
# Best Practice: Preventing Cardiometabolic Complications in HIV

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# Disclosures



- No conflicts of interest to report

# Outline

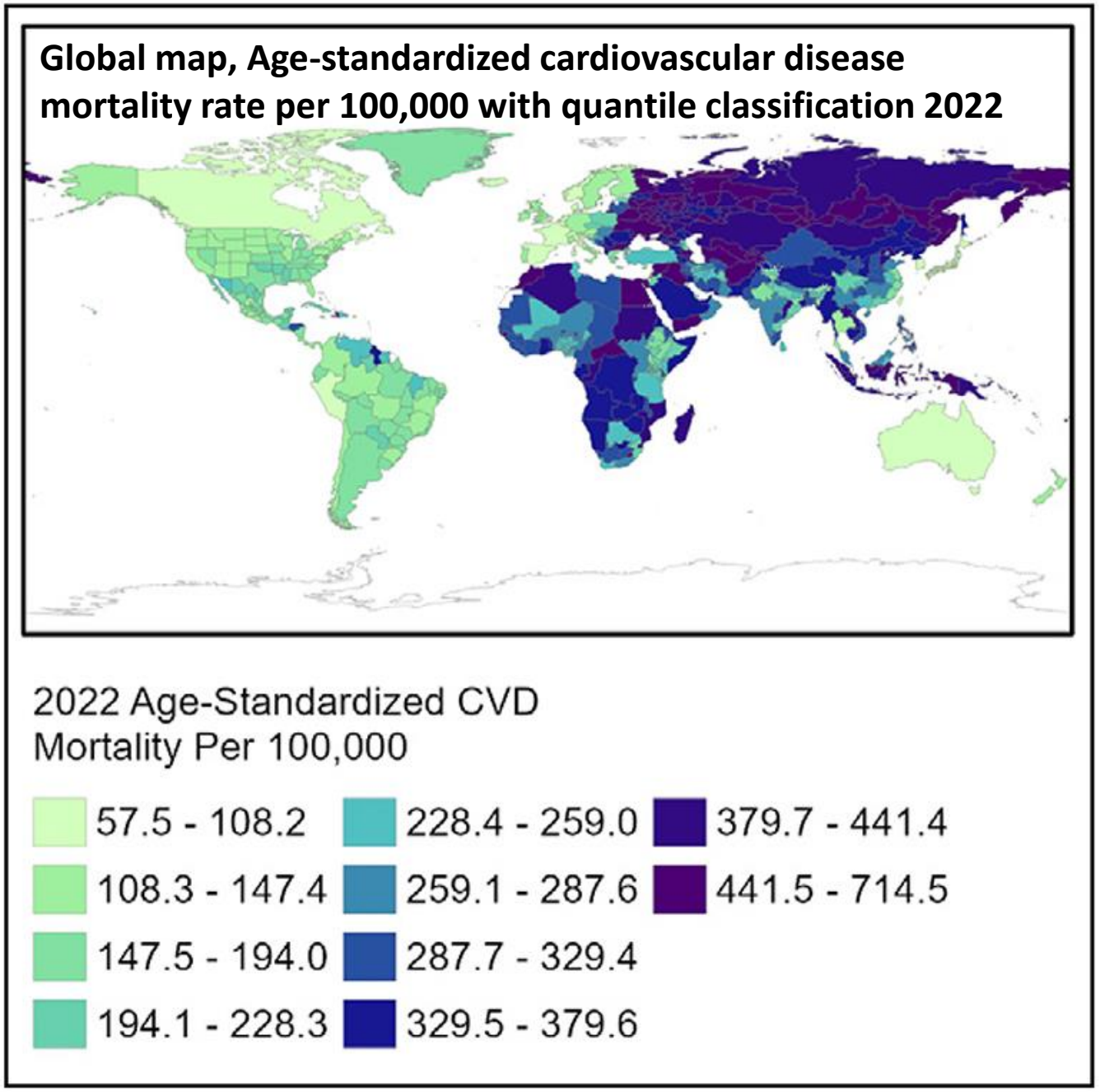


- Background
- Cardiometabolic complications of HIV
- Risk based assessment
- Risk based prevention strategies
- Future approaches

# Story of Baraka, PLHIV aging with HIV

# Background

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



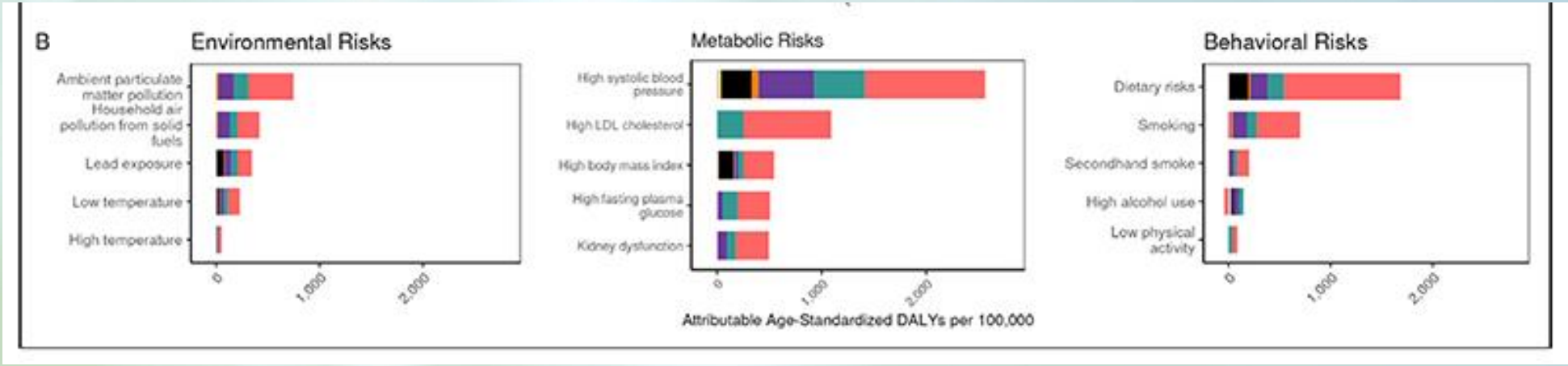

Mensah, G, Fuster, V, Murray, C. et al. *JACC*. 2023

# Background



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

**Shared risk factors that are preventable**

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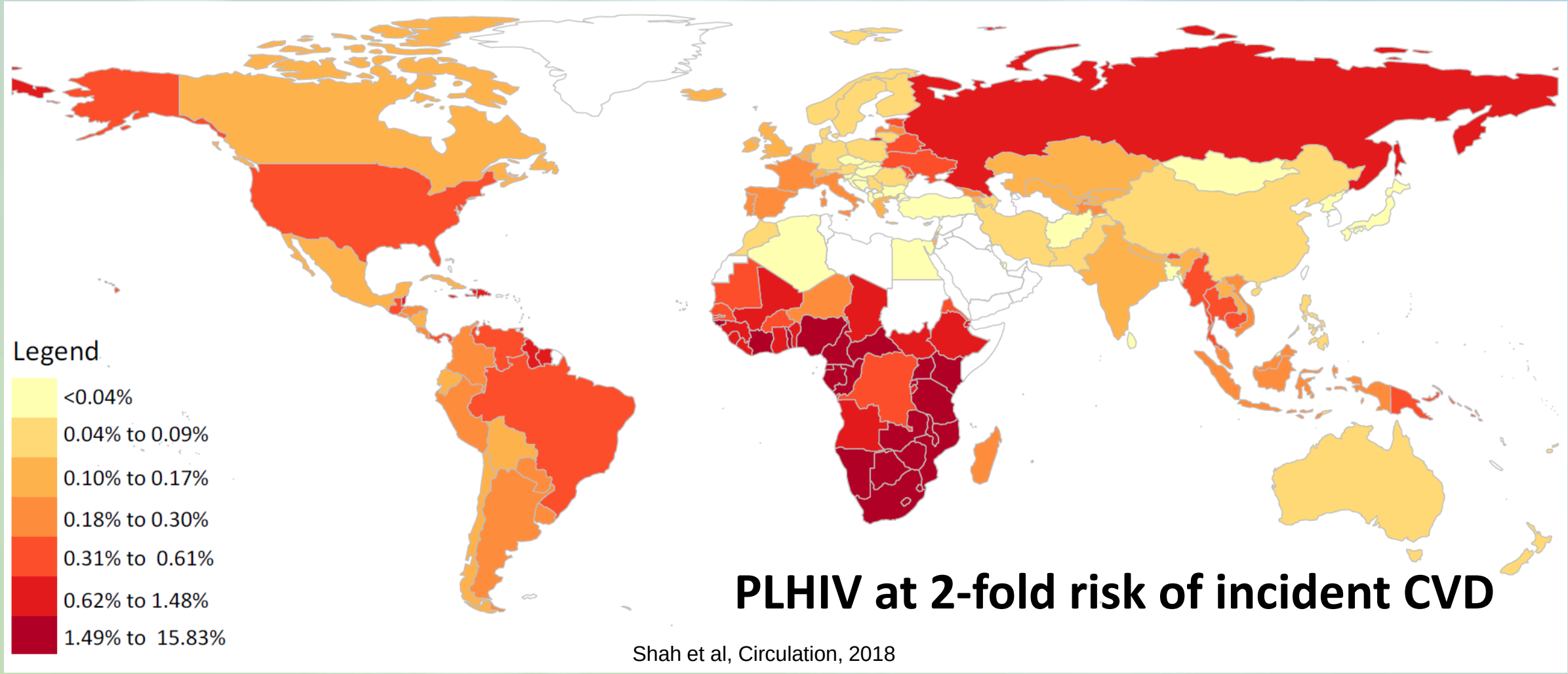
- **People living with HIV (PLHIV) are living longer, often with comorbidities**

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




**PLHIV at 2-fold risk of incident CVD**

Shah et al, Circulation, 2018

# Risk factors of Cardiovascular disease in HIV

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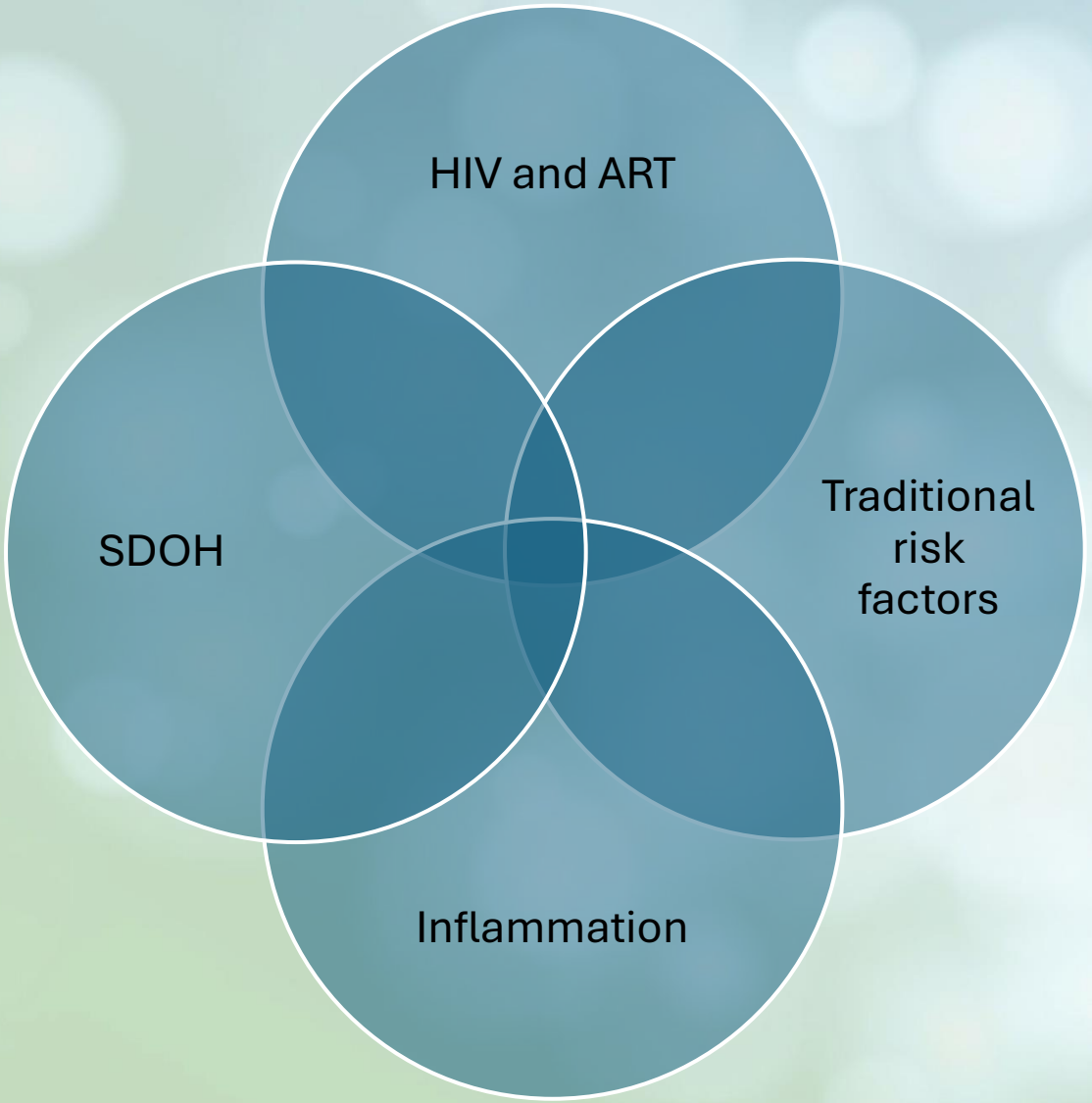
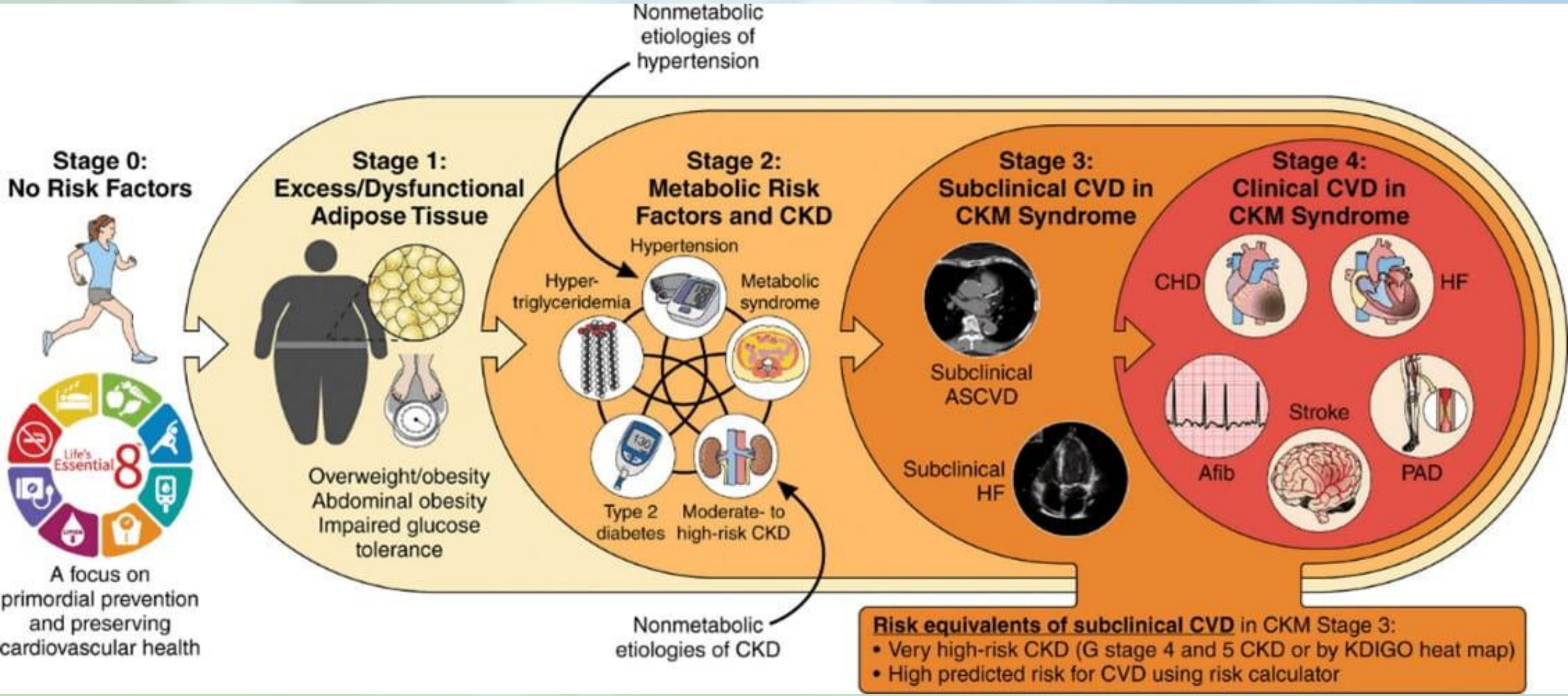



Important progress: increased recognition of the role of social determinants of health

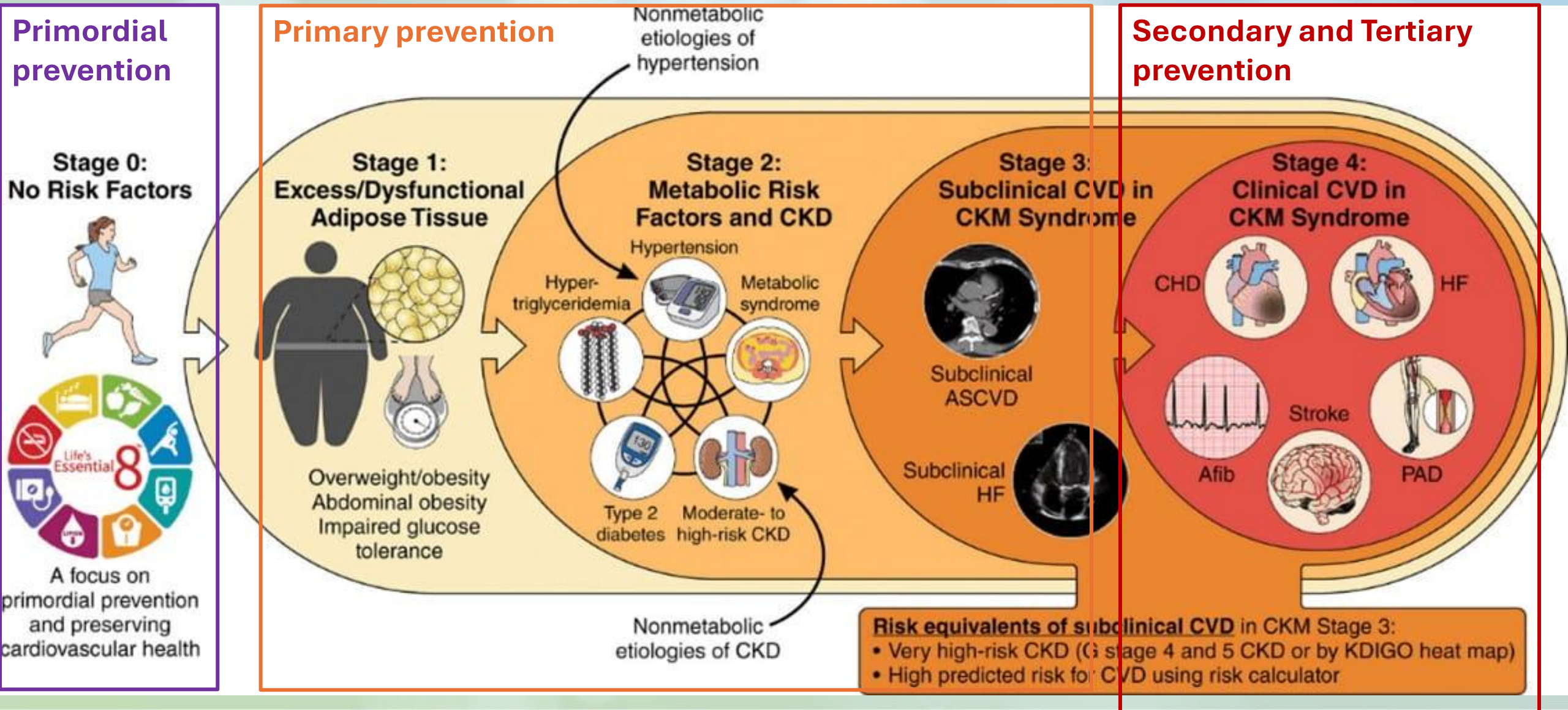
# What is the Cardiovascular-kidney-metabolic syndrome (CKM) ?





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

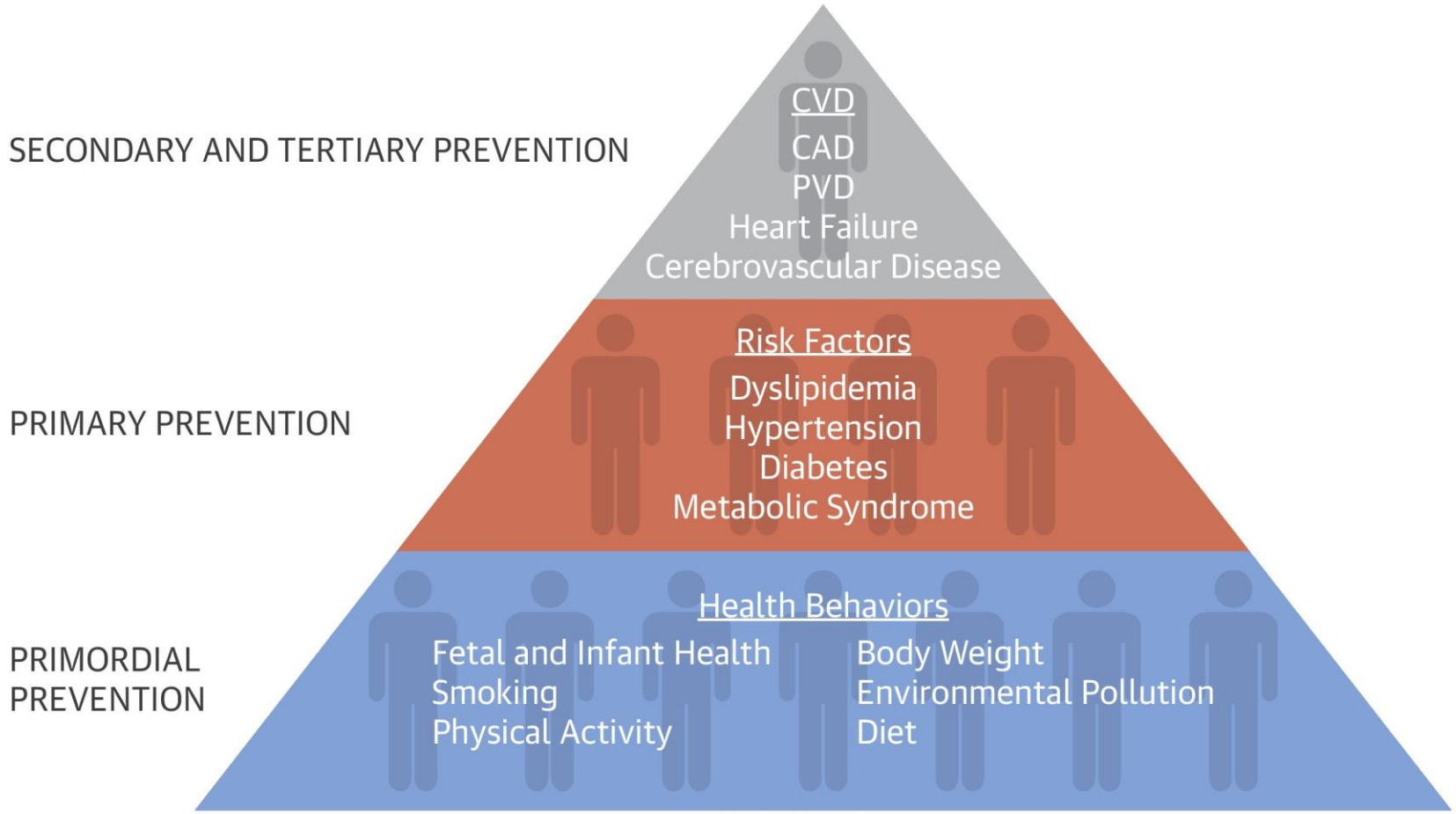




# Cardiovascular disease prevention



**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

Sadiya S. Khan. Circulation. Novel Prediction Equations for Absolute Risk Assessment of Total Cardiovascular Disease Incorporating Cardiovascular-Kidney-Metabolic Health: A Scientific Statement From the American Heart Association, Volume: 148, Issue: 24, Pages: 1982-2004, DOI: (10.1161/CIR.0000000000001191)

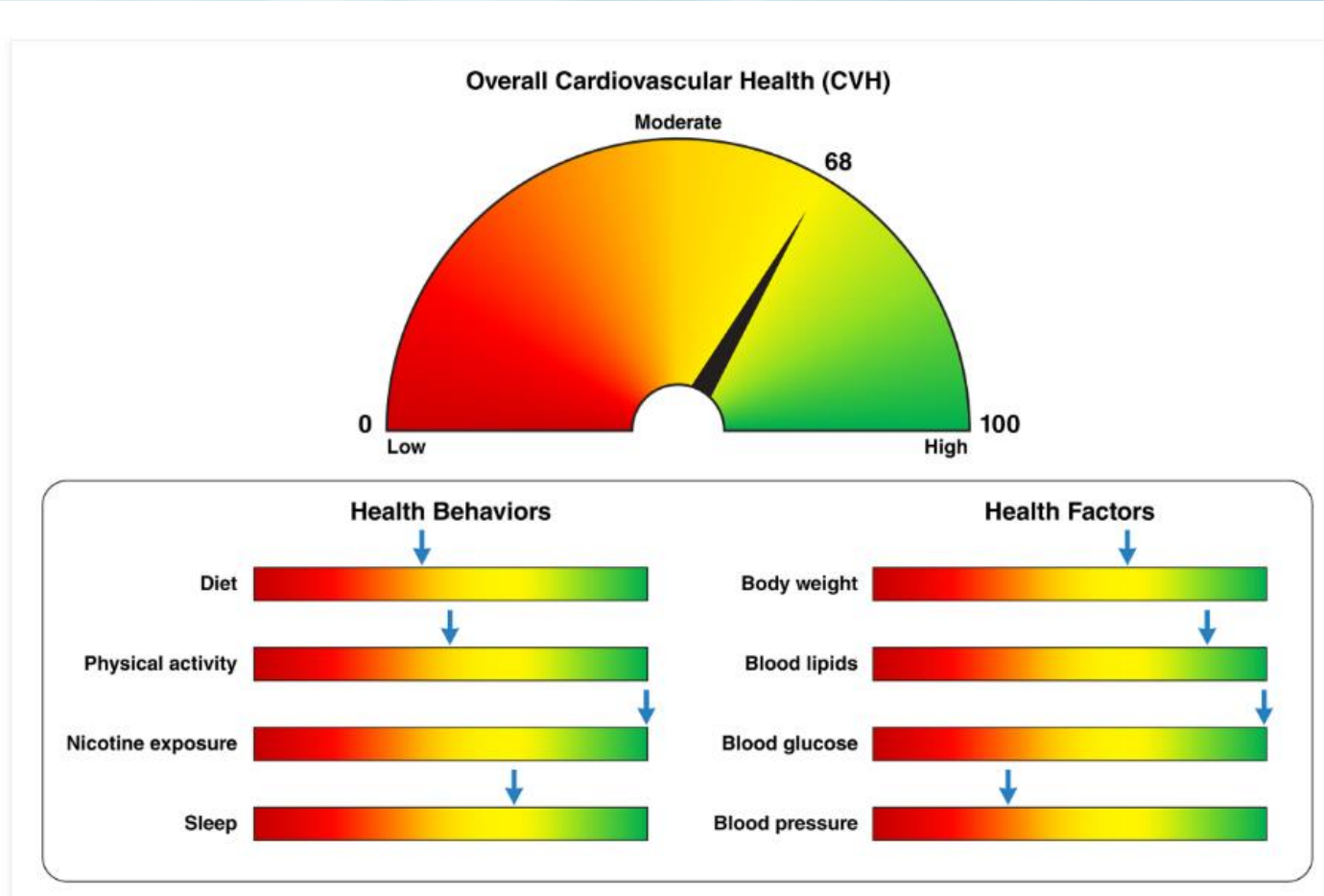
# Baraka at 40 years: Early Risk assessment (with staging)

# 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

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

# Baraka risk assessment using the 2013 PCE ASCVD risk calculator



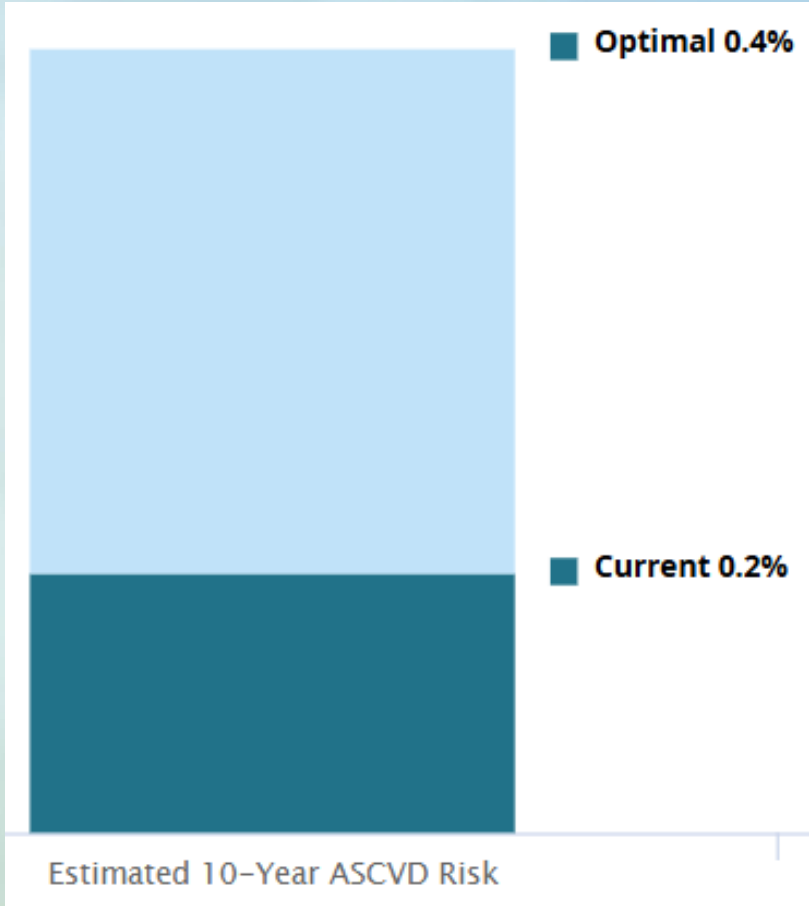
**Assess CVD risk**

- 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**
Race: **Other**

| Values | Current |
|---|---|
| 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 |

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# Assess CVD Risk : PREVENT calculator



**Assess CVD risk**

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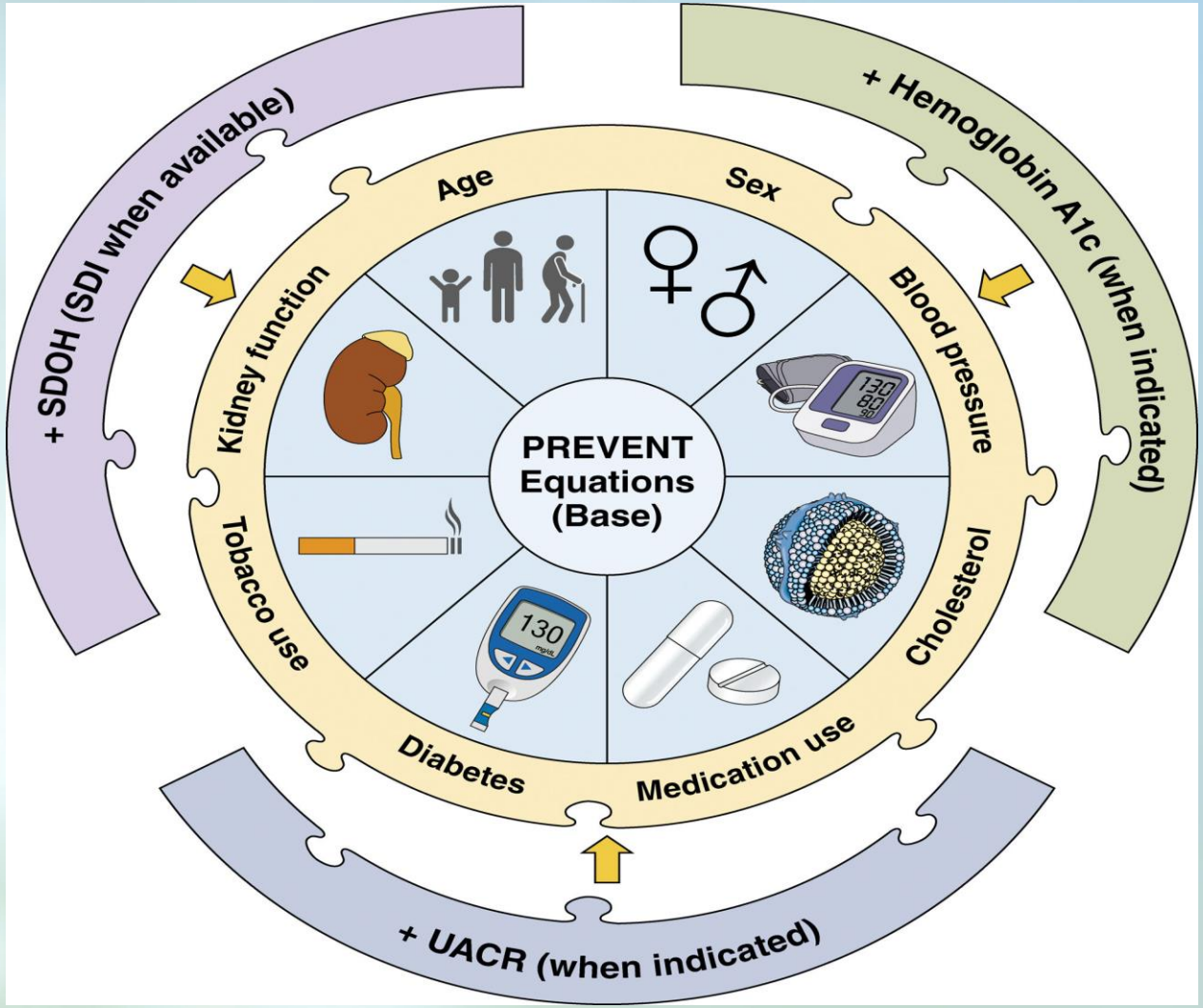


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# Baraka's 10-year  CVD risk



- 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

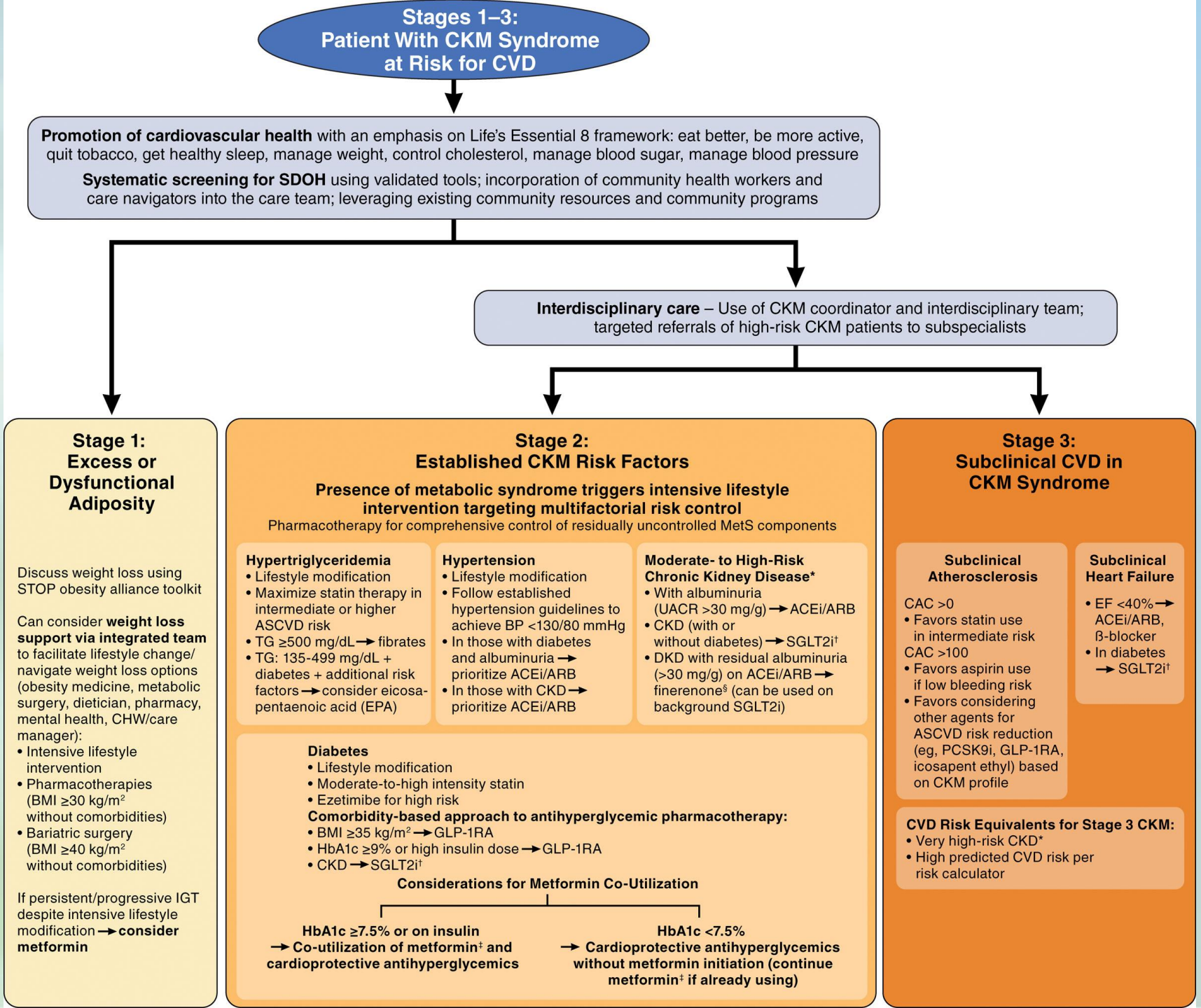
| | |
|---|---|
| Healthy Diet | • Screen for nutrition security<br>• Assess diet quality (DASH[20]/Mediterranean eating patterns[21]), restrict saturated fat, salt (sodium), sugar, sugary beverages; emphasize potassium intake |
| Participation in Physical Activity | • Embed physical activity promotion strategies in clinical practice<br>• Encourage strategies to increase physical activity<br>• Exercise at least 150 min of moderate-to-vigorous physical activity weekly |
| Avoidance of Nicotine | • Ask and document smoking status. Advise the importance of smoking cessation<br>• Provide referrals to programs or pharmacologic therapies and arrange for follow-up |
| Healthy Sleep | • Address sleep behaviors to optimize cardiovascular health<br>• 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<br>• 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<br>• 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<br>• Use proper remote and office-based monitoring techniques<br>• Promote DASH[20] or Mediterranean eating patterns[21]<br>• Promote medication adherence |

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

# Primary prevention

Determine CKM Stage

Reduce CKM risk



# Primary prevention in Primary Health care

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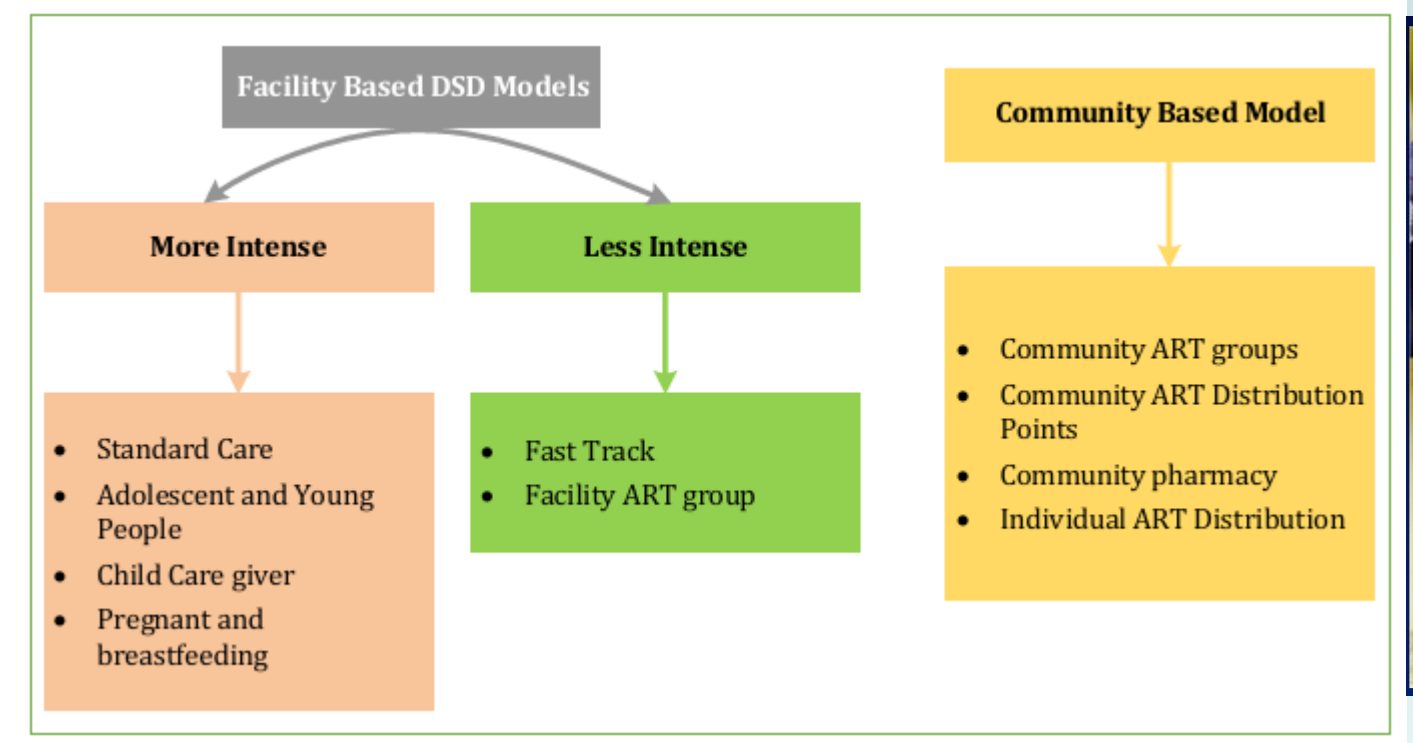
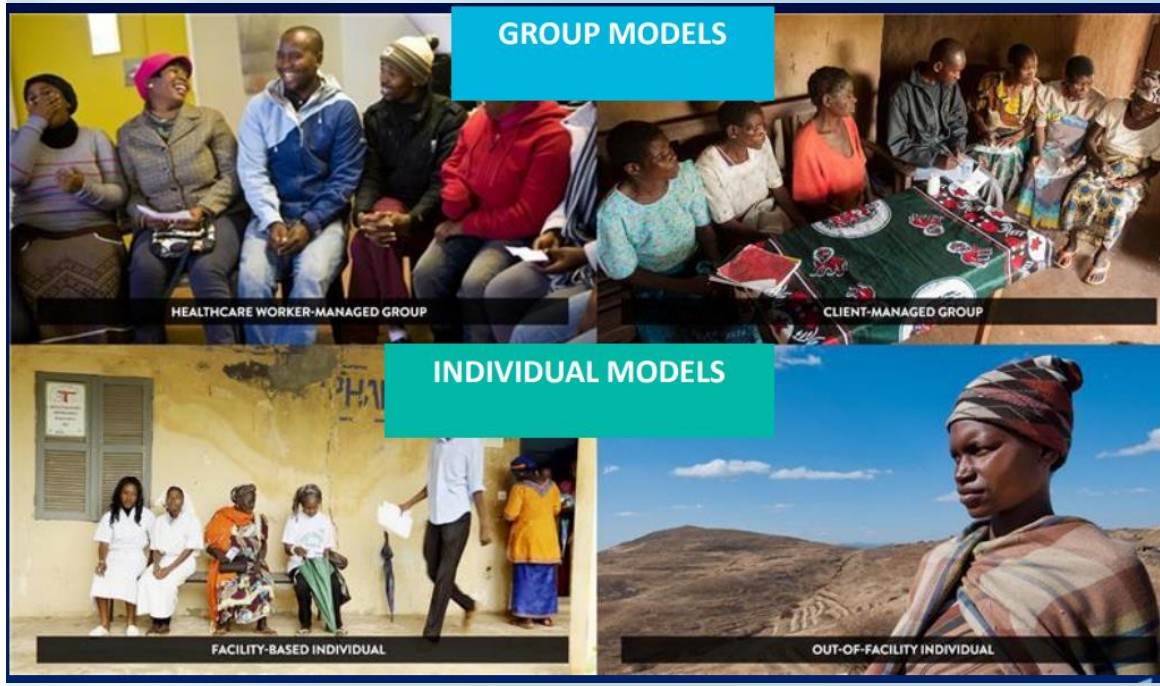
- Change from siloed care models
- Simplified treatment protocols for hypertension, diabetes, etc
- Integrated care/ Differentiated Service delivery models/Chronic care model
- Task sharing and task shifting with support

# Leverage Differentiated Service Delivery models




Source: CQUIN

# DSD been applied in US- Seattle

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MAX CLINIC

AURORA CLINIC

MOD CLINIC

Engage Health Kent

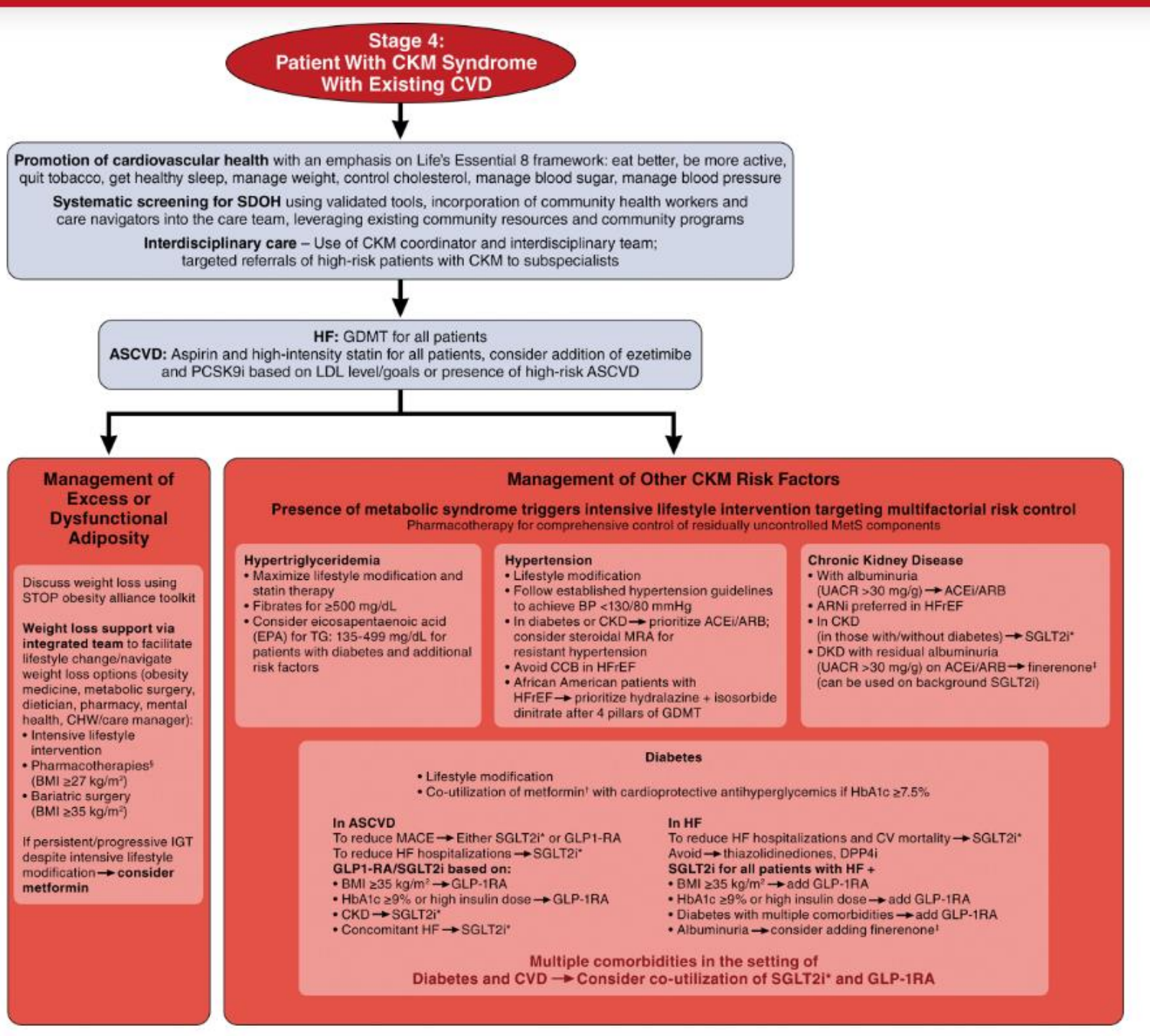
Engage Health Federal Way

SHE Clinic

MOBILE OUTREACH

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

# Secondary prevention



# 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

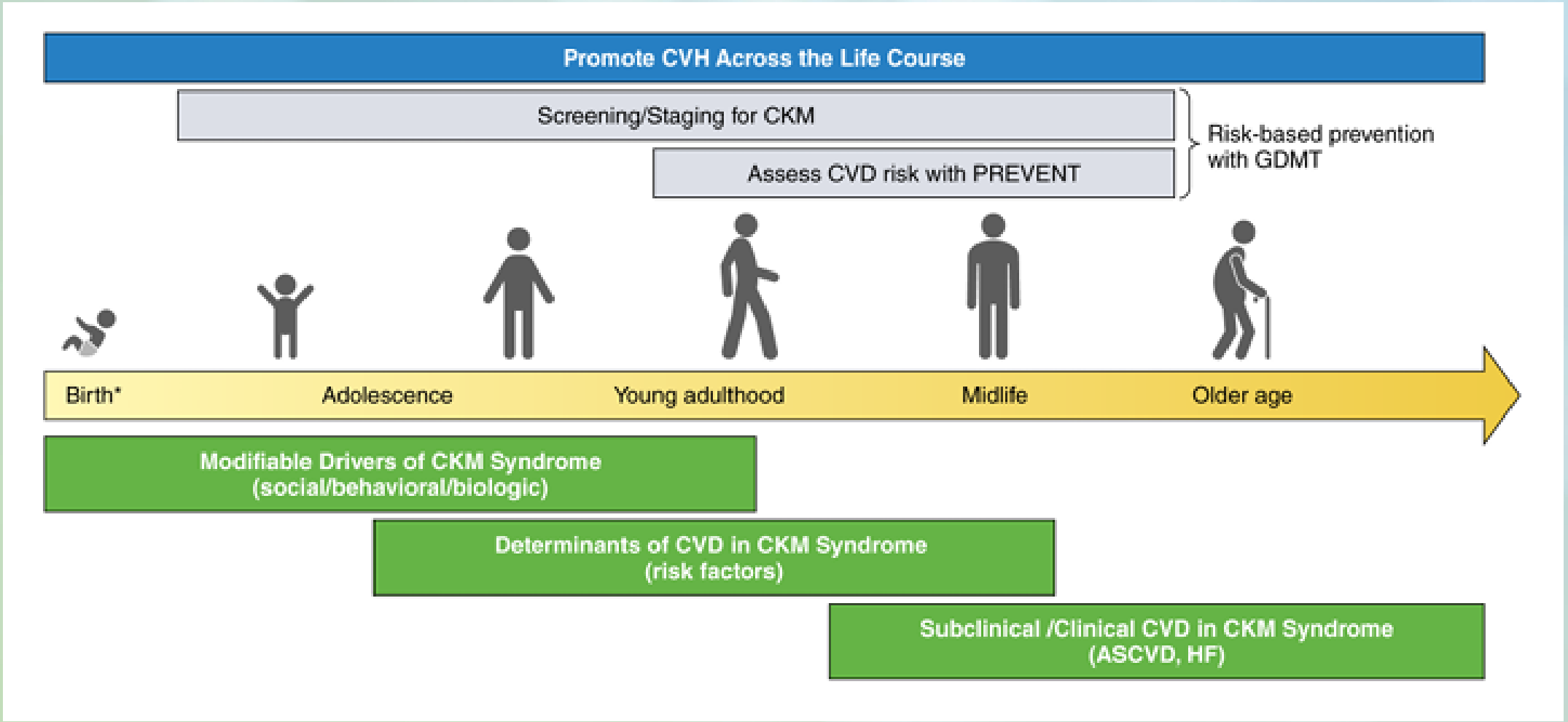
OPEN

## 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

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# 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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