



# Equity in Care for Older Adults with Cancer

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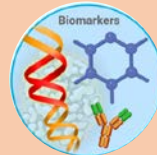
## SYSTEMIC CAUSES

The fundamental causes of the social inequities that lead to poor health



## SOCIAL DRIVERS OF HEALTH

Underlying social and economic conditions that influence our ability to be healthy



## BIOMARKERS

**e.g. Inflammation and Epigenetic Age**

Standardized, valid, and precise means of evaluating environmental exposure, effect or susceptibility, diagnosis or progression of disease and infection



An equitable approach requires weighted consideration of each driver of health, separately and jointly.

Biological health disparities must be contextualized within other drivers of health in order to provide more equitable care for older adults with cancer.

*Yilmaz, Gilmore et al. ASCO Education Book. 2022*

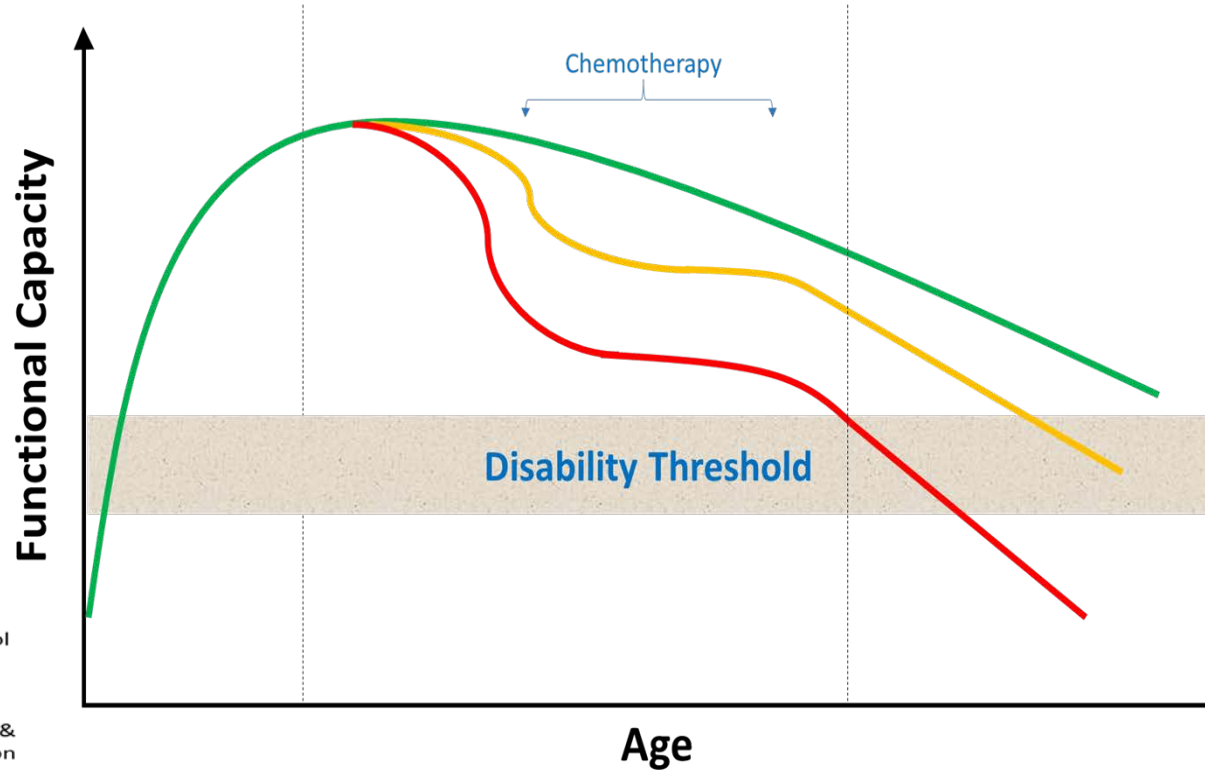


# Frailty & Cancer Treatment

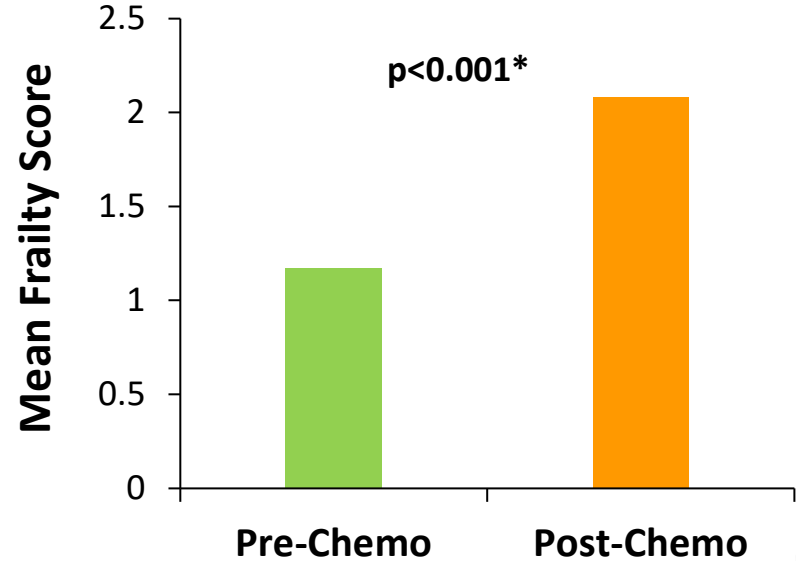
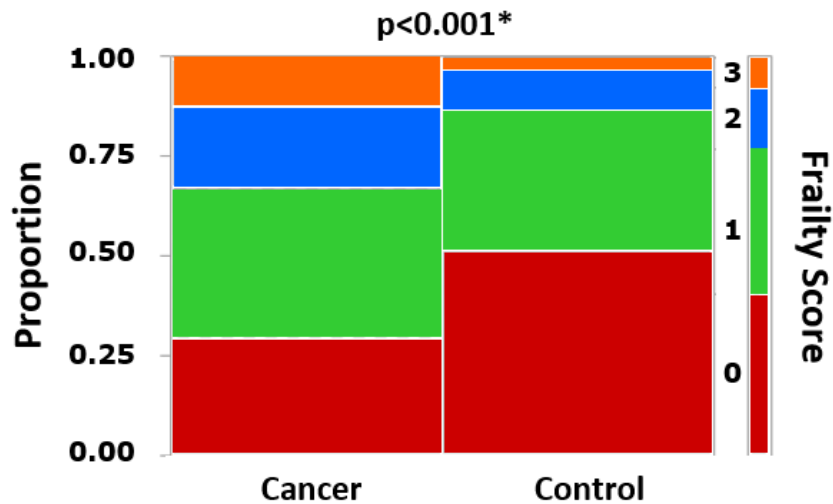
- Older patients with cancer are at increased risk of frailty after cancer therapy
- Frailty is an independent predictor of survival in older patients with cancer
- Cancer treatment also adversely affects physical function
- Many patients recover after treatment (i.e. are resilient)
  - Some are unable to return to their pre-treatment function (i.e. are non-resilient)



# Frailty & Cancer Treatment



# Frailty is Prevalent in Older Cancer Survivors



Gilmore et al. JGO. 2019



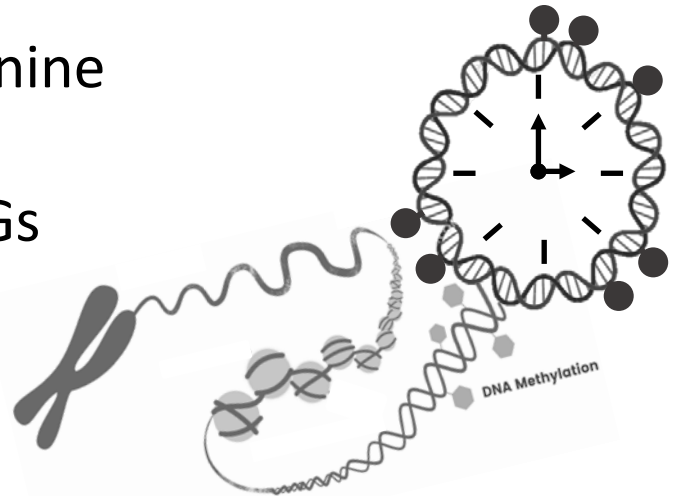


# Can we Intervene using a Health Equity Approach?



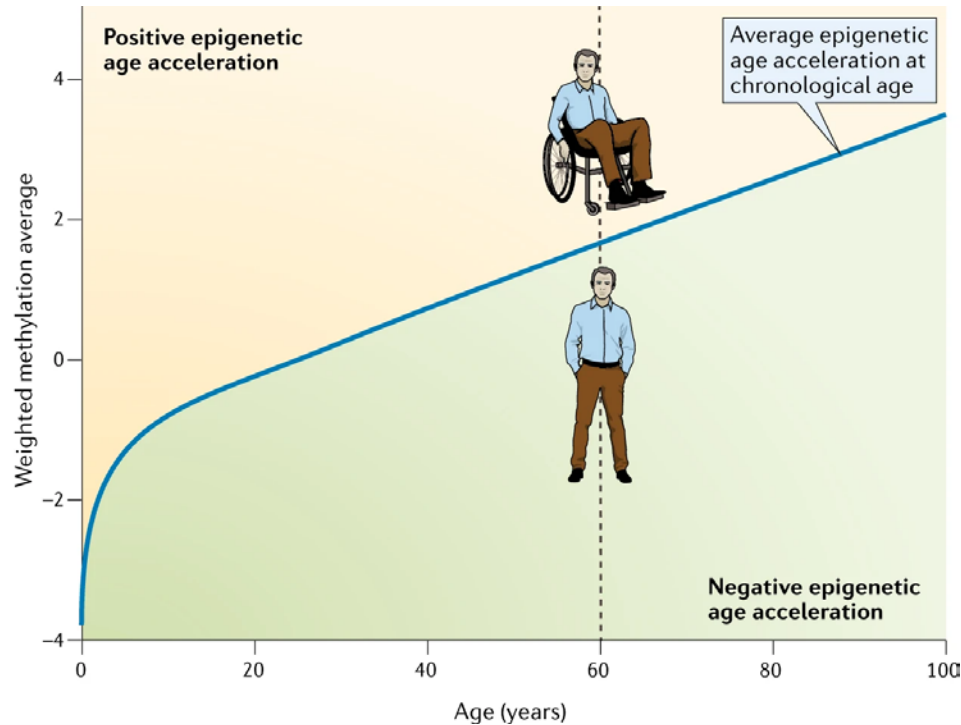
# DNA Methylation Clock as a Biomarker

- DNA methylation regulates gene expression by adding or removing a methyl group to CpG sites on DNA
  - Cytosine nucleotide followed by a Guanine nucleotide
- DNA methylation patterns, at specific CpGs have been associated with ageing
- DNA methylation clocks
  - Weighted average of DNA methylation levels at age-related CpGs



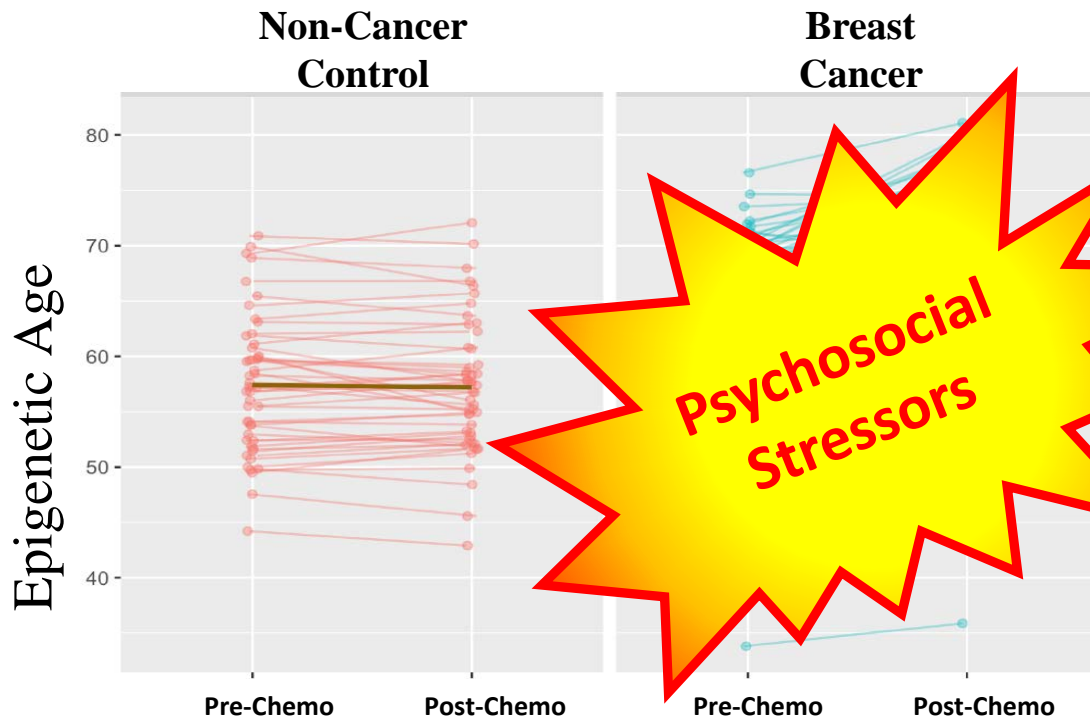
*Horvath et al. Nature 2018*

# DNAm Age as Biomarker of Biological Age



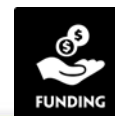
Horvath et al. Nature 2018

# Chemotherapy Contributes to Accelerated Aging in Older Adults with Breast Cancer



Patients' aged by about 6 years within 4 months of starting chemotherapy

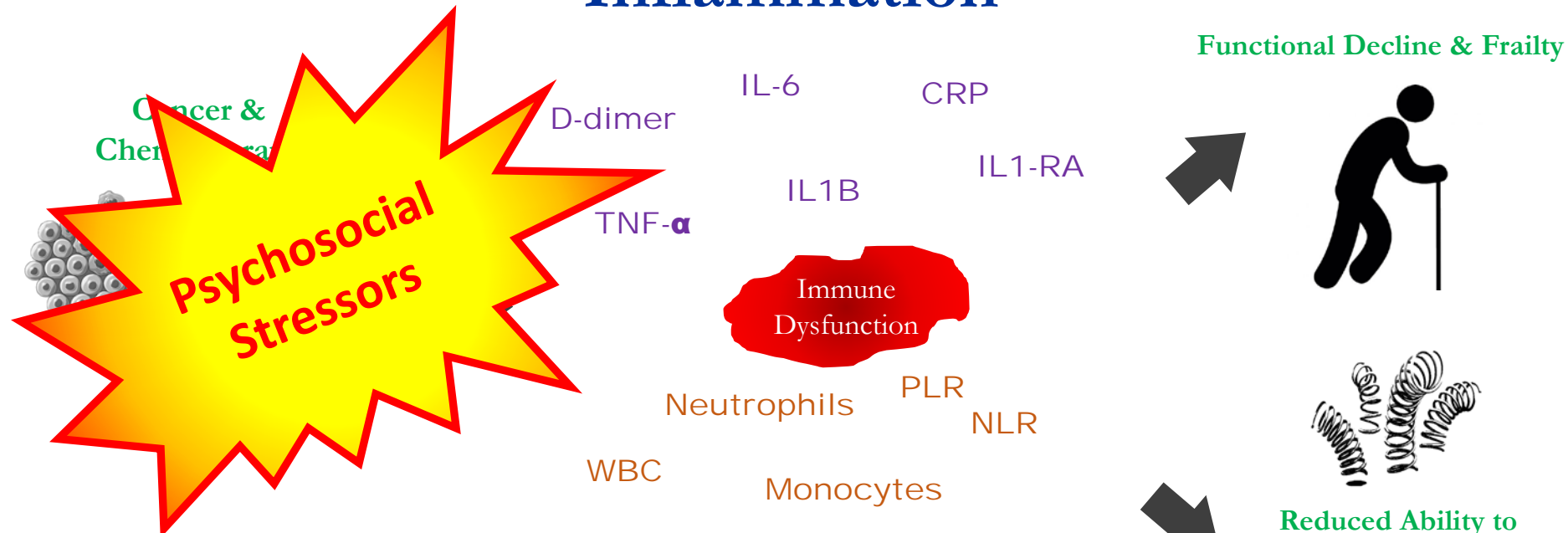
*Gilmore et al. in Preparation*



External Supplement to R01CA231014



# Biomarkers Accelerated Aging: Systemic Inflammation



Cancer & Chemotherapy

**Psychosocial Stressors**

D-dimer

IL-6

CRP

IL1B

IL1-RA

TNF- $\alpha$

Immune Dysfunction

Neutrophils

PLR

NLR

WBC

Monocytes

Functional Decline & Frailty



Reduced Ability to Regain Baseline Function  
“Non-Resilience”

Leng et al. J Am Geriatric Soc. 2007; Nishijima et al. Aging 2017  
Gilmore et al. JGO. 2019; Gilmore et al. Breast Cancer Research 2021  
Ji et al. JCO 2022; Gilmore et. al in preparation



SCIENCE of THE HIGHEST ORDER



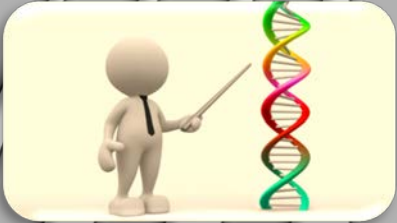
@NikeshGilmore



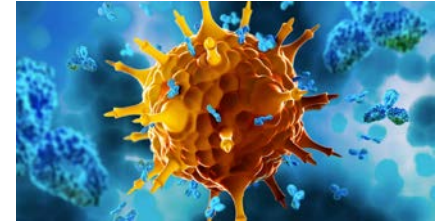
# Can we Intervene using a Health Equity Approach?



Immune Dysfunction



# Anti-Inflammatory Nutraceutical: Epigallocatechin Gallate (EGCG)



*Lagha et al. 2016; Thangapandiyar et al. 2014; Tomata et al. 2012; Meador et al. 2015*

EGCG



# ReFOCUS:

Reducing Frailty in Older Cancer Survivors  
Using Supplements



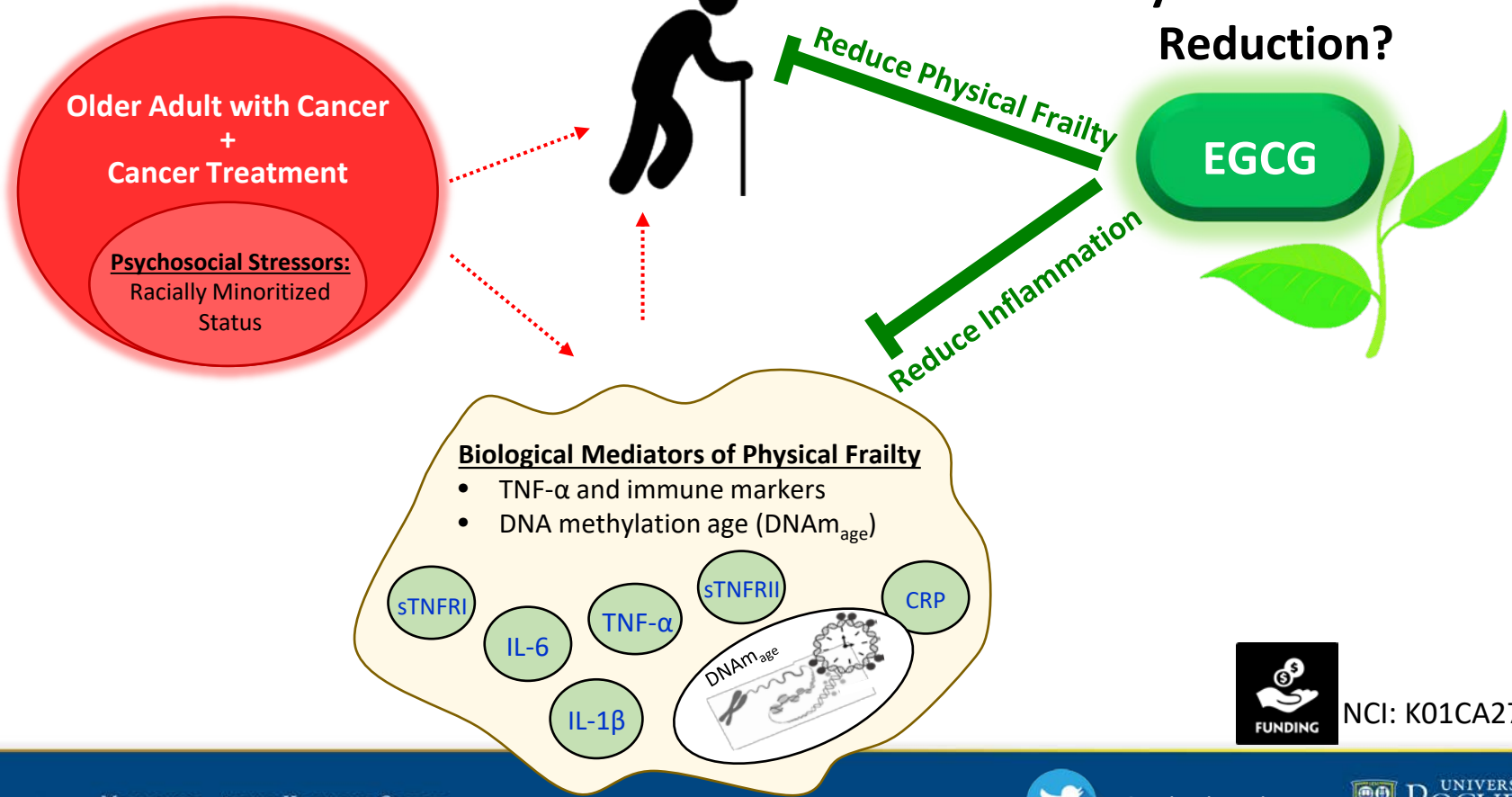
ClinicalTrials.gov Identifier: NCT0455366







# Phase II: Frailty & Inflammation Reduction?



NCI: K01CA276257



# ReFOCUS

- 65+ years of age
- Diagnosed with stage I-III solid cancer
- Completed curative intent treatment  $\leq 10$  years before screening
- $\geq 2$  frailty characteristics

Weight  
Loss



Slow  
Walking



Low  
Activity

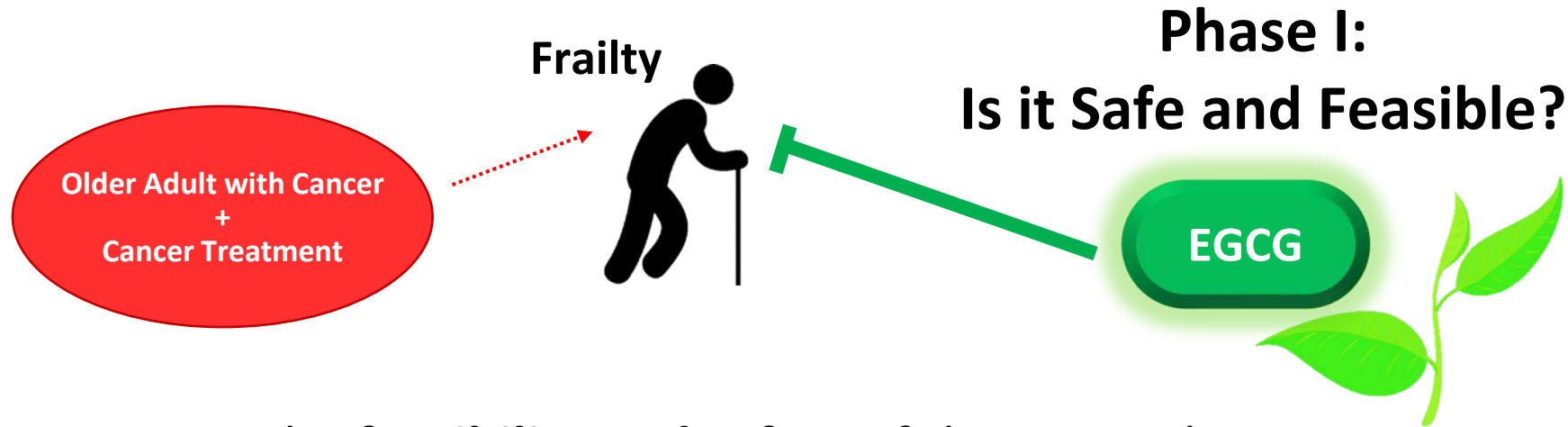


Fatigue

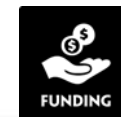


Weakness



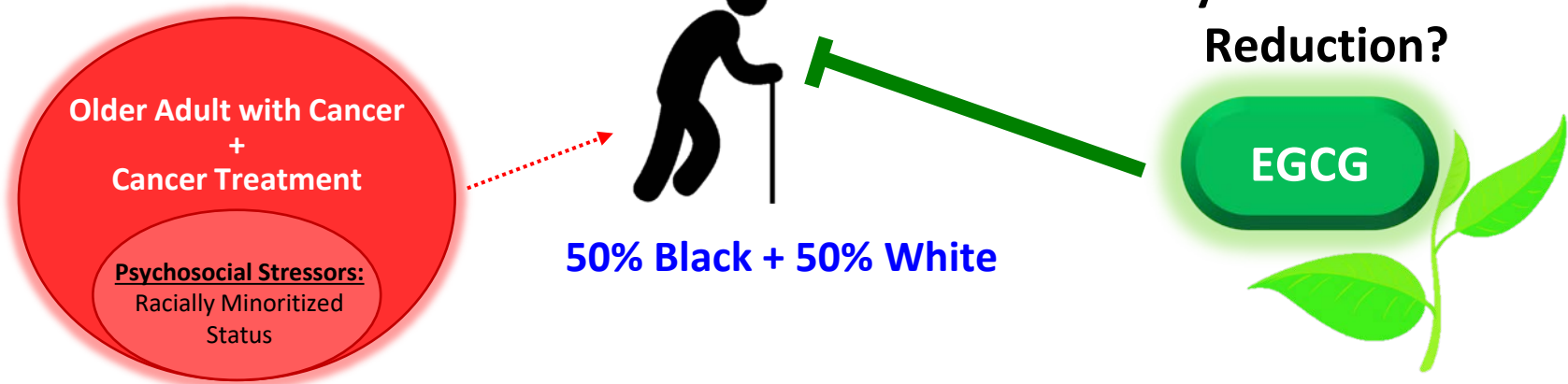


- To assess the **feasibility and safety** of the 12 week EGCG intervention (800mg EGCG + 250mg Vitamin C)
  - Consent and recruitment rates
  - **Completion of study procedures**
  - Adherence to EGCG intervention
  - Adverse events



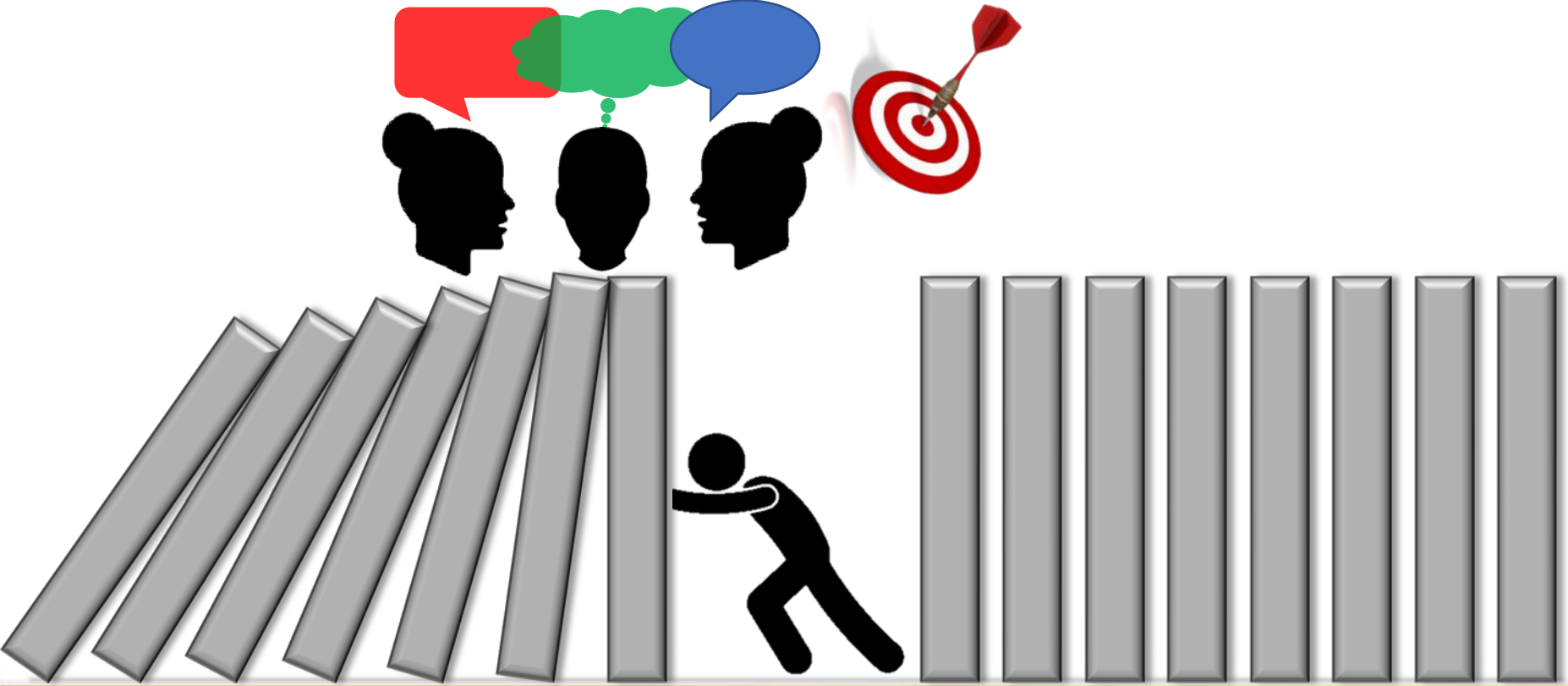
NIH: KL2TR001999





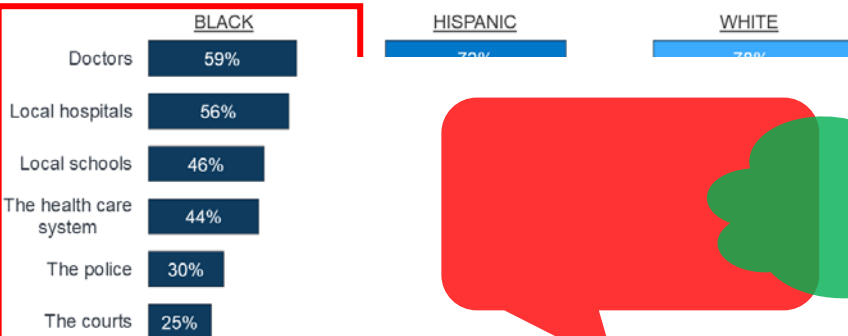
- To evaluate the effect of the EGCG intervention
  - Physical Frailty
  - TNF-a and related immune markers
- To explore if baseline TNF- $\alpha$  and related immune markers and epigenetic age are associated physical frailty
- To explore the efficacy of the intervention in Black vs white survivors

# Can we Intervene using a Health Equity Approach?



## Black Adults Less Likely Than White Adults To Trust A Variety Of Groups And Institutions, Including In Health Care

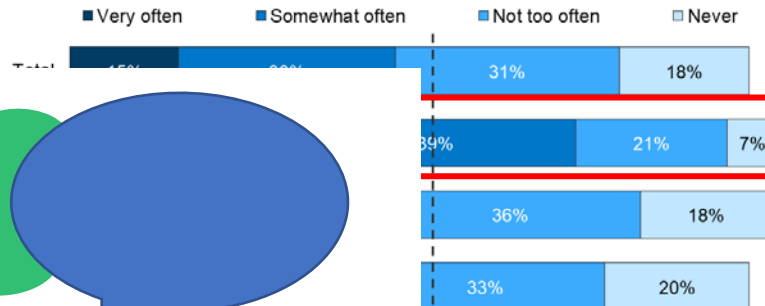
Percent who say they can trust each of the following to do what is right for them or their community **almost all of the time or most of the time**:



SOURCE: KFF/The Undeclared Survey on Race and Health (2020)

## Black Adults More Likely To Perceive Discrimination In U.S. Health Care System

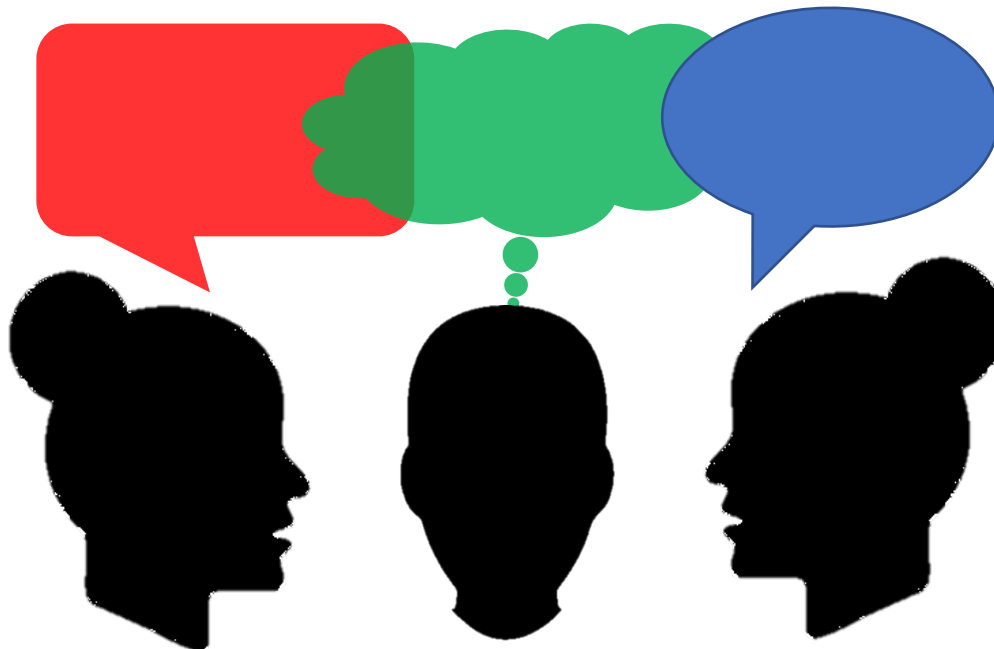
Generally speaking, how often do you think our health care system treats people unfairly based on their race or ethnic background?



50%

†, 2020. See topline for full question wording.

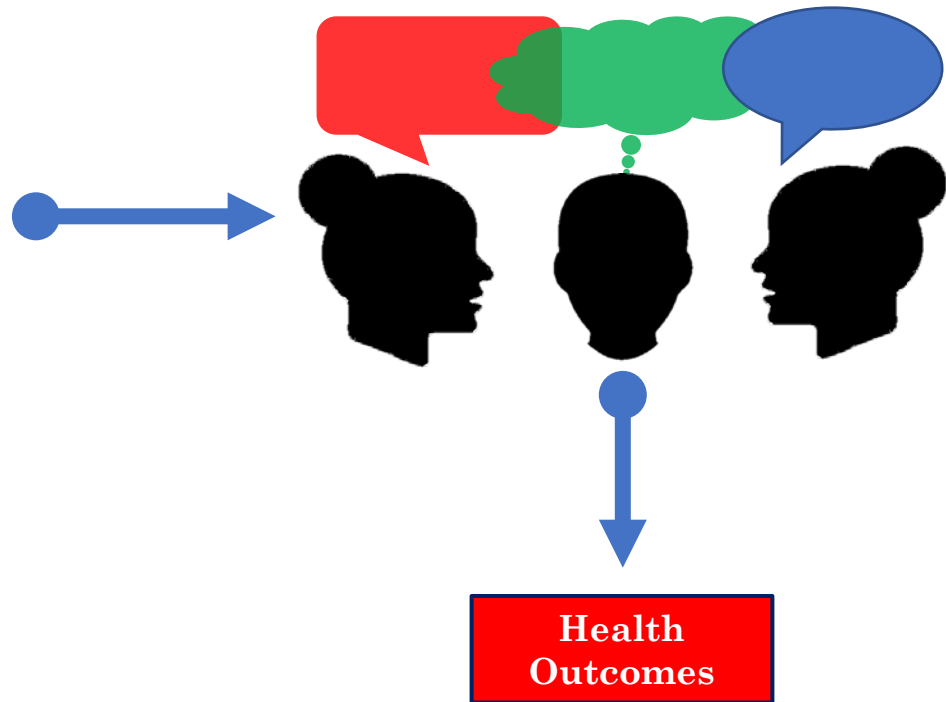
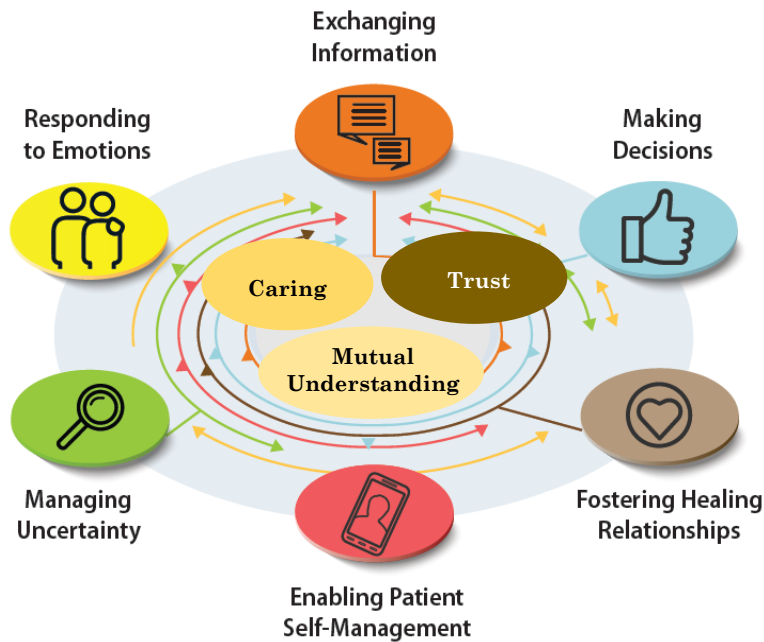
KFF



WHITE 46%

SOURCE: KFF/The Undeclared Survey on Race and Health (conducted Aug. 20-Sept. 14, 2020); KFF Survey of Race, Ethnicity, and Medical Care: Public Perceptions and Experiences (conducted July 7-September 19, 1999). See topline for full question wording.

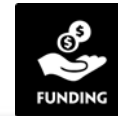
KFF





# PACT:

**P**Atient **C**entered **C**ommunication  
to Build **T**rust



Wilmot COE Pilot





# PACT

## Eligibility:

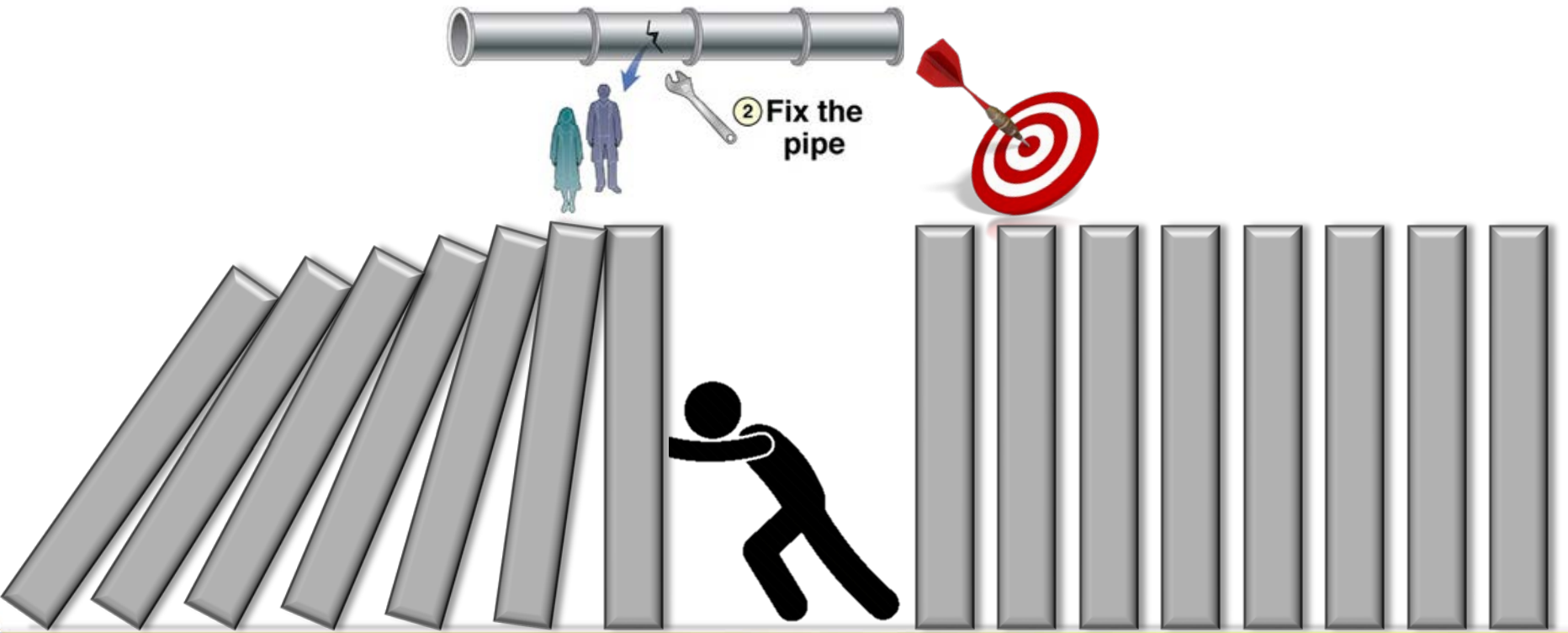
- 65+ years of age
- Receiving any cancer treatment

## Aims:

1. Explore patients' perceptions of patient-centered communication
2. Estimate the association between patient-centered communication and trust
3. To examine the relationship between trust and patients' perceptions of patient-centered communication



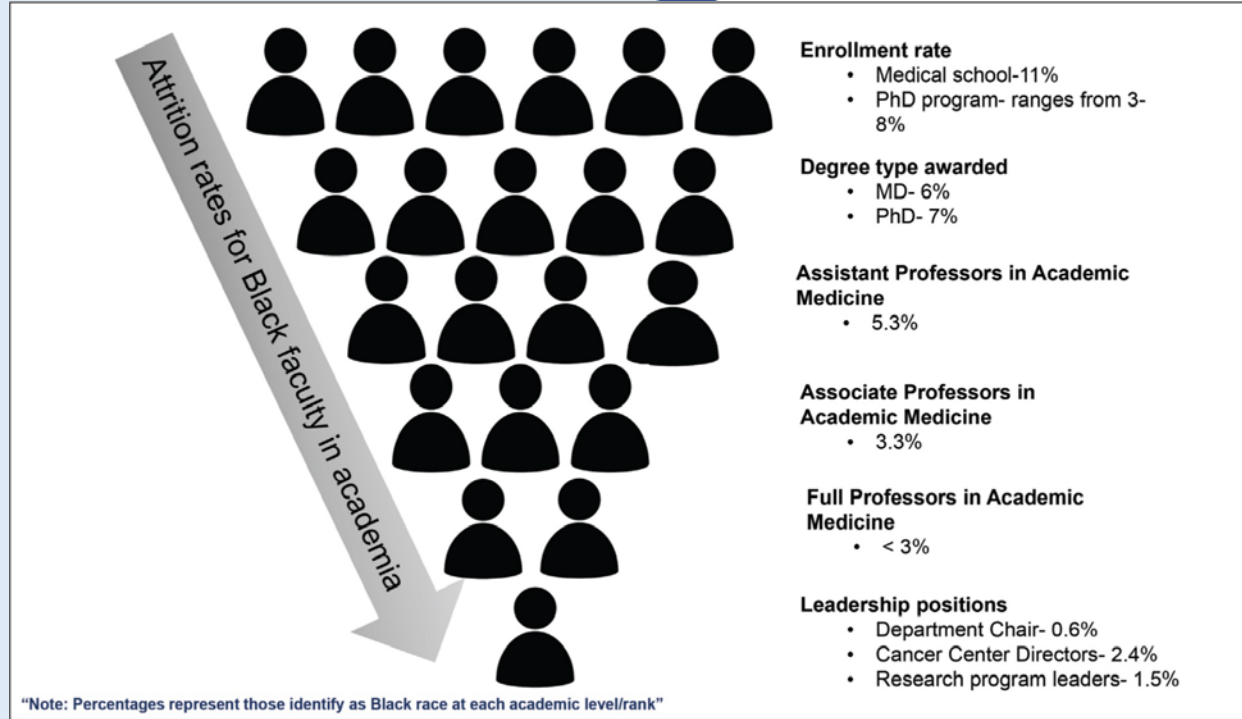
# Can we Intervene using a Health Equity Approach?





## SYSTEMIC CAUSES

The fundamental causes of the social inequities that lead to poor health.



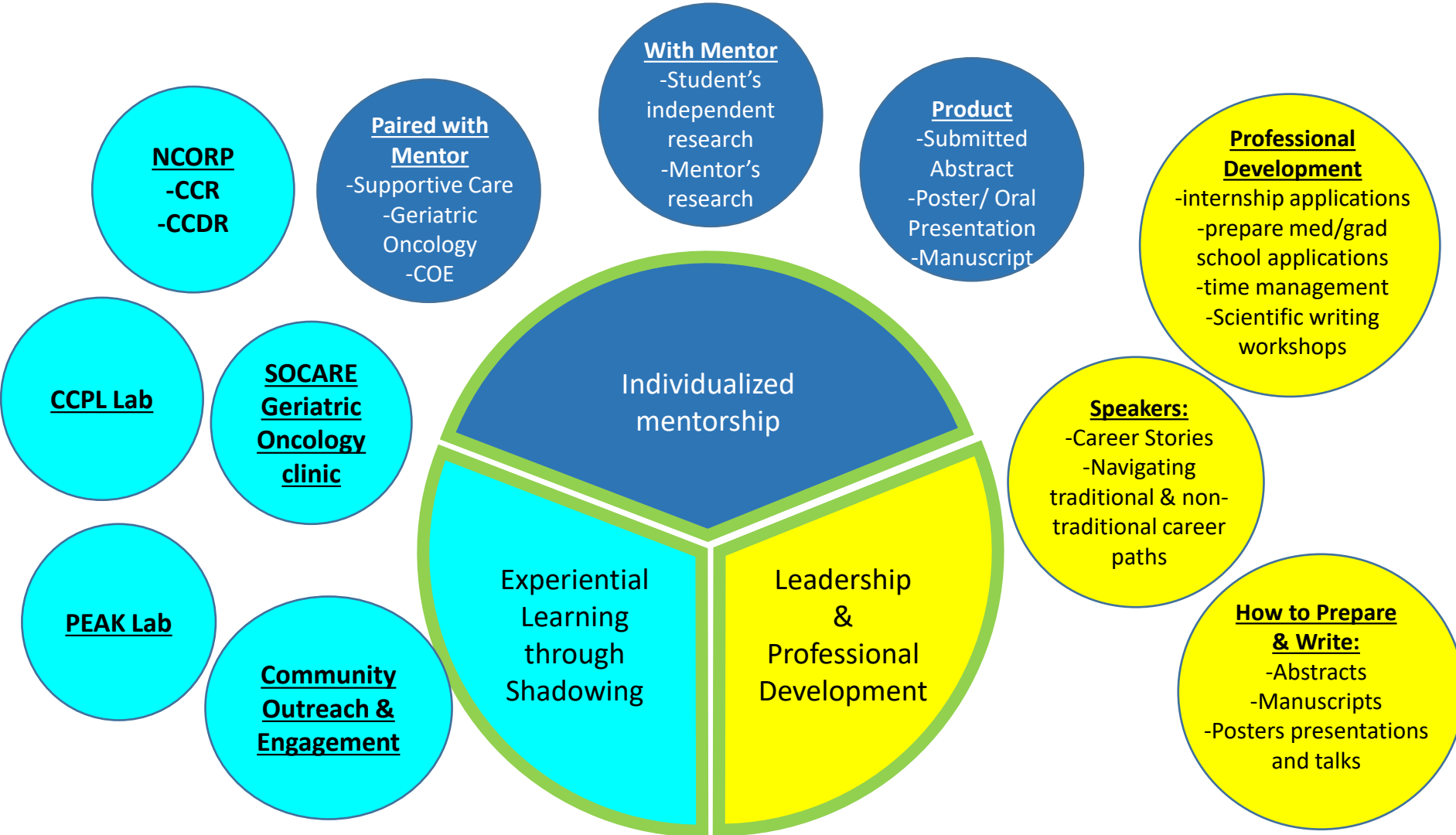
Grant, Oyedeji, and Gilmore; *The Hematologist*, 2022



# Reach Back Model To Promote Diversity In Academic Medicine

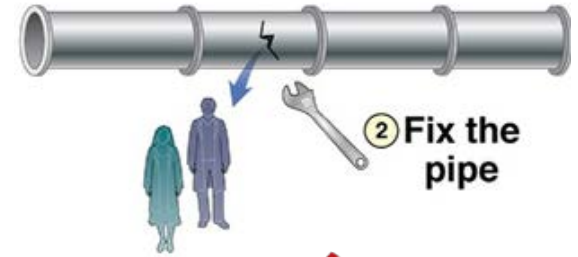


Empowering students  
through Research  
Enrichment Actives in  
Cancer Control and Cancer  
Care Delivery





Immune  
Dysfunction



Using equitable approaches to our studies can improve the care of ALL older patients with cancer

# Shifting the Focus to Equity and Justice



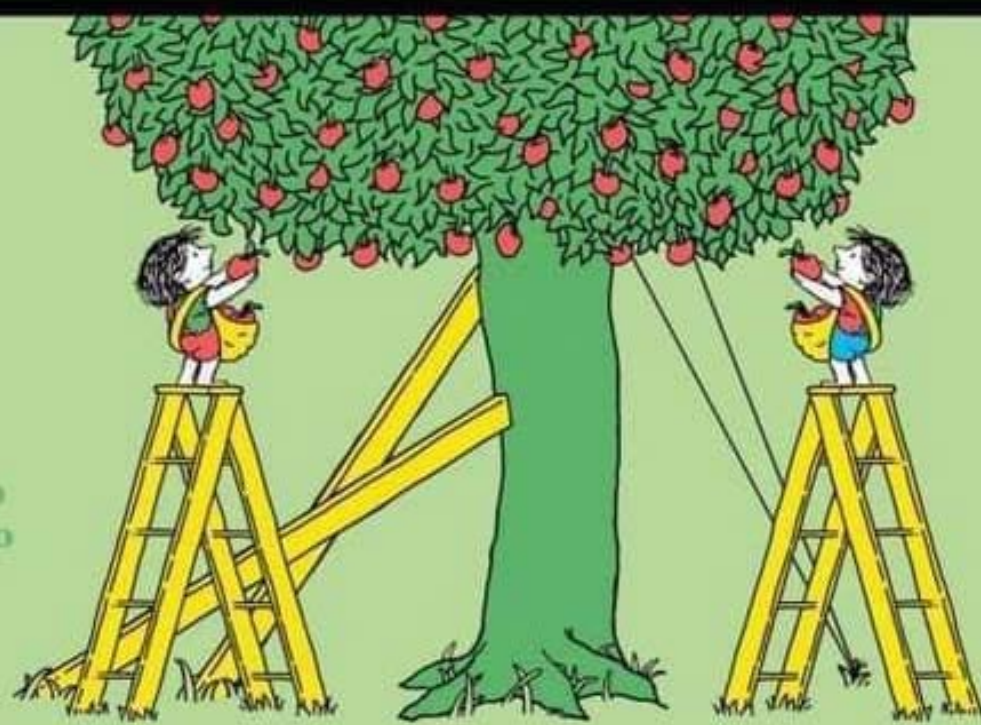
**Ineq**

Unequal access to opportunities

# Justice

Fixing the system to offer equal access to both tools and opportunities

Source: @hunchbreath in the 2019 Design in Tech Report



**Equ**

Customized solutions to identify and address inequality



Source: @hunchbreath in the 2019 Design in Tech Report



Source: @hunchbreath in the 2019 Design in Tech Report



## DIVERSITY

Quantitate Representation  
Categories  
Numbers  
Differences

*\*tokenism*

## INCLUSION

Quantitate Representation  
Qualitative Experiences  
Belonging  
Feeling Welcomed

*\*someone decides who is in and out*

## EQUITY

Addresses the historical legacies  
and current realities of structure  
barriers power and oppression

*\*requires those with power to give  
some up*

## JUSTICE

Fixes the broken system, redistributes the  
power and allows those from most  
marginalized the power to make decisions

*\*required those with power to give some  
up to those most impacted*

## How to Measure of Progress?: Measure by Equitable and Just Outcomes

<p><b>Diversity</b> asks, “Who’s in the room?”</p>	<p><b>Equity</b> responds: “Who is trying to get in the room but can’t? Whose presence in the room is under constant threat of erasure?”</p>
<p><b>Inclusion</b> asks, “Has everyone’s ideas been heard?”</p>	<p><b>Justice</b> responds, “Whose ideas won’t be taken as seriously because they aren’t in the majority?”</p>
<p><b>Diversity</b> asks, “How many more of [pick any minoritized identity] group do we have this year than last?”</p>	<p><b>Equity</b> responds, “What conditions have we created that maintain certain groups as the perpetual majority here?”</p>
<p><b>Inclusion</b> asks, “Is this environment safe for everyone to feel like they belong?”</p>	<p><b>Equity</b> answers, “What are people experiencing on campus that they don’t feel safe when isolated and separated from others like themselves?”</p>
<p><b>Diversity</b> celebrates increases in numbers that still reflect minoritized status on campus and incremental growth.</p>	<p><b>Equity</b> celebrates reductions in harm, revisions to abusive systems and increases in supports for people’s life chances as reported by those who have been targeted.</p>
<p><b>Inclusion</b> celebrates awards for initiatives and credits itself for having a diverse candidate pool.</p>	<p><b>Justice</b> celebrates getting rid of practices and policies that were having disparate impacts on minoritized groups.</p>

“Colleges need a language shift, but not the one you think” by Dr. Dafina-Lazarus Stewart



# BEACH Lab Team



Adam Mitchell  
Research Project Coordinator

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Human Subject Research  
Coordinator (CTSI)

Jihane Jean  
Research Project Coordinator

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Laura Hincapie  
Research Assistant

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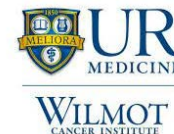
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Paula Vertino PhD  
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## ❖ BEACH Lab

Adam Mitchell  
Thandolewthu Shabangu  
Jihane Jean  
Elizabeth Diaz-Fontanez  
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# Thank You and Questions





UNIVERSITY *of*  
ROCHESTER  
MEDICAL CENTER

MEDICINE *of* THE HIGHEST ORDER