

# Addressing African Caribbean Disparities

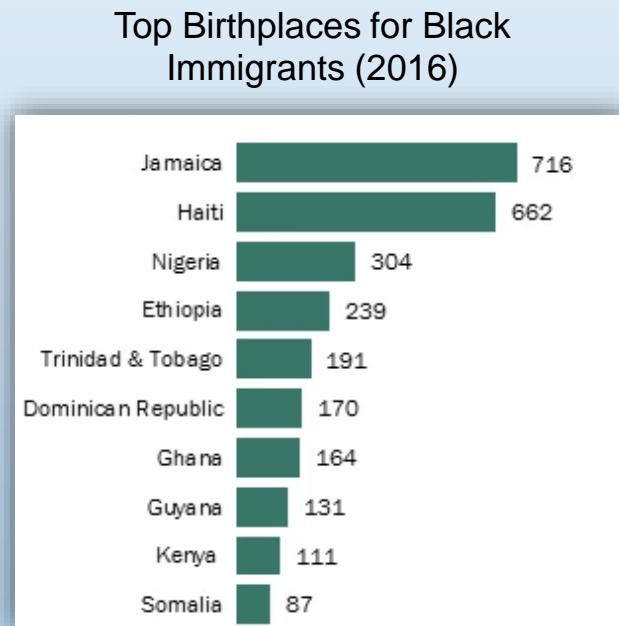
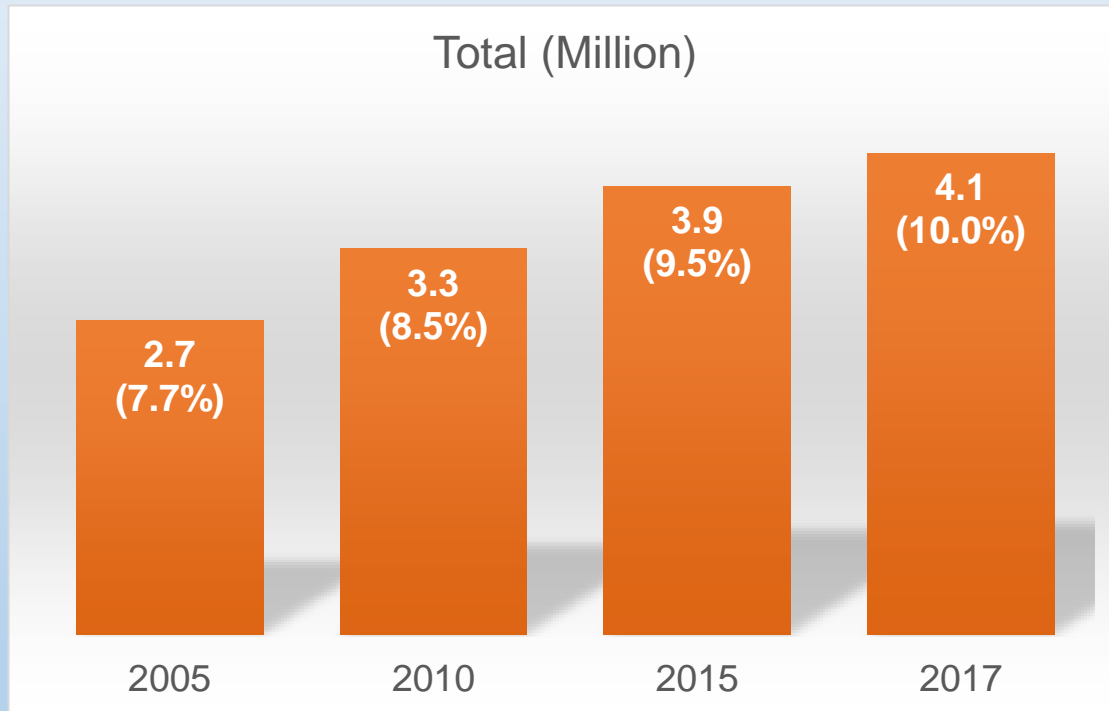


Camille Ragin, PhD, MPH

Associate Professor

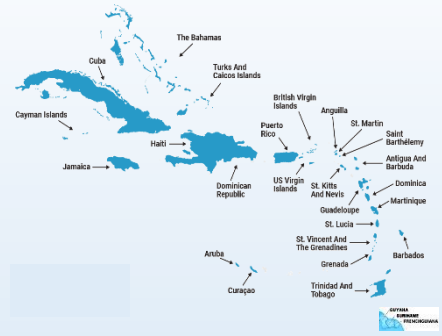
# Growth of Black Immigrants in US

**Relevance of global cancer disparities research to US populations.**



Anderson & Lopez, Pew Research Center, 2018

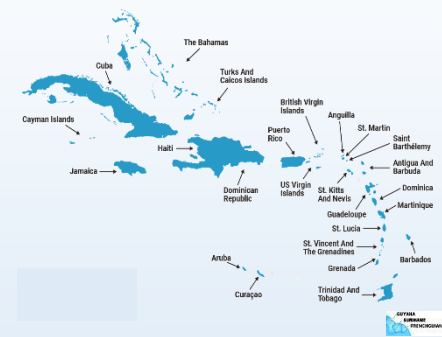
# Cancer in the Caribbean



- Population (~44.9 Million)
  - predominantly of African descent: reflects an admixture - Chinese, Southeast Asians, Europeans, Middle Eastern and indigenous South Americans
  - Wide range of population size
    - 11 Million – Haiti, 5,000 - Monserrat
- 29 countries that are islands, 4 countries in South and Central America
  - Economic differences HIC - UMIC - LMIC
- Cancer is the second leading cause of all death
  - 87,430 cancer-related deaths reported in 2012

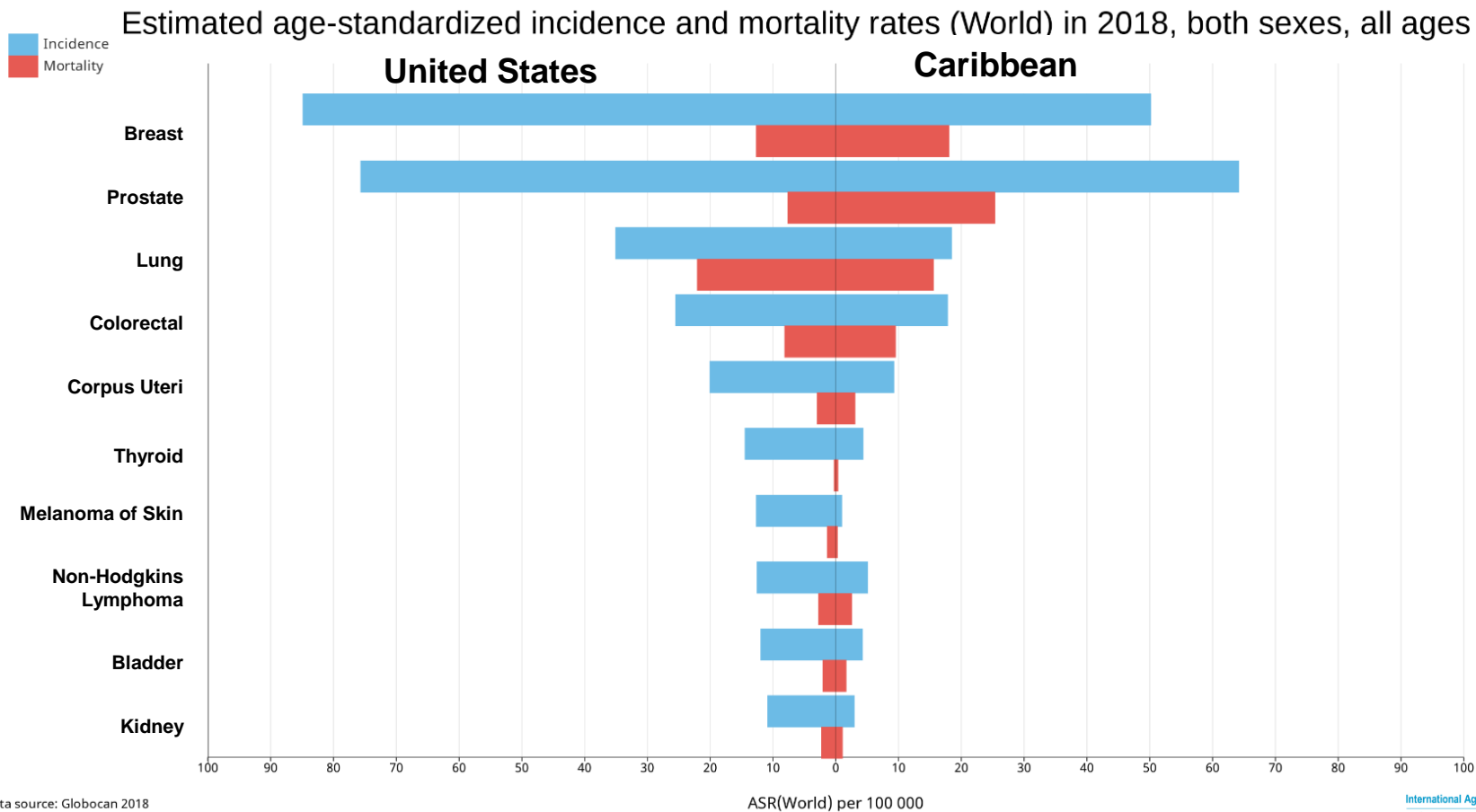


# Cancer Incidence



- Difficult to accurately determine cancer incidence rates within and between the Caribbean and US
  - In the Caribbean, there is very limited to no cancer registration in most countries
  - In the US, country of birth data not adequately documented by US cancer registries

# IARC-GLOBOCAN ESTIMATES



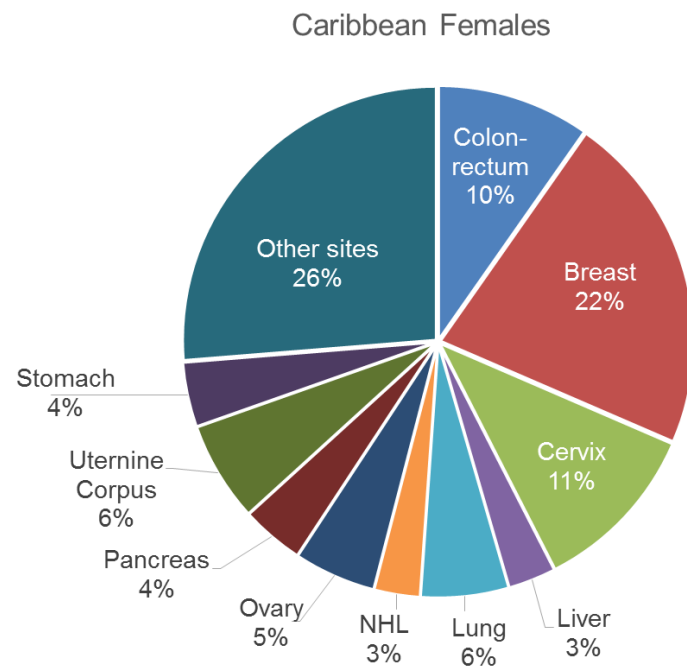
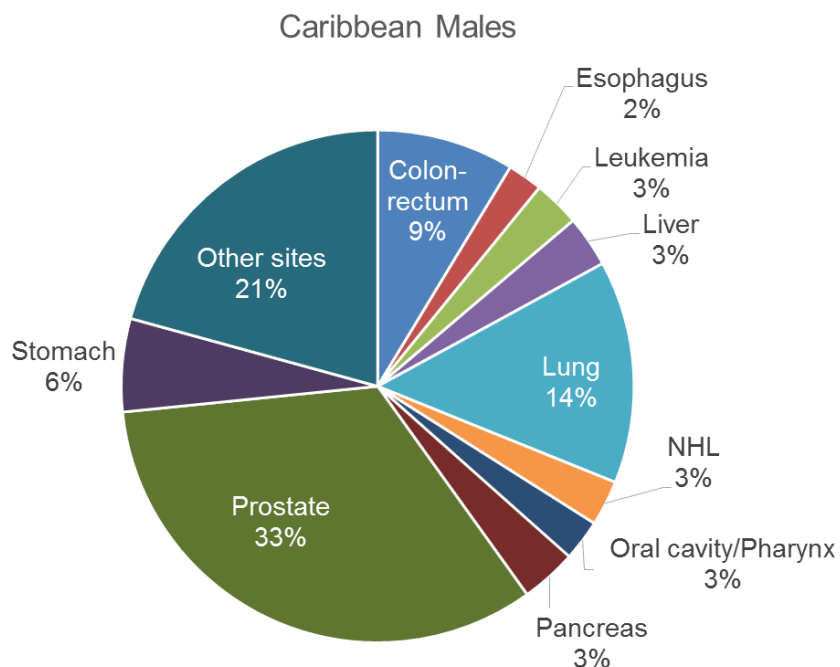
# Cancer Mortality

- More accurate statistics are available in the Caribbean and US
- Able to examine disparities in mortality rates between immigrant Caribbean and US born Blacks.
  - Florida & NY
    - Pinheiro et al. Cancer Control, 2016
    - Pinheiro et al. CEBP, 2018
- Other analyses are ongoing being conducted by AC3



# Top 10 Causes of Cancer Deaths in the Caribbean

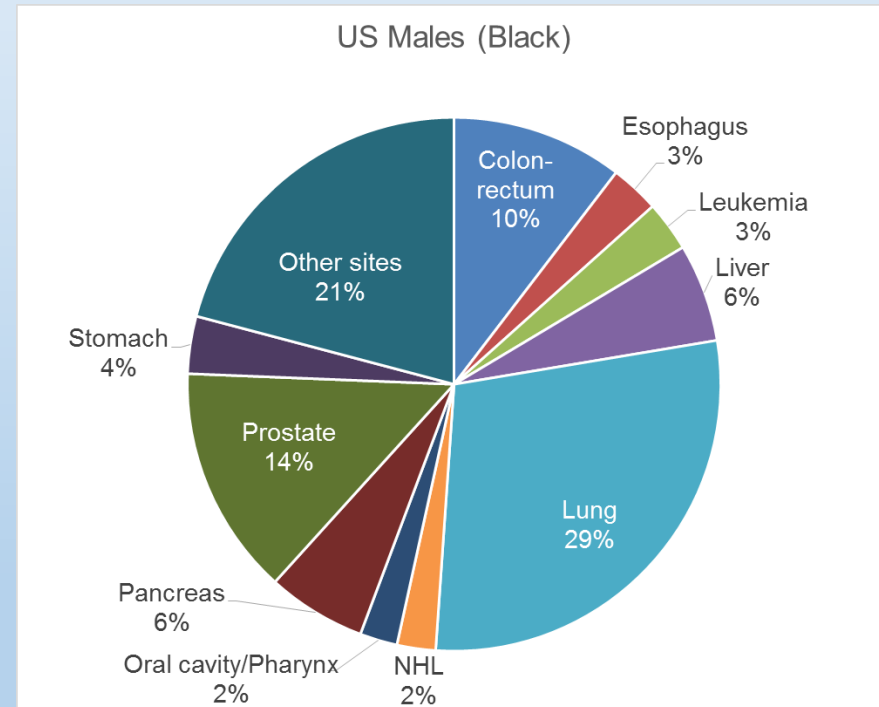
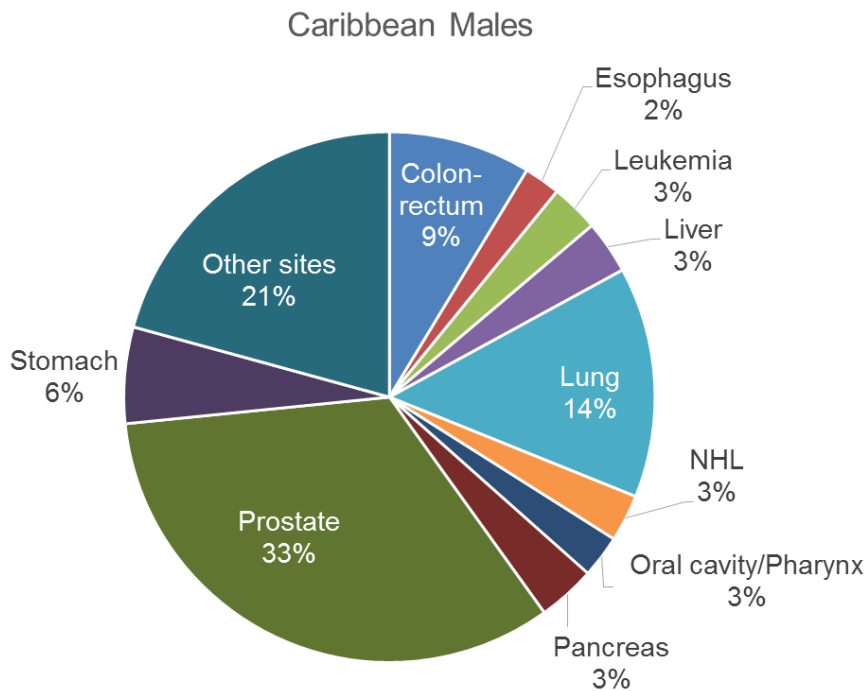
*(5-year cumulative proportions)*



# Top 10 Causes of Cancer Deaths

## *Caribbean Males vs US-Black Males*

*(5-year cumulative proportions)*

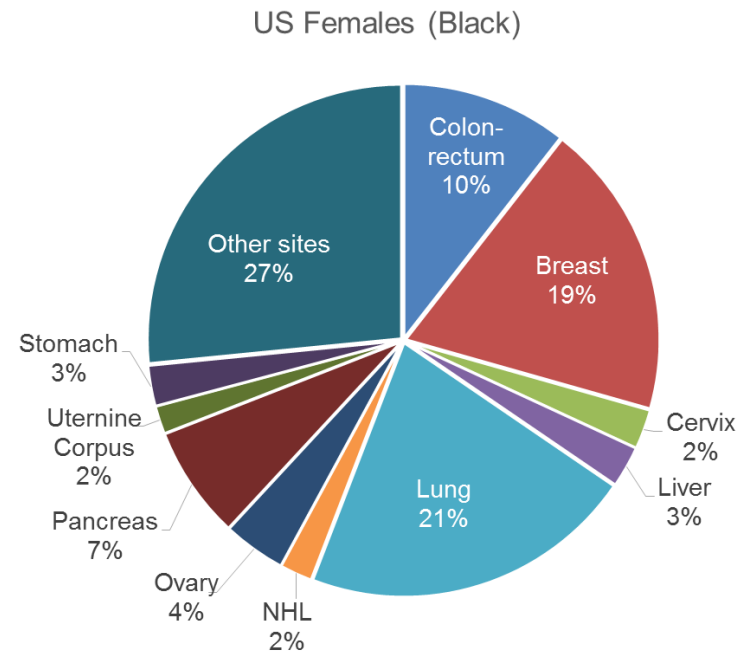
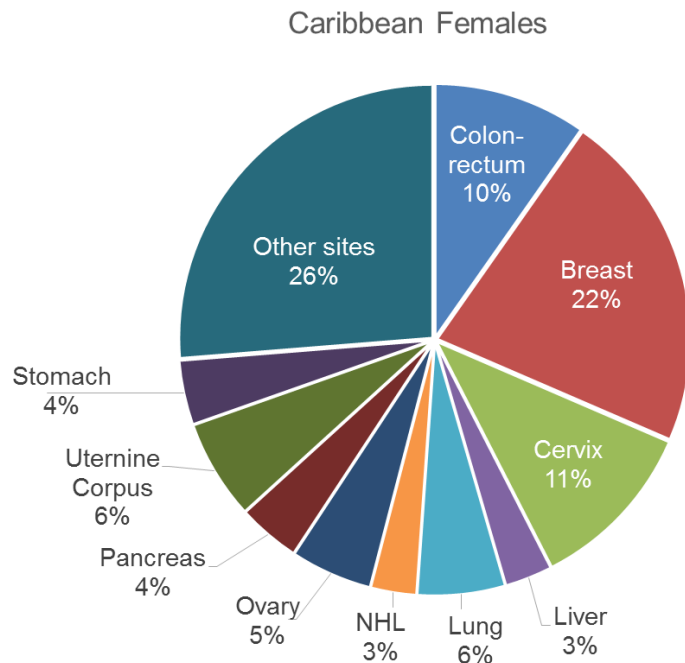




# Top 10 Causes of Cancer Deaths

## *Caribbean Females vs. US-Black Females*

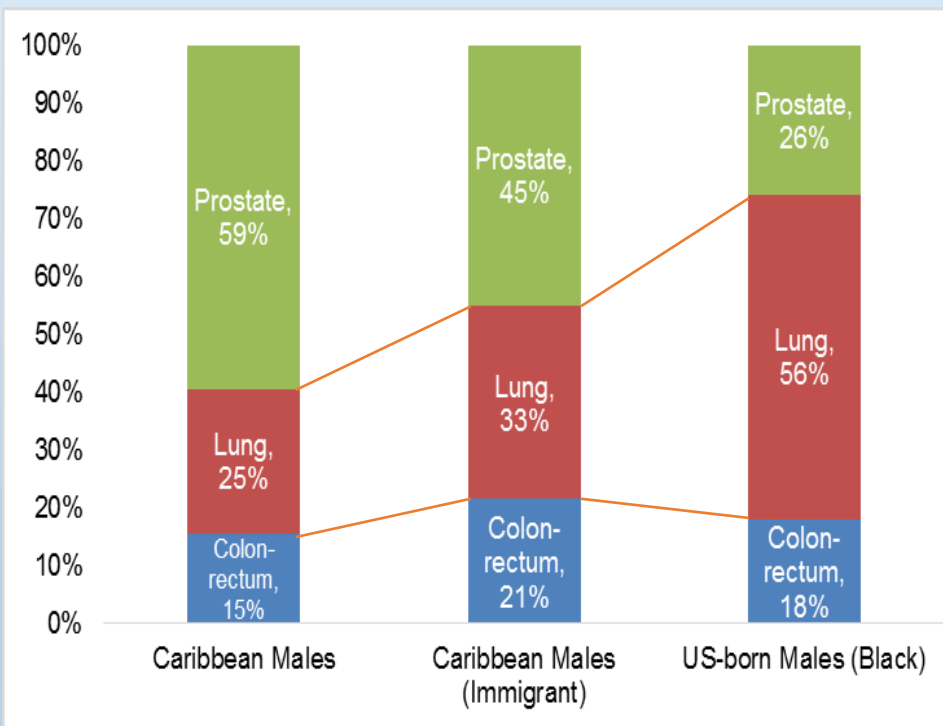
*(5-year cumulative proportions)*



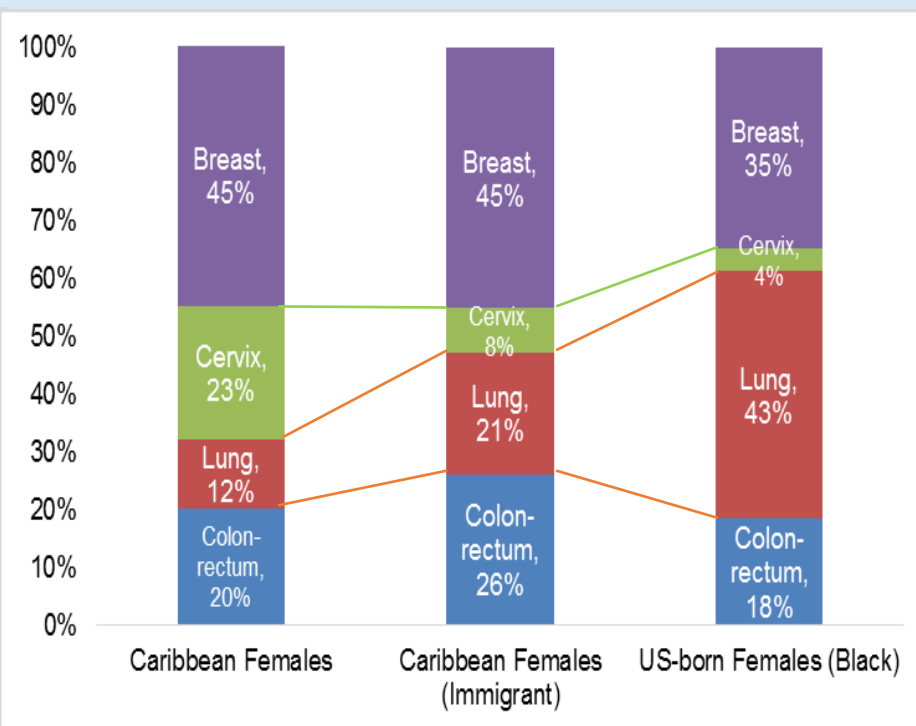
# Mortality Varies among Black Sub-groups

*(Cumulative Proportions, Deaths: Selected Cancers)*

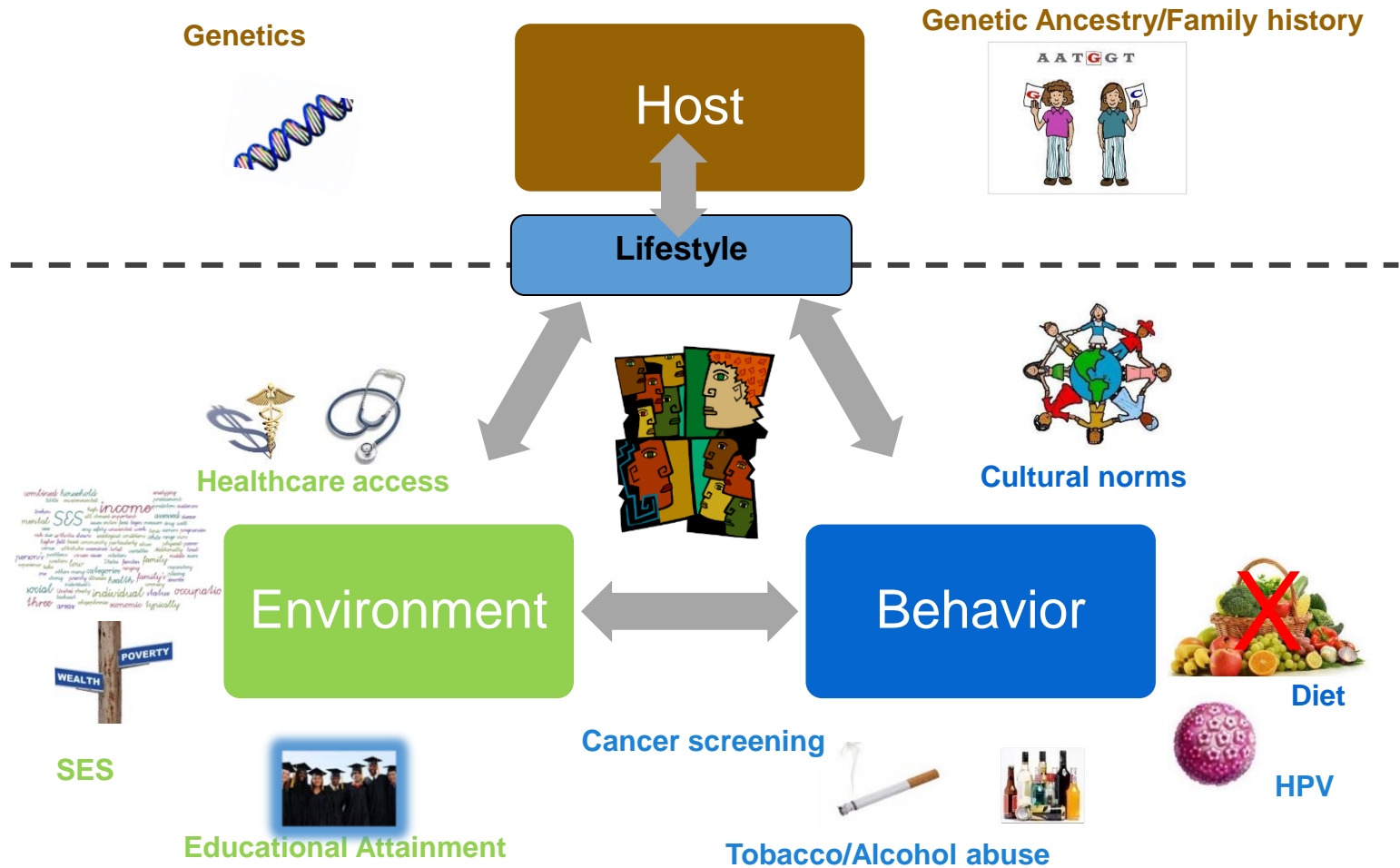
Florida<sup>#</sup> & Pennsylvania<sup>\*</sup>



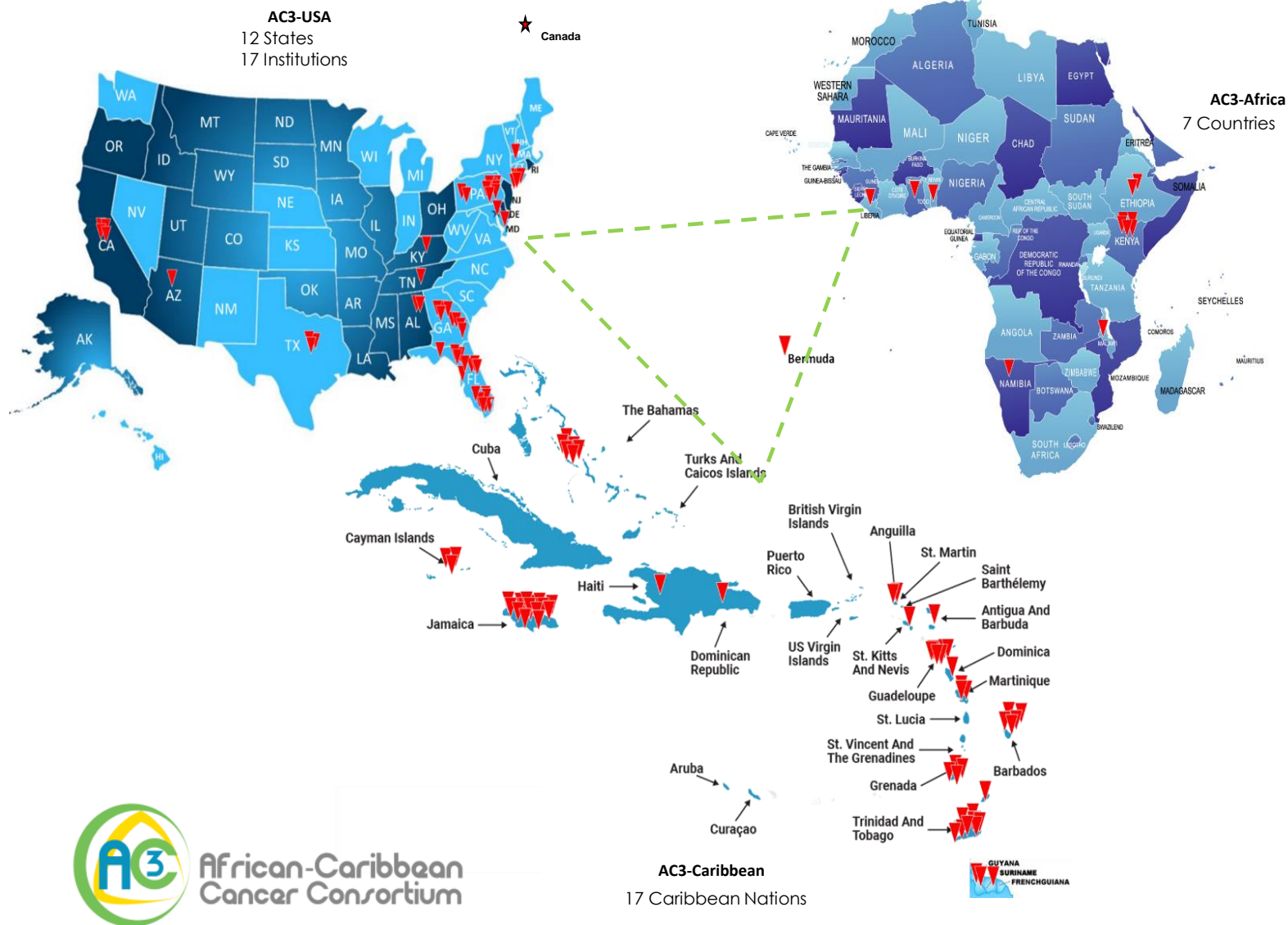
Florida<sup>#</sup> & Pennsylvania<sup>\*</sup>



# Contributing Factors for Disparities in Cancer



Comparative studies can help to disentangle influences of genetics, behavior and environment !!



# **Environment & Behavior**



Dr. Donald Simeon



# Urgent need to strengthen and expand screening and other cancer control programs in the CARICOM Caribbean

Renee A. Franklin<sup>1</sup> · Donald T. Simeon<sup>1</sup>

**Table 1** Key elements of national cancer control programs in CARICOM

Countries	Prevention policies			Screening services			Treatment		Palliation	Registry
	Tobacco control	Immunization for human papillomavirus (HPV)	Overweight and obesity/physical inactivity/harmful use of alcohol	Cervical	Breast	Colorectal	Radiotherapy	Chemotherapy	Care centers	
Antigua and Barbuda	P	✓	x	✓	✓	✓	x	✓	✓	x
Bahamas	P	✓	x	✓	✓	✓	✓	✓	✓	✓ (h)
Barbados	P	✓	✓	✓	✓	✓	✓	✓	✓	✓ (p)
Belize	P	✓	x	✓	✓	✓	x	x	✓	x
Dominica	P	✓	x	✓	✓	✓	x	✓	x	x
Grenada	P	✓	x	✓	✓	✓	x	✓	x	x
Guyana	P	✓	–	✓	✓	–	✓	✓	x	✓ (p)
Haiti	P	✓	–	✓	–	–	–	–	–	–
Jamaica	P	✓	x	✓	✓	✓	✓	✓	✓	✓ (p)
St Kitts & Nevis	P	✓	x	✓	✓	✓	x	x	✓	x
Saint Lucia	P	✓	x	✓	✓	✓	x	✓	✓	x
St Vincent and the Grenadines	P	–	–	✓	–	–	–	–	–	x
Suriname	P	✓	✓	✓	✓	✓	✓	✓	✓	✓ (h)
Trinidad and Tobago	P	✓	✓	✓	✓	✓	✓	✓	✓	✓ (p)

✓ yes—in place, x no—not in place, – no data, P partial, h hospital, p population

# Cancer Screening & Treatment Resources in the Caribbean

- Available cancer screening severely underutilized
- Limited availability of cancer treatment

## Reasons:

- Cultural beliefs/stigma
- Limited access/availability (long wait times)
- Cost (public vs. private sectors)

# Utilization of Cancer Screening in US

**CAP3 Cohort**  
**N = 852, (2012-2014)**

## Age-Adjusted rates of cancer screenings by ethnic subgroup

	Healthy People 2020 Goal	Healthy People 2015 Data	US-born	Caribbean Immigrants	African Immigrants
			% (N)	% (N)	% (N)
<b>Mammogram<sup>€</sup></b>	81.1	74.9	89.0 (103/112)	85.2 (69/78)	64.8 (23/27)
<b>Clinical Breast Exam<sup>£</sup></b>	-	-	89.1 (166/184)	91.5 (100/112)	76.0 (38/47)
<b>Pap-Smear<sup>‡</sup></b>	93	84.3	90.8 (196/210)	83.7 (86/95)	77.4 (57/64)
<b>Colon Exam<sup>**¥</sup></b>	70.5	60.6	68.9 (104/164)	63.7 (65/103)	49.6 (23/44)
<b>Prostate Specific Antigen Test (PSA)<sup>†</sup></b>	-	-	58.5 (59/98)	59.3 (27/45)	55.3 (19/35)

€ Women receiving a mammogram within past 2 years (50–74 years)

£ Women receiving a clinical breast exam ever (>=40 years)

‡ Women receiving a Pap test within past 3 years (21–65 years)

\*\*Colon Exam = either colonoscopy or sigmoidoscopy

¥Adults receiving colorectal cancer screening based on most recent guidelines (age adjusted, percent, 50–75 years)

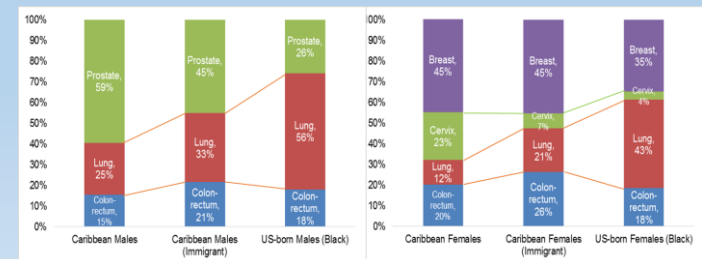


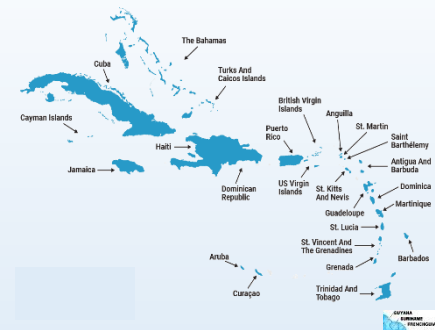
# Screening Habits - Immigrants

(Years in US)

CAP3 Cohort  
N = 852, (2012-2014)

- For every year spent in the US
  - 8% increase in **colon** cancer screening
  - 8% increase in **prostate** cancer screening
  - 9% increase in screening for **cervical** cancer
  - 11% increase in screening for **breast** cancer( $p < 0.0001$  for all)





# Tobacco use

- Meta-Analysis of PAHO-STEPS National Risk Factor Surveys conducted in 11 Caribbean countries
  - 18-64 Yrs, 2006-2014

	Geographic Region	
Tobacco Use	Caribbean	Africa
Current	15.8% (13.4-18.1)	10.0% (7.7-12.3)

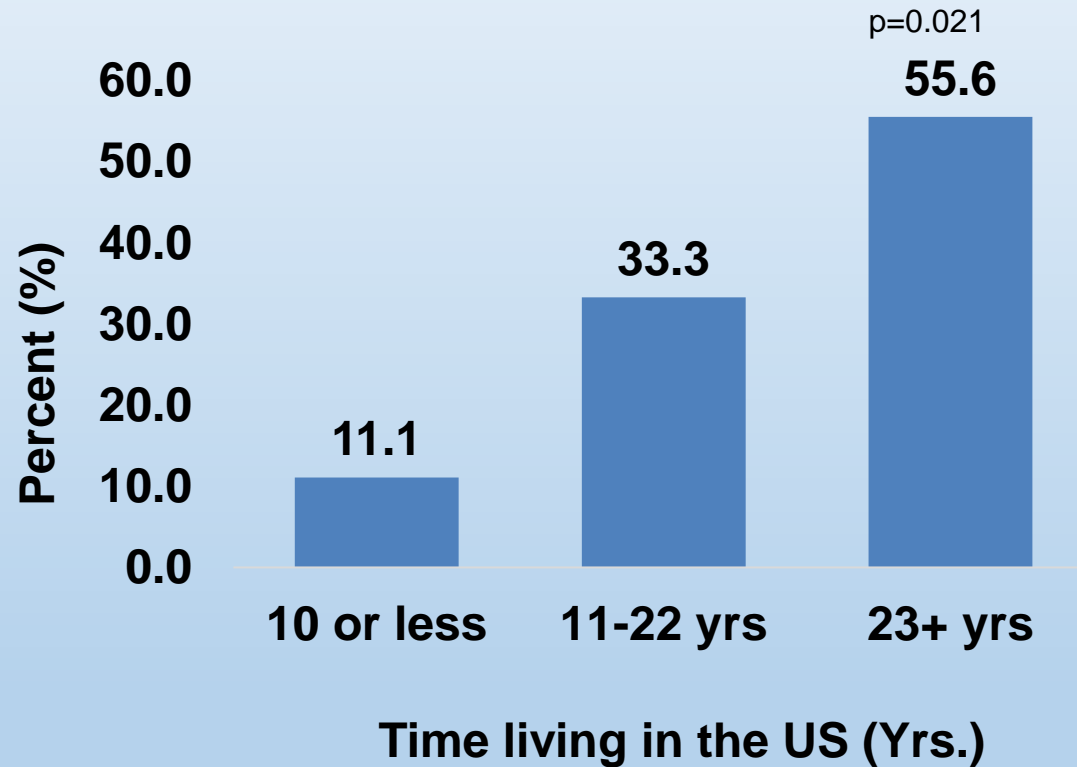
*Summary of estimates weighted on each country's population*

# Tobacco Use in US Black Subgroups

	US Black Subgroups						Total	
Tobacco Use	Caribbean immigrants		African immigrants		US-born		African American/Black	
	Males	Females	Males	Females	Males	Females	Males	Females
Never	75.7 %	98.3 %	86.6 %	96.8 %	57.4 %	63.8 %	70.0 %	77.5 %
Former	3.2 %	1.7 %	13.4%	3.2 %	13.9 %	12.3 %	11.3 %	8.1 %
Current	21.1 %	0.0%	0.0 %	0.0 %	28.7 %	23.9 %	18.7 %	14.4 %

*Estimates age-standardized and weighted on each population subgroup- Philadelphia*

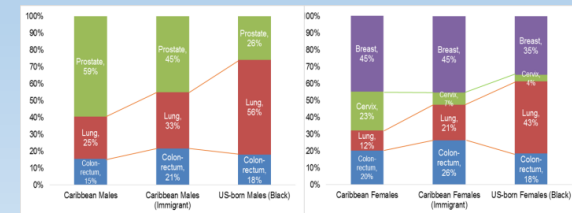
# Current Cigarette Smoking (Immigrants)



**CAP3 Cohort**  
**N = 852, (2012-2014)**



*Blackman et al. Ethnicity & Health, 2018*



# BMI between sub-groups

CAP3 Cohort  
(2012-2014)

	US-born	Caribbean-Immigrants	African-Immigrants	Other Immigrants	Total	p-value
	N (%)	N (%)	N (%)	N (%)	N (%)	
<b>BMI</b>						
<b>&lt;= 25</b>	134 (26.8)	53 (25.2)	46 (32.6)	10 (45.4)	243 (27.8)	
<b>&gt; 25</b>	366 (73.2)	157 (74.8)	95 (67.4)	12 (54.5)	630 (72.2)	
<b>Total</b>	500 (100.0)	210 (100.0)	141 (100.0)	22 (100.0)	873 (100.0)	0.113

Odds of being over weight (BMI $\geq$ 25)	Caribbean-Immigrants (N= 205)	African-Immigrants N = 140)
	Odds Ratios (95% CI)*	
<b>Time Living in the US</b>		
<b>10 months-11 years</b>	Ref (1.0)	Ref (1.0)
<b>11-22 years</b>	0.9 (0.4-2.0)	1.4 (0.6-3.1)
<b>23+ years</b>	2.3 (1.0-5.4)	1.3 (0.3-5.1)

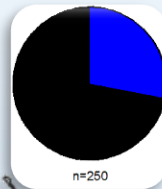
\*Adjusted for age and sex

# **Host Factors**

# Higher frequency of Hereditary Breast Cancer in the Caribbean



**Dr. Sophia George**



The Bahamas n=250  
Average - 44.9 yo  
28% -BRCA1/BRCA2

The Caymans n=64  
Average - 52.5 yo  
6.3% -BRCA1/BRCA2



Haiti n=94  
Average - 52.1 yo  
6.8% -BRCA1/BRCA2/PALB2

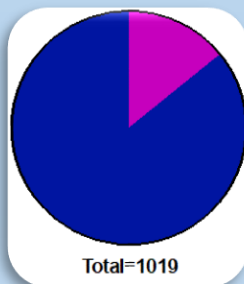


Dominica n=57  
Average - 52.2 yo  
8.8% - BRCA2/PALB2



Jamaica n=184  
Average - 48.9 yo  
4.9% -BRCA1/BRCA2/PALB2

Barbados n=89  
Average - 46.5 yo  
18% BRCA1/BRCA2/PALB2



The Cohort n=1019  
Average - **49.8 yo**  
14.1% -BRCA1/BRCA2/PALB2

Trinidad n=299  
Average - 42.9 yo  
11.7% -  
BRCA1/BRCA2/PALB2



12% in Ashkenazi Jews  
3% in US/Canada

*Donenberg et al 2011  
Akabari et al 2013  
Donenberg et al 2016  
Lenner-Ellis et al 2017  
Donenberg et al 2018*

# Higher Frequency EGFR mutations in Lung cancers in the Caribbean

Leduc et al., Targ Oncol (2017) 12:689–693

- All patients diagnosed with lung adenocarcinoma
- Martinique and Guadeloupe (2013 and 2015)
- N = 241
- EGFR mutations
  - 37% of patients
  - Associated with nonsmoker status
  - Better overall survival

**\*\*US Blacks: EGFR mutations 10-14%**

*Bauml, J., et al., 2013*

*Bollig-Fischer, A. et al., 2015*

*Campbell, J.D. et al., 2017*



# Summary

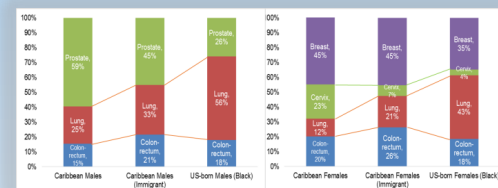
Preliminary findings:



- Distinct differences in health-related behaviors between US-born Blacks, Caribbean populations.
- For Immigrants, as length of time in the US increases
  - Cancer screening habits improve
  - Cigarette smoking increases
  - BMI increases
- As immigrants begin to assimilate with the dominant culture, they learn both positive and negative health behaviors

# To Increase Health Equity

- Focused interventions are needed among Caribbean immigrants (proportion of breast cancer deaths higher in comparison to US-born Black females)
- Further research investigating the frequency of hereditary breast cancer among Caribbean Immigrants is warranted
- Targeted interventions needed to increase genetic testing especially among Caribbean women to identify those with germline mutations
- Further prostate cancer research involving Caribbean and US-born Black men is warranted
- Targeted/culturally tailored interventions are needed
  - Address the disparity between Caribbean immigrants and US-born Blacks
  - Increase health equity for all Blacks in the US
    - Lung cancer
    - Colon-rectum cancer





African-Caribbean  
Cancer Consortium

**Funding:**

American Cancer Society: RSG-14-033-01-CPPB

National Cancer Institute (NCI): P20 CA210294



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