



**RIGHT CARE INITIATIVE UNIVERSITY OF BEST PRACTICES**

**Women's Cardiovascular Disease:  
The VA Perspective  
May 9, 2022**

**Carolyn M. Clancy, M.D.  
Assistant Under Secretary for Health  
Discovery, Education and Affiliate Networks (DEAN)**

# Agenda

- Heart Disease and Women
- Women Veterans: A Specific Risk Population
- VA Research on Heart Disease
- Secondary Prevention
- VA Innovations and Initiatives in Heart Health

# A Personal Story



Cape Cod, Mass

# Heart Attack Symptoms in Women

Heart attack signs for women can be subtle and sometimes confusing. Like men, the most common symptom for women is chest pain or discomfort. However, women may also experience other symptoms such as:

- Arrhythmia (irregular heartbeat)
- Pressure, squeezing, or pain in the chest
- Cold sweat
- Extreme fatigue
- Shortness of breath
- Pain in the jaw, arm, hand, shoulder or back
- Dizziness or fainting
- Vomiting or nausea



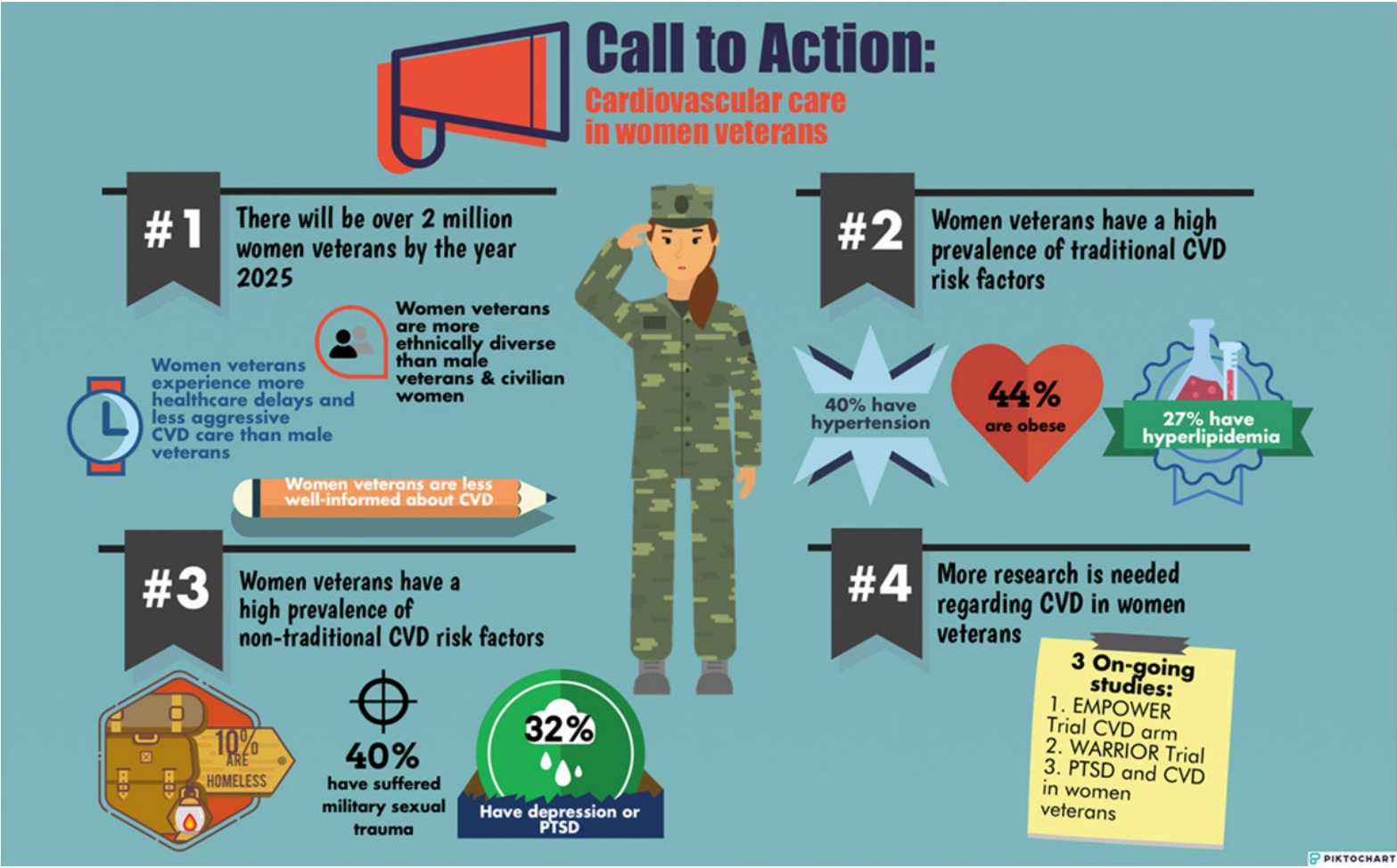
# Heart Disease in Women

While many women are more concerned about breast and cervical cancers, heart disease is the number one cause of death.

According to the American Heart Association:

- Heart disease and stroke cause 1 in 3 deaths among women annually (more than all cancers combined)
- More than 1 in 3 women have some form of heart disease
- About 80% of heart attacks and strokes can be prevented

# Women Veterans



Source: Cardiovascular Care in Women Veterans- A Call to Action  
Circulation 2019;139:1102-1109



# Heart Disease and Women Veterans

Women Veterans have higher rates of cardiovascular disease than civilian women and represent a unique population:

*The rapidly growing women Veterans population represents a specific at-risk population with characteristics that set them apart from their male counterparts as well as their civilian sisters, in regard to CVD risk factors and CVD recognition, diagnosis, treatment, and possibly even outcomes.*



Source: Cardiovascular Care in Women Veterans- A Call to Action  
Circulation 2019;139:1102-1109

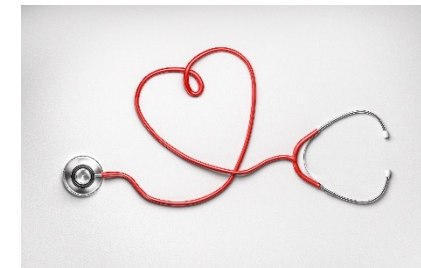
# Traditional Heart Disease Risk Factors and Women Veterans

- **Obesity:** Veterans have higher rates of obesity than the general population, with women Veterans having an even higher prevalence of obesity compared to male Veterans
- **Diabetes Mellitus:** Women Veterans outpace the general population for diabetes in every age category
- **Hypertension:** Nearly 40% of women Veterans between ages 45-65 have hypertension
- **Lipids:** Half of all Veterans are diagnosed with dyslipidemia; although women Veterans have a lower prevalence than male Veterans, the difference narrows with age
- **Tobacco:** Twice as many women Veterans smoke than civilian women



# Non-Traditional Heart Disease Risk Factors and Women Veterans

- **Homelessness:** Homeless women have a significantly higher risk of premature death and chronic medical conditions than homeless men, with significantly elevated 30-year CVD risk scores. Women Veterans also have a 4-fold increase of homelessness when compared to civilian women
- **Military Sexual Trauma (MST):** Women Veterans who have experienced MST have an increased risk of diabetes, hypertension, and obesity, as well as high resting heart rates and decreased heart rate variability
- **Depression and Posttraumatic Stress Disorder (PTSD):** Women Veterans are much more likely to be diagnosed with depression or PTSD than male Veterans



# VA Research

## Key Studies on Heart Disease

- **1960s-** Successful implant of first cardiac pacemaker, a device developed by a VA team
- **1970-** Landmark VA cooperative study published on hypertension showing that treating moderate high blood pressure prevented or delayed catastrophic health conditions
- **1996-** Clinical practice guidelines on cholesterol screening developed for the American College of Physicians
- **2007-** Courage Trial finding that balloon angioplasty and stenting do little to improve outcomes for patients with stable coronary artery disease who also receive optimal drug therapy and undergo lifestyle changes
- **2015-** SPRINT study finding that lowering blood pressure reduces the rate of heart and kidney disease

# VA Research: Long-term Impact of COVID-19

Dr. Ziyad Al-Aly and team found that complications following COVID-19 infection include increased risks for heart attack, heart failure, blood clots and stroke

Those with COVID-19 were 55% more likely than non-COVID-19 patients to suffer a major cardiovascular event such as heart attack, stroke, or death

Additionally, those with COVID-19 were:

- 72% more likely to develop coronary artery disease
- 63% percent more likely to have a heart attack
- 52% percent more likely to suffer stroke



Note: Veteran study participants were all enrolled before Jan.15, 2021, and more than 99% were not vaccinated

# Million Veteran Program: Current Studies on Heart Disease

## Using MVP data, current studies are looking at:

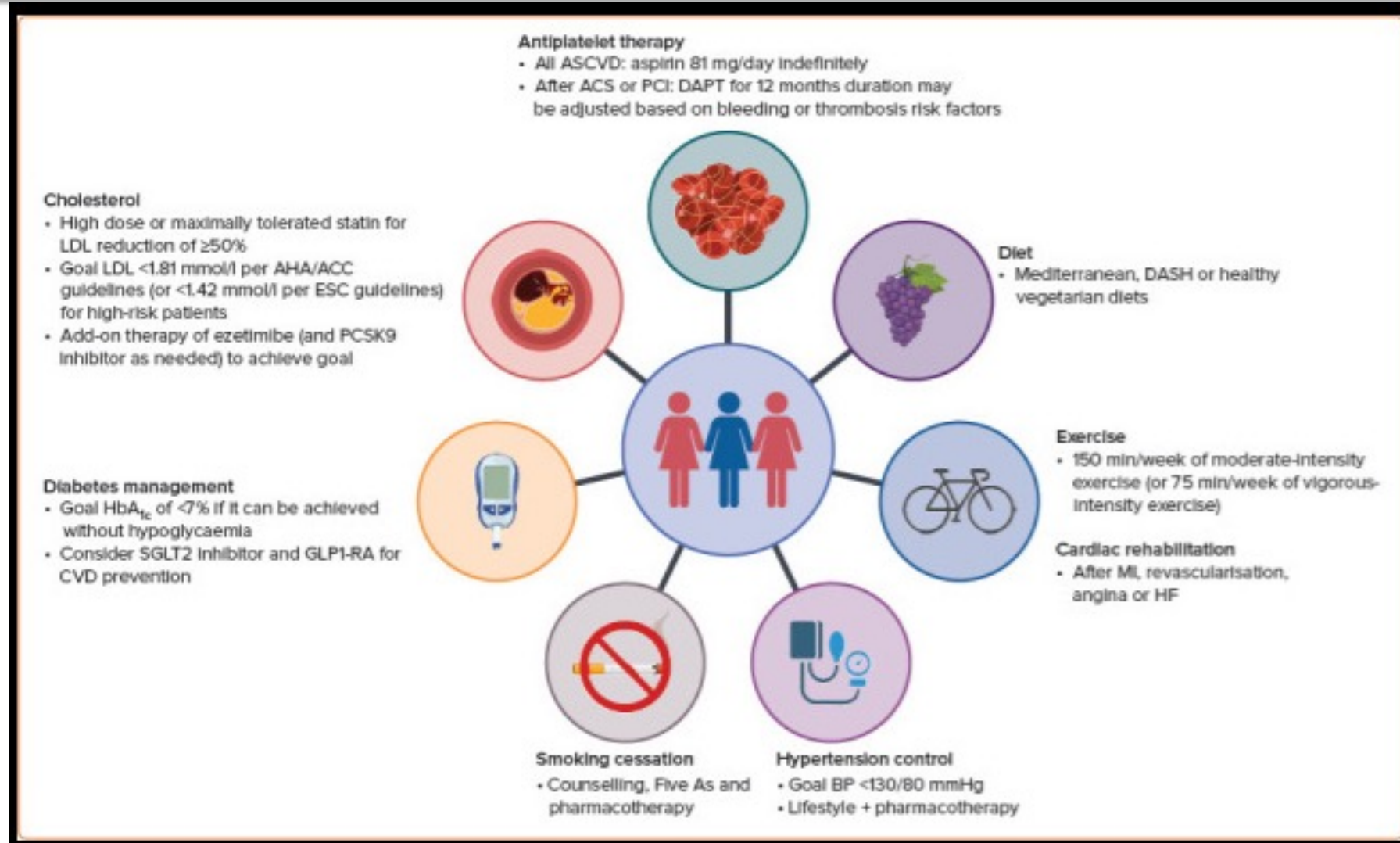
- The role of genetics in obesity, diabetes and abnormal lipid levels as drivers of heart disease, with aim of developing personalized therapies
- Genetic factors linked to heart disease risk (e.g., obesity, lipid levels) and whether they differ among African Americans and Hispanics.
- Which sets of risk factors are the best predictors of certain forms of heart disease, with goal of tailoring treatment based on patients' individual genetic profiles



# VA Research: Women Veterans, Diabetes, and Heart Disease

- VA researchers at the Ralph H. Johnson VA Medical Center found that women Veterans are less likely than men to receive statin therapy for cardiovascular care
- The study included data on 700,000+ patients with diabetes
- Women Veterans had 14% lower odds of being prescribed statins when compared with male Veterans
  - Disparity appears to be explained by lower access to health care and higher mental health diagnoses
- Women were also 10% less likely than men to be on high-intensity statins
  - When adjusted for healthcare access and mental health burden, women Veterans had higher odds of high-intensity statin use

# Secondary Prevention of CVD in Women



# Secondary Prevention Pilot: Veterans Cardiovascular Work Group

## **Background:**

- Significant gender disparities persist in the use of guideline-based therapies for the prevention and treatment of cardiovascular disease. Furthermore, women Veterans have higher rates of CVD as well as higher rates of CVD risk factors, than their civilian counterparts.

## **Goal:**

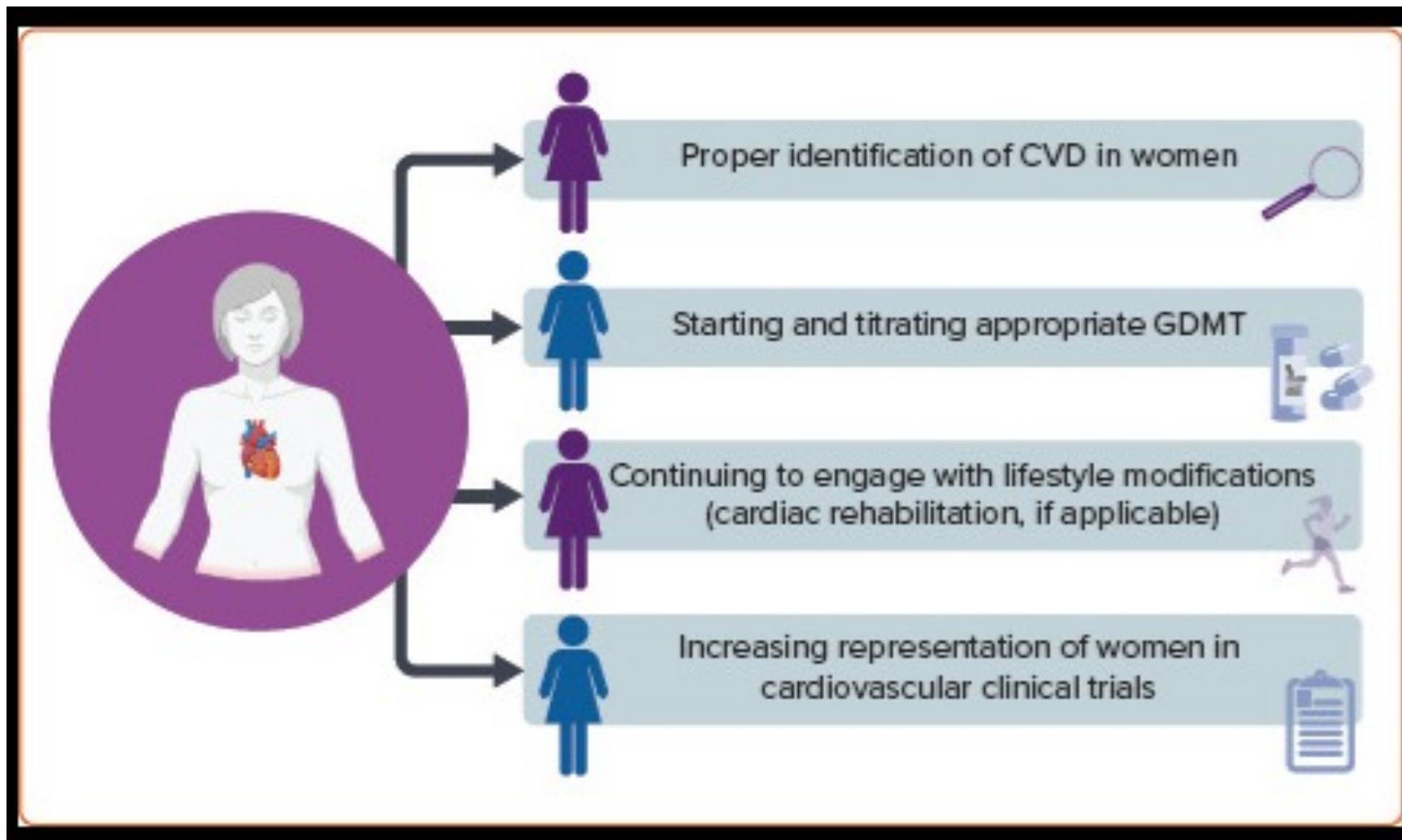
- To optimize secondary prevention medical therapy for women Veterans with established cardiovascular disease

## **Methods:**

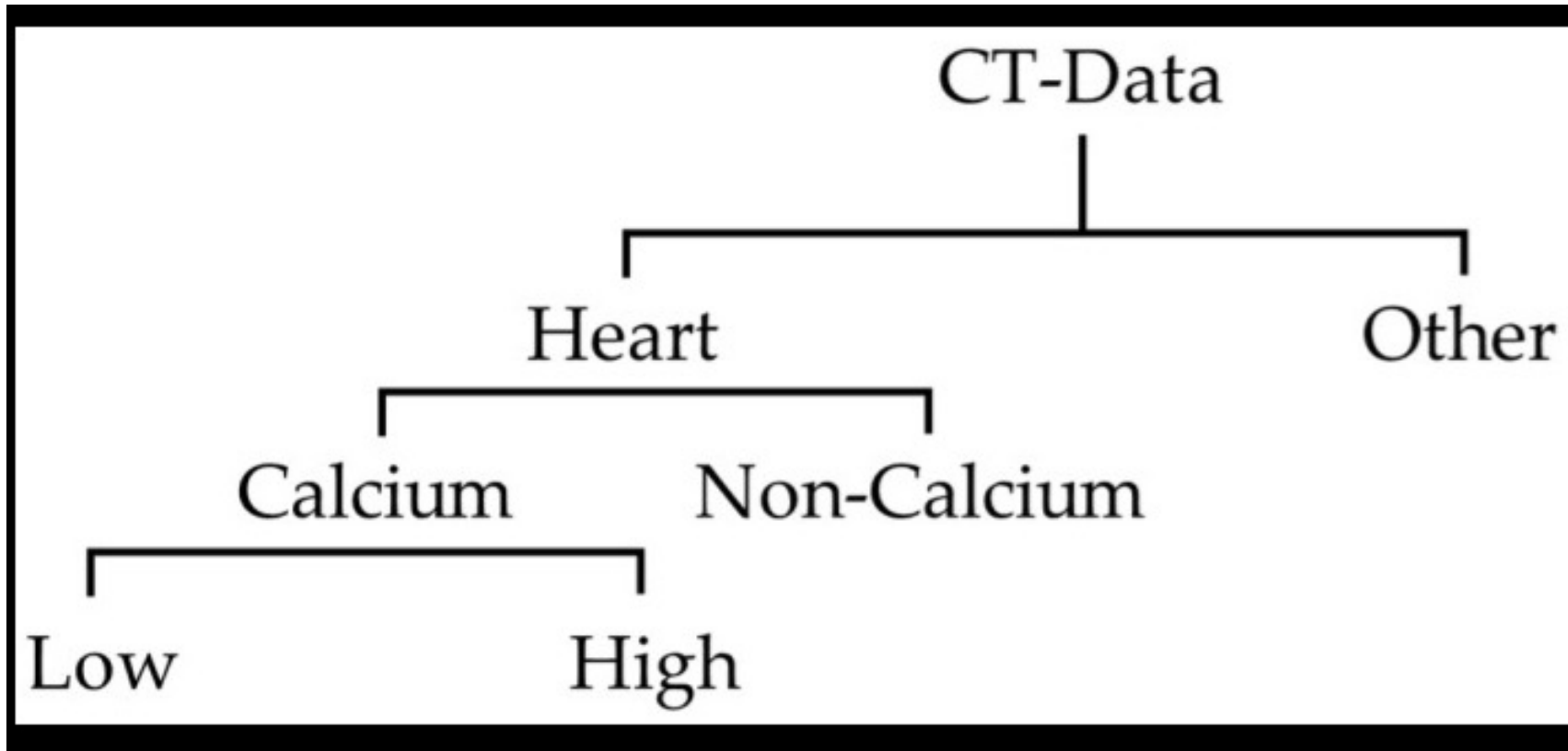
- Identify appropriate populations (Ischemic Heart Disease, Peripheral Vascular Disease, Cerebrovascular Disease diagnosis codes)
- Partner with clinical pharmacists
- Develop algorithms for initiation/optimization of medical therapies



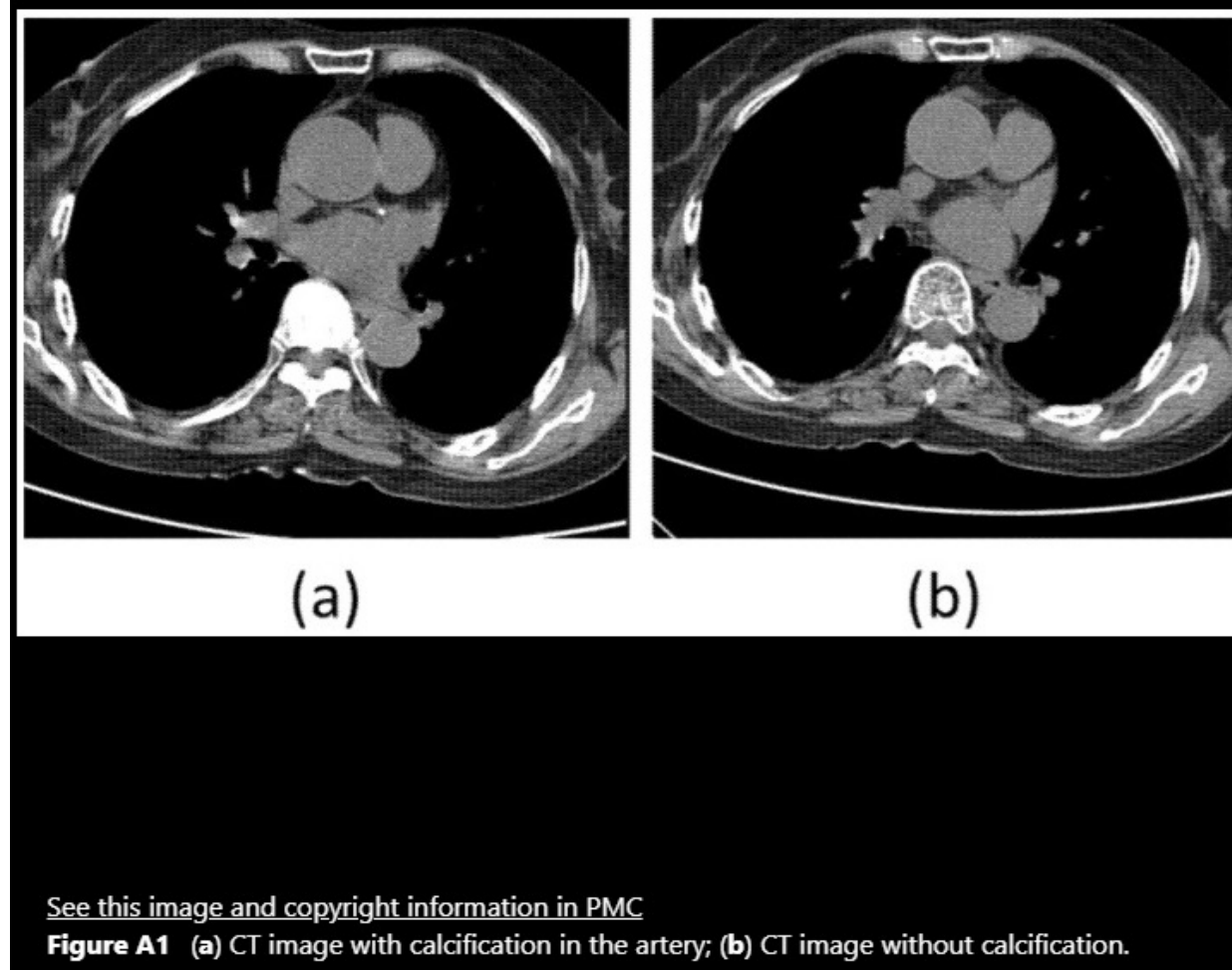
# Mitigating Risk and Improving Outcomes in Women with Cardiovascular Disease



# Deep Machine Learning to Determine Coronary Artery Calcium Score



# Deep Machine Learning to Determine Coronary Artery Calcium Score



# VHA Innovations and Initiatives in Heart Health

- 3D-printed heart models converted from scans
- Remote monitoring; e.g., HF-Link, SmartMat
- Resuscitation Education and Development Innovation program (REdI)
- Partnerships addressing social determinants of health (e.g., Mazon)



# Million Hearts 2027

VA is partnering with CMS, CDC, and other Dept. of Health and Human Services offices in Million Hearts™ which aims to prevent heart attack and stroke by:

- Improving access to effective care
- Improving the quality of care for the ABCs:
  - A**spirin for those at risk for heart attack and stroke
  - B**lood pressure control
  - C**holesterol management and
  - S**moking cessation
- Focusing clinical attention on the prevention of heart attack and stroke
- Activating the public to lead a heart-healthy lifestyle



# Questions



*The horizon leans  
forward, offering you space  
to place new steps of  
change.*

*- Maya Angelou*

