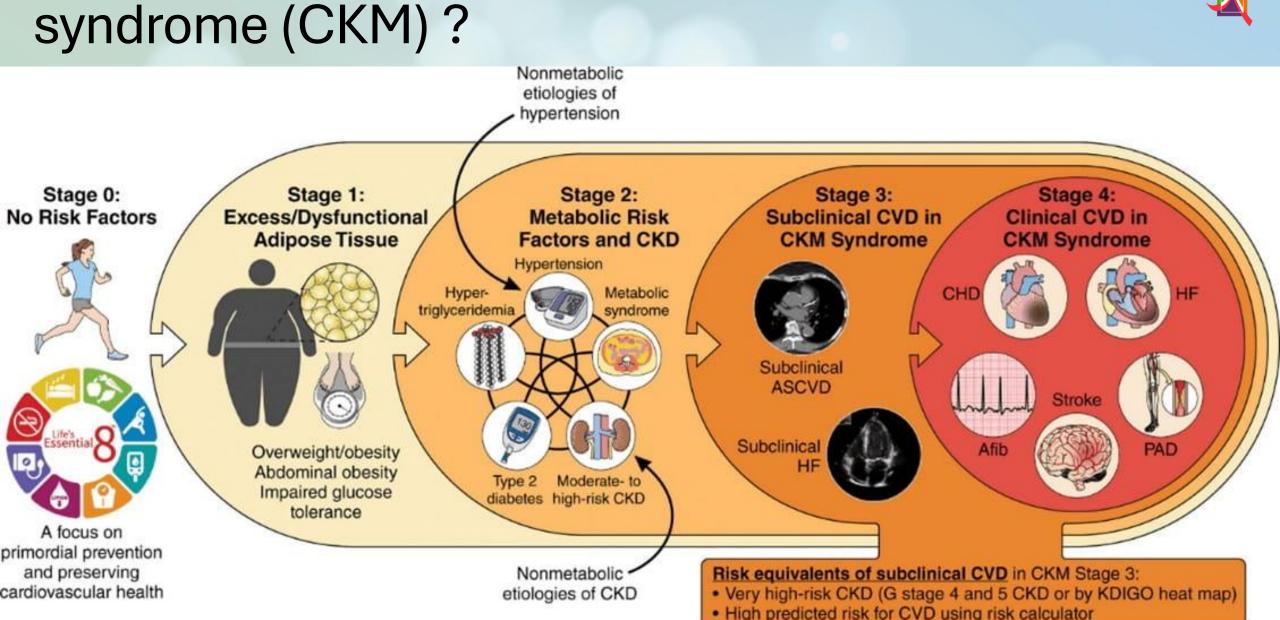




Important progress: increased recognition of the role of social determinants of health

What is the Cardiovascular-kidney-metabolic #continuum2025





What is the Cardiovascular-kidney-metabolic syndrome (CKM)?

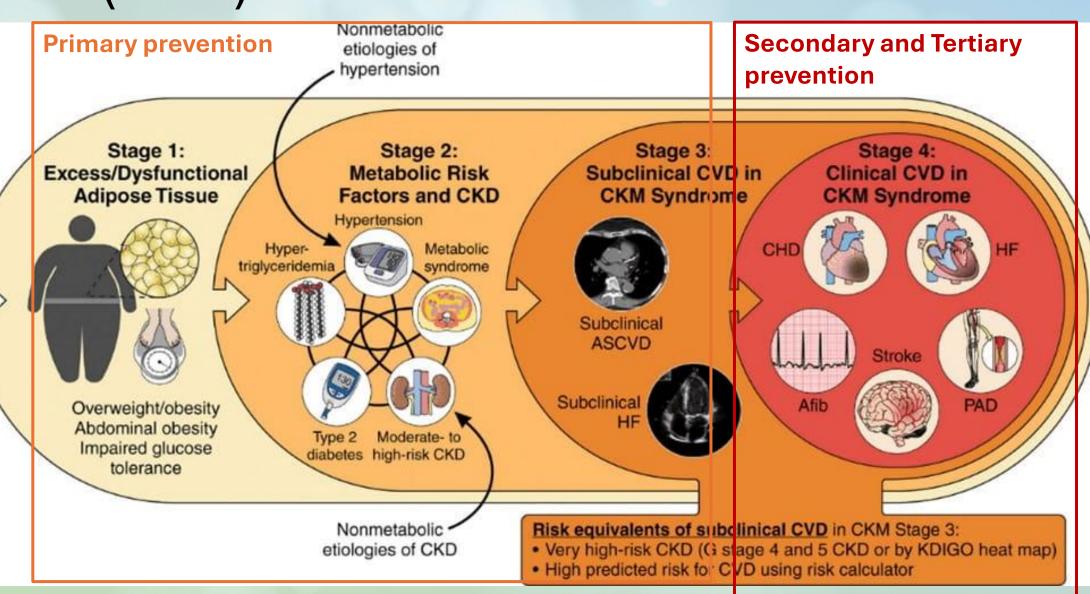


Primordial prevention

Stage 0: No Risk Factors



cardiovascular health

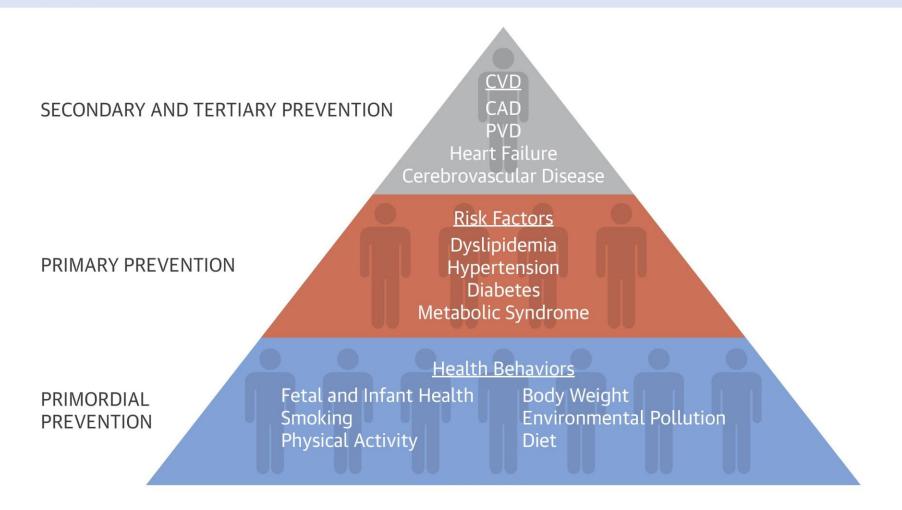


Cardiovascular disease prevention





CENTRAL ILLUSTRATION: Cardiovascular Disease Prevention and Health Promotion



Hong, K.N. et al. J Am Coll Cardiol. 2017;70(17):2171-85.



Screen for CKM Risk



- Assess Life's Essential 8

 (dietary patterns, physical activity, sleep duration and quality, nicotine exposure, body mass index, blood pressure, lipids, and blood sugar)
- Consider additional testing as clinically indicated: HbA1c, UACR, etc.

Assess CVD Risk



Among adults aged 30-79 y

- Calculate: 10- and 30-y absolute risk of CVD, ASCVD, and HF with PREVENT
- Personalize: In the setting of a clinician-patient discussion, consider risk-enhancing factors for shared decision-making
- Reclassify: In those at intermediate risk or when there is uncertainty, consider sequential testing with biomarkers or imaging

Determine CKM Stage



- CKM Stage 0: No CKM risk factors
- CKM Stage 1: Excess or dysfunctional adiposity
- CKM Stage 2: Metabolic risk factors or CKD
- CKM Stage 3: Subclinical CVD, very high-risk CKD, or high predicted CVD risk by PREVENT
- CKM Stage 4: Clinical CVD

Reduce CKM Risk



- Promote CKM health, prevent CKM progression, prioritize CKM regression
- Treat CKM factors and consider cardioprotective therapies according to guideline recommendations when indicated (eg, statin, SGLT2i, GLP-1RA)
- Screen for and address adverse SDOH
- Reassess CKM factors at guideline-recommended intervals



Baraka at 40 years:
Early Risk assessment (with staging)













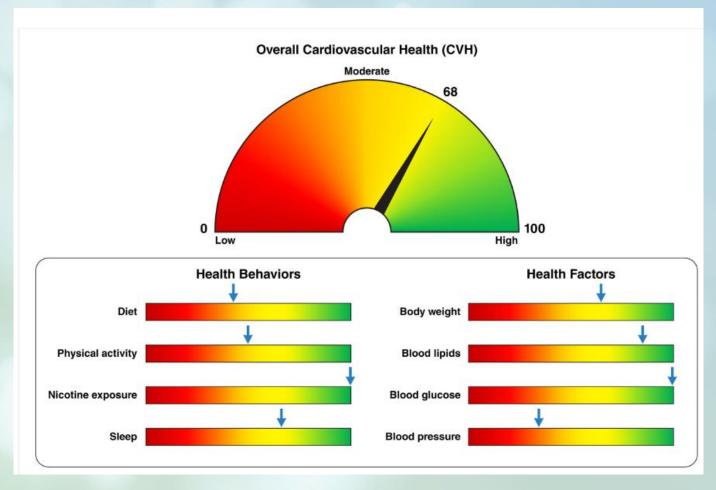
Early screening for CKM risk



Screen for CKM risk

- Assess Life's Essential 8
- Consider

 additional testing
 as clinically
 indicated: HbA1c,
 UACR etc





CKM: Cardiovascular Kidney Metabolic, UACR: urine albumin-to-creatinine ratio.

Assess CVD Risk: 2013 PCE ASCVD



risk calculator

Assess CVD risk

- Among adults aged 30-79 years
- Calculate 10- and 30 yr absolute risk of CVD, ASCVD and HF with PREVENT
 - Personalize
 - Reclassify

- Risk calculators may underestimate ASCVD risk among PLHIV:
 - PCE, SCORE, QRISK, WHO/ISH among others
- 2013 Pooled Cohort Equations (PCE)
 - frequently used for PLHIV (40-79years)
 - Doesn't estimate 10 year risk for those below 40 years
- New AHA PREVENT calculator
 - has potential for use but underestimates risk in PLHIV
 - does not include HIV as a risk enhancer



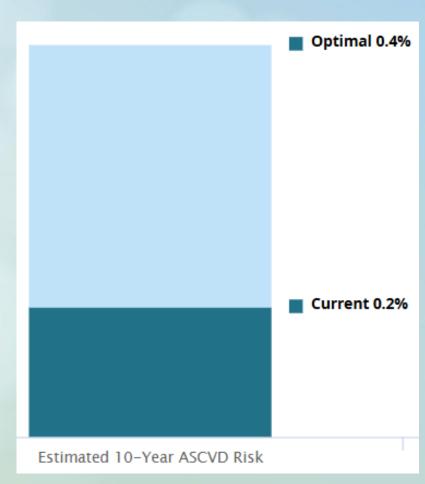
Baraka risk assessment using the 2013 PCE ASCVD risk calculator



Assess CVD risk

- Among adults aged 30-79 years
- Calculate 10- and 30 yr absolute risk of CVD, ASCVD and HF with PREVENT
 - Personalize
 - Reclassify

Inputs Sex: Female	
Age:	40
Total Cholesterol (mg/dL)	130
HDL Cholesterol (mg/dL)	50
LDL Cholesterol (mg/dL)	80
Systolic Blood Pressure (mm Hg)	110
Diastolic Blood Pressure (mm Hg)	80
Diabetes:	No
Smoker:	Never
Treatment for Hypertension:	No
Aspirin Therapy:	No
Statin:	No



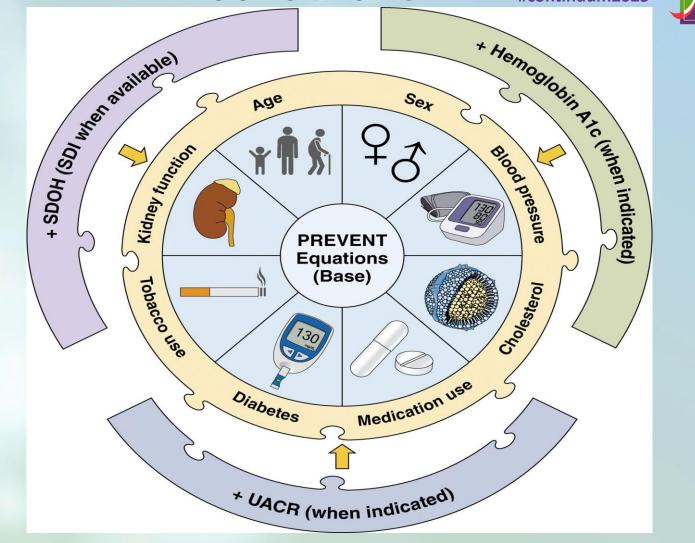


CKM: Cardiovascular Kidney Metabolic, UACR: urine albumin-to-creatinine ratio.



Assess CVD risk

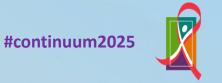
- Among adults aged 30-79 years
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 - Personalize
 - Reclassify





CKM: Cardiovascular Kidney Metabolic, UACR: urine albumin-to-creatinine ratio.

Baraka's 10-year CVD risk



- Interpretation: Baraka at 40 years has a low chance of developing a cardiovascular event within the next 10 years.
- An opportunity to have a conversation with Baraka and for her to own her results
- Can be used in primary health care
 - in and out of clinic
 - By health provider and even by self



Primordial prevention













Primordial prevention

- Life essential 8 or other screening tools
 - Changing narrative from disease to health
- Act on the metrics for cardiovascular health
 - Diet: DASH or Mediterranean diet, plant based, whole grains, low fat dairy and low amounts of red meat
 - Exercise
 - Quit Tobacco: never too late
- Research gap: adaptation of these concepts to reflect culture

Life's essential 8



- Screen for nutrition security
- Assess diet quality (DASH²⁰/Mediterranean eating patterns²¹), restrict saturated fat, salt (sodium), sugar, sugary beverages; emphasize potassium intake



Physical Activity



- Embed physical activity promotion strategies in clinical practice
- · Encourage strategies to increase physical activity
- · Exercise at least 150 min of moderate-to-vigorous physical activity weekly

Nicotine



- · Ask and document smoking status. Advise the importance of smoking cessation
- Provide referrals to programs or pharmacologic therapies and arrange for follow-up



- · Address sleep behaviors to optimize cardiovascular health
 - · Develop simple tools for assessing OSA and evaluate brief strategies

Healthy Weight



• Early detection and initiation of lifestyle interventions to prevent obesity

Healthy Levels of Blood Lipids



- Promote healthy lifestyle
- Treat patients with statin therapy who have clinical ASCVD, with high 10-y ASCVD risk based on the pooled estimating equation, or have risk-enhancing conditions
- Use CAC to inform borderline risk

Blood Glucose



 Use combination of lifestyle and evidence-based therapies to achieve glucose goals. Screen for social context, address social determinants, and manage comorbid cardiovascular risk factors

Blood Pressure



- Screen, diagnose, treat using evidence-based principles
- Use proper remote and office-based monitoring techniques
- Promote DASH²⁰ or Mediterranean eating patterns²¹
- Promote medication adherence

Baraka 10 years later has obesity and hypertension stage 2 CKM: **Primary** prevention













Primary prevention

Determine CKM Stage

Reduce CKM risk

metformin

Stages 1-3: **Patient With CKM Syndrome** at Risk for CVD Promotion of cardiovascular health with an emphasis on Life's Essential 8 framework: eat better, be more active, quit tobacco, get healthy sleep, manage weight, control cholesterol, manage blood sugar, manage blood pressure Systematic screening for SDOH using validated tools; incorporation of community health workers and care navigators into the care team; leveraging existing community resources and community programs **Interdisciplinary care** – Use of CKM coordinator and interdisciplinary team; targeted referrals of high-risk CKM patients to subspecialists Stage 1: Stage 2: Stage 3: **Established CKM Risk Factors Excess or** Subclinical CVD in **Dysfunctional CKM Syndrome** Presence of metabolic syndrome triggers intensive lifestyle Adiposity intervention targeting multifactorial risk control Pharmacotherapy for comprehensive control of residually uncontrolled MetS components Hypertriglyceridemia Hypertension Subclinical Moderate- to High-Risk Discuss weight loss using Lifestyle modification Lifestyle modification **Chronic Kidney Disease* Atherosclerosis** STOP obesity alliance toolkit Maximize statin therapy in Follow established · With albuminuria CAC >0 intermediate or higher hypertension guidelines to (UACR >30 mg/g) → ACEi/ARB Can consider weight loss Favors statin use ASCVD risk achieve BP <130/80 mmHg · CKD (with or in intermediate risk support via integrated team TG ≥500 mg/dL→ fibrates In those with diabetes without diabetes) → SGLT2i[†] to facilitate lifestyle change/ CAC >100 • TG: 135-499 mg/dL + · DKD with residual albuminuria and albuminuria -> navigate weight loss options Favors aspirin use diabetes + additional risk prioritize ACEi/ARB (>30 mg/g) on ACEi/ARB→ if low bleeding risk (obesity medicine, metabolic factors → consider eicosa- In those with CKD→ finerenone§ (can be used on Favors considering surgery, dietician, pharmacy, pentaenoic acid (EPA) prioritize ACEi/ARB background SGLT2i) mental health. CHW/care other agents for ASCVD risk reduction manager): (eg, PCSK9i, GLP-1RA • Intensive lifestyle **Diabetes** icosapent ethyl) based intervention · Lifestyle modification on CKM profile · Moderate-to-high intensity statin Pharmacotherapies (BMI ≥30 kg/m² · Ezetimibe for high risk without comorbidities) Comorbidity-based approach to antihyperglycemic pharmacotherapy: CVD Risk Equivalents for Stage 3 CKM: BMI ≥35 kg/m² → GLP-1RA Bariatric surgery Verv high-risk CKD* (BMI ≥40 kg/m² HbA1c ≥9% or high insulin dose → GLP-1RA • High predicted CVD risk per without comorbidities) CKD→SGLT2i[†] risk calculator Considerations for Metformin Co-Utilization If persistent/progressive IGT despite intensive lifestyle modification → consider HbA1c <7.5% HbA1c ≥7.5% or on insulin

→ Cardioprotective antihyperglycemics

without metformin initiation (continue metformin[‡] if already using)

→ Co-utilization of metformin[‡] and

cardioprotective antihyperglycemics

Subclinical

Heart Failure

• EF <40%→

ACEI/ARB,

B-blocker

In diabetes

→ SGLT2i[†]

Primary prevention in Primary Health care





Change from siloed care models

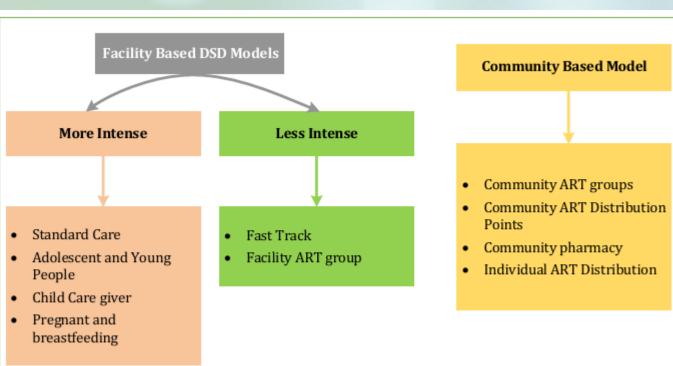
Simplified treatment protocols for hypertension, diabetes, etc

Integrated care/ Differentiated Service delivery models/Chronic care model

Task sharing and task shifting with support



Leverage Differentiated Service Delivery models





Source: CQUIN

DSD been applied in US- Seattle

















Baraka 30 years later.... with heart failure stage 4 CKM: Secondary prevention













Secondary prevention



Promotion of cardiovascular health with an emphasis on Life's Essential 8 framework: eat better, be more active, guit tobacco, get healthy sleep, manage weight, control cholesterol, manage blood sugar, manage blood pressure

Systematic screening for SDOH using validated tools, incorporation of community health workers and care navigators into the care team, leveraging existing community resources and community programs

Interdisciplinary care – Use of CKM coordinator and interdisciplinary team; targeted referrals of high-risk patients with CKM to subspecialists

HF: GDMT for all patients

ASCVD: Aspirin and high-intensity statin for all patients, consider addition of ezetimibe and PCSK9i based on LDL level/goals or presence of high-risk ASCVD

Management of Excess or Dysfunctional Adiposity

Discuss weight loss using STOP obesity alliance toolkit

Weight loss support via integrated team to facilitate lifestyle change/navigate weight loss options (obesity medicine, metabolic surgery, dietician, pharmacy, mental health, CHW/care manager):

- Intensive lifestyle intervention
- Pharmacotherapies[§] (BMI ≥27 kg/m²)
- Bariatric surgery (BMI ≥35 kg/m²)

If persistent/progressive IGT despite intensive lifestyle modification → consider metformin

Management of Other CKM Risk Factors

Presence of metabolic syndrome triggers intensive lifestyle intervention targeting multifactorial risk control

Pharmacotherapy for comprehensive control of residually uncontrolled MetS components

Hypertriglyceridemia

- Maximize lifestyle modification and statin therapy
- Fibrates for ≥500 mg/dL
- Consider eicosapentaenoic acid (EPA) for TG: 135-499 mg/dL for patients with diabetes and additional risk factors

Hypertension

- Lifestyle modification
- Follow established hypertension guidelines to achieve BP <130/80 mmHg
- In diabetes or CKD → prioritize ACEi/ARB; consider steroidal MRA for resistant hypertension
- · Avoid CCB in HFrEF
- African American patients with HFrEF—prioritize hydralazine + isosorbide dinitrate after 4 pillars of GDMT

Chronic Kidney Disease

- With albuminuria (UACR >30 mg/g) → ACEI/ARB
- · ARNi preferred in HFrEF
- In CKD
- (in those with/without diabetes) → SGLT2i*
- DKD with residual albuminuria (UACR >30 mg/g) on ACEi/ARB → finerenone[‡] (can be used on background SGLT2i)

Diabetes

- Lifestyle modification
- Co-utilization of metformin¹ with cardioprotective antihyperglycemics if HbA1c ≥7.5%

In ASCVD

To reduce MACE → Either SGLT2i* or GLP1-RA
To reduce HF hospitalizations → SGLT2i*

GLP1-RA/SGLT2i based on:

- BMI ≥35 kg/m² → GLP-1RA
- . HbA1c ≥9% or high insulin dose GLP-1RA
- · CKD→SGLT2i*
- . Concomitant HF → SGLT2i*

In HF

To reduce HF hospitalizations and CV mortality → SGLT2i*
Avoid → thiazolidinediones. DPP4i

SGLT2i for all patients with HF+

- BMI ≥35 kg/m² → add GLP-1RA
- . HbA1c ≥9% or high insulin dose add GLP-1RA
- Diabetes with multiple comorbidities → add GLP-1RA
- Albuminuria --> consider adding finerenone¹

Multiple comorbidities in the setting of Diabetes and CVD → Consider co-utilization of SGLT2i* and GLP-1RA

Secondary prevention



- Care is more complex so need a multidisciplinary team and coordinated care
 - Guideline directed medical therapy (GDMT)
- Leverage newer drug formulations that are cardioprotective
 - Sodium-glucose co-transporter (SGLT)-2 inhibitors
 - Glucagon-like peptide (GLP)-1 receptor agonists
- Statin therapy
 - 10-year CVD risk of ≥10%
 - Consider moderate intensity statins for risks between 5% and 10
- System level interventions and ambulatory ICU care
 - vulnerable populations >frequent ER visits > DSD models e.g. MAX and MOD model.
 - Interdisciplinary heart failure programs



Community Heart Failure Program

ORIGINAL RESEARCH

OPEN

A Mixed-methods Evaluation of an Addiction/Cardiology Pilot Clinic With Contingency Management for Patients With Stimulant-associated Cardiomyopathy

Sarah Leyde, MD, Elizabeth Abbs, MD, Leslie W. Suen, MD, MAS, Marlene Martin, MD, Andreas Mitchell, MD, MPP, Jonathan Davis, MD, and Soraya Azari, MD



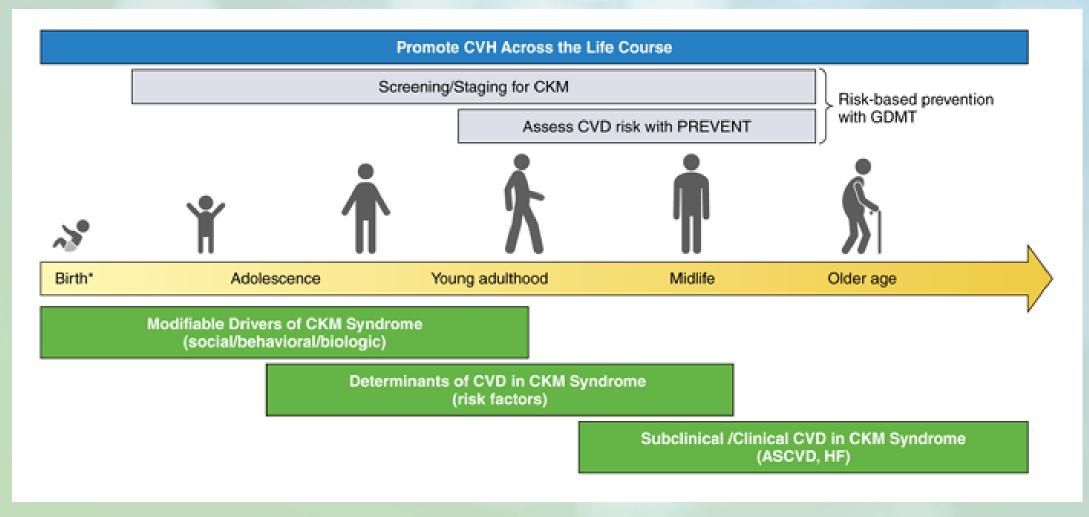




UW Community HF Program at Harborview Medical Center



Life course approach: Early risk assessment and prevention





Conclusion



Prevent early: early in the life course and early in the disease continuum

Conduct regular risk assessment and stage to identify risk

Primordial, primary, and secondary prevention

Address underlying social determinants of health

Integrated models of delivery for people with and without HIV

Next steps





CKM space innovations

new treatment options



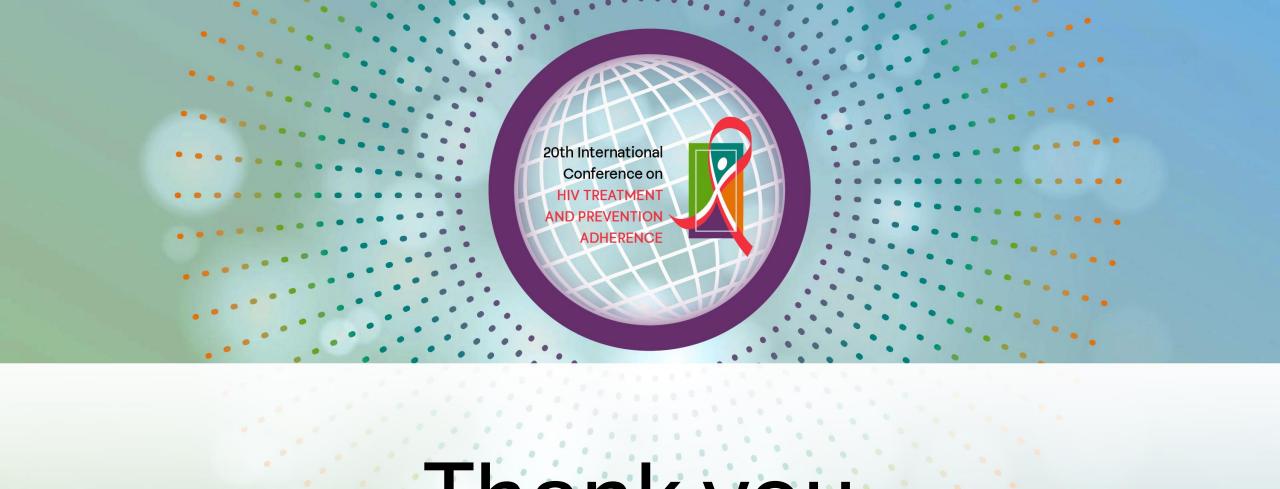
Role of implementation science

- Cultural adaptations
- Integration into PHC and health systems
- Trials with younger populations



Patient centric care

HIV NCD
 differentiated
 service models



Thank you

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