

# Impacts of Social Determinants on Women's Heart Health

Louisiana Representative Aimee Adatto Freeman,  
Women In Government State Director (Moderator)

Dr. Odayme Quesada, MD, MHS, FACC, FAHA, Ginger Warner Endowed Chair in Women's Cardiovascular Health, Medical Director, Women's Heart Center, The Christ Hospital Heart and Vascular Institute, Assistant Professor, University of Cincinnati

Dr. Dipti Itchhaporia, MD, MACC, FAHA, FESC, Immediate Past President of American College of Cardiology, , Eric & Sheila Samson Endowed Chair in Cardiovascular Health, Director of Disease Management, Hoag Memorial Hospital Presbyterian in Newport Beach, CA, Clinical Professor, University of California, Irvine



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# What is Health Equity?

- When every person has the opportunity to attain his or her full health potential
- No one disadvantages from achieving this potential because of social position or other socially determined circumstances



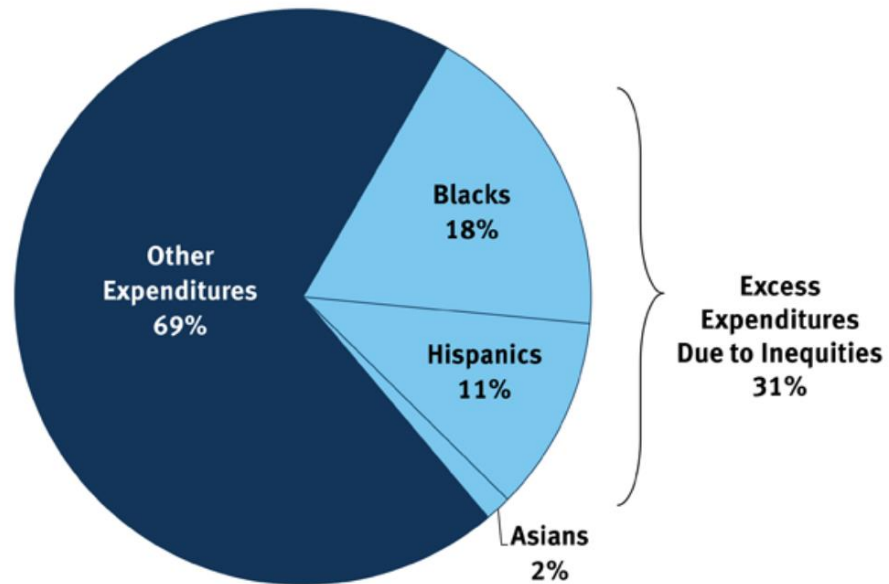
# What is Health Disparity?

- **National Institutes of Health:** Differences in incidence, prevalence, mortality, and burden of disease and other adverse health conditions that exist among specific populations or groups in the US
- **World Health Organization:** Difference in health which are not only unnecessary and avoidable but are considered unfair and unjust



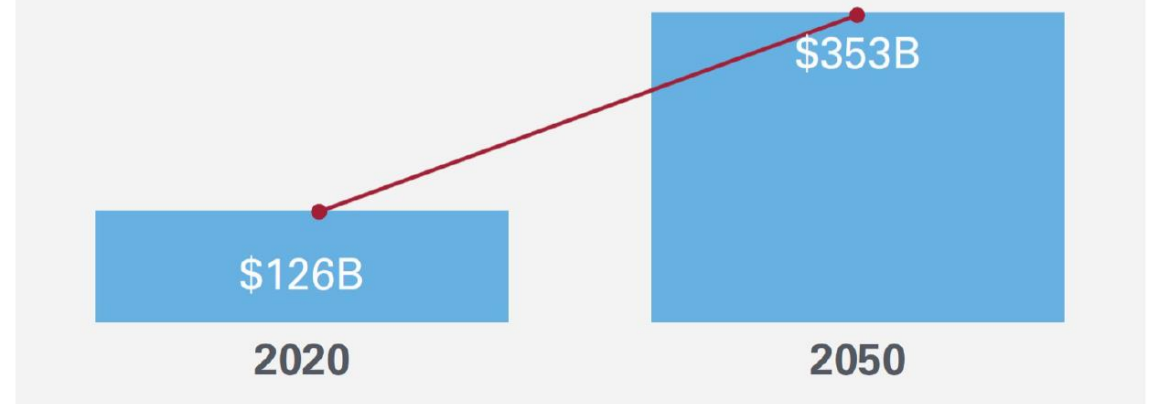
# Cost of Health Disparities

## Excess Medical Expenditures Due to Health Inequities



Total Expenditures 2003-2006 = \$749 Billion

## Economic Burden of Health Disparities in the U.S. if Unchanged



# Heart Disease: the #1 Killer of Women

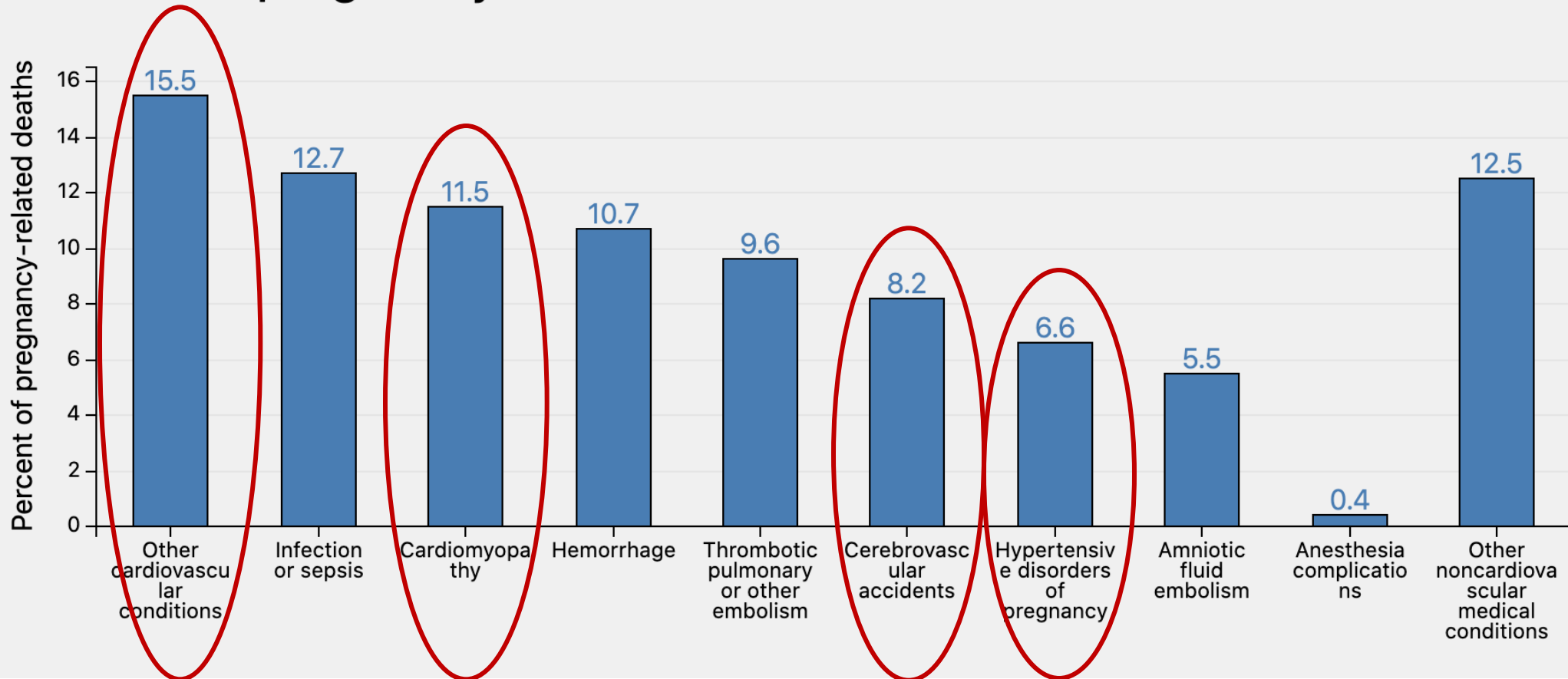
**1** in **3** women in the United States die from heart disease each year

*That is double the number of women who die from cancer annually, including breast cancer*



# Heart Disease: the #1 Cause of Death in New Moms

## Causes of pregnancy-related death in the United States: 2014-2017

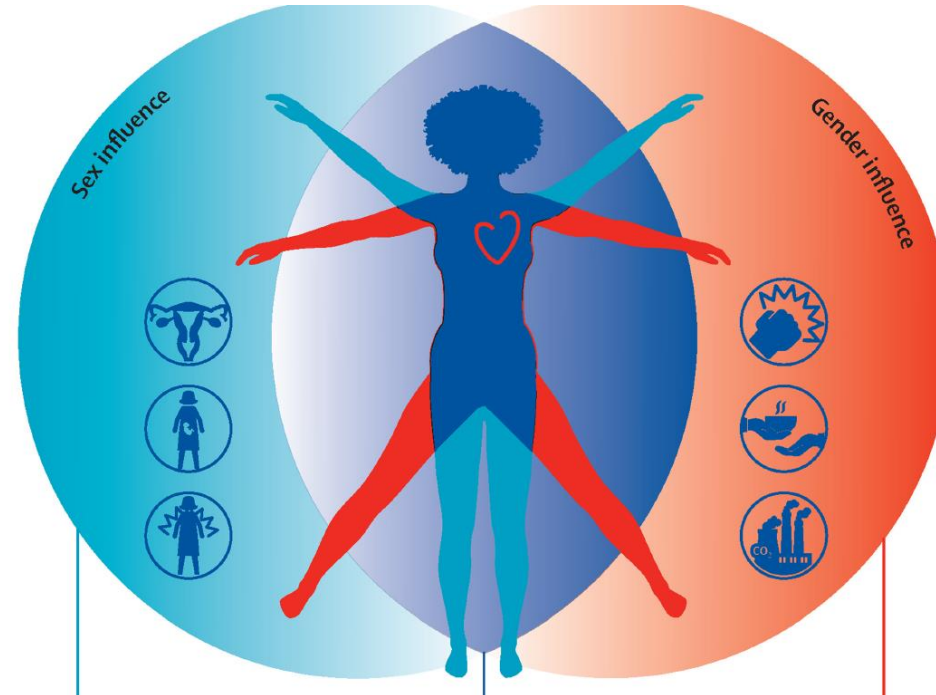


Creanga AA, Syverson C, Seed K, Callaghan WM. Pregnancy-Related Mortality in the United States, *Obstet Gynecol.* 2017 Aug;130(2):366-373.

# Heart Disease Risk Factors in Women: Why Does it Matter?

## Sex-specific risk factors

- Premature menopause
- Gestational diabetes
- Hypertensive disorders of pregnancy
- Preterm delivery
- Polycystic ovary syndrome
- Systemic inflammatory and autoimmune disorders\*



## Under-recognised risk factors

- Psychosocial risk factors
- Abuse and intimate partner violence
- Socioeconomic deprivation
- Poor health literacy
- Environmental risk factors

## Social Determinants of Health



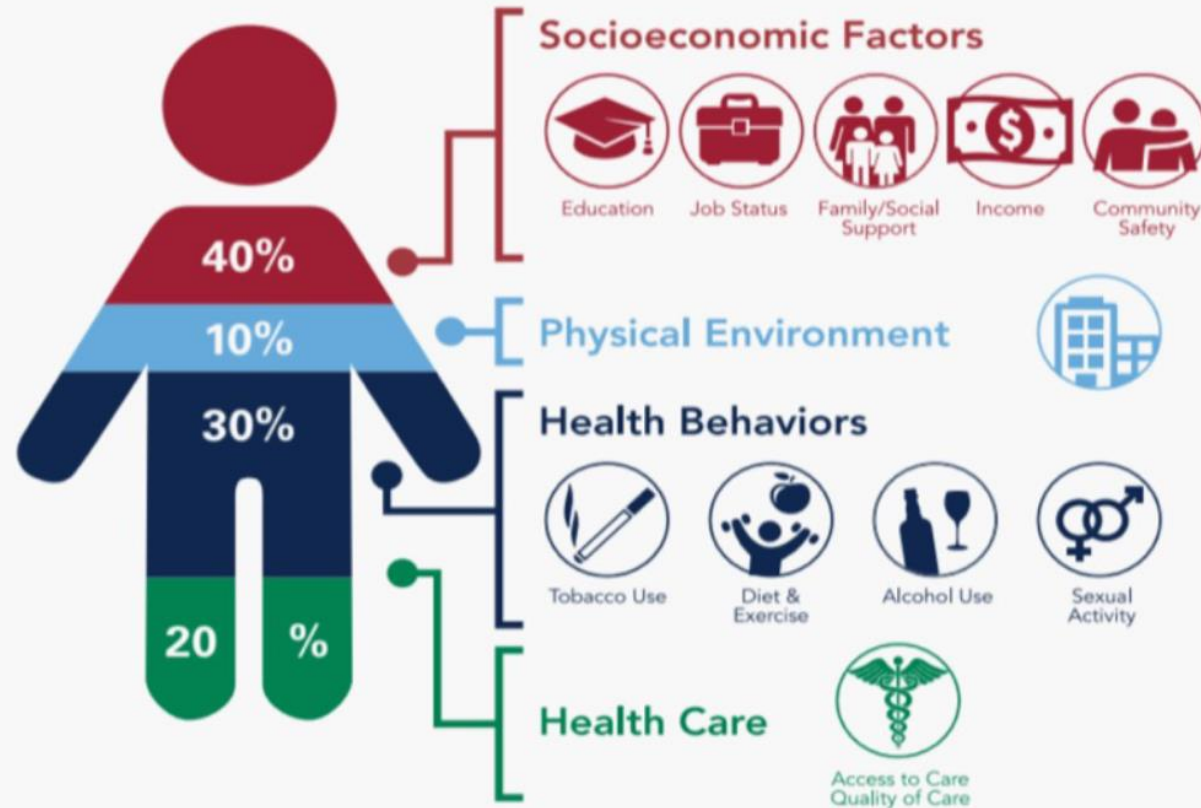
## Well-established risk factors

- Hypertension
- Dyslipidaemia
- Diabetes
- Obesity
- Unhealthy diet
- Sedentary lifestyle
- Smoking or tobacco use

Vogel B et al. The Lancet women and cardiovascular disease Commission: reducing the global burden by 2030. Lancet. 2021 Jun 19;397(10292):2385-2438.



# 80% of what makes up a women's health is determined by what happened outside of the hospital & health clinic



Source: Institute for Clinical Systems Improvement. Going Beyond Clinical Walls: Solving Complex Problems (2014). Graphic designed by ProMedica.

# Social Determinants of Health



<https://www.cdc.gov/visionhealth/determinants/index.html>

# Heart Disease affects Black Women Disproportionately

**40% mortality difference between Black and White women is driven by disparities in cardiovascular disease outcomes**

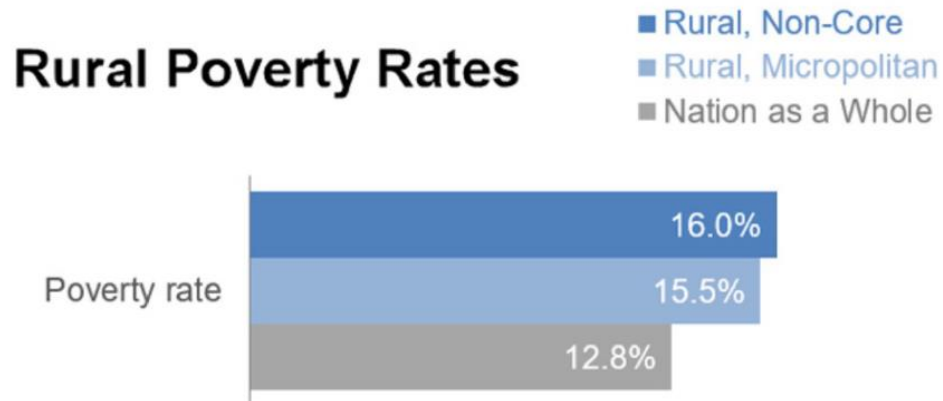
**Black women have highest rates of cardiovascular disease risk factors such as obesity, diabetes, hypertension**

**Black women have highest rates of heart attack, heart failure, sudden cardiac death**

**Compared to White women, Black women are less likely to receive treatment after heart attack**

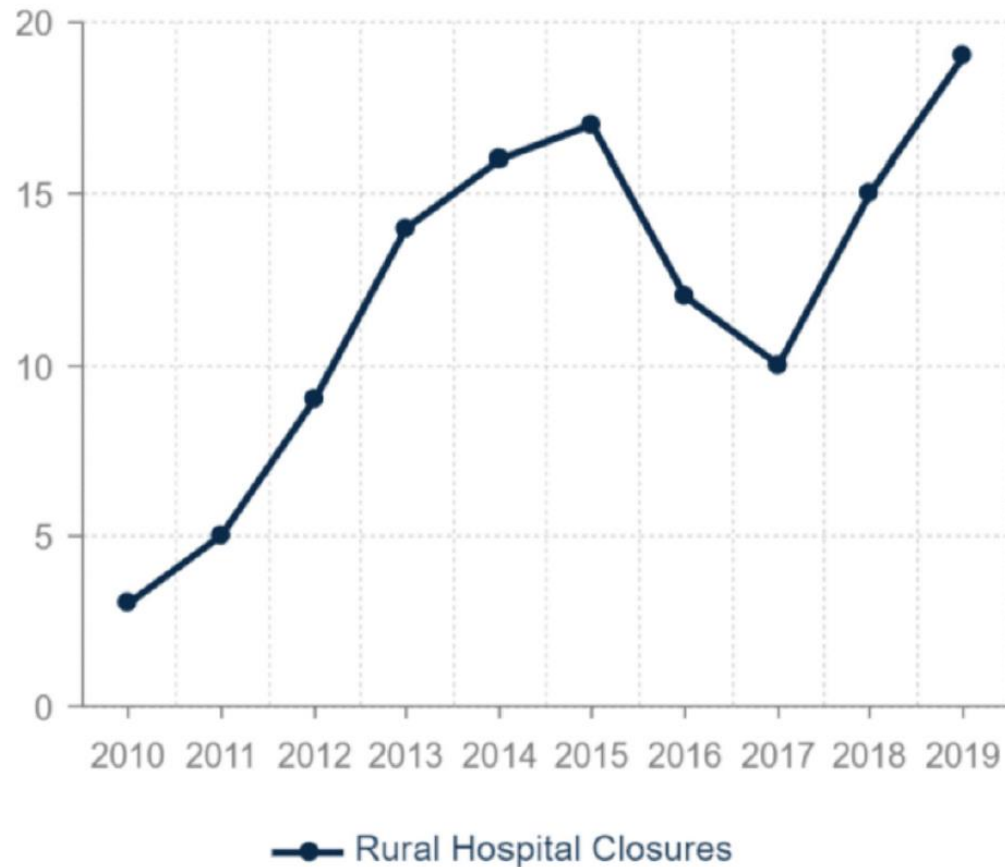
**Maternal mortality is highest in Black women and rising steadily**

# Social Determinants of Health: Barriers & Challenges of Rural Communities



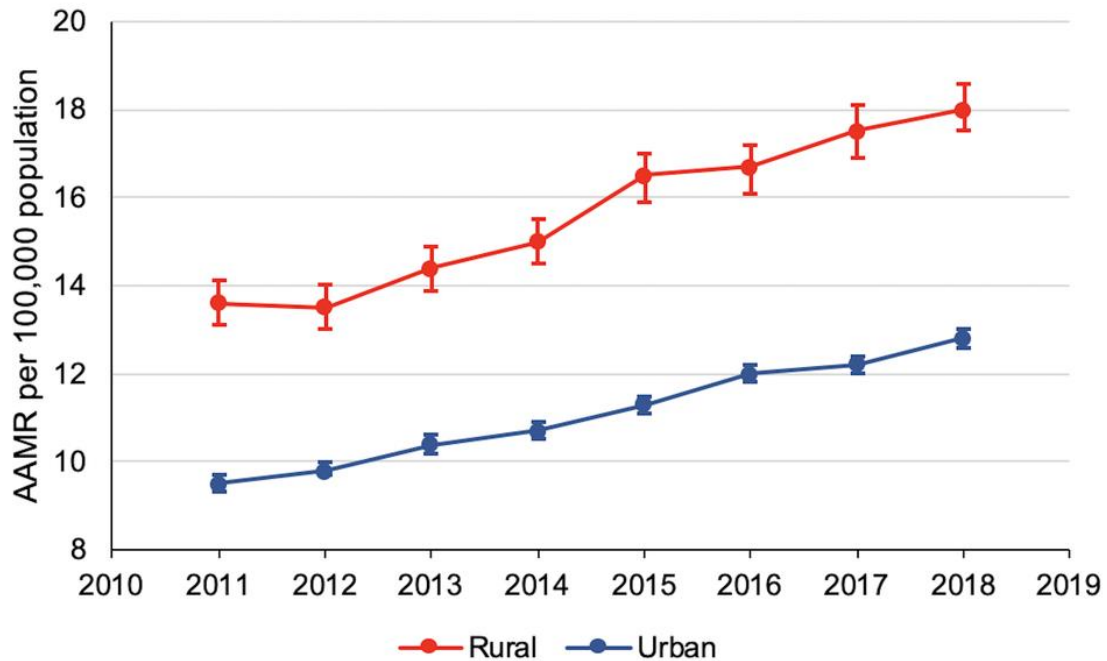
- Income, poverty
- Employment
- Race/Ethnicity
- Health Literacy
- Adequate community infrastructure
- Environmental health
- Access to homes
- Access to transportation
- Access to food
- Access to healthcare services

# Social Determinants of Health: Closure of Rural Hospitals Decreases Public Health Access

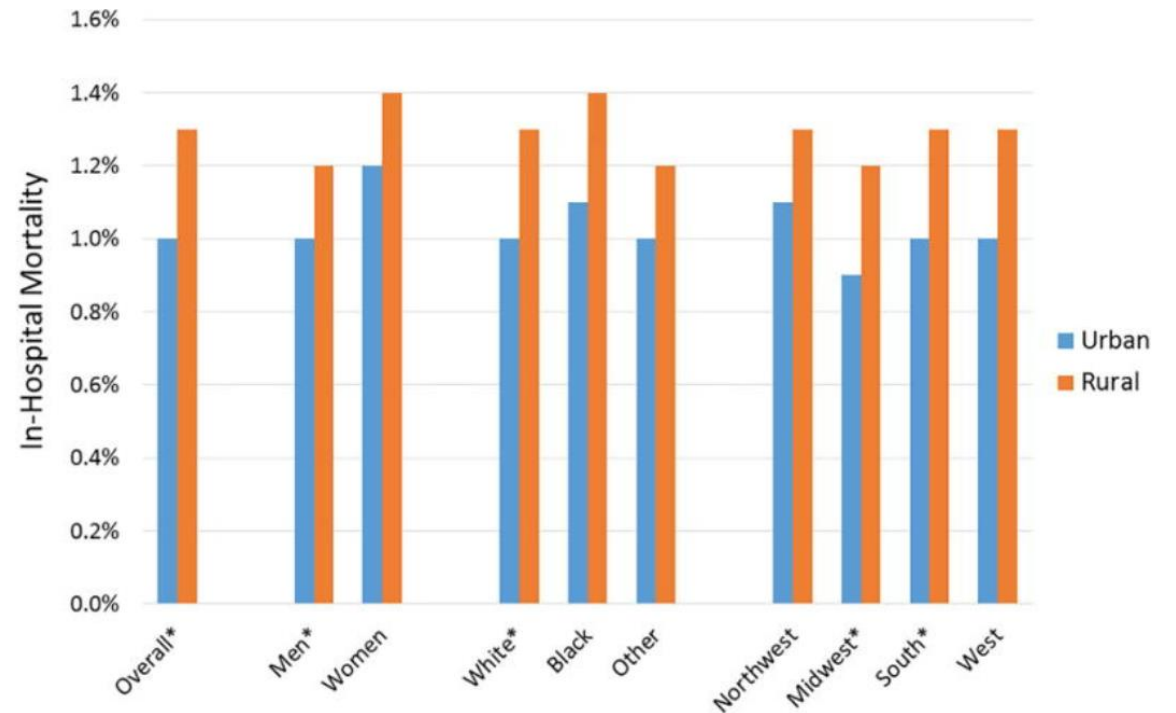


- Since 2010, 120 rural hospitals have been closed resulting in a decrease in public health access
- 1 in 4 rural hospitals are vulnerable to closure

# Social Determinants of Health: Why Access in Rural Communities Matters?



Heart failure mortality in the United States between 2011–2018 according to rural-urban status among adult age



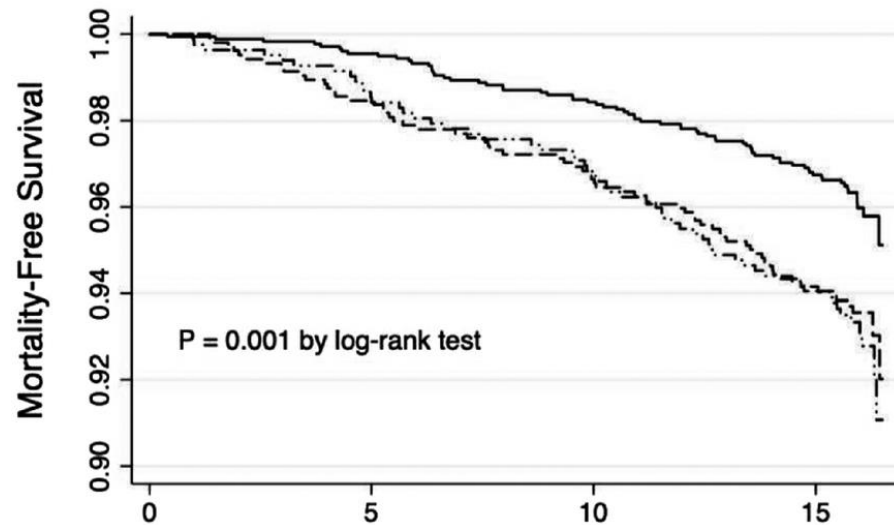
In-Hospital Mortality Associated with Atrial Fibrillation Hospitalization, 2012–2014

O'Neal WT et al. Urban-rural differences in mortality for atrial fibrillation hospitalizations in the United States. *Heart Rhythm*. 2018 Feb;15(2):175-179.  
 Pierce JB, et al. Trends in heart failure-related cardiovascular mortality in rural versus urban United States counties, 2011-2018: A cross-sectional study. *PLoS One*. 2021 Mar 3;16(3):e0246813.

# Social Determinants of Health: Adverse Childhood Family Environment

## CARDIA (Coronary Artery Risk Development in Young Adults) Study

### B All-Cause Mortality



Number at risk	0	5	10	15
Low CFE Adversity	1781	1773	1753	1696
Moderate CFE Adversity	1043	1027	1008	959
High CFE Adversity	822	809	795	766

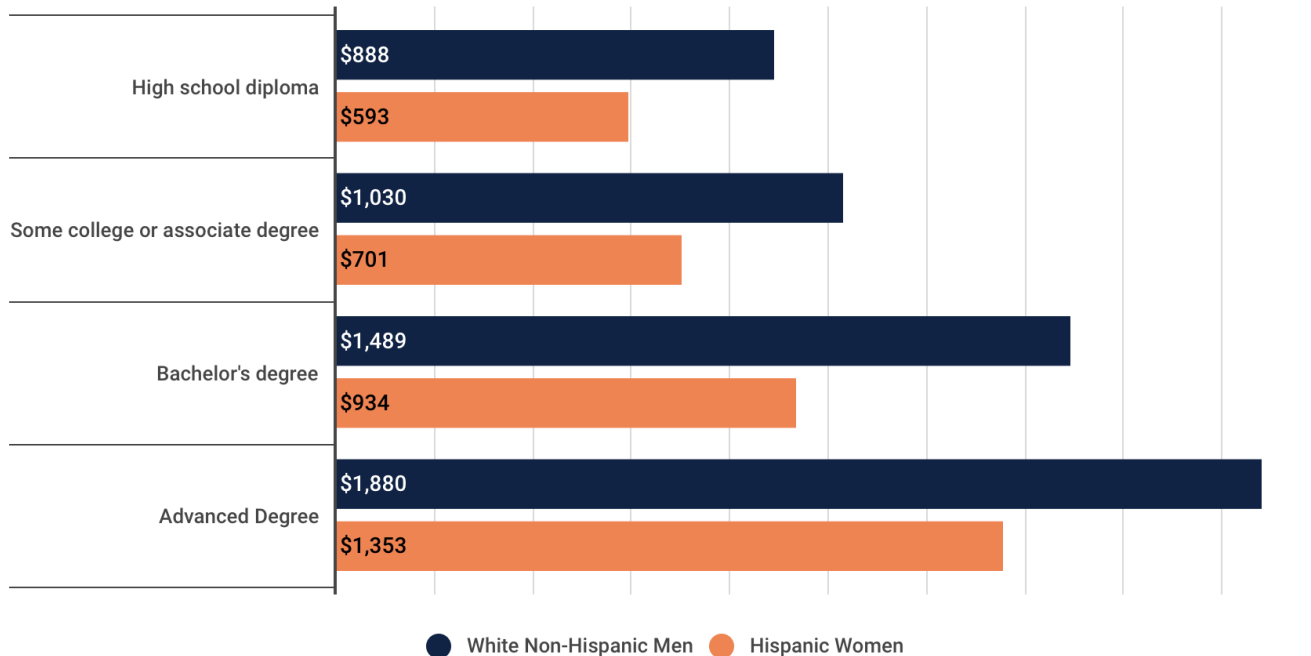
— Low CFE Adversity    - - - Moderate CFE Adversity    - · - · High CFE Adversity

Adverse childhood family environment is associated with increased risk of cardiovascular disease.

Exposure to even moderate adversity in childhood is associated with significantly higher risk for all-cause mortality in adulthood.

# Social Determinants of Health: Pay Gap in Women Regardless of Education Level

Median Weekly Earnings, by gender, race, and education, 2019



While education is often thought of as a great equalizer, it does not shield women of color from the pay gap or the wealth gap.

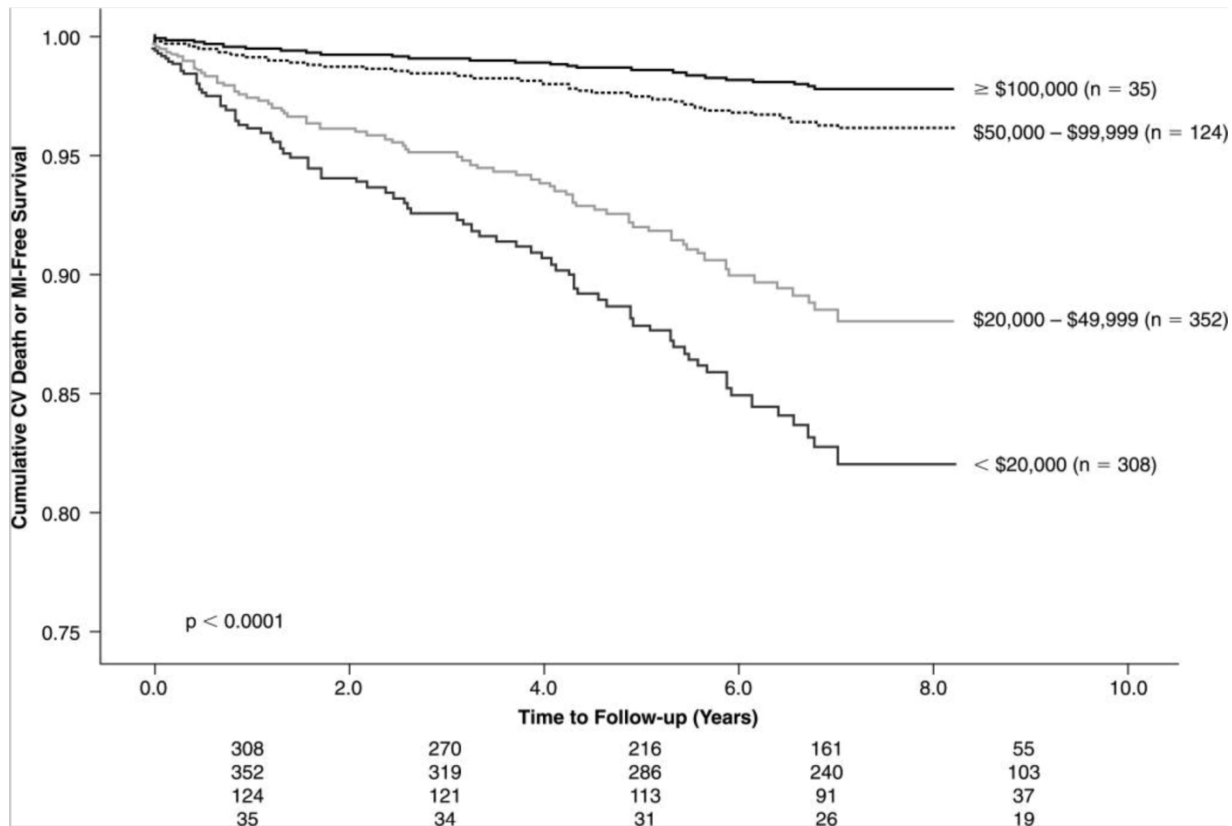
Latin women make less than NHW man at every education level.

U.S. Bureau of Labor Statistics (2020).



# Social Determinants of Health: Why Equal Pay Matters?

Women's Ischemia Syndrome Evaluation (WISE) study

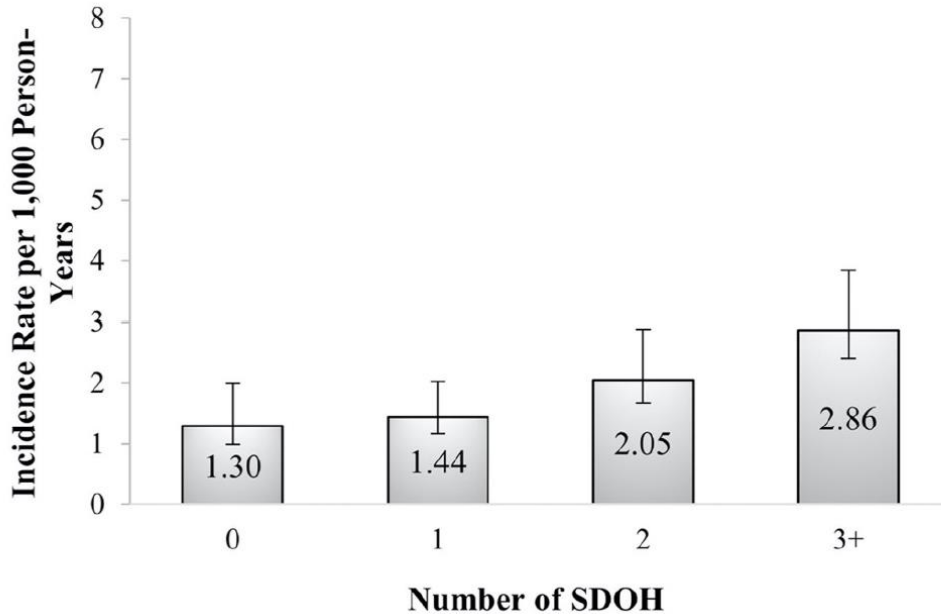


Lower Income is associated with Higher Risk of Cardiovascular Death.

Shaw LJ, et al. J Womens Health. 2008 Sep;17(7):1081-92.

# Risk of Heart Disease is Proportional to Number of Social Determinants of Health

## Incidence of Fatal Coronary Heart Disease



The higher the number of social determinants of health, the higher the risk of fatal coronary heart disease.

Race, low education, low annual household income, zip code with high poverty, residence in the worst ranked states for health infrastructure, lack of health insurance, social isolation

# Role of Implicit Bias in Health Care Quality

- **Everyone, including physicians and healthcare professionals have implicit biases**
  - Unconscious beliefs that impact the way they interact with others
  - Lead to unintended inequalities or disparities
- **Biases can be about race, gender, weight, sexuality, socioeconomic class**



# Sex Disparities in Treatment of Heart Attacks

**Women with STEMI are more likely than men to present without chest pain**

**Women are more likely to present with associated symptoms: atypical chest pain, shortness of breath, weakness, fatigue, and indigestion**

**Women presenting with STEMI are less likely to have their symptoms recognized by a physician**

**Women are less likely to receive angiography, intervention and medical treatment following a heart attack**

*Mehta L, Beckie T, DeVon, H et al. Acute Myocardial Infarction in Women: A Scientific Statement From the American Heart Association. Circulation 2016;133(9):916-947.*

*Coutinho T et al. Curr Treat Options Med. 2018*

*Disparities identified in post-heart attack treatment between women and men. The Blue Cross Blue Shield Association. Published 29 September 2015. <https://www.bcbs.com/the-health-of-America/reports/disparities-identified-post-heart-attack-treatment-between-women-and-men>. Accessed 3 April 2020.*

# Gap in Clinical Studies on Heart Disease in Women



## Be inclusive

- Avoid upper and lower age limits in exclusion criteria for enrolment in trials



## Exchange knowledge

- Educate recruiting personnel on importance of enrolling women
- Share experience of enrolling women after each study
- Conduct routine surveys on motivations for participation and non-participation in trials



## Meet women where they are

- Target outreach in community settings frequented by women
- Involve primary care physicians and family members
- Provide education and information about the risk but also the benefits of participation



## Remove barriers

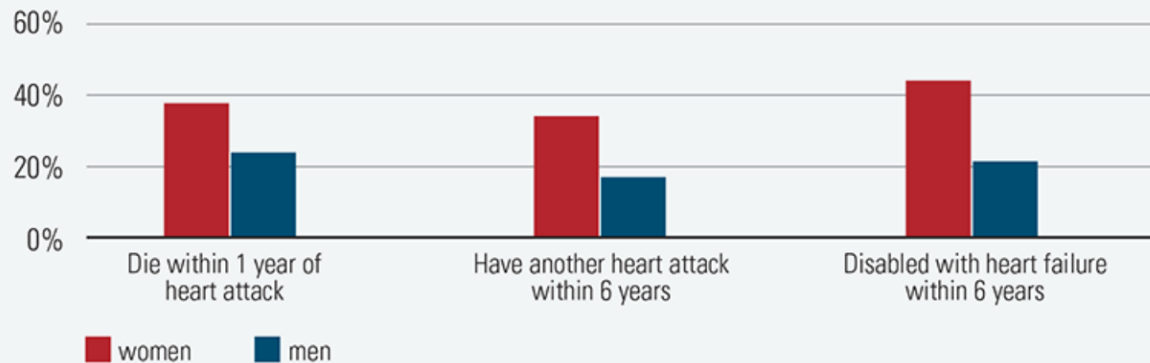
- Arrange childcare and free transportation
- Offer flexible hours and at-home follow-up

- Female research subjects are underrepresented in clinical studies related to heart disease.
- Treatment is based on research in middle-aged men which may not be appropriate for older women.

*Not Enough Women Included in Some Heart Disease Clinical Trials. American College of Cardiology. Published 30 April 2018. <https://www.acc.org/about-acc/press-releases/2018/04/30/14/32/not-enough-women-included-in-some-heart-disease-clinical-trials>. 6 April 2020.*

# Sex Disparity in Cardiovascular Outcomes: In the US a Women with a Heart Attack Has Worse Outcomes than a Men with a Heart Attack

OUTCOME AND FATALITY COMPARISON BETWEEN WOMEN AND MEN

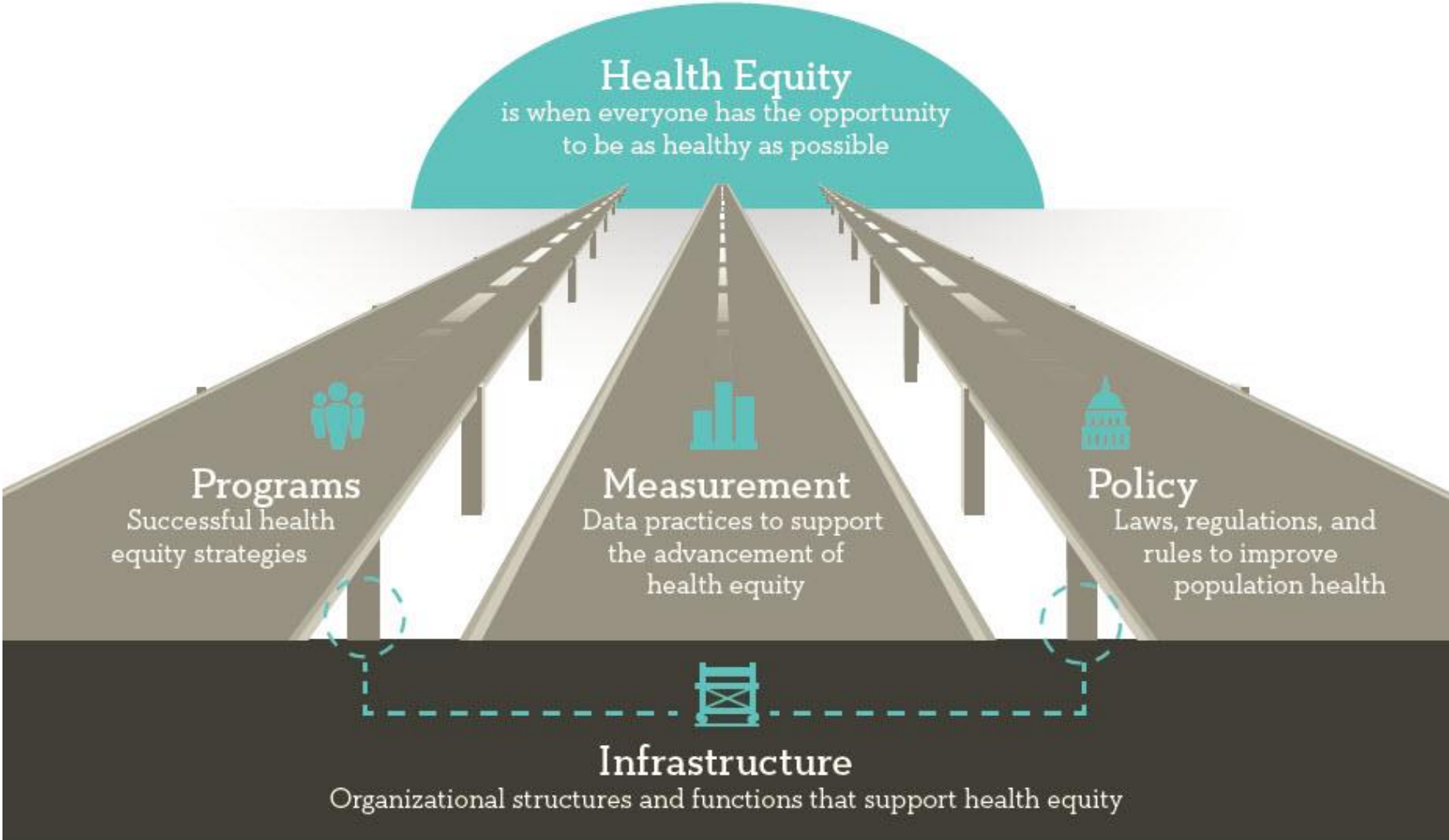


Source: Report from the American Heart Association Statistics Committee and Stroke Statistics Subcommittee

- Women are more likely than men to **die within 1 year**
- Women are more likely to have **another heart attack within 6 years**
- Women are more likely to be **disabled with heart failure within 6 years**
- A result of misdiagnoses, delays in identification of heart attack and delays in treatment

*Disparities identified in post-heart attack treatment between women and men. The Blue Cross Blue Shield Association. Published 29 September 2015. <https://www.bcbs.com/the-health-of-America/reports/disparities-identified-post-heart-attack-treatment-between-women-and-men>. Accessed 3 April 2020.*

# PAVING THE ROAD TO HEALTH EQUITY





## The Evolution of the Quintuple Aim

Health Equity, Health Outcomes, and the Economy

Dipti Itchhaporia, MD, FACC, *President, American College of Cardiology*



Triple Aim  
2007

- 1. Improved Patient Experience
- 2. Better Outcomes
- 3. Lower Costs

Quadruple Aim  
2014

4. Clinician Well-Being

Quintuple Aim  
2021

5. Health Equity

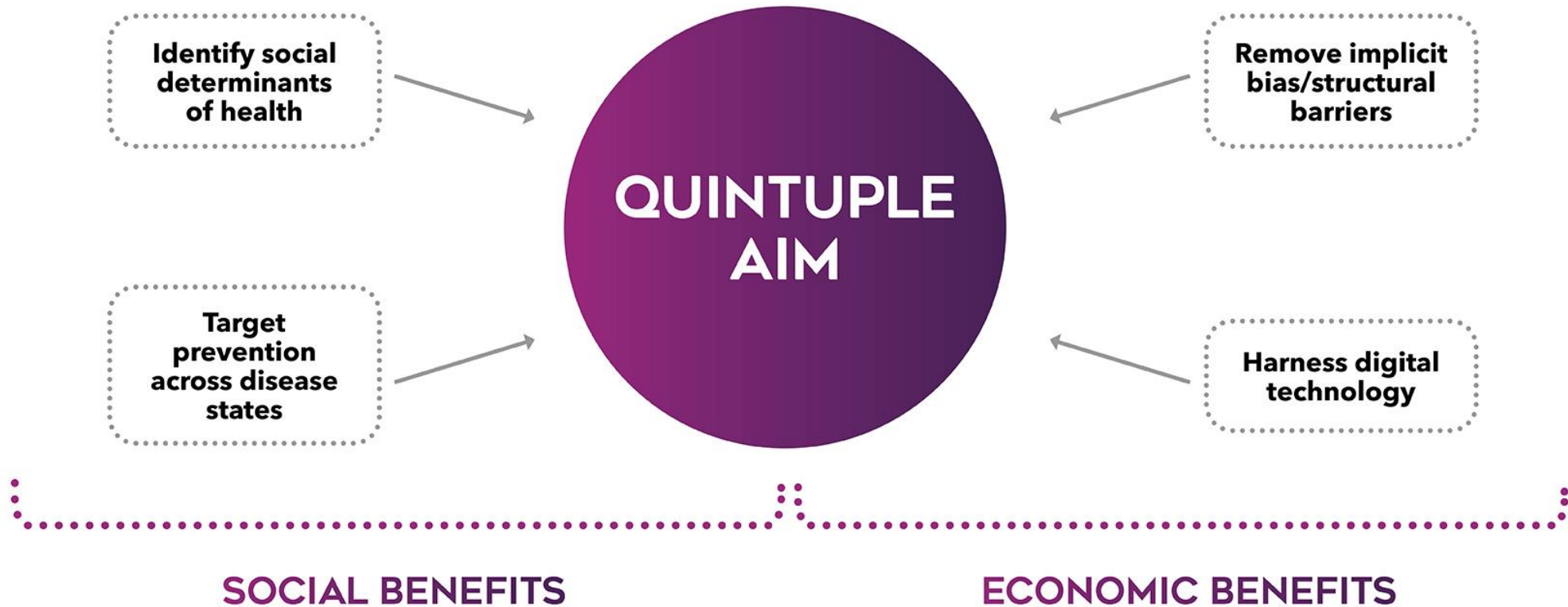
Better Health

Improved Economy

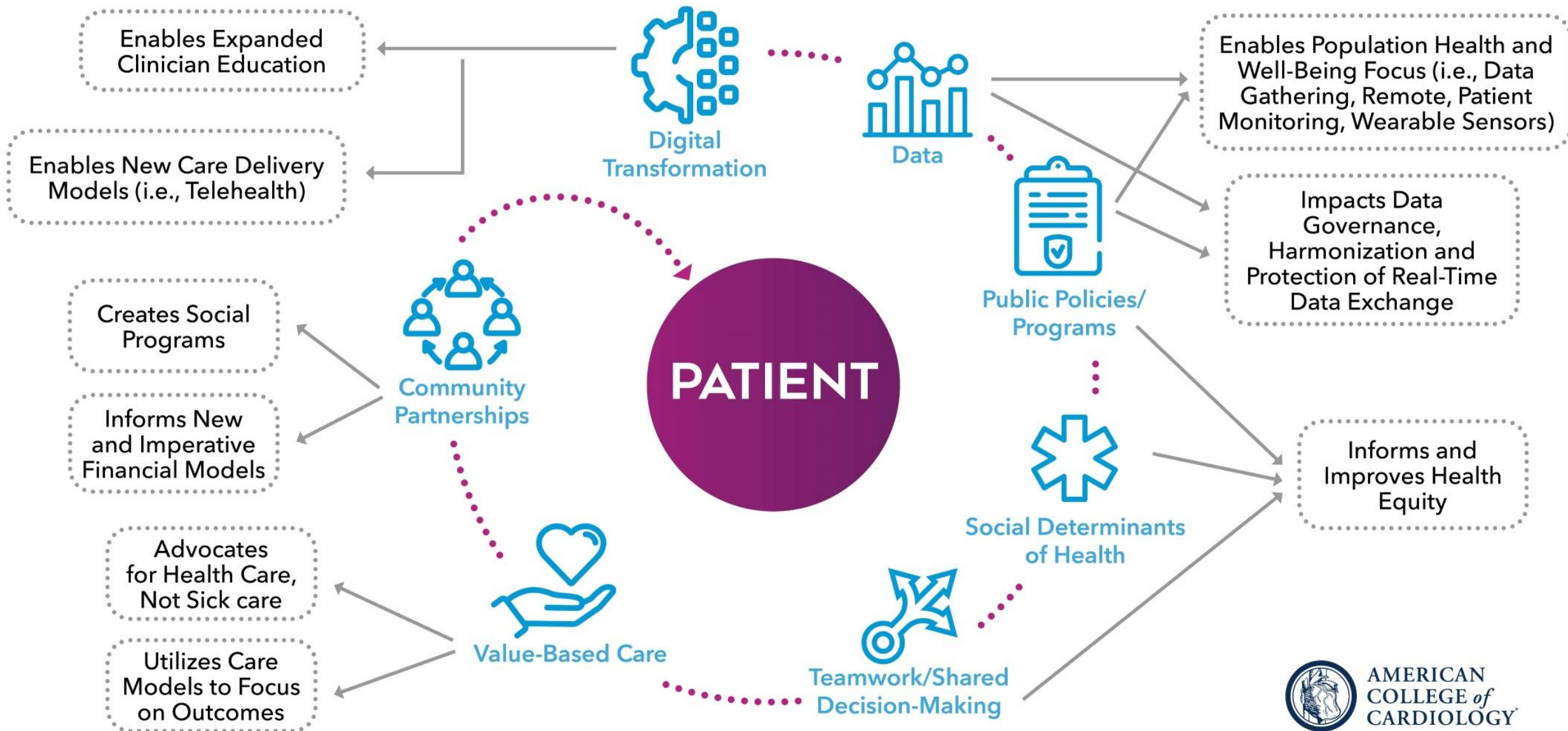
Itchhaporia D. The Evolution of the Quintuple Aim: Health Equity, Health Outcomes, and the Economy. *J Am Coll Cardiol.* 2021 Nov 30;78(22):2262-2264.

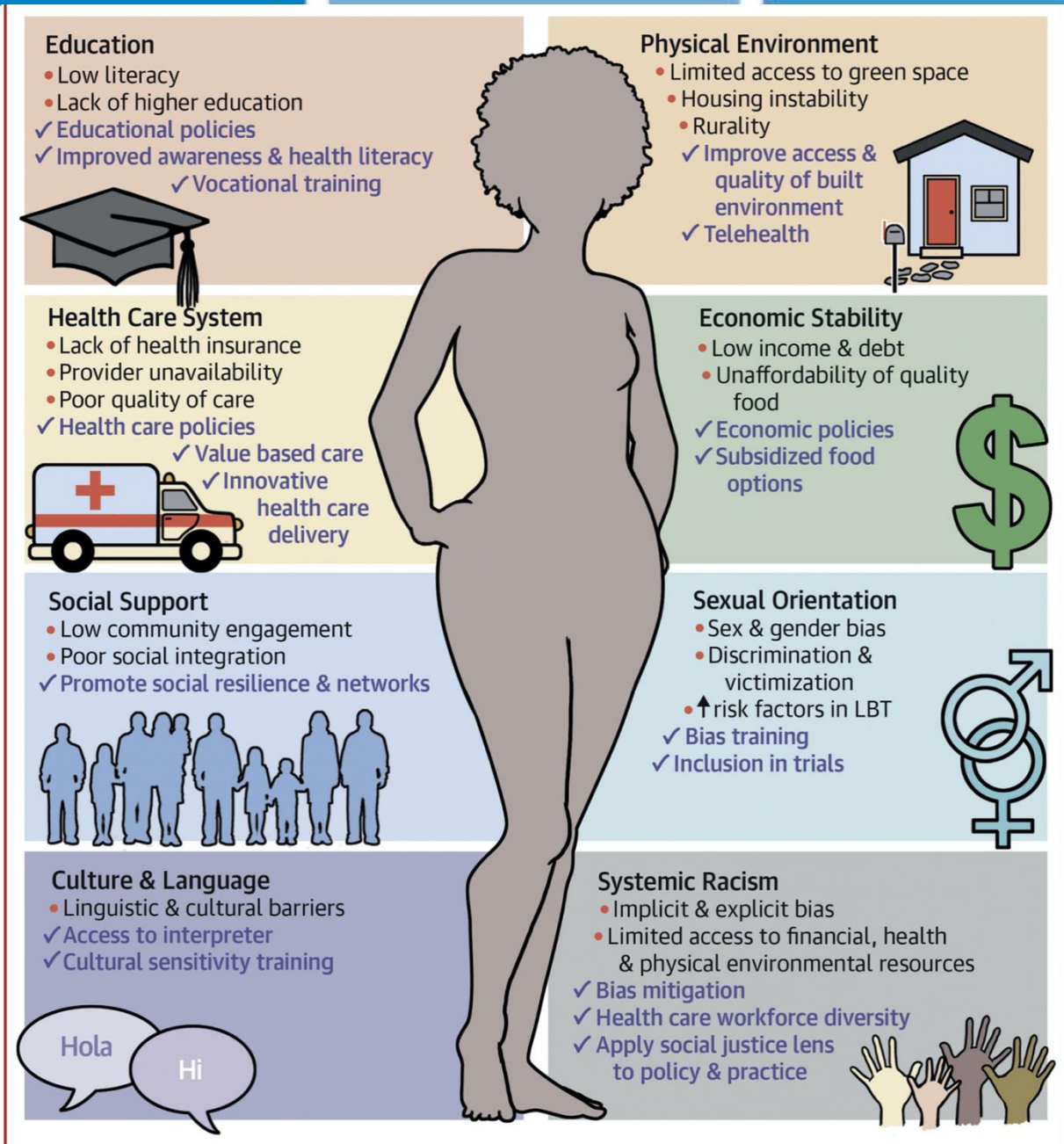


# RETHINKING THE APPROACH TO HEALTH CARE



# ELEMENTS OF HEALTH CARE TRANSFORMATION





Lindley KJ...Quesada O, et al. JACC 2021; 78(19): 1919-1929

BE YOUR OWN HEART HERO



**HEART DISEASE**  
causes more women's deaths than all cancers, including breast cancer.

**KNOW YOUR RISKS**  
At each health visit, talk about what increases the chance you will have heart disease or a stroke:  
**Smoking, inactivity, diabetes, high blood pressure, high cholesterol, and calcium buildup** in your arteries can affect your heart.  
Others factors such as **race** (South Asian, Black) also are linked with higher risk.

**STAND UP for your HEALTH!**  
• GET SCREENED every year  
• DON'T IGNORE symptoms  
• ASK QUESTIONS about your heart health

Women who served in the **MILITARY** have **HIGHER RATES** of heart disease than civilian women.

**FEMALE SPECIFIC CONCERNS**

- Health problems during pregnancy (gestational high blood pressure/preeclampsia, gestational diabetes, preterm delivery)
- Many ovarian cysts (polycystic ovarian syndrome)
- Breast cancer
- Oral birth control if you smoke
- Inflammatory diseases (lupus or rheumatoid arthritis) more common in women

For more information, visit [CardioSmart.org/Women](http://CardioSmart.org/Women)  
@CardioSmart

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THANK YOU!

Dipti Itchhaporia, MD, MACC, FAHA, FESC, FRCP  
[drdipti@yahoo.com](mailto:drdipti@yahoo.com)

 @ditchhaporia

Odayme Quesada, MD, MHS, FACC, FAHA  
[Odayme.Quesada@gmail.com](mailto:Odayme.Quesada@gmail.com)

 @OdaymeMD