MHIF FEATURED STUDY:

cvMOBIUS Registry

ENROLLING SOON:

EPIC message: *Research MHIF Patient Referral*

CONDITION:
Recent ASCVD Event

PI:
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SPONSOR:
Amgen

DESCRIPTION:

The purpose of cvMOBIUS (Cardiovascular Multi-dimensional Observational Investigation of the Use of PCSK9 Inhibitors) is **to evaluate the effectiveness of PCSK9 inhibitors to reduce cardiovascular events among subjects with a recent ASCVD event or revascularization procedure.**

While large randomized trials have shown additional lipid-lowering through PCSK9i can further reduce risk of ASCVD events, real-world effectiveness of PCSK9i in subjects with ASCVD events has yet to be established.

CRITERIA LIST/ QUALIFICATIONS:

Inclusion:

- ≥ 40 y.o.
- Hospitalization for a clinical ASCVD event (acute MI, unstable angina, IS or CLI) within 18 months of enrollment and/or coronary, peripheral, or carotid revascularization including percutaneous or surgical revascularization in the past 18 months
- LDL ≥ 70 mg/dL with no immediate plans for statin change or newly started on PCSK9i after index hospitalization/procedure (no more than 6 months prior to enrollment)

Exclusion: ESRD, on a PCSK9i prior to qualifying event

Equity in Cardiovascular Health Outcomes—Facts, Figures, and MHIF Strategies to Close the Gap

Courtney Jordan Baechler, MD, MS

Mosi Bennett, MD, PhD

Mario Goessl, MD, PhD

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Creating a World without Heart and Vascular Disease…

FOR

ALL

2

Context: Racial Disparities in Health

- African Americans have higher death rates than Whites for 12 of the 15 leading causes of death.
- Blacks and American Indians have higher age-specific death rates than Whites from birth through the retirement years.
- Hispanics have higher death rates than whites for diabetes, hypertension, liver cirrhosis & homicide
- Minorities get sick younger, have more severe illness and die sooner than Whites

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Historical Perspective

- Health disparities between blacks and whites since first settlers arrived
- Tuskegee Syphilis Trials
- 1990's University study on "genetic etiology of aggressive behavior"
- 2002 IOM *Unequal Treatment* disparities in health care delivery—less likely to be given appropriate cardiac meds, CABG
- 2004—systemic review of angiography, angioplasty, CABG, and lytics—21/23 showed that African Americans were less likely to get CABG

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What is Race?

"Pure races in the sense of genetically homogenous populations do not exist in the human species today, nor is there any evidence that they have ever existed in the past… Biological differences between human beings reflect both hereditary factors and the influence of natural and social environments. In most cases, these differences are due to the interaction of both."

American Association of Physical Anthropology, 1996

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Racial and Ethnic Disparities

- Blacks have the highest rates of heart disease in the country
- Blacks are 2-3 times more likely to die from heart disease
- While the cardiovascular mortality rates have been decreasing, this is not seen for blacks
- Blacks were 42% less likely to receive an ICD in the Medicare population after a heart attack

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FIGURE 1

Hypertension Prevalence by Sex and Race/Ethnicity

Source: Yoon SS, Fryar CD, Carroll MD. Hypertension prevalence and control among adults: United States, 2011–2014. NCHS data brief, no 220. Hyattsville, MD: National Center for Health Statistics. 2015.

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TABLE 1

Disparities in Outcomes Between Blacks and Whites With Diabetes

	Blacks	Whites
Hospitalization rate	26.5 %	16.1 %
Well-controlled glycemia	37.6 %	44.0 %
Well-controlled cholesterol	39.5 %	46.8 %
Well-controlled blood pressure	29.0 %	35.4 %

Source: Ferdinand KC, Nasser SA. Curr Med Res Opin 2015;31:913-23.

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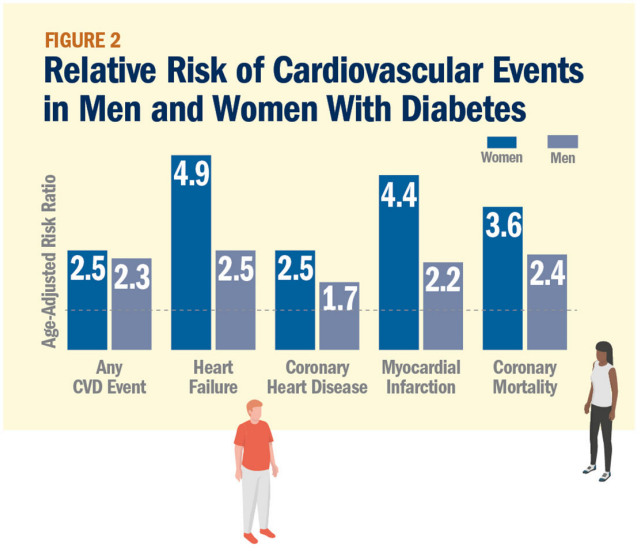

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Black and Hispanic women have the highest rates of obesity in the country

Black and Hispanic women have the highest rates of diabetes and high blood pressure

Women and blacks are less likely to get a cardiac catheterization when they present with chest pain (then men and whites)

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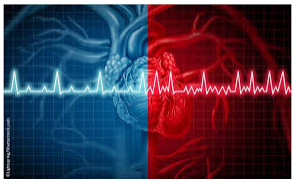
Atrial Fib Outcomes

- Blacks and Hispanics have a lower incidence of atrial fib than whites
- However, blacks are less likely to be aware they have the condition
- Higher overall risk of stroke and stroke mortality in black patients
- Greater risk of major bleeding with warfarin
- No major difference noted with DOAC's



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Heart Transplant Wait Times

2014 Outcomes:

- 19.8 months average wait time for African-Americans
- 12 months for white patients
- 12.3 months for Hispanic patients

2016 Outcomes:

- 10.4 months for African-Americans
- 8 months for white patients
- 7.4 months for Hispanic patients

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The Coalition to Reduce Racial and Ethnic Disparities in Cardiovascular Disease Outcomes (*credo*)

- Launched in 2009
- Help the cardiology community meet the needs of an increasingly diverse patient population
- Evidenced-based tools
- Performance improvement data
- Provider education including cultural competency training
- Patient education approaches
- Goal was equitable care and outcomes for all patients, regardless of race, ethnicity, sex, and age

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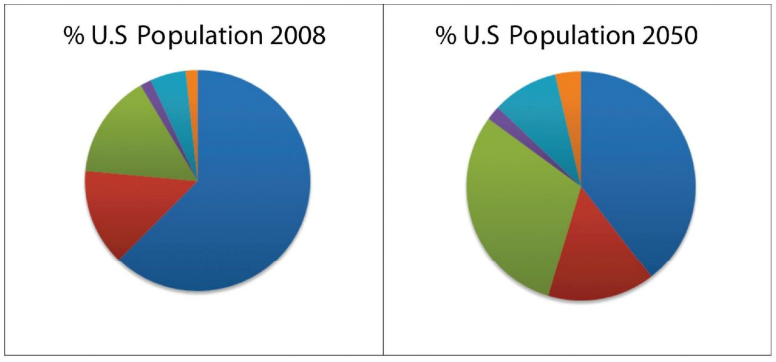

Clyde W. Yancy et al. JACC 2011;57:245-252

American College of Cardiology Foundation JACC

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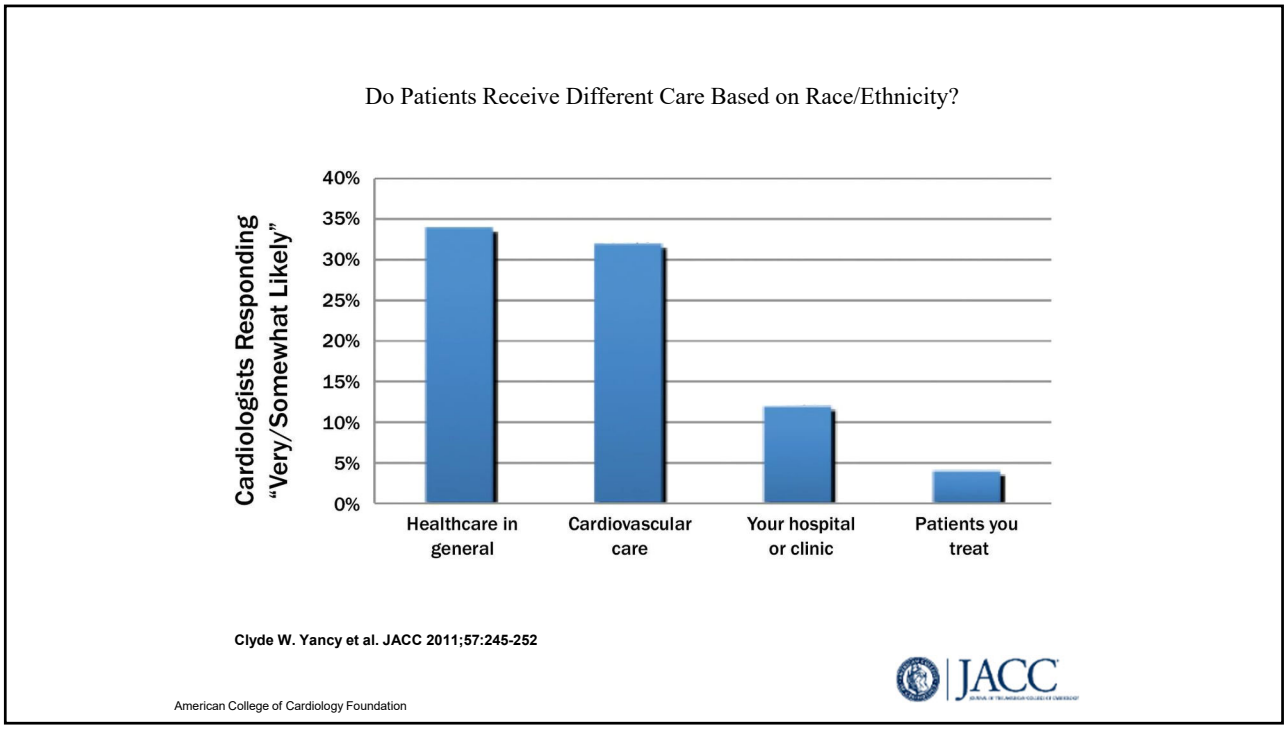
Do Patients Receive Different Care Based on Race/Ethnicity?
Cardiologists Responding "Very/Somewhat Likely"
40%
35%
30%
25%
20%
15%
10%
5%
0%
Healthcare in general
Cardiovascular care
Your hospital or clinic
Patients you treat
Clyde W. Yancy et al. JACC 2011;57:245-252
JACC
American College of Cardiology Foundation

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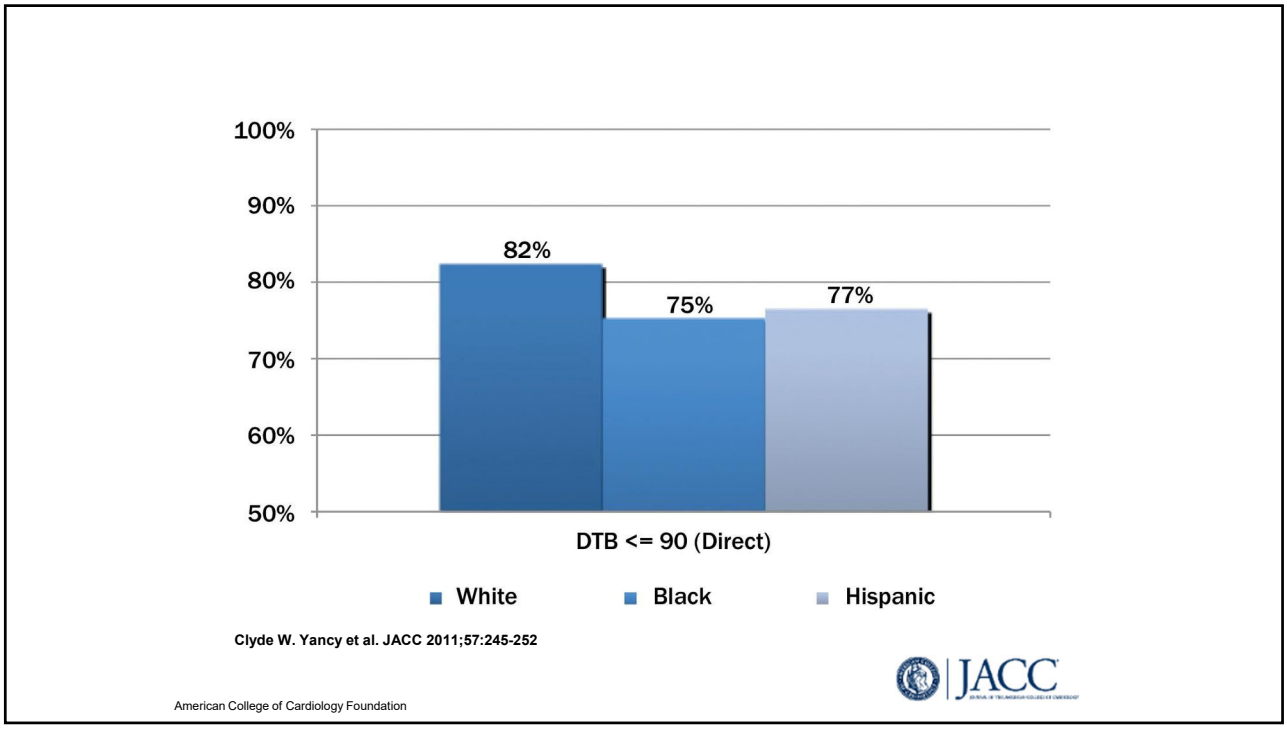
100%
90%
80%
70%
60%
50%
82%
75%
77%
DTB <= 90 (Direct)
White
Black
Hispanic
Clyde W. Yancy et al. JACC 2011;57:245-252
JACC
American College of Cardiology Foundation

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MN has had the best cardiovascular mortality rates since 1999….

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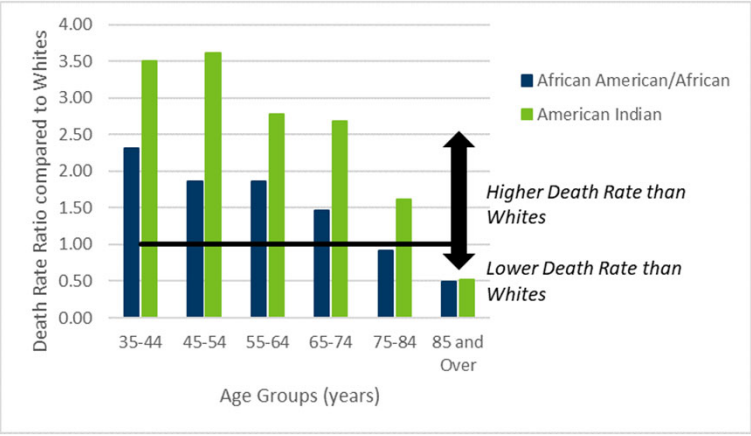
MN Cardiovascular Mortality Rates



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Cardiovascular Mortality Rates in MN

Age Group (years)	Crude Death Rate (per 100,000), Whites	Crude Death Rate (per 100,000), African Americans/ Africans	Rate Ratio of African Americans/Africans to Whites	Crude Death Rate (per 100,000), American Indians	Rate Ratio of American Indians to Whites
35-44	14.4	33.3	2.31	50.5	3.51
45-54	46.1	85.6	1.86	166.7	3.62
55-64	101.1	188.6	1.87	280.5	2.77
65-74	220.8	322.6	1.46	590.8	2.68
75-84	726.3	665.7	0.92	1175.3	1.62
85 and Over	3286.3	1637.5	0.50	1714.0	0.52

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Controlling High Blood Pressure by Race and Ethnicity, Minnesota Health Care Program Members, 2017

Race	Rate	Comparison to State Rate
American Indian/Alaskan Native	69%	No difference*
Black/African American	57%	Lower
Asian	72%	No difference*
White	74%	Higher
Ethnicity	Rate	Comparison to State Rate
Hispanic	74%	No difference*

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Optimal Vascular Care Goals among Minnesota Adults with Ischemic Vascular Disease by Race, 2017

Race/Ethnicity	% Meeting all four goals
American Indian	45%
Asian	68%
African American/African	45%
Multi-Racial	50%
Native Hawaiian/Other Pacific Islander	55%
White	63%

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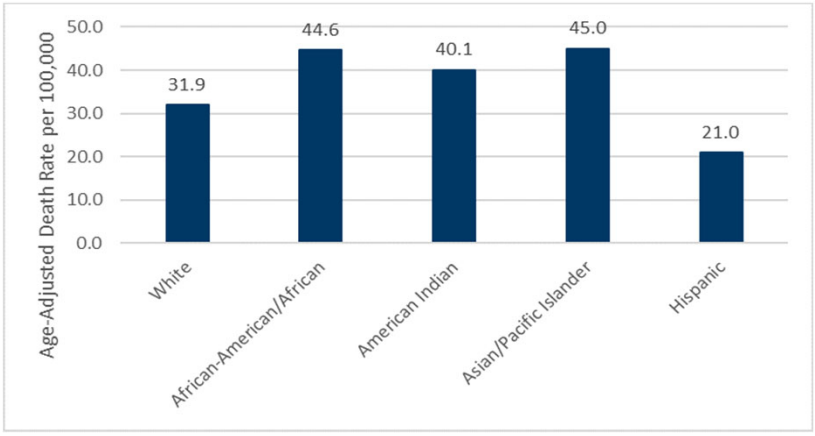
MN Death Rate due to Stroke by Race and Ethnicity, 2014-2018



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What is Health Equity?

"Health equity is a state where all persons, regardless of race, creed, income, sexual orientation, gender identification, age or gender have the opportunity to reach their full health potential without the limits of structural barriers."

- *Minnesota Department of Health, "Advancing Health Equity in Minnesota: Report to the Legislature." 2014.*

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A Tale of Two Cities

- https://youtu.be/Eu7d0BMRt0o

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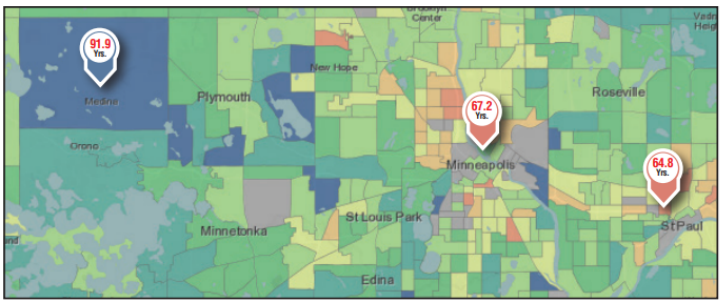
Impacting the Twin Cities



Life expectancy at birth (years) by Tract, CDC and NCHS 2010 - 2015.

Life Expectancy at Birth

- Over 87 Years
- 84 - 87 Years
- 81 - 84 Years
- 78 - 81 Years
- 75 - 78 Years
- 72 - 75 Years
- 72 Years or Less
- No Data or Data Suppressed

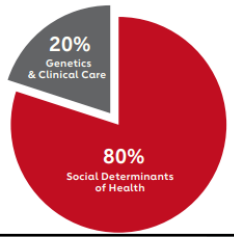
ZIP CODE DICTATES LIFE EXPECTENCY

16 Miles = 27 Years

METRO LIFE EXPECTANCY

St. Paul/Rondo = 65 Yrs
Mpls/Elliot Park = 67 Yrs
Medina/Suburb = 92 Yrs

HEALTH DETERMINANTS



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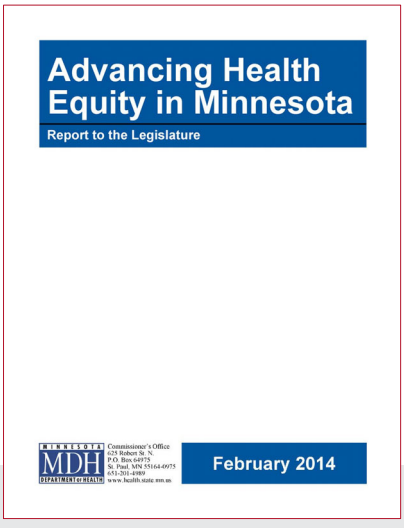
What is the Center for Health Equity?



MDH directed by Legislature in 2013 to prepare a report on Advancing Health Equity in MN

1. To provide an overview of MN's health disparities and health inequities
2. To identify inequitable conditions that produce health disparities
3. To make recommendations to advance HE in MN

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Statewide Health Assessment

- Shows a picture of health and well-being across the state, including:
  - Who is healthy and who is not?
  - What conditions shape health for all the different populations in Minnesota?
  - What do we have, and what do we need, to assure that all people in Minnesota can enjoy healthy lives and healthy communities

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People: highlights

- About 14% of all children in Minnesota live in poverty.
- About 9% of Minnesotans 18-64 have a disability; almost 1 in 5 families with children have a child with special health needs.
- Racial and ethnic diversity is expected to increase to about 25% by 2035.
- The LGBTQ population in Minnesota faces many challenges and barriers to health.
- The population over 65 is growing rapidly.

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Opportunity

"Opportunity means having the chance to experience success at every stage of life, from our early childhood through our old age.

Our opportunity is shaped by the conditions that constrain or expand the choices available to us."

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Opportunity

"These conditions include what schools we can go to, what jobs are open to us, and even what kind of food is available to us.

Whether we have a permanent home, find work with good pay and health insurance, or have safe places to play creates or reduces our chances to be healthy."

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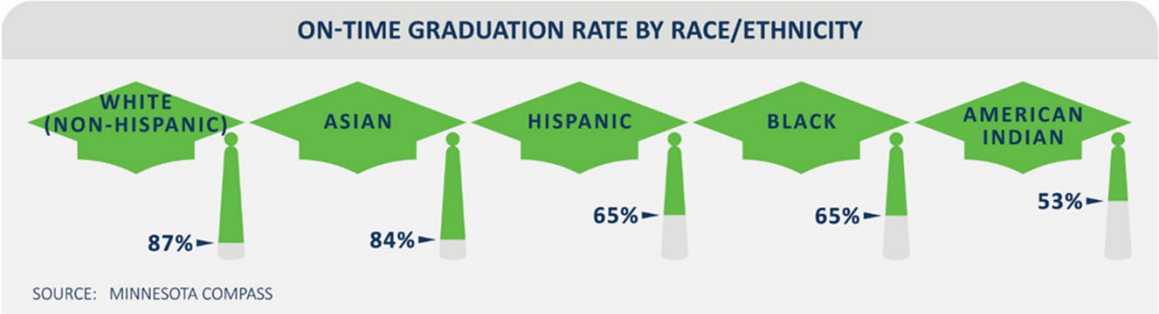
Opportunity: education

- Education is one of the clearest and strongest predictors of lifelong health.



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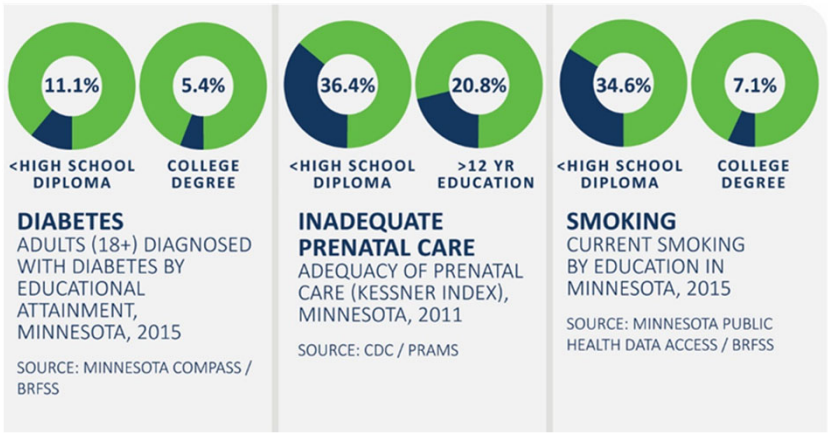
Connecting education to health



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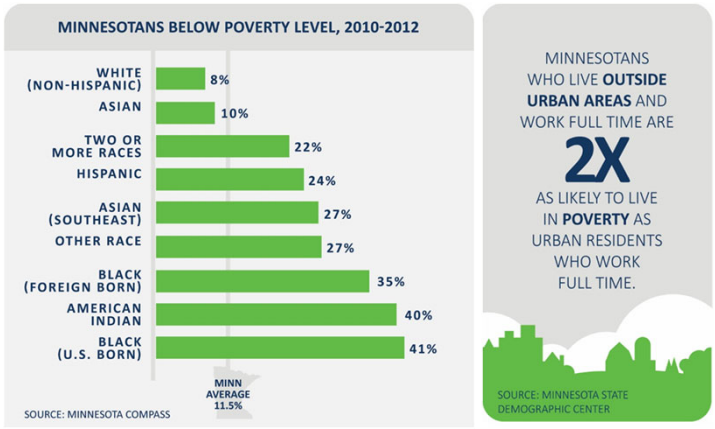
Opportunity: income



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Home ownership

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Connecting income, housing and health

Financial stress about housing, adults 18-64 only	Usually or always	Sometimes	Rarely or never
Ever had cancer (other than skin cancer)	8%	4%	4%
Ever had COPD1	10%	4%	2%
Ever had arthritis	29%	16%	14%
Ever had a depressive disorder	49%	24%	15%
Ever had diabetes	9%	5%	5%
Currently have asthma	14%	9%	6%
Currently smoke cigarettes	39%	23%	14%
Report binge drinking in past 30 days	25%	24%	22%
Are obese	35%	30%	24%

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Inequities in recreational opportunity

WHITE MINNESOTANS ARE TWICE AS LIKELY TO USE REGIONAL PARKS AND RARELY NOTE SAFETY CONCERNS.

POPULATIONS OF COLOR ARE MORE LIKELY TO NOTE **SAFETY** CONCERNS ABOUT BEING IN REGIONAL PARKS.

SOURCE: METROPOLITAN COUNCIL

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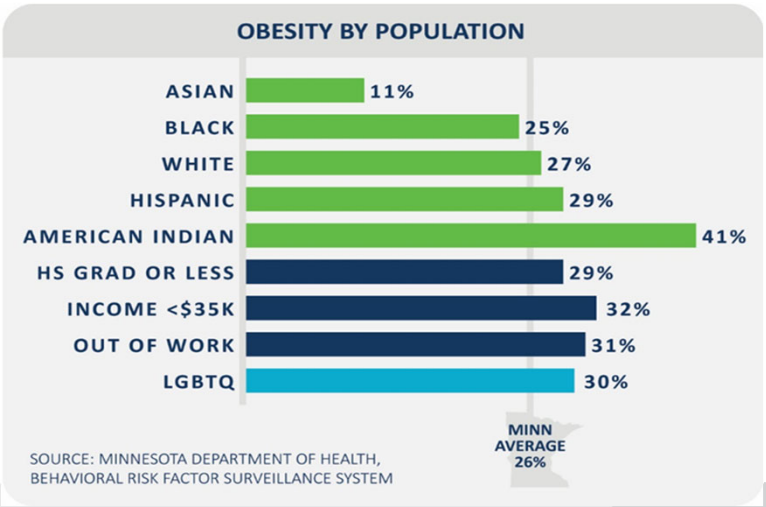
Connecting to health



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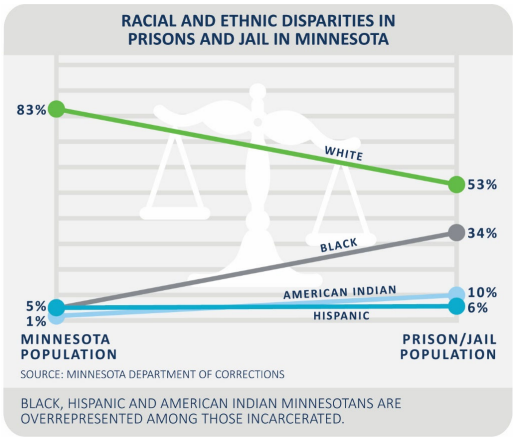
Connecting belonging and health



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Consistency in opportunity inequities

- Populations of color and American Indians in Minnesota experience consistently lower opportunities in education, employment, income, housing, transportation, paid leave, health insurance, health care

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Minnesota Maternal Mortality Review Committee

Work on behalf of the Commissioner of Health to review all pregnancy- associated deaths of Minnesota residents.

Purpose: The Minnesota Maternal Mortality Review Committee (MMMRC) is tasked with addressing maternal mortality in Minnesota. The MMMRC works to identify factors contributing to maternal deaths and the health inequities impacting maternal health in the state. Leads the charge of disseminating recommendations it improve maternal outcomes for our Minnesota mothers.

Vision: The vision of the Minnesota Maternal Mortality Review Committee is to eliminate preventable maternal deaths, reduce maternal morbidities,, and improve population health and health equity for women of reproductive age in Minnesota.

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Identifying Racism and Discrimination as Contributing Factors

- Women of color report more experiences of discrimination, food insecurity, and depression
- Women of color experience higher levels of chronic stress during pregnancy - results in compromised endocrine and immune function
- Burden remains higher across all income and education levels
- Results in greater rates of hypertensive disorder, preterm birth, low birth weight neonates and perinatal mortality among Black women

Grobman W479-99.Am J Perinatol. 2016 Dec;33(14):1426-1432.; Slaughter-Acey JC. Womens Health Issues. 2013 Nov-Dec;23(6):e381-7.; Borders AE. J Perinatol. 2015 Aug;35(8):580-4.; Mendez DD. Ethn Health. 2014;19(5):

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NEW* Contributing Factors

- **DISCRIMINATION** Treating someone less or more favorably based on the group, class or category they belong to resulting from biases, prejudices, and stereotyping. It can manifest as differences in care, clinical communication and shared decision-making. (Smedley et al, 2003 and Dr. Rachel Hardeman)
- **INTERPERSONAL RACISM** Discriminatory interactions between individuals based on differential assumptions about the abilities, motives, and intentions of others and resulting in differential actions toward others based on their race. It can be conscious as well as unconscious, and it includes acts of commission and acts of omission. It manifests as lack of respect, suspicion, devaluation, scapegoating, and dehumanization. (Jones, CP, 2000 and Dr. Cornelia Graves)
- **STRUCTURAL RACISM** The systems of power based on historical injustices and contemporary social factors that systematically disadvantage people of color and advantage white people through inequities in housing, education, employment, earnings, benefits, credit, media, health care, criminal justice, etc. – (Adapted from Bailey ZD. Lancet. 2017 and Dr. Carla Ortique)

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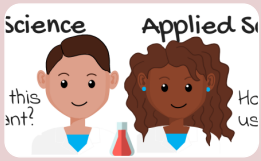
MHI/MHIF Unique Role to Play



Research

Community Education

Clinical Outcomes

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iHEAL

Insight Health Equity Lab

The Insight Health Equity Action Lab, is an action-oriented think tank working in partnership with communities and organizations across sectors, to develop and implement sustainable and measurable strategies that advance health equity. iHEAL will amplify evidence-based and transformative work that builds and supports healthy communities and puts people/community at the center of the process.

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The Insight2Health Fitness Challenge (I2H) inspires lifestyle changes in participants through fitness, yoga and nutrition and life coaching.

I2H introduces lifestyle changes that are sustainable. To date, we have hosted 14 I2H sessions with more than 300 participants who have lost more than 1,100 pounds and 430 inches.

A few factors that have supported the program's success: 1) providing solid programming led by experienced personnel, 2) sharing participant success stories through Insight News and 3) receiving technical and financial support from organizations such as NorthPoint Health & Wellness.

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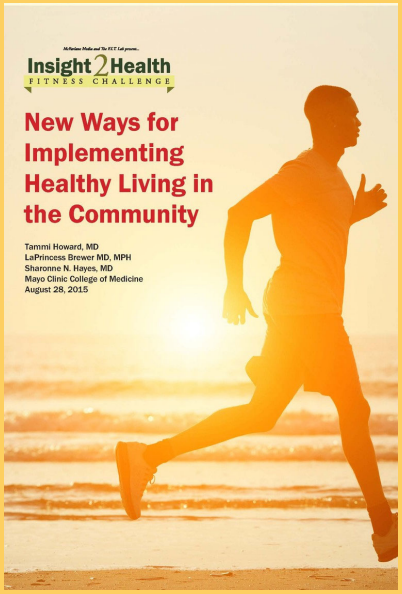
The interventions from the physical activity portion of the program appear to have had an overall positive effect. Participants became more physically active than they were at baseline and more motivated to continue physical activity as part of lifestyle changes.



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"Based on the identified health concerns, our team would recommend emphasizing the importance of living a healthy lifestyle and control of risk factors for heart disease prevention especiallyin the African American community. Utilizing the medical community for any educational tools on these topics could be a way to better inform the participants of these diseases."

Table 1.

CATEGORY	Baseline survey (23 surveys), mean	Follow up survey (16), mean
PHYSICAL ACTIVITY		
Change strategies	3.1	3.8
Confidence	4.2	4.4
Friend support	1.8	2.4
Family support	2	2.4
FRUIT & VEGETABLES CONSUMPTION		
Change strategies	2.7	3.6
Confidence	4.1	4.6
Friend support	1.8	2.3
Family support	2.4	3
DIETARY FAT & SALT		
Change strategies	2.9	3.7
Confidence	4.1	4.5
Friend support	2	2.3
Family support	2.3	2.8

Table 2.

	Baseline (21 readings)	Follow up (14 readings)
Systolic Blood pressure	141	130
Diastolic Blood pressure	88	86

Table 3.

PHYSICAL ACTIVITY	Baseline survey (23 surveys)	Follow up survey (16 surveys)
Days of vigorous activity (within last 7 days)	Mean: 2	Mean: 4
Time spent doing vigorous activity		
less than 15 minutes	2	0
15-30 minutes	1	0
31-45 minutes	2	0
46-60 minutes	10	11
more than 60 minutes	1	5
Days of moderate physical activity (during last 7 days)	Mean: 2	Mean: 3
Time spent doing moderate activity		
less than 15 minutes	2	1
15-30 minutes	6	4
31-45 minutes	5	3
46-60 minutes	3	5
more than 60 minutes	2	0

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Demonstrated Past Success

- Level 1 STEMI program
- HONU
- Creating strong relationships in the community
- National reputation in research

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Dr. Mosi Bennett MD, PhD

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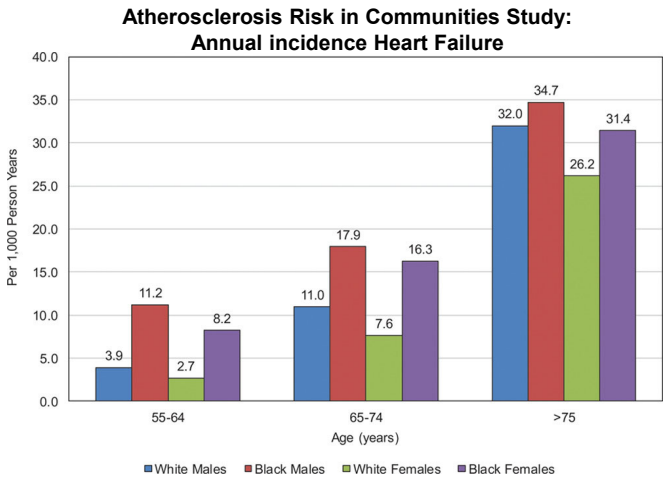
Heart Failure is More Prevalent in African-Americans

- More than 6.5 million people with heart failure in the U.S.
- Risk of heart failure increases with age for both sexes and all races
- Risk of heart failure is highest in African-Americans
- Black men age 55-64: 3 times the risk of heart failure compared to white men



Virani SS, Alonso A, Benjamin EJ, et al. Heart Disease and Stroke Statistics—2020 Update: a report from the American Heart Association. *Circulation* 2020;141:e139-e596.

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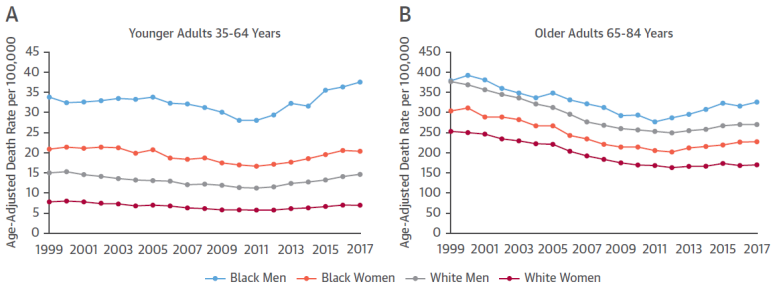
Heart Failure Mortality is Higher in African Americans

Age Adjusted Heart Failure Mortality



- Heart Failure mortality is 50% at 5 years
- Heart Failure mortality is 2.6 times higher in young Black men than White men
- Disparities are more pronounced among younger adults
- Heart failure mortality among African Americans is increasing since 2011

. *J Am Coll Cardiol* 2019;73:2354–5

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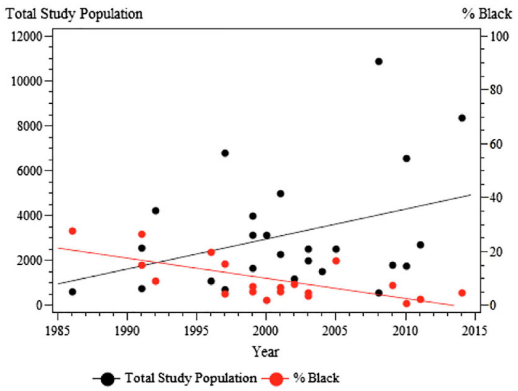
African Americans are Poorly Represented In Heart Failure Clinical Trials

- In a review of 25 randomized clinical trials for heart failure
  - 19 for pharmacotherapies
  - 6 for implantable cardioverter defibrillators
- Among these studies
  - 78,816 patients
  - 4,640 Black patients (5.9%)
  - Median Black participation per trial was 162 patients
- **Overall patient enrollment among the 25 trials increased while percentage of black patients decreased over time**
- Black patients are poorly represented among pivotal trials
- Inclusion is necessary to ensure that study findings can be generalized to all patients with Heart Failure

Overlay plot showing the trend in total patient enrollment vs % of black patients enrolled over time



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Black Individuals are Poorly Represented Among Trials for Chronic Heart Failure

Table I. Descriptions of the 26 identified randomized clinical trials for HFrEF

Study (year) [ref.]	Journal	Study population	Treatment groups	Total patient enrollment	Total black patient enrollment (%)	Outcomes by race reported*
V-HeFT I (1986)[29]	*NEJM*	Veterans 18-75 y of age Ejection fraction <45% NYHA functional class I-IV	ISDN/HY vs prazosin vs placebo	642	180 (28.0%)	Yes
V-HeFT II (1991)[30]	*NEJM*	Veterans 18-75 y of age Ejection fraction <45% NYHA functional class I-IV	ISDN/HY vs enalapril	804	215 (26.7%)	Yes
SOLVD-Treatment (1991)[31]	*NEJM*	Patients ≤80 y of age Ejection fraction ≤35% NYHA functional class I-IV	Enalapril vs placebo	2569	396 (15.4%)	Yes
SOLVD-Prevention (1992)[32]	*NEJM*	Patients with asymptomatic left ventricular dysfunction Ejection fraction ≤35% NYHA functional class I-II	Enalapril vs placebo	4228	401 (9.48%)	Yes
US Carvedilol (1996)[33]	*NEJM*	Ejection fraction ≤35% NYHA functional class II-IV	Carvedilol vs placebo	1094	217 (19.8%)	Yes
DIG (1997)[34]	*NEJM*	Ejection fraction ≤45% NYHA functional class I-IV	Digoxin vs placebo	6800	897 (15.5%)	Yes
ELITE (1997)[35]	*The Lancet*	Patients ≥65 y of age Ejection fraction ≤40% NYHA functional class II-IV	Losartan vs captopril	722	34 (4.7%)	NR
ATLAS (1999)[36]	*Circulation*	Ejection fraction ≤30% NYHA functional class II-IV	Low-dose lisinopril vs high-dose lisinopril	3164	NR	NR
RALES (1999)[37]	*NEJM*	Ejection fraction ≤35% NYHA functional class III-IV	Spironolactone vs placebo	1663	120 (7.2%)	NR
MERIT-HF (1999)[38]	*The Lancet*	Patients 40-80 y of age Ejection fraction ≤40% NYHA functional class II-IV	Metoprolol CR/XL vs placebo	3991	208 (5.2%)	Yes
ELITE II (2000)[39]	*The Lancet*	Patients ≥60 y of age Ejection fraction ≤40% NYHA functional class II-IV	Losartan vs captopril	3152	67 (2.1%)	NR
Val-HeFT (2001)[40]	*NEJM*	Patients ≥18 y of age Ejection fraction <40% NYHA functional class II-IV	Valsartan vs placebo	5010	344 (6.9%)	Yes
COPERNICUS (2001)[41]	*NEJM*	Ejection fraction <25% NYHA functional class III-IV	Carvedilol vs placebo	2289	121 (5.3%)	Yes
MADIT-II (2002)[42]	*NEJM*	Patients >21 y of age with prior myocardial infarction Ejection fraction ≤30% NYHA functional class I-IV	ICD vs conventional medical therapy	1232	102 (8.3%)	Yes
CHARM-Alternative (2003)[43]	*The Lancet*	Patients ≥18 y of age who were intolerant to ACEIs Ejection fraction ≤40% NYHA functional class II-IV	Candesartan vs placebo	2028	73 (3.6%)	NR
CHARM-Added (2003)[44]	*The Lancet*	Patients ≥18 y of age on an ACEI Ejection fraction ≤40% NYHA functional class II-IV	Candesartan vs placebo	2548	127 (4.9%)	NR
A-HeFT (2004)[27]	*NEJM*	All black patients ≥18 y of age Ejection fraction ≤35% NYHA functional class III-IV	ISDN/HY vs placebo	1050	1050 (100%)	N/A
[2004][45]		NYHA functional class III-IV	pharmacologic therapy			
SCD-HeFT (2005)[46]	*NEJM*	Patients ≥18 y of age Ejection fraction ≤35% NYHA functional class II-III	ICD vs amiodarone vs placebo	2521	425 (16.9%)	Yes
REVERSE (2008)[47]	*J Am Coll Cardiol*	Ejection fraction ≤40% NYHA functional class I-II	CRT turned on vs CRT turned off	610	NR	NR
BEAUTIFUL (2008)[48]	*The Lancet*	Patients ≥55 y of age or ≥18 y of age if diabetic Ejection fraction <40% NYAH functional class I-III	Ivabradine vs placebo	10,917	NR	NR
MADIT-CRT (2009)[49]	*NEJM*	Patients ≥21 y of age Ejection fraction ≤30% NYHA functional class I-II	ICD vs ICD-CRT	1820	143 (7.9%)	NR

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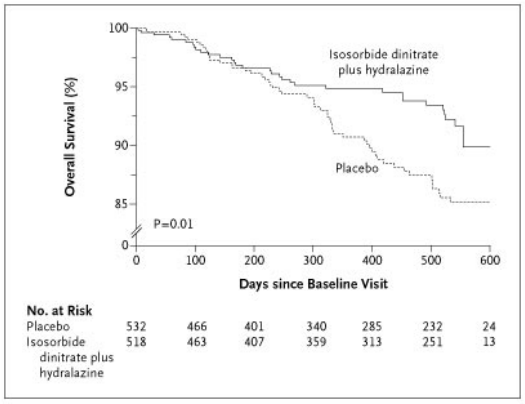
African-American Heart Failure Trial (A-HeFT)

- Subgroup analysis of earlier V-HeFT trial suggested combination therapy with isosorbide dinitrate plus hydralazine was beneficial in black patients
- **A-HeFT:** compare isosorbide dinitrate/hydralazine with placebo among black patients with advanced heart failure
- 1050 patients, EF 24% NYHA Class III, 18 months follow up
- Mortality was lower in the combination therapy group
- Survival differences at six months after randomization



Taylor AL, Ziesche S, Yancy C, et al. Combination of isosorbide dinitrate and hydralazine in blacks with heart failure. N Engl J Med 2004;351:2049-57.

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Lessons Learned From the A-HeFT Trial

- Among black patients with advanced heart failure, treatment with isosorbide dinitrate plus hydralazine improves survival and reduces hospitalizations
- Inclusion of a group historically under represented in clinical trials ultimately led to the approval of a therapy with a specific survival benefit
- Current guidelines recommend the addition of nitrates and hydralazine for African American heart failure patients that are on optimal medical therapy

Taylor AL, Ziesche S, Yancy C, et al. Combination of isosorbide dinitrate and hydralazine in blacks with heart failure. N Engl J Med 2004;351:2049-57.

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Disparity in Access to Heart Failure Care

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African Americans Are Less Likely to Receive Care by a Cardiologist During an Intensive Care Unit Admission for Heart Failure

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- Black Patients with Heart Failure are less likely to receive care by a cardiologist in the ICU
- ICU Care by a cardiologist is associated with better in-hospital survival

J Am Coll Cardiol HF 2018;6:413–20

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Clinical Bias in Heart Failure

- A 2019 Study: 400 heart failure health care professionals
- Randomized to a patient vignette about either an African-American or White man with identical profiles
- Participants rated the appropriateness for heart transplant or LVAD
- The most important factors contributing to the decision to recommend heart transplant LVAD were social support and adherence
- African-American patient with the same profile: less trustworthy, less social support, worse adherence
- Heart transplant was recommended more often for the White patient

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Disparities in Heart Failure Care at MHI?

- Black patients at Minneapolis Heart Institute:
  - 11% of heart failure hospitalizations
  - 14% of advanced heart failure hospital consults
  - 5% of clinic visits for heart failure
  - 8% of advanced Heart Failure clinic visits
  - Questions to consider:
    - Is there equity in access to cardiology and advanced heart failure care?
    - Are Black patients represented in clinical trials at MHIF?
    - Is there clinical bias in consideration for Heart Transplants and VAD?

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What Are The Factors That Drive Disparities in Heart Failure?

- **Social determinants of health**: insurance, education, nutrition, housing, income transportation
- **Healthcare provider discrimination and bias:** reduced delivery of evidence based heart failure treatments to racial/ethnic minorities and women
- Disparities in **participation in clinical trials**: Racial minorities are underrepresented in heart failure research studies
- Lack of preventive care: **modifiable diseases** that increase the risk of developing heart failure, such as hypertension, diabetes, obesity, and atherosclerosis

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A Multi-Faceted Approach to Achieve Health Equity

- **Increase awareness.** Recognize that disparities and bias exist
- **Promote favorable lifestyle changes** that are associated with reduced risk of developing heart failure, particularly among African-Americans
- Address **structural inequalities** in education, income, and health insurance coverage
- **Change policy** in order to expand access to care and the distribution of health services
- **Educate and train** in bias reduction, anti-racism, and cultural competency
- Encourage informed **involvement in clinical research**

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Dr. Mario Goessl, MD, PhD

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A TALE OF TWO ZIP CODES
with GEORGE TAKEI
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MEET DEB & MARIA
Deb & Maria live one mile apart, but Deb will live 18 years longer than Maria.
Watch to find out why!
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