New AHA CKM staging: Cardiologist Perspective

Robert J. Mentz, MD
Associate Professor of Medicine
Chief, Heart Failure Section
Duke University Medical Center
Editor-in-Chief, Journal of Cardiac Failure

@robmentz
Robert.mentz@duke.edu
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• Aims of the new CKM staging
• Basic overview of the staging
• The “Good”
• The “Opportunities”
• Let’s finish positive
The Aim

• Goals
  – **Clarity** on the Definition of CKM;
  – **Promotes Prevention** across the life course;
  – **Harmonization** across subspecialty guidelines and emerging evidence;
  – Incorporate considerations of **SDOH** into care models;
  – Reduce care **fragmentation** by patient-centered interdisciplinary care.

• Staging construct that reflects the **pathophysiology, spectrum of risk**, and opportunities for **prevention and care optimization** within CKM
Why is this Needed?

Cardio-Renal Syndrome

Cardio-Metabolic Disease
CKM Definition

A health disorder attributable to connections among Obesity, DM, CKD and CV disease
– Including HF, AF, CHD, stroke, PAD

At Risk for CVD + Existing CVD
Clinicians are encouraged to measure urine albumin-creatinine ratio in addition to eGFR in those with CKD, DM, HTN, MetS for fully characterizing CKD and CVD risk (particularly heart failure).

2022 ACC/AHA/HFSA Revised HF Stages and Primary Prevention

**STAGE A: At-Risk for Heart Failure**
- **At Risk**
  - Patients at risk for HF but without current or previous symptoms/signs of HF and without structural/functional heart disease or abnormal biomarkers

**STAGE B: Pre-Heart Failure**
- **Pre-HF**
  - Patients without current or previous symptoms/signs of HF but evidence of 1 of the following:
    - Structural heart disease
    - Evidence of increased filling pressures
    - Risk factors and • increased natriuretic peptide levels or • persistently elevated cardiac troponin in the absence of competing diagnoses

**STAGE C: Symptomatic Heart Failure**
- **Symptomatic**
  - Patients with current or previous symptoms/signs of HF

**STAGE D: Advanced Heart Failure**
- **Advanced**
  - Marked HF symptoms that interfere with daily life and with recurrent hospitalizations despite attempts to optimize GDMT

Heidenreich PA, et al.  
*J Card Fail* 2022
High Predicted CV Risk – New CKM Risk Predictor

Novel Prediction Equations for Absolute Risk Assessment of Total Cardiovascular Disease Incorporating Cardiovascular-Kidney-Metabolic Health: A Scientific Statement From the American Heart Association

The PREVENT models

Interrelatedness and upstream effect of CKM conditions on CVD risk

- **Sex-specific** risk equations
- **Remove race** from risk prediction
- Newly include eGFR as a predictor
- Include HF as an outcome
- +/- additional markers of kidney, metabolic, and social risk

Khan SS, et al. 
*Circulation* 2023
Proposed Clinical Application

**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

Khan SS, et al. Circulation 2023
Algorithm for the management of patients with CKM syndrome Stages 1-3

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: Excess or Dysfunctional Adiposity
Discuss weight loss using STOP obesity alliance toolkit
Can consider weight loss support via integrated team to facilitate lifestyle changes!

- Intensive lifestyle intervention
- Pharmacotherapies (BMI ≥30 kg/m² without comorbidities)
- Bariatric surgery (BMI ≥40 kg/m² without comorbidities)

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

Stage 2: Established CKM Risk Factors
Presence of metabolic syndrome triggers intensive lifestyle intervention targeting multifactorial risk control

- Hypertension
  - Lifestyle modification
  - Follow established hypertension guidelines to achieve BP <130/80 mmHg

- Hypertriglyceridemia
  - Lifestyle modification

- Elevated LDL-C
  - 3-4 weeks of lifestyle modification

- Diabetes
  - Lifestyle modification

- CVD Risk Equivalents for Stage 3 CKM:
  - Very high-risk CKD
  - High predicted CVD risk per risk calculator

Stage 3: Subclinical CVD in CKM Syndrome

- Subclinical Atherosclerosis
  - CAC >10
  - Favoring statin use in intermediate-risk CAC >100

- Subclinical Heart Failure
  - EF <40%

- SGLT2i
  - ACE/ARB

- GLP1-RA

- ARNI

- MRA

The “Good”

- “Move beyond subspecialty silos to collaborative interdisciplinary care models [to] support more holistic patient care approaches”

- “Risk enhancing factors” - high-risk demographic groups, sex-specific, SDOH, etc
  - SDOH: screening tools – financial strain, literacy, safety, etc

- Supports enhanced screening – annual BMI and waist circumference

- Opportunity to promote CKM stage regression

Opportunities

• Cardio-centric:
  – “However, the greatest clinical impact of CKM syndrome with regard to morbidity and premature mortality is through the disproportionate burden of CVD”
  – “The greatest clinical consequence of the increased CVD risk in CKM syndrome is a reduction in survival.”
  – “Offers the opportunity to identify individuals earlier in their disease process to promote preventive efforts before the progression to overt clinical CVD”

<table>
<thead>
<tr>
<th>CKM Stages</th>
<th>Stage 0</th>
<th>Stage 1</th>
<th>Stage 2</th>
<th>Stage 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>CVD Risk</td>
<td>Low risk</td>
<td>Borderline to intermediate risk</td>
<td>High risk</td>
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Khan SS, et al. Circulation 2023

Moderate to High Risk CKD
Opportunities

Components of a CKM syndrome call to action

- Consideration of SDOH
- Access to pharmacotherapies
- Addressing research gaps
- Interdisciplinary care
- CKM education
- Supporting healthy lifestyle in communities
- Implementation within and across health centers
- Enhanced obesity management

Summary

• CKM: connections among Obesity, DM, CKD and CV disease

• Positives: Prevention, SDOH, reduce care fragmentation and care optimization in a patient-centered manner

• Opportunities: simplify the terminology, opportunities for global and additional stakeholder engagement & need to validate and make data-driven