In recognition of the FDA's Oncology Center of Excellence
National Hispanic Family Cancer Awareness Week
September 20-26th, 2024

THE LATINO CANCER INSTITUTE
Connect. Convene. Advocate.

Friday Forum Series

September 20th – October 25th

Cancer Leading Cause of Death Amongst Hispanic / Latinos

- Hispanics make up 19% of the U.S. population or 63.1 Million people*

From CENSUS 2022

Largest Subpopulations*

Mexican	62.0%
Puerto Rican	9.6%
Central American	9.3%
South American	6.4%
Cuban	3.8%

In 2021, an estimated 176,600 U.S. Hispanics were diagnosed with cancer

From CDC

In 2021

An estimated 46,500 Hispanics died from the disease

In Recognition of Hispanic Heritage Month in collaboration with the FDA's Oncology Center of Excellence National Hispanic Family Cancer Awareness Week

- Hear about the trends in three cancers disproportionately impacting Latinos
- Learn why obesity is a major trigger for Latino cancers
- Stay tuned for a special announcement

FDA

CONVERSATIONS ON CANCER:

#LatinoCancer

National Hispanic/Latino Family Cancer Awareness Week

Friday, September 20, 2024 ▪ 11:00am - Noon, ET ▪ Virtual

¡Avanzando Juntos!

Thank You to Our Sponsors

Genentech
Presenting Sponsor*

The Leukemia and Lymphoma Society (LLS)
Gold Sponsor*

GRAIL
Bronze Sponsor*

UCSF Helen Diller Family Comprehensive Cancer Center Office of Community Engagement
Bronze Sponsor*

Housekeeping

- Keep your cameras off, and mic on mute
- Use the Chat Box for questions for our speakers
- Various documents also found in the Chat Box
- All the presentations are being recorded. Slides and recordings available after Oct 25th

Para Español

- En los controles de su reunión/seminario web en la parte inferior de su pantalla, haga clic en “Interpretación” y elija español.
- Si no ve el ícono de Interpretación en los controles de su reunión/seminario web, haga clic en el ícono “Más” y seleccione Interpretación de la lista.
- Para escuchar solo español, haga clic en “Silenciar audio original.”

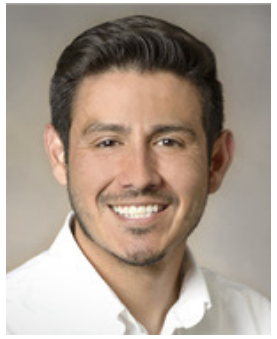
The Latino Cancer Institute, in collaboration with the *FDA's Oncology Center of Excellence, Hispanic Family Cancer Awareness Week, Sept 20 -26th*, presents

Trends in Cancer We Can't Afford to Ignore Anymore!

September 20, 2024

9:00 am - 10:30 am PST • 11:00 am - 12:30 pm CDT • 12:00 pm - 1:30 pm EST

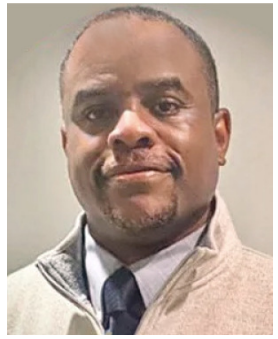
Constanza Camargo, PhD
National Cancer Institute



David O. Garcia, PhD
FACSM, University of Arizona

Mariana Stern, PhD
Keck School of Medicine, USC

Noe Crespo, PhD
School of Public Health, SDSU



Mathieu Luckson, MD
FDA Oncology Center of Excellence

The evolving nature of gastric cancer

Maria Constanza Camargo

Earl Stadtman Investigator

Division of Cancer Epidemiology and Genetics

NIH NATIONAL CANCER INSTITUTE

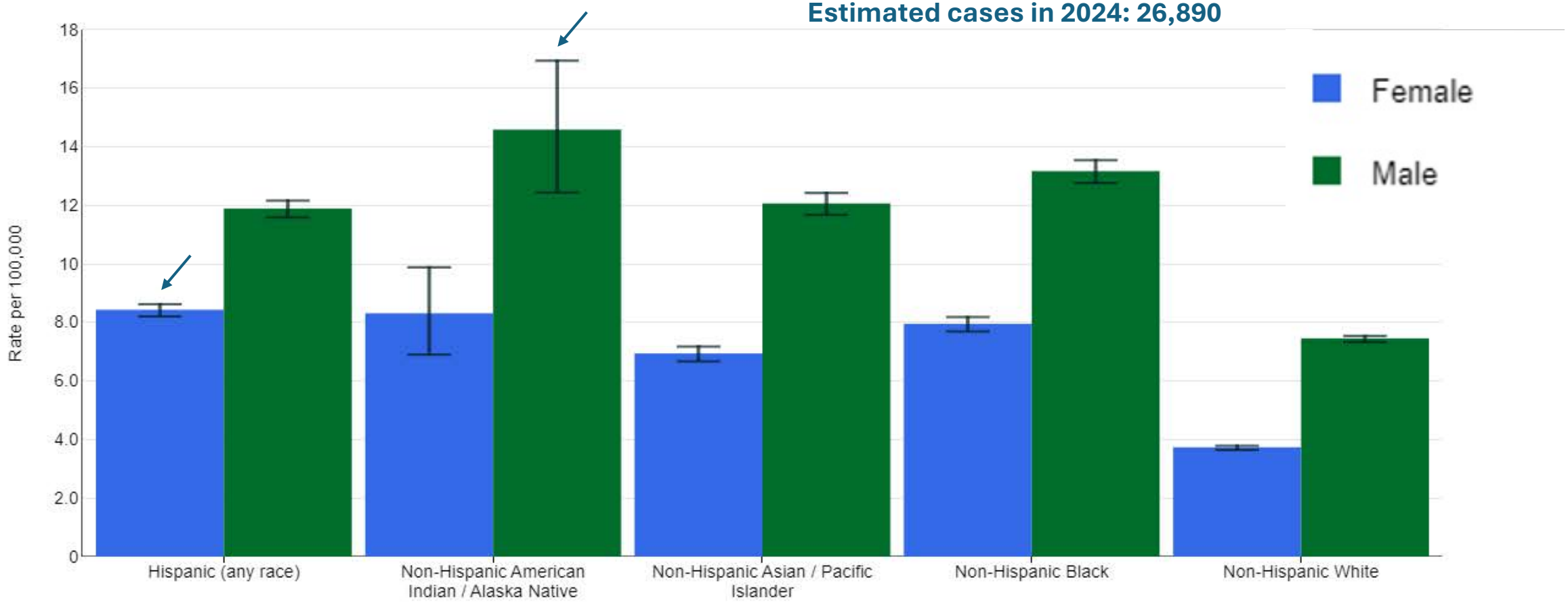
Sept 20, 2024

Key Messages

- Persistent racial and ethnic disparities in gastric cancer incidence, mortality and survival in the United States

Stomach
SEER 5-Year Age-Adjusted Incidence Rates, 2017-2021
By Race/Ethnicity and Sex, All Ages, All Stages

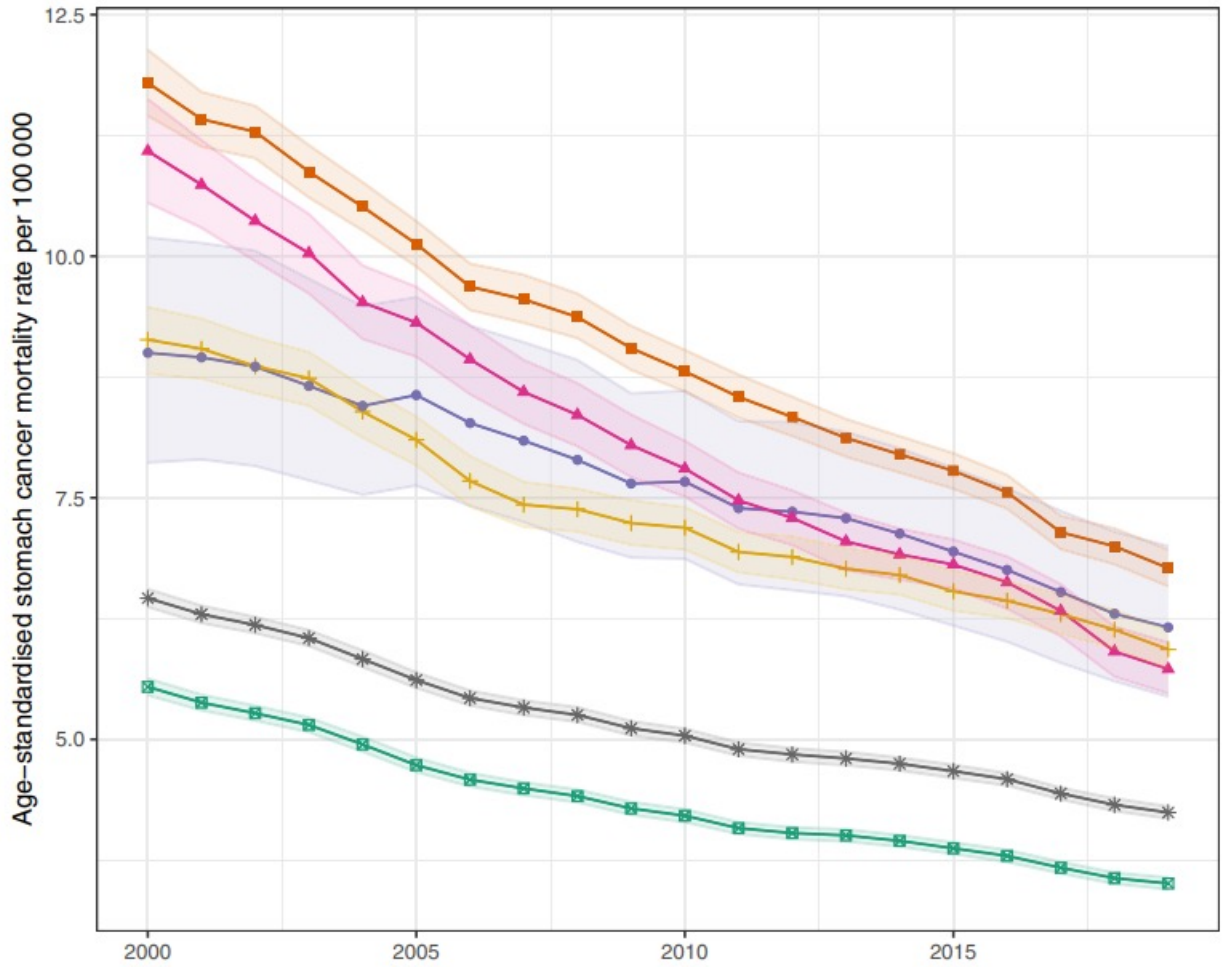
Estimated cases in 2024: 26,890



(AI/AN) **(API)**

Data Source:
• SEER Incidence Data, November 2023 Submission (1975-2021), SEER 22 registries [https://seer.cancer.gov/registries/terms.html].
Methodology:
• Rates are per 100,000 and are age-adjusted to the 2000 US Std Population (19 age groups - Census P25-1130).
Race/Ethnicity Coding:
• For more details on SEER race/ethnicity groupings, please see Race and Hispanic Ethnicity Changes [https://seer.cancer.gov/seerstat/variables/seer/race_ethnicity/].
• Rates for American Indians/Alaska Natives only include cases that are in a Purchased/Referred Care Delivery Area (PRCDA).
• Incidence data for Hispanics and Non-Hispanics are based on the NAACCR Hispanic Latino Identification Algorithm (NHIA).
Cancer Site Coding:
• See SEER*Explorer Cancer Site Definitions [https://seer.cancer.gov/statistics-network/explorer/cancer-sites.html] for details about the cancer site coding used for SEER Incidence data.
Created by https://seer.cancer.gov/statistics-network/explorer on Sat May 11 2024.

National age-standardized gastric cancer mortality rates, 2000-2019, by year and racial and ethnic group

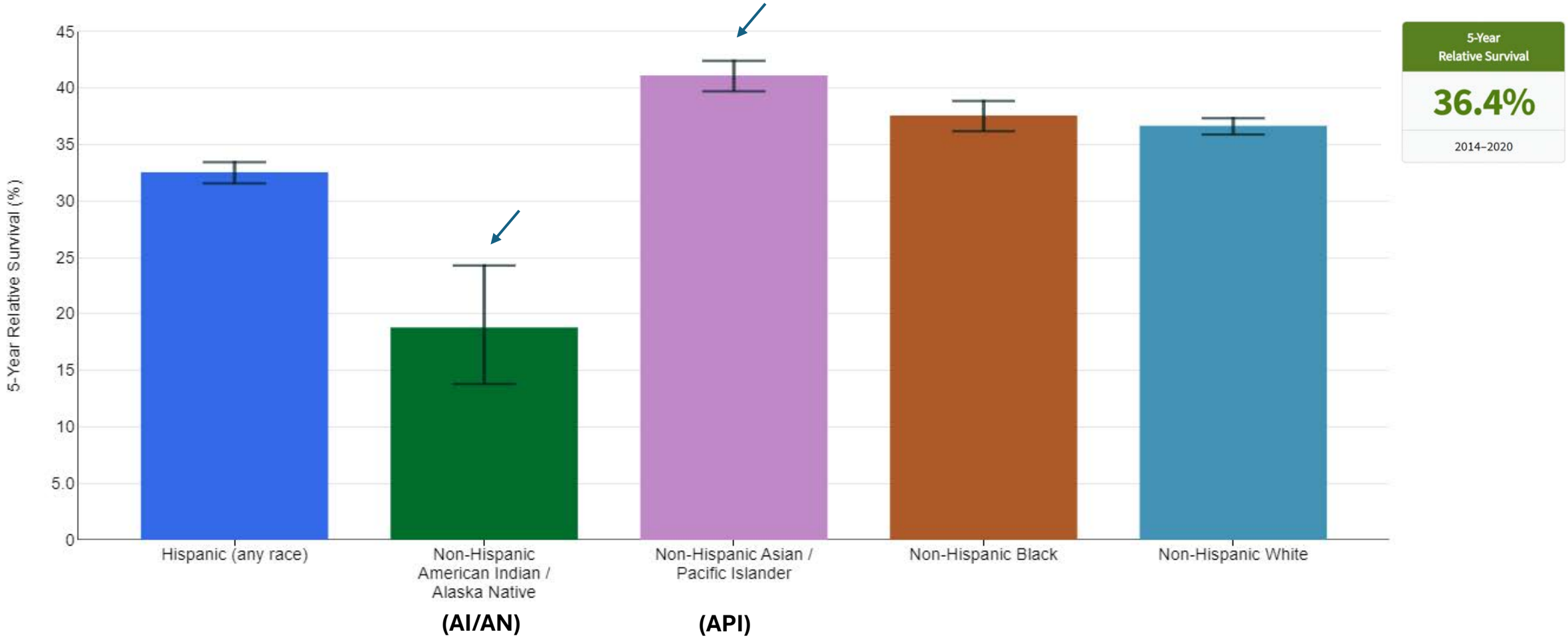


Estimated deaths in 2024: 10,880

Black
Latino
AIAN
Asian
White
Total

GBD US Health Disparities Collaborators. Lancet Reg Health Am. 2023.

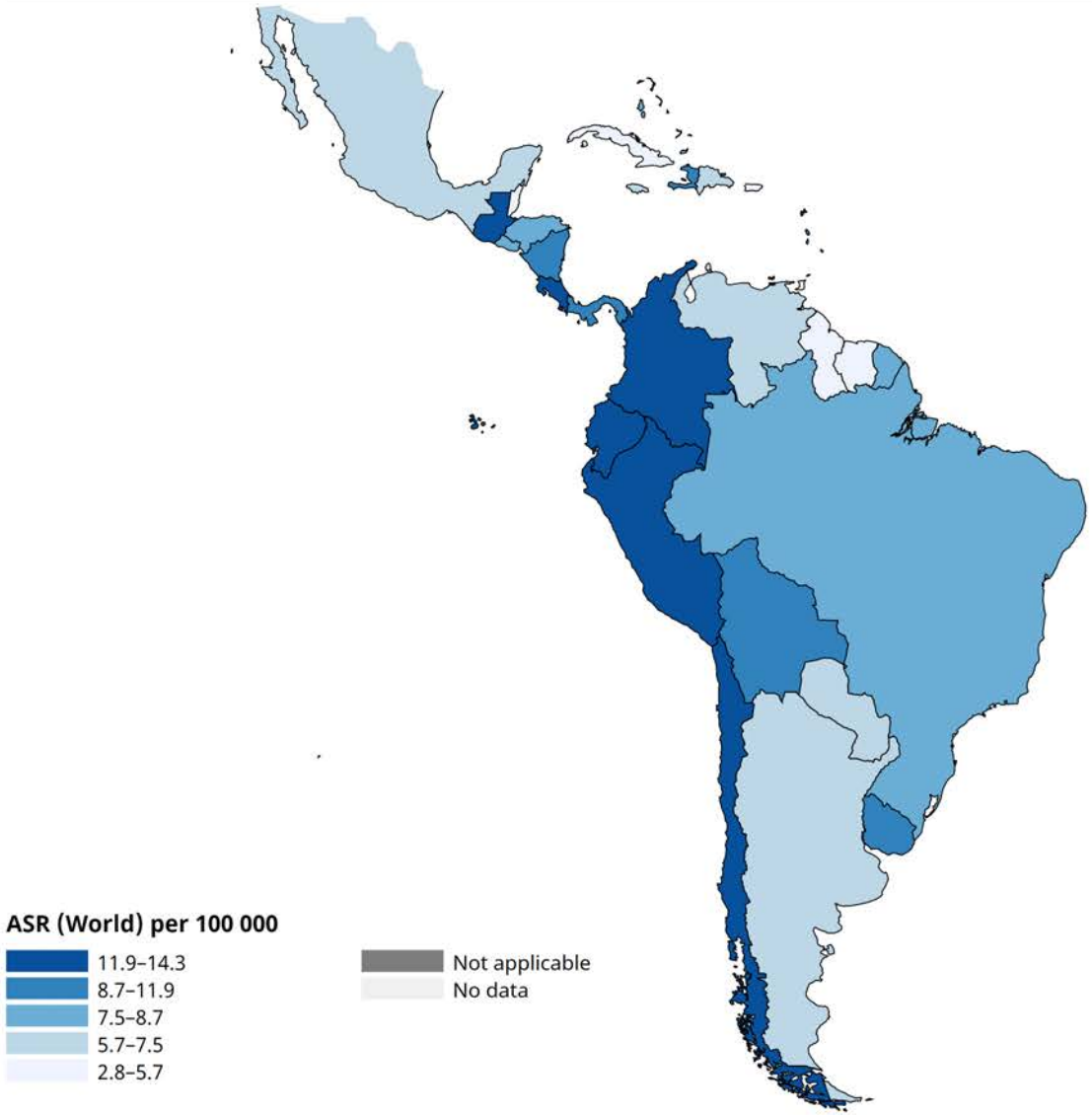
Stomach
SEER 5-Year Relative Survival Rates, 2014-2020
By Race/Ethnicity, Both Sexes, All Ages, All Stages



Data Source:
• SEER Incidence Data, November 2023 Submission (1975-2021), SEER 22 registries [https://seer.cancer.gov/registries/terms.html] (excluding Illinois and Massachusetts).
• Expected Survival Life Tables [https://seer.cancer.gov/expsurvival/] by Socio-Economic Standards.
Methodology:
• The five-year survival rates are calculated using monthly intervals.
Race/Ethnicity Coding:
• For more details on SEER race/ethnicity groupings, please see Race and Hispanic Ethnicity Changes [https://seer.cancer.gov/seerstat/variables/seer/race_ethnicity/].
• Incidence data for Hispanics and Non-Hispanics are based on the NAACCR Hispanic Latino Identification Algorithm (NHIA).
• Rates for American Indians/Alaska Natives only include cases that are in a Purchased/Referred Care Delivery Area (PRCDA).
Cancer Site Coding:
• See SEER*Explorer Cancer Site Definitions [https://seer.cancer.gov/statistics-network/explorer/cancer-sites.html] for details about the cancer site coding used for SEER Incidence data.
Created by https://seer.cancer.gov/statistics-network/explorer on Sat May 11 2024.

Age-Standardized Rate (World) per 100 000, Incidence, Both sexes, in 2022

Stomach



Population	ASR (W)
Peru	14.3
Chile	14.2
Costa Rica	14.0
Colombia	12.9
Ecuador	12.8
France, Guadeloupe	12.3
Guatemala	12.2
France, Martinique	10.8
Haiti	9.9
Uruguay	9.2
Nicaragua	9.1
Panama	8.8
Bolivia	8.7
French Guyana	8.6
Honduras	8.6
Saint Lucia	8.6
El Salvador	8.2
Bahamas	7.7
Brazil	7.6
Venezuela	7.5
Jamaica	6.9
Argentina	6.7
Paraguay	6.4
Mexico	6.3
Dominican Republic	6.2
Cuba	5.6
Barbados	5.0
Belize	4.8

Population	ASR (W)
Suriname	4.6
Guyana	4.5
Trinidad and Tobago	4.0
Puerto Rico	2.8

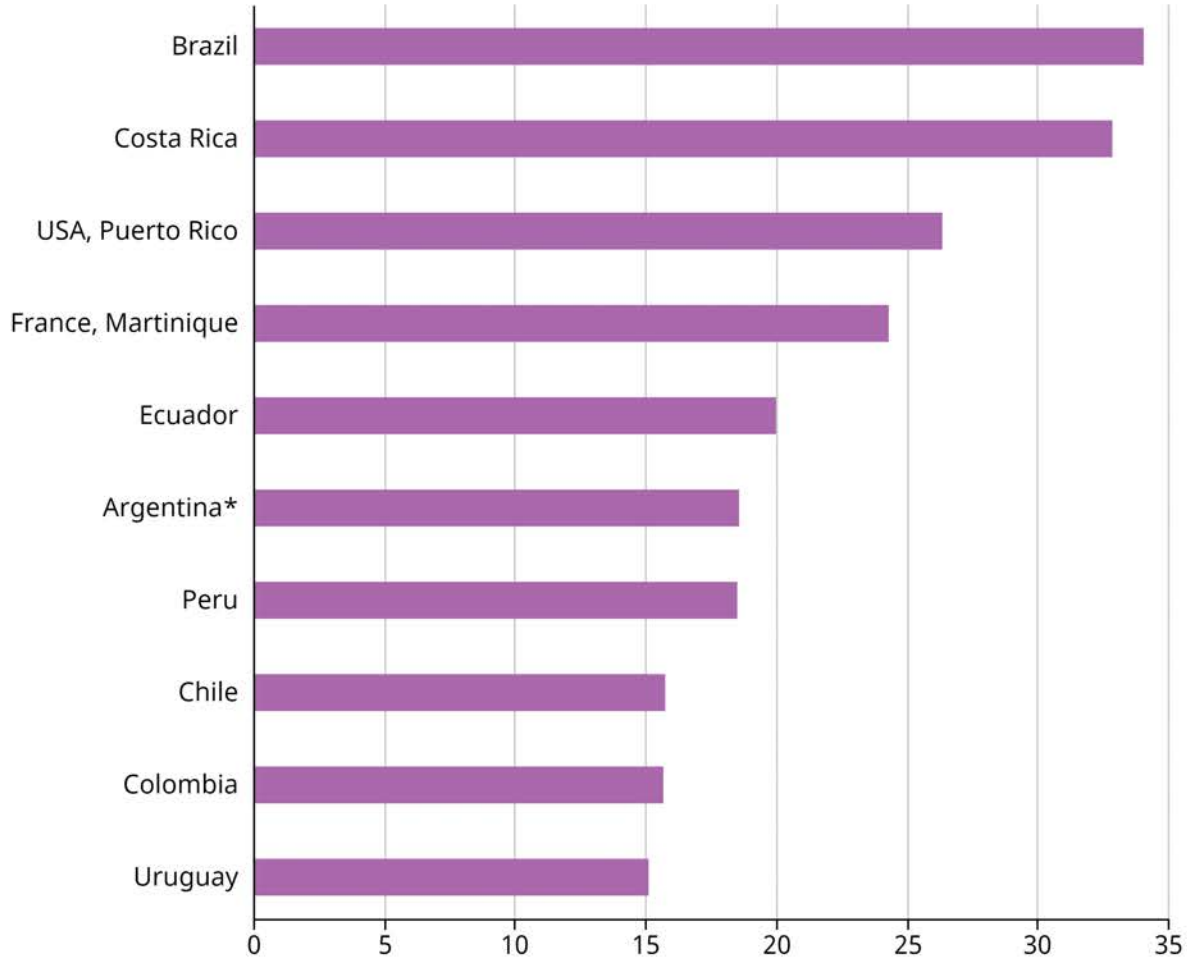
Cancer TODAY | IARC
https://gco.iarc.who.int/today
Data version: Globocan 2022 (version 1.1) - 08.02.2024

International Agency for Research on Cancer
World Health Organization

Observed survival, 5-year, both sexes, cases diagnosed 2008–2012

Stomach, Latin America, Observed survival

** Median survival estimate for the country*



International Agency for Research on Cancer

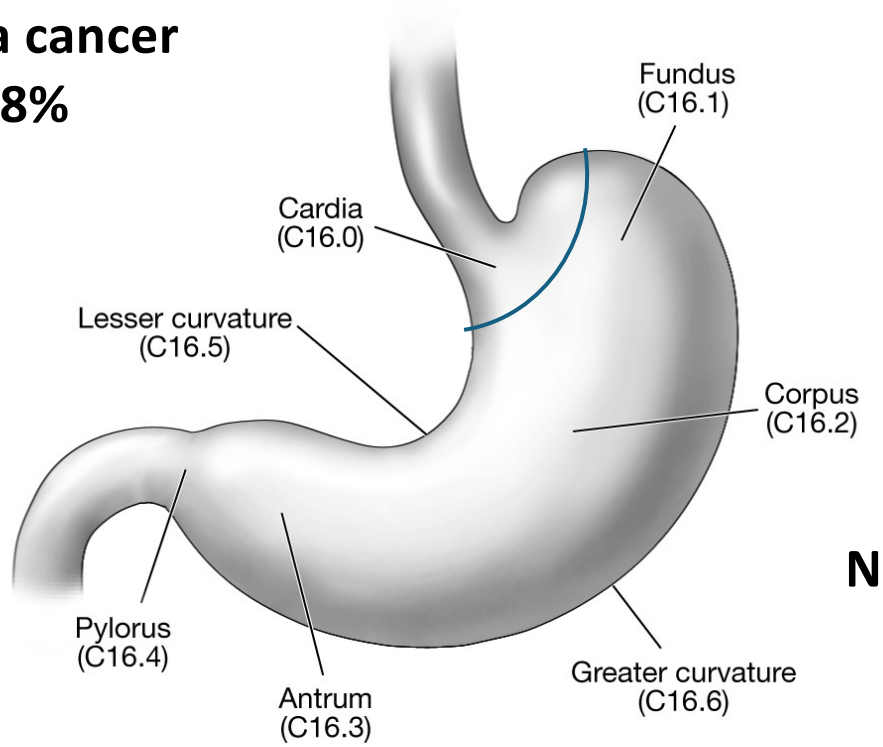
World Health Organization

Key Messages

- Persistent racial and ethnic disparities in gastric cancer incidence, mortality and survival in the United States
- Chronic *Helicobacter pylori* infection is the primary cause of gastric cancer, and there is a persistently high prevalence in some populations

Click to edit Master title style

Cardia cancer
18%



Non-cardia cancer
82%

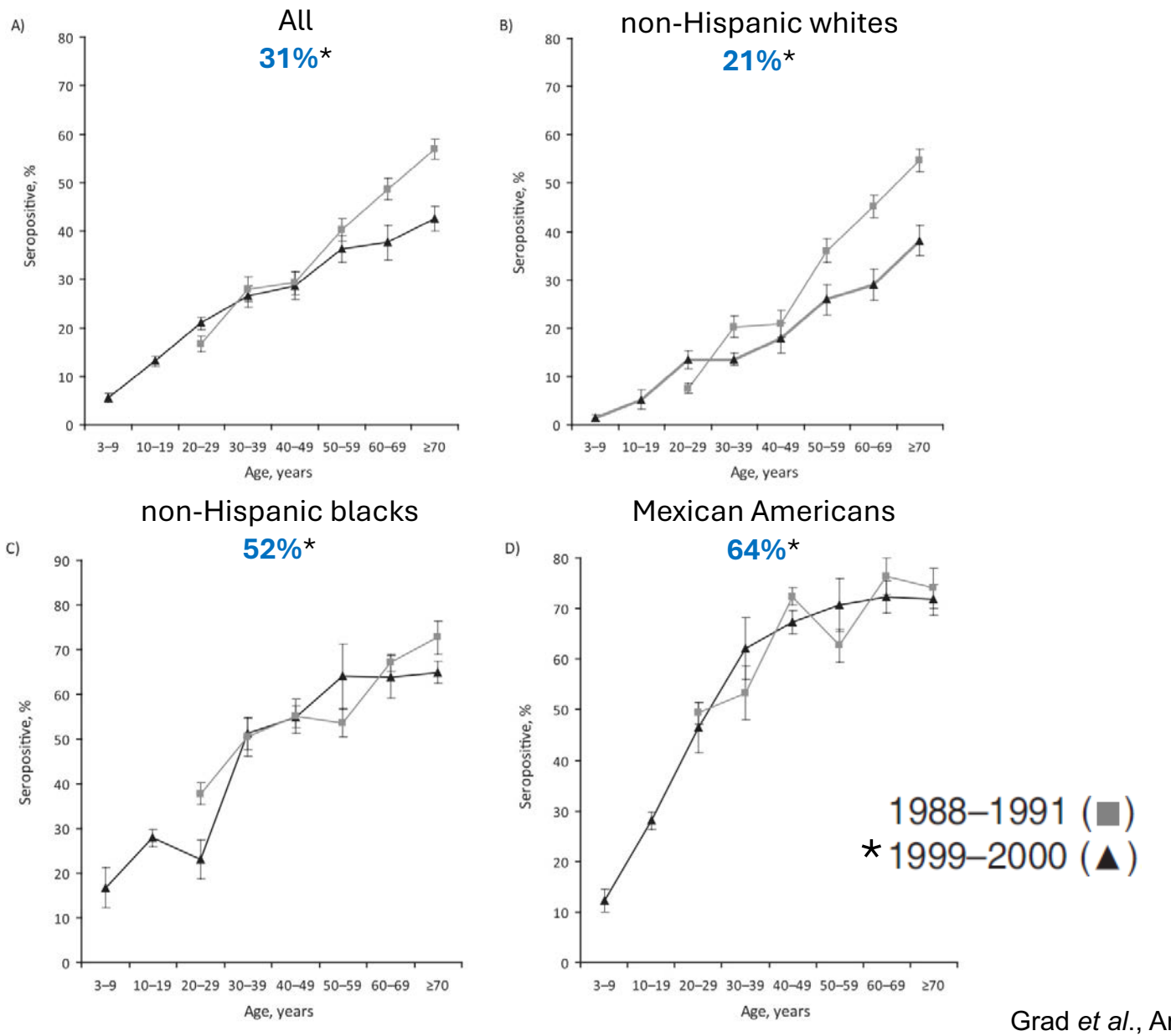
Arnold *et al,* Gut 2020

H. pylori was responsible for ~800,000 new gastric cancer cases in 2018

	Total		
	New cases	New cases attributable to infectious pathogens	
Helicobacter pylori			
Non-cardia gastric cancer	850 000	760 000	90%
Cardia gastric cancer	180 000	36 000	20%
Non-Hodgkin lymphoma of gastric location	22 000	16 000	72%

de Martel *et al.*, Lancet Glob Health 2020

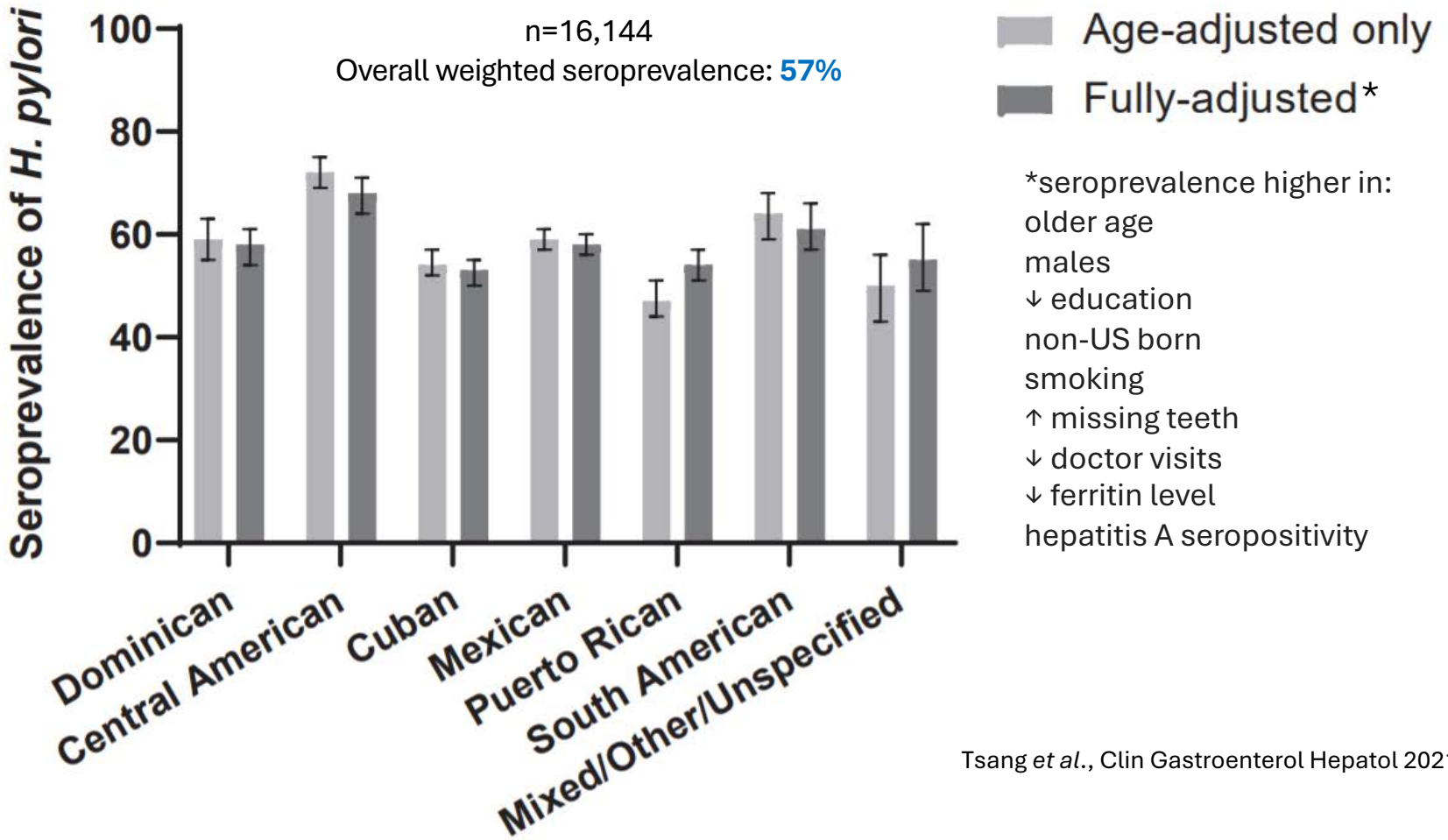
H. pylori seropositivity by age in the US population, NHANES



Grad *et al.*, Am J Epidemiol 2012

Seroprevalence and Determinants of *Helicobacter pylori* Infection in the Hispanic Community Health Study/Study of Latinos

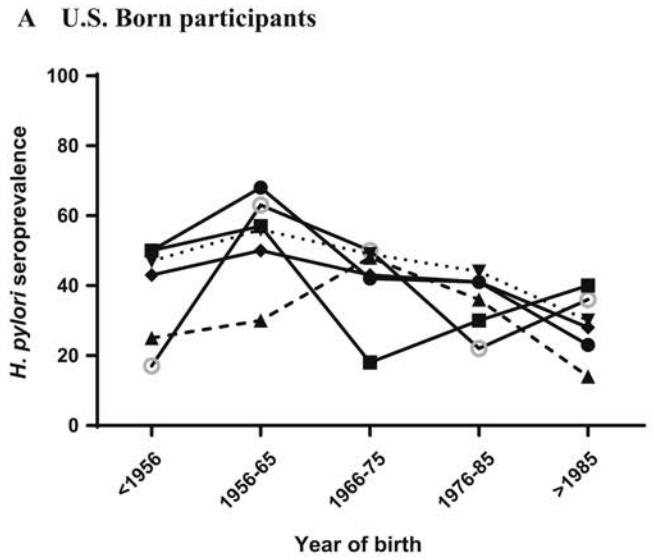
Sabrina H. Tsang,[*] M. Larissa Avilés-Santa,[‡] Christian C. Abnet,[*] Maximo O. Brito,[§] Martha L. Daviglus,[‖] Sylvia Wassertheil-Smoller,[¶] Sheila F. Castañeda,[#] Sharon Minnerath,[**] Gregory A. Talavera,[#] Barry I. Graubard,[*] Bharat Thyagarajan,[**] and M. Constanza Camargo[*]



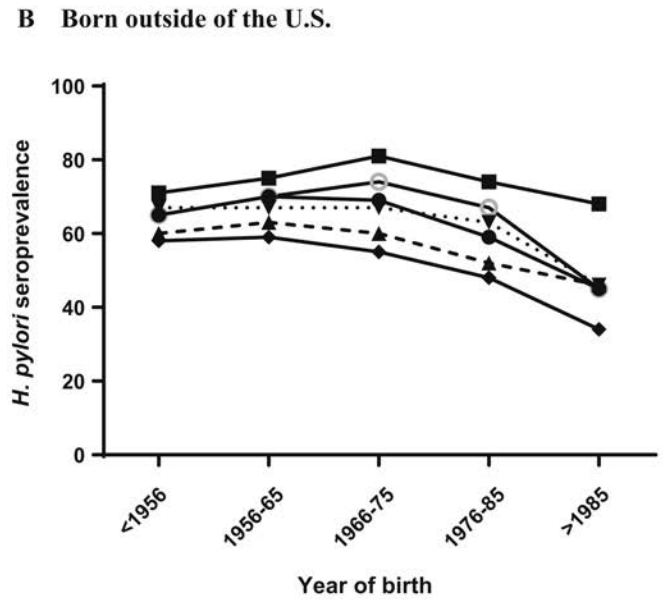
*seroprevalence higher in:
older age
males
↓ education
non-US born
smoking
↑ missing teeth
↓ doctor visits
↓ ferritin level
hepatitis A seropositivity

Tsang *et al.*, Clin Gastroenterol Hepatol 2021

Seroprevalence and determinants of *H. pylori* infection in the Hispanic Community Health Study/Study of Latinos (n=16,144)



Overall weighted seroprevalence: **38%**



Overall weighted seroprevalence: **62%**

Tsang *et al.*, Clin Gastroenterol Hepatol 2021

PAHO Pan American Health Organization World Health Organization Americas Region

Latin America and the Caribbean Code against Cancer

Learn how to help prevent cancer in yourself and your family

12. Infection from ***Helicobacter pylori*** **bacteria can cause stomach cancer.** Check with health professionals to find out if you might benefit from screening and treatment for this bacterial infection.

Herrero *et al.*, Cancer Epidemiol 2023; Camargo *et al.*, Lancet Reg Health Am 2023

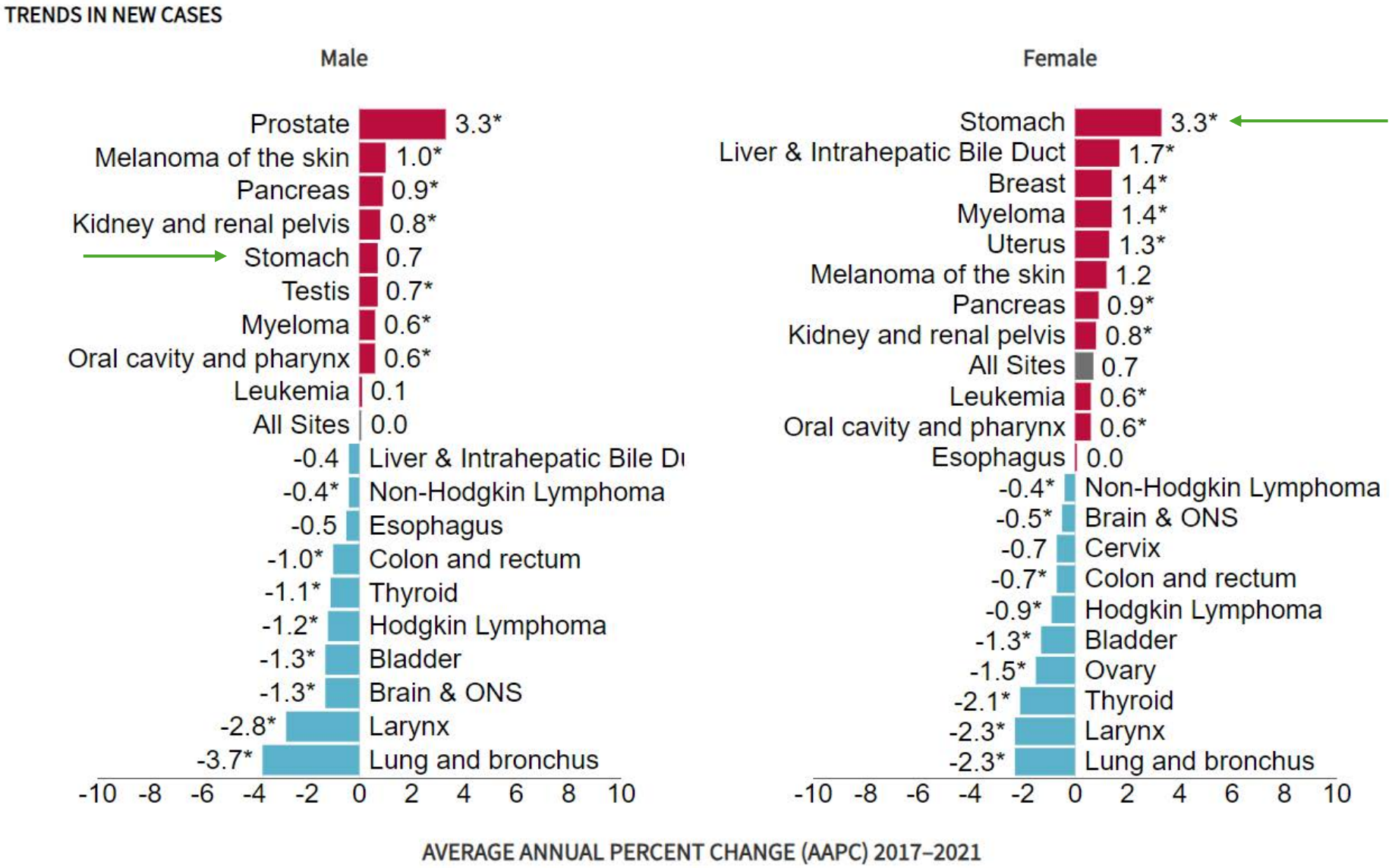
Key Messages

- Persistent racial and ethnic disparities in gastric cancer incidence, mortality and survival in the United States
- Chronic *Helicobacter pylori* infection is the primary cause of gastric cancer, and there is a persistently high prevalence in some populations
- Increased risk of non-cardia gastric cancer in young individuals

Annual percent change in individuals <50 years by race/ethnicity, SEER-22, 2000-2021

		NH-White	Hispanic	Asian / Pacific Islander	NH-Black
Non-cardia (C16.1-16.6)	Male	0.95	0.43	-2.57*	-1.42*
	Female	2.84*	1.81*	-1.25*	1.88*
Fundus (C16.1)	Male	-0.36	0.92	~	0.46
	Female	3.36*	2.72*	0.74	2.64
Corpus (C16.2)	Male	3.25*	3.29*	0.16	-0.08
	Female	6.63*	4.71*	1.70	5.93*

NH, non-Hispanic; Annual Percentage Change, APC
~ statistics could not be calculated.
*Statistically significant APC at the p<0.05 level



*AAPC is significantly different from zero (p<.05)

Rates are age-adjusted and adjusted for reporting delay in the registry

The 2020 incidence rate is not used in the calculation of trends. Impact of COVID on SEER Cancer Incidence 2020 data

Source: https://seer.cancer.gov/statfacts/html/common.html

Recent Gastric Cancer Trends in SEER Age-Adjusted Incidence Rates, 2017-2021

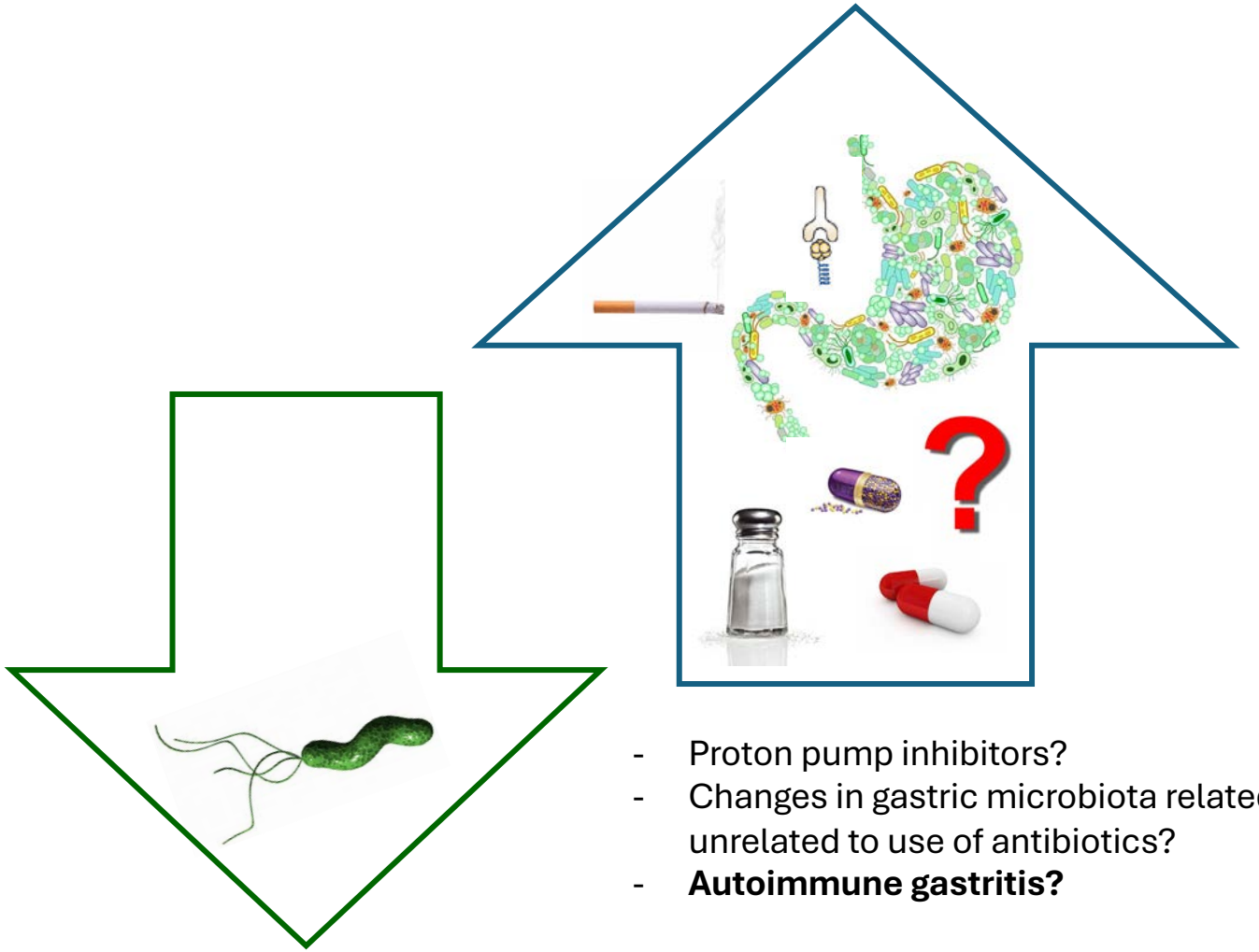
The 2020 incidence rates were not used in the fit of the trends

	AAPC (95% Confidence Interval)					
	All	NH White	Hispanic (any race)	NH Black	American Indian / Alaska Native	Asian / Pacific Islander
Female	3.27 (2.26 to 4.00)*	3.53 (1.6 to 4.84)*	0.6 (-0.27 to 2.80)	5.13 (0.21 to 7.42)*	0.04 (-1.46 to 1.74)	-2.57 (-2.93 to -2.18)*
Male	0.74 (-0.65 to 1.74)	0.6 (-0.5 to 1.62)	-1.87 (-2.1 to -1.61)*	1.14 (-2.05 to 3.21)	-1.13 (-2.64 to 0.59)	0.2 (-2.92 to 2.33)
Both sexes	1.98 (0.46 to 2.78)*	1.52 (-0.1 to 2.43)	-0.42 (-1.01 to 0.8)	3.05 (1.13 to 4.33)*	-0.56 (-1.9 to 0.89)	-2.56 (-2.87 to -2.22)*

AAPC, Average Annual Percent Change; NH, non-Hispanic; *Statistically significant AAPC at the $p<0.05$ level.

Source: SEER*Explorer: An interactive website for SEER cancer statistics [Internet]. Surveillance Research Program, National Cancer Institute; 2024 Apr 17. [updated: 2024 Jun 27; cited 2024 Jul 29]. Available from: https://seer.cancer.gov/statistics-network/explorer/. Data source(s): SEER Incidence Data, November 2023 Submission (1975-2021), SEER 22 registries.

Potential changes in the etiologic fractions of major and potential risk factors



- Proton pump inhibitors?
- Changes in gastric microbiota related or unrelated to use of antibiotics?
- **Autoimmune gastritis?**

Key Messages

- Persistent racial and ethnic disparities in gastric cancer incidence, mortality and survival in the United States
- Chronic *Helicobacter pylori* infection is the primary cause of gastric cancer, and there is a persistently high prevalence in some populations
- Increased risk of non-cardia gastric cancer in young individuals

What is the need for gastric cancer control?

- A far-reaching and well-funded national research agenda to build evidence-based prevention and control strategies

Think Tank on Advancing Gastric Cancer Prevention

NCI Shady Grove Campus
Joseph F. Fraumeni Jr. Conference Room (TE-406/8/10)
Friday, May 17, 2024, 8:00 AM - 5:30 PM

Recording

Over 200 national and international (in-person and virtual) participants, including clinicians, researchers, and patient advocates (Debbie's Dream Foundation, No Stomach for Cancer, and Hope for Stomach Cancer)

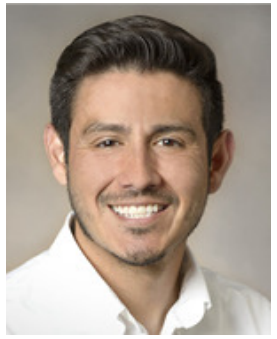
The Latino Cancer Institute, in collaboration with the *FDA's Oncology Center of Excellence, Hispanic Family Cancer Awareness Week, Sept 20 -26th*, presents

Trends in Cancer We Can't Afford to Ignore Anymore!

September 20, 2024

9:00 am - 10:30 am PST • 11:00 am - 12:30 pm CDT • 12:00 pm - 1:30 pm EST

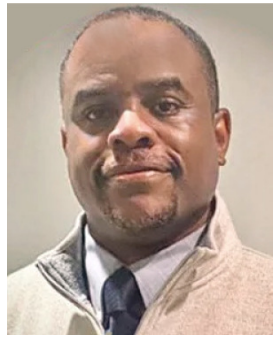
Constanza Camargo, PhD
National Cancer Institute



David O. Garcia, PhD
FACSM, University of Arizona

Mariana Stern, PhD
Keck School of Medicine, USC

Noe Crespo, PhD
School of Public Health, SDSU



Mathieu Luckson, MD
FDA Oncology Center of Excellence

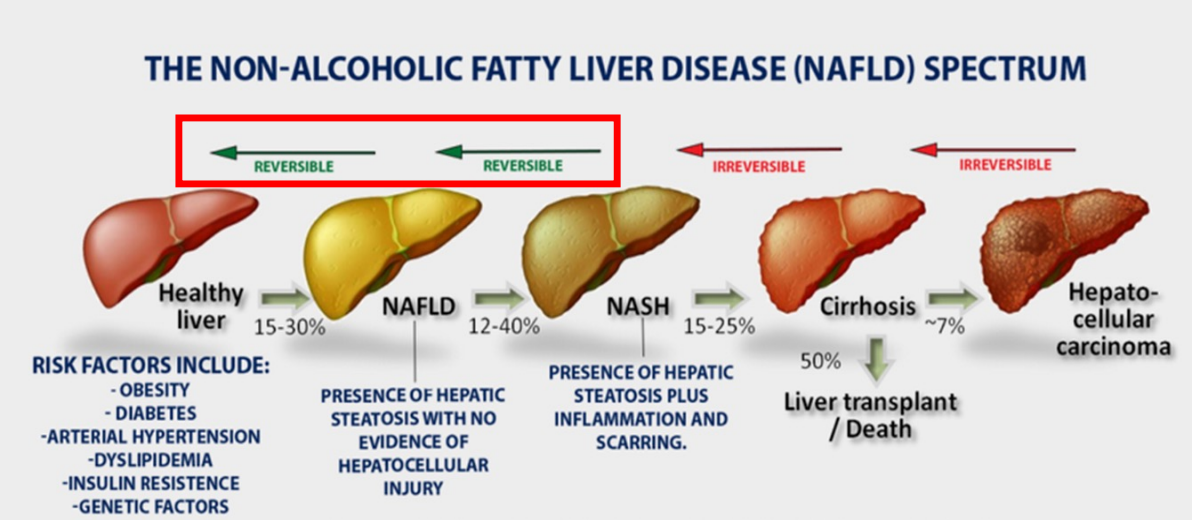
Fatty Liver Disease in Hispanic Communities: A Silent Epidemic

David O. Garcia, PhD, FACSM
Associate Professor
Mel & Enid Zuckerman College of Public Health
University of Arizona

Director, Nosotros Comprometidos A Su Salud
Director, Zuckerman Family Center for Prevention and Health Promotion

NAFLD is categorized into NAFL or NASH

- **Non-alcoholic fatty liver (NAFL)**
  - **≥ 5% liver fat without any evidence of liver cell injury or inflammation**
- **Non-alcoholic steatohepatitis (NASH)**
  - **≥ 5% liver fat with evidence of liver cell injury and inflammation**



Chalasani et al., 2018

No More NAFLD

The NAFLD nomenclature is changing.

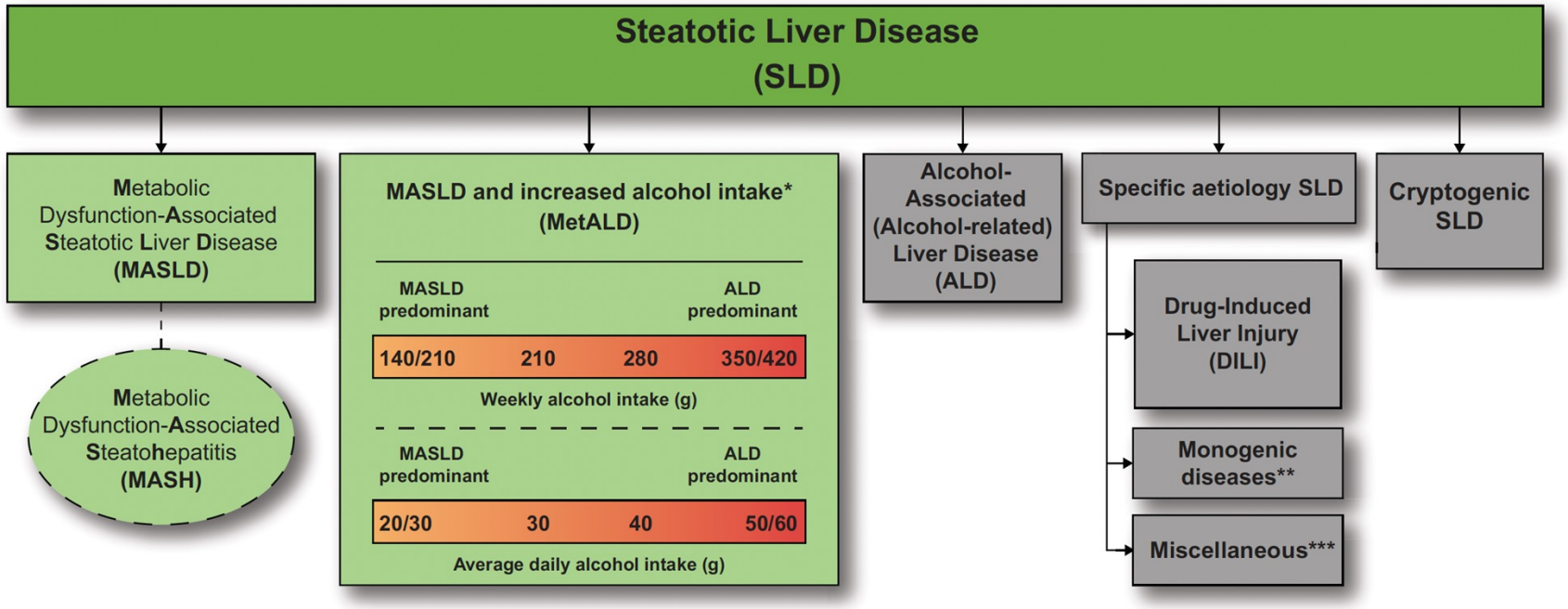
AASLD
AMERICAN ASSOCIATION FOR THE STUDY OF LIVER DISEASES

ELSEVIER

Annals of Hepatology
Available online 24 June 2023, 101133
In Press, Journal Pre-proof What's this?

A multi-society Delphi consensus statement on new fatty liver disease nomenclature

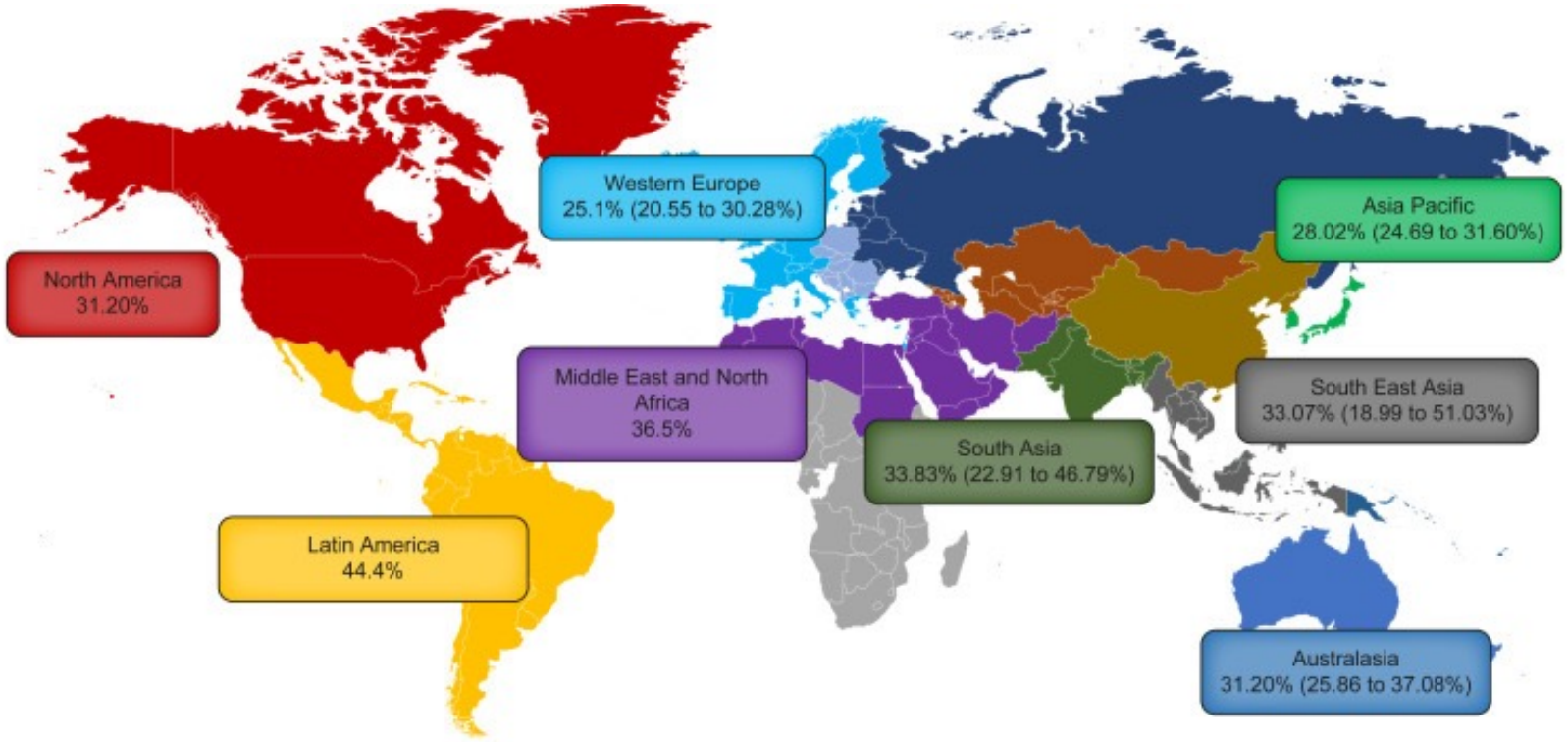
Mary E. Rinella [1], Jeffrey V. Lazarus [2 3], Vlad Ratziu [4], Sven M. Francque [5 6], Arun J. Sanyal [7], Fasiha Kanwal [8 9], Diana Romero [2], Manal F. Abdelmalek [10], Quentin M. Anstee [11 12], Juan Pablo Arab [13 14 15], Marco Arrese [15 16], Ramon Bataller [17], Ulrich Beuers [18], Jerome Boursier [19], Elisabetta Bugianesi [20], Christopher D. Byrne [21 22], Graciela E. Castro Narro [16 23 24], Abhijit Chowdhury [25], Helena Cortez-Pinto [26], Donna Cryer [27]...Philip N. Newsome (senior) [66 67]



*Weekly intake 140-350g female, 210-420g male (average daily 20-50g female, 30-60g male)
**e.g. Lysosomal Acid Lipase Deficiency (LALD), Wilson disease, hypobetalipoproteinemia, inborn errors of metabolism
***e.g. Hepatitis C virus (HCV), malnutrition, celiac disease, human immunodeficiency virus (HIV)

AASLD
AMERICAN ASSOCIATION FOR THE STUDY OF LIVER DISEASES

Global Prevalence of NAFLD



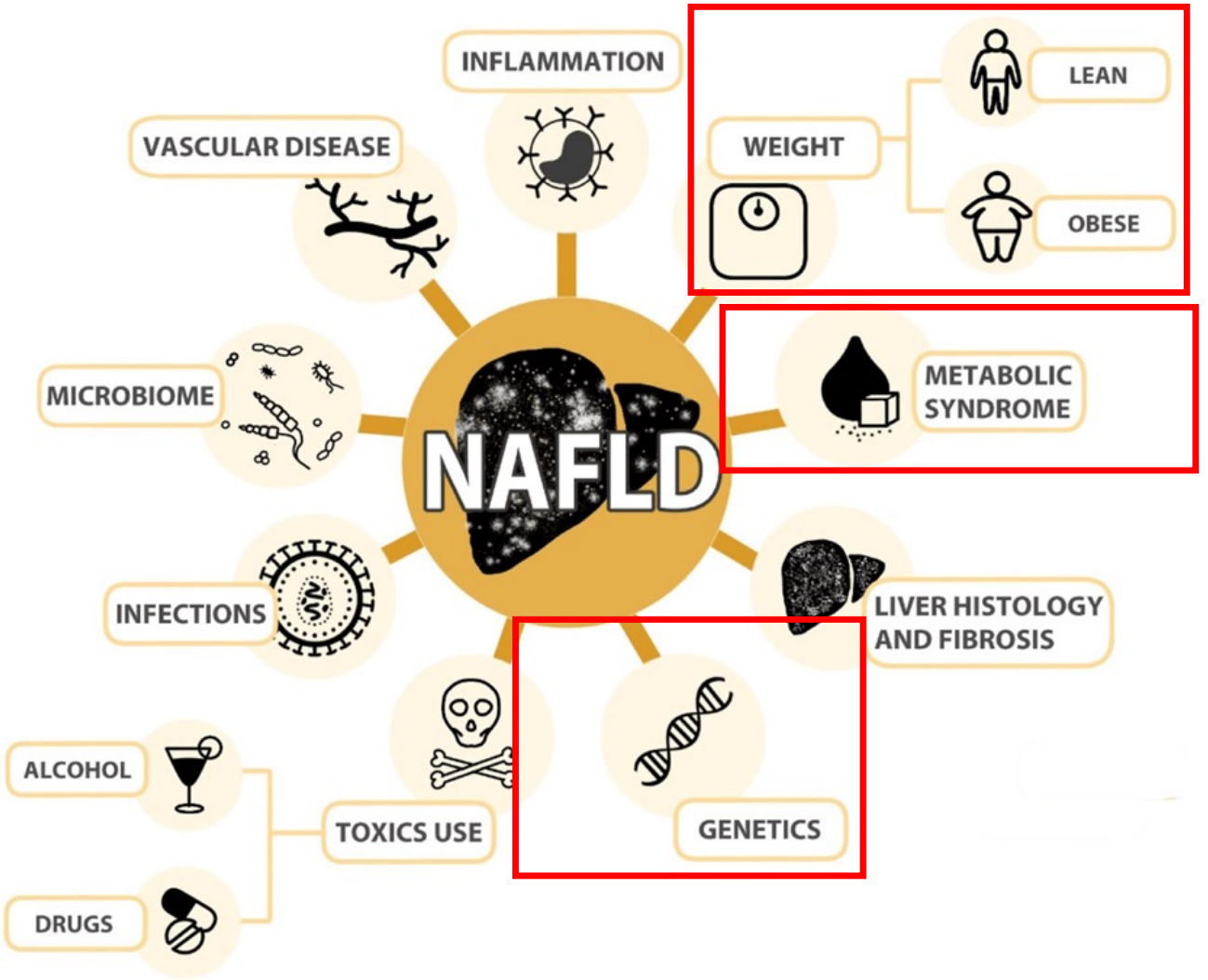
Allen et al., 2023

Incidence Rates of NAFLD

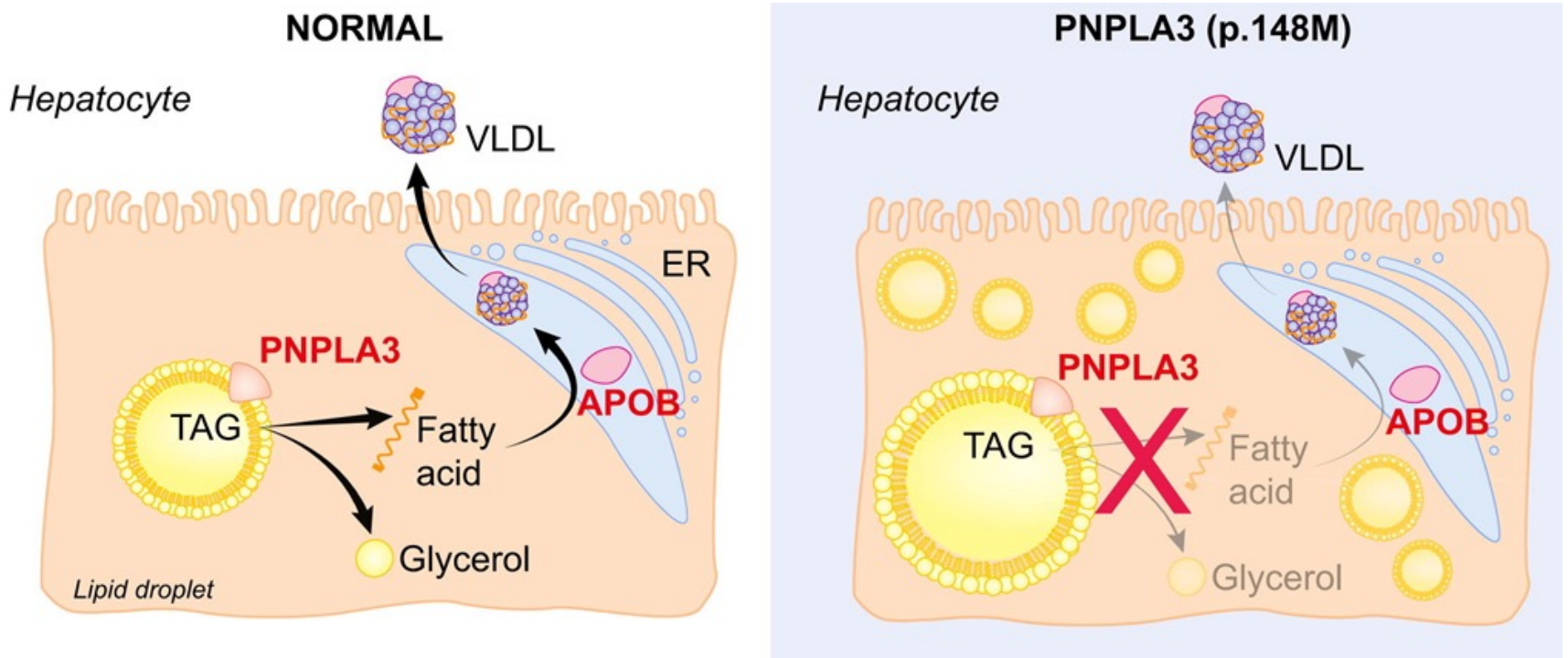
- The prevalence is highest among MO adults (43%) as compared to non-Hispanic Blacks (22%), non-Hispanic whites (31%), and other Hispanics (28%)

Shaheen, et al. 2021

Causes of NAFLD

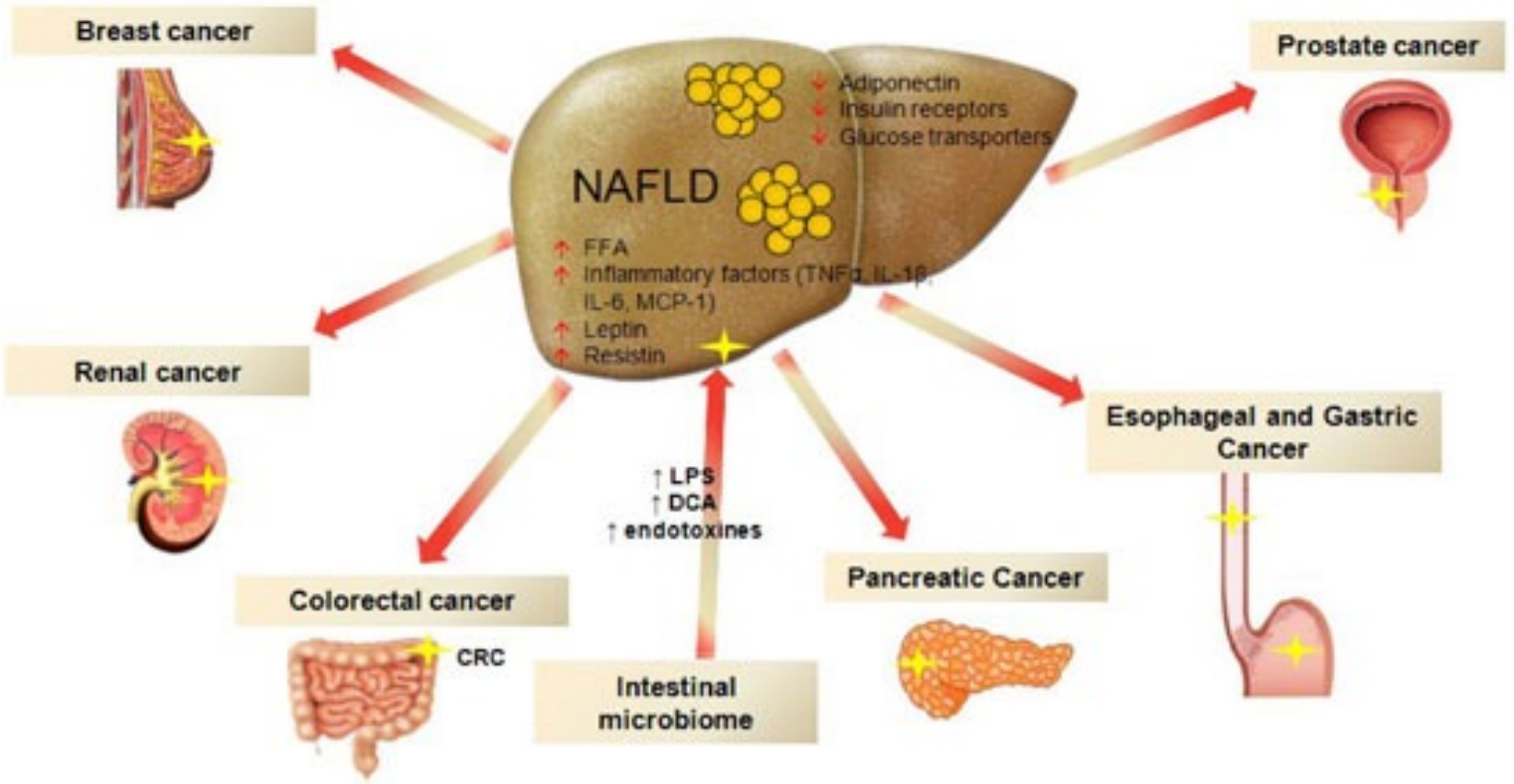


Pena et al., 2023



Trepo et al., 2016

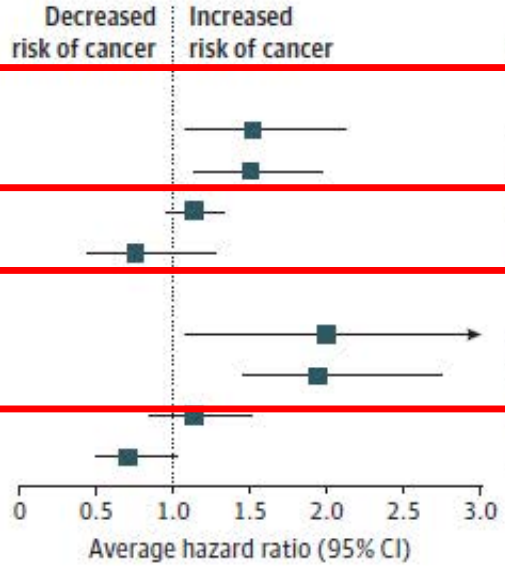
NAFLD and Related Cancers



Sanna et al., 2016

Figure 2. Risk of Cancer by Age Group

Age of NAFLD onset, y	Patients with cancer, No./total No.		Average hazard ratio (95% CI)	P value	P for interaction
	Control group	New-onset group			
All cancer types					
<45	91/8952	131/8984	1.52 (1.09-2.12)	.01	
45-54	351/10273	432/10271	1.50 (1.15-1.97)	.003	<.001
55-64	417/8572	467/8585	1.13 (0.97-1.33)	.12	
≥65	275/4051	251/4008	0.75 (0.45-1.27)	.29	
Digestive system cancers					
<45	29/8952	57/8984	2.00 (1.08-3.47)	.03	
45-54	101/10273	140/10271	1.94 (1.46-2.74)	<.001	<.001
55-64	138/8572	160/8585	1.13 (0.85-1.51)	.39	
≥65	77/4051	82/4008	0.71 (0.50-1.02)	.54	



Average hazard ratios with 95% CIs of all cancer types and digestive system cancers are presented among participants with new-onset NAFLD vs controls across age groups. The model was adjusted for age (continuous), sex (categorical), body mass index (continuous; calculated as weight in kilograms divided by height in meters squared), waist circumference (continuous), total cholesterol level (continuous), triglyceride level (continuous), total bilirubin level (continuous), hypersensitive C-reactive protein level (continuous), alanine aminotransferase level (continuous), smoking status (categorical), physical activity (categorical), hypertension (categorical), diabetes (categorical), gallbladder polyps (categorical), and gallstone disease (categorical). NAFLD indicates nonalcoholic fatty liver disease.

Liu et al., 2023

Early Detection and Screening

- **Imaging**
  - **Ultrasound**
  - **CT**
  - **MRI**

- **Non-Invasive Tests**
  - **Transient elastography (FibroScan®)**
  - **Fibrosis-4 (FIB-4) Score**
  - **Enhanced Liver Fibrosis (ELF) Test**

FibroScan®

- **Vibration-controlled transient elastography**
  - **Continuous Attenuation Parameter (CAP) value ranging from 100 - 400 dB/m**
    - 238 to 259 dB/m – Steatosis grade 1, mild
    - 260 to 290 dB/m – Steatosis grade 2, moderate
    - 290 dB/m and higher – Steatosis grade 3, severe
  - **Liver Stiffness Measurement (LSM) value ranging from 1.5 - 75 kPa**
    - 2-7 kPa for mild liver scarring
    - 7-10 kPa for moderate liver scarring
    - 10-14 kPa for severe liver scarring
    - 14 kPa and higher for advance liver scarring (cirrhosis)

Prevention and Treatment for NAFLD

- Currently no FDA-approved pharmacological treatments exist – lifestyle modification (diet, physical activity) is the recommended therapy for NAFLD

- However, in conjunction with diet and exercise, the first and only FDA-approved treatment for adults with noncirrhotic NASH with moderate to advanced fibrosis

Rezdiffra™
resmetirom tablets
60 mg · 80 mg · 100 mg

Chalasani et al., 2018

- Our mission is to reduce health disparities faced by Mexican-origin communities and other Hispanic communities in Southern Arizona

- Over 10,000 individuals engaged in outreach efforts- ~4,000 participants (~90% Mexican-origin descent) have participated in our research studies in the areas of obesity and cancer prevention

- Over 100 students who previously had not trained in lifestyle and health, have experienced research and community engagement firsthand

The LUNA Study (Liver Ultrasound & Nutrigenetic Assessment)

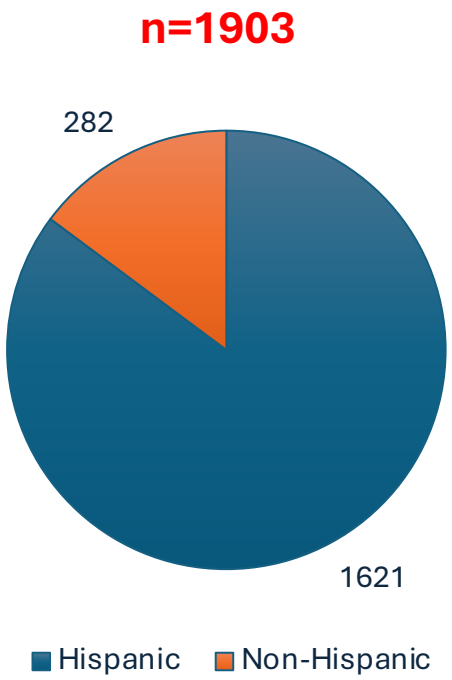
- From May 2019-March 2020
  - 778 people were interested in participating
  - 307 people completed the study
  - ~50% were found to have NAFLD and 77% identified as PNPLA3 carriers

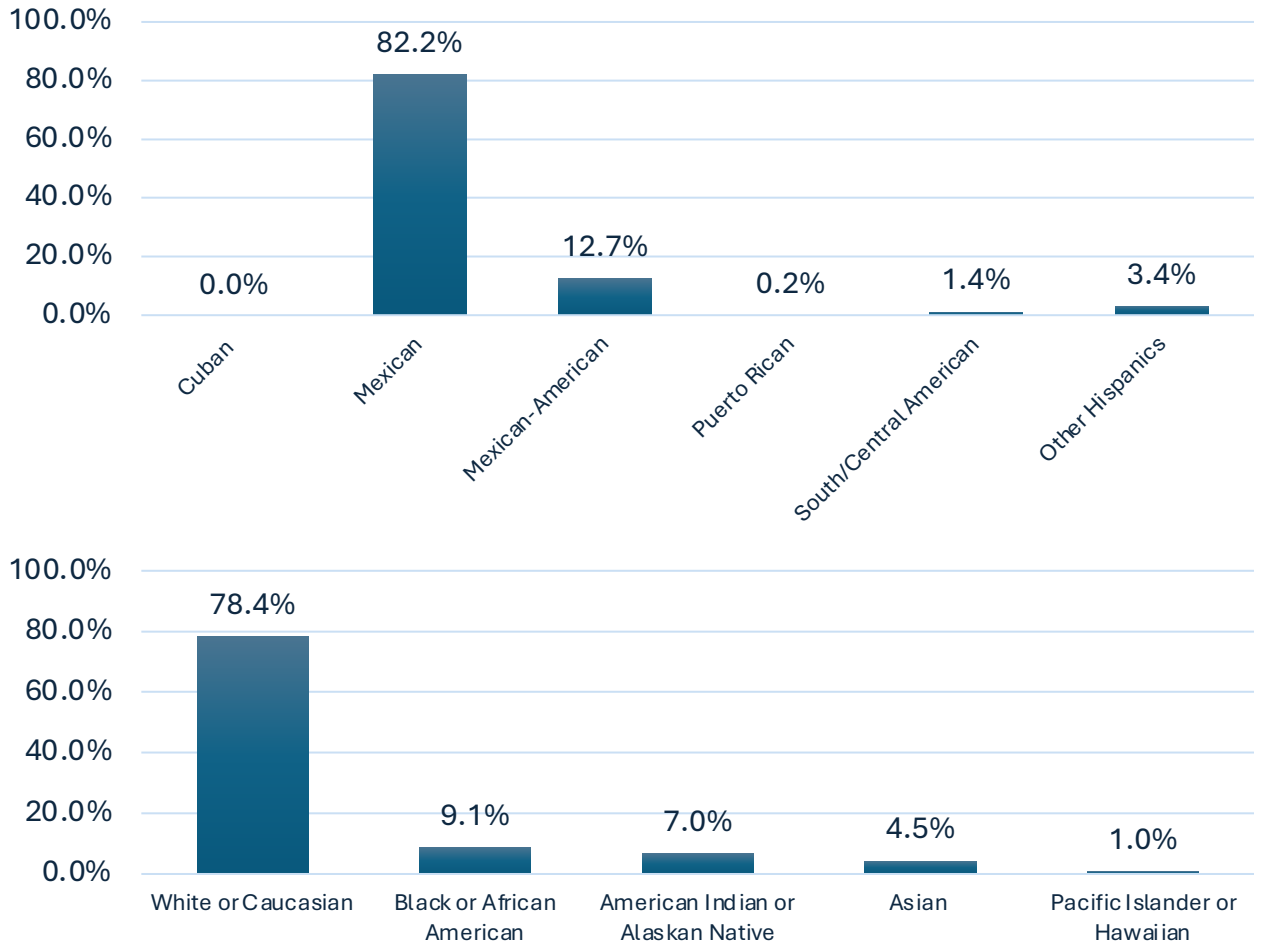
- Provided insight into liver-related health disparities
  - Heavy alcohol consumption is not a primary cause
  - Early detection, screening and treatment should be prioritized

Garcia et al., 2022

Community Outreach and Engagement for Liver Disease Prevention and Treatment in Southern Arizona

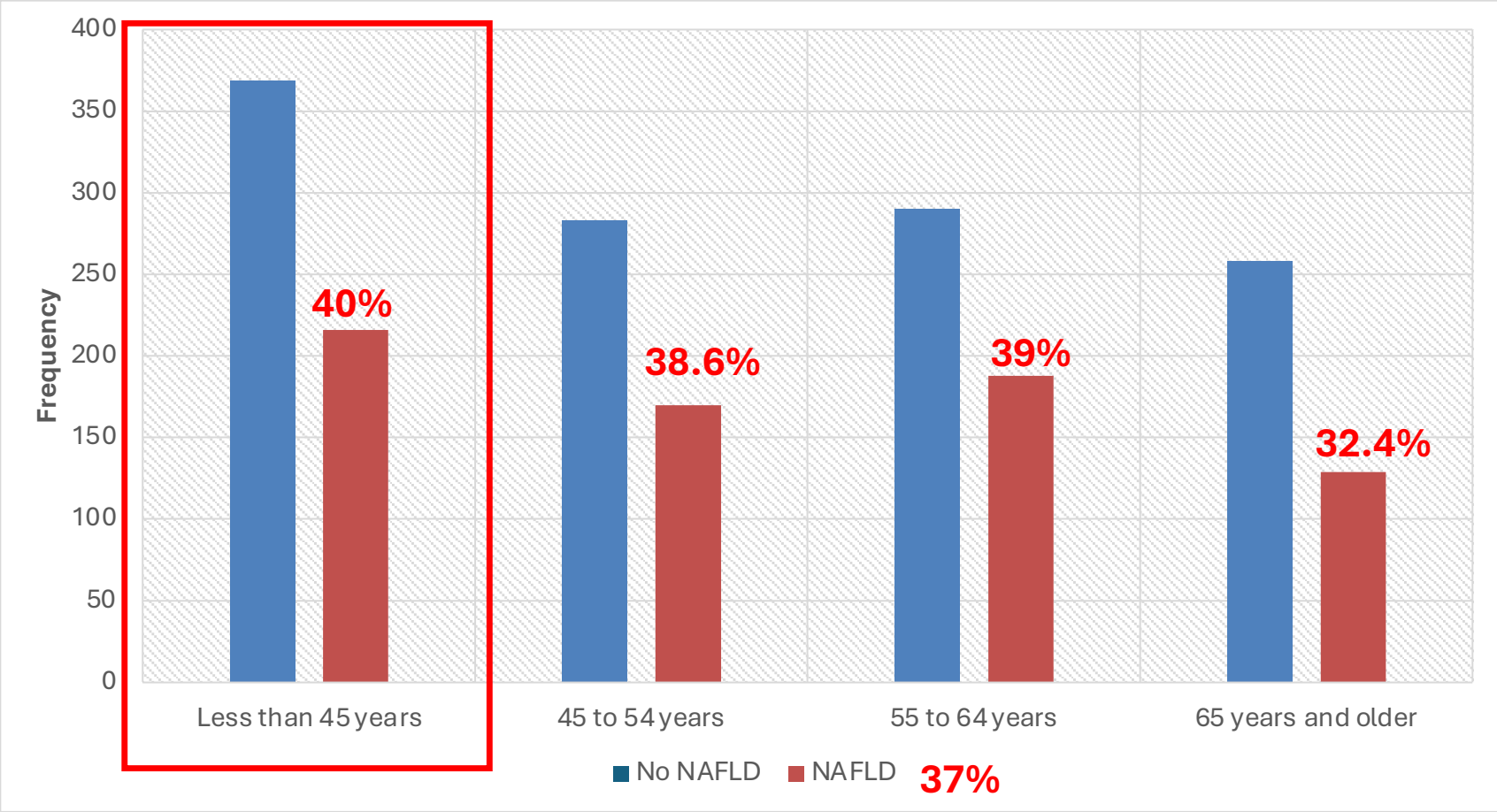
Results to Date…





Garcia, DO., et al. (2024). Use of FibroScan® to assess hepatic steatosis and fibrosis in community-based settings to promote clinical care linkages along the Southern Arizona United States/Mexico border. European Association for the Study of the Liver (EASL) Congress 2024

Results to Date…



Garcia, DO., et al. (2024). Use of FibroScan® to assess hepatic steatosis and fibrosis in community-based settings to promote clinical care linkages along the Southern Arizona United States/Mexico border. European Association for the Study of the Liver (EASL) Congress 2024

1. **Be comfortable with being uncomfortable**

2. **Advocate for early detection and screening for chronic diseases, particularly liver disease**

3. **Disrupt the systems!**

Acknowledgements

EL RIO HEALTH

Campesinos Sin Fronteras Desde 1999

NAU NORTHERN ARIZONA UNIVERSITY

Community Foundation for Southern Arizona

HRSA Health Resources & Services Administration

NIH National Institute on Minority Health and Health Disparities

CPCRN

American Cancer Society

THE UNIVERSITY OF ARIZONA Cancer Center
Community Outreach & Engagement

NIH NATIONAL CANCER INSTITUTE

ARIZONA LIVER HEALTH™

Questions?

davidogarcia@arizona.edu

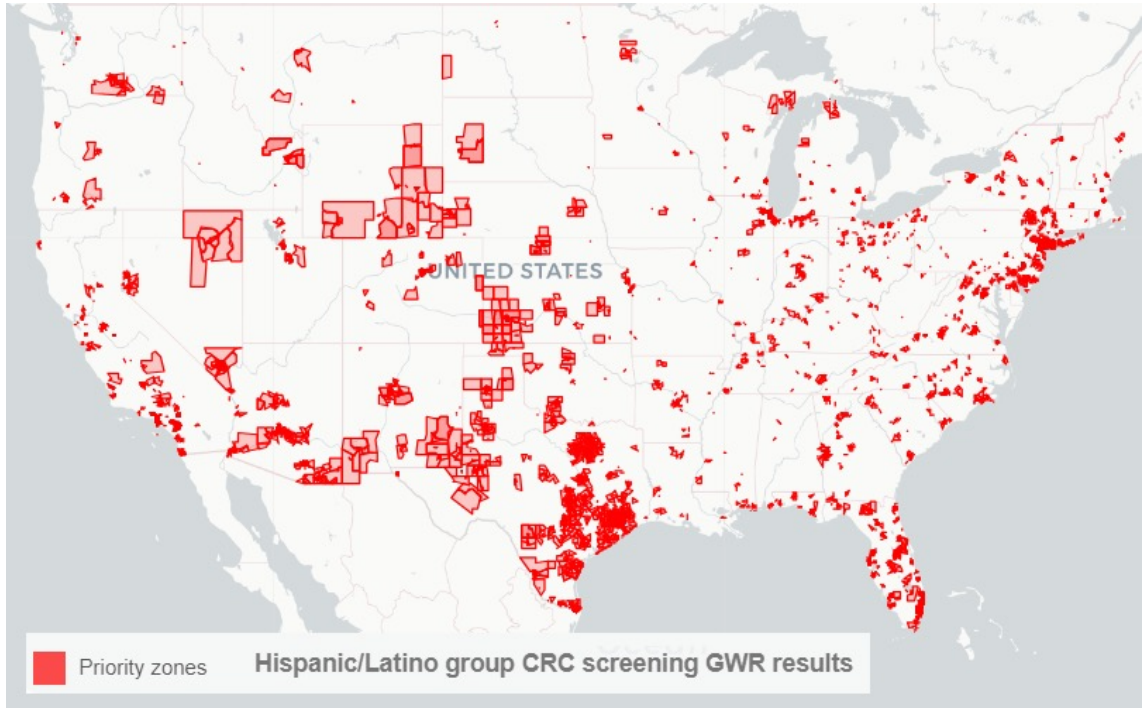
Mapping CRC Screening Gaps in Hispanic Communities

Identification of Priorities for Colorectal Cancer Screening Interventions Among the U.S. Hispanic/Latino Populations

- Hispanic/Latino groups, with 57.2% to 60.4% CRC average screening rates, fall below the 2018 national average of 68.8%.
- Of over 16,000 identified priority zones, 6,519 (*about 41%)* were *associated with Mexican-heritage communities*, with the lowest average screening rate of 57.2%.

American Journal of Public - https://doi.org/10.2105/AJPH.2024.307733
R. Blake Buchalter, Mariana C. Stern, Joel Sanchez Mendez, Michelle K. Kim, Johnie Rose, Cathy D. Meade, Clement K. Gwede, Jane C. Figueiredo, and Stephanie L. Schmit, 2024

Interactive web map highlighting CRC screening priority zones for Hispanic/Latino populations across the U.S.



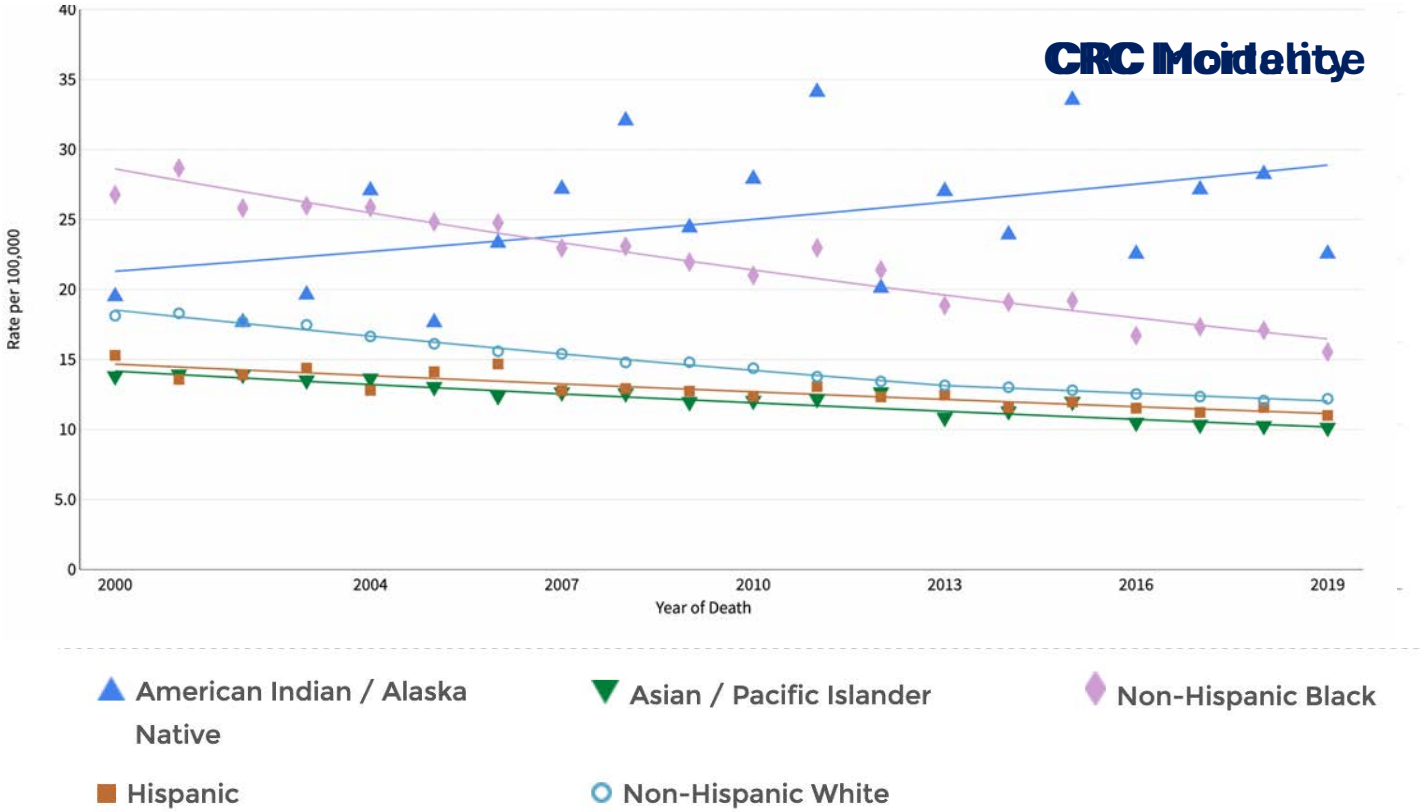
Reducing disparities in colorectal cancer among Hispanic patients

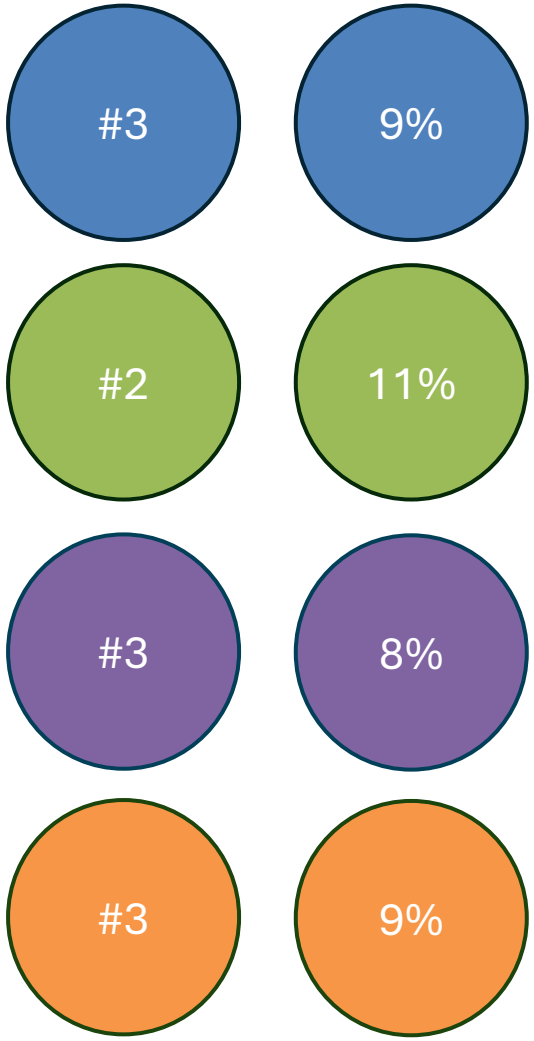
Mariana C. Stern, PhD
Vice-Chair of Diversity, Equity & Inclusion and Professor
Department of Population and Public Health Sciences
Ira Goodman Chair in Cancer Research
Associate Director of Population Sciences
USC Norris Comprehensive Cancer Center
Keck School of Medicine of USC

USC Norris Comprehensive Cancer Center
Keck Medicine of USC

USC COPECC
FIGHT ON AGAINST CANCER

Colorectal cancer in California





All US male populations

Hispanic males

All US female populations

Hispanic females

Greater burden of cancer among Hispanic populations

Socio-demographic characteristics

California Cancer Registry data, 1995-2017, N = 52,667 Hispanic patients

Compared to NHW, Hispanic patients showed greater proportion of:

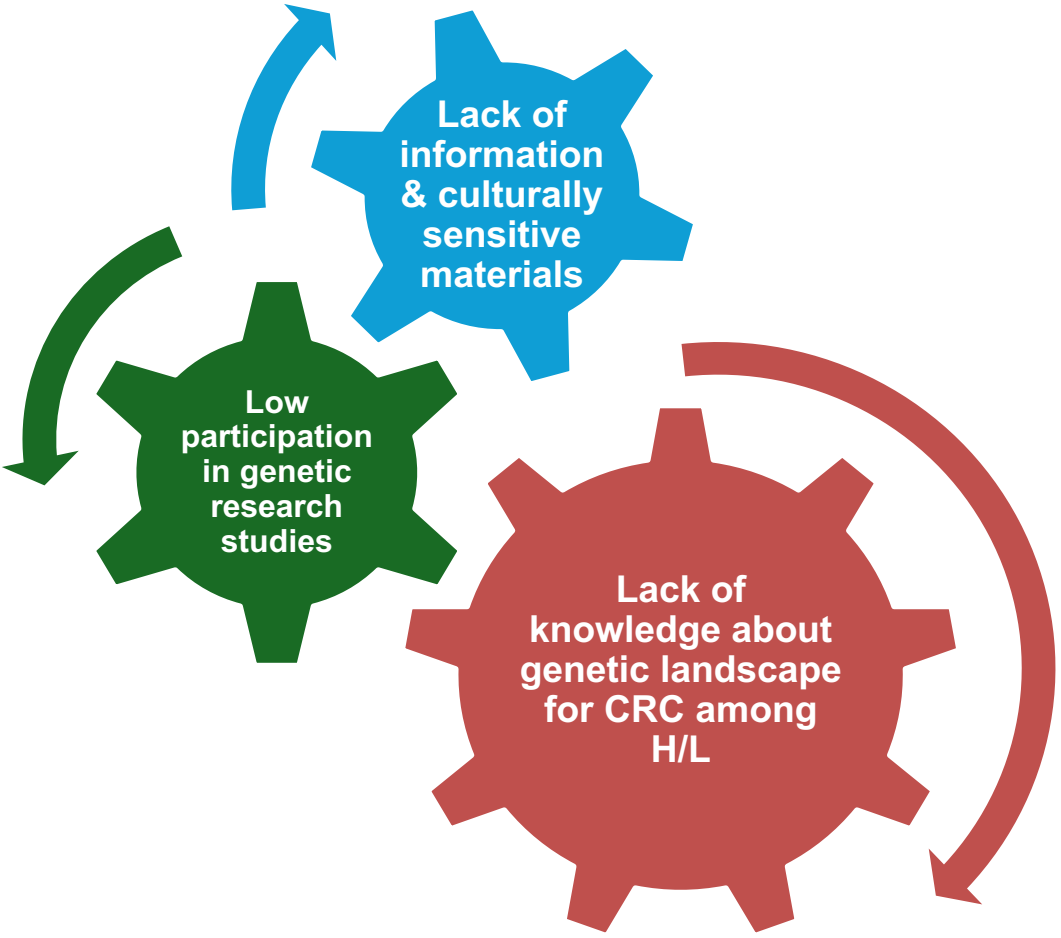
- Stage IV diagnoses
- Larger tumors
- Metastasis at the time of diagnosis
- Delays in start of treatment
- Lack of treatment

Hispanic patients have greatest proportion of diagnosis <50 years old

Hispanic patients born outside the US had greatest proportion of low SES

Sanchez Mendez *et al,* Cancer Medicine, 2023

How can we reduce colorectal cancer disparities among Latino populations?



- Increasing **access** to clinical genetic testing
- Increasing **knowledge** about cancer prevention in a culturally sensitive manner
- Training community members to serve as **liaisons** to deliver cancer prevention information

Center for Optimizing Engagement of Hispanic Colorectal Cancer Patients in Cancer Genomic Characterization Studies

Our Mission

To improve cancer outcomes among Hispanic colorectal cancer patients

Our Vision

To confront cancer as a community to achieve health equity for all cancer patients

www.usccopecc.org

Patient Engagement Unit

Mariana Stern, PhD
CO-LEAD

Heinz-Josef Lenz, MD
CO-LEAD

Sandra Algaze, MD
CO-INVESTIGATOR

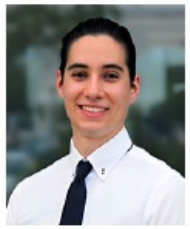
Syma Iqbal, MD
CO-INVESTIGATOR

Julie Culver, MS
GENETIC COUNSELOR

Natalia Gutierrez, MS
GENETIC COUNSELOR

Carmen Chavez, MPH
RESEARCH COORDINATOR SUPERVISOR

Lucia Enriquez
RESEARCH COORDINATOR



Joel Sanchez Mendez, MBBS, MBA
GRADUATE RESEARCH ASSISTANT

Janet Rodriguez, MPH
PROJECT ADMINSTRATOR

William Dean Wallace, MD
PATHOLOGIST

Engagement Optimization Unit

Lourdes Baezconde-Garbanati, PhD, MPH
CO-LEAD

Charité Ricker, MS
CO-LEAD

Mariana Stern, PhD
CO-INVESTIGATOR

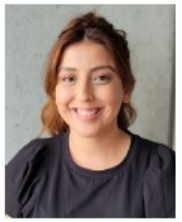
Jennifer Tsui, PhD
CO-INVESTIGATOR

Caryn Lerman, Phd
CO-INVESTIGATOR

Rosa Barahona
PROGRAM ADMINSTRATOR

Daisy Hernandez, MS
GENETIC COUNSELOR

Elena Taylor
PROJECT MANAGER



Itzya Ulloa
PROJECT SPECIALIST

Juan Pablo Lewinger, PhD
BIOSTATISTICIAN

James Gauderman, PhD
BIOSTATISTICIAN

Genomic Characterization Unit

David Craig, PhD
CO-LEAD

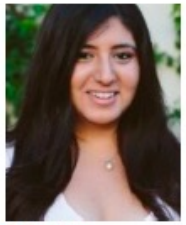
John D. Carpten, PhD
CO-LEAD

Bodour Salhia, PhD
CO-LEAD

Enrique Velazquez Villareal, MD
CO-INVESTIGATOR

Wendy Chen
CLINICAL INFORMATICIAN

Seeta Rajpara, MS
BIOINFORMATICIAN



Ashely Noriega, MS
DATA SCIENTIST

Yonatan Amzaleg, PhD
POST DOCTORAL FELLOW

Mackenzie Postel
GRADUATE STUDENT

ENLACE STUDY

Community Advisory Board

Patient Consent

Biospecimen Collection

Genetic Testing

Return of Results & Surveys

12 months Follow-Up

USC Norris Comprehensive Cancer Center
Keck Medicine of USC

GOAL
100 patients per year
Total of 500 patients
To date 200 patients

CONFRONTING CANCER AS A COMMUNITY

ENLACE STUDY

Patient Consent

Biospecimen Collection

Genetic Testing

Return of Results & Surveys

12 months Follow-Up

- **Knowledge**
- Demographics
- CRC risk factors
- **Screening behaviors**
- Acculturation, literacy
- Latino values
- **Self-efficacy**
- Discrimination
- **Satisfaction**
- Consenter experience

- **Knowledge**
- Self-efficacy
- **Impact of testing**
- Regret
- **Satisfaction**
- Provider experience

- **Knowledge**
- **Screening Behaviors**
- **Self-efficacy**
- **Impact of testing**
- Regret
- Cascade testing & sharing of info
- Engagement
- **Satisfaction**

ENLACE STUDY

Engagement

- Participation
- Knowledge
- Trust
- Self-Efficacy
- Adherence
- Family Communication
- Process Satisfaction
- Feeling Valued
- Feeling Heard
- Navigation

Estudio de Investigación del Cáncer Colorrectal y la Genética en Participantes Hispanos y Latinos

¡Le invitamos a unirse a un estudio de investigación genética!

Queremos que se convierta en nuestro socio/a en la investigación.
Queremos compartir con usted información sobre los resultados del estudio.

¿Cómo se estudia la genética del cáncer colorrectal?

Pruebas genéticas de las células tumorales del cáncer colorrectal

- Se puede analizar el tejido de su biopsia o cirugía.
- Los resultados pueden ayudar a su oncólogo a elegir su tratamiento.
- Estos resultados genéticos podrían hacerlo elegible para un ensayo clínico.

Pruebas genéticas de su sangre

- Se puede hacer un análisis de sangre para evaluar los genes que heredó.
- Los resultados pueden ayudar a los miembros de su familia a comprender los riesgos de cáncer.
- Puede obtener más información sobre riesgo futuro de cáncer y adaptar sus planes de detección.

"I'm confident that scientists will learn something from my tumor that will help someone else with colorectal cancer, if not me."

ENLACE STUDY

Return of Results

Clinical Genetic/Genomic Testing

INVITAE

Germline Clinical Sequencing

EXACT SCIENCES

Clinical tumor WES CAP/CLIA

Molecular Tumor Board

Oncologist meets with patient

Genetic Counselor meets with patient

Participants are interviewed two weeks after they meet with oncologist and genetic counselor

Patient Education on Return of Results

Research Study of Colorectal Cancer and Genetics in Hispanic & Latino Participants

We want to help you understand your genetic test results.

Below is a description of two different tests you had and some questions you can ask your oncology provider.

Genetic Testing of the Colorectal Cancer Tumor Cells

What is this test and what is it for?

- The tumor tissue from your biopsy or surgery was tested.
- This test looked for genetic changes or errors, called mutations, in your tumor.
- Specific chemotherapies may be used if certain genetic mutations are found in the tumor.
- The information from this test may help your doctor choose treatments that may work better than others.
- Your doctors may use this test to see if you are eligible to participate in a clinical trial that is testing new treatments.

What questions should I ask my oncology providers?

- *What do these results mean for my cancer?*
- *Do these results change my treatment or follow-up?*
- *Do these results make me eligible for a clinical trial?*
- *Do these results help to explain why I developed cancer?*
- *What type of cancer screening is recommended for me in the future?*
- *How does my cancer diagnosis impact cancer screening for my family?*
- *Do my family members need a genetic test?*
- *Do I need to meet with a genetic counselor?*

Example of Results Report:

GEM ExTra™ Report

ASHION

Diagnosis: **Colon Adenocarcinoma**

TUMOR GENOMIC ALTERATIONS[1]

APC	PIK3CA	TP53	TSC2	
GENOMIC TARGETS	FDA-APPROVED DRUGS -for patient's cancer	FDA-APPROVED DRUGS -for another cancer	DRUGS PREDICTED NON-BENEFICIAL	POTENTIAL CLINICAL TRIALS
4	0	3	0	Yes
APC (L234fs)				Yes
PIK3CA (E545K)		coparlisib, everolimus, temsirolimus		Yes
TP53 (R280G)				Yes
TSC2 (R1122fs)		everolimus, temsirolimus		Yes

TUMOR MUTATION BURDEN (TMB)

LOW (2 mut/Mb) — No

MICROSATELLITE STATUS (MSI)

STABLE — No

Contact Information

If you want to meet with an oncologist or genetic counselor to discuss your results, please contact:

Study Coordinator:
Elizabeth Quino, MPH
elizabeth.quino@med.usc.edu
(323) 442-1390

Genetic Counselor (USC Norris):
Julie Culver, MS, LCGC
jculver@med.usc.edu
(323) 865-0806

Genetic Counselor (LAC+USC):
Natalia Gutierrez, MS, LCGC
Natalia.Gutierrez@med.usc.edu
(323) 409-6098

USC Norris Comprehensive Cancer Center
Keck Medicine of USC

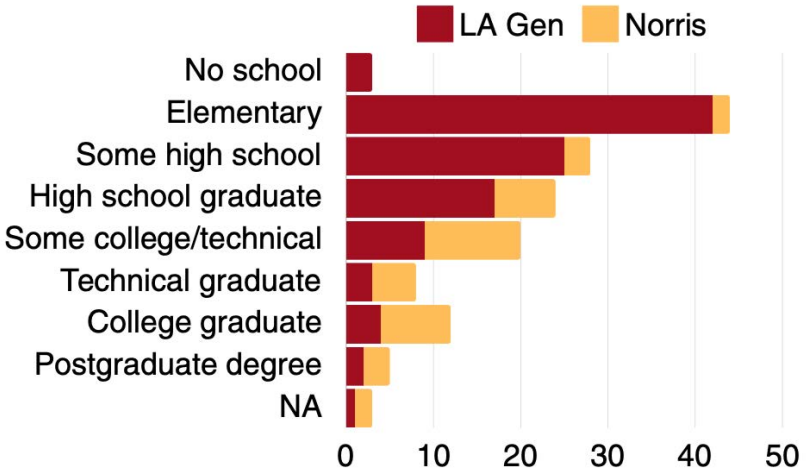
LAC+USC MEDICAL CENTER

Patient Education on Tumor testing

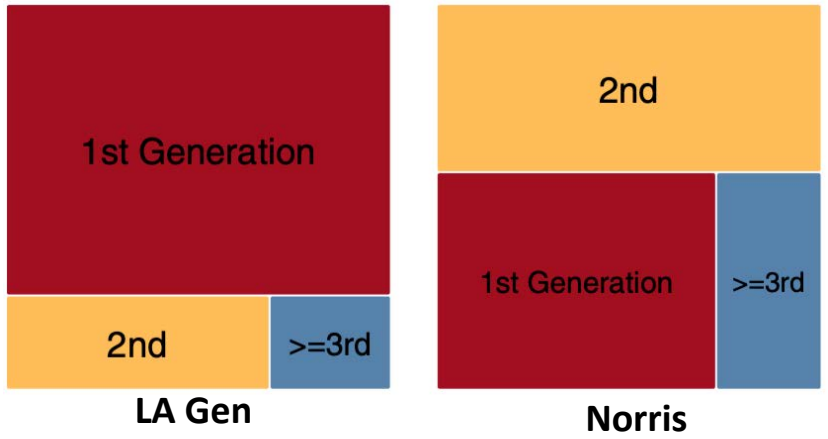
ENLACE STUDY

Participant characteristics (n = 144)

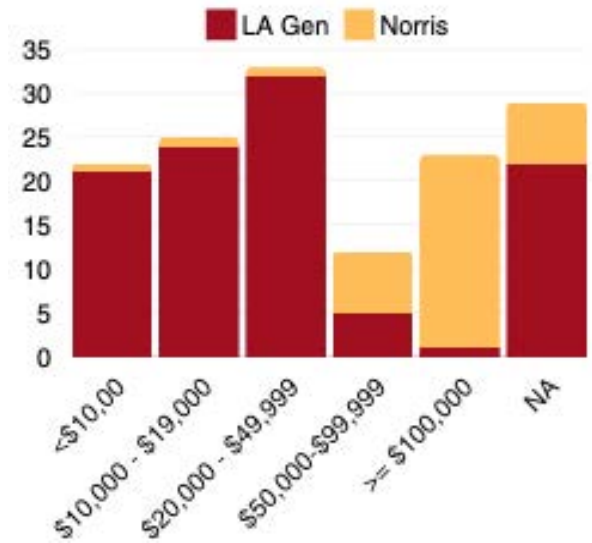
Education level



US Generation

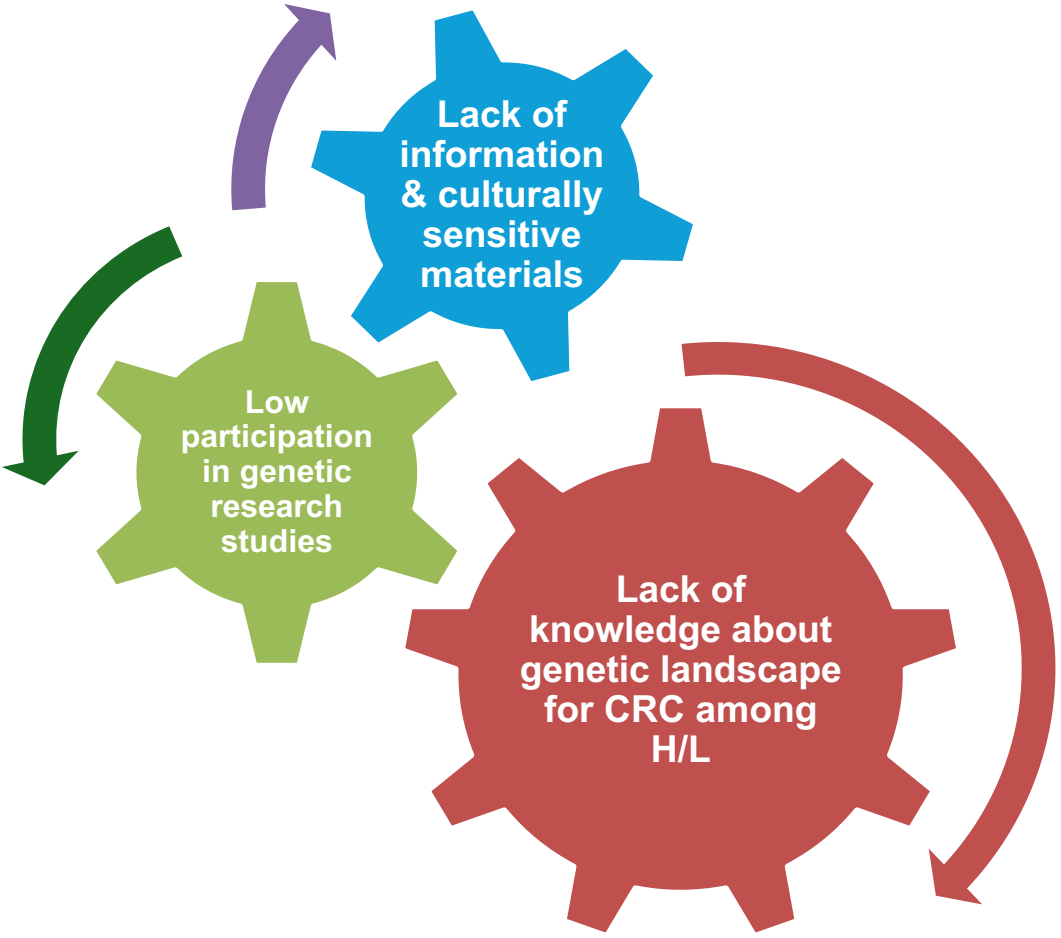


Household annual income



- **Numeracy seems to be the key determinant of general self-efficacy in our patients.**
- **We observed a statistically significant increase in genetic knowledge after reception of somatic and germline test results. (GLAC and KnowGene scale).**

How can we reduce colorectal cancer disparities among Latino populations?



- Increasing **access** to clinical genetic testing
- Increasing **knowledge** about cancer prevention in a culturally sensitive manner
- Training community members to serve as **liaisons** to deliver cancer prevention information

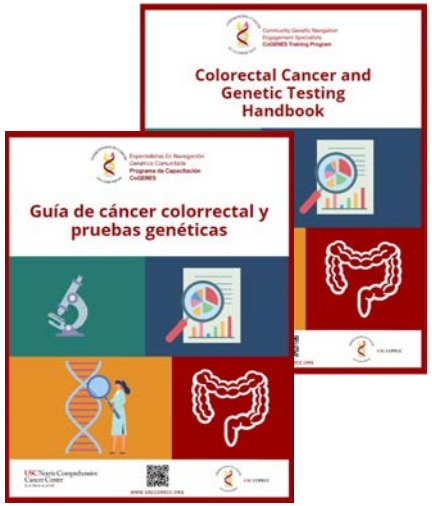
CoGENES Training Program
Community Genetic Navigation Engagement Specialists

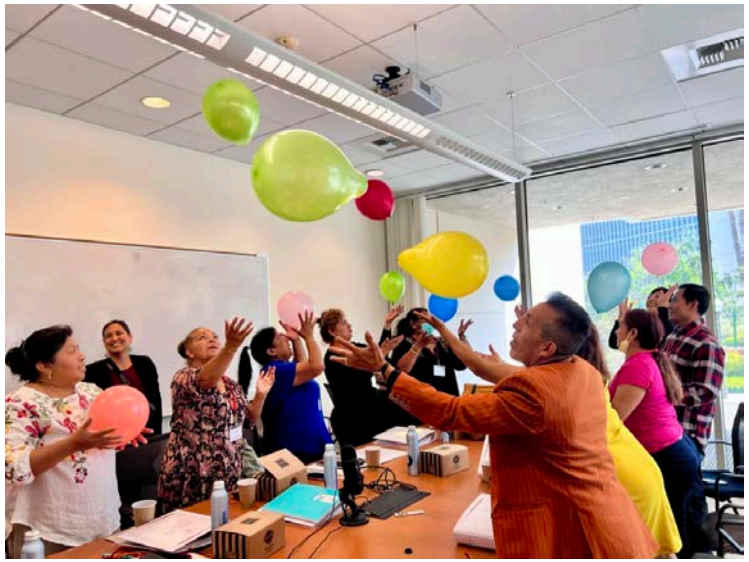
Cohort 1

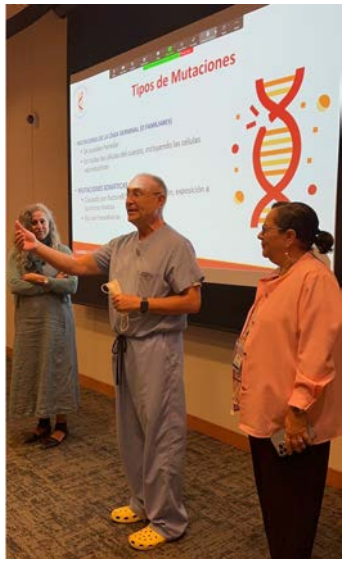
12 participants

Cohort 2

30 participants







CoGENES Class of 2023
First Cohort

CoGENES Class of 2023
Second Cohort

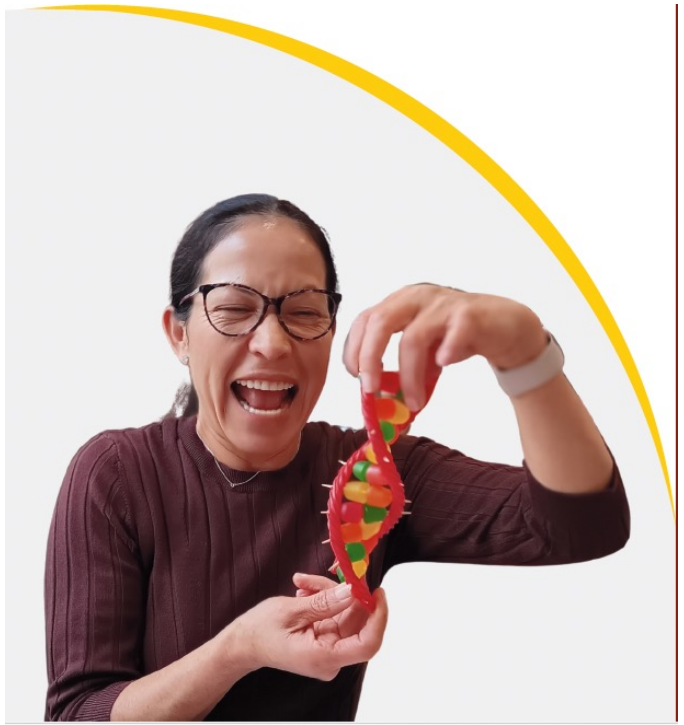
Community Dissemination
CoGENES Events

Community Dissemination
Wellness Hubs

3 million people reached through community events, TV and radio interviews, podcasts, and workshops!!!

Currently recruiting for a randomized controlled trial to test the efficacy of the program to:

- **Improve knowledge** about genetic and genomic testing and colorectal cancer prevention
- **Increase** colorectal cancer **screening**
- **Increase** colorectal **cancer prevention** through diet and lifestyle changes



ENFRENTANDO EL CÁNCER EN COMUNIDAD

USC COPECC
LUCHAMOS CONTRA EL CANCER

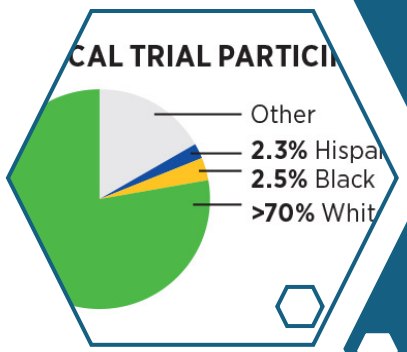
Estudió para Evaluar la Educación Sobre la Prevención del Cáncer Colorrectal en la Comunidad

USC Norris Comprehensive Cancer Center
Keck Medicine of USC

Los Angeles General Medical Center

Call to Action

Include more Hispanic patients in clinical trials



Larger representation in research studies

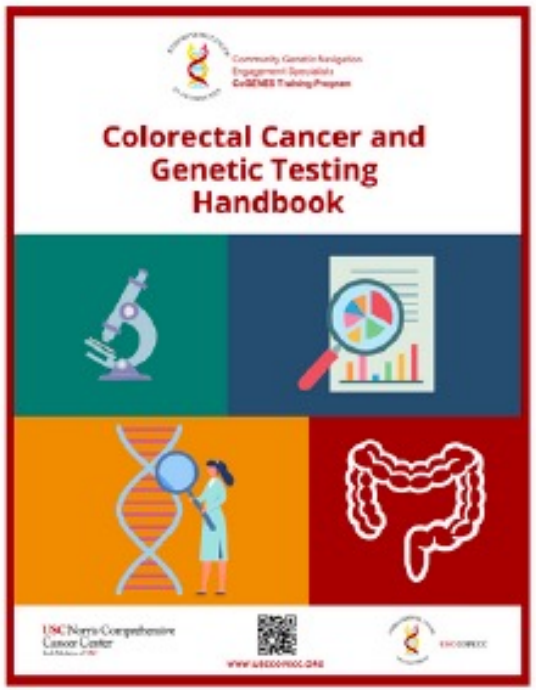
Training of Hispanic scientists

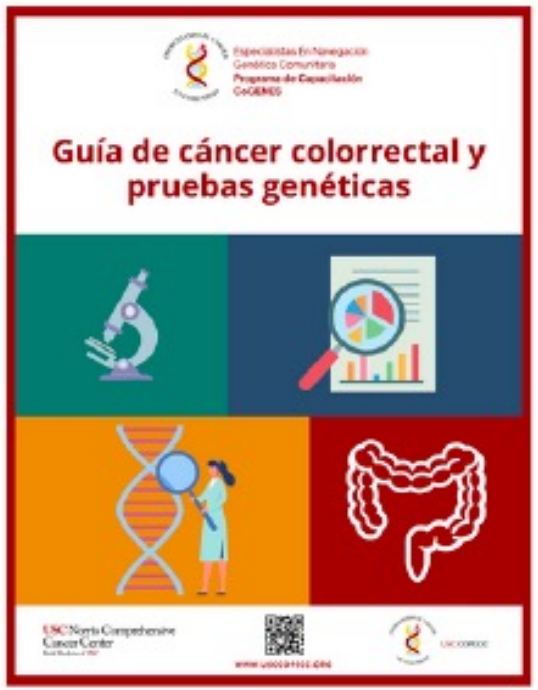
Understand barriers

Community education & navigation

Culturally tailored tools

Get our free colorectal cancer prevention handbook!



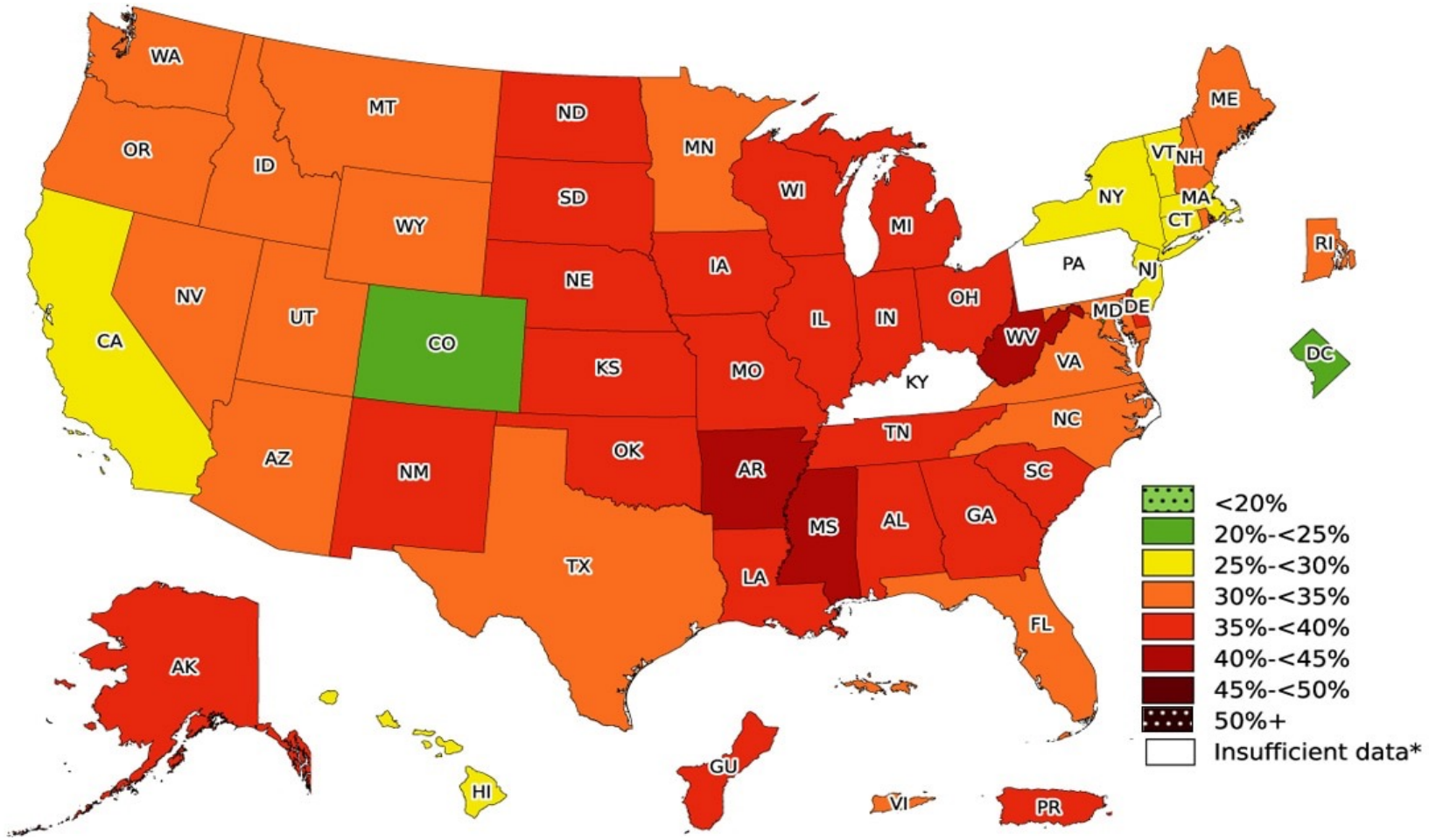


Scan here for digital version

Thank you!

www.usccopecc.org

Obesity Prevalence Map by State



https://www.cdc.gov/obesity/php/data-research/adult-obesity-prevalence-maps.html

The picture can't be displayed.

Obesity, Cancer & Health Disparities Research

Noe Crespo, PhD, MPH

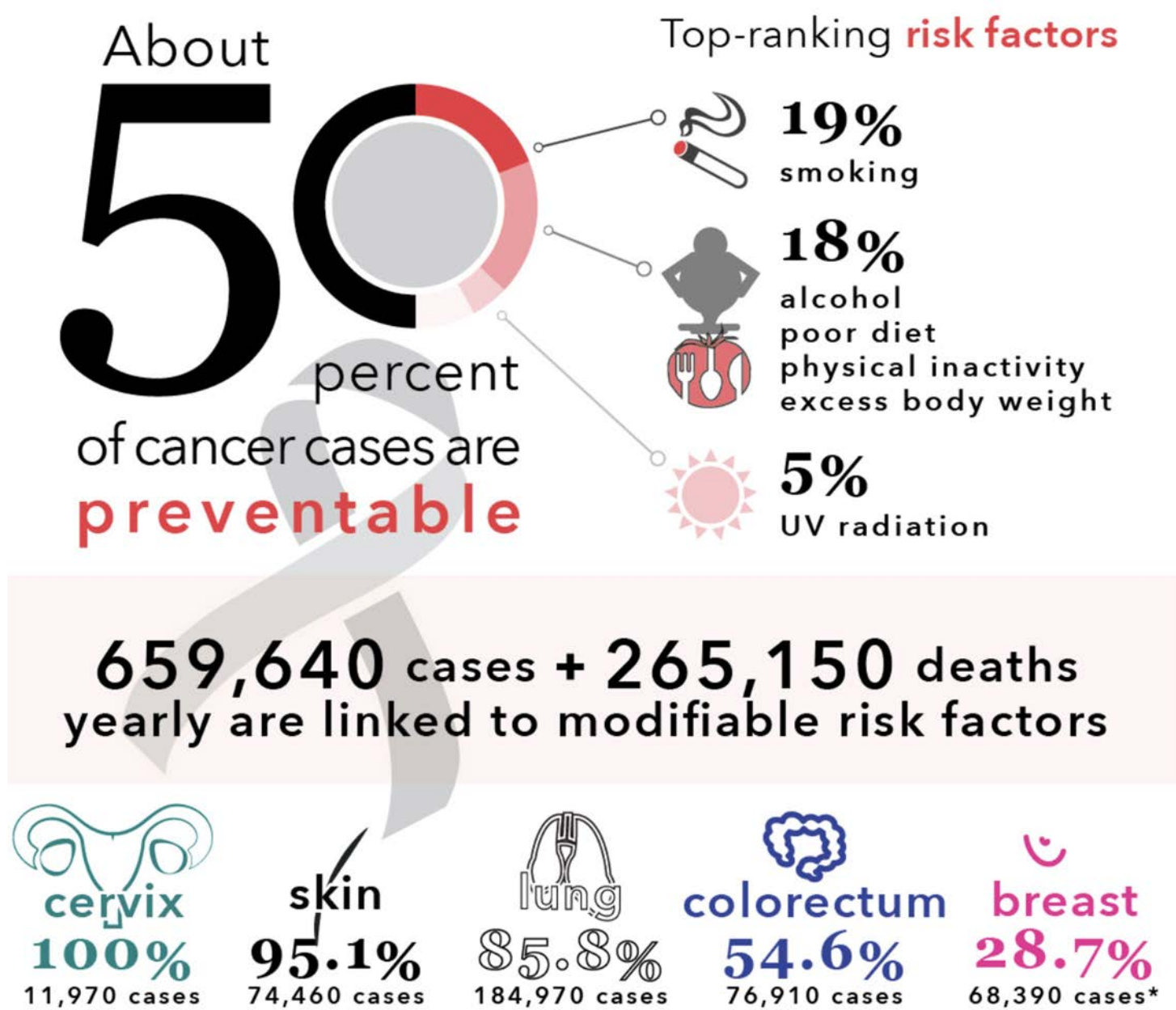
Professor

School of Public Health, Division of Health Promotion and Behavioral Science

San Diego State University

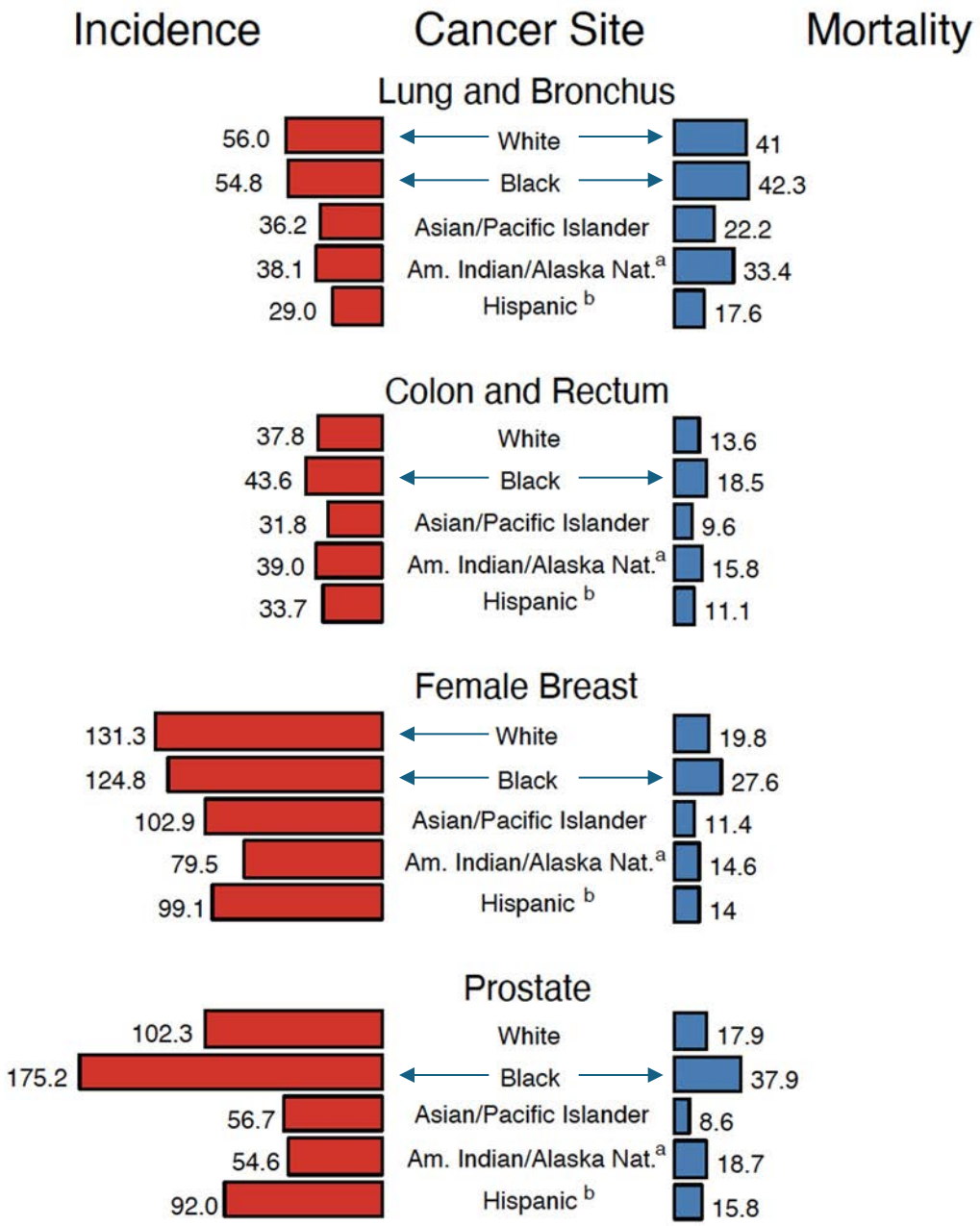
Co-Lead, Cancer Control Program

Moores Cancer Center, UCSD



CA: A Cancer Journal for Clinicians 21 NOV 2017 DOI: 10.3322/caac.21440

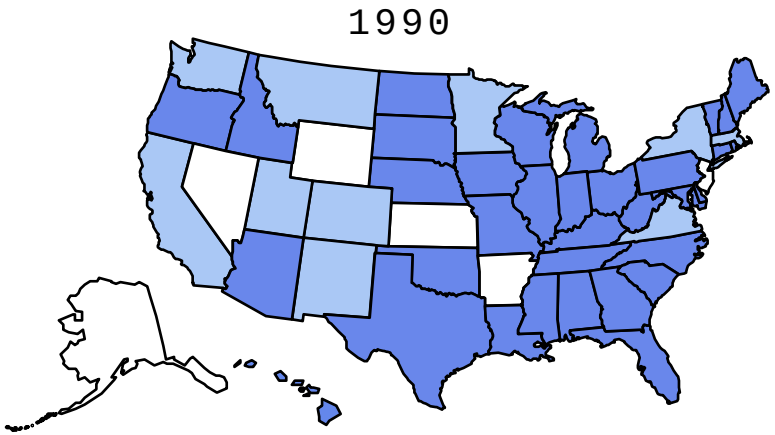
SEER Cancer Incidence and US Death Rates, 2013-2017
By Cancer Site and Race/Ethnicity

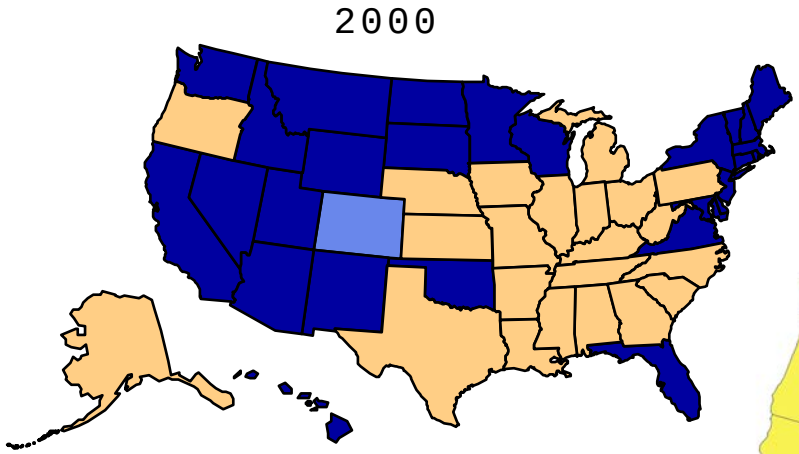


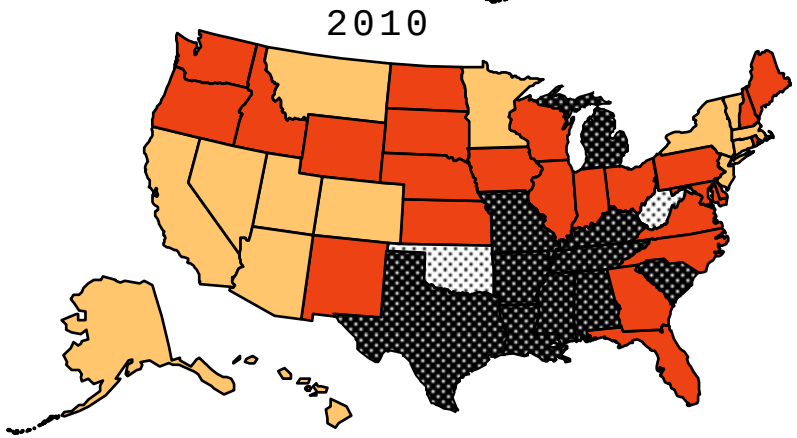
Age-adjusted incidence rates[a], standard errors (SE), covariate-adjusted rate ratios (RR)[b], and 95% confidence intervals (CI) by selected socioeconomic and demographic characteristics: all cancers combined

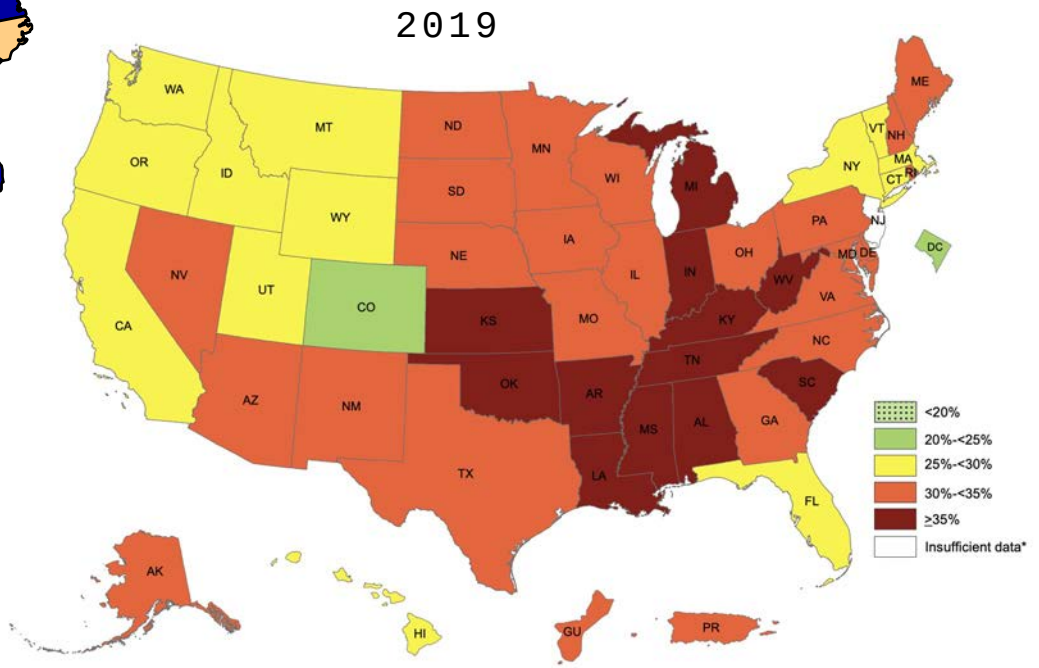
Characteristic	All cancers and both sexes combined (*N* = 203,908)						All cancers, male (*N* = 95,964)						All cancers, female (*N* = 107,944)					
	No.	Rate	SE	RR	95% CI		No.	Rate	SE	RR	95% CI		No.	Rate	SE	RR	95% CI	
Total population	11,464	550.21	4.89	–	–	–	6,018	671.00	8.07	–	–	–	5,445	470.89	6.18	–	–	–
Race/ethnicity																		
Non-Hispanic white	9,068	567.24	5.70	1.00	Reference		4,716	683.06	9.25	1.00	Reference		4,352	494.46	7.35	1.00	Reference	
Non-Hispanic black	834	671.68	22.28	1.23	1.15	1.32	471	980.95	43.31	1.49	1.35	1.64	363	482.86	24.32	0.98	0.88	1.09
American Indian/Alaska Native	39	526.99	83.81	0.94	0.69	1.29	15	503.57	130.80	0.76	0.46	1.27	24	523.84	101.04	1.09	0.73	1.63
Asian/Pacific Islander	661	417.12	15.42	0.74	0.68	0.80	351	480.48	24.04	0.71	0.64	0.79	310	361.91	19.71	0.73	0.66	0.83
Hispanic	638	416.59	16.47	–	–	–	343	546.77	29.95	–	–	–	295	327.97	18.74	–	–	–
Mexican	447	428.92	20.57	0.73	0.67	0.81	245	570.27	38.01	0.79	0.69	0.90	202	333.53	23.14	0.67	0.58	0.78
Other Hispanic	191	396.08	27.95	0.72	0.62	0.83	98	509.60	49.96	0.75	0.61	0.92	93	318.80	32.18	0.67	0.55	0.83
Other or unknown race	224	587.90	36.84	0.96	0.84	1.09	122	712.60	60.51	0.97	0.81	1.16	102	510.46	47.76	0.98	0.80	1.19
Educational attainment (years of education)																		
Less than high school graduates (≤11)	3,676	583.64	10.08	1.17	1.10	1.24	2,034	730.30	16.21	1.22	1.13	1.31	1,642	478.52	12.77	1.08	0.98	1.18
High school graduates (12)	4,084	549.45	8.18	1.14	1.07	1.20	1,906	694.73	14.87	1.17	1.82	1.25	2178	475.34	9.81	1.07	0.98	1.17
Some post high school education (13–15)	1,847	547.08	12.07	1.11	1.04	1.19	930	657.95	20.36	1.10	1.01	1.20	927	481.38	15.11	1.09	0.99	1.21
College education or beyond (16+)	1,837	525.47	11.96	1.00	Reference		1,141	602.27	17.22	1.00	Reference		696	443.33	16.53	1.00	Reference	
Unknown	10	276.03	92.32	0.49	0.26	0.90	7	333.51	151.52	0.58	0.28	1.23	3	191.49	108.34	0.46	0.15	1.43
Family income (1990 dollars)																		
<$12,500	2,007	568.05	13.43	1.13	1.06	1.20	813	729.50	25.17	1.15	1.06	1.26	1,194	499.84	15.95	1.16	1.06	1.26
$12,500–$24,999	2,637	568.82	10.86	1.11	1.05	1.17	1373	712.77	18.23	1.14	1.06	1.23	1,264	475.26	13.41	1.08	1.00	1.17
$25,000–$34,999	1,632	567.27	13.43	1.08	1.02	1.15	906	711.00	21.98	1.13	1.04	1.22	726	461.44	16.75	1.03	0.94	1.13
$35,000–$49,999	1,773	553.55	12.85	1.03	0.97	1.09	960	634.72	19.73	0.99	0.91	1.07	813	485.35	16.79	1.08	0.99	1.18
$50,000+	3,067	540.04	10.27	1.00	Reference		1780	637.18	15.67	1.00	Reference		1287	448.57	13.26	1.00	Reference	
Unknown	348	456.42	24.37	0.88	0.79	0.99	186	554.05	40.36	0.91	0.78	1.06	162	385.65	30.63	0.90	0.76	1.06
Poverty status (ratio of family income to poverty threshold)																		

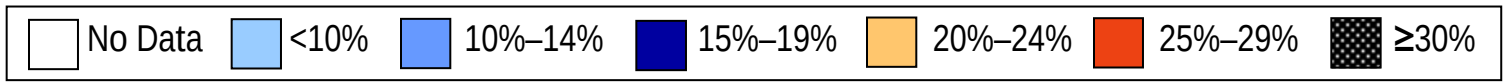
Prevalence of Obesity Among U.S. Adults by State and Territory, BRFSS



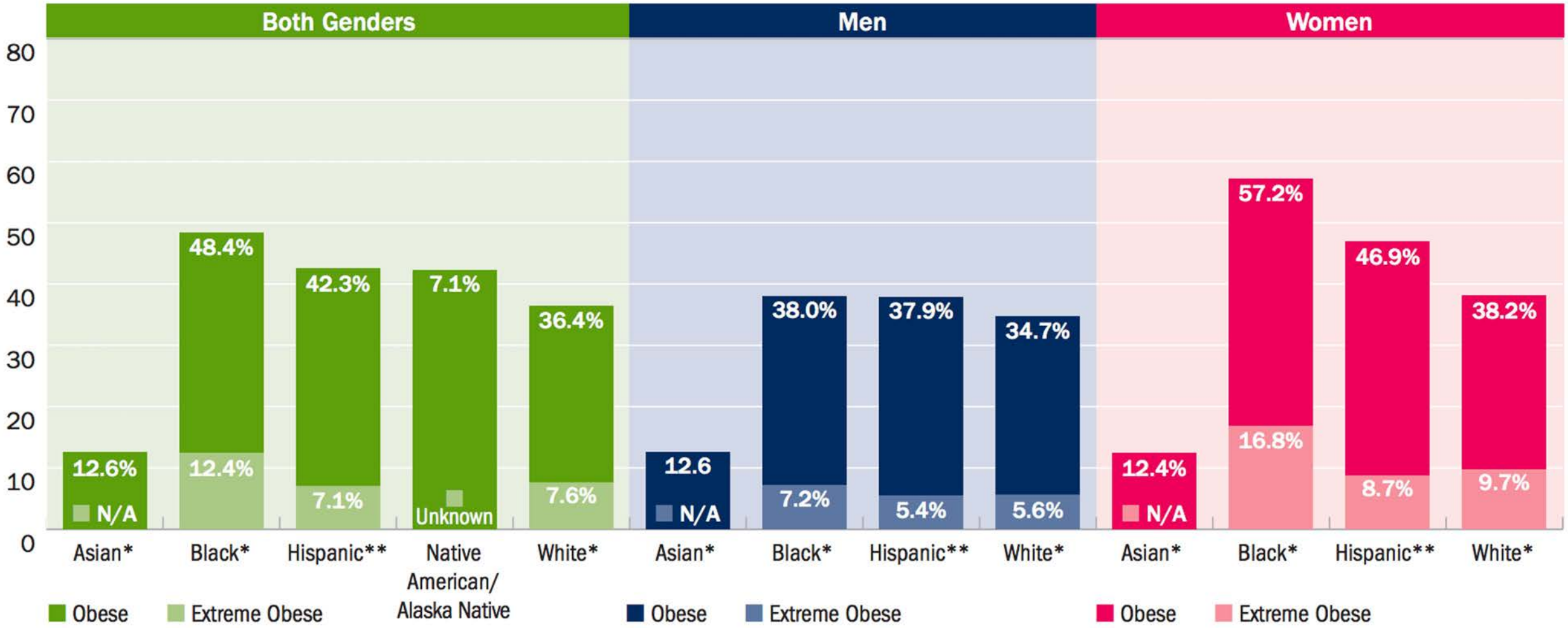








Obesity and Extreme Obesity Rates for Adults, National Health and Nutrition Examination Survey (NHANES), 2013-2014[17] (with Native American/Alaska Native Rates per 2014 National Health Interview Survey[48])

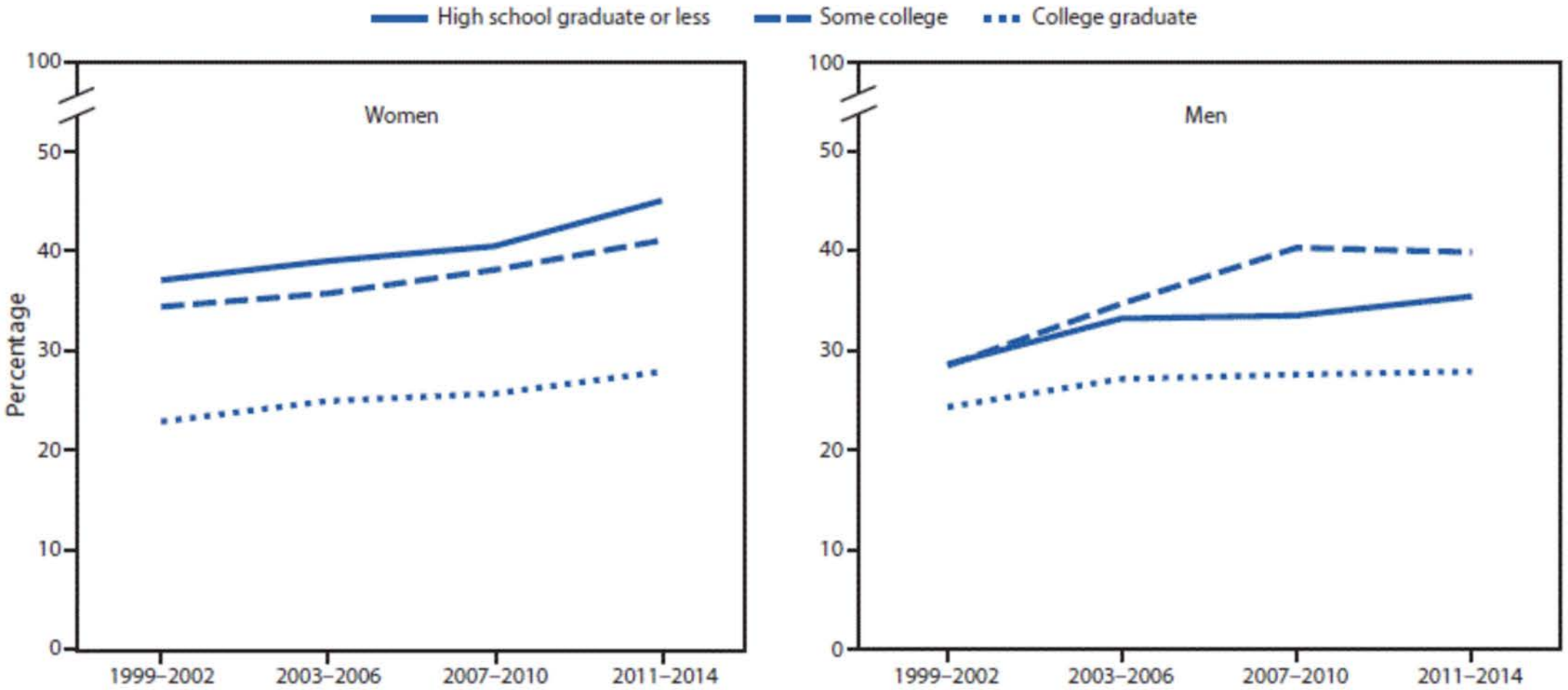


* Black, White and Asian rates are for non-Hispanic members of each race.

** Persons of Hispanic origin may be of any race.

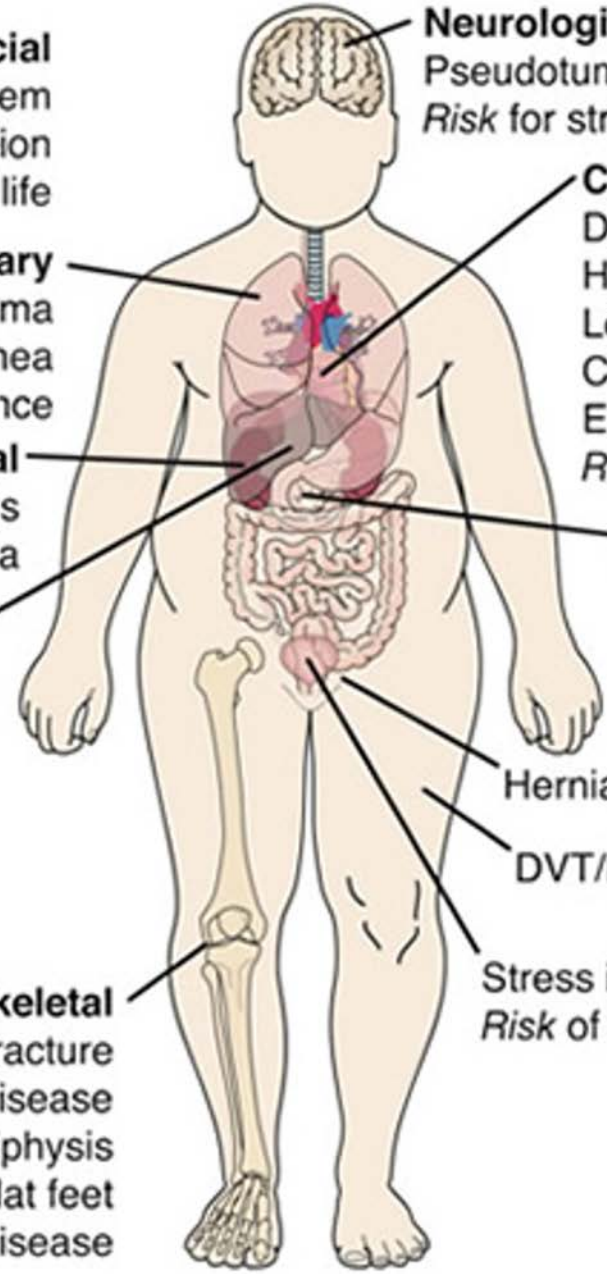
N/A data only included 2 participants.

FIGURE 2. Obesity prevalence among adults, by education level and sex — National Health and Nutrition Examination Survey, 1999–2002 to 2011–2014*†




cardiovascular risk
health consequences
increased
fat absorption
surgery
body mass
life expectancy
osteoarthritis
metabolism
failure
disease
problem
risk
obese
cardiac
illness
rate
result
mass
gene
obesity
severe
body
scale
size
person
dietary
absorb
affected
aggressive
cardiovascular
medical condition
overweight
slow metabolism
excessive food
become
diet
syndrome
body fat
excess

Complications of Childhood Obesity



Psychosocial
Poor self esteem
Depression
Quality of life

Pulmonary
Asthma
Sleep apnea
Exercise intolerance

Renal
Glomerulosclerosis
Proteinuria

Gastrointestinal
Paniculitis
Steatohepatitis
Liver fibrosis
Gallstones
Risk for cirrhosis
Risk for colon cancer

Musculoskeletal
Forearm fracture
Blount's disease
Slipped capital femoral epiphysis
Flat feet
Risk for degenerative joint disease

Neurological
Pseudotumor cerebri
Risk for stroke

Cardiovascular
Dyslipidemia
Hypertension
Left ventricular hypertrophy
Chronic inflammation
Endothelial dysfunction
Risk of coronary disease

Endocrine
Type 2 diabetes
Precocious puberty
Polycystic ovary syndrome (girls)
Hypogonadism (boys)

Hernia

DVT/PE

Stress incontinence
Risk of GYN malignancy

TABLE 3 Prevalence of Major Cancer Risk Factors by Race/Ethnicity and Highest Level of Education, Adults 18 and Older, US, 2000*

Characteristic	% Current Smokers		% With No Leisure Time Physical Activity		% Obese†	
Race/Ethnicity						
	Males	**Females**	**Males**	**Females**	**Males**	**Females**
White (non-Hispanic)	25.7	23.0	33.1	36.8	21.3	19.6
African American (non-Hispanic)	25.5	20.4	47.3	55.7	24.4	35.9
Hispanic-Latino	23.2	12.8	51.9	56.5	23.0	26.1
American Indian/Alaskan Native‡	27.4	38.6	46.5	52.1	38.9	43.2
Asian American§	19.6	7.9	29.1	42.1	6.0	8.3
Education (years)¶						
8 or fewer	29.9	16.1	68.7	71.3	22.5	32.1
9 to 11	39.2	32.1	58.7	59.9	27.5	30.8
12	31.7	26.5	44.0	47.3	23.7	24.1
13 to 15	23.2	20.3	32.9	38.3	24.4	23.4
16	13.4	12.0	22.9	27.8	17.1	15.4
More than 16	8.7	7.2	17.6	23.6	15.7	12.4
Income						
Below poverty level	36.5	30.0	52.7	58.3	21.8	30.4
100% to 200% above poverty level	34.5	26.8	49.5	51.9	22.6	27.1
>200% above poverty level	22.6	18.5	29.2	32.9	21.8	19.5
Unknown	23.6	20.6	44.8	49.1	19.5	21.8
Total	**25.0**	**21.0**	**36.6**	**41.5**	**21.5**	**22.0**

*Percentages are adjusted to the 2000 US standard population.

†Body Mass Index (BMI) ≥30 kg/m2, Age ≥20 yrs.

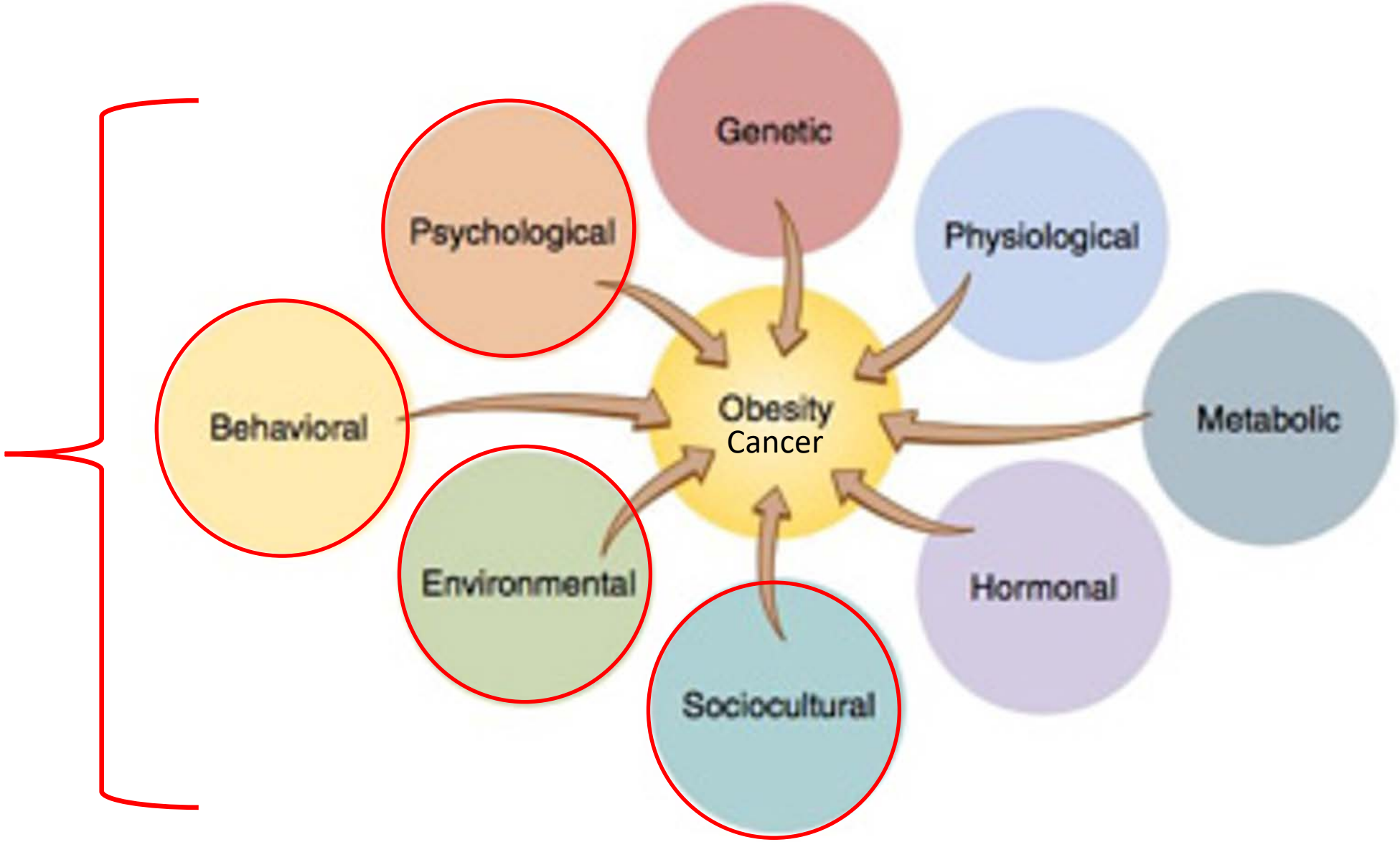
‡Estimates should be interpreted with caution because of small sample sizes.

§Does not include Native Hawaiians and other Pacific Islanders.

¶Persons aged 25 or older.

Source: National Health Interview Survey 2000, National Center for Health Statistics, Centers for Disease Control and Prevention.[19]

What Influences Cancer and Obesity?



Socio Ecological Model

Adapted from: Baril, N. (2008)
Understanding and Addressing the
Social Determinants of Health.
Harvard School of Public Health.
http://www.bphc.org/programs/healthequitysocialjustice/centerpresentations/

Social Inequality = Health Inequality

Link: $100 race https://www.youtube.com/watch?v=4K5fbQ1-zps

"Poverty is a carcinogen"
Dr. Samuel Broder

Social Determinants of Health:
Need to target "upstream" factors

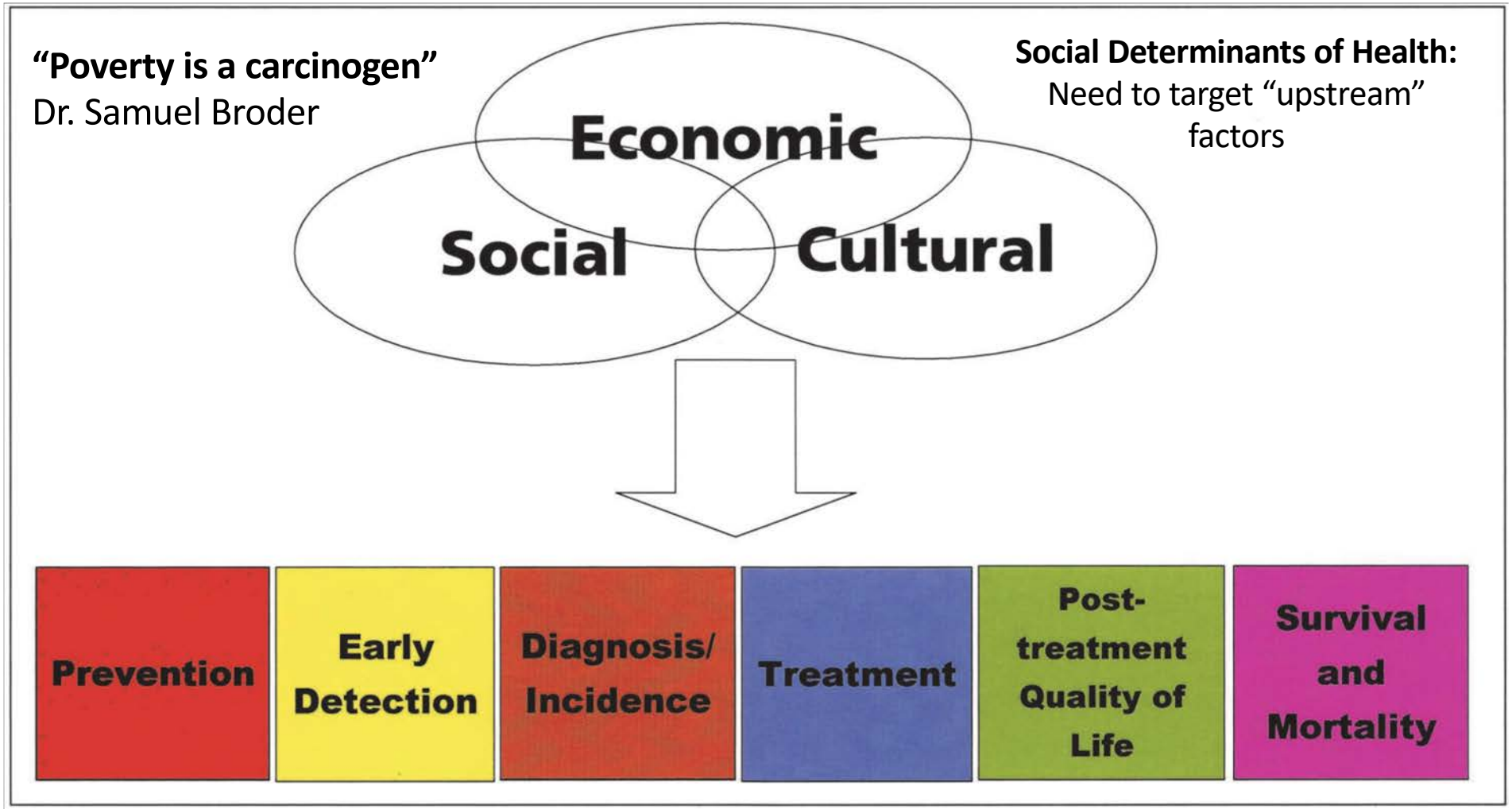


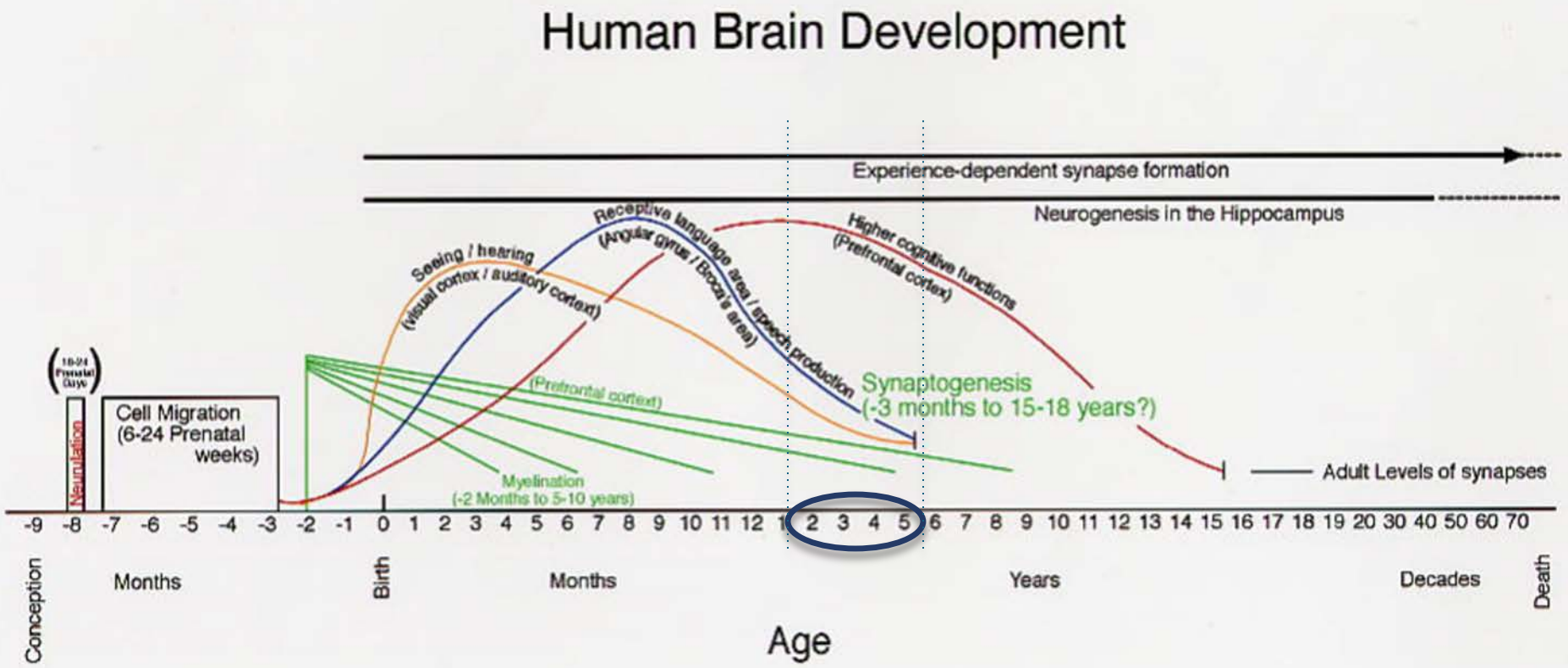
FIGURE 1 Factors That Influence Social Disparities.
Source: Adapted from Freeman, HP[3] and Institute of Medicine.[7]

Upstream/Downstream: Location of Causes and Interventions

	Influences	Intervention
Upstream	Social Structures/ Institutions	Social Policies
Midstream	Environmental Influences	Environmental Changes
	Lifestyle	Individual Behavior Change
Downstream	Physiology/ Disease	Treatment

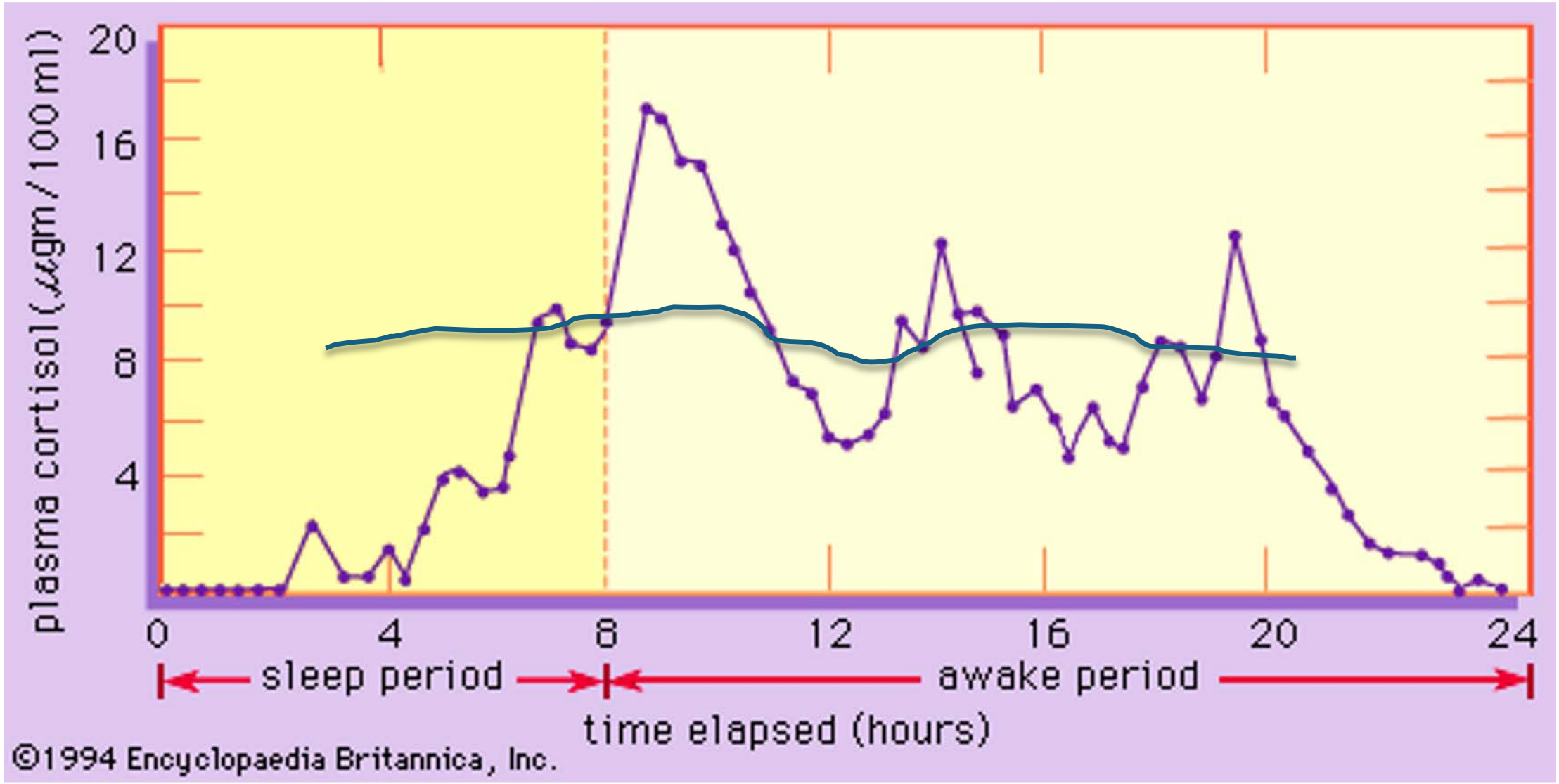
Science Tells Us that Early Life Experiences Are Built Into Our Bodies

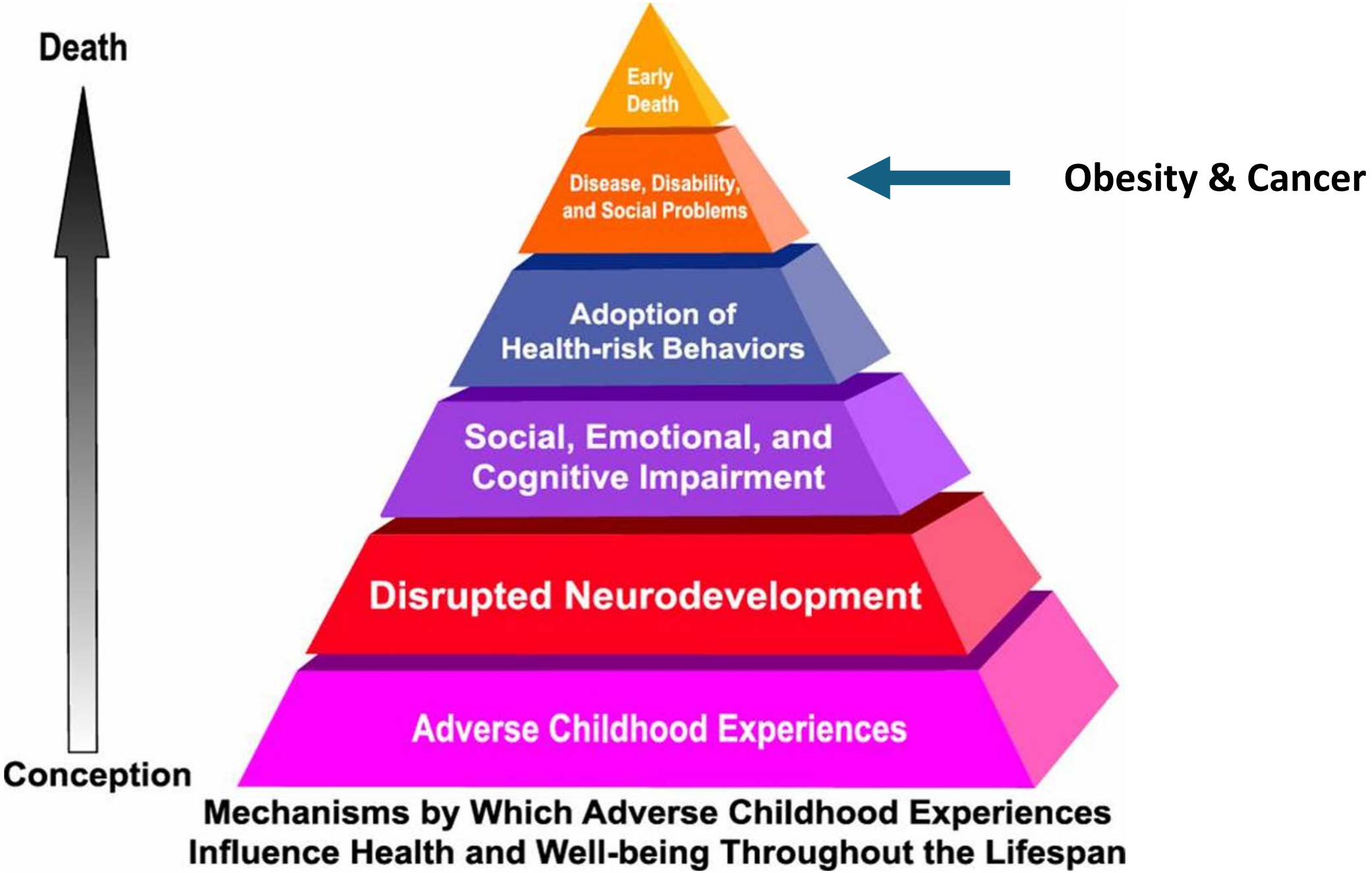
Adverse Childhood Experiences



Thompson, R. A., & Nelson, C. A. (2001). Developmental science and the media: Early brain development. *American Psychologist, 56(1),* 5-15.

Normal and Abnormal Cortisol Rhythms



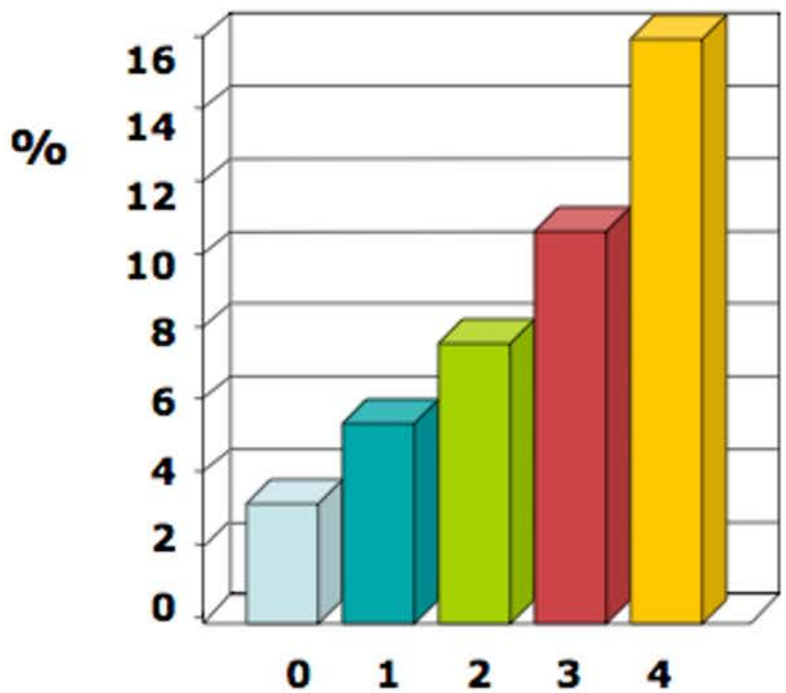


Mechanisms by Which Adverse Childhood Experiences Influence Health and Well-being Throughout the Lifespan

Center on the Developing Child
HARVARD UNIVERSITY

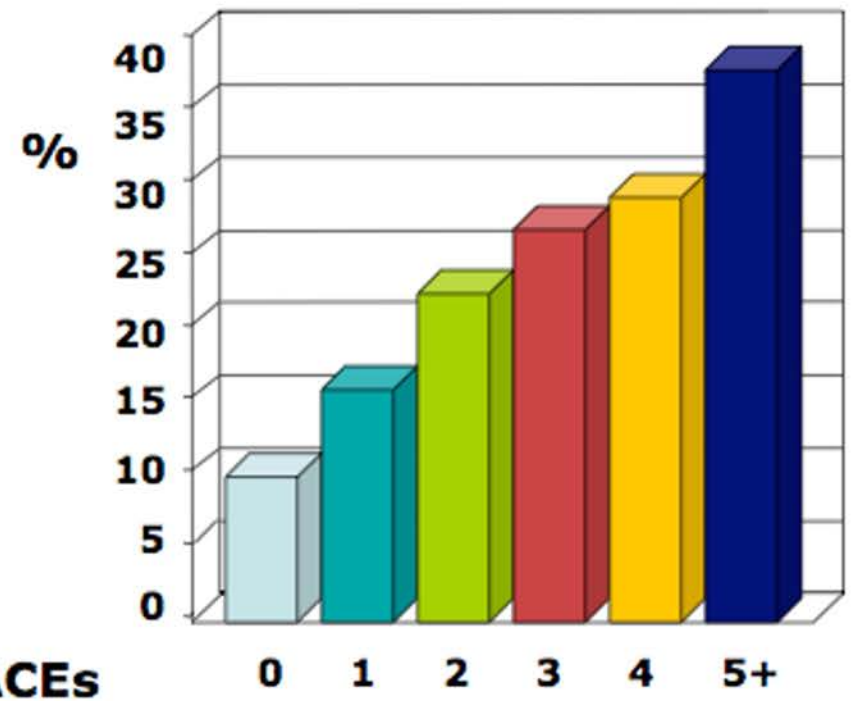
Risk Factors for Adult Substance Abuse are Embedded in Adverse Childhood Experiences

Self-Report: Alcoholism



Source: Dube et al, 2002

Self-Report: Illicit Drugs



Source: Dube et al, 2005

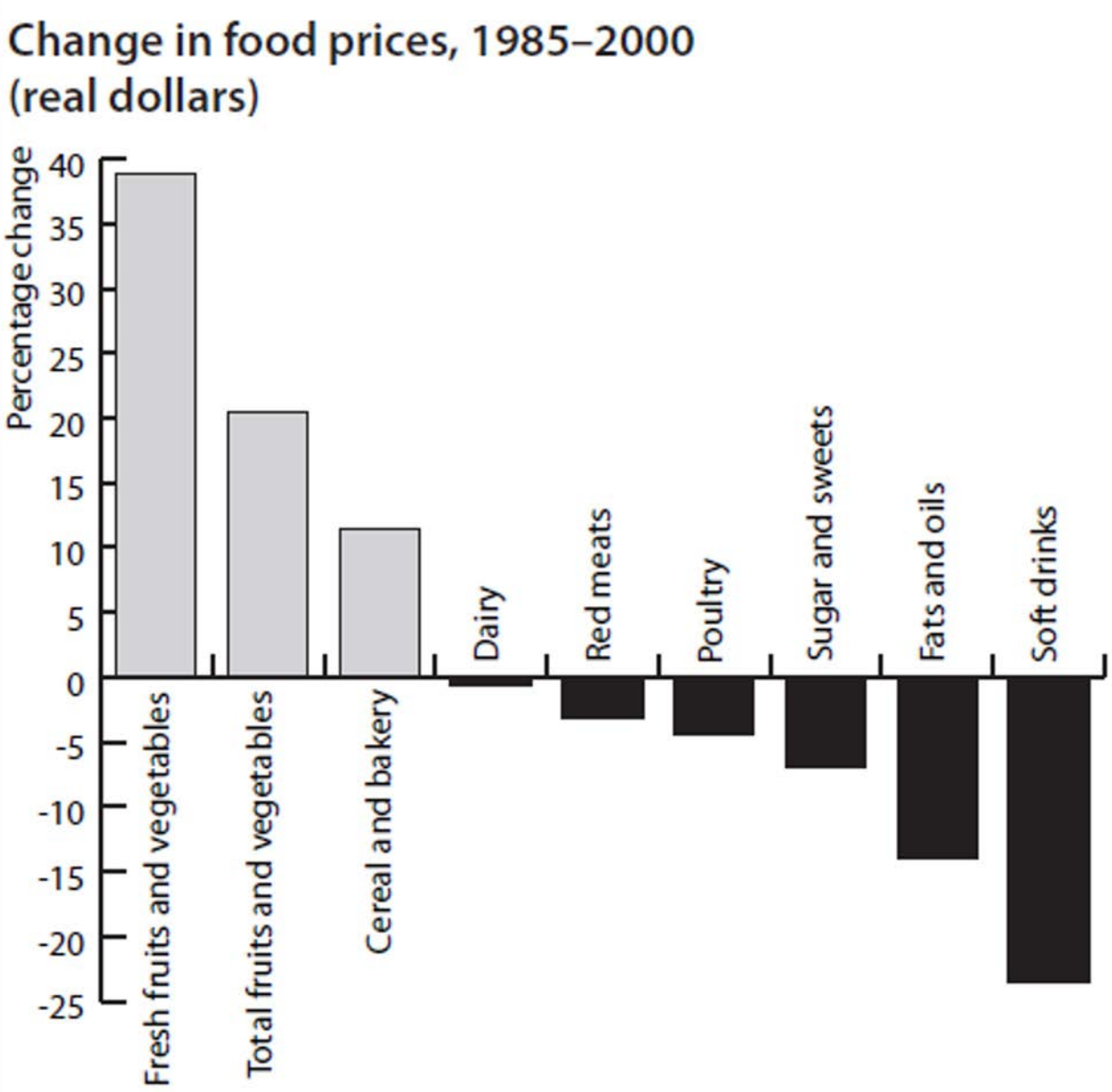
Environment: Impact on Mental Health

- Poor quality housing and neighborhood; high noise; crowding (high residential density; more people/room)
  - Higher psychological distress
  - Lower psychological well-being
- Longer Commute
  - Higher stress & exhaustion
  - Increased sleep disturbance
  - Lower self-rated health
  - Higher sickness and work absence

Nutrition Transition: Causes

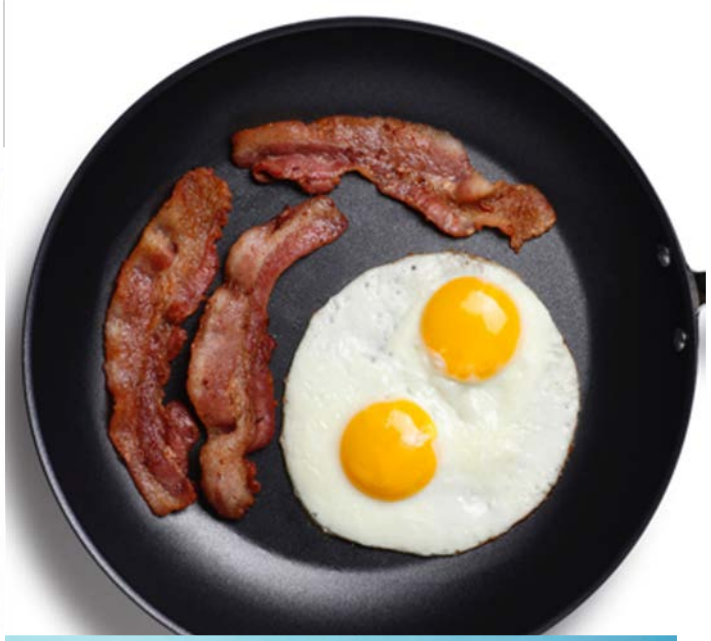
- Food Production and Availability
  - Food Subsidies in the US (the facts)
    - $34.5 billion spent on corn subsidies
    - $11 billion spent on soybean subsidies from 1985-2002
    - $50 billion spent subsidizing corn in the past decade.
    - Other subsidized crops that receive the most funding are wheat, cotton, and rice.
    - Together, these five crops account for **90%** of all subsidy payments.
    - Two-thirds of calories consumed in the U.S. come from just four crops (which happen to be the four food items with the highest subsidy levels)

Food Pricing trends favor calorie-dense, low nutrient foods



Source: USDA ERS FoodReview, Vol. 25, Issue 3. Converted to real dollars.

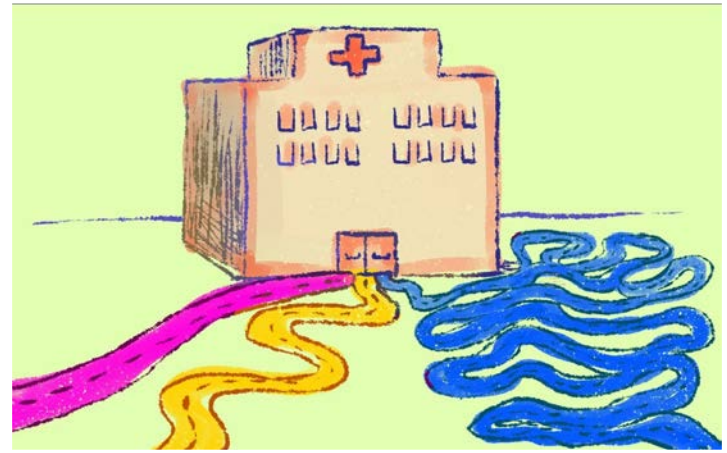
The Power of Marketing



Adult Eye Level

Child Eye Level

Solutions (Upstream Factors)



- Increase income earning potential
- Increase opportunities for education
- Increase access and availability of health services
- Increase availability and access to healthy foods
- Increase availability and access to safe recreational outdoor spaces
- Promote gender and racial equality
- Increase representation of minorities in politics, education and business
- Reduce and eliminate adverse childhood experiences
- Redesign our neighborhoods and worksites

Thank You!

ncrespo@sdsu.edu

FDA

CONVERSATIONS ON CANCER:

#LatinoCancer

National Hispanic/Latino Family Cancer Awareness Week

Friday, September 20, 2024 ▪ 11:00am - Noon, ET ▪ Virtual

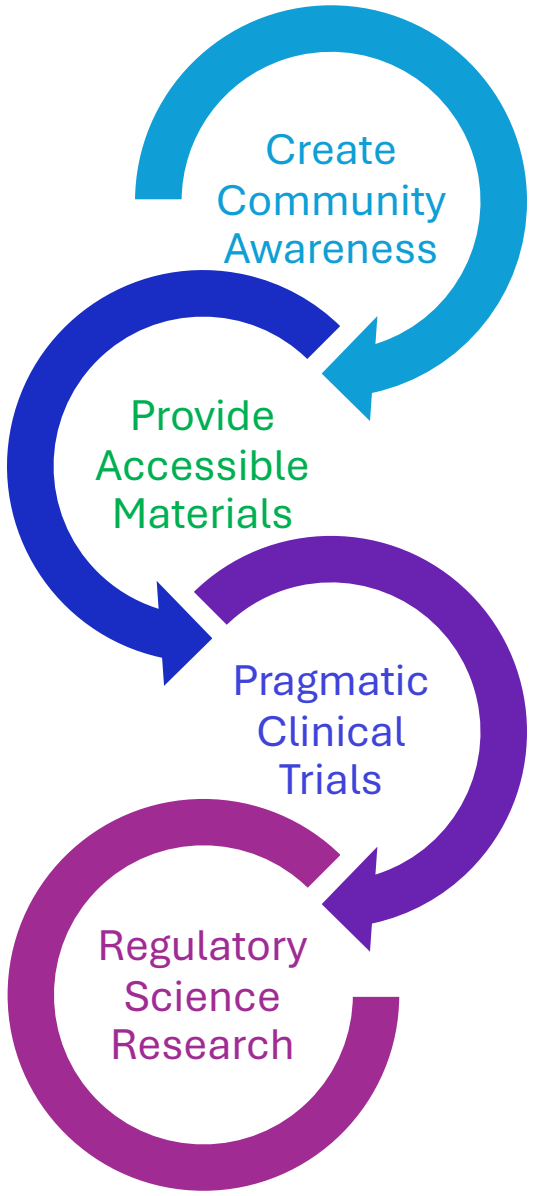
¡Avanzando Juntos!

National Hispanic/Latino Family Cancer Awareness Week

¡Avanzando juntos!

September 20th-26th

Oncology Center of Excellence Efforts



Engage community-based groups to:

- Increase cancer awareness
- Strengthen knowledge on clinical trials
- Support understanding on genetic databases for cancer research
- Provide accessible educational cancer materials in Spanish (via social media)

Encourage functional efficiencies in trial design to facilitate more diverse trial populations

Incorporate pragmatic trials to generate data evidence that is more broadly representative

Further support racial and ethnicity diversity of current oncology clinical trial enrollment

Evaluate clinical trial enrollment and drug development in Latin American and globally under-representative regions

National Hispanic/Latino Family Cancer Awareness Week (NH/LFCAW)
September 20th-26th
¡Avanzando juntos! (Moving Forward Together!)
#LatinePuede!

Friday, September 20 – Encourage everyone to listen to OCE Conversation on Cancer public panel discussion!

OCE Project Community urges 2024 participants to coordinate activities and messaging around the following:

Saturday, September 21 – Understand infection-related cancers and potential interventions

Sunday, September 22- Engage “La Familia” to address cancer risk factors (environmental, behavioral, and lifestyle)

Monday, September 23 – Engage “La Familia” to be informed about innovative cancer treatments

Tuesday, September 24, - Understand and support cancer quality of life and cancer survivorship

Wednesday, September 25 – Support cancer research and clinical trials within communities

Thursday, September 26 – Support patients, caregivers, and patient advocates/navigators

Coming up Next Week!

2nd in the Virtual Friday Forum Series, Sept 20th - Oct 25th

The Latino Cancer Institute in partnership with the Leukemia & Lymphoma Society recognize Blood Cancer Awareness Month

Genetic Findings Driving Blood Cancer in Latinos

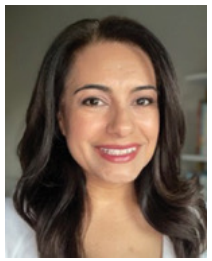
September 27, 2024

9:00 am - 10:30 am PST • 11:00 am - 12:30 pm CDT • 12:00 pm - 1:30 pm EST

Noah Merin, MD, PhD
Cedars-Sinai Medical Center

Adam de Smith, PhD
University of Southern California
Keck School of Medicine

Henry Garcia, EdD
University of Southern California
Rossier



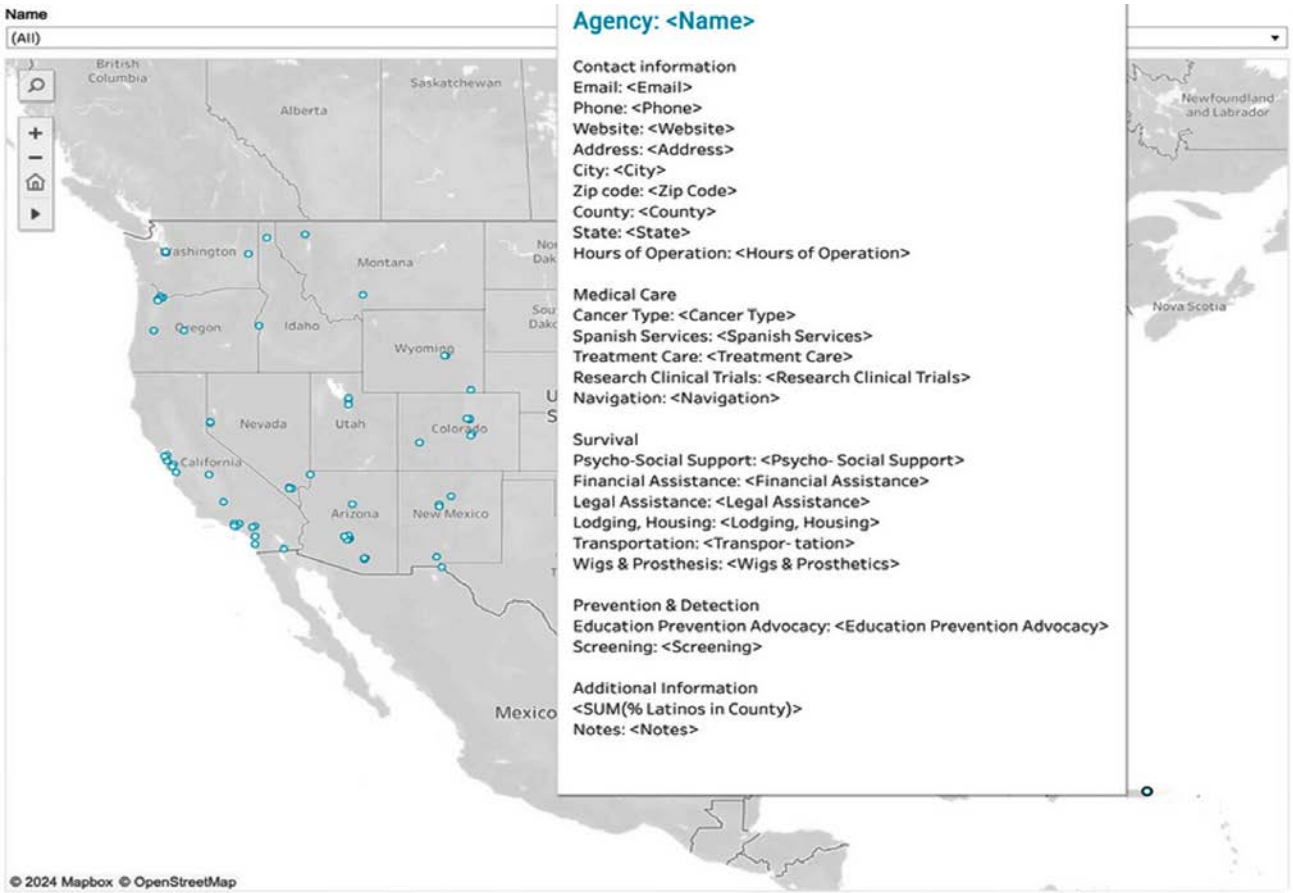
Rosario "Charoh" Hernandez Ortiz
Leukemia & Lymphoma Society

Javier Macias
Leukemia & Lymphoma Society

Talking about cancer won't kill us, the silence will!

TLCI's Cancer Resources Asset Map

Connecting patients and families to a community of caring



This cancer resource asset map, available in English and Español, can be used not only by patients and families but also by:

1. Community health workers/aka promotores working in agencies, clinics and public health care systems.
2. Community-based organizations.
3. Social workers in clinics and public health care systems.
4. Navigators in comprehensive cancer centers.