

Foundations of Cardiometabolic Health Certification Course

Certified Cardiometabolic Health Professional (CCHP)



CVD and Cardiometabolic Considerations in Individuals From Racial/Ethnic Minority Groups

Keith C. Ferdinand, MD, FACC, FAHA, FASPC,
FNLA

Gerald S. Berenson Endowed Chair in Preventative Cardiology
Professor of Medicine
Tulane University School of Medicine
New Orleans, LA

Disclosures

- Any real or apparent COIs related to the presentation have been resolved
- *Speaker's Bureau*- None
- *Consultant*- Amgen, Novartis, Medtronic, Boehringer Ingelheim
- *Stocks*- None
- *Patents*- None

Outline

- Overview: Cardiometabolic Disparities and Inequities
- Hypertension with Diabetes
- Hypertension in Racial/Ethnic Populations
- Out of Office Self Measured Blood Pressure and Resistant Hypertension
- Heart Failure and Sudden Death
- Diabetes and Heart Failure
- Heart Failure with Preserved Ejection Fraction
- Lipids in Racial/Ethnic Populations
- Eliminating Disparities
- Patient Cases

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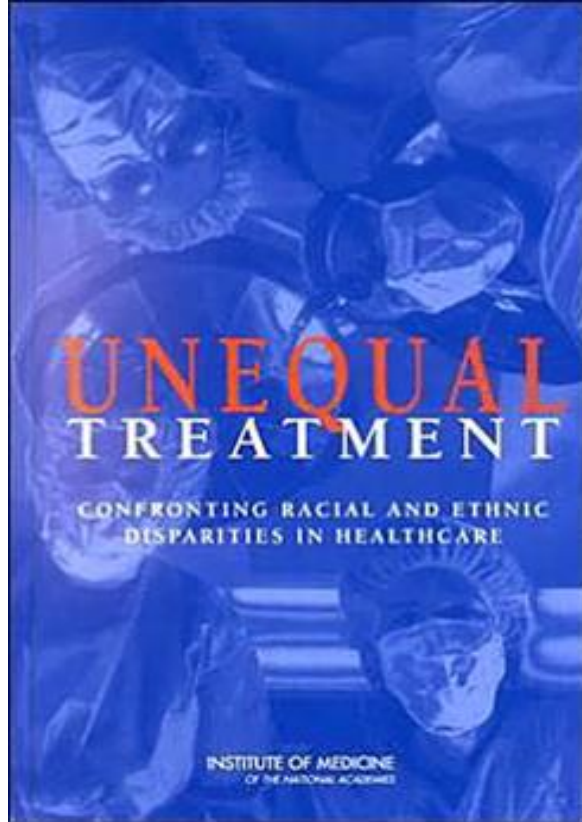
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Overview: Cardiometabolic Disparities and Inequities

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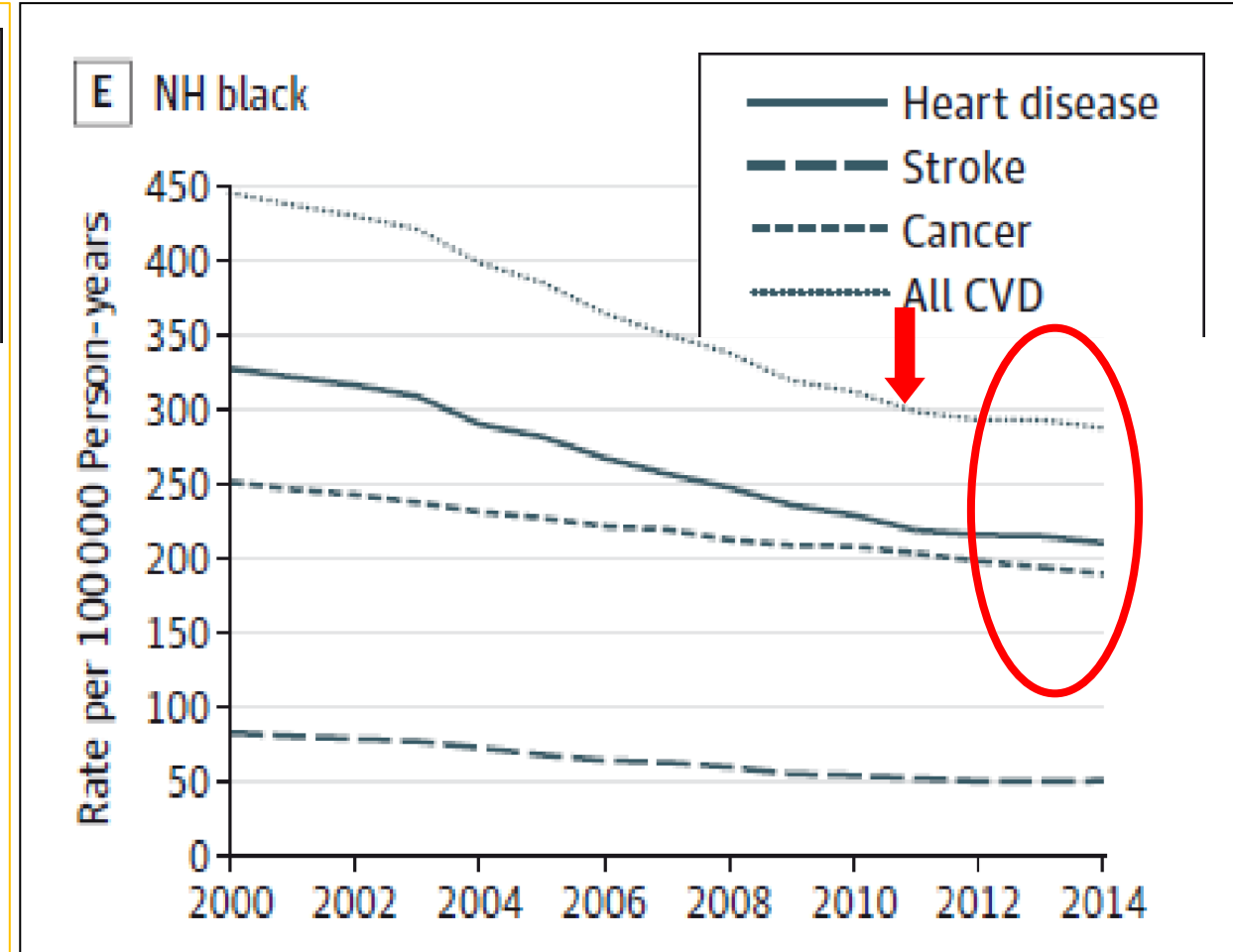
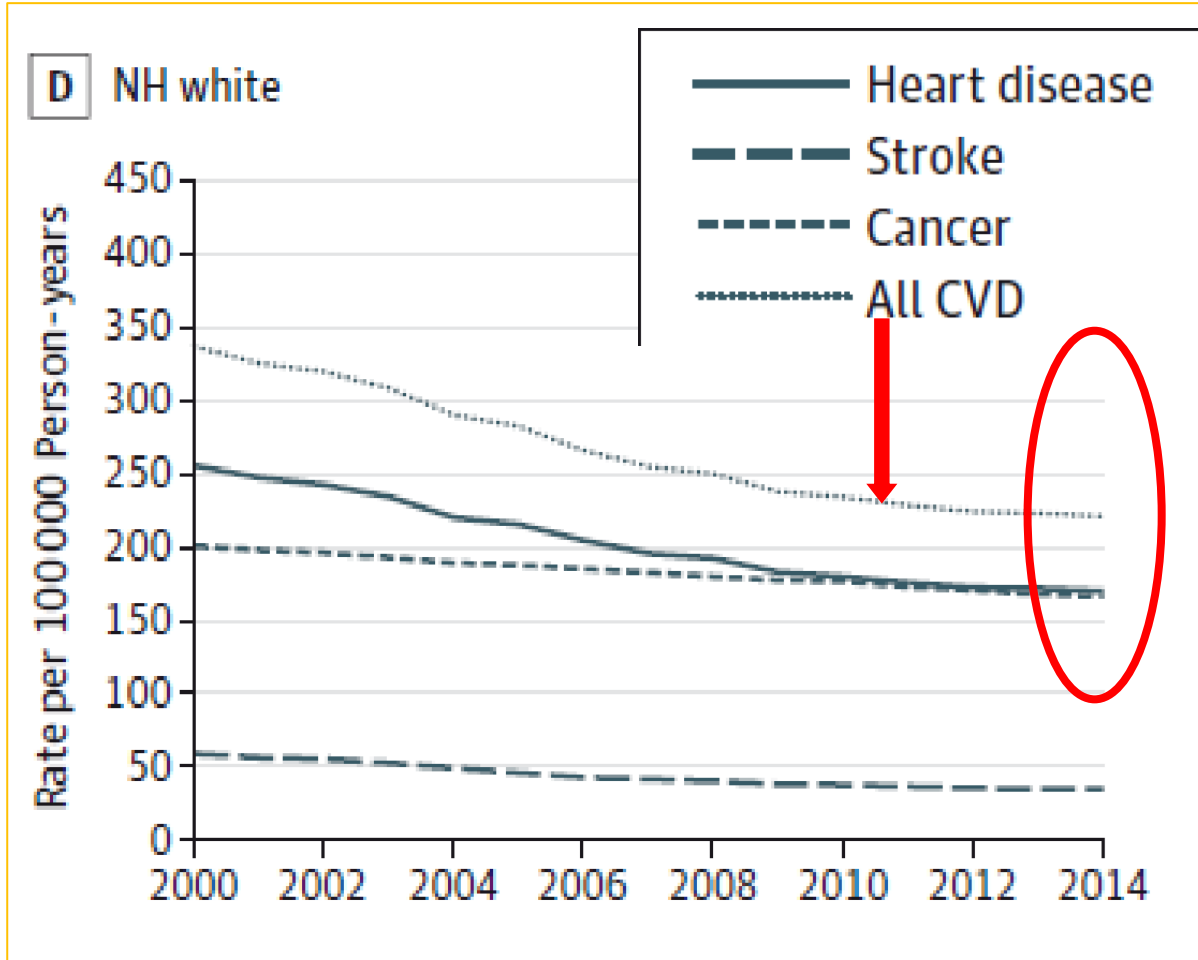
Introduction: the Past is Prologue



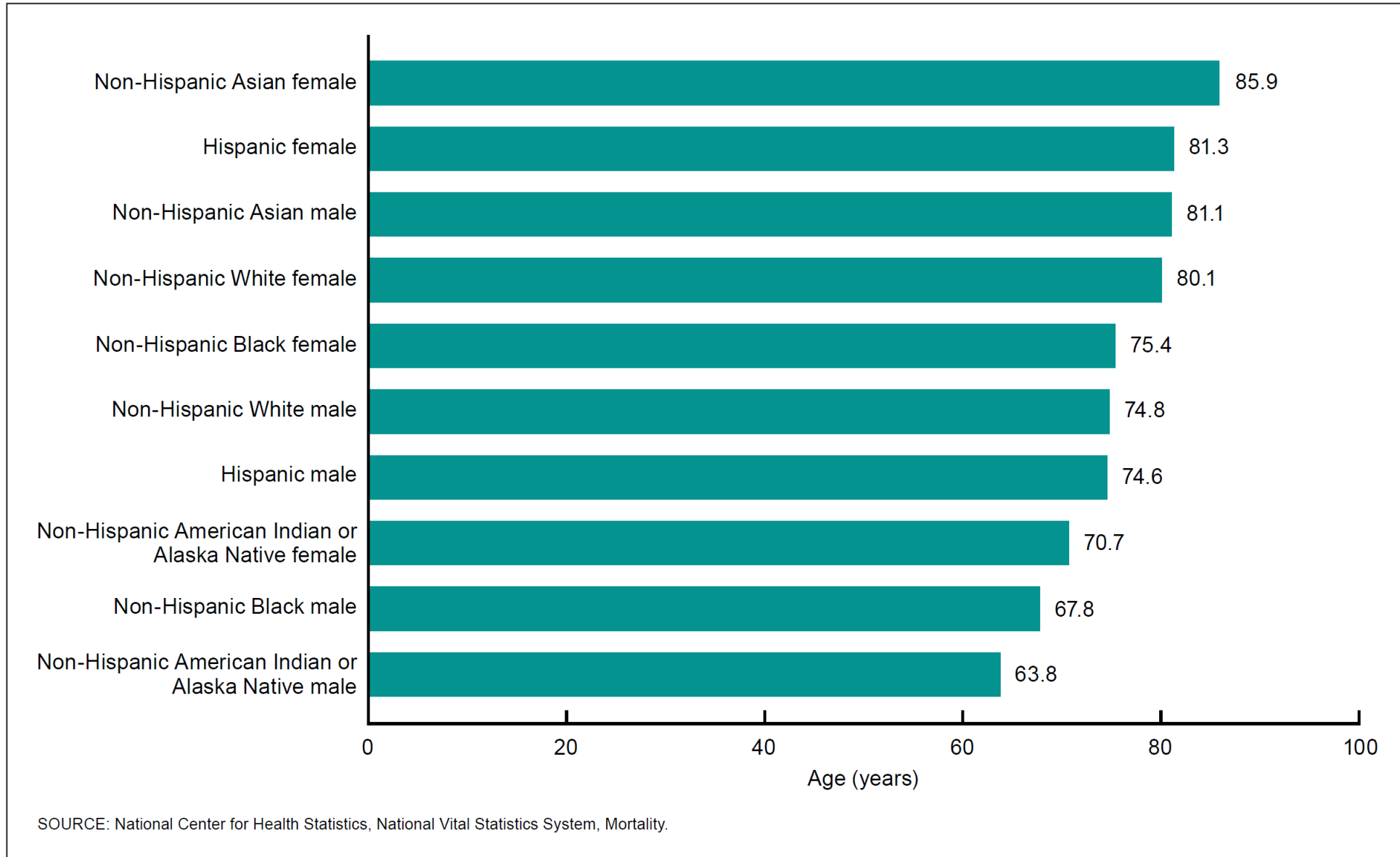
- Health, life expectancy, and care improved dramatically for Americans over last century
- Distribution of benefits not occurred equitably
 - **Current mortality gap between black & white persistent since 1960**
- African Americans: higher risk for HTN, DM, obesity, MI, stroke, CKD, ESRD, and CV mortality, especially premature cardiac death

Mortality rates:

Higher in Non-Hispanic Black Adults vs. White Adults

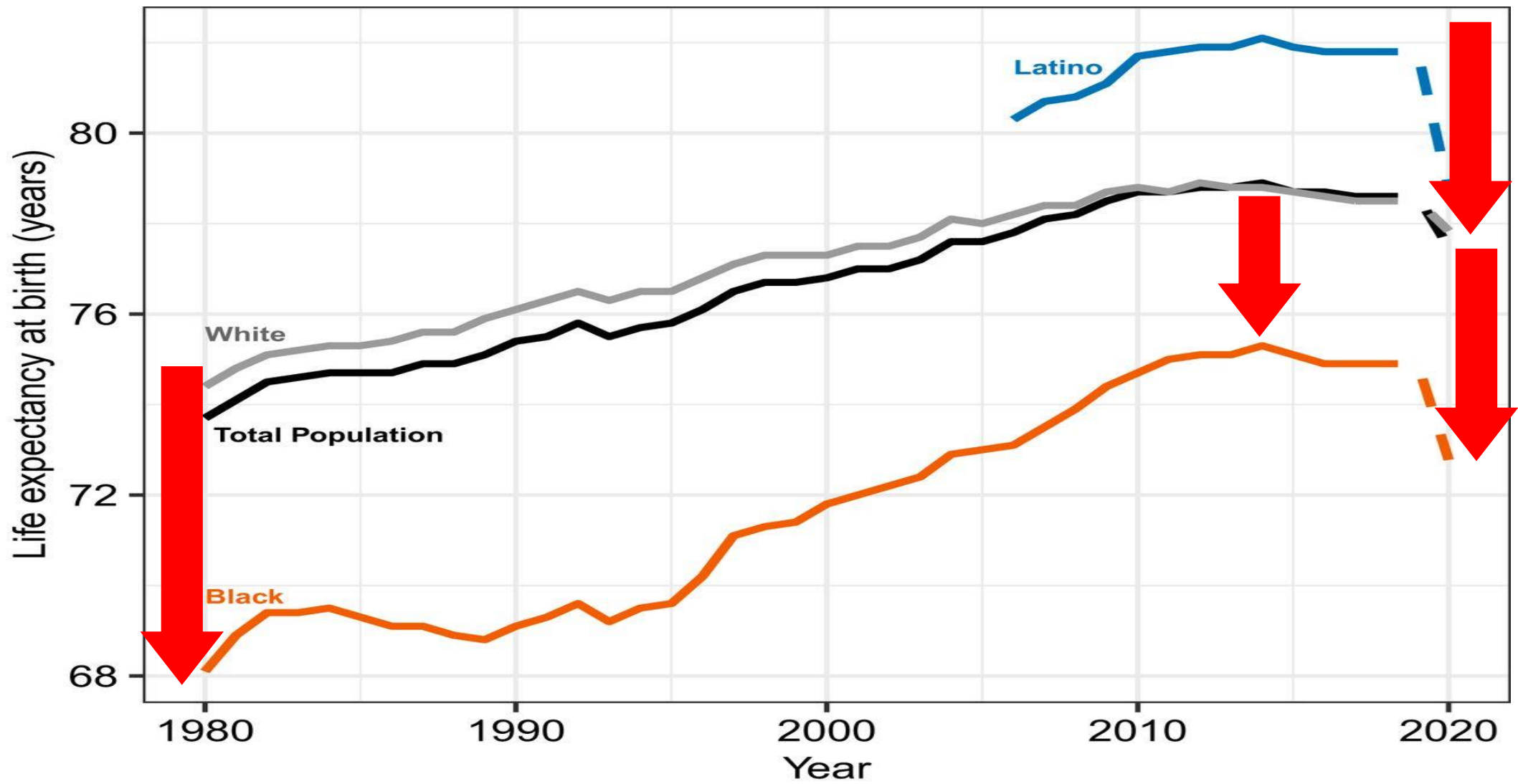


Life Expectancy by Race and Hispanic Origin and Sex, U.S. 2020



Most Prevalent Hypotheses: Favorable Hispanic Mortality

- ➔ Healthy migrant effect -Hispanic immigrants selected for good health and robustness
- ➔ “Salmon bias”- U.S. Hispanic residents may return to country of origin to die or when ill
- ➔ “Cultural effect”: culturally-influenced family structure, lifestyle behaviors, and social networks may confer a protective barrier against of low SES and minority status



Mortality rates by Cardiovascular Disease

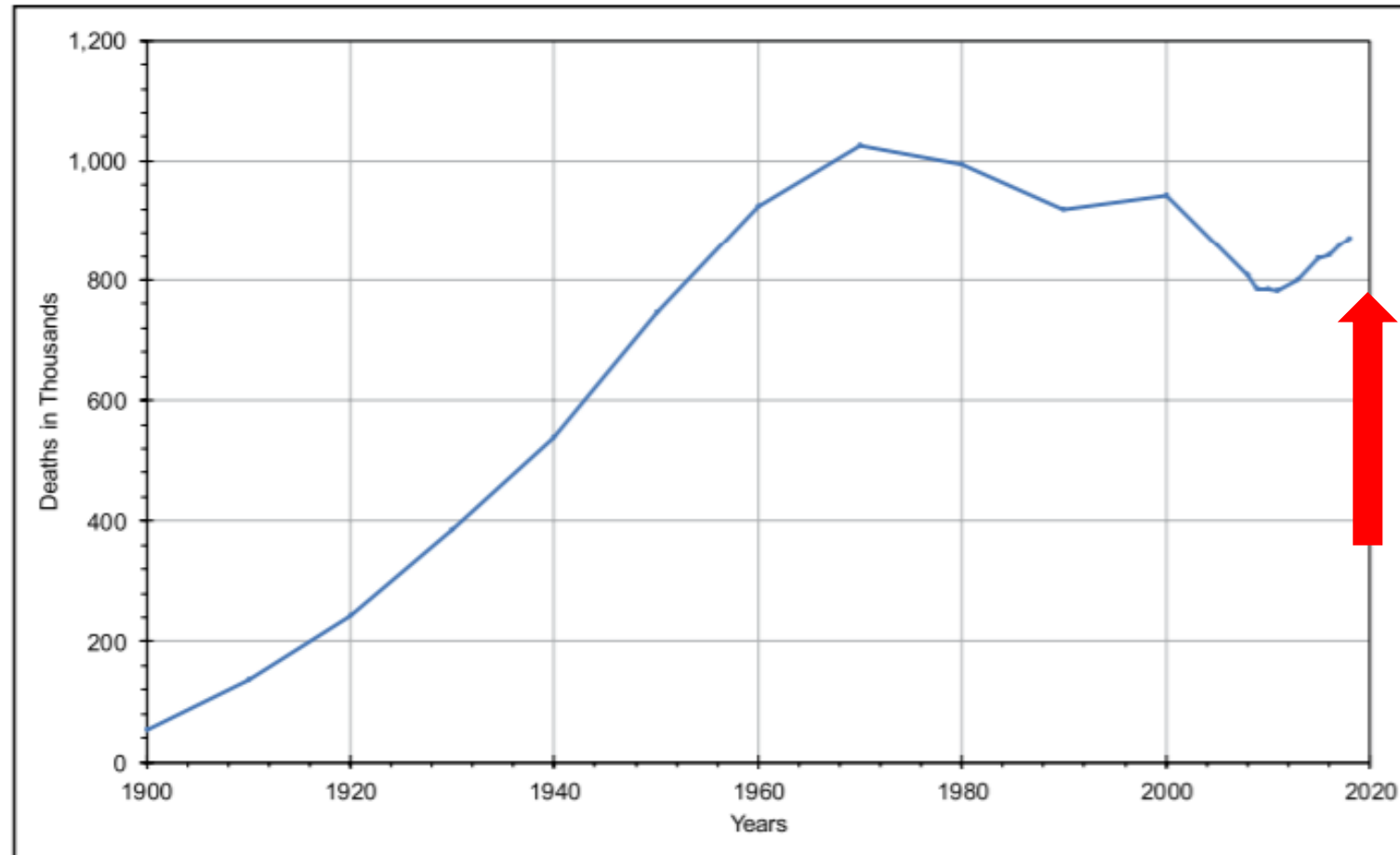


Chart 14-3. Deaths attributable to cardiovascular disease (CVD), United States, 1900 to 2018.

CVD (*International Classification of Diseases, 10th Revision* codes I00–I99) does not include congenital heart disease. Before 1933, data are for a death registration area, not the entire United States.

Source: Unpublished National Heart, Lung, and Blood Institute tabulation using National Vital Statistics System.³⁶

TABLE 1 Key Definitions for Cardiology

Health Inequities in Cardiology: Systemic, avoidable, and often unjust societal factors, structural practices, and racism that create barriers to opportunity and result in avoidable adverse health status and outcomes.

Health Disparities in Cardiology: Adverse cardiovascular outcomes and/or health status that is attributable to systemic, avoidable, and unjust societal factors, structural practices, including racism. Health inequities in cardiology cause cardiac health disparities.

Health Equity in Cardiology: A human right that allows everyone to achieve the best attainable cardiovascular health and outcomes by overcoming all avoidable barriers.

Social Determinants of Health Cardiovascular Health: Social, economic, educational, and environmental conditions that influence the cardiovascular health of individuals, families, and communities.

Definitions developed by the ACC Health Equity Task Force. More information is available at [ACC.org/Diversity](https://www.acc.org/Diversity).

Which of these describes health inequities in cardiology?

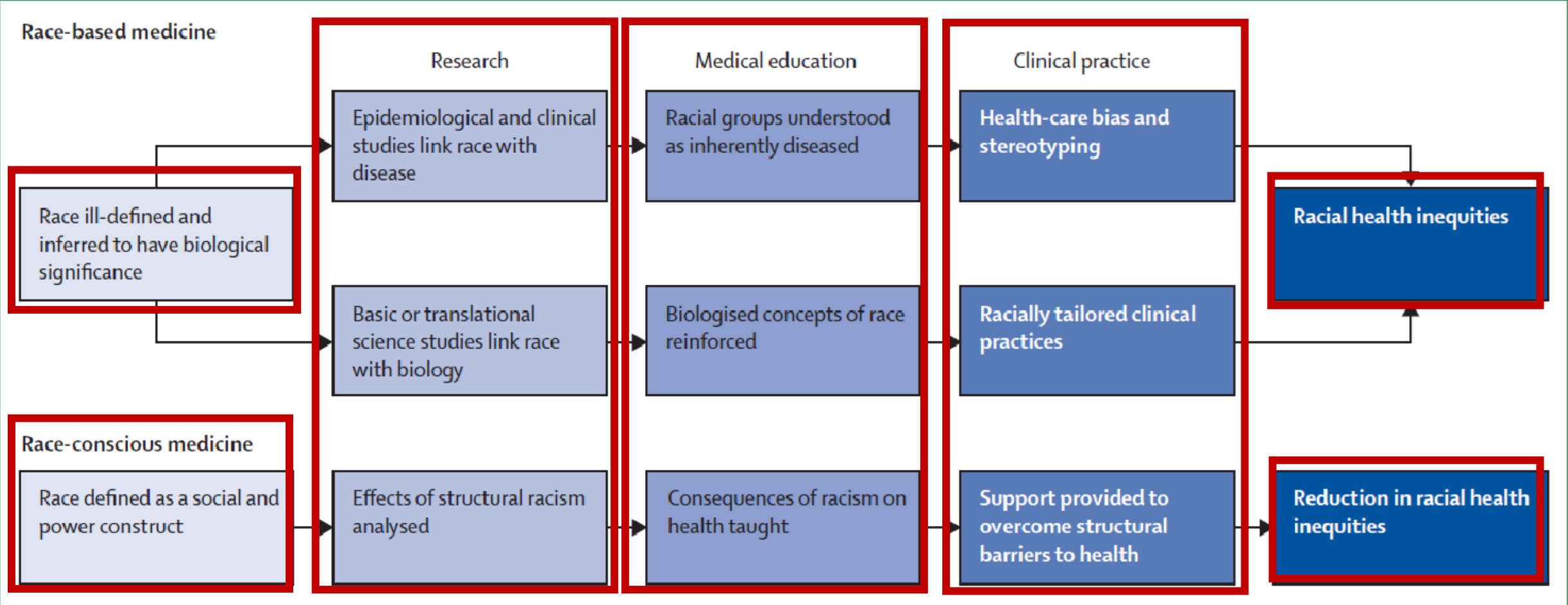
- a) Systemic, avoidable, and often unjust societal factors, structural practices, and racism that creates barriers
- b) Adverse cardiovascular outcomes and/or health status
- c) A human right that allows everyone to achieve best attainable cardiovascular health and outcomes
- d) Social, economic, educational, and environmental conditions that influence cardiovascular health

Which of these describes health inequities in cardiology?

- a) Systemic, avoidable, and often unjust societal factors, structural practices, and racism that creates barriers
- b) Adverse cardiovascular outcomes and/or health status
- c) A human right that allows everyone to achieve best attainable cardiovascular health and outcomes
- d) Social, economic, educational, and environmental conditions that influence cardiovascular health

How Race-based Medicine Leads to Racial Health Inequities

An Alternative approach to race-conscious medicine; defined as medical practice and pedagogy that accounts for how structural racism determines illness and health



Social Determinants of Health (SDH)

AHA Scientific Statement

Social Determinants of Risk and Outcomes for Cardiovascular Disease

A Scientific Statement From the American Heart Association

Edward P. Havranek, MD, FAHA, Chair; Mahasin S. Mujahid, PhD, MS, Co-Chair; Donald A. Barr, MD, PhD; Irene V. Blair, PhD; Meryl S. Cohen, MD, FAHA; Salvador Cruz-Flores, MD, FAHA;

George Davey-Smith, MA(Oxon), MD, BChir(Cantab), MSc(Lond);

Cheryl R. Dennison-Himmelfarb, RN, PhD, FAHA; Michael S. Lauer, MD, FAHA;

Debra W. Lockwood; Milagros Rosal, PhD; Clyde W. Yancy, MD, FAHA; on behalf of the American Heart Association Council on Quality of Care and Outcomes Research, Council on Epidemiology and Prevention, Council on Cardiovascular and Stroke Nursing, Council on Lifestyle and Cardiometabolic Health, and Stroke Council

Social Determinants of Health

SEP*

Race, Ethnicity

Social support

Culture and Language

Access to care

Residential environment

*SEP indicates socioeconomic position

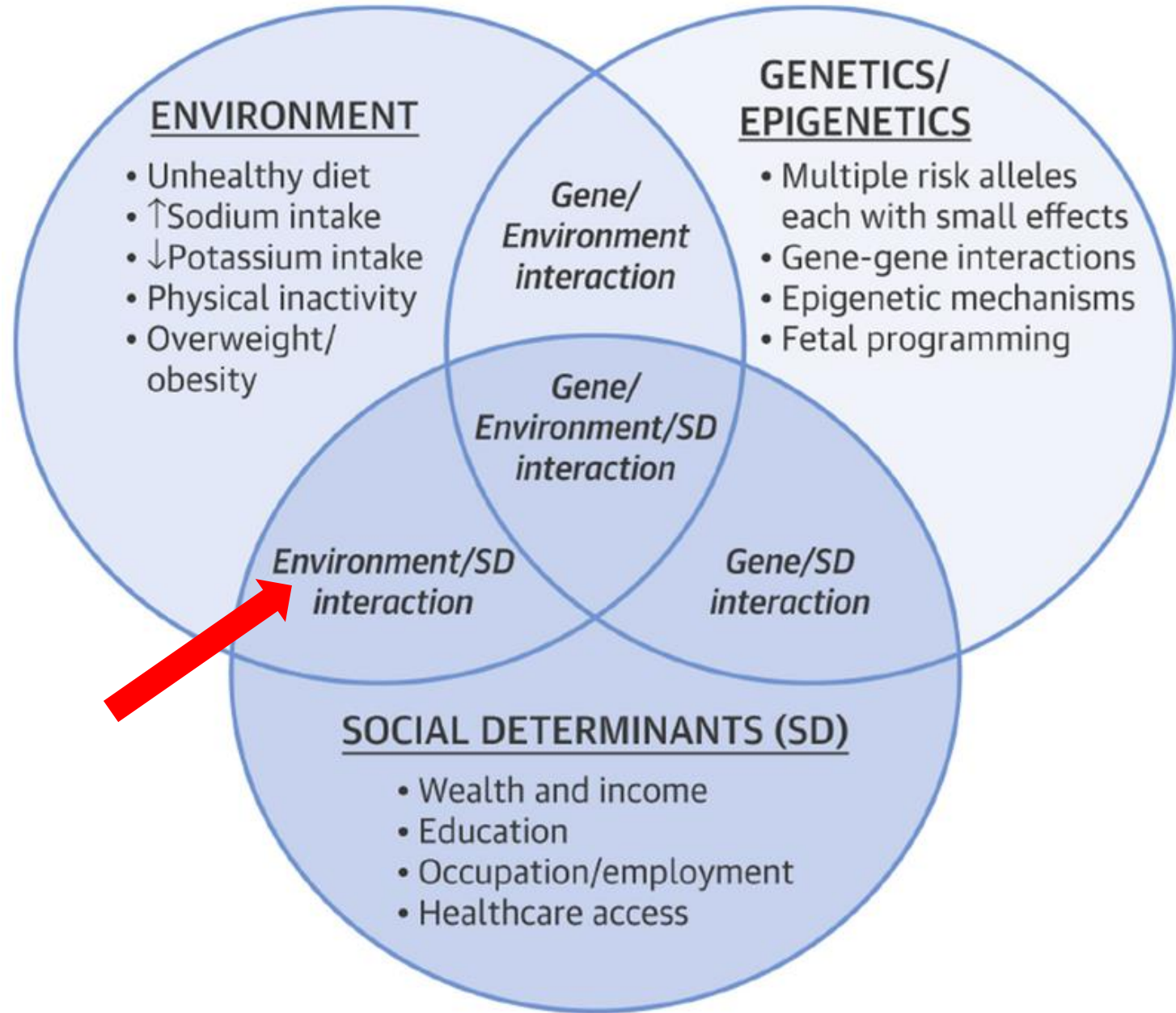
Nature

(genotype, race/ethnicity)

vs.

Nurture

(social determinants of health)



Income Disparities in Absolute Cardiovascular Risk and Cardiovascular Risk Factors in the United States, 1999-2014

Ayodele Odutayo, MD; Peter Gill, MD; Shaun Shepherd, BSc; Aquila Akingbade; Sally Hopewell, DPhil; Karthik Tennankore, MD; Benjamin H. Hunn, MBBS; Connor A. Emdin, DPhil

 [Supplemental content](#)

IMPORTANCE Large improvements in the control of risk factors for cardiovascular disease have been achieved in the United States, but it remains unclear whether adults in all socioeconomic strata have benefited equally.


OBJECTIVE To assess temporal trends in 10-year predicted absolute cardiovascular risk and cardiovascular risk factors among US adults in different socioeconomic strata.

DESIGN, SETTING, AND PARTICIPANTS A cross-sectional analysis was conducted using data on adults 40 to 79 years of age without established cardiovascular disease from the 1999 to 2014 National Health and Nutrition Examination Survey.

EXPOSURES Socioeconomic status was based on the family income to poverty ratio and participants were divided into the following 3 groups: high income (family income to poverty ratio, ≥ 4), middle income (>1 and <4), or at or below the federal poverty level (≤ 1).

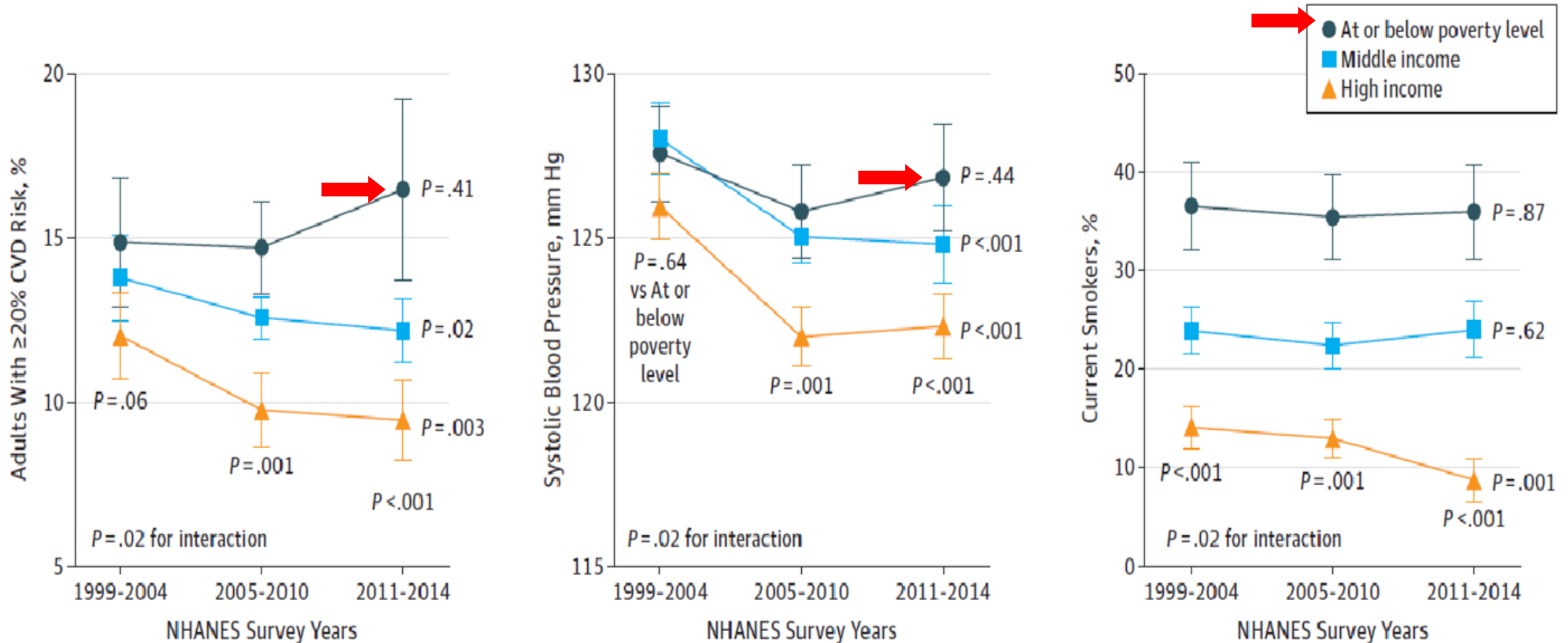
MAIN OUTCOMES AND MEASURES We assessed predicted absolute cardiovascular risk using the pooled cohort equation. We assessed the following 4 risk factors: systolic blood pressure, smoking status, diabetes, and total cholesterol.

Adults in each SES stratum have not benefited equally from efforts to improve control of CV risk factors

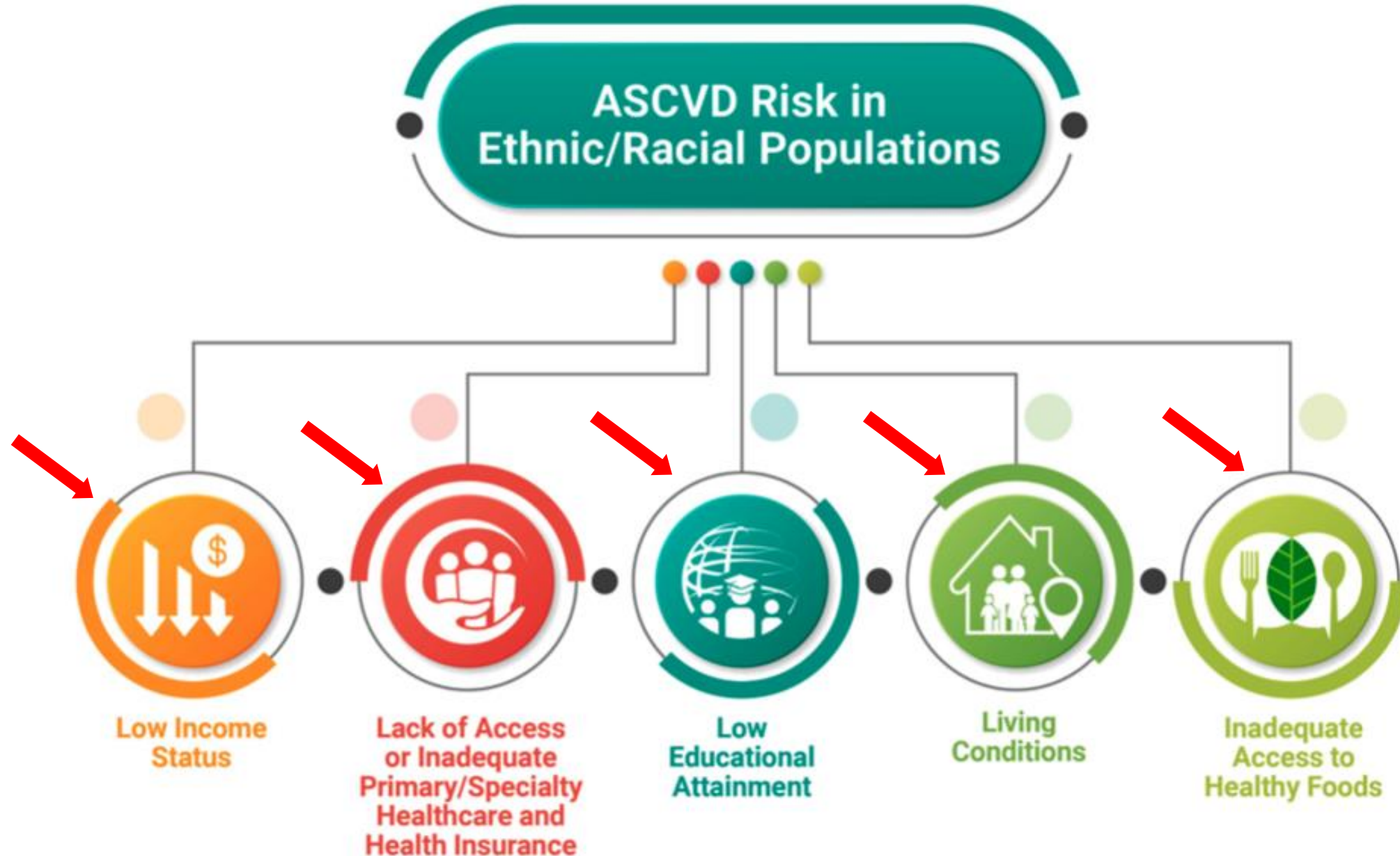


17,199 adults without established CVD

Figure 1. Trends in 10-Year Predicted Absolute Cardiovascular Disease (CVD) Risk, Mean Systolic Blood Pressure, and Smoking by Income Strata

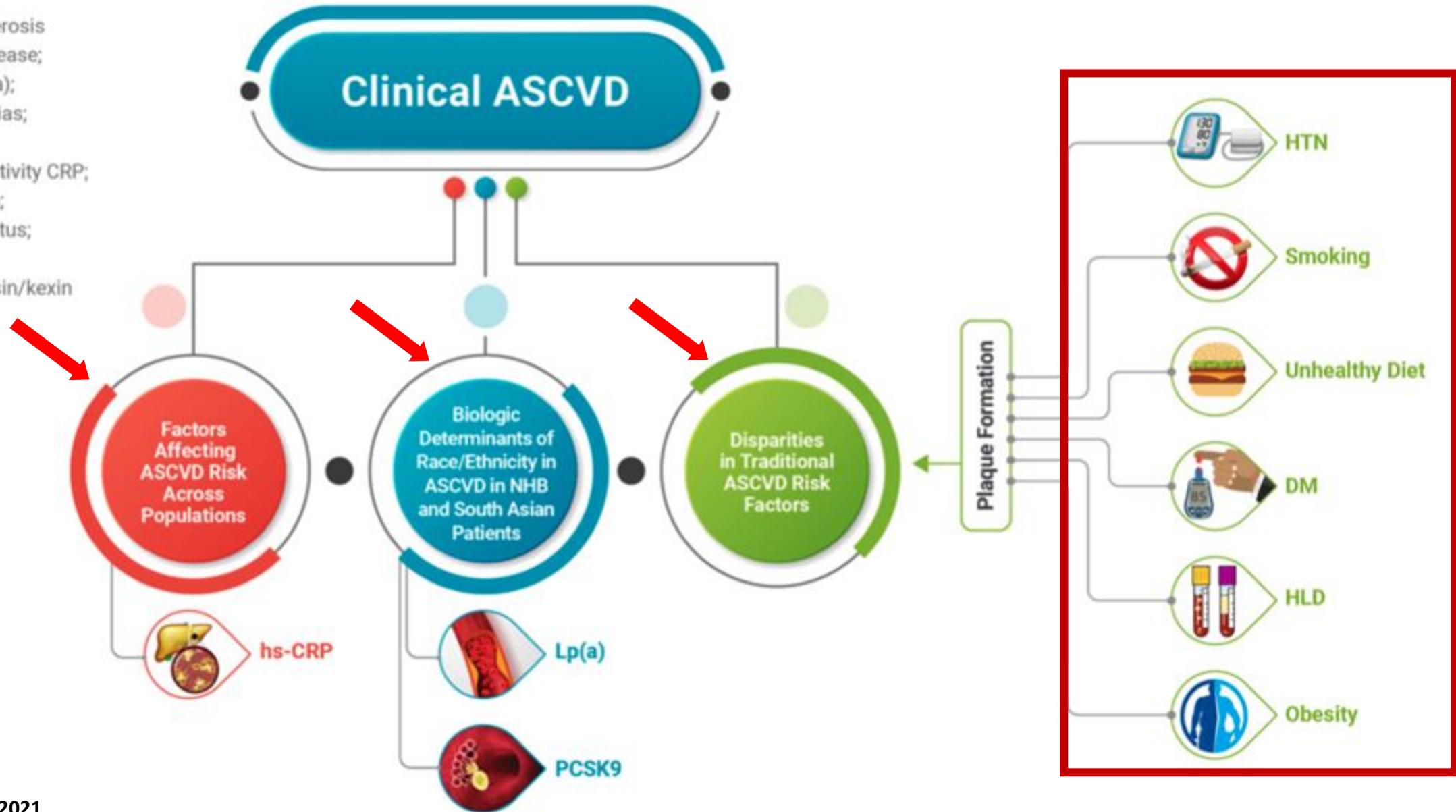


Factors of SDOH that Affect ASCVD Risk for Ethnic/Racial Populations

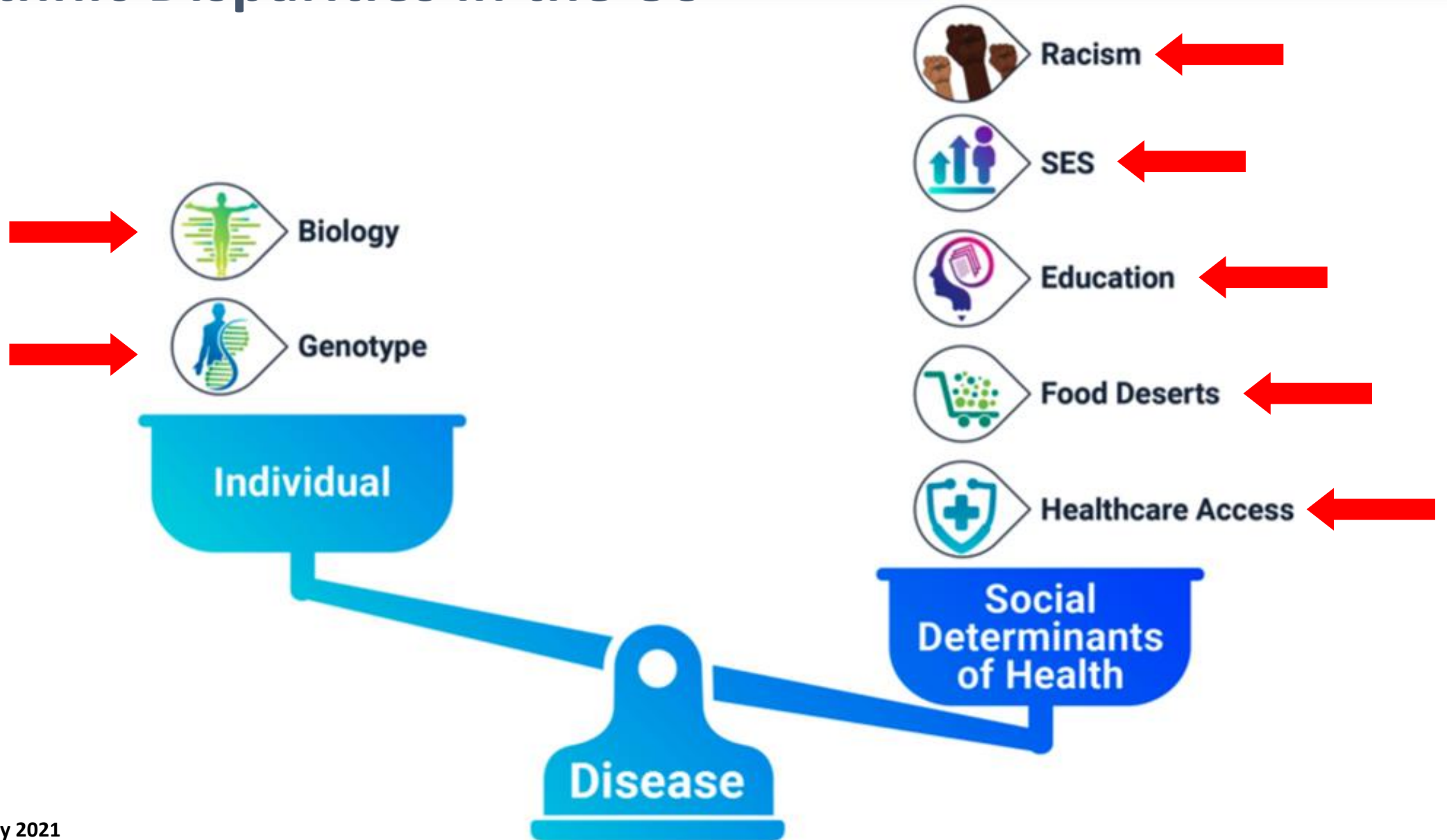


Contributions of Genetic and Biological Factors of Race-Ethnic Disparities in the US

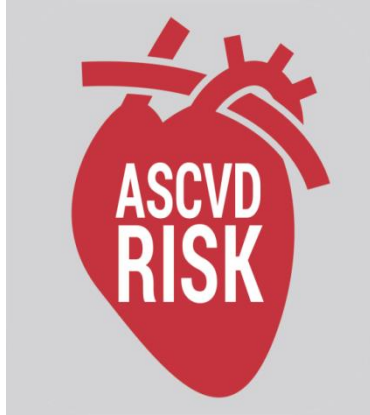
ASCVD- atherosclerosis cardiovascular disease;
Lp(a)- lipoprotein(a);
HLD- hyperlipidemias;
IL-6-interleukin-6;
hs-CRP- high sensitivity CRP;
HTN- hypertension;
DM- diabetes mellitus;
PCSK9-proprotein convertase subtilisin/kexin type 9



Contributions of Genetic and Biological Factors of Race-Ethnic Disparities in the US



ACC/AHA Pooled Cohort Equations ASCVD Risk Calculator



- Gender
- Age
- Race
- Total Cholesterol
- HDL Cholesterol
- Systolic BP
- Treatment for BP?
- Diabetes
- Smoking

AT&T 6:47 AM

Clear Cardiac Risk Assist Calc

Gender Male Female Race AA Non AA

SI Units Age (years) 40

Total Cholesterol (mg/dL) 150

HDL Cholesterol (mg/dL) 60

Systolic Blood Pressure (mmHg) 168

On Blood Pressure Medication Yes No

Diabetes Yes No

Smoker Yes No

Your 10-Year Risk of CVD	10-Year Risk of CVD in individual with optimal risk factor modification
1.7%	0.6%
Your Lifetime Risk of CVD	Lifetime Risk of CVD in 50 year-old with optimal risk factor modification
69.0%	5.0%

Calculator Recommendations Statin Therapy About

Which of the following is not a part of the ASCVD pooled cohort equation?

- a) Race
- b) Age
- c) Family history
- d) Diabetes

Which of the following is not a part of the ASCVD pooled cohort equation?

- a) Race
- b) Age
- c) Family history
- d) Diabetes



Contents lists available at [ScienceDirect](#)

American Journal of Preventive Cardiology

journal homepage: www.journals.elsevier.com/the-american-journal-of-preventive-cardiology



Improving the enrollment of women and racially/ethnically diverse populations in cardiovascular clinical trials: An ASPC practice statement



Erin D. Michos^{a,*}, Tina K. Reddy^b, Martha Gulati^c, LaPrincess C. Brewer^d, Rachel M. Bond^{e,f}, Gladys P. Velarde^g, Alison L. Bailey^h, Melvin R. Echolsⁱ, Samar A. Nasser^j, Harold E. Bays^k, Ann Marie Navar^l, Keith C. Ferdinand^b

Increasing Diversity in Participants in Cardiovascular Trials

Underrepresented

- Women & Diverse populations underrepresented relative to disease burden

Underreported

- Limited analysis based on sex or race for drug approval

Limits Potential

- Limits generalizability of trials and drugs, devices, or interventions to clinical practice

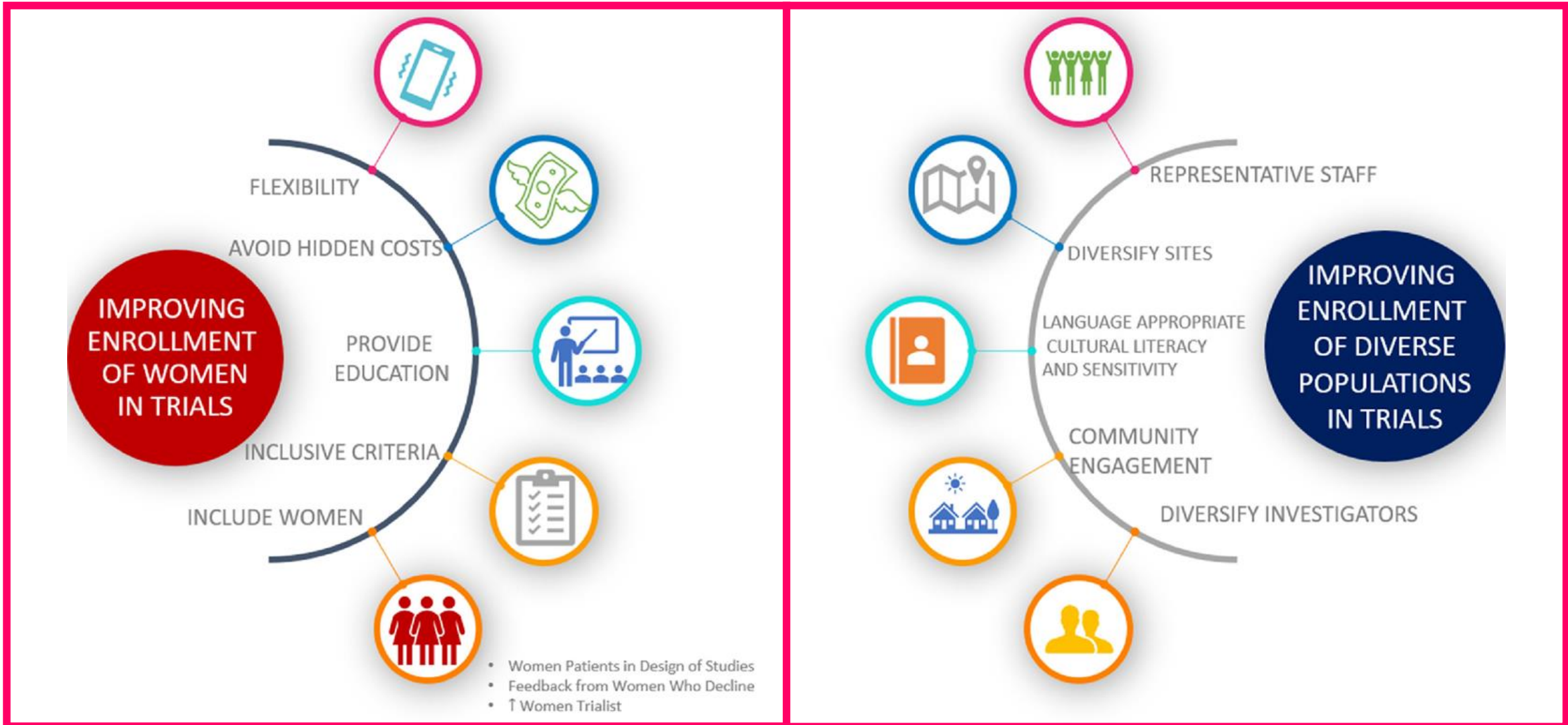
Barriers

- Restrictive eligibility criteria
- Lack of consideration of impact of participation
- Mistrust/Fear

Increasing Diversity

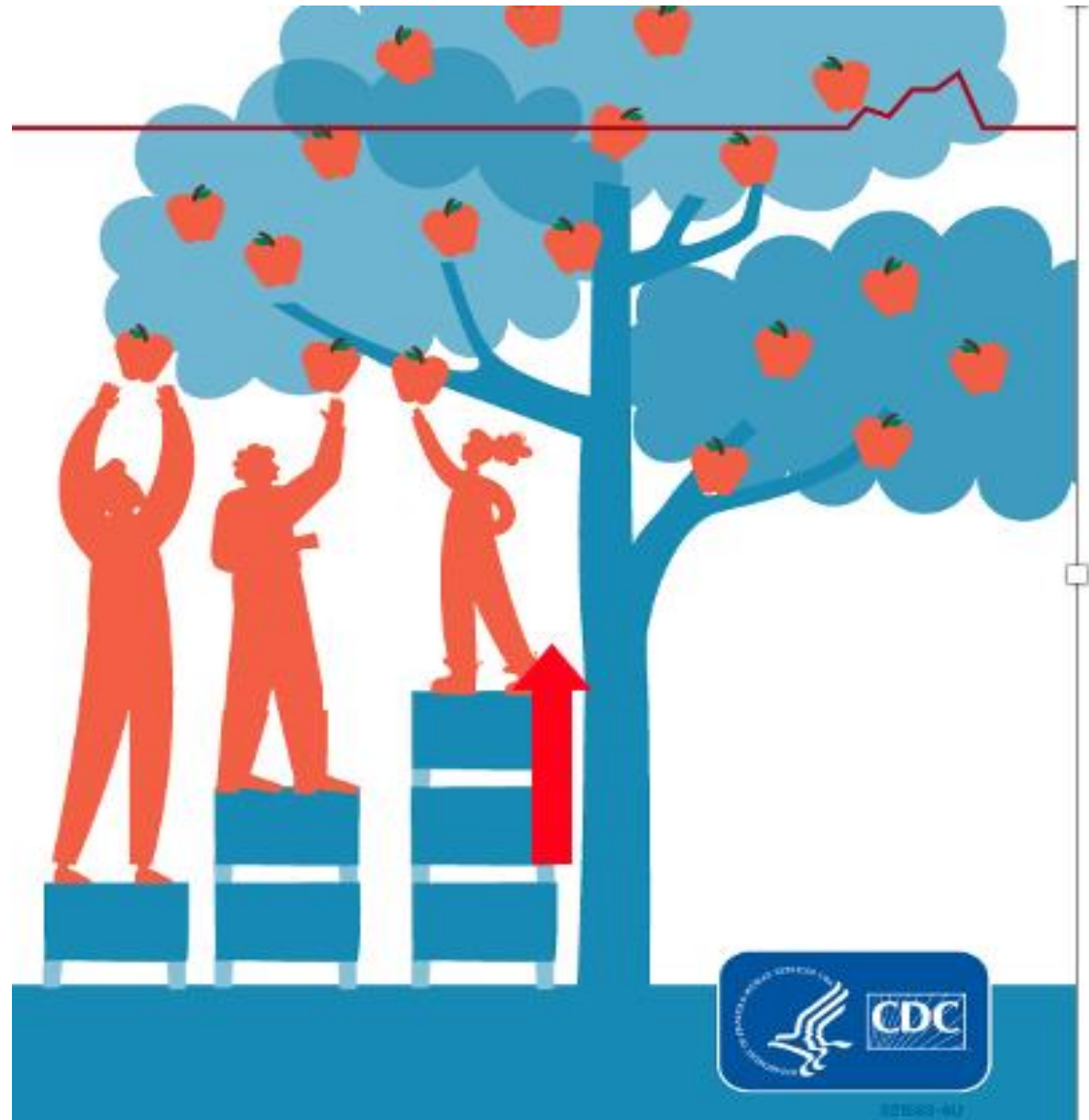
- Diversity Team & Trialists
- Education to Patients
- Community Engagement

Improving Diversity in Enrollment



Health Equity in Cardiology

Targeted interventions are needed to identify and eliminate disparities, based on race/ethnicity, sex/gender, geography or socioeconomic status



SUMMARY

Cardiometabolic and CVD disparities by race/ethnicity, geography and SES

- Exist
- Are sizeable
- Are likely multifactorial
- Rarely due to genetics
- Are persistent and unacceptable

Take Home Points

- Cardiovascular mortality is increasing in the US
- There are persistent and unacceptable racial/ethnic cardiovascular disease inequities
- influenced by uncontrolled risk factors and social determinants.
- To achieve health equity, cardiovascular clinicians must recognize unique presentations in racial/ethnic populations
- Equally apply and utilize evidence-based approaches to decrease morbidity and mortality.