



# Prevention in Focus Webinar Series

**Welcome! We will begin shortly.**

# Prevention in Focus Webinar Series

## **FIERCE Exercise Study: A Community-Based Cancer Prevention Trial in Metabolically Unhealthy Black Women**



**Lucile Adams-Campbell,  
Ph.D.**

Professor of Oncology,  
Georgetown Lombardi  
Comprehensive Cancer  
Center

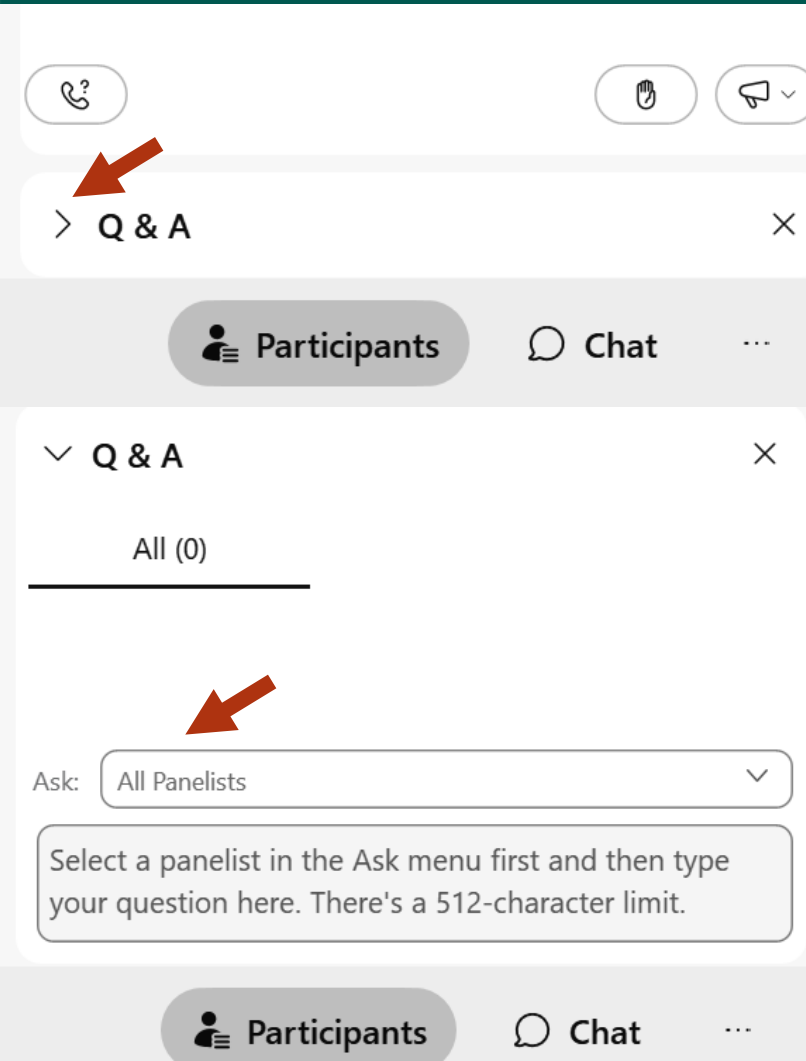


**Chiranjeep Dash, Ph.D., M.P.H.,  
M.B.B.S.**

Assistant Director of Health  
Disparities Research, Georgetown  
Lombardi Comprehensive Cancer  
Center

Introduction by Bryan B. Kim, Ph.D., Program Director, National Cancer Institute, Division of Cancer Control and Population Sciences

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## Upcoming Q & A Session

Please send us your questions  
via the **Q & A pod** directed to  
**All Panelists**

Please use the Chat pod to request technical assistance

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## FIERCE Exercise Study: A Community-Based Cancer Prevention Trial in Metabolically Unhealthy Black Women

Lucile L. Adams-Campbell, PhD

Chiranjeev Dash, MBBS, PhD, MPH

*Cancer Prevention & Control Program*

*Office of Minority Health & Health Disparities Research*

Georgetown | Lombardi

COMPREHENSIVE CANCER CENTER





# CONFLICT OF INTEREST DISCLOSURES

*ADAMS-CAMPBELL: NONE*

*DASH: NONE*



# OVERVIEW

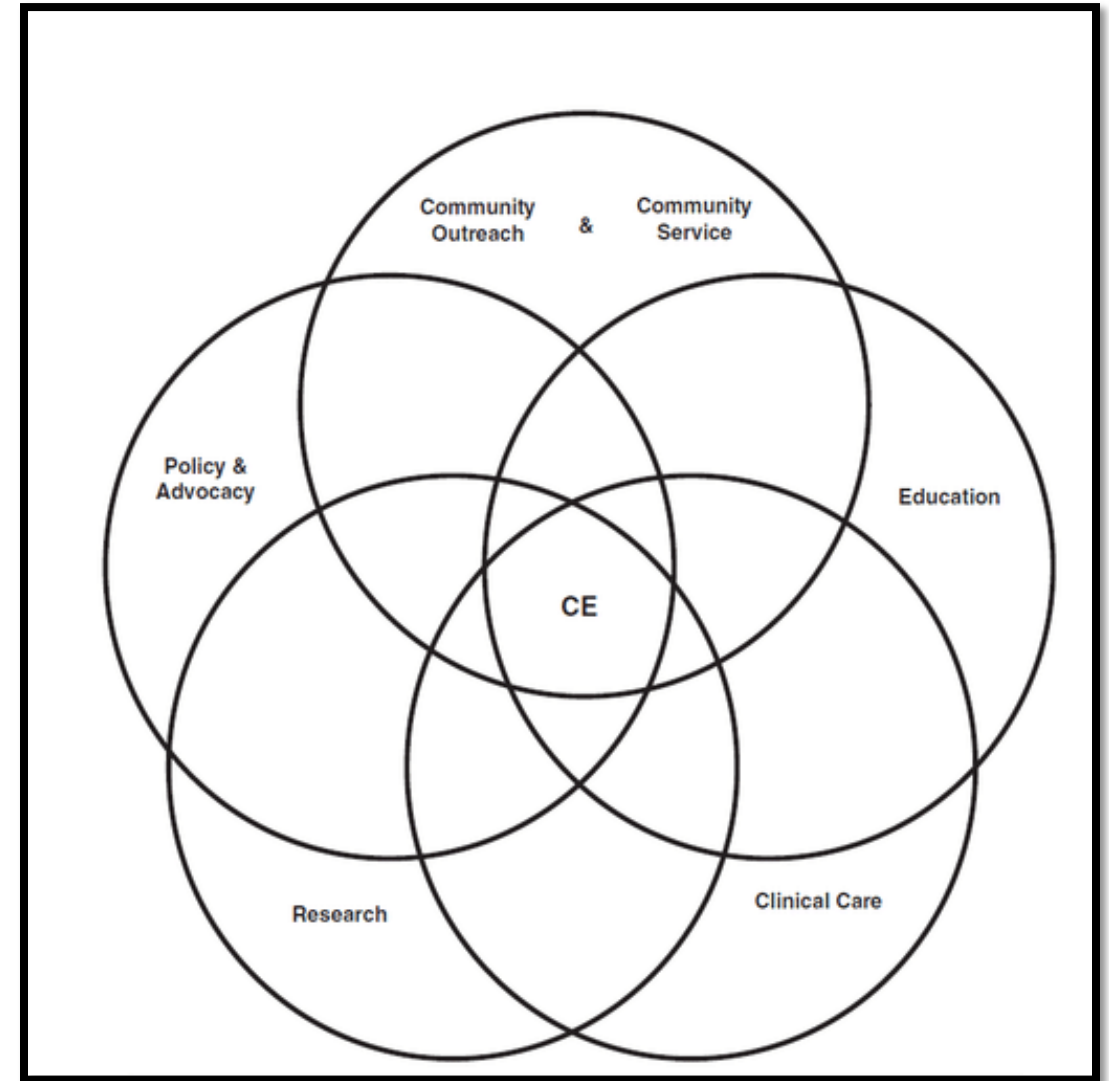
- BREAST CANCER BURDEN AND DISPARITIES IN THE DC METROPOLITAN AREA
- OBESITY, PHYSICAL ACTIVITY AND METABOLIC SYNDROME
- COMMUNITY-ENGAGED RESEARCH ON CANCER DISPARITIES
- FIERCE TRIAL
  - DESIGN
  - ELIGIBILITY AND SCREENING
  - METHODS
  - RESULTS



# COMMUNITY ENGAGED RESEARCH

“THE PROCESS OF WORKING COLLABORATIVELY WITH GROUPS OF PEOPLE WHO ARE AFFILIATED BY GEOGRAPHIC PROXIMITY, SPECIAL INTERESTS, OR SIMILAR SITUATIONS WITH RESPECT TO ISSUES AFFECTING THEIR WELL-BEING”.

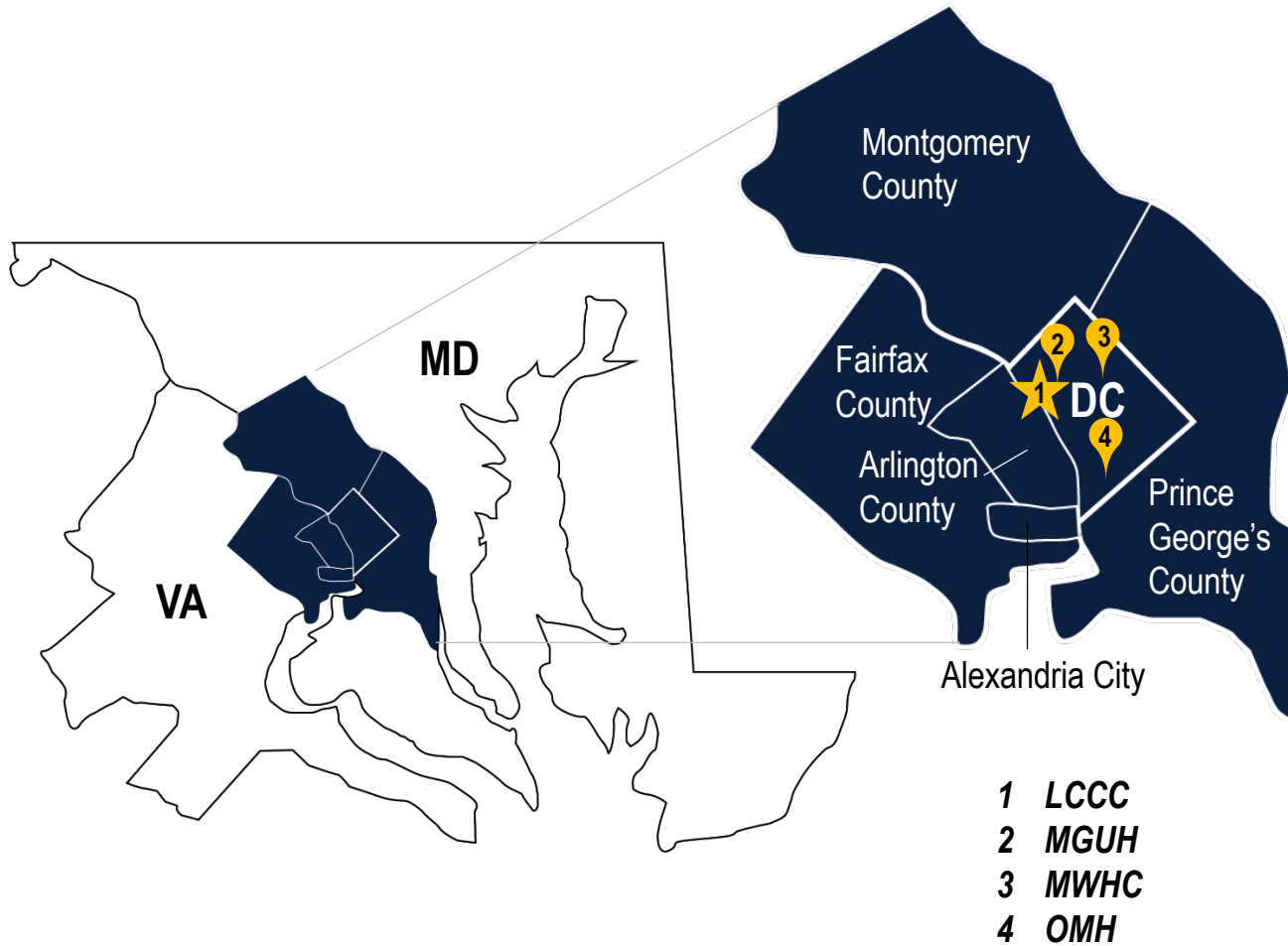
*CDC ATSDR, PRINCIPLES OF COMMUNITY ENGAGEMENT, 1997, P 9*







# CATCHMENT AREA

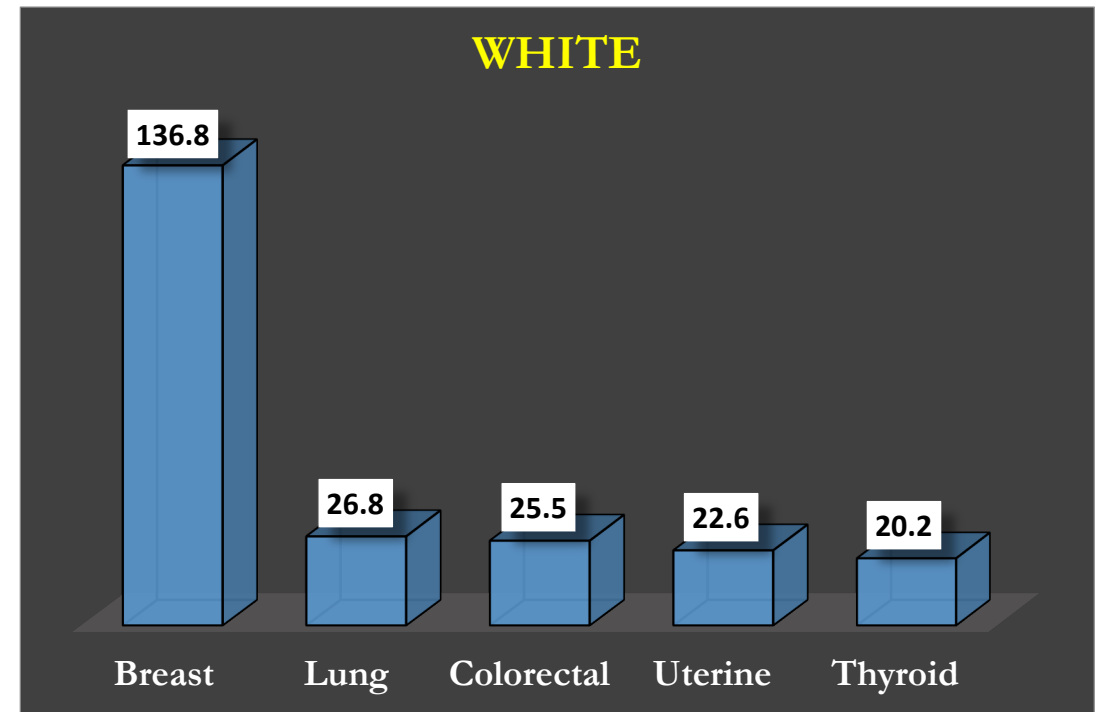
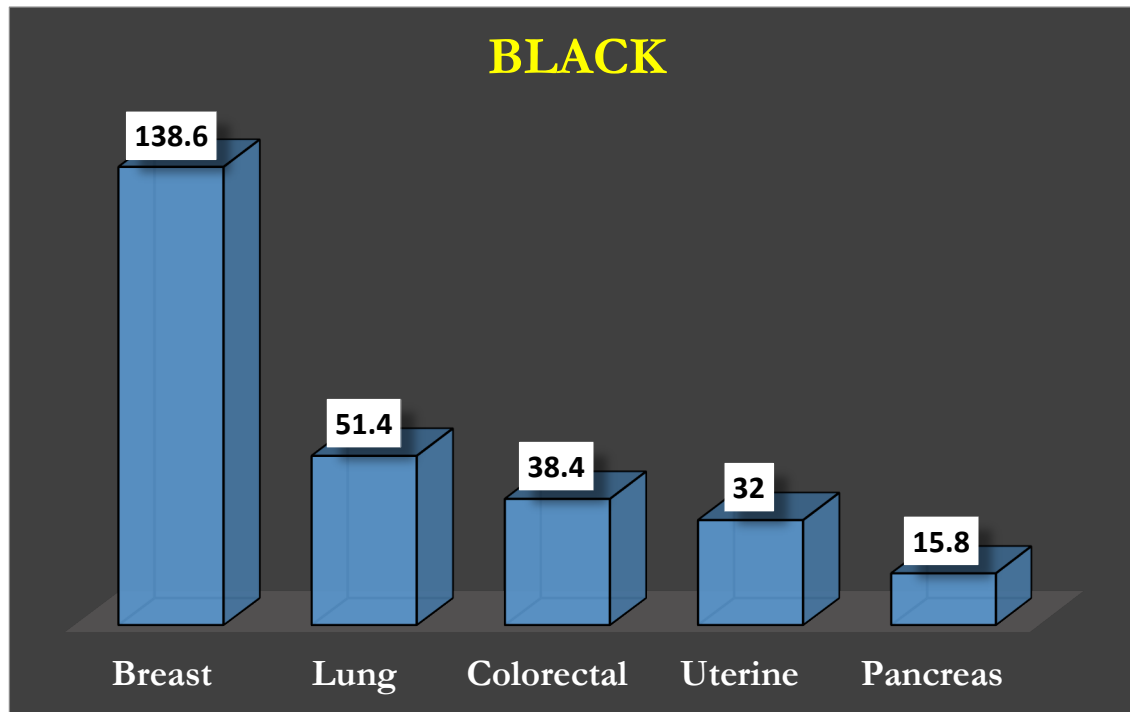


|                    | Catchment Area Population, %<br>(N = 4,209,566) | Catchment Area Cancers, %<br>(N = 16,678) | MGUH/MWHC Cancer, %<br>(n = 4,227) |
|--------------------|---|---|------------------------------------|
| Female             | 51.4  | 52.8                                      | 50.2                               |
| Hispanic / Latino* | 17.1  | 7.0                                       | 4.3                                |
| White              | 51.9  | 53.3                                      | 40.3                               |
| <b>Black</b>       | <b>31.0</b>                                     | <b>34.4</b>                               | <b>50.9</b>                        |
| Asian              | 11.8  | 7.9                                       | 2.5                                |
| Age 0-<18          | 21.6  | <1  | <1                                 |
| Age 18-<64         | 64.5  | 50.1                                      | 50.0                               |
| Age 65+            | 13.9  | 49.2                                      | 49.9                               |

\*Salvadorian, Mexican, Guatemalan



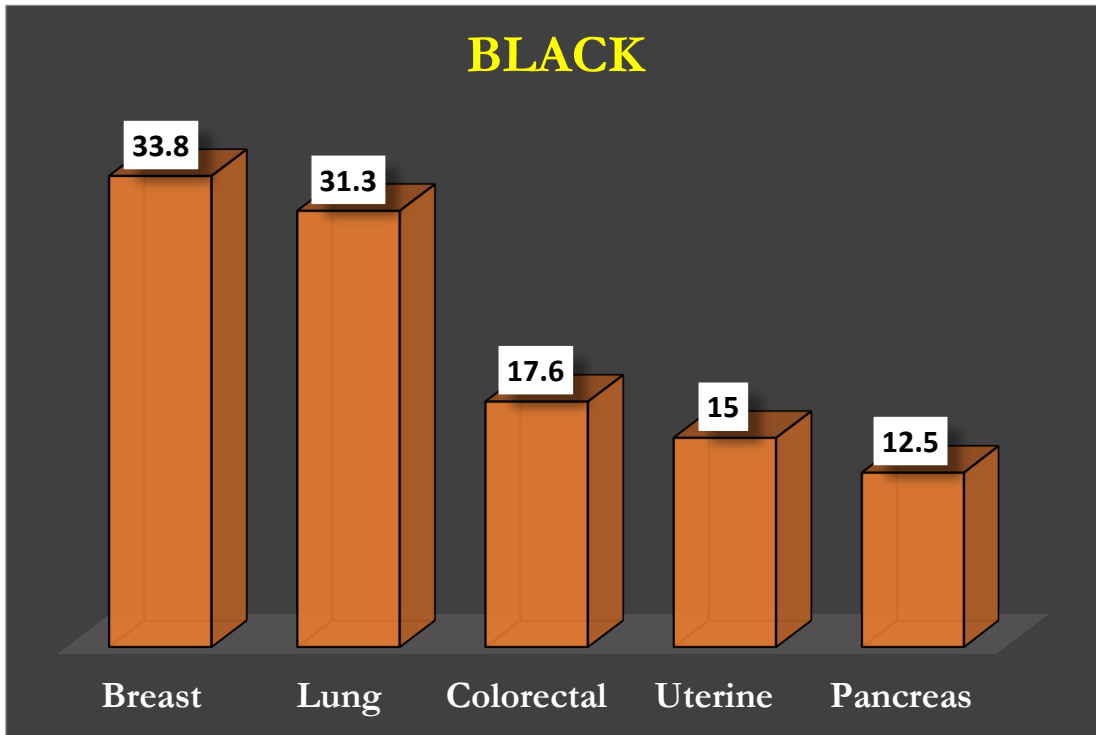
# CANCER BURDEN - INCIDENCE: DC (FEMALES, 2014-2018)



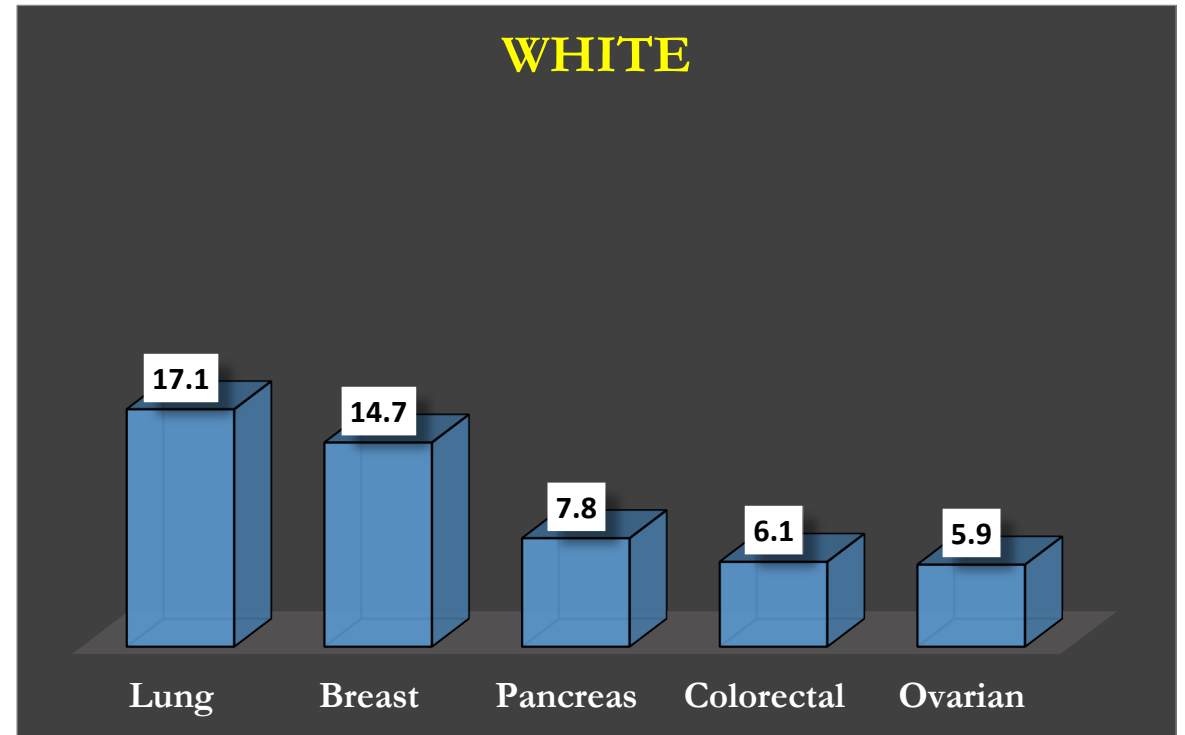


# CANCER BURDEN - MORTALITY: DC (FEMALES, 2014-2018)

## BLACK

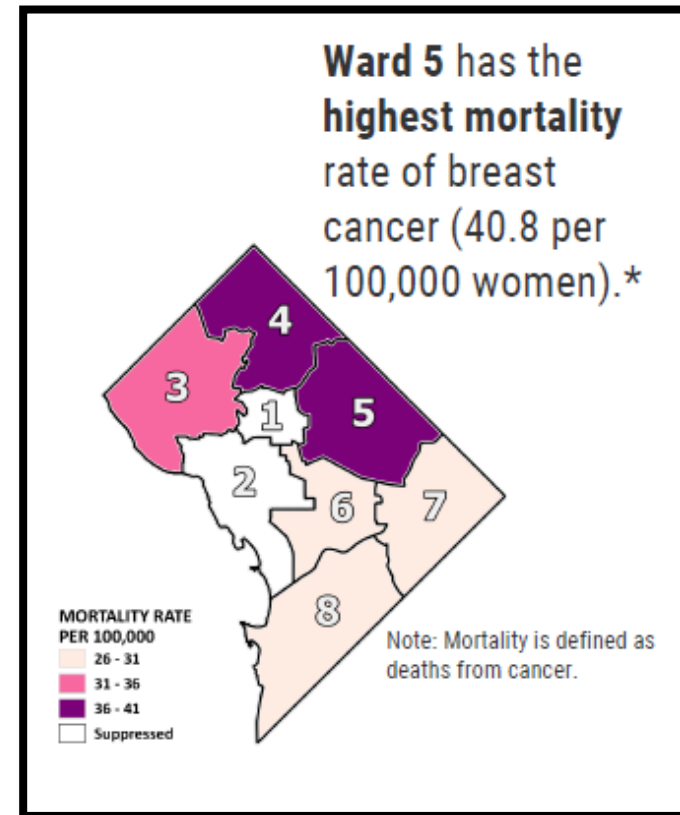
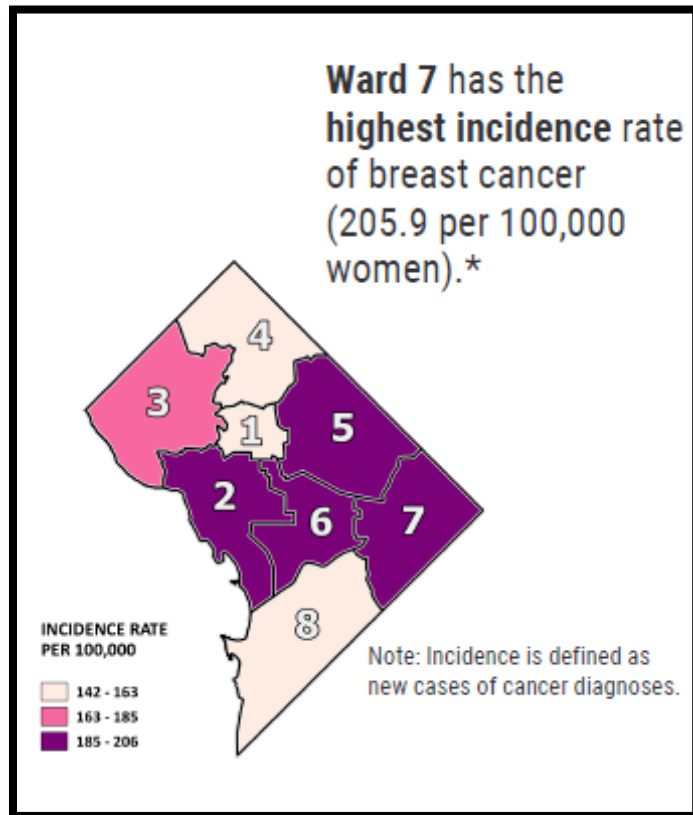


## WHITE





# GEOGRAPHIC DISPARITIES: BREAST CANCER



\*2016 age-standardized rates from the DC Cancer Registry

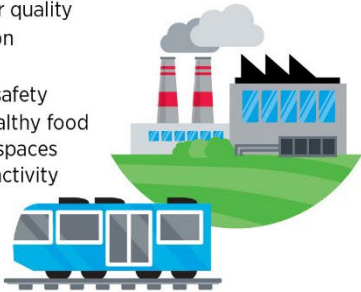


## Why Do U.S. Cancer Health Disparities Exist?

Complex and interrelated factors contribute to cancer health disparities in the United States. Adverse differences in many, if not all, of these factors are directly influenced by structural and systemic racism. The factors may include, but are not limited to, differences or inequalities in:

### ENVIRONMENTAL FACTORS

- Air and water quality
- Transportation
- Housing
- Community safety
- Access to healthy food sources and spaces for physical activity



### BEHAVIORAL FACTORS

- Tobacco use
- Diet
- Excess body weight
- Physical inactivity
- Adherence to cancer screening and vaccination recommendations



### SOCIAL FACTORS

- Education
- Income
- Employment
- Health literacy



### CLINICAL FACTORS

- Access to health care
- Quality of health care



### CULTURAL FACTORS

- Cultural beliefs
- Cultural health beliefs

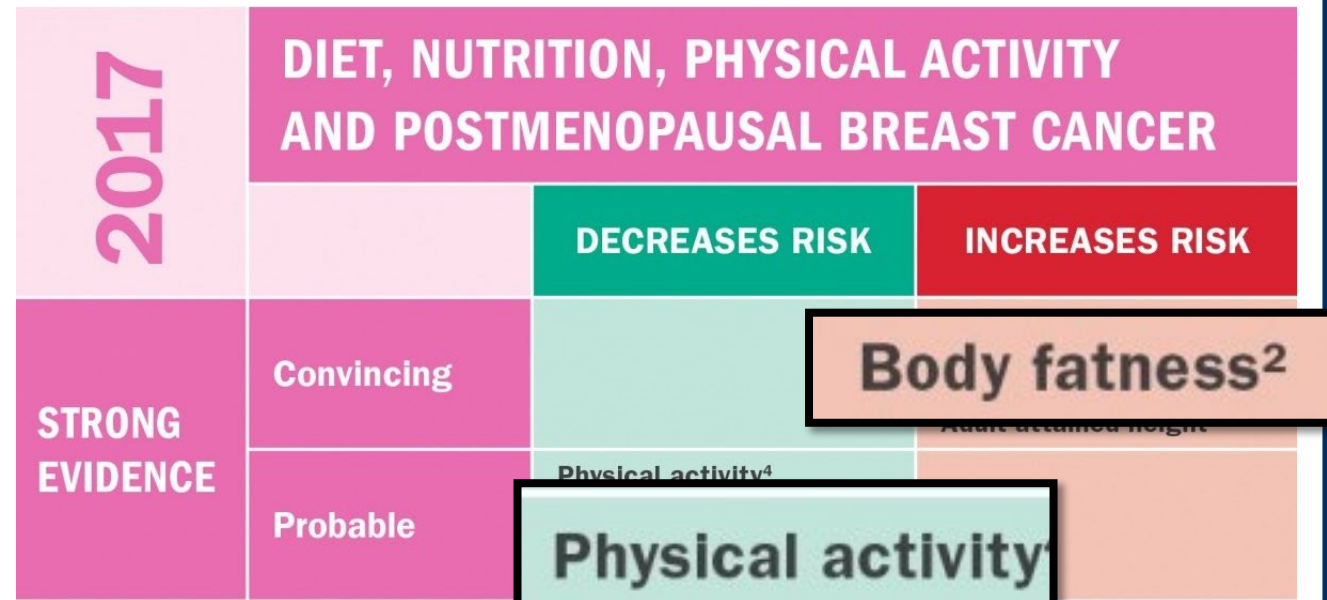


### PSYCHOLOGICAL FACTORS

- Stress
- Mental health



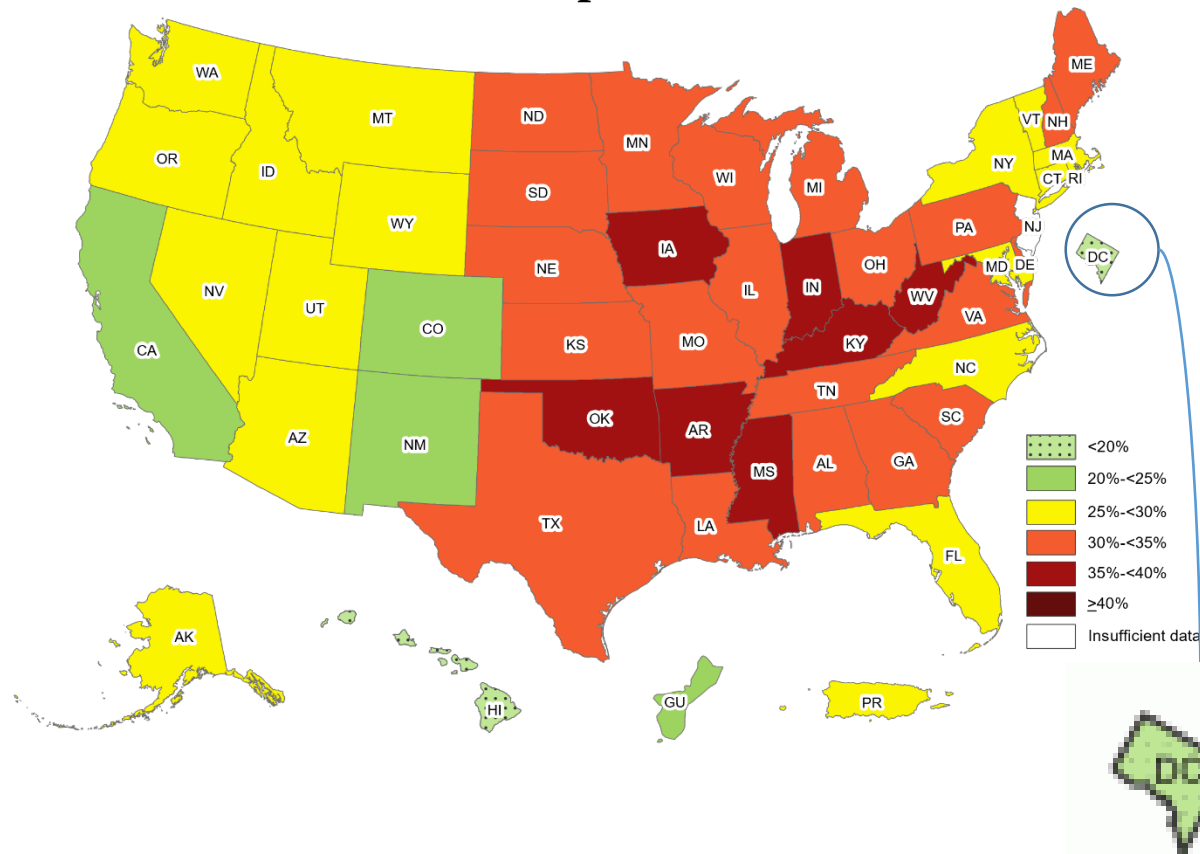
### BIOLOGICAL AND GENETIC FACTORS



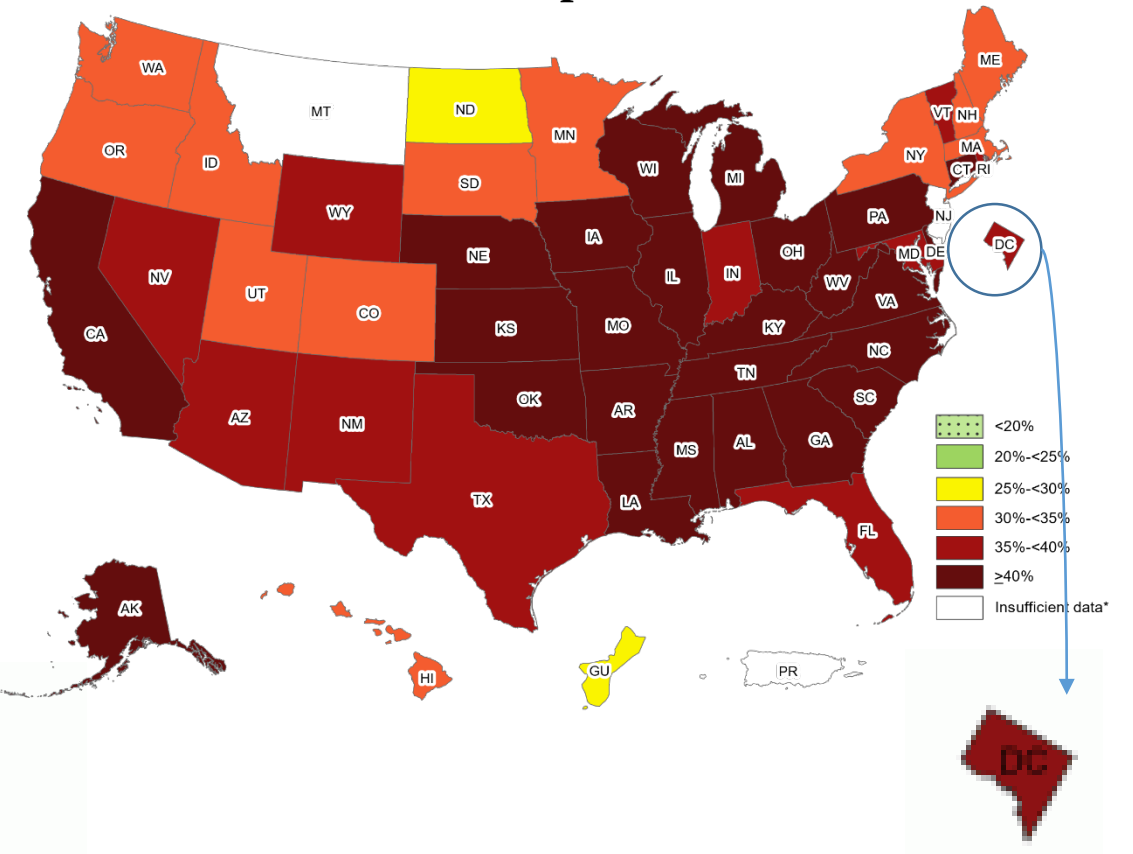


# DISPARITIES IN BODY FATNESS

Non-Hispanic White



Non-Hispanic Black

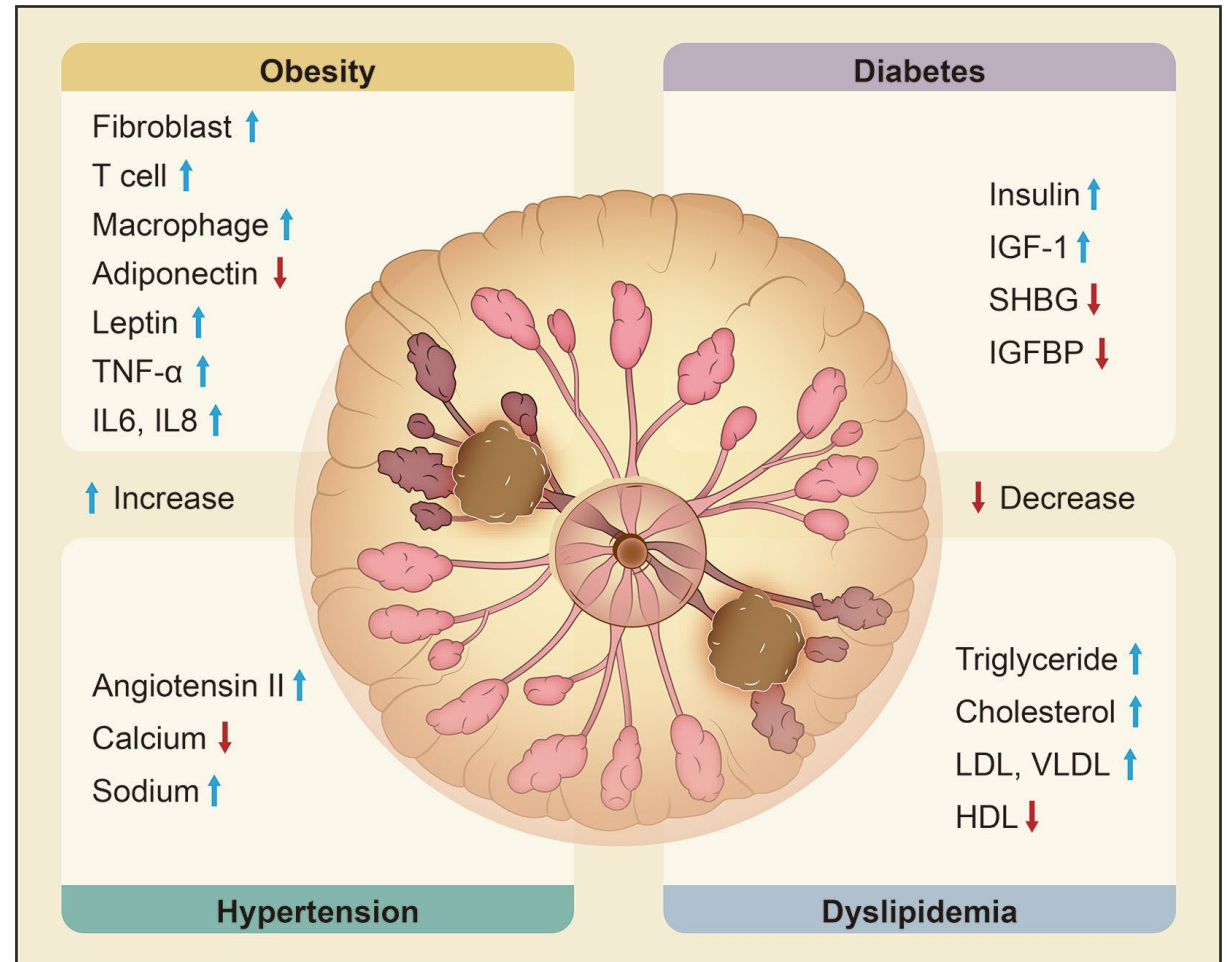


# METABOLIC SYNDROME AND BREAST CANCER

**← METABOLIC SYNDROME →**

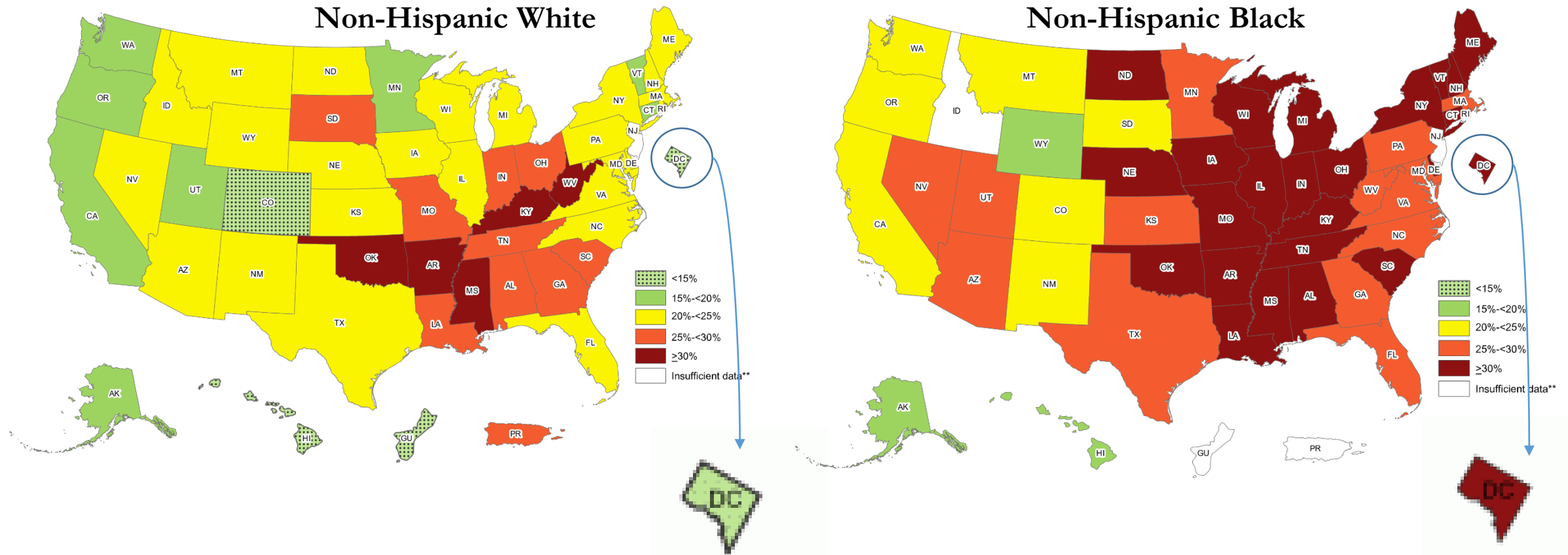
- HIGH BLOOD SUGAR
- HIGH BLOOD PRESSURE
- LOW HDL (GOOD) CHOLESTEROL
- HIGH TRIGLYCERIDES
- EXCESS FAT AROUND WAIST

**EVEN AT A HEALTHY WEIGHT, PEOPLE CAN HAVE METABOLIC SYNDROME, INCREASING RISK FOR CERTAIN CANCERS.**





# DISPARITIES IN PHYSICAL INACTIVITY





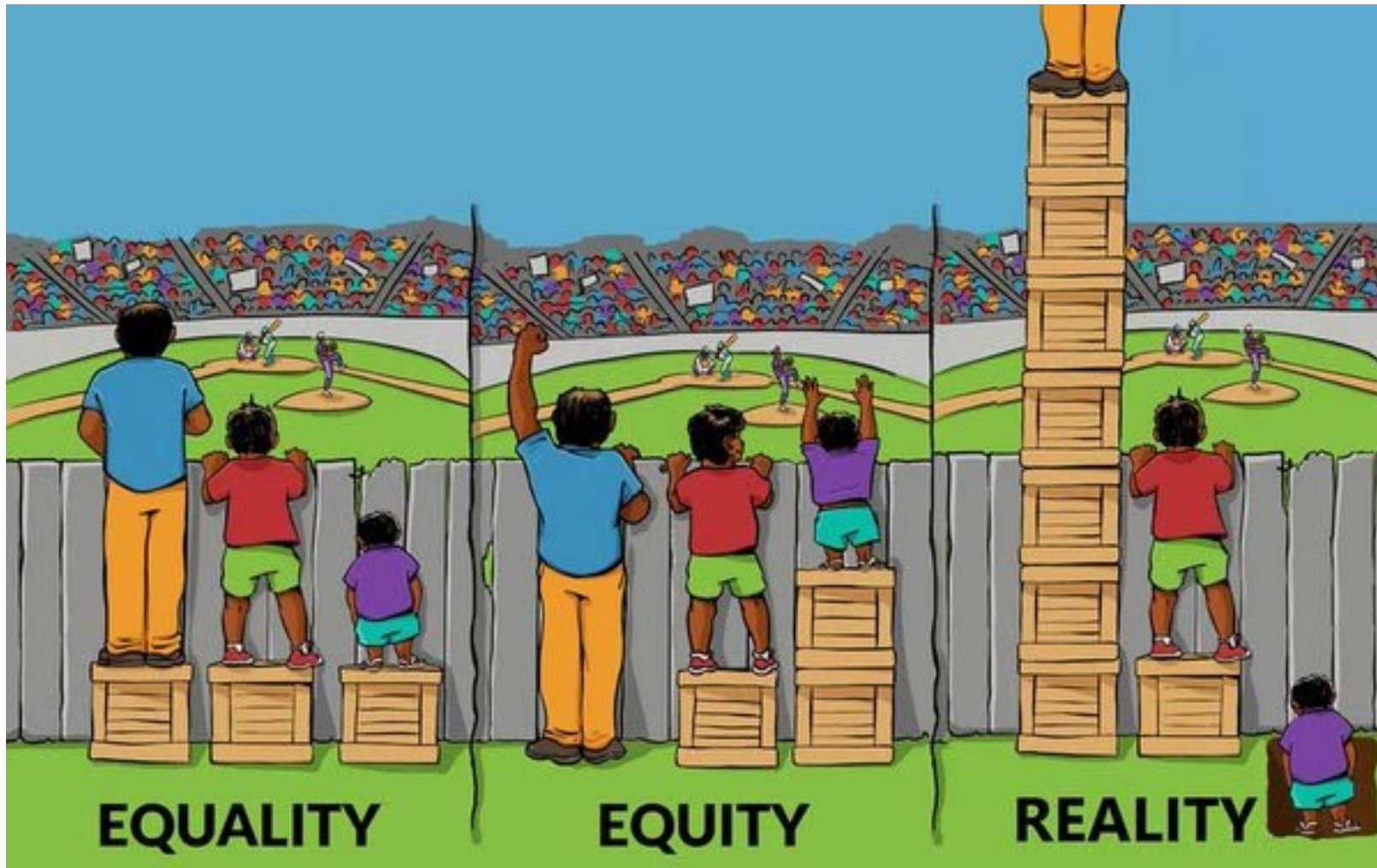


# SIGNIFICANCE

- DISPARITIES IN OBESITY AND RELATED METABOLIC ABNORMALITIES; AND PHYSICAL INACTIVITY – BREAST CANCER DISPARITIES
- INTERVENTIONS TO INCREASE PA AND REDUCE METABOLIC SYNDROME IN POSTMENOPAUSAL WOMEN AT HIGH RISK OF BREAST CANCER - EFFECTIVE PREVENTION APPROACH
- EVIDENCE IN BLACK WOMEN LIMITED AND STRONG SUPPORT FOR COMMUNITY-BASED TRANSLATIONAL RESEARCH FROM COMMUNITY ADVISORY COUNCIL

*IS A COMMUNITY-BASED EXERCISE INTERVENTION IN BLACK WOMEN AT INCREASED RISK OF BREAST CANCER EFFECTIVE IN MODULATING METABOLIC SYNDROME?*

*WILL A HOME-BASED (LESS RESOURCES) EXERCISE INTERVENTION BE AS EFFECTIVE AS A SUPERVISED FACILITY-BASED (MORE RESOURCES) INTERVENTION?*





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Research and Practice Methods

## Enrolling Minority and Underserved Populations in Cancer Clinical Research

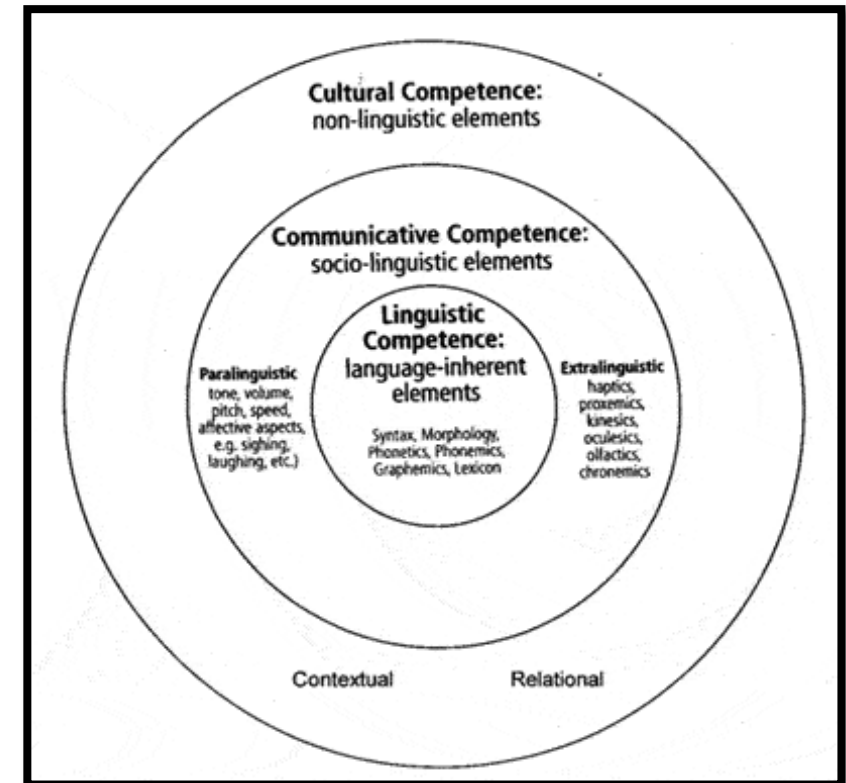
Sherrie F. Wallington PhD<sup>1</sup> ✉, Chiranjeev Dash PhD<sup>1</sup>, Vanessa B. Sheppard PhD<sup>1</sup>, Tawara D. Goode MA<sup>2</sup>, Bridget A. Oppong MD<sup>1,3</sup>, Everett E. Dodson,<sup>1</sup> Rhonda N. Hamilton MA<sup>1</sup>, Lucile L. Adams-Campbell PhD<sup>1</sup>

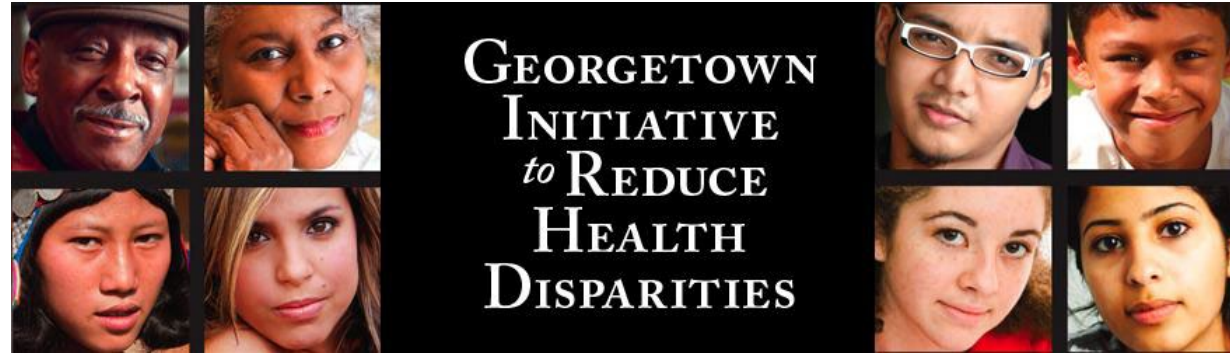


Location in the community  
(South East DC)

Staff diversity

Cultural competency – ensuring study methods (i.e., team composition, procedures, recruitment efforts and materials) are in concert with values of the underrepresented population



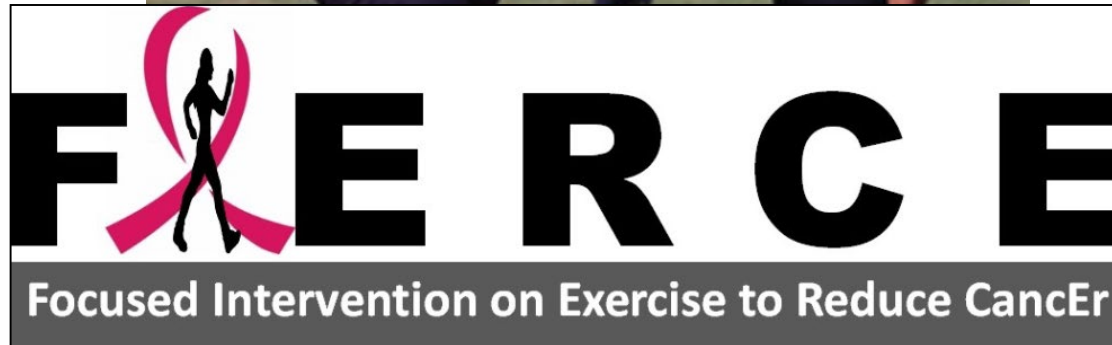


**CENTER OF EXCELLENCE FOR  
Health Disparities  
IN THE NATION'S CAPITAL**

GEORGETOWN  
UNIVERSITY

HOWARD  
UNIVERSITY

MedStar Health





# SPECIFIC AIMS

TO COMPARE THE IMPACT OF A SUPERVISED FACILITY-BASED AND A HOME-BASED EXERCISE INTERVENTION ON OBESITY, METABOLIC SYNDROME COMPONENTS, AND BREAST CANCER BIOMARKERS IN POSTMENOPAUSAL, METABOLICALLY UNHEALTHY AFRICAN-AMERICAN WOMEN WHO ARE AT INCREASED RISK OF BREAST CANCER.



# METHODS - OVERVIEW

## 6 MONTHS, THREE-ARM RCT



| <b>Supervised facility-based exercise</b>  | <b>Home-based exercise</b>  | <b>Control</b>  |
|--|---|---|
| <ul style="list-style-type: none"><li>- 75 - 150 min/wk, 3 days/wk, 6 months in facility.</li><li>- 45-65% baseline VO<sub>2</sub>.</li><li>- 11-14 RPE.</li><li>- Exercise diary/journal.</li><li>- No diet change.</li></ul> | <ul style="list-style-type: none"><li>- 30-45 min/day, 4 days/week, 6 months at home.</li><li>- 7,000 -10,000 steps/day.</li><li>- Weekly text message "Goal motivators."</li><li>- Exercise diary/journal.</li><li>- No diet change.</li></ul> | <ul style="list-style-type: none"><li>- Current daily activities and exercise habits.</li><li>- Weekly text message "Healthy lifestyles."</li><li>- No diet change.</li></ul> |





# ELIGIBILITY



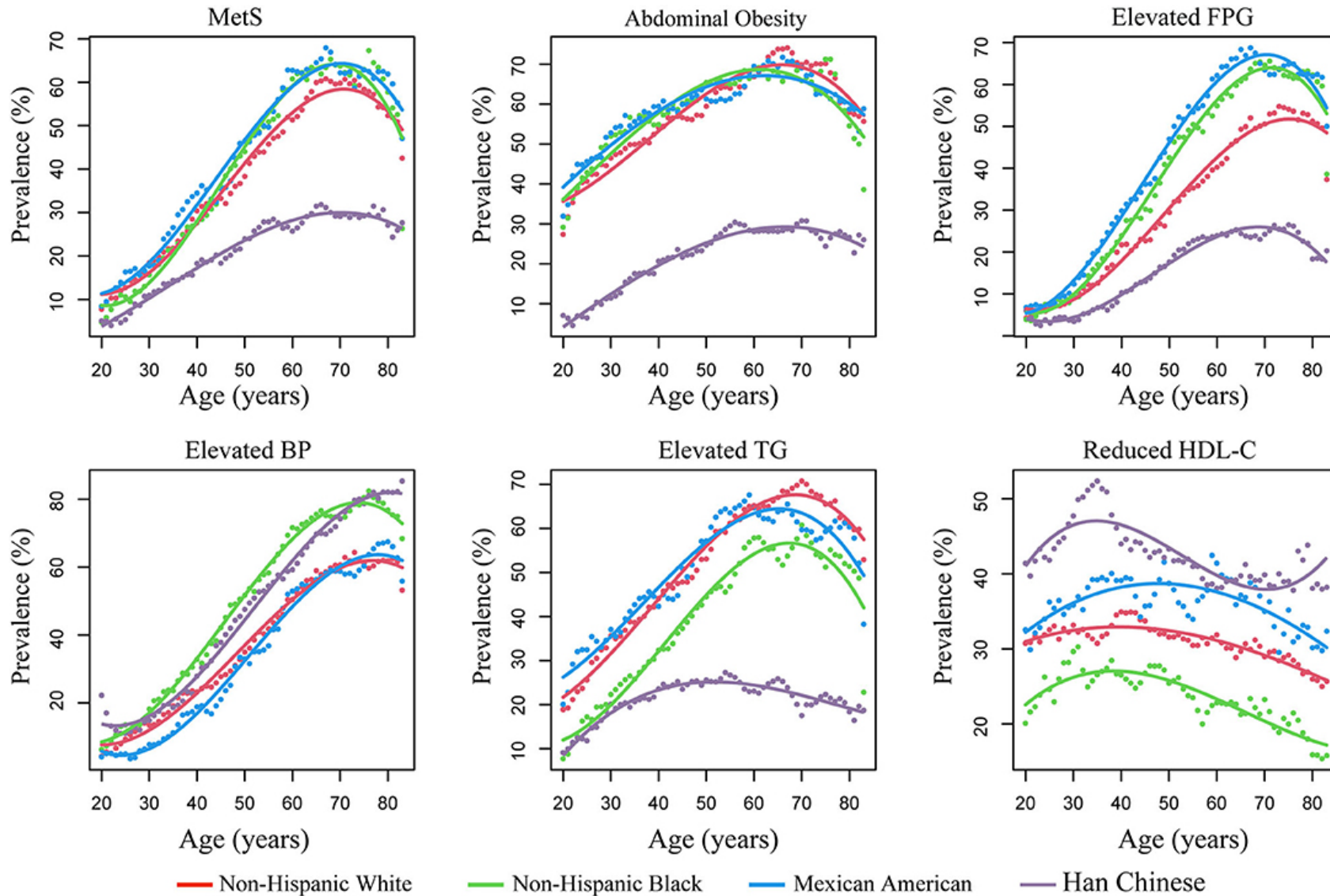
## • INCLUSION CRITERIA

- AFRICAN AMERICAN WOMEN
- BETWEEN 45-65 YEARS OF AGE
- POSTMENOPAUSAL
- 5 YEARS INDIVIDUAL INVASIVE BREAST CANCER RISK  $\geq 1.40\%$  (CARE MODEL)
- METABOLICALLY UNHEALTHY:
  - WAIST CIRCUMFERENCE  $>35$  INCHES (88CM)
  - AT LEAST ONE OF THE FOLLOWING:
    - **FASTING GLUCOSE  $>100$  MG/DL**
    - **BP  $\geq 130/85$  MMHG**

## • EXCLUSION CRITERIA

- HISTORY OF CANCER EXCEPT NON-MELANOMA SKIN CANCER
- DIABETES OR USE OF ANTI-DIABETIC MEDICATIONS
- CURRENT ENROLLMENT IN ANOTHER PA OR DIETARY CLINICAL TRIAL OR WEIGHT LOSS PROGRAM
- INABILITY TO COMMIT TO THE INTERVENTION SCHEDULE







# RECRUITMENT



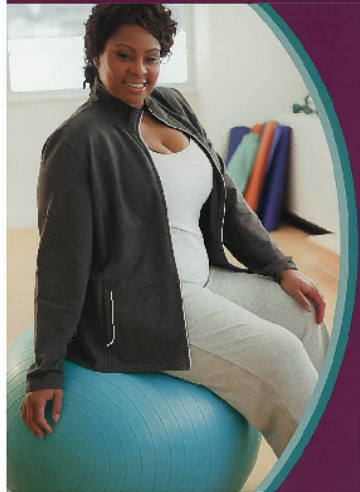
IF YOUR GOALS ARE TO lose weight and reduce the risk of diabetes, heart disease, and breast cancer then the program is for you.

**If you qualify you will receive:**

- Complete fitness and body assessment
- Coaching support and consultation with an exercise physiologist (fitness expert)
- Up to a total of \$75 in grocery gift cards over the study period

Call immediately to see if you qualify:  
202-687-5367

Office of Minority Health and Health Disparities Research  
Georgetown-Lombardi  
Comprehensive Cancer Center  
1100 New Jersey Ave SE  
Washington, DC 20005



## ATTENTION LADIES!

Women needed for a 6 month exercise program



To qualify you must be a postmenopausal African-American woman between the ages of 45-55.

Sponsored by Georgetown-Lombardi Comprehensive Cancer Center and National University Cancer Center

Georgetown | Lombardi  
COMPREHENSIVE CANCER CENTER



Georgetown University

- RECRUITED WITH THE SUPPORT OF THE COMMUNITY ENGAGEMENT CORE
- RECRUITMENT STRATEGIES
  - MAMMOGRAPHY CLINICS
  - CHURCH NEWSLETTERS
  - NEIGHBORHOOD FLYERS
  - WORD OF MOUTH
  - COMMUNITY ADVISORY COUNCIL
  - PHYSICIAN OFFICES
- 2-STAGE SCREENING PROCESS: PHONE-BASED AND IN-PERSON



# ASSESSMENTS

- MEDICAL HISTORY AND DEMOGRAPHICS
- ANTHROPOMETRICS
  - HEIGHT, WEIGHT, WC, HIP CIRCUMFERENCE, BMI, BODY COMPOSITION (DXA)
- BLOOD PRESSURE, HEART RATE
- VO<sub>2</sub> MAX
- PHYSICAL ACTIVITY
  - 7 DAY PHYSICAL ACTIVITY RECALL (PAR-Q)
- FOOD INTAKE (BLOCK 2005 FFQ)
- HEALTH RELATED QUALITY OF LIFE (SF-36)
- FASTING BLOOD SAMPLE - SERUM



## **METABOLIC SYNDROME**

- 3 OR MORE OF THE FOLLOWING 5 FACTORS:
  - WAIST CIRCUMFERENCE  $\geq$  88 CM,
  - FASTING GLUCOSE  $\geq$  100 MG/DL,
  - SYSTOLIC BLOOD PRESSURE  $\geq$  130MM HG OR DIASTOLIC BLOOD PRESSURE  $\geq$  85MM HG,
  - TRIGLYCERIDES  $\geq$  150 MG/DL, AND
  - HDL CHOLESTEROL  $<$  50
- CONTINUOUS Z-SCORE USING CLINICAL CUTOFFS AND STANDARD DEVIATIONS IN THE STUDY POPULATION



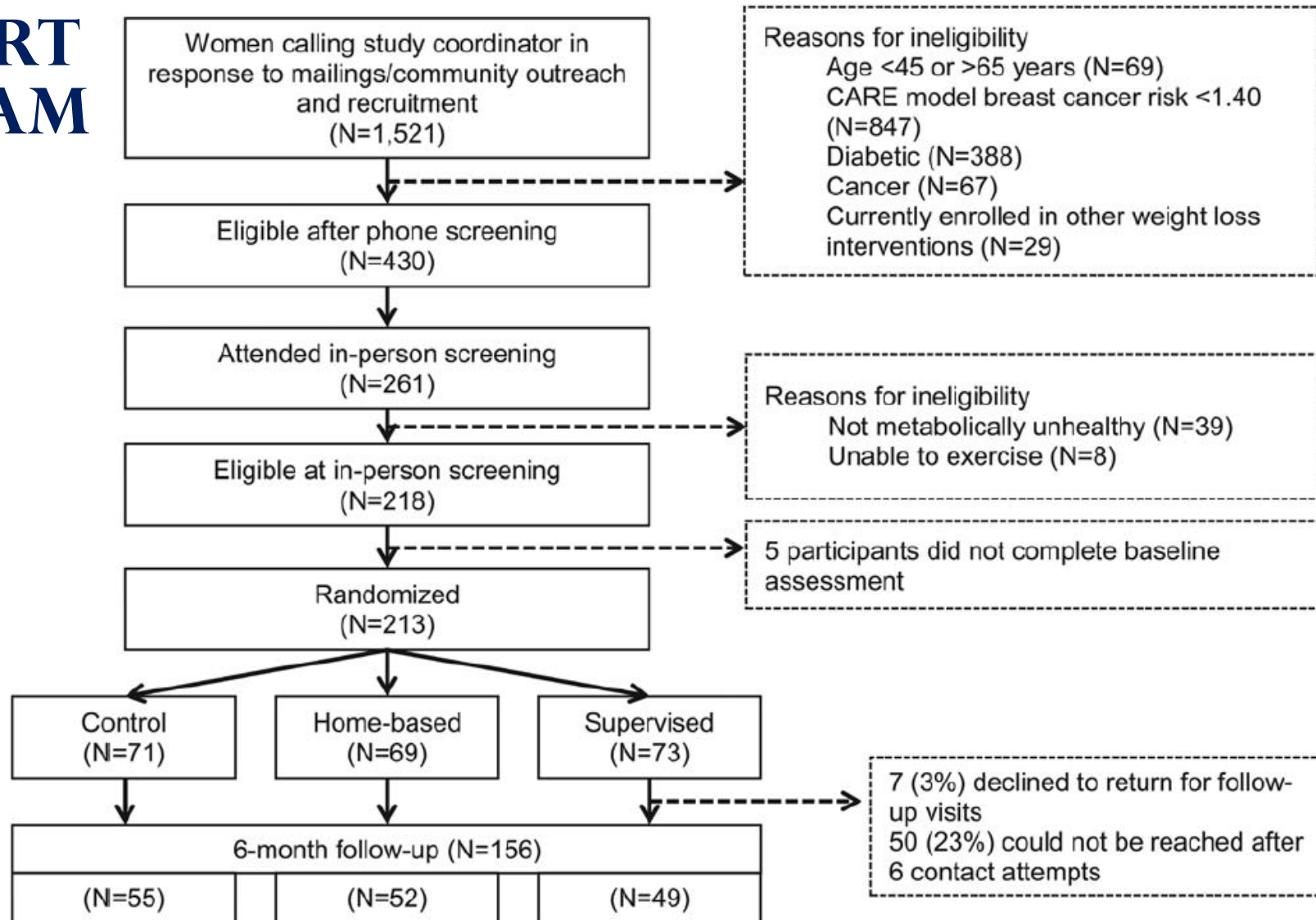
# SCREENING POPULATION (N=1,521)



| Characteristics  |             |
|--|-------------|
| Age, in years, Mean (SD)                               | 55          |
| Overweight/obese                                       | 85%         |
| H/o diabetes   | 26%         |
| H/o hypertension                                       | 60%         |
| H/o hypercholesterolemia                               | 41%         |
| H/o cancer   | 4%          |
| Absolute risk of breast cancer (CARE model), Mean (SD) | 1.47 (0.68) |
| $\geq 1.67$  | 22%         |
| $\geq 1.40$  | 44%         |



# CONSORT DIAGRAM



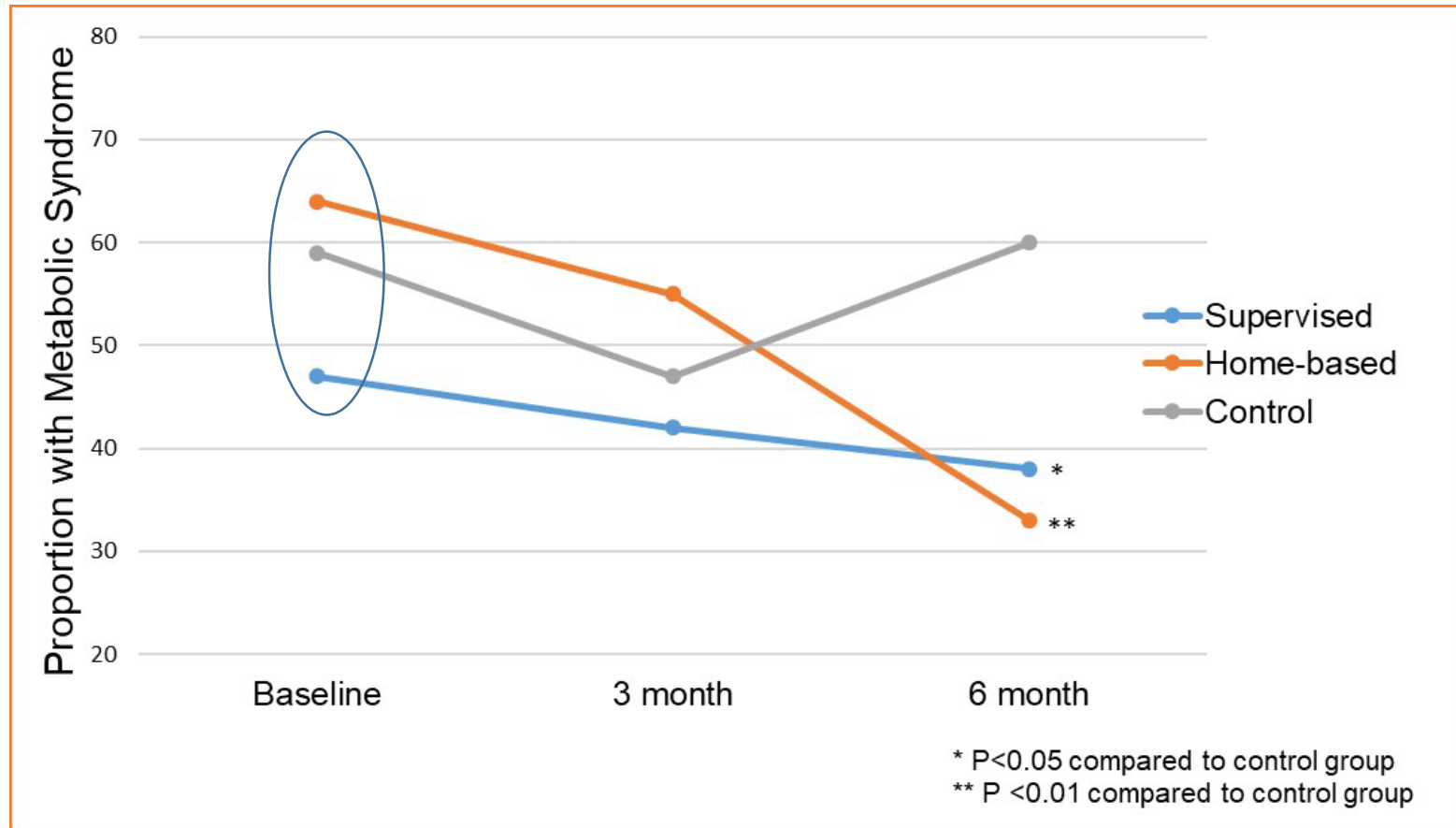


# BASELINE CHARACTERISTICS

|   | Control<br>(N=71) | Home-Based<br>Exercise<br>(N=69) | Supervised<br>Exercise<br>(N=73) |
|---|-------------------|----------------------------------|----------------------------------|
| <b>Age, mean(SD)</b>  | 58.39(5.31)       | 58.27(4.69)                      | 58.11(5.10)                      |
| <b>Smoking, n(%)</b>  |                   |                                  |                                  |
| <b>Current smoker</b>   | 11 (16)           | 14 (20)                          | 5 (7)                            |
| <b>Former smoker</b>  | 20 (28)           | 21 (31)                          | 30 (41)                          |
| <b>Never smoker</b>   | 40 (56)           | 34 (49)                          | 38 (52)                          |
| <b>Body mass index, in kg/m<sup>2</sup>, mean (SD)</b>                  | 35.9 (7.6)        | 36.1 (7.2)                       | 35.2 (6.1)                       |
| <b>MET-hours per week, mean (SD)</b>                                    | 4.12 (4.38)       | 4.30 (4.85)                      | 4.49 (4.54)                      |
| <b>Total energy intake, in kcal, mean (SD)</b>                          | 1,847 (1,004)     | 1,852 (1,030)                    | 1,900 (1,300)                    |
| <b>Family history of breast cancer in first degree relatives, n (%)</b> | 24 (34)           | 32 (46)                          | 29 (40)                          |
| <b>Absolute 5-year risk of breast cancer, mean (SD)</b>                 | 1.81 (0.61)       | 1.85 (0.48)                      | 1.92 (0.78)                      |

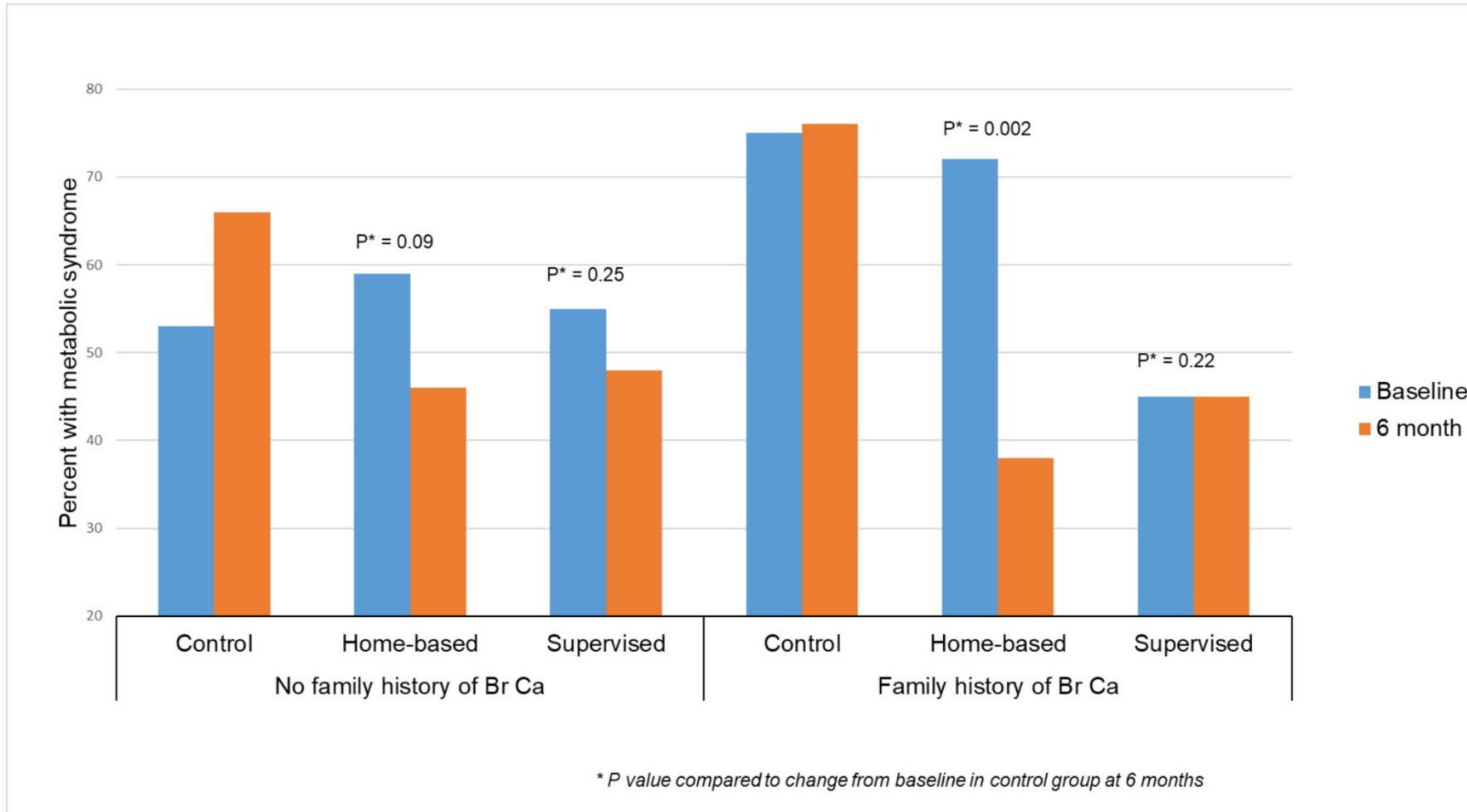


# METABOLIC SYNDROME





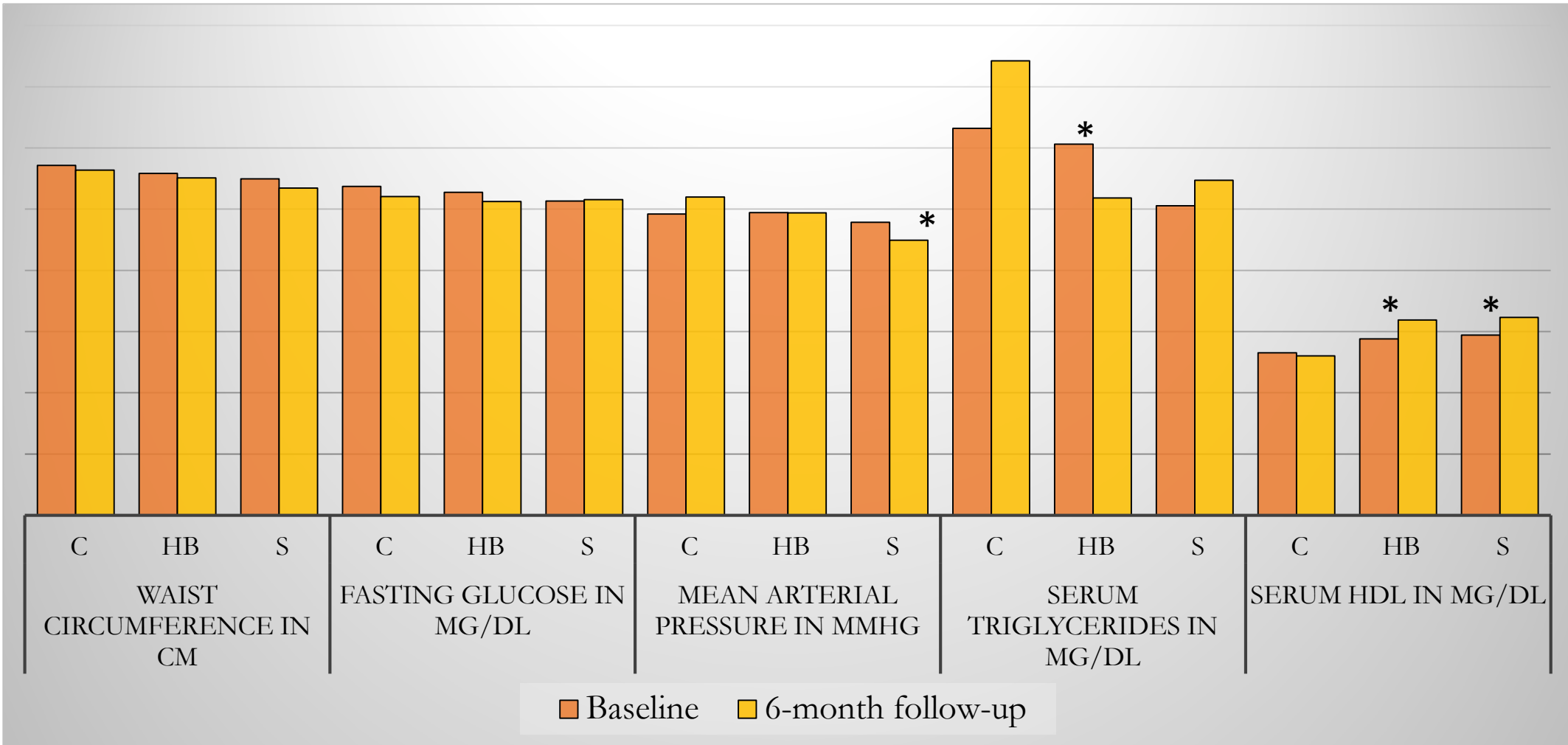
# METABOLIC SYNDROME BY FAMILY HISTORY OF BREAST CANCER





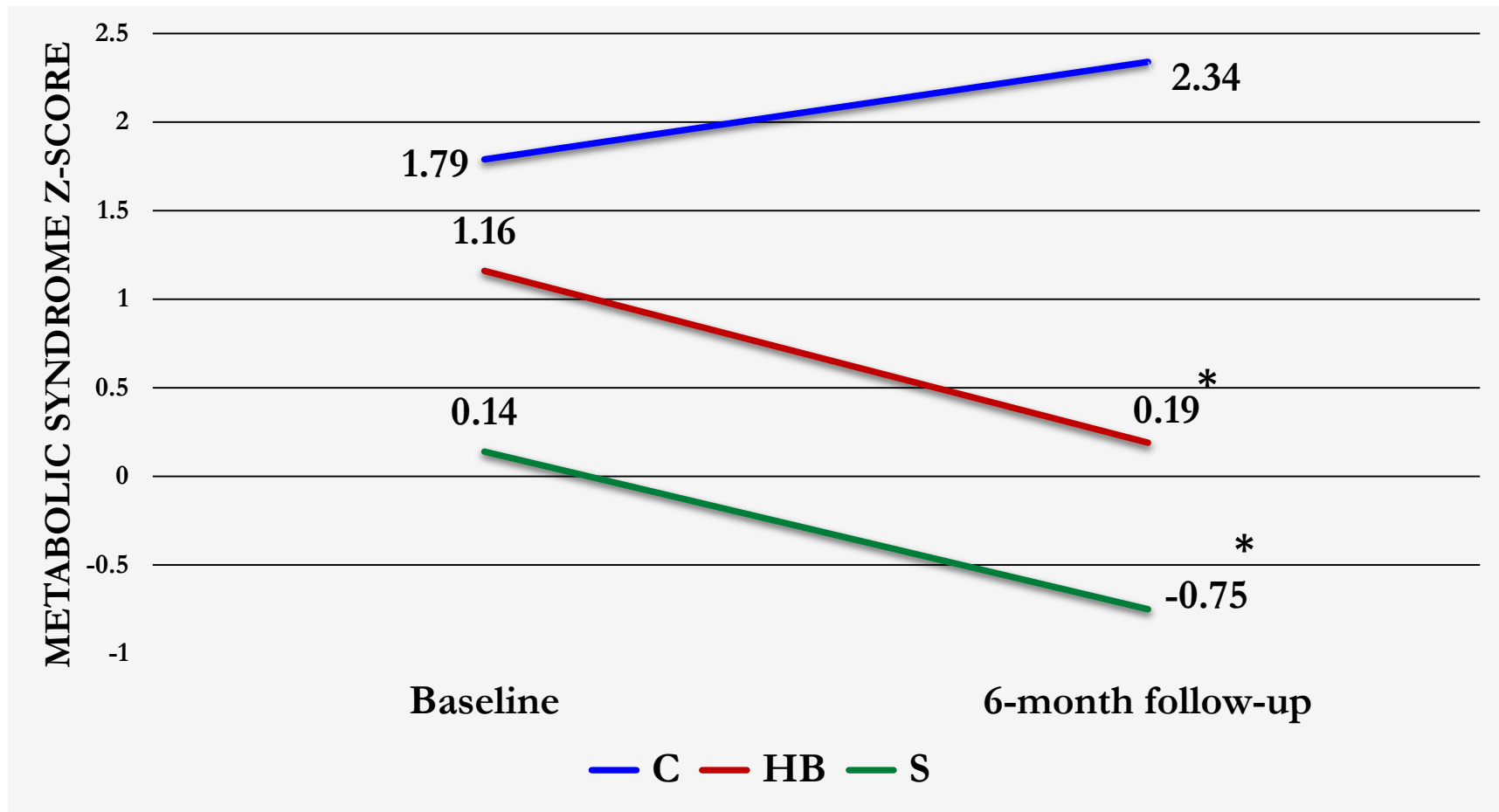


# CHANGE IN METABOLIC SYNDROME COMPONENTS (FAM HIS)



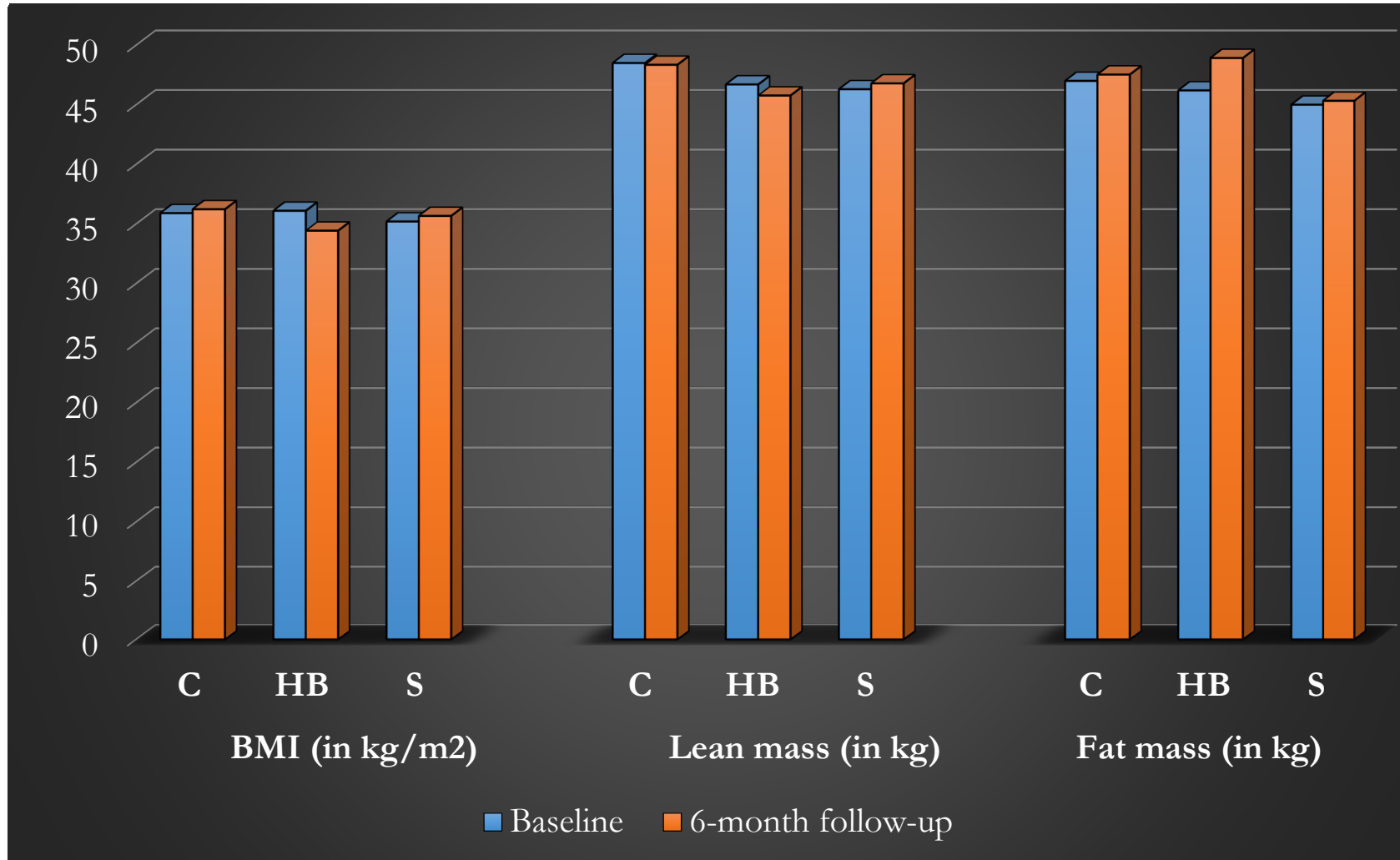


# CHANGE IN METABOLIC SYNDROME Z-SCORE (FAM HIS)



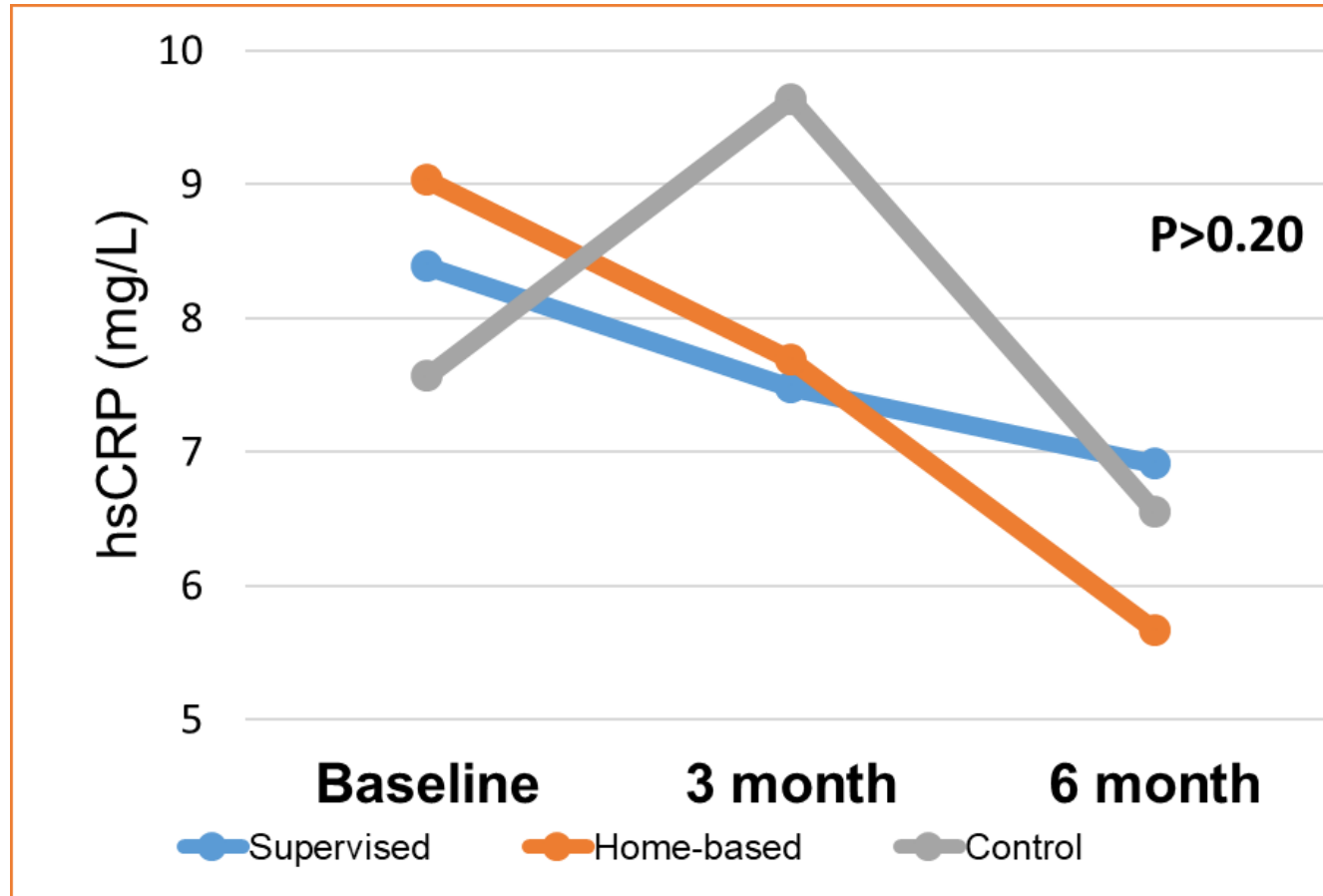


# CHANGE IN BMI, LEAN MASS, AND FAT MASS





# CHANGE IN SYSTEMIC INFLAMMATION





# % WEIGHT LOSS BY STUDY ARM



| <i>% weight loss at 6 months</i> | <i>Control</i> | <i>Home-based</i> | <i>Supervised</i> |
|----------------------------------|----------------|-------------------|-------------------|
| None                             | 21 (30)        | 22 (32)           | 24 (33)           |
| ≤ 5%                             | 15 (21)        | 13 (19)           | 9 (12)            |
| 5-10%                            | 10 (14)        | 7 (10)            | 7 (10)            |
| ≥ 10%                            | 25 (35)        | 27 (39)           | 33 (45)           |



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## *OMH faculty and staff*

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Bryan Kim, PhD

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P60MD006920

NIH/NCI  
P30 CA051008

**FIERCE**  
Focused Intervention on Exercise to Reduce Cancer

Breast cancer is the most common cancer among Black women with incidence and mortality rates of 125.5 and 29.5 cases per 100,000, respectively.

Metabolic syndrome (MetS) is characterized by abdominal obesity, high blood glucose, high cholesterol, and high blood pressure.

**20%**  
Black women are 20% more likely to have MetS than White women.

**FIERCE STUDY**

- 6 month randomized controlled trial
- 3 groups: supervised aerobic exercise, home-based aerobic exercise or control

**RESULTS**

**23%** Women in the **Home-Based** group reduced MetS by 23%

**4%** Women in the **Supervised** group reduced MetS by 4%

**8%** Women in the **Control** group increased MetS by 8%

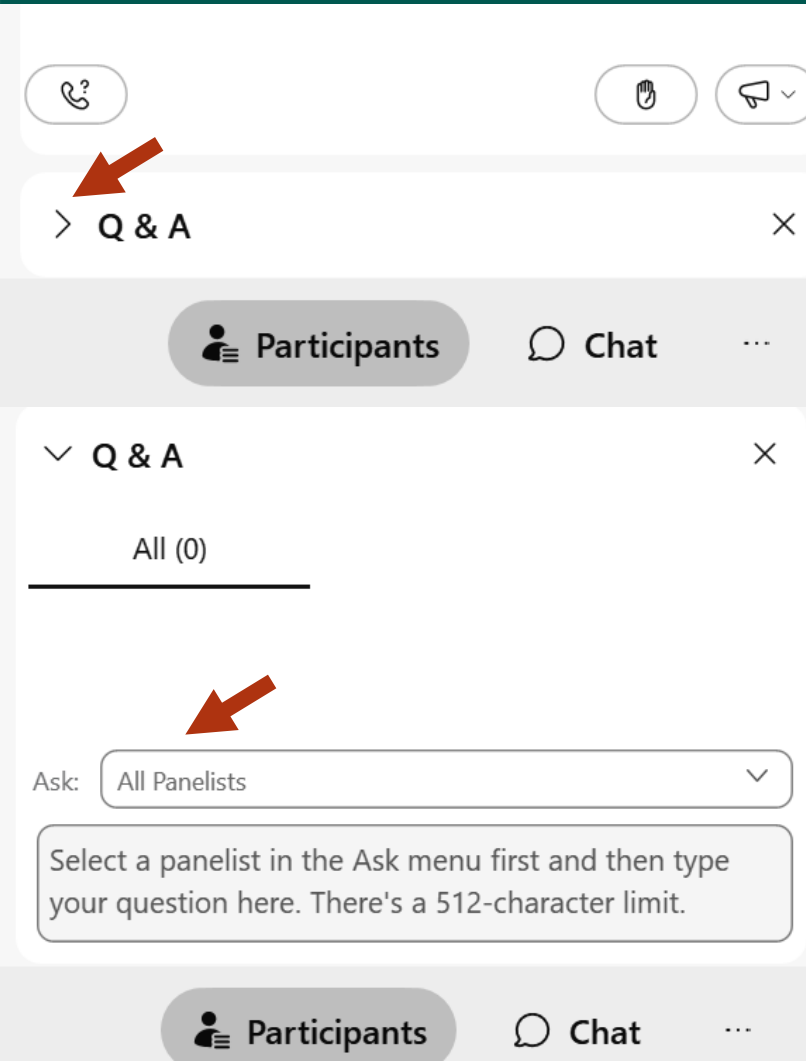
**RECOMMENDATIONS**

Aim to walk **10,000 steps** per day OR **150 minutes** of moderate intensity physical activity per week



# QUESTIONS?

# Prevention in Focus Webinar Series



## Q & A Session

Please send us your questions via  
the **Q & A pod** directed to **All  
Panelists**





# Thank You!



[prevention.nih.gov/PreventionInFocus](https://prevention.nih.gov/PreventionInFocus)



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