

# Racial Disparities in Cardiovascular Care: Culprits and Solutions

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## BLACK-WHITE DISPARITIES IN CARDIOVASCULAR CARE OBJECTIVES

- Identify 3 major cardiovascular therapies that have been shown to be used less often in Blacks than Whites with the same diagnosis
- List at least 3 potential culprits for racial disparities in quality cardiovascular care
- Discuss a potential role for physicians in potentiating racial disparities in cardiovascular care
- List 3 potential solutions to racial disparities in cardiovascular care

## CURRENT LIFE EXPECTANCY AT BIRTH IN US (NATIONAL VITAL STATISTICS, 2018)

81

78

76

71



## CARDIOVASCULAR DISEASE (MI, CHF, STROKE, PVD)

- Leading cause of death among White Americans
- Leading cause of death among African Americans
- Leading cause of death among Hispanics
- Leading cause of death among Women
- Leading cause of death among Men

National Vital Statistics Reports (2018)

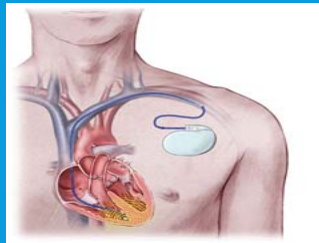
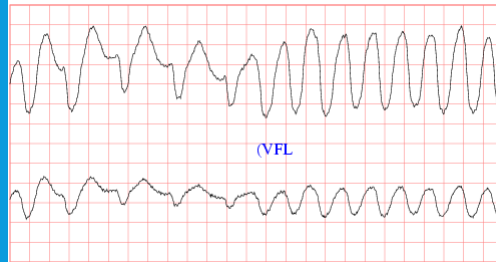
## LIFE-PROLONGING THERAPIES AVAILABLE IN CARDIOVASCULAR MEDICINE

- AICD therapy in pts at risk for cardiac arrest
- Treatment of heart attacks by rapidly opening blocked heart arteries
- Restoring blood flow to legs with very poor circulation

TWO PATIENTS, SAME DX, SAME SX, SAME HX, SAME OBJECTIVE FINDINGS ...



## I. AICD therapy in pts at risk for SCD



AICDS PREVENT SUDDEN CARDIAC DEATH  
IN PTS WITH SEVERE CHF AND  $EF < 35\%$



Who gets the AICD?



## AICDS TO PREVENT SUDDEN CARDIAC DEATH

**Circ 2003 Jul 22; 108 (3):286-291**

6,000 Medicare patients after cardiac arrest  
OR for Blacks (vs Whites) to receive AICD: 0.5

**Circ 2016 Aug 16;134(7):517-26**

21,000 pts with severely weakened heart muscle  
Blacks and Hispanics less likely than Whites to get counseled  
re: ICD

## ACUTE CORONARY SYNDROMES

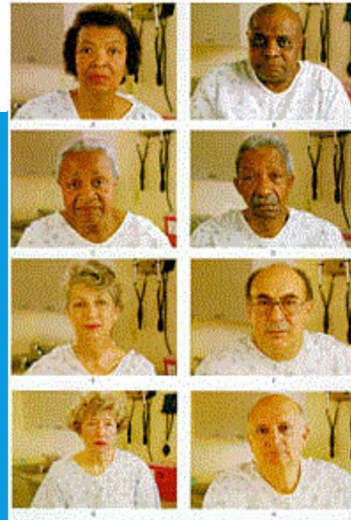


Who Gets Timely Cardiac Intervention?



## THE EFFECT OF RACE AND SEX ON PHYSICIANS' RECOMMENDATIONS FOR CARDIAC CATHETERIZATION

*"Men and whites were significantly more likely to be referred than women and blacks."*



Kevin Schulman, MD, et. al, NEJM,  
February, 1999

### Temporal trends and predictors of time to coronary angiography following non-ST-elevation acute coronary syndrome in the USA

Muhammad Rashid<sup>a,b</sup>, David L. Fischman<sup>f</sup>, Sara C. Martinez<sup>g</sup>, Quinn Capers IV<sup>h</sup>, Michael Savage<sup>i</sup>, Azfar Zaman<sup>c</sup>, Nick Curzen<sup>d</sup>, Joie Ensor<sup>a</sup>, Jessica Potts<sup>a</sup>, Mohamed O. Mohamed<sup>a,b</sup>, Chun Shing Kwok<sup>a,b</sup>, Tim Kinnaird<sup>e</sup>, Rodrigo Bagur<sup>a,i</sup> and Mamas Mamas<sup>a,b</sup>

- National US Inpatient Sample, 4.3 million NSTEMI/USA pts, 2004-2014
- 57% of pts received coronary angiography
- Endpoint: Early (within 24 hrs) vs Late (> 3d after admission) coronary angiography

Coronary Artery Disease 2019

## CRITICAL LOWER EXTREMITY ISCHEMIA



Who Gets Revascularization?

Who Gets Amputation?



13

## TREATING POOR CIRCULATION

- **Arch Surg 1995 Apr; 130 (4): 381-6**  
19,236 Medicare pts with LE ischemia  
African Americans compared to Whites:  
More likely to undergo amputation  
Less likely to undergo revascularization
- **J Racial Ethn Health Disparities. 2017**  
African Americans 200% and Hispanics 50% more likely to have amputation than Whites

J. Racial and Ethnic Health Disparities (2014) 1:171–180  
DOI 10.1007/s40615-014-0021-7

## **Racial Disparities in Cardiovascular Care: A Review of Culprits and Potential Solutions**

Quinn Capers IV • Zarina Sharalaya

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J of Racial and Ethnic Health Disparities: 2014

DISPARITIES IN CARDIOVASCULAR  
CARE:  
WHAT ARE THE POTENTIAL CULPRITS?

1. Physician unconscious racial bias?
2. Black pts averse to high-tech procedures (are there trust issues)?
3. Are MDs caring for Blacks overwhelmed/underperforming?
4. Inadequate resources/treatment at hospitals frequented by Blacks?
5. Are Blacks less informed about heart disease symptoms, treatment, and medications?
6. Racism?
7. Paucity of African American CV specialists?

## 1. IS PHYSICIAN IMPLICIT BIAS A POTENTIAL CULPRIT?

## DISPARITIES IN CARDIOVASCULAR CARE: PHYSICIAN BIAS?

- *Green, et al. J Gen Int Med 2007*
- 220 IM and EM residents from 4 programs in Boston and Atlanta completed web-based study
- Participants took "Implicit Association Test" : computer-based, psychological test to measure unconscious bias
- Participants were unaware of purpose of study

## Disparities in Cardiovascular Care: Physician Bias?

- Clinical Vignette:



- "Mr. T is a 50 year old male smoker with HTN who presents to the ED with chest pain. Described as "sharp, stabbing" and located in mid sternum. He has had it about 3 hrs, it is now 8/10 in intensity. Vital signs and PE are normal. EKG shows 2 mm horizontal ST elevations in the anterior leads, but there is no prior EKG for comparison and there is not time for cardiac enzymes. You do not have access to a cath lab. He has no contraindications for thrombolysis."

## RESULTS

- 60% of residents very likely to offer treatment to White pt
- 40% of residents very likely to offer treatment to Black pt
- Residents explicit (self-reported) bias about race and pt cooperativeness did not influence decision to give thrombolysis
- Residents implicit negative bias about race was the strongest predictor of the decision to treat

2. BLACK PTS MAY DECLINE TREATMENT BECAUSE OF MISTRUST BASED ON HISTORICAL MISTREATMENT BY THE HEALTH CARE "SYSTEM" AND PROVIDERS

***THE TUSKEGEE EXPERIMENT OF UNTREATED SYPHILIS IN  
NEGRO MALES***

**1932-1972, FUNDED BY US PHS**

- Initiated by US PHS to study long term effects of untreated syphilis
- 399 African American males infected with syphilis chosen to participate in study
- Subjects told they had syphilis, told that they were being given "special treatment"

***THE TUSKEGEE EXPERIMENT OF UNTREATED SYPHILIS IN  
NEGRO MALES***

**1932-1972, FUNDED BY US PHS**

- No treatments given; pts prevented from getting treatment elsewhere
- Subjects received annual exams by government doctors until death
- Study continued long after discovery of PCN
- Perk: funeral expenses paid for; autopsies mandatory

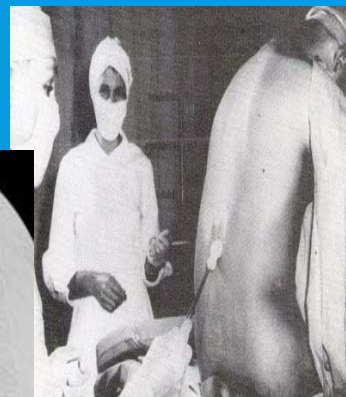
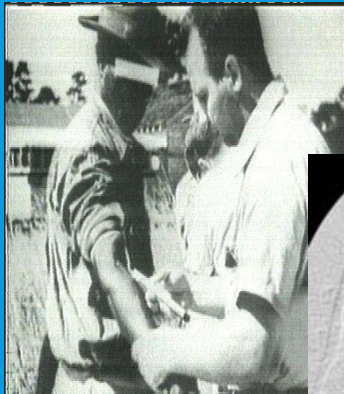
## Lest We Forget:

*The Tuskegee Experiment of Untreated Syphilis in Negro Males*  
1932-1972, Funded by US PHS



## *The Tuskegee Experiment of Untreated Syphilis in Negro Males*

*"Special Free Treatment"*





- Aftermath:
  - 28 died directly of syphilis
  - 100 died of CV complications of syphilis
  - 40 wives infected
  - 19 children born with congenital neurosyphilis
  - Led to creation of modern day IRBs
  - Lingering mistrust of health care system among African Americans

### Brief Report

## High Prevalence of Recent Cocaine Use and the Unreliability of Patient Self-report in an Inner-city Walk-in Clinic

Sally E. McNaghy, MD, MPH, Ruth M. Parker, MD

**Objective.**—To determine the prevalence of recent cocaine use and the reliability of patient self-reported cocaine use.

**Design.**—A survey with blinded comparison to a criterion standard.

**Setting.**—Walk-in clinic of a large public hospital in metropolitan Atlanta, Ga.

**Participants.**—Male patients, aged 18 to 39 years, presenting to the triage desk for immediate care during weekdays. Of the 415 eligible men who agreed to participate (acceptance rate, 82%), the average age was 29.5 years, 91.6% were black, and 89% were uninsured.

**Intervention.**—None.

**Main Outcome Measures.**—Comparison of self-reported illicit drug use with results from urinary immunoassays for benzoyllecgonine, a major cocaine metabolite. Determination of which drug history questions produce the most accurate responses using anonymous urine testing as the criterion standard.

**Results.**—Thirty-nine percent of patients tested positive for the presence of benzoyllecgonine and were statistically more likely to be older, black, and have a prior history of sexually transmitted disease ( $P < .01$ ). Seventy-two percent of men with positive urinary assays denied illicit drug use in the 3 days prior to sampling. When queried with several formats, subjects with positive urine assays were more likely to admit to "any illegal drug" use (87.5%) than to the more specific "any form of cocaine" use (60.6%) within the prior year ( $P < .0001$ ).

**Conclusions.**—These results underscore the magnitude of cocaine abuse among black, inner-city men. Patient self-report of illicit drug use is highly inaccurate. Accuracy of self-report may be increased by asking less specific questions.

(JAMA. 1992;267:1106-1108)

of recent cocaine use, the reliability of patient self-report of illicit drug use, and which questions about illicit drug use were more likely to be answered accurately by patients with a positive urine cocaine metabolite assay.

### Methods

Subjects were recruited between August 1989 and February 1990 from patients presenting on weekdays to the emergency ambulatory care triage desk of Grady Memorial Hospital, a large urban hospital serving low-income, predominantly black residents of Atlanta, Ga. Outpatients were asked to participate in a study about asymptomatic carriage of STDs.<sup>11</sup> Inclusion criteria for participants in the STD study were (1) male, (2) aged 18 to 39 years, and (3) sexually active within the previous 6 months. The exclusion criteria for participants were (1) presenting with a urogenital complaint, (2) history of kidney disease, (3) any antibiotic use in the prior 3 weeks, or (4) too ill to delay medical care.

(JAMA. 1992;267:1106-1108)

**Methods.**

"Of the patients who were asked to participate in the study, 82% agreed. The study subjects were significantly older and had a lower rate of insurance coverage than did those who refused to participate ( $P < .01$ ). Subjects were paid \$10 for participation and informed consent for the STD study was obtained. Both the STD study and the study anonymously testing urine for cocaine metabolites were approved by the Emory University School of Medicine Human Investigations Committee. Patients were told that their urine would be tested for STDs. Patients were not told that their urine would be analyzed for cocaine metabolites; however, patients were never told that their urine would not be tested for drugs."

(JAMA. 1992;267:1106-1108)

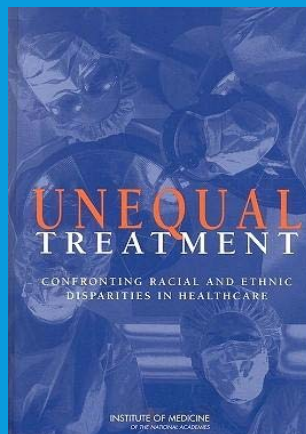
### 3. ARE BLACKS OVERREPRESENTED AT HOSPITALS THAT ARE UNDERPERFORMING?

## ARE BLACKS OVERREPRESENTED AT HOSPITALS THAT ARE UNDERPERFORMING?

- Many Hospitals Treating African Americans with Heart Disease:

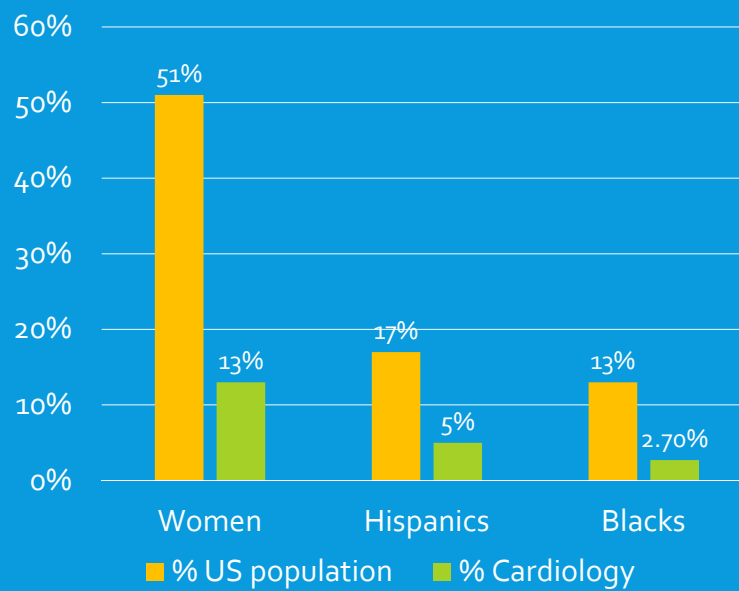
1. Have Longer D2B times
2. Have Longer Delays for Defibrillation for pts with in-house cardiac arrest
3. Perform relatively high #'s of limb amputations
4. Have large numbers of undertrained doctors
5. Tend to have low procedural volumes

*"By the time you are admitted to the hospital, several decisions have already been made for you . . ."*



#### 4. PAUCITY OF AFRICAN AMERICAN CV SPECIALISTS?

(Lack of) Diversity in Cardiology

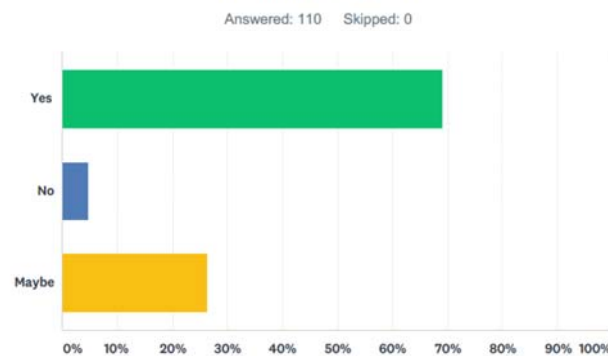


AAMC Diversity Facts and Figures 2014

## 2017 ACC PROGRAM DIRECTOR' SURVEY

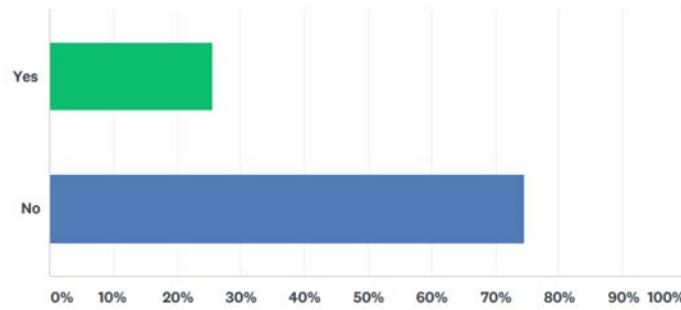
- 110 respondents
- 55% Adult General Cardiology
- 45% Adult Subspecialty Cardiology

Q3 "Diversity is a driver of excellence in healthcare delivery," in other words, the more diversity represented amongst your health care providers, the better the care delivered to patients. Do you believe this statement is true?

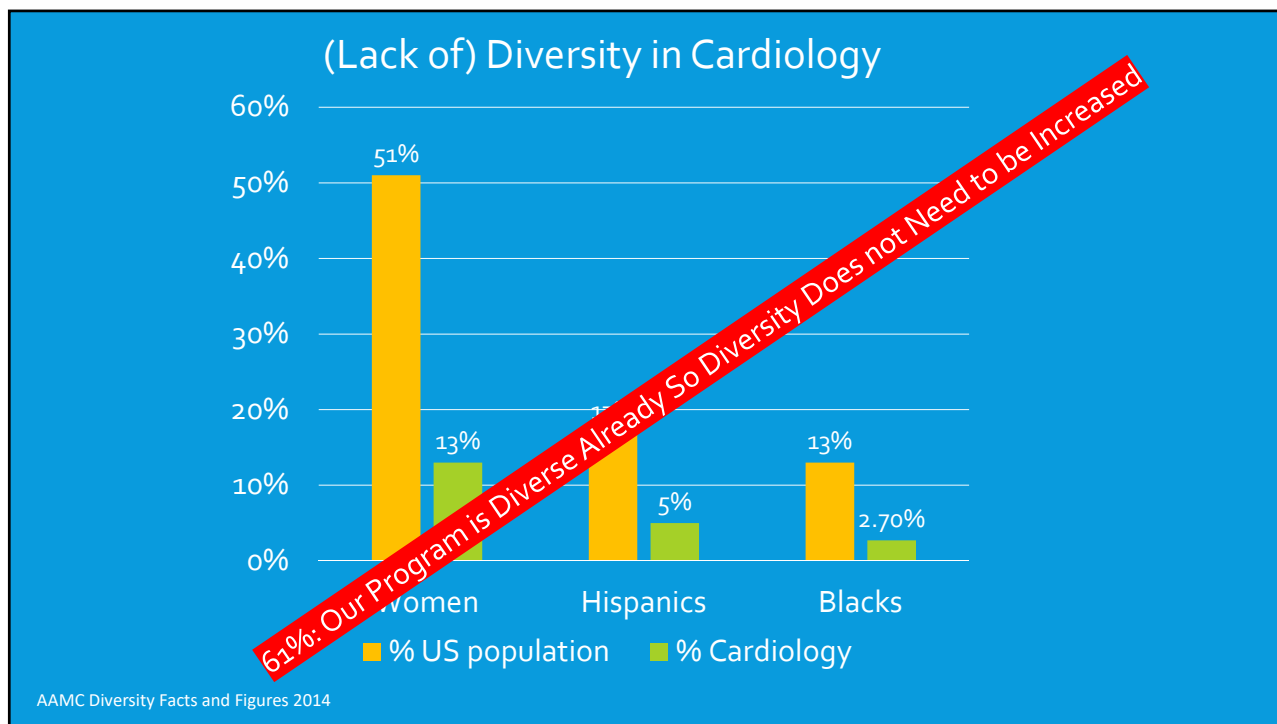


**Q4 Can you quote 1-2 references that support this statement?**

Answered: 110 Skipped: 0

**Q8 Which statement most accurately describes your position with respect to increasing diversity in your program?**

- 1) 21%: We want to Increase Diversity in Our Program, But Don't Know How to Do it
- 2) 18%: We want to Increase Diversity in Our Program, and Have a Plan to Do it
- 3) 61%: Our Program is Diverse Already So Diversity Does not Need to be Increased



## A CALL TO ACTION (POSSIBLE SOLUTIONS)

## WHAT CAN WE DO?

- 1) Help diversify the “pipeline”
- 2) Identify and reduce implicit racial bias
- 3) Increase the number of URM Cardiologists
- 4) Take High Tech Cardiac Care to the Community
- 5) Educate Future Physicians on Healthcare Disparities
- 6) Standardize Algorithms of Care for All People/All Hospitals

### 1) DIVERSIFY THE PIPELINE



## 2) IDENTIFY AND REDUCE BIAS



## Implicit Racial Bias in Medical School Admissions

Quinn Capers IV, MD, Daniel Clinchot, MD, Leon McDougle, MD,  
and Anthony G. Greenwald, PhD

### Abstract

#### Problem

Implicit white race preference has been associated with discrimination in the education, criminal justice, and health care systems and could impede the entry of African Americans into the medical profession, where they and other minorities remain underrepresented. Little is known about implicit racial bias in medical school admissions committees.

#### Approach

To measure implicit racial bias, all 140 members of the Ohio State University College of Medicine (OSUCOM) admissions committee took the black-

white implicit association test (IAT) prior to the 2012–2013 cycle. Results were collated by gender and student versus faculty status. To record their impressions of the impact of the IAT on the admissions process, members took a survey at the end of the cycle, which 100 (71%) completed.

#### Outcomes

All groups (men, women, students, faculty) displayed significant levels of implicit white preference; men ( $d = 0.697$ ) and faculty ( $d = 0.820$ ) had the largest bias measures ( $P < .001$ ). Most survey respondents (67%) thought the IAT might be helpful in reducing

bias, 48% were conscious of their individual results when interviewing candidates in the next cycle, and 21% reported knowledge of their IAT results impacted their admissions decisions in the subsequent cycle. The class that matriculated following the IAT exercise was the most diverse in OSUCOM's history at that time.

#### Next Steps

Future directions include preceding and following the IAT with more robust reflection and education on unconscious bias. The authors join others in calling for an examination of bias at all levels of academic medicine.

*Academic Medicine.* March 2017

INCREASE THE # OF AFRICAN AMERICAN  
CARDIOLOGISTS



**EDUCATIONAL INNOVATION**

### Successful Efforts to Increase Diversity in a Cardiology Fellowship Training Program

Alex J. Aronow, DO  
Robert J. Kitzman Jr, MD  
Quinn Carter, MD

**Abstract**

**Background:** A large volume of literature has documented racial disparities in the delivery of cardiovascular care in the United States and that decreased access to procedures and undertreatment lead to worse outcomes. A lack of diversity among physicians is considered to be a major contributor. The fellowship training program in cardiovascular medicine at The Ohio State University Medical Center had never trained a fellow from a minority group underrepresented in medicine (URM) before 2007.

**Intervention:** In 2005, the fellowship made it a priority to recruit and match URM candidates in an effort to address the community's lack of diversity and disparities in cardiovascular care.

**Methods:** Program leaders revised the recruitment process, making diversity a high priority. Faculty met with members of diverse residency programs during visits to other institutions, the focus of interview day was changed to highlight mentorship, additional targeted postinterview communications reached out to highly competitive applicants, and a regular mentoring program was constructed to allow meaningful interaction with URM faculty and fellows.

**Results:** Since these changes were implemented, the program has successfully matched a URM fellow for 5 consecutive years. Such candidates currently make up 4 of 16 total trainees (25%) in the fellowship in cardiovascular medicine.

**Conclusions:** The cardiovascular medicine fellowship training program at The Ohio State University was able to revise recruitment to attract competitive URM applicants as part of a concerted effort. Other educational programs facing similar challenges may be able to learn from the university's experiences.

Circ: CV Qual Outcomes. 2020

J of Grad Med Education: 2013

Circulation: Cardiovascular Quality and Outcomes

#### CARDIOVASCULAR PERSPECTIVE

### The Accreditation Council for Graduate Medical Education Mandates That You Attempt to Enhance Diversity in Your Cardiology Program

Great! (How Do We Do That?)

A second-year internal medicine resident at University Hospital, Shawn, had always been interested in cardiology. Shawn was the only African American in the University Hospital program. During his postgraduate year 2, Shawn learned that his coreceptors interested in cardiology were all working on cardiology-related research projects with cardiology attendings with whom they had rotated. On the first day of his next cardiology rotation, he informed the attending of his interest in pursuing cardiology as a career. After 1 month of enthusiastically working very long hours, Shawn was disappointed when no mentorship offers or opportunities to work on a research project materialized.

Claire S. Duvernoy, MD  
Quinn Capers IV, MD

## EDUCATE FUTURE PHYSICIANS ON HEALTHCARE DISPARITIES

Week 08:

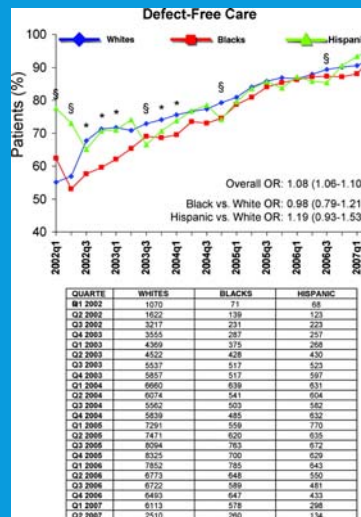
5/18/2015	5/19/2015	5/20/2015	5/21/2015	5/22/2015
8:00AM - 8:30AM <b>Overview of Diseases of Systemic Vessels - Ischemic; PAD, HBP</b> Lecture (4218) Instructor: Quinn Capers	8:00AM - 9:00AM <b>Diagnosis of Myocardial Ischemia</b> Lecture (6114) Instructor: Albert Kolibash	8:00AM - 9:00AM <b>Treatment of Myocardial Ischemia</b> Lecture (6118) Instructor: Albert Kolibash	8:00AM - 9:00AM <b>Complications of Infarction</b> Lecture (4229) Instructor: Quinn Capers, Peter Baker A/O: Peter Baker, Quinn Capers	8:00AM - 9:00AM <b>Peripheral Arterial Disease</b> Lecture (4233) Instructor: Quinn Capers
8:30AM - 9:30AM <b>Myocardial Ischemia and Risk Factors</b> Lecture (6112) Instructor: Albert Kolibash	9:00AM - 10:00AM <b>Imaging in Ischemic Heart Disease</b> Lecture (6115) Instructor: Laxmi Mehta	9:00AM - 9:30AM <b>Myocardial Ischemia- Case Presentation</b> Case-Based Instruction / Learning (6733) Instructor: Mary Beth Fontana, Albert Kolibash A/O: Albert Kolibash, Mary Beth Fontana	9:00AM - 10:30AM <b>Complication of Infarction</b> Case-Based Instruction / Learning (4230) Instructor: Mary Beth Fontana, Peter Baker	9:00AM - 10:30AM <b>Peripheral Arterial Disease - Case</b> Case-Based Instruction / Learning (4233) Instructor: Quinn Capers
9:30AM - 10:30AM <b>Pathology of Atherosclerosis</b> Lecture (4220) Instructor: Peter Baker	10:00AM - 12:00PM Due: 5/20/2015 8:00:00 AM <b>Anti-Anginal Drugs</b> Guided Learning (6127) Instructor: Daniel Mullet	9:30AM - 10:30AM <b>EKG's of Myocardial Ischemia, Injury, and Infarction</b> Lecture (6117) Instructor: Ernest Mazzaferrri	10:30AM - 12:00PM <b>Black-White and Male-Female Disparities in Cardiovascular Care</b> Lecture (3856) Instructor: Quinn Capers, Martha Gulati A/O: Martha Gulati, Quinn Capers	10:30AM - 12:00PM <b>Putting it All Together - Case Review</b> Lecture (4235) Instructor: Mary Beth Fontana
10:30AM - 11:00AM <b>Vascular Biology of Atherosclerosis</b> Lecture (6738) Instructor: Subha Raman	[Flex] 1:00PM - 4:00PM <b>Anatomy Dissection Review</b> Laboratory (6134) Instructor: Robert DePhilip	10:30AM - 12:00PM <b>Acute Coronary Syndromes</b> Lecture (6113) Instructor: Quinn Capers	1:00PM - 5:00PM <b>Cardiac Physiology Simulations</b> Simulation (6656) Instructor: Lori Meyers	1:00PM - 5:00PM <b>Cardiac Physiology Simulations</b> Simulation (6656) Instructor: Lori Meyers
1:00PM - 2:30PM Due: 5/20/2015 8:00:00 AM <b>Lipid Lowering Drugs</b> Guided Learning (4221) Instructor: Kirk Mykytyn	1:00PM - 5:00PM <b>Cardiac Physiology Simulations</b> Simulation (6656) Instructor: Lori Meyers			

## 6. STANDARDIZE ALGORITHMS OF CARE FOR ALL PEOPLE/ALL HOSPITALS

## Temporal trends in the use of defect-free care by race/ethnicity and enrollment per quarter in GWTG-CAD

### Proportion of MI pts receiving:

- 1) ACE/ARB for low EF
- 2) BB at DC
- 3) Statins at DC
- 4) Tobacco cessation
- 5) ASA on admission
- 6) ASA at DC
- 7) Revascularization



Cohen, M. G. et al. Circulation 2010;121:2294-2301

**Circulation**

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## SUMMARY

- Cardiovascular disease is the leading cause of death among all Americans
- Persistent disparities exist in the delivery of cardiovascular care in the US, with minorities and women less likely to receive top quality care
- Historical atrocities have set the stage for a lingering mistrust of the health care system by minority patients
- The problem is truly multifactorial, with many potential culprits (and solutions!)



"Of all the forms of inequality, injustice in health care is  
the most shocking and inhuman"—MLK, Jr