

2024 Carolyn P. Horchow  
Women's Health Symposium

**UTSouthwestern**  
Medical Center

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# Not Your Mother's (or Father's) Heart Disease: A new era in cardiology

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# The New England Journal of Medicine

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Number 4

## **DIFFERENCES IN THE USE OF PROCEDURES BETWEEN WOMEN AND MEN HOSPITALIZED FOR CORONARY HEART DISEASE**

JOHN Z. AYANIAN, M.D., M.P.P., AND ARNOLD M. EPSTEIN, M.D., M.A.

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THE NEW ENGLAND JOURNAL OF MEDICINE

July 25, 1991

## SEX DIFFERENCES IN THE MANAGEMENT OF CORONARY ARTERY DISEASE

RICHARD M. STEINGART, M.D., MILTON PACKER, M.D., PEGGY HAMM, PH.D.,  
MARY ELLEN COGLIANESE, R.N., BERNARD GERSH, M.D., EDWARD M. GELTMAN, M.D.,  
JOSEPHINE SOLLANO, R.N., STANLEY KATZ, M.D., LEM MOYÉ, M.D., PH.D., LOFTY L. BASTA, M.D.,  
SANDRA J. LEWIS, M.D., STEPHEN S. GOTTLIEB, M.D., VICTORIA BERNSTEIN, M.D.,  
PATRICIA McEWAN, M.D., KIRK JACOBSON, M.D., EDWARD J. BROWN, M.D., MARRICK L. KUKIN, M.D.,  
NIKI E. KANTROWITZ, M.D., AND MARC A. PFEFFER, M.D., PH.D., FOR THE SURVIVAL  
AND VENTRICULAR ENLARGEMENT INVESTIGATORS\*

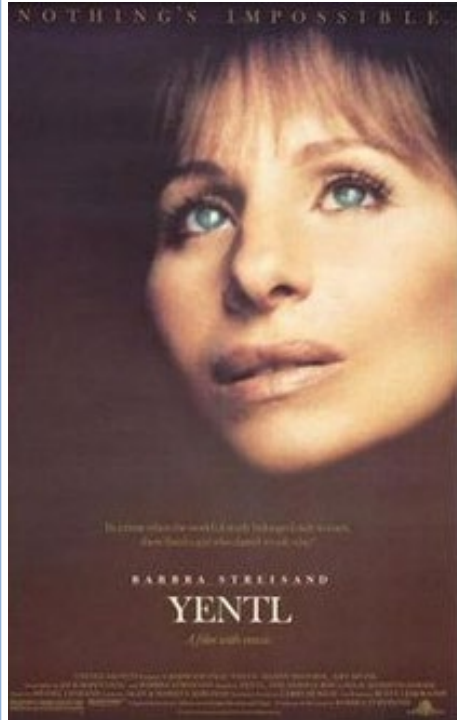
*“Physicians pursue a **less aggressive management** approach to coronary disease in women than in men, despite greater cardiac disability in women.”*

# The New England Journal of Medicine

*“These findings demonstrate that **women** who are hospitalized for coronary heart **disease** undergo **fewer major diagnostic and therapeutic procedures than men.**”*

Volume 325

DIFFERENCES IN



## THE YENTL SYNDROME

YENTL, the 19th-century heroine of Isaac Bashevis Singer's short story,<sup>1</sup> had to disguise herself as a man to attend school and study the Talmud. Being “just like a man” has historically been a price women have had to pay for equality.

The problem is to convince both the lay and the medical sectors that coronary heart disease is also a woman's disease, not a man's disease in disguise.

July 25, 1991

SE

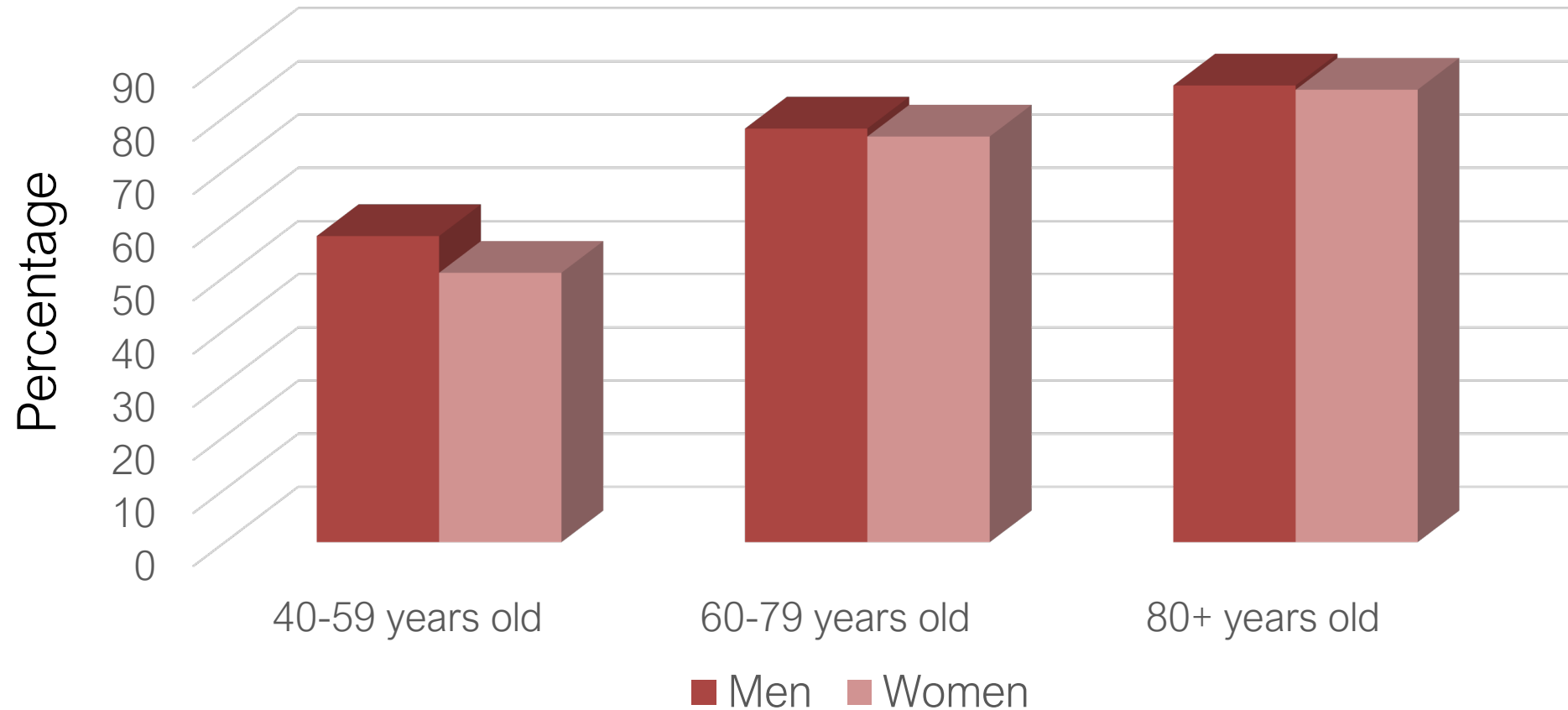
M.D.,

N, M.D.,

*“Physicians pursue a **less aggressive management approach to coronary disease in women than in men,** despite greater cardiac disability in women.”*

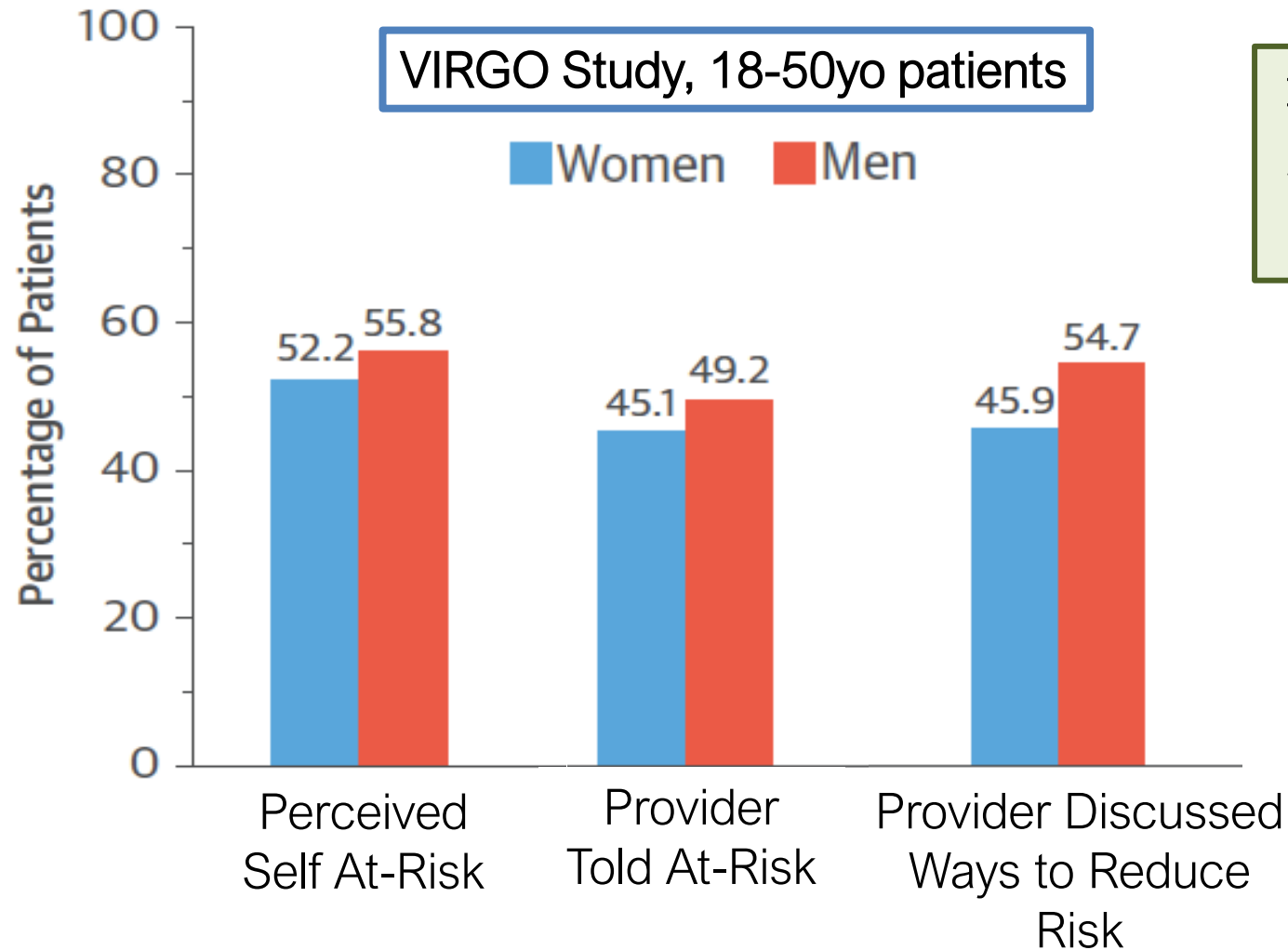
# Heart Disease is Equally Common in Women and Men

Prevalence of Heart Disease in the US (2017-2020)



ACC/AHA 2023 Heart Disease and Stroke Statistics – 2023 Update

# Improved Awareness Needed on Heart Disease Risk in Men and Women



>60% of patients had 3 or more risk factors for heart disease

Leifheit-Limson, EC., et al, *JACC*. 2015.

What symptoms of heart disease are different in women?

What kinds of heart disease disproportionately affect women?

What risk factors for heart disease are different for women?

**WOMEN & HEART DISEASE**

CardioSmart  
American College of Cardiology

**Be Your Own HEART HERO**

**HEART ATTACK SYMPTOMS**

- Arm, neck, jaw or back pain
- Chest pain or discomfort
- Shortness of breath
- Nausea or vomiting
- Dizziness or lightheadedness

**OTHER SYMPTOMS:**

- Cold sweat
- Unusual tiredness
- Trouble sleeping

**RISK FACTORS UNIQUE TO WOMEN**

Many women experience **NO SYMPTOMS**. It's important to **KNOW YOUR RISKS**.

- MENOPAUSE**
- Many **OVARIAN CYSTS**
- HIGH BLOOD PRESSURE** or **DIABETES** during pregnancy

**STAND UP for your HEALTH!**

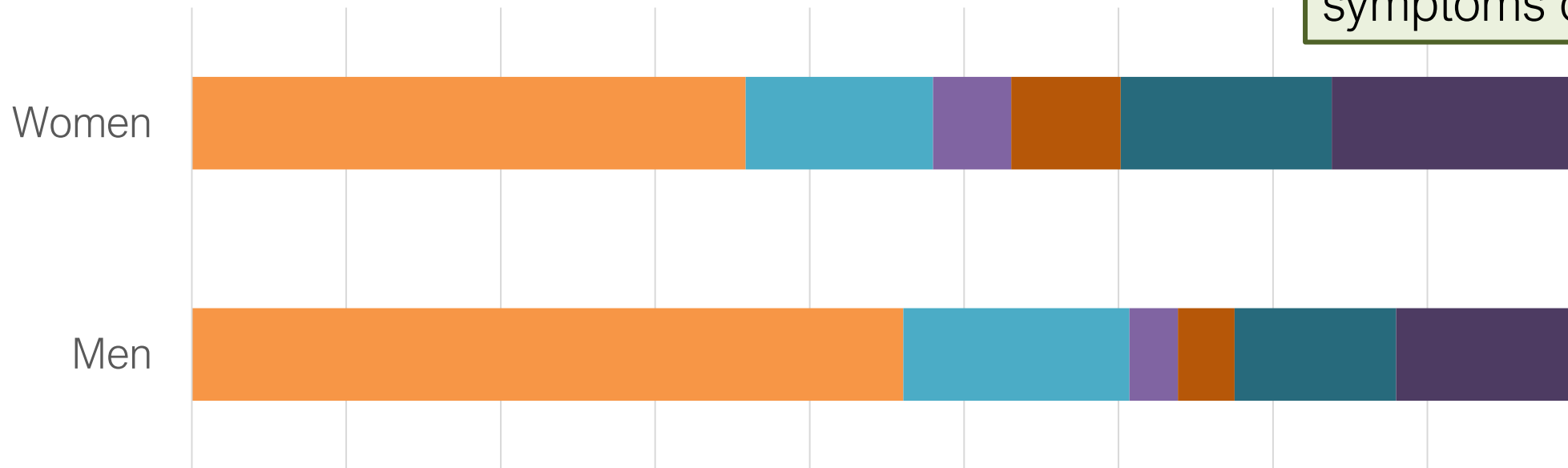
- **GET SCREENED** every year
- **DON'T IGNORE** symptoms
- **ASK QUESTIONS** about your heart health

**HEART DISEASE is the #1 KILLER OF WOMEN**

It causes **MORE WOMEN'S DEATHS THAN CANCER**, including breast cancer

# Women Have Chest Pain...and Other Symptoms

Primary Presenting Symptom



Women are more likely to have 3 or more associated symptoms compared to men

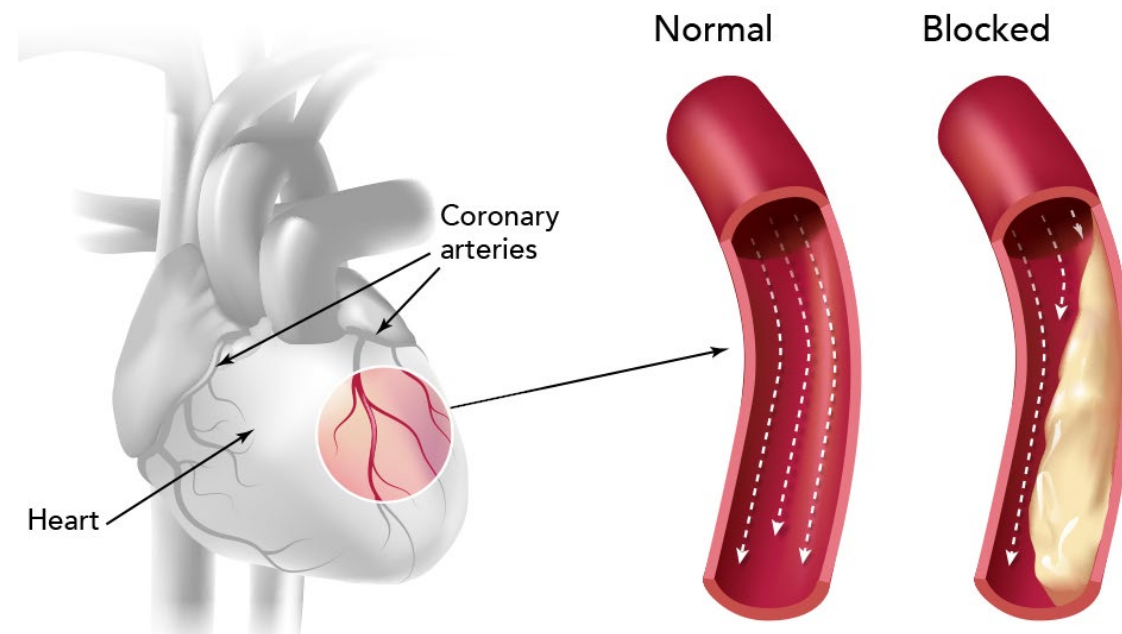
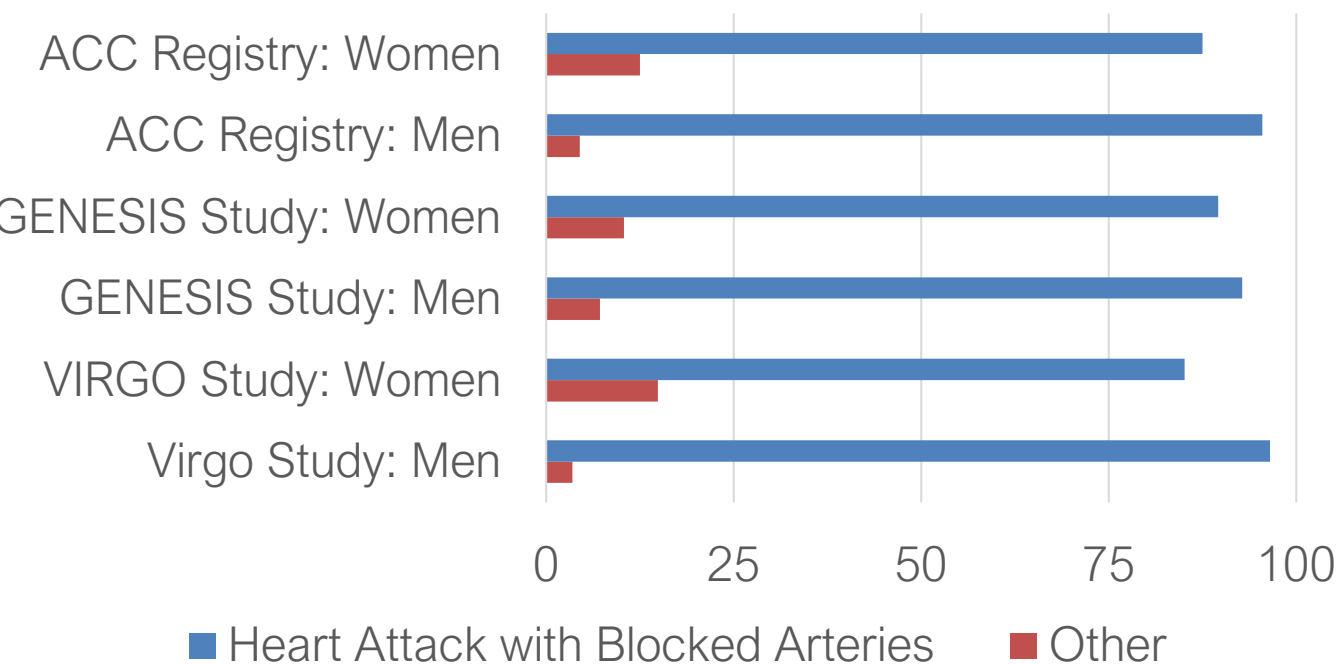
- Chest Pain or Shortness of Breath
- Arm/Shoulder Pain
- Back Pain
- Neck/jaw Pain
- Palpitations
- Undefined

Hemal K. et al, *JACC Imaging*. 2016.  
Lichtman JH. et al, *Circulation*. 2018.



# Women Are at Risk for Heart Attacks

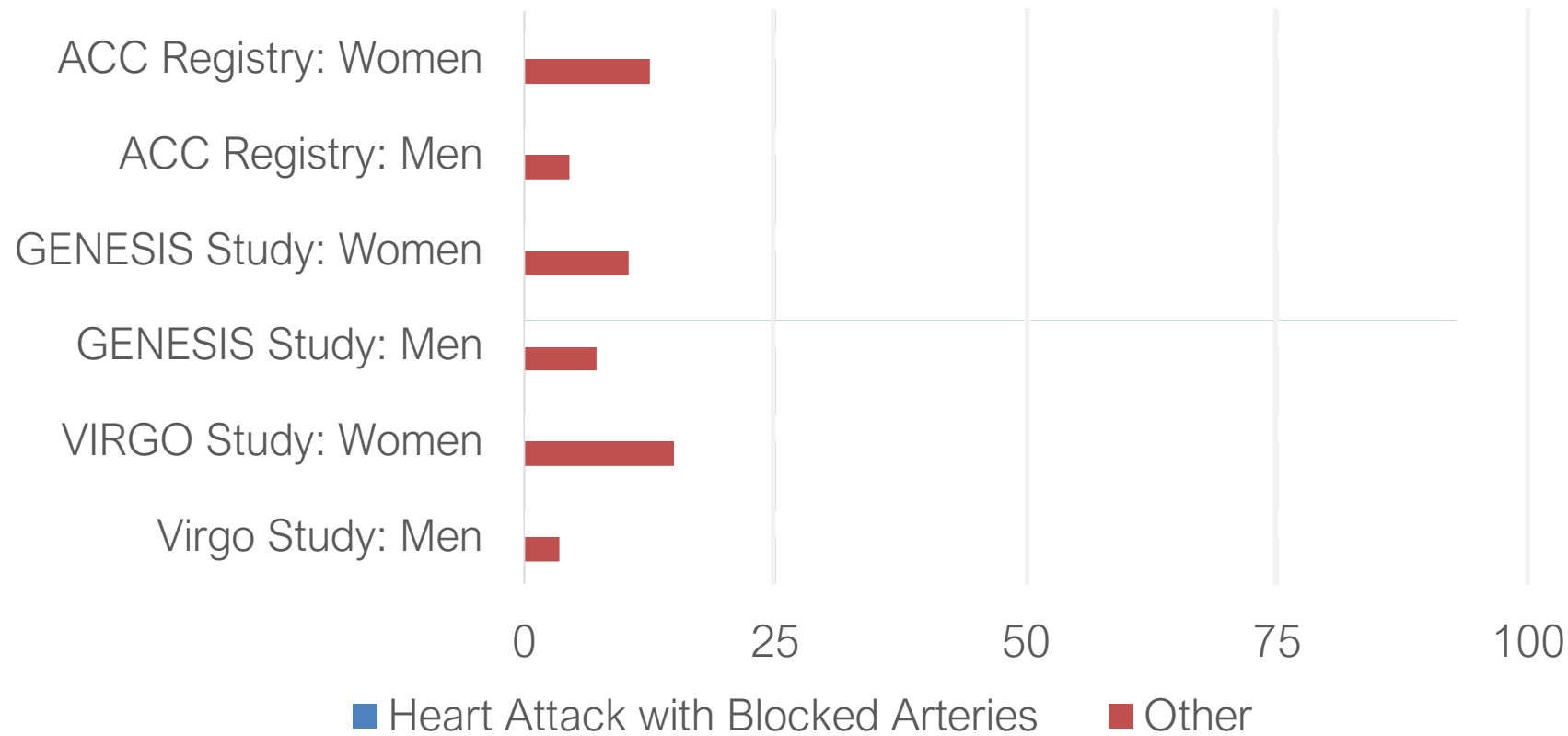
Types of Heart Attacks in Women and Men



Minissian MB. et al, *JACC*. 2022.  
Image from kaiserpermanente.org

# Women Are More at Risk for *Other Kinds* of Heart Attacks

Types of Heart Attacks in Women and Men

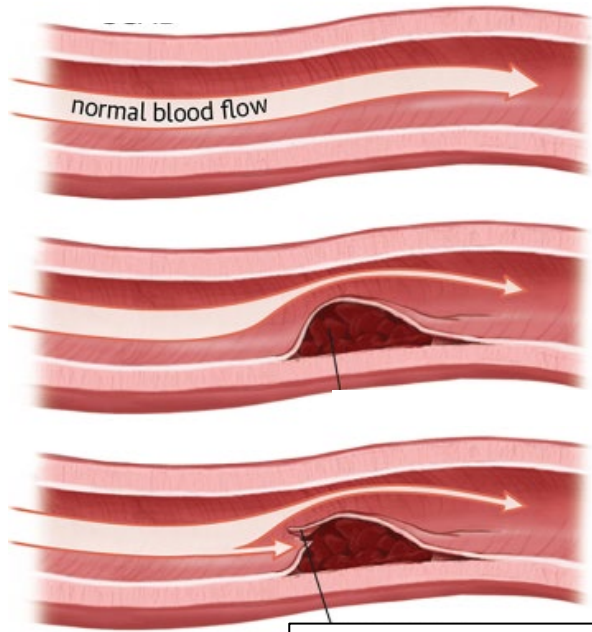


Women: 10-15% vs Men: 3-7%

Minissian MB. et al, *JACC*. 2022.

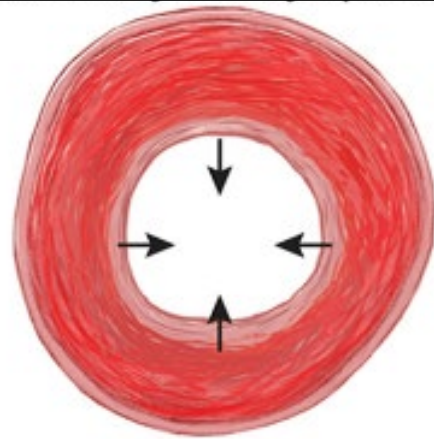
# What Are These **Other** Kinds of Heart Attacks?

Spontaneous Coronary Artery Dissection (SCAD)

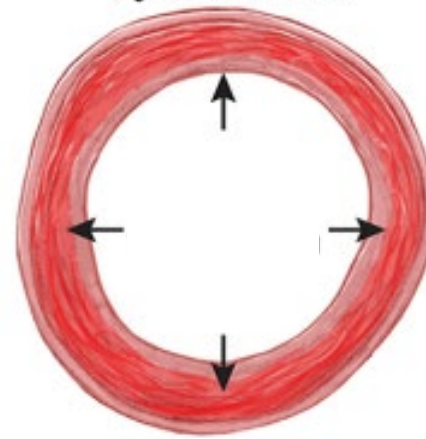


tear in the artery

Coronary Artery Spasm



Microvascular Dysfunction



Clot in the Artery

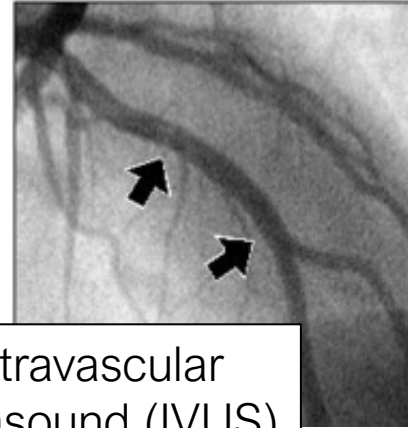


*...and how can we diagnose them?*

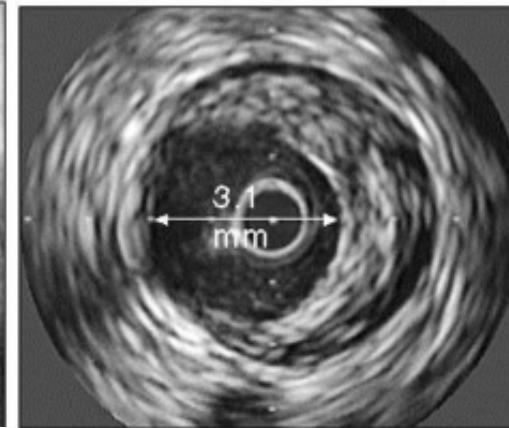
Minissian MB. et al, *JACC*. 2022.

# Advances in Technology to Diagnose Heart Disease

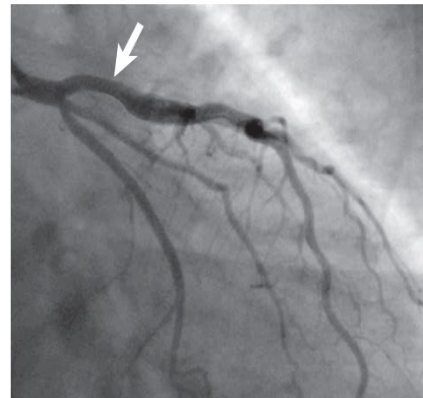
## Traditional Cardiac Catheterization



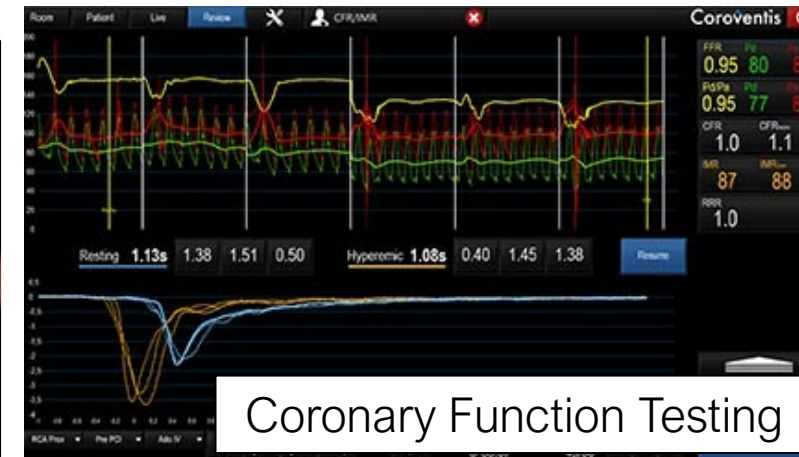
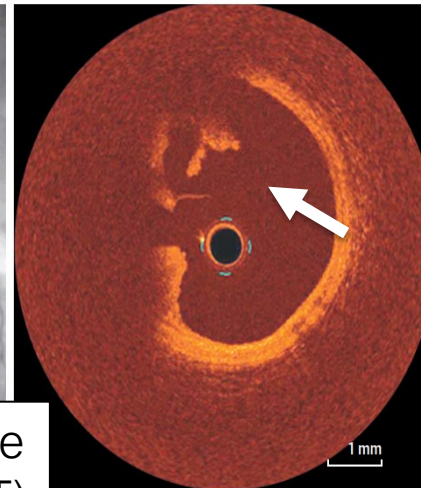
Intravascular  
Ultrasound (IVUS)



*New  
Technology →  
Accurate  
Diagnosis*

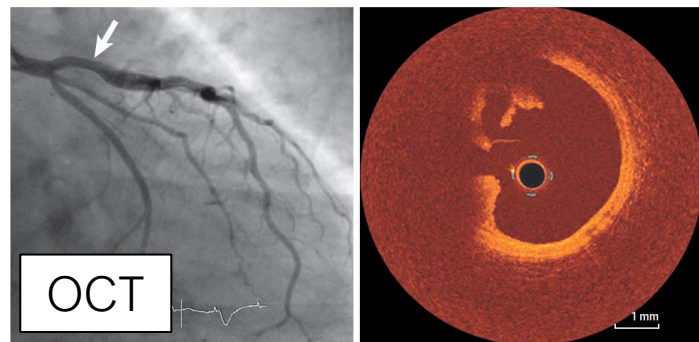
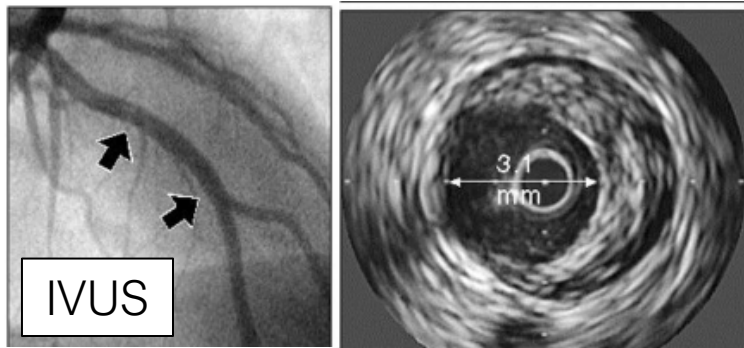


Optical Coherence  
Tomography (OCT)

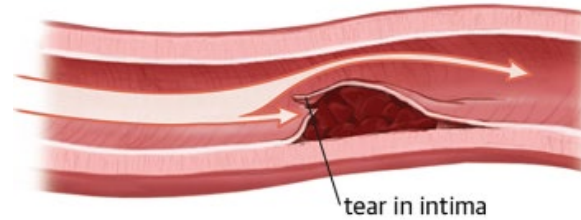


Coronary Function Testing

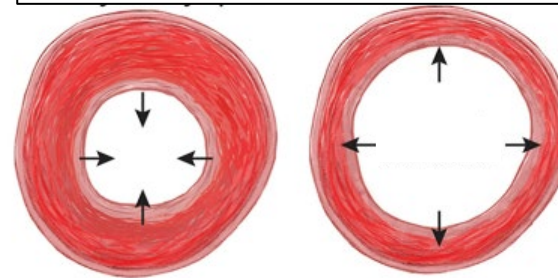
# Accurate Diagnosis Leads to Better Treatment!



Spontaneous Coronary Artery Dissection



Spasm or Microvascular Dysfunction



Clot in the Artery

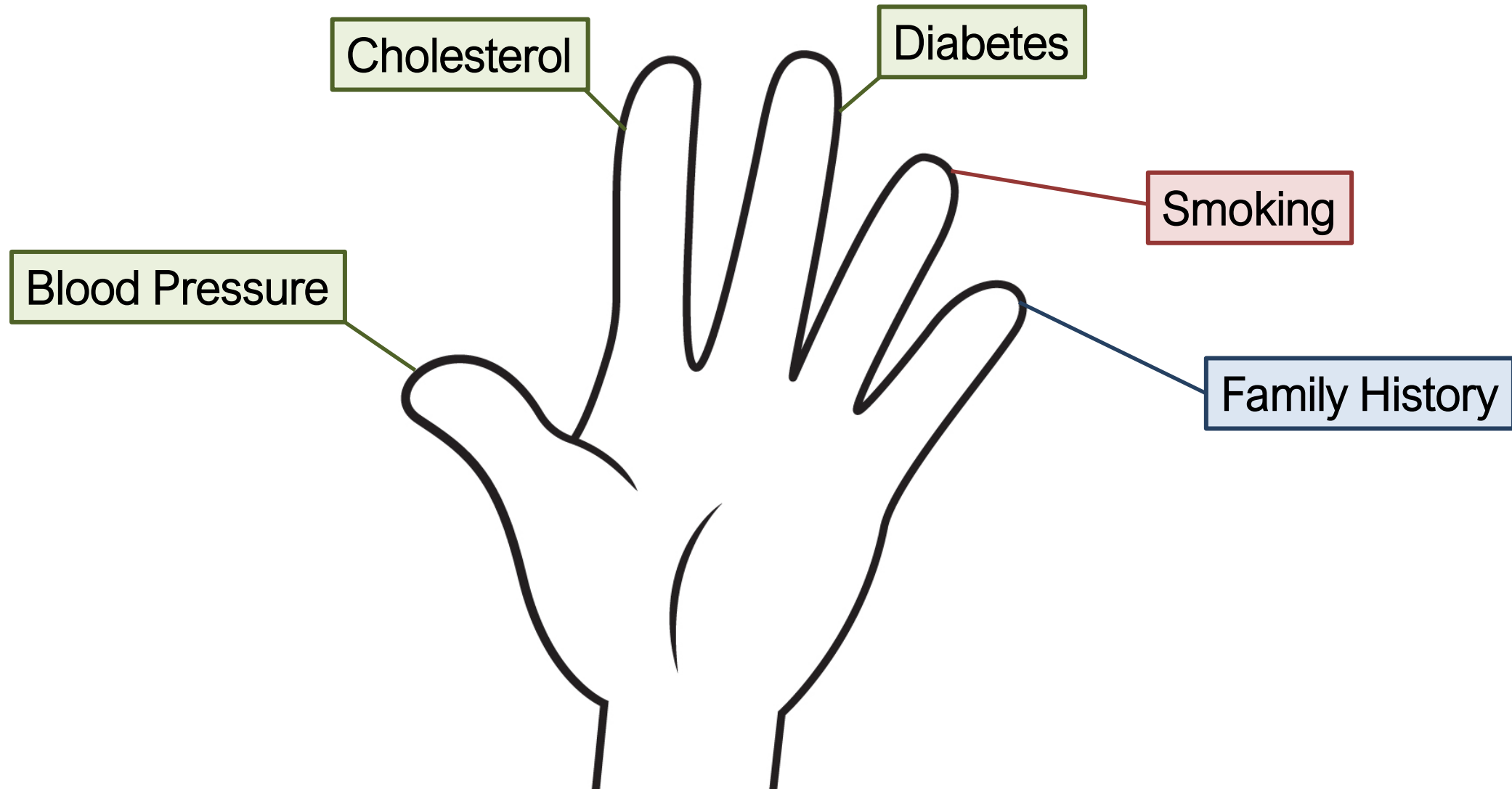


Start treatment specific for the diagnosis

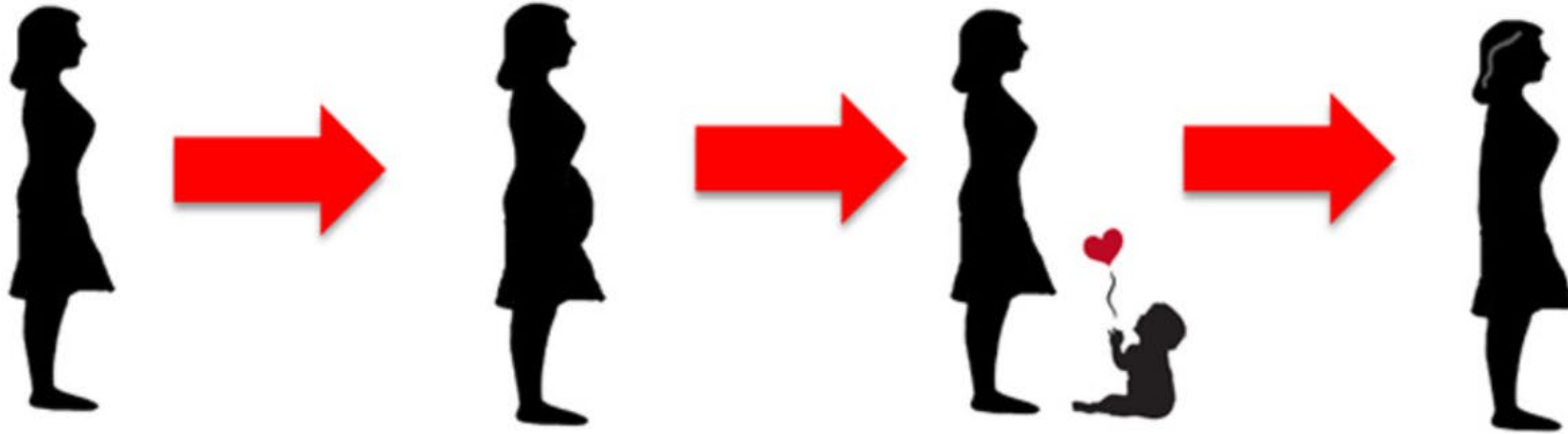


# What About Risk Factors and Preventing Heart Disease?

# Risk Factors for Heart Disease for Women and Men



# What Might Indicate Increased Risk for Heart Disease in **Women**?



## *Pre/Peri-Pregnancy:*

1. Polycystic Ovarian Syndrome
2. Spontaneous pregnancy loss

## *Pregnancy Complications:*

1. High blood pressure during pregnancy
2. Pre-eclampsia
3. Gestational Diabetes

## *Peri/Post-Menopause:*

1. Early Menopause (< 40 years old)

Modified from Agarwala A. et al, *Circulation*. 2020.



# How Do We Assess Risk for Heart Disease?

Step 1: Calculate Risk Score using BP, cholesterol, diabetes, history of smoking



ASCVD  
Risk Estimator

Step 2: Determine where your Risk Score falls



# When Are Additional Tests Needed to Determine Risk?

Step 1: Calculate Risk Score using BP, cholesterol, diabetes, history of smoking



ASCVD  
Risk Estimator

Step 2: Determine where your Risk Score falls



Step 3: Additional Testing - CAC Score,  
Lp(a)

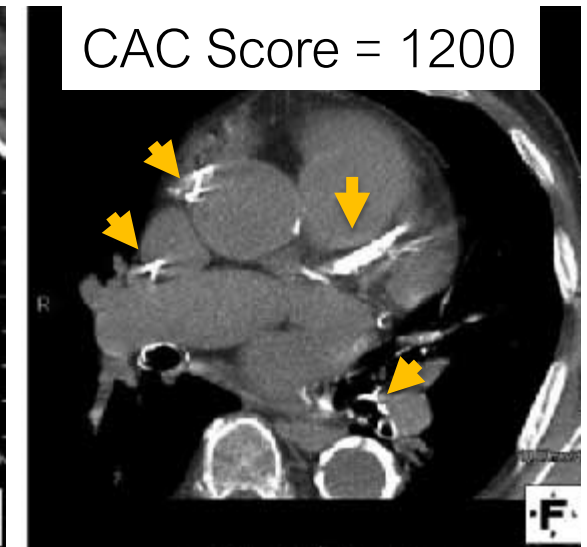
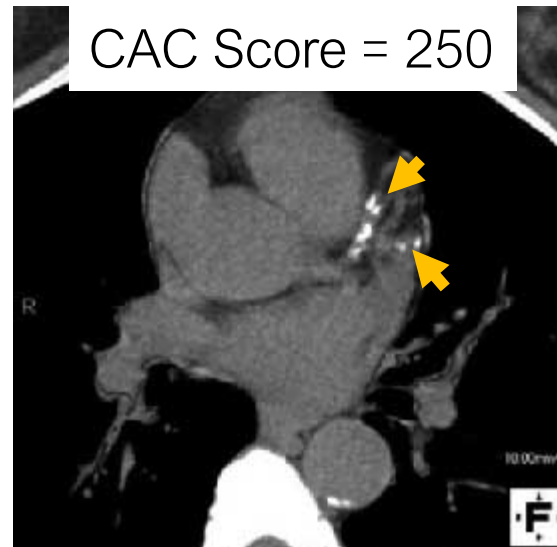
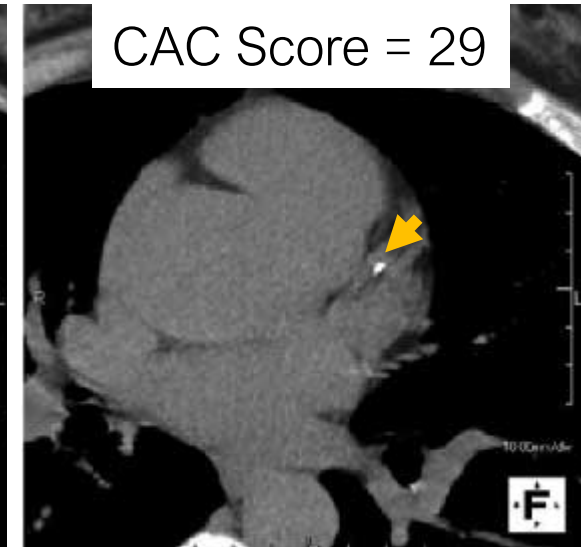
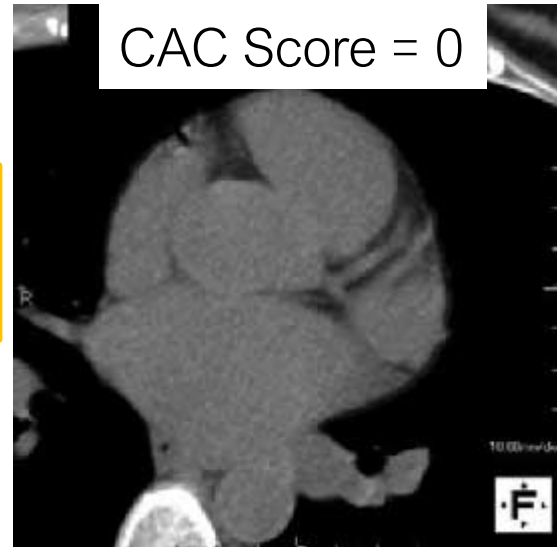
Other Scenarios to Consider  
Additional Testing:

1. Family History of *Early* Heart Disease:  
Men <55 years old  
Women <65 years old
2. History of *unique risk factors*  
(ex: high blood pressure during pregnancy)

# New Ways to Assess Risk for Heart Disease: CAC Score

**CAC = Coronary Artery Calcium**

Calcium follows  
cholesterol deposits



# What Does My CAC Score Mean?

CAC Scores are scaled for age, sex and ethnicity

## How to Read Your CAC report:

### 1. Absolute number

Low Risk

0

1-99

100-299

High Risk

300+

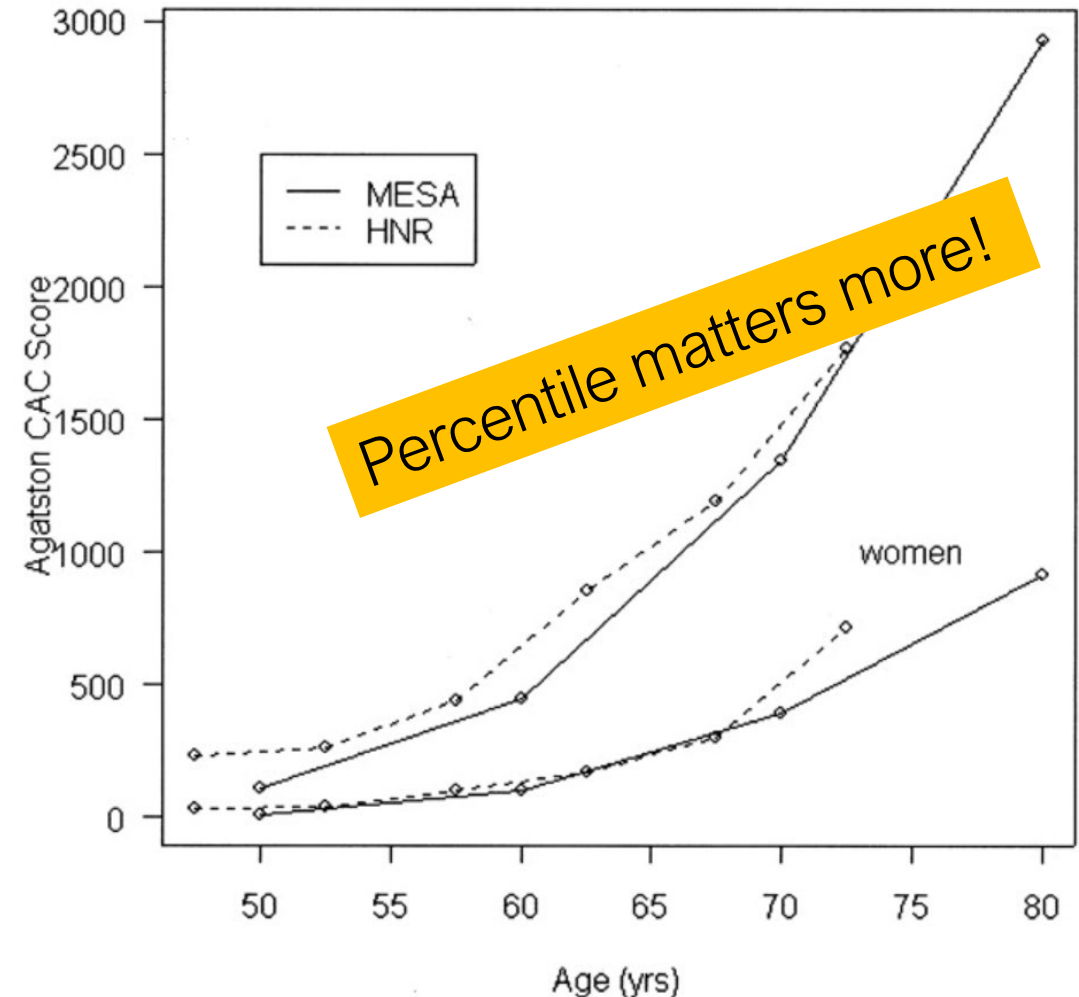
### 2. Percentile: a higher percentile is worse

**Example: CAC score 29**

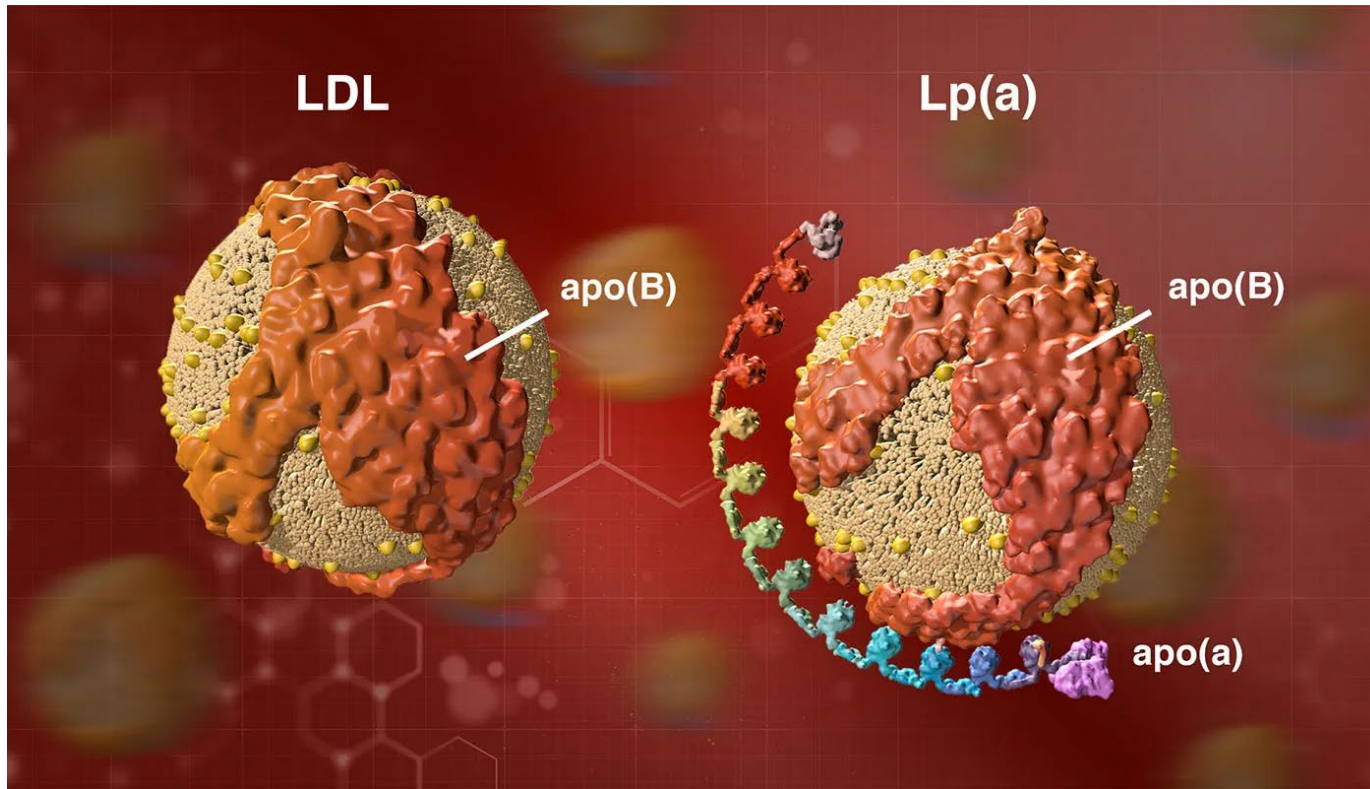
45-year-old woman → 98<sup>th</sup> percentile

65-year-old man → 33<sup>rd</sup> percentile

### Estimated 90<sup>th</sup> percentile of CAC



# New Ways to Assess Risk for Heart Disease: Lp(a)



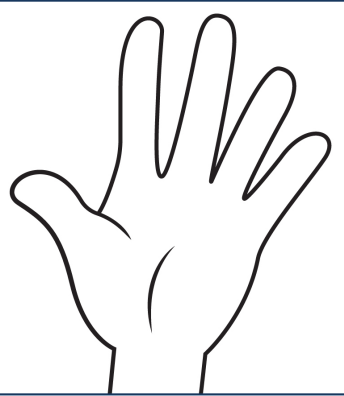
Lp(a) is genetically inherited → family history is important!

## How to Interpret Your Lp(a) Result:

High Lp(a) =  
>50 mg/dL  
>125 nmol/L

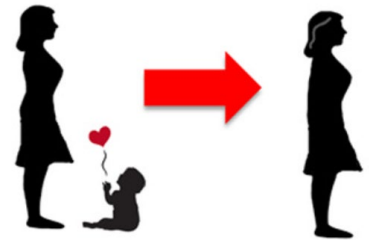
Image from amgen.com

# Putting It Together: What Can You Do to Prevent Heart Disease?



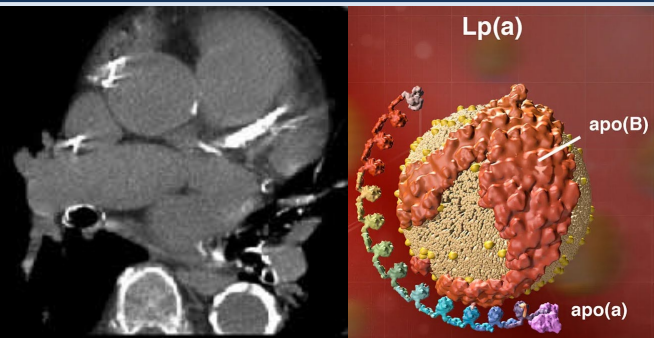
Make sure your doctor checks for traditional risk factors for heart disease

1. Blood pressure
2. Lipid panel
3. A1c – to check for diabetes



Tell your doctor (they may not ask!) if you have a history of unique risk factors

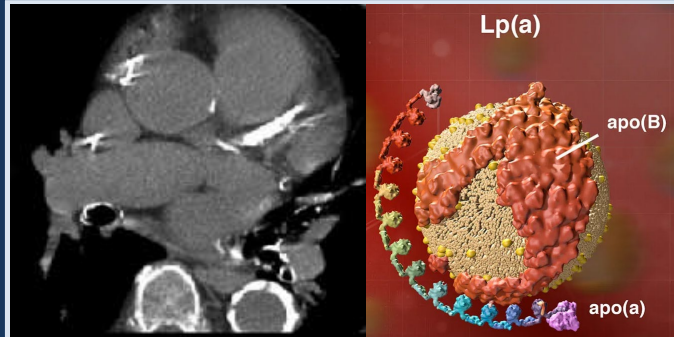
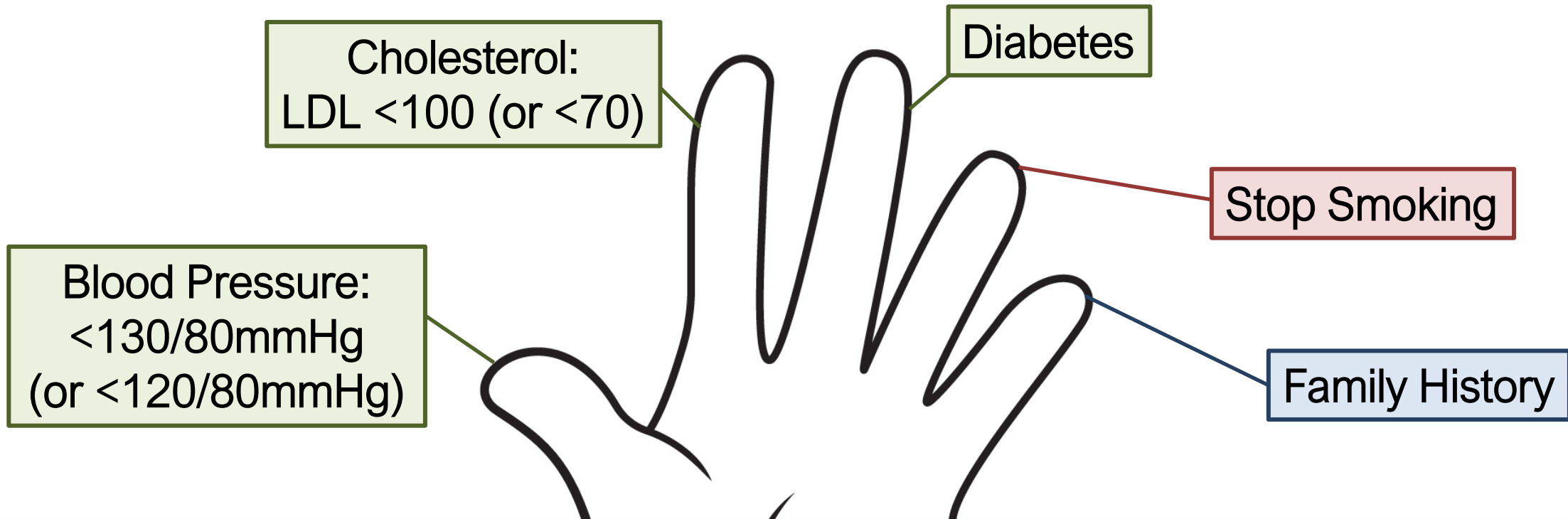
1. High blood pressure or diabetes during pregnancy
2. Early menopause (<40 years old)



Additional tests (CAC or Lp(a)) may be needed depending on

1. Calculated risk – borderline to intermediate
2. Family history of heart disease
3. Presence of unique risk factors

# Preventing Disease = Controlling Traditional Risk Factors



Tighter control of *traditional risk factors* if:

1. Calculated risk is high (>20) – regardless of CAC or Lp(a)
2. High percentile CAC score
3. Elevated Lp(a) → *new drugs to lower Lp(a) are being studied*

# Lowering Cholesterol: What About Statins?

Yes

No

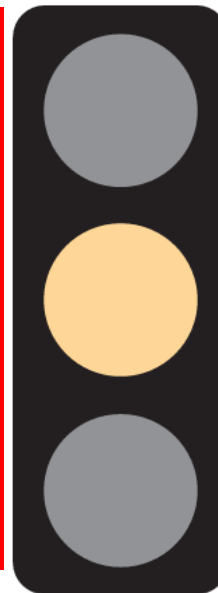
Maybe



LDL  $\geq$  190  
Diabetes  
High calculated risk  
Intermediate risk + risk enhancers



Low risk (<5%)



Borderline risk + risk enhancers  
Clinician-patient discussion


**Risk enhancers:**  
1. Unique risk factors (ex: high BP during pregnancy)  
2. High CAC 3. High Lp(a)

Modified from Cho L. et al, *JACC*. 2020.



# What About Aspirin?

Yes



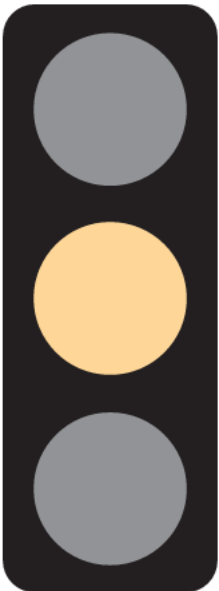
Prior history of heart disease or stroke

No



No risk factors for heart disease  
Age >70  
Risk of bleeding

Maybe

- 
1. Current smoker
  2. CAC score  $\geq 100$
  3. Family history
  4. Poorly controlled cholesterol or BP
  5. High calculated risk AND low risk of bleeding

Modified from Cho L. et al, *JACC*. 2020.

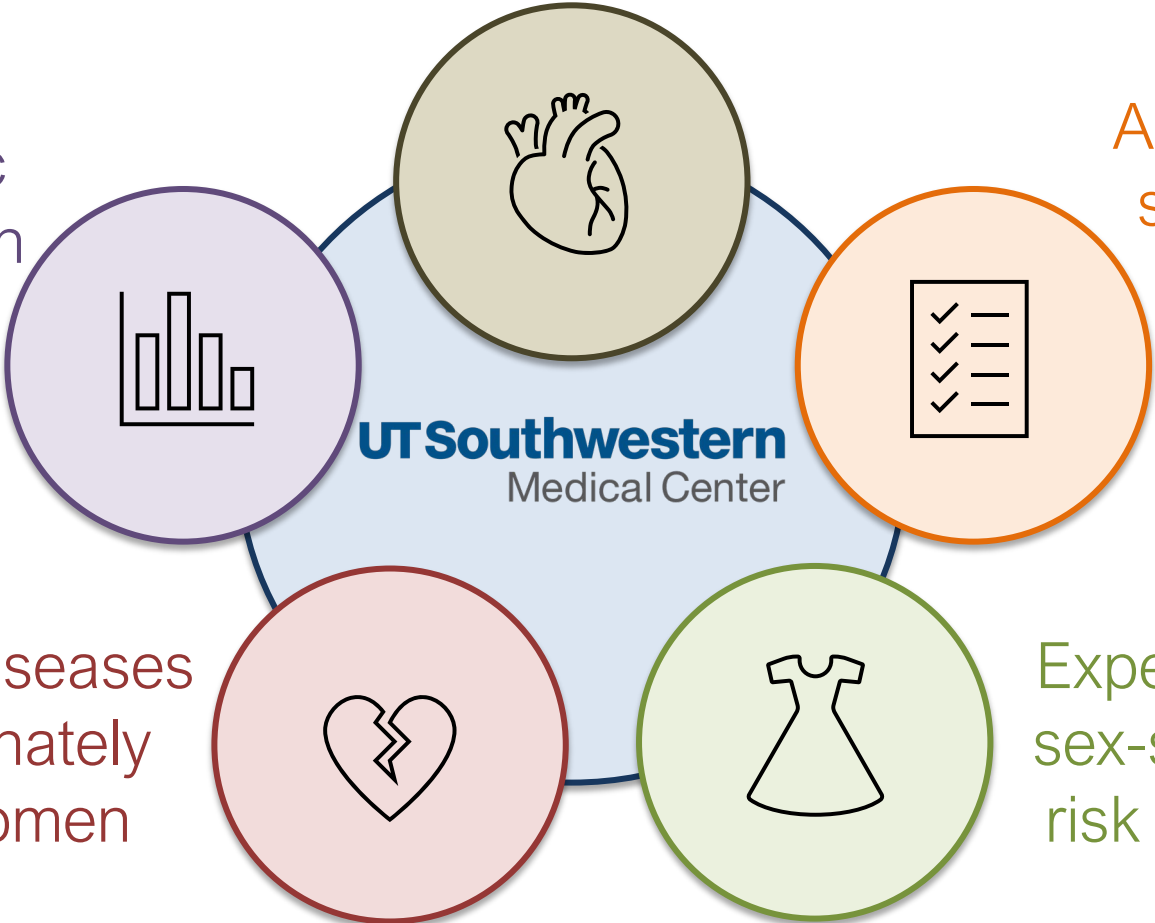
# My Journey



# Women's Cardiovascular Program at UTSW

*Improved cardiovascular outcomes for women*

Participate in research specific to heart disease in women

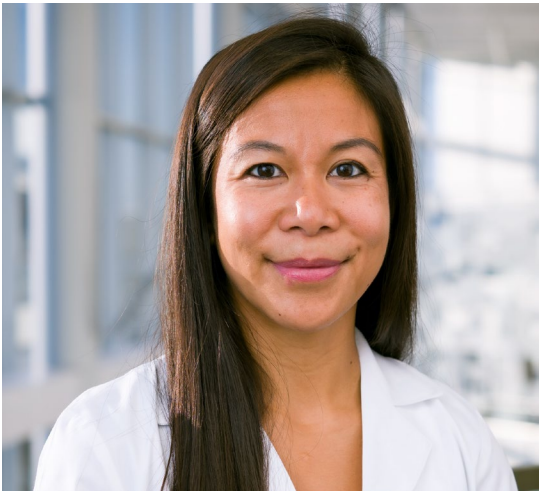


Application of sex-specific guidelines

Expertise in diseases disproportionately affecting women

Expertise in sex-specific risk factors

# Women's Cardiovascular Program at UTSW



Cardio-obstetrics Team

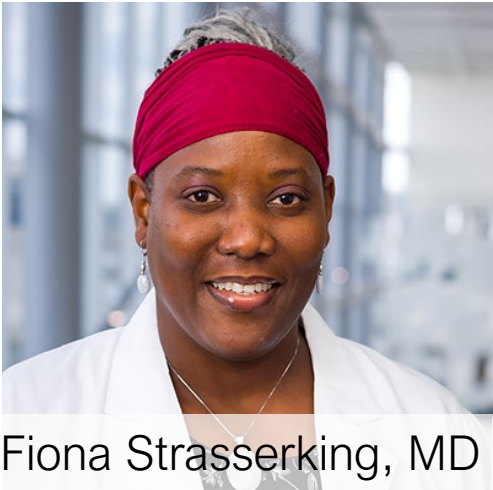
Interventional  
Cardiology



Dharam Kumbhani, MD



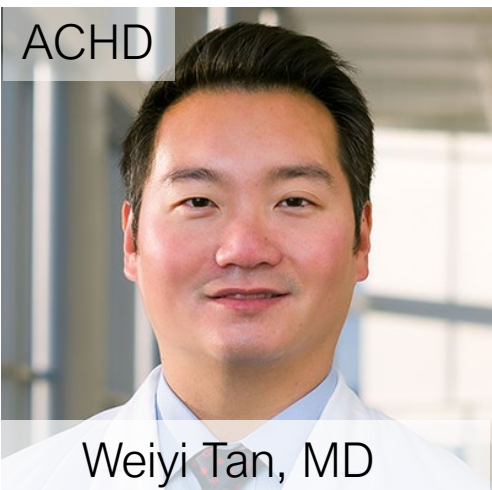
Thomas Koshy, MD



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# Questions?

**Thank you!**

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