



Consulta a Expertos sobre el Tamizaje de Cáncer Colorrectal en América Latina y el Caribe

PAHO,

Washington, DC

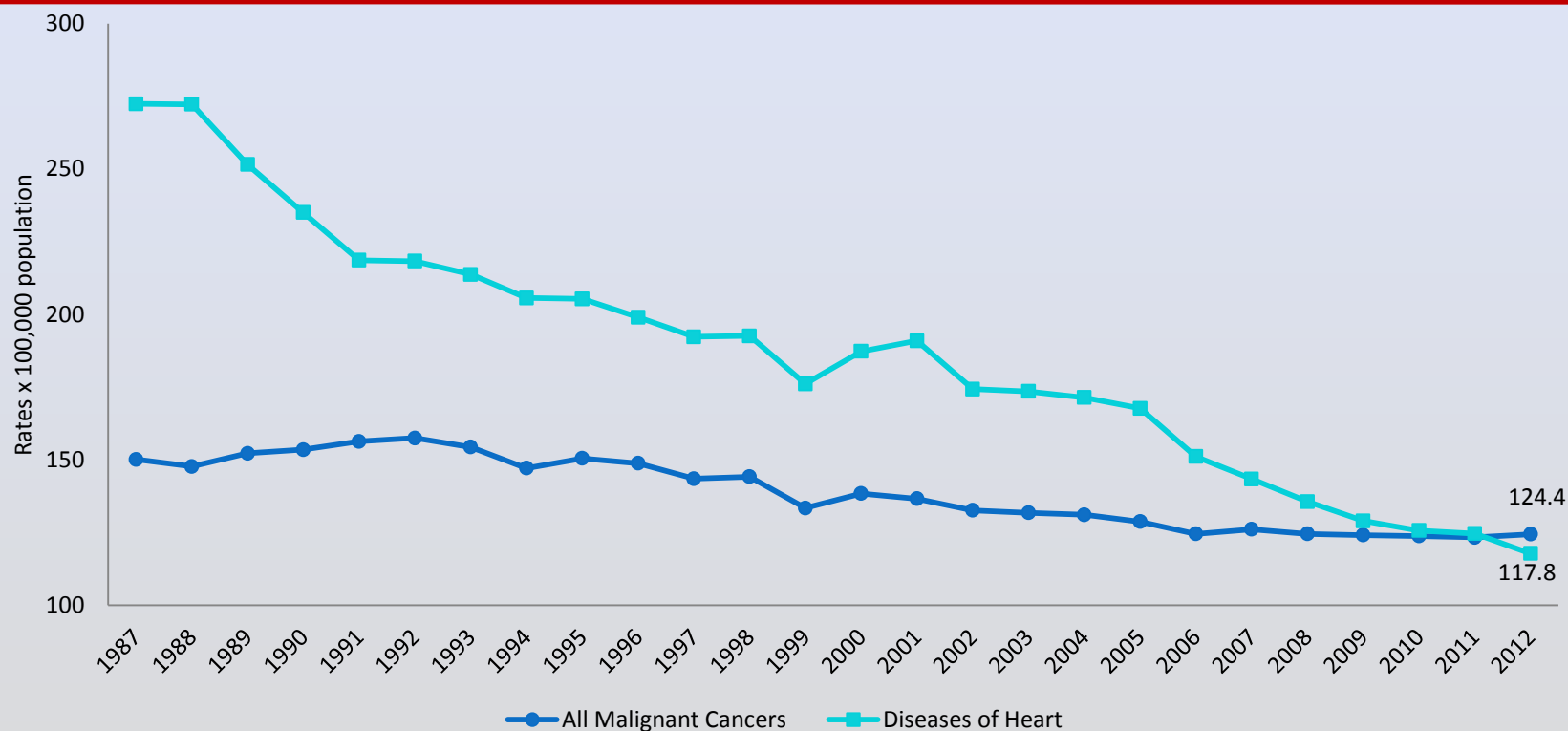
March 16-17, 2016

Guillermo Tortolero-Luna, MD, PhD

COLORECTAL CANCER BURDEN IN PUERTO RICO



Age Adjusted* Mortality Rates for All Malignant Cancers and Diseases of the Heart Puerto Rico, 1987-2012

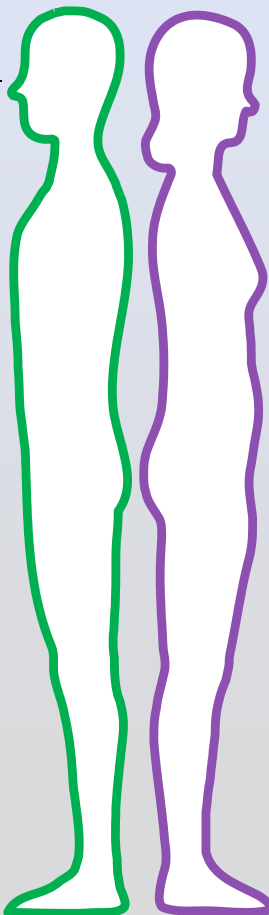


*Rates are per 100,000 and age-adjusted to the 2000 US Std Population (19 age groups – Census P25-1130) standard.

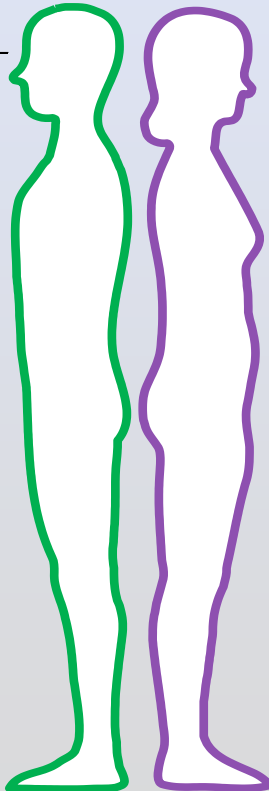
Data Source: Mortality Case File provided by the Demographic Registry of Puerto Rico (November 5, 2014).

Population Source: Vintage 2012 estimates series from the Population Division of the United States Census Bureau.

Top Ten Incidence Cancer Sites In Puerto Rico, 2008-2012

| Hombres / Males (N = 38,254) | | % | Mujeres / Females (N = 32,878) | | % |
|--|------|---|--|------|---|
| Próstata/Prostate | 39.4 |  | Mama/Breast | 29.8 | |
| Colon y recto/Colon and rectum | 12.8 | | Colon y recto/Colon and rectum | 12.3 | |
| Pulmón y bronquios/Lung and bronchus | 6.1 | | Tiroides/Thyroid | 9.9 | |
| Vejiga urinaria/Urinary bladder | 4.2 | | Cuerpo del útero, NOS/Corpus and uterus, NOS | 7.6 | |
| Cavidad oral y faringe/Oral cavity and pharynx | 4.0 | | Pulmón y bronquios/Lung and bronchus | 4.1 | |
| Linfoma no-Hodgkin/Non-Hodgkin Lymphoma | 3.6 | | Linfoma no-Hodgkin/Non-Hodgkin Lymphoma | 4.0 | |
| Hígado y ducto biliar/Liver and bile duct | 3.1 | | Cérvix uterino/Cervix uteri | 3.7 | |
| Estómago/Stomach | 2.6 | | Ovario/Ovary | 2.5 | |
| Riñón y pelvis renal/Kidney and renal pelvis | 2.5 | | Leucemia/Leukemia | 2.4 | |
| Leucemia/Leukemia | 2.4 | | Estómago/Stomach | 2.2 | |
| Otros sitios primarios/Other sites | 19.3 | Otros sitios primarios/Other sites | 21.5 | | |

Top Ten Mortality Cancer Sites in Puerto Rico, 2008-2012

| Hombres / Males (N = 14,659) | |  | Mujeres / Females (N = 11,354) | |
|--|------|---|--|------|
| | % | | | % |
| Próstata/Prostate | 17.6 | | Mama/Breast | 18.7 |
| Pulmón y bronquios/Lung and bronchus | 13.6 | | Colon y recto/Colon and rectum | 13.5 |
| Colon y recto/Colon and rectum | 13.0 | | Pulmón y bronquios/Lung and bronchus | 9.4 |
| Hígado y ducto biliar/Liver and bile duct | 6.8 | | Páncreas/Pancreas | 5.9 |
| Estómago/Stomach | 4.4 | | Hígado y ducto biliar/Liver and bile duct | 4.6 |
| Páncreas/Pancreas | 4.4 | | Cuerpo del útero, NOS/Corpus and uterus, NOS | 4.3 |
| Cavidad oral y faringe/Oral cavity and pharynx | 3.3 | | Ovario/Ovary | 4.2 |
| Leucemia/Leukemia | 3.2 | | Estómago/Stomach | 3.8 |
| Esófago/Esophagus | 3.1 | | Leucemia/Leukemia | 3.3 |
| Linfoma no-Hodgkin/Non-Hodgkin Lymphoma | 2.8 | | Linfoma no-Hodgkin/Non-Hodgkin Lymphoma | 3.1 |
| Otros sitios primarios/Other sites | 27.8 | | Otros sitios primarios/Other sites | 29.4 |

CRC IN PUERTO RICO, 2008-2012

- **2nd** leading cause of cancer in men and women
- **~1,799** cases of CRC per year
- Accounts for **12.8%** and **12.3%** of all cancers diagnosed in men and women
- **2nd** leading cause of death from cancer in women and **3rd** in men
- **~687** deaths per year
- Accounts for **13.9%** and **13.2%** of all deaths from cancer

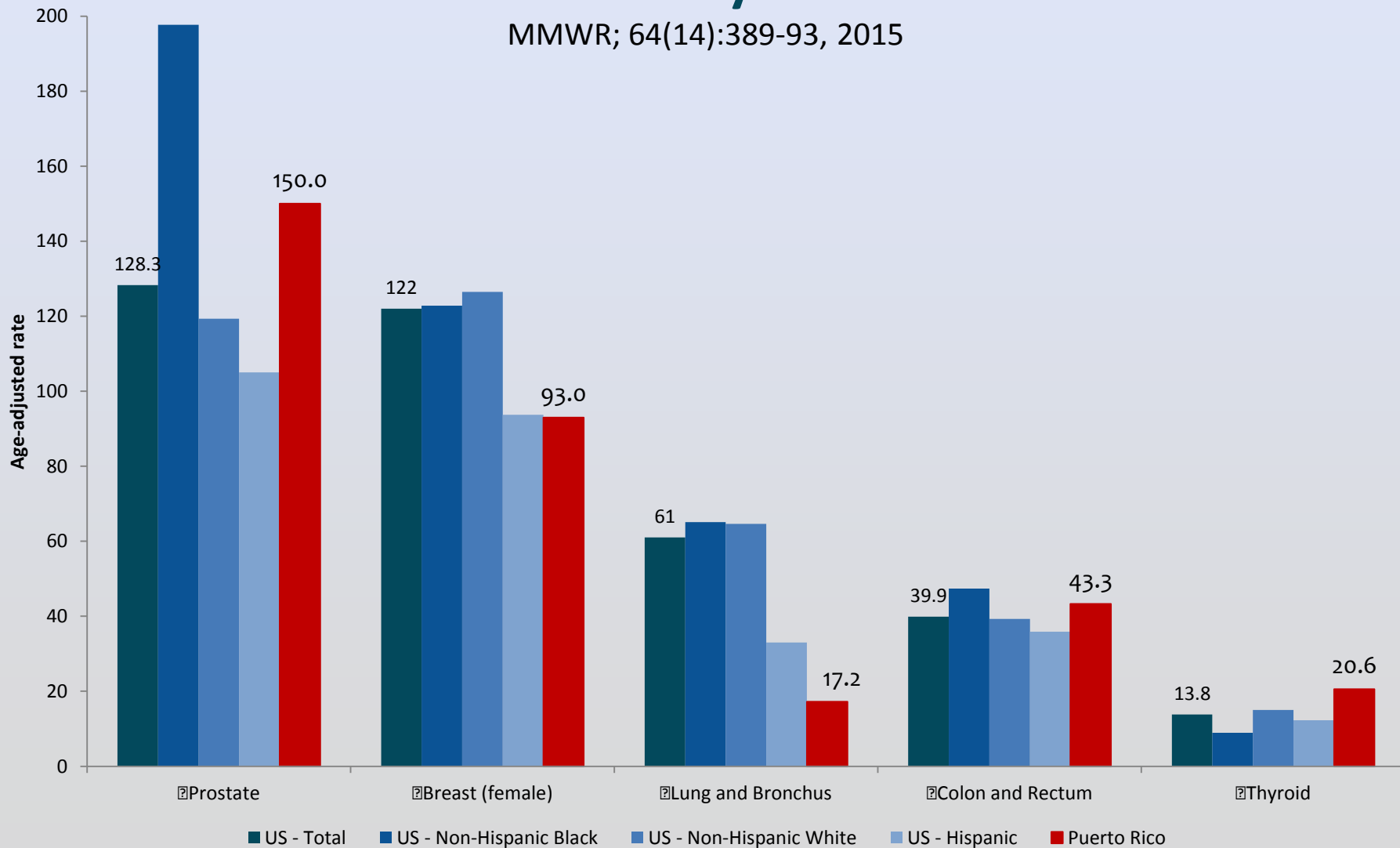
Incidence Rates of Colorectal in the U.S. and Puerto Rico, 2008-2012

| | Males | Women |
|---|-------------|-------------|
| SEER All Race/Ethnic Groups Combined | 48.9 | 37.1 |
| Puerto Rico | 52.1 | 34.7 |

AGE-ADJUSTED (2000 U.S. STD. POP.)

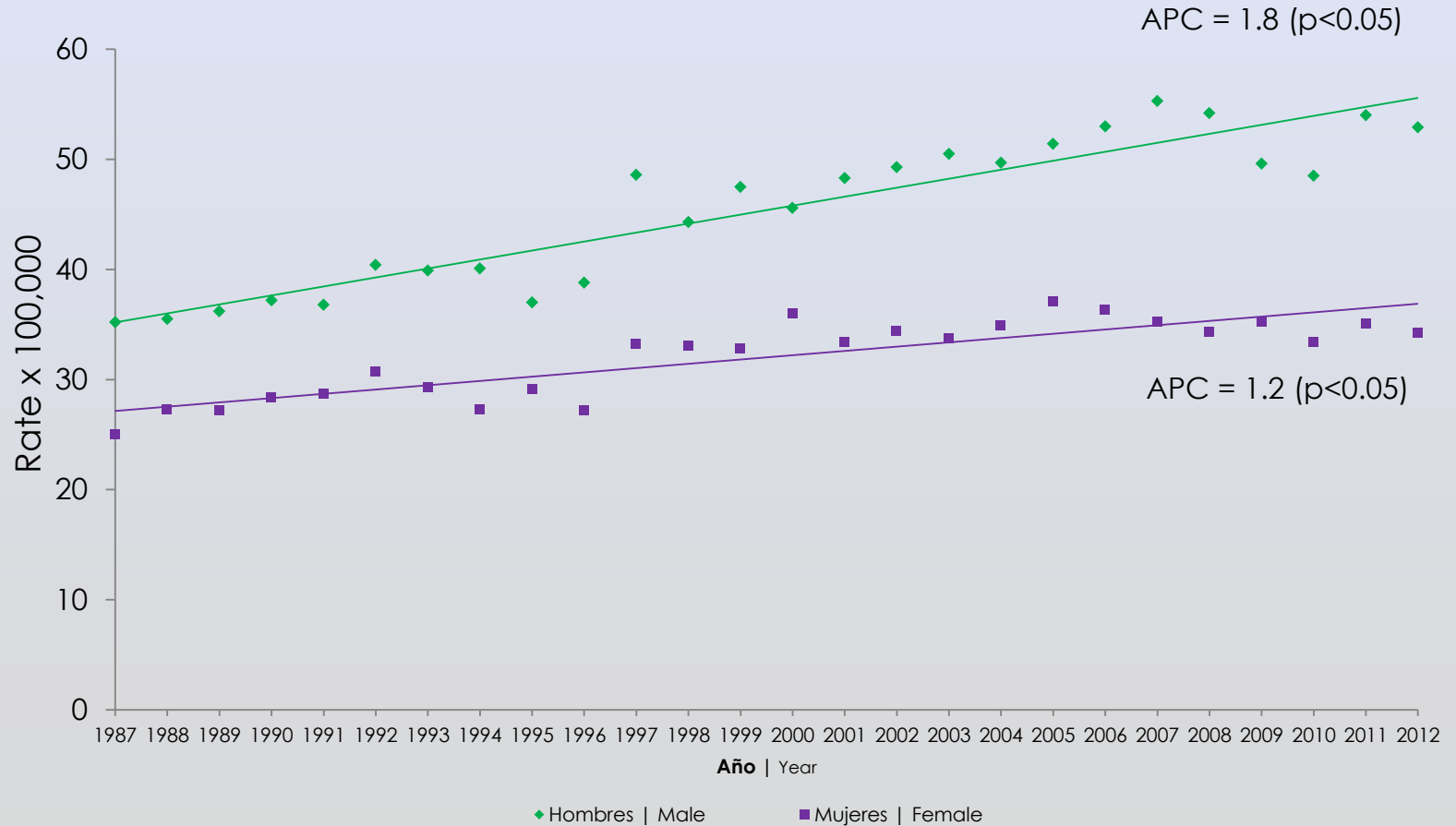
Age-adjusted rates* of invasive cancer incidence by selected primary cancer site, geographic location, race and ethnicity — 2011

MMWR; 64(14):389-93, 2015

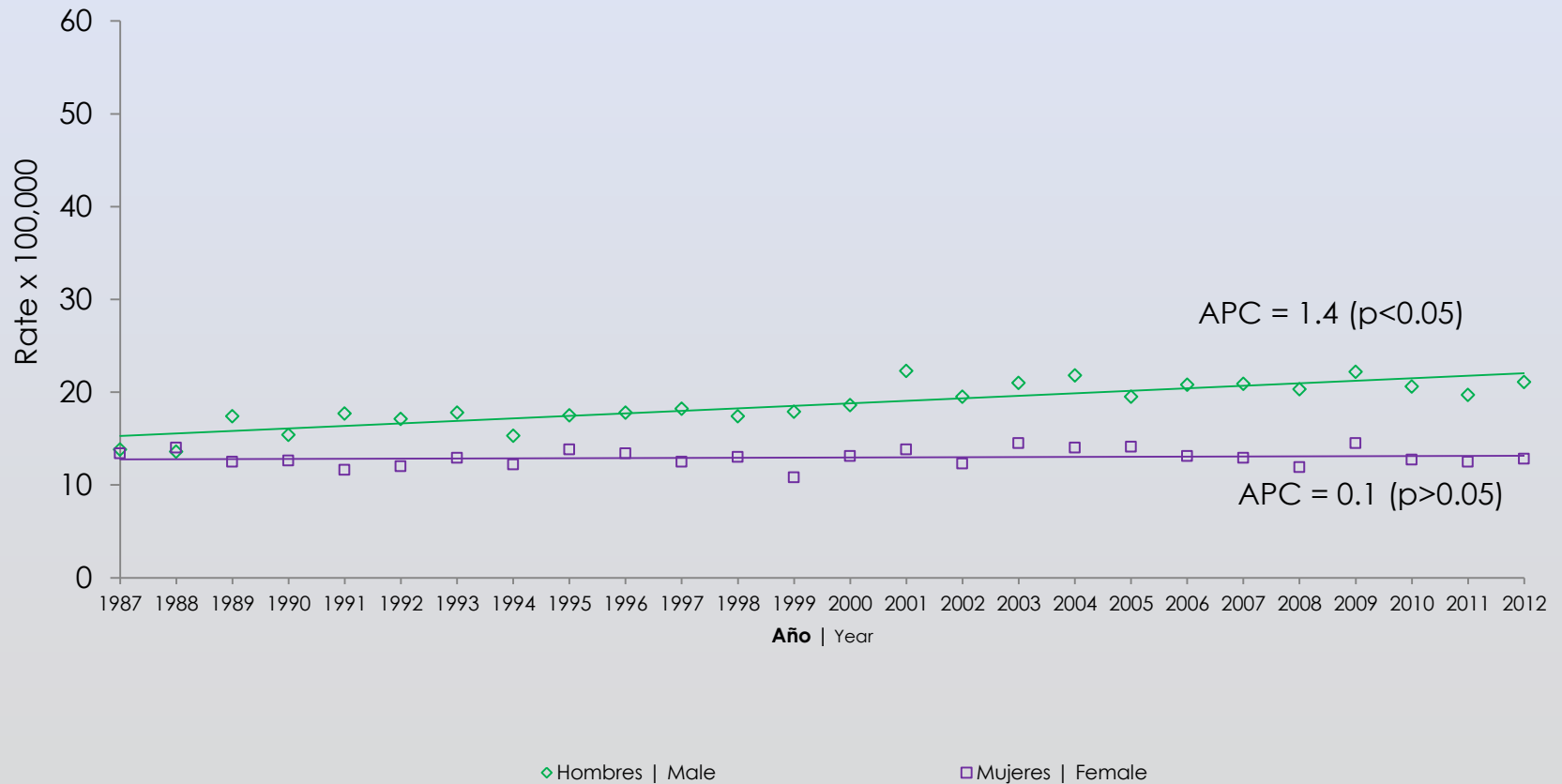


* Incidence rates are per 100,000 persons and are age-adjusted to the 2000 U.S. standard population.

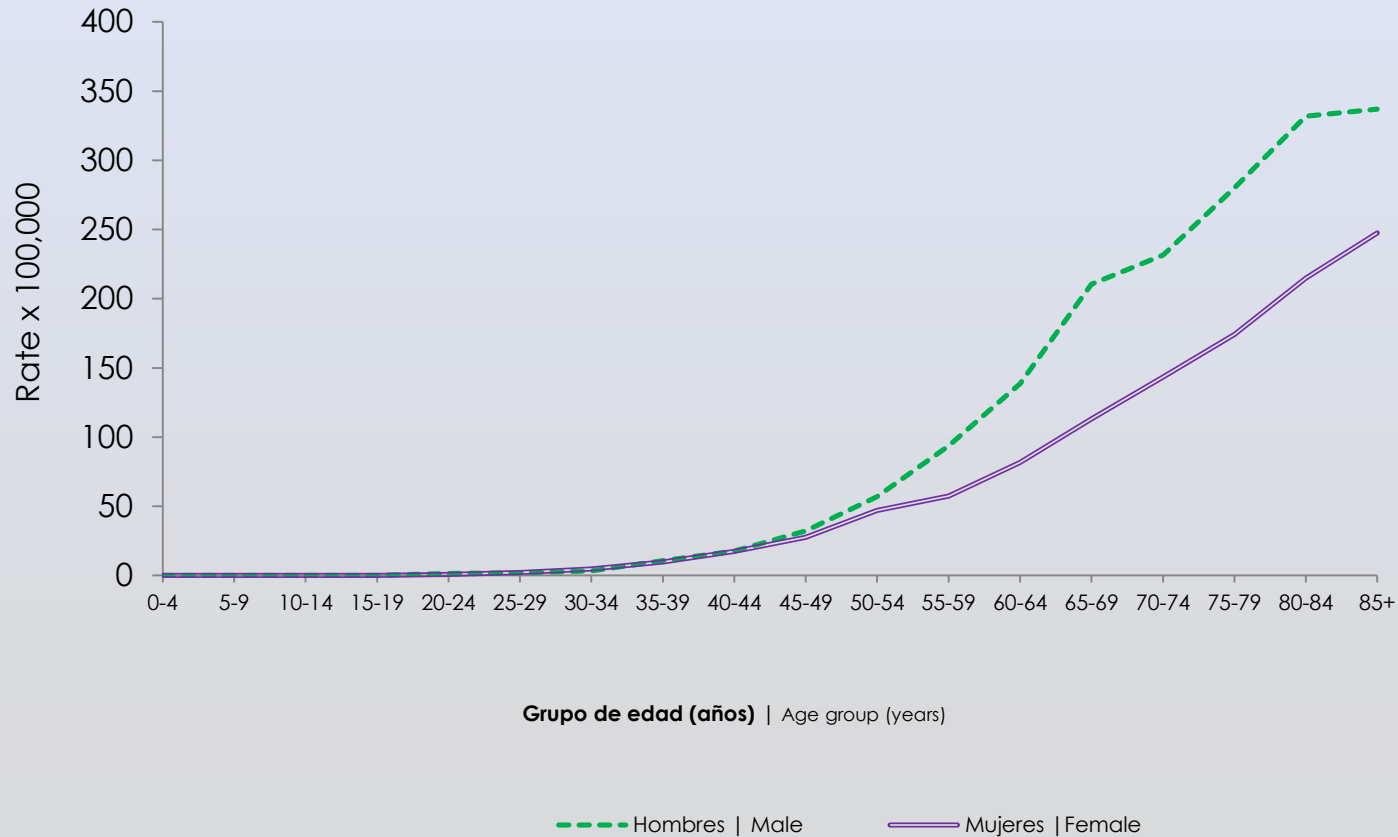
AGE-ADJUSTED (2000 US STD. POP.) INCIDENCE RATES OF COLON AND RECTUM CANCER BY SEX: PUERTO RICO, 1987-2012



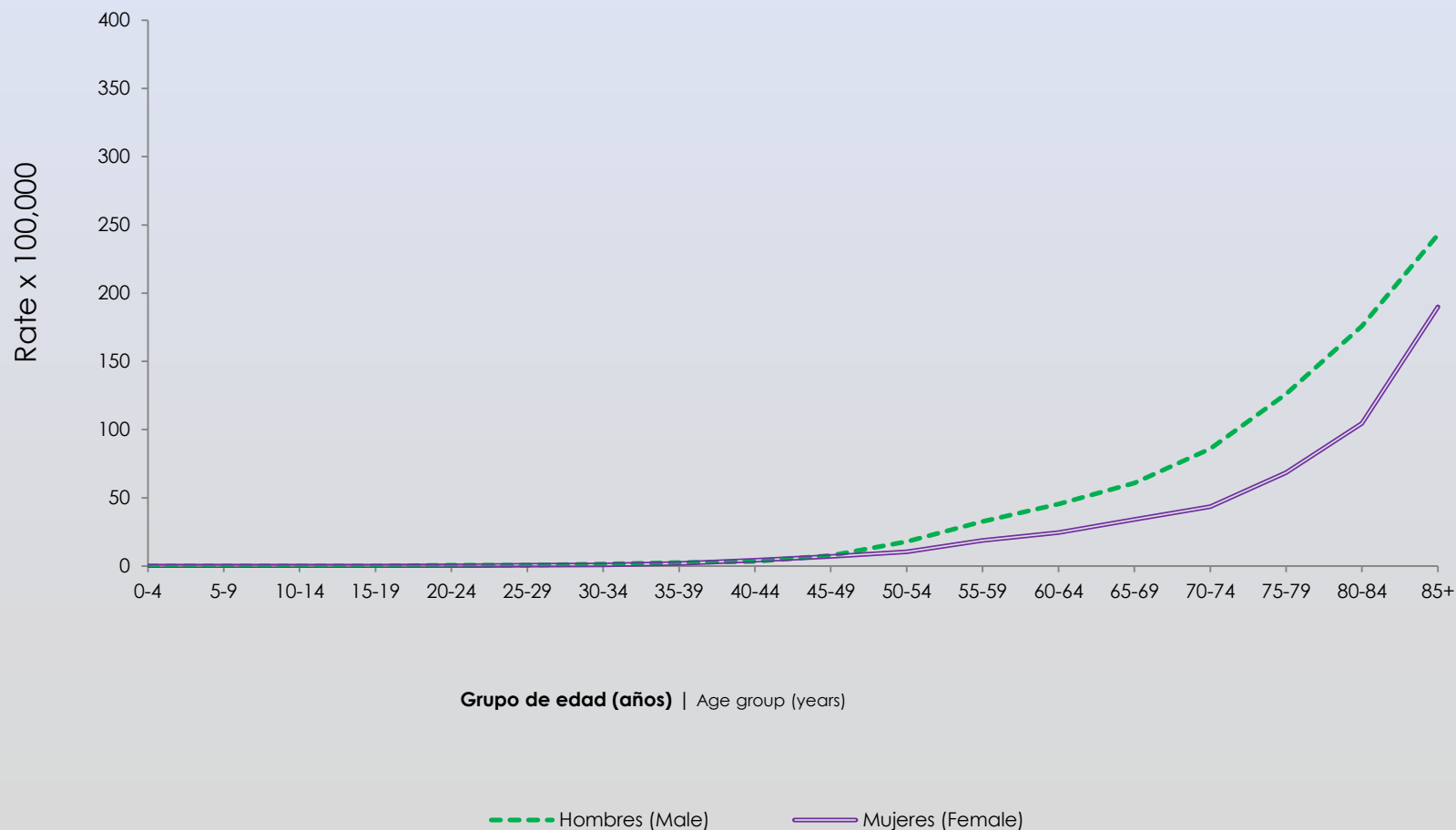
AGE-ADJUSTED (2000 US STD. POP.) MORTALITY RATES OF COLON AND RECTUM CANCER BY SEX: PUERTO RICO, 1987-2012



AGE-SPECIFIC INCIDENCE RATES OF COLON AND RECTUM CANCER BY SEX: PUERTO RICO, 2008-2012



AGE-SPECIFIC MORTALITY RATES OF COLON AND RECTUM CANCER BY SEX: PUERTO RICO, 2008-2012



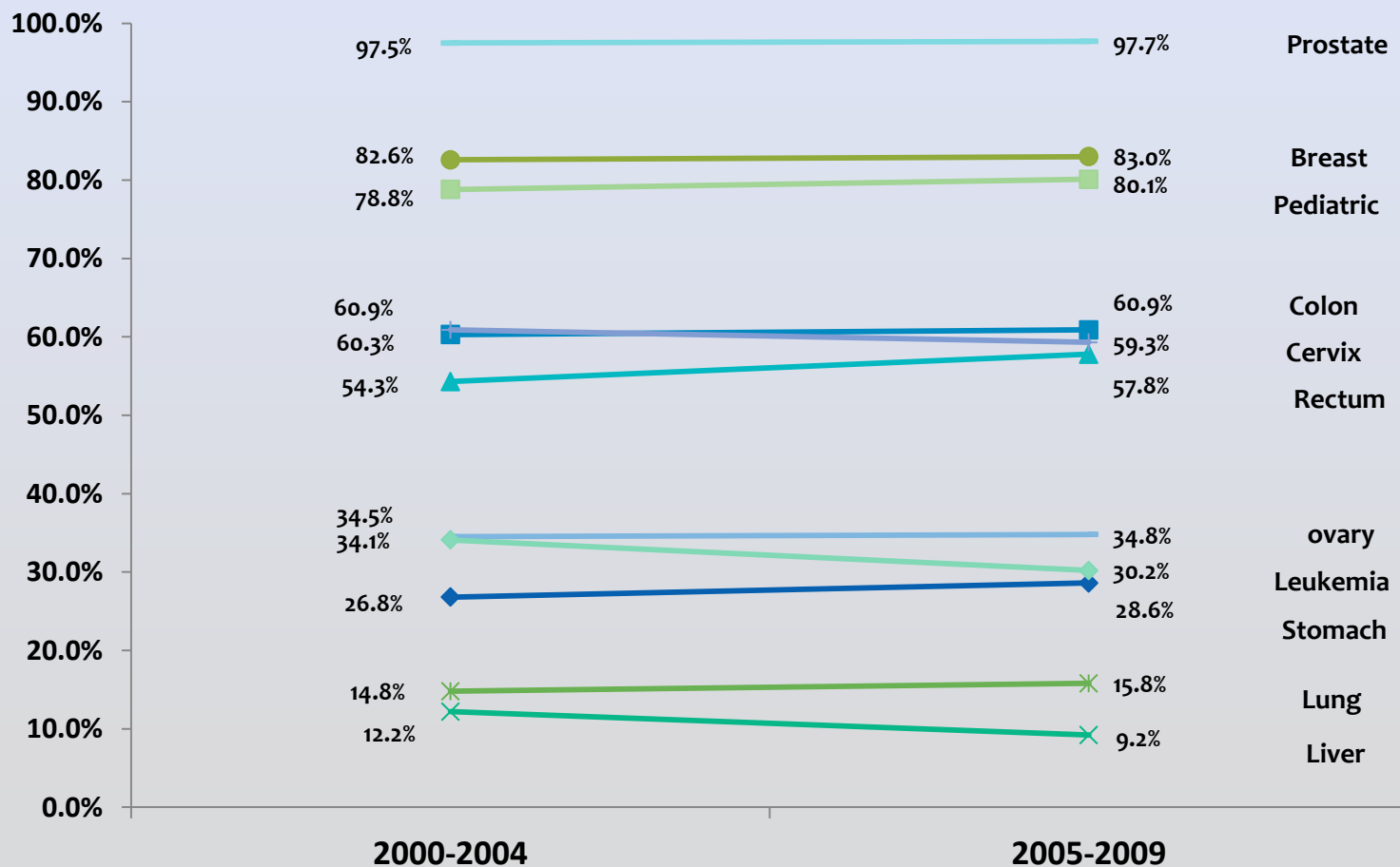
Stage at Diagnosis of CRC in Puerto Rico, 2008-2012

- Early stage: **41%**
 - *In situ*: 3%
 - *Localized*: 38%
- Regional stage: **37%**
- Distant stage: **13%**
- Unstaged: **9%**

(PRCCR, 2015)

CONCORD STUDY

Net Survival– Puerto Rico



Source: [The Lancet](#). (DOI:10.1016/S0140-6736(14)62038-9)

[Terms and Conditions](#)



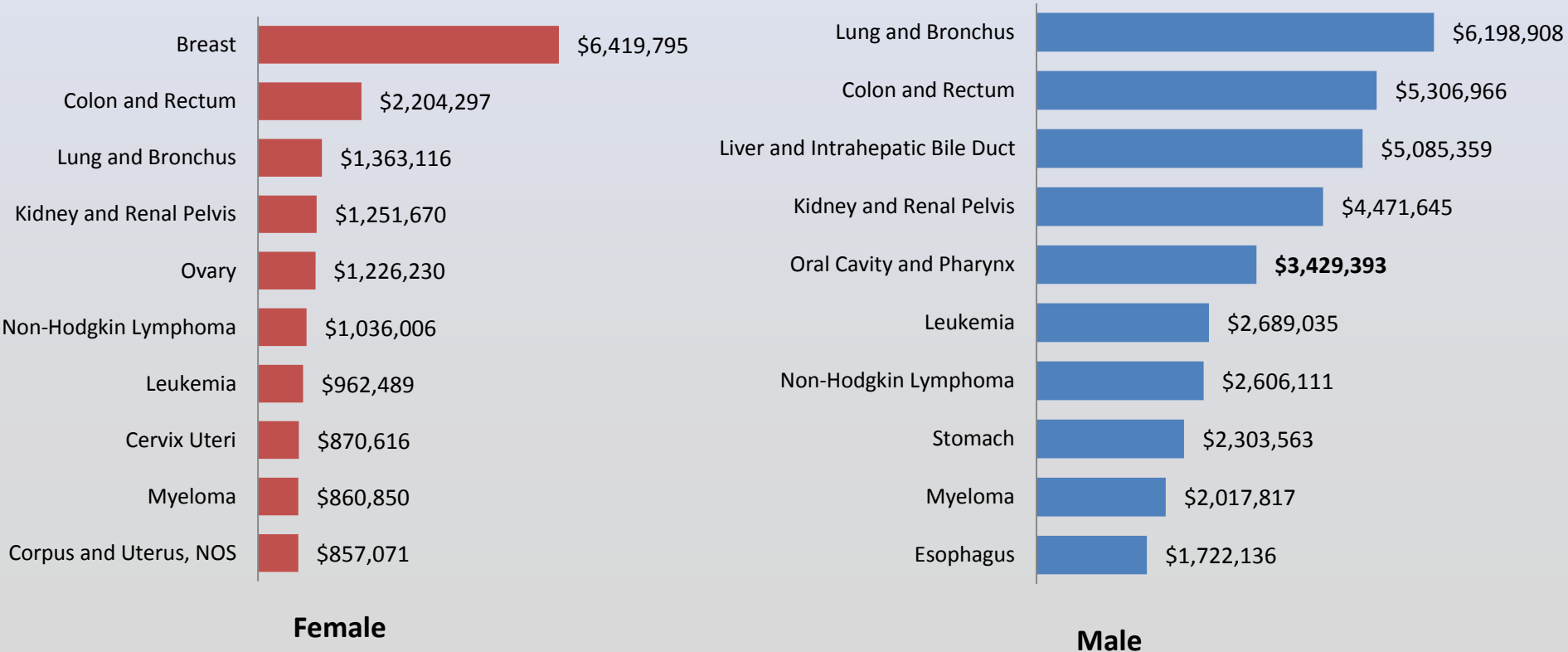
***ECONOMICAL IMPACT OF
CANCER IN PUERTO RICO***

Productivity loss in Puerto Rico's labor market due to cancer mortality

[Ortiz-Ortiz KJ](#), [Pérez-Irizarry J](#), [Marín-Centeno H](#), [Ortiz AP](#), [Torres-Berrios N](#), [Torres-Cintrón M](#), [de la Torre-Feliciano T](#), [Laborde-Rivera J](#), [Calo WA](#), [Figueroa-Vallés NR](#)

Total Labor Productivity Loss due to Cancer Mortality in Puerto Rico in 2004: **\$ 64 Million**

Estimated Labor Productivity Loss due to Premature Mortality by Type of Cancer, Puerto Rico, 2004



Sociodemographic Characteristics

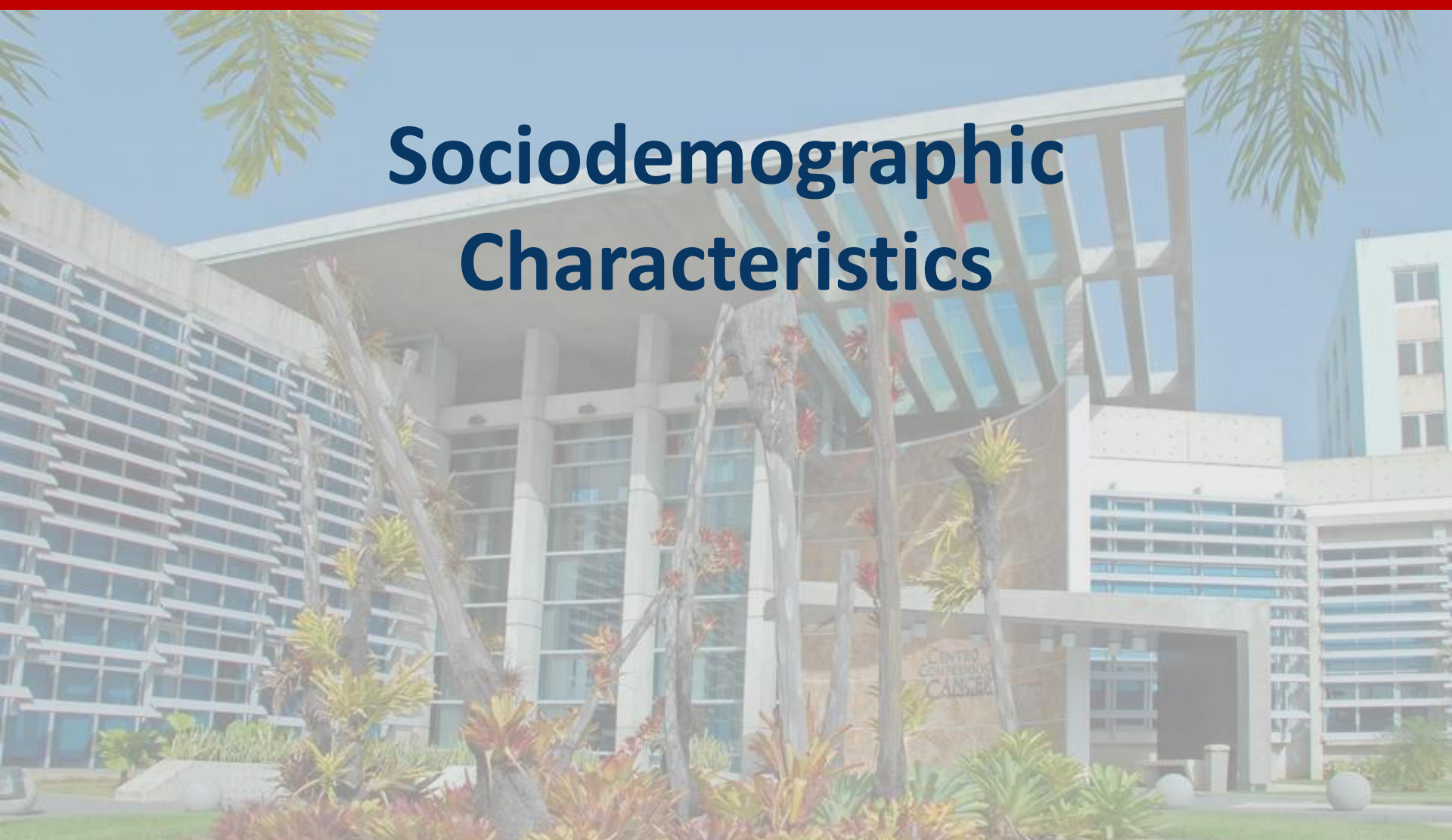


FIGURE 1: POPULATION PYRAMID FOR PUERTO RICO, CENSUS 2000

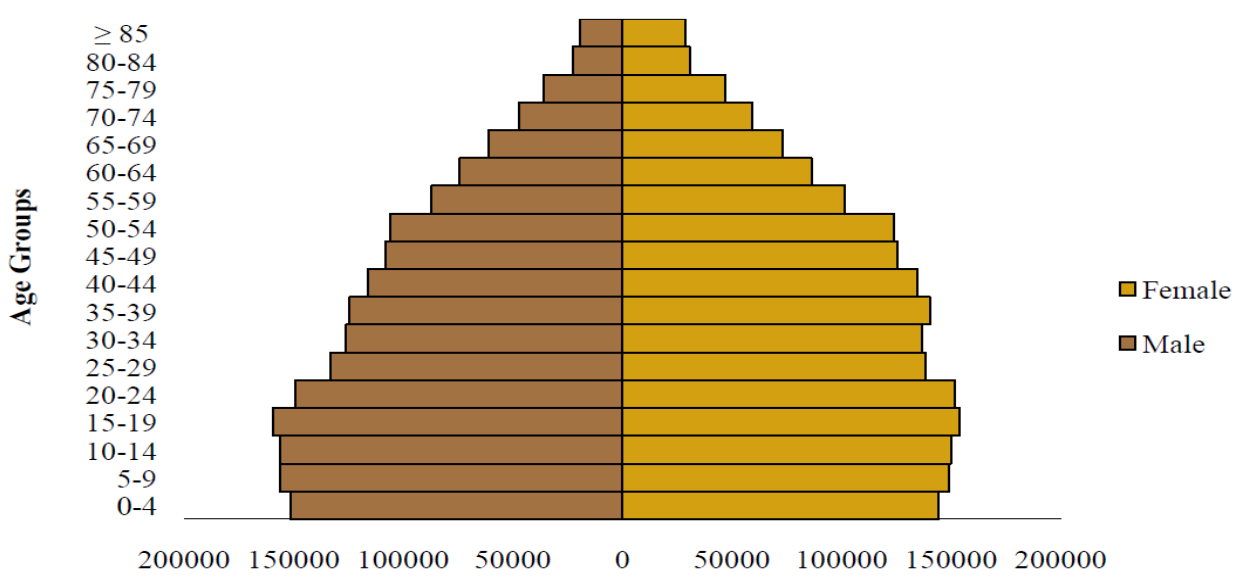
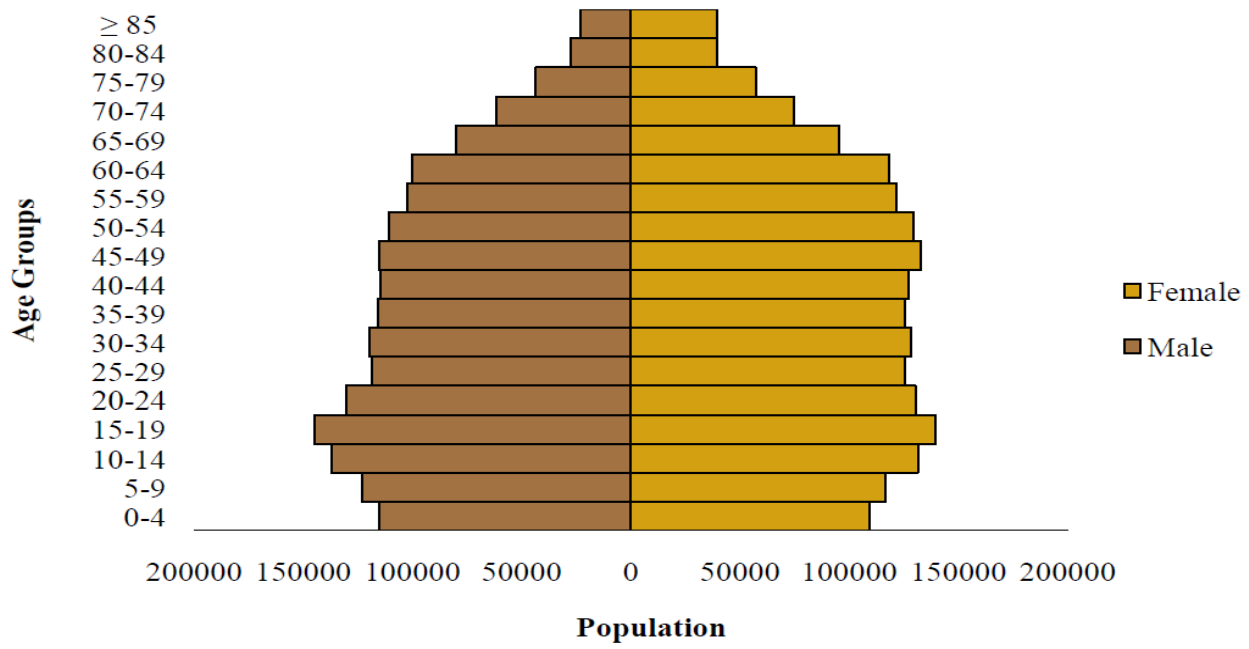
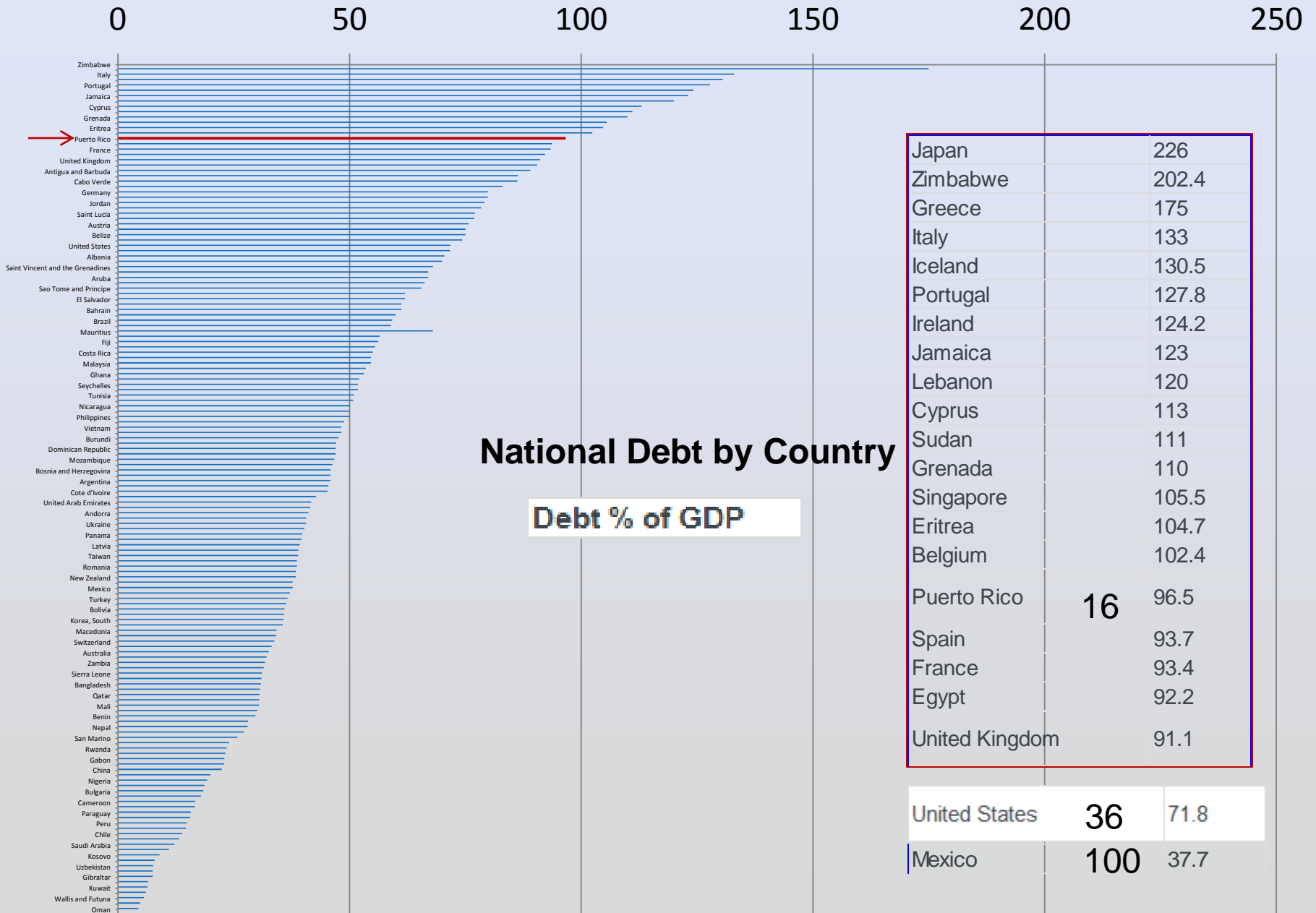
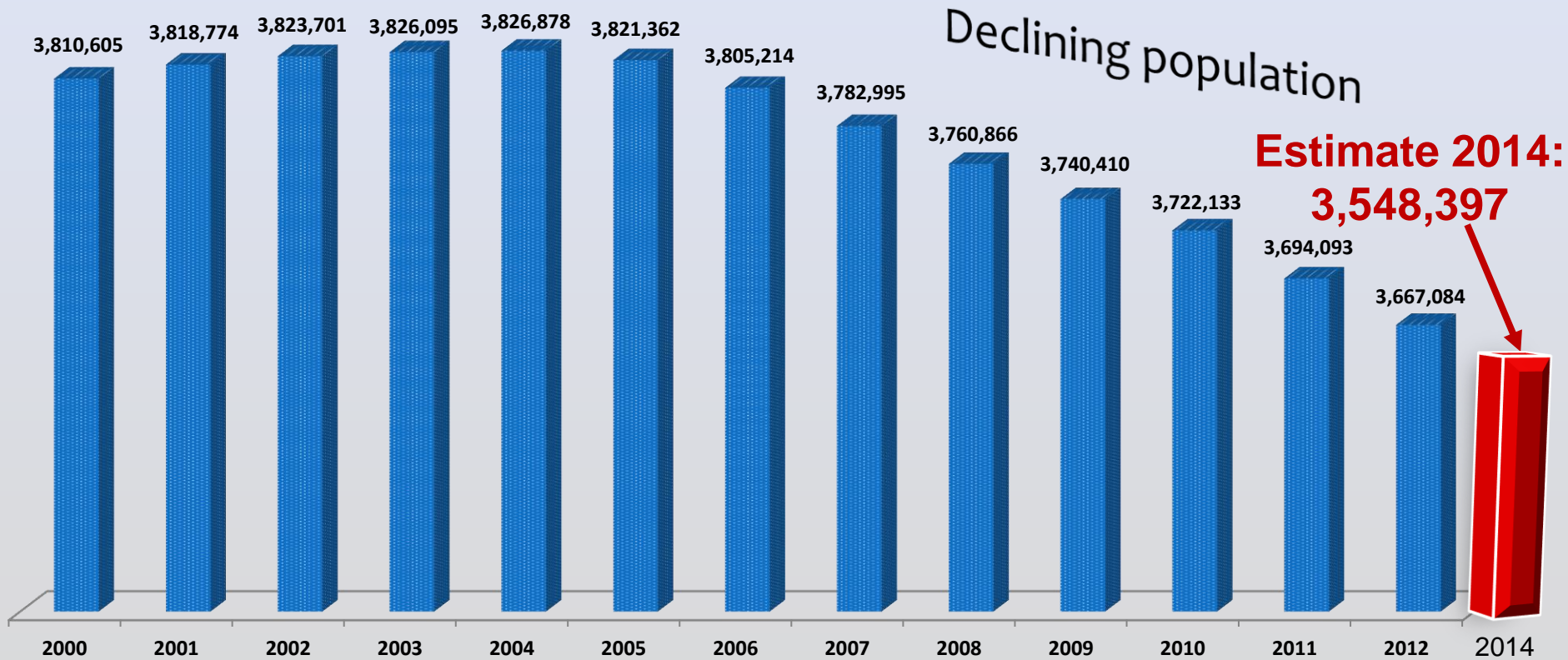


FIGURE 2: POPULATION PYRAMID FOR PUERTO RICO, CENSUS 2010





U.S. Census Bureau Population Estimates Puerto Rico 2000-2012



**Metropolitan Area
Population
1,143,202
(29%)**



**42% of the population (n = 1,662,787)
resides in 11 counties**

Map of Puerto Rico by municipalities (n = 78)

Sociodemographic Characteristics

- **Native and Language**
 - 97% Puerto Rican born
 - 92% born in municipality of residence
 - Most foreign born migrants from Dominican Republic
 - 95% speak Spanish at home
 - 85% do not speak English “very well”

SOCIODEMOGRAPHIC CHARACTERISTICS

- ***Median Age (yr.)***

| | |
|---------------|-------------|
| – Puerto Rico | 38.1 |
| – U.S. | 37 |

- ***Income:*** median annual income

| | |
|---------------|-----------------|
| – Puerto Rico | \$19,686 |
| – U.S. | \$51,371 |

SOCIODEMOGRAPHIC CHARACTERISTICS

- ***Below Poverty Level:***

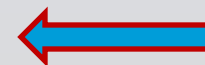
- **Puerto Rico** 45%
- U.S. 16%

- ***Educational Level (\geq HS)***

- **Puerto Rico** 72%
- U.S. 86%

- ***Health Insurance (Uninsured)***

- **Puerto Rico** 7.6%
- U.S. 16%



CANCER RISK FACTORS IN PUERTO RICO



Cancer Risk Factors, 1996-2012, PRBRFSS

| Risk Factor | Puerto Rico 1996 | Puerto Rico 2010 | Puerto Rico 2012 |
|---------------------------------|---------------------|--------------------------|---------------------|
| Diabetes | 10.7% (2004) | 12.8%* | - |
| Overweigh/Obesity | 54% | 65.6% | 66.2% |
| Physical Activity last month | 51.9% | 57.7%\$ | 57.6%\$ |
| Fruit & Vegetables 5+/day | 20.3% | 17.7%\$ (2009) | - |

*** Highest/\$Lowest in the U.S.**

Cancer Screening Behaviors, in U.S. and Puerto Rico, BRFSS 2012

| Screening Test | U.S. (Md%) | Puerto Rico |
|--------------------|---------------|--------------|
| Pap Smear | 78% | 71% |
| Mammography | | |
| 40+ years | 74% | 77.5% |
| 50+ years | 77% | 79.3% |
| Colonoscopy | 67.3% | 47.2% |
| FOBT | 14.2% | 26.4% |
| PSA (Men 40+) | 45.2% | 76.8% |

Trends in Cancer Screening Behaviors, 1996-2012, PRBRFSS




| Screening Test | Puerto Rico 1996 | Puerto Rico 2010 | Puerto Rico 2012 |
|----------------|------------------|------------------|------------------|
| Pap Smear | 70% | 75% | 71% |
| Mammography | | | |
| 40+ years | 60% | 77% | 77.5% |
| 50+ years | 61% | 80% | 79.3% |
| Colonoscopy | 28% ¹ | 43% | 47.2% |
| FOBT | 12% ¹ | 10% | 26.4% |
| PSA | 65% ² | 63% | 76.8% |

Centers for Disease Control and Prevention (CDC). *Behavioral Risk Factor Surveillance System Survey Data*. Atlanta, Georgia: U.S. Department of Health and Human Services, Centers for Disease Control and Prevention, 2012.

¹ 1999; ² 2002

BARRIERS FOR COLORECTAL CANCER SCREENING

- Insurance Type
 - Private 57%
 - Government Plan 35%
 - Uninsured 15%
- Lack of knowledge about the disease
- Perception of risk
- knowledge about colorectal cancer screening and screening test options
- Fear of test and results
- Embarrassment
- Transportation
- Lack of time
- Procrastination
- Cost of test
- Lack of physician recommendation
 - **49%** received recommendation (HINTS 2011)
- Poor patient-provider communication



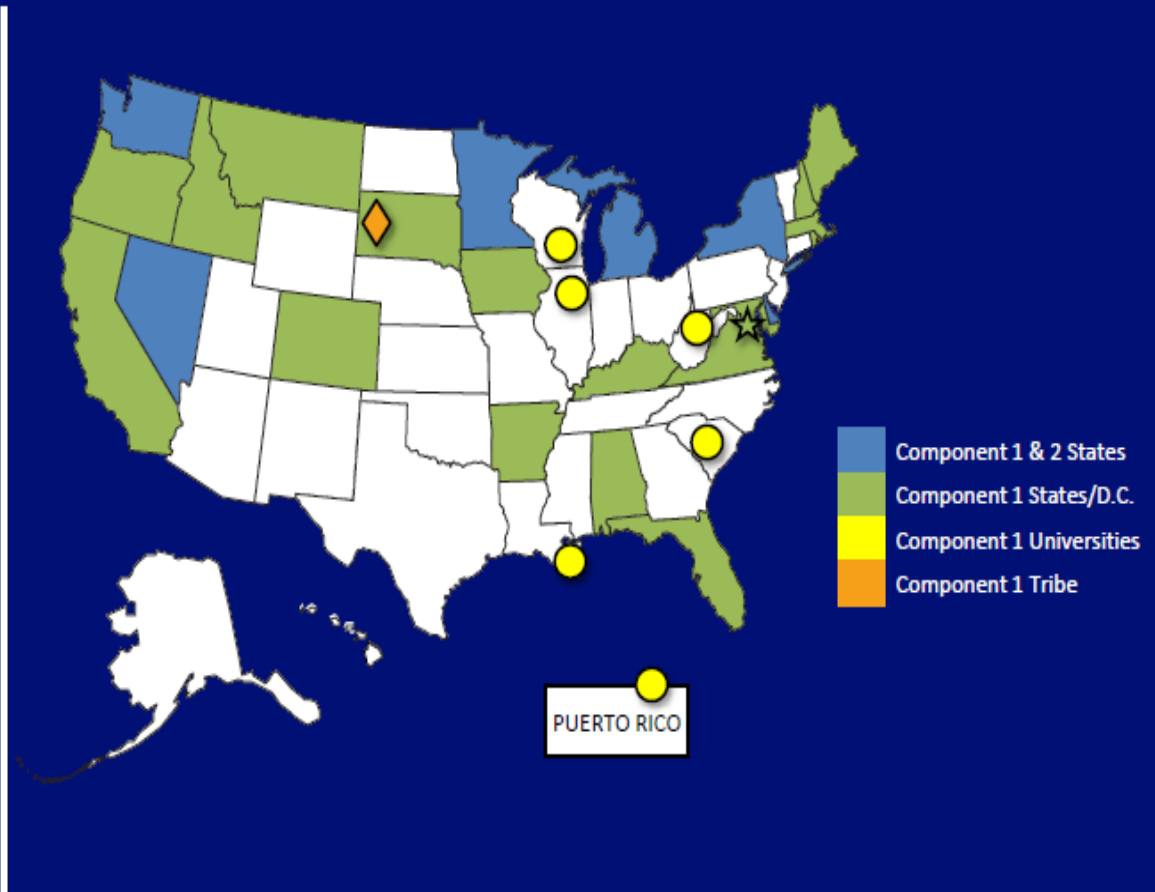
***Centers for Disease Control and
Prevention
CDC-DP15-1502
Organized Approaches to
Colorectal Cancer Screening***

Purpose of 1502

- Increase colorectal cancer (CRC) screening rates through:
 - *provider reminder systems*
 - *client reminder systems*
 - *provider assessment and feedback*
 - *reduction of structural barriers*
- Within a partner health system(s)
- Among an applicant-defined target population of persons 50-75 years

DP15-1502 CRCCP Grantees

- 24 State Grantees
 - 18 Previous
 - 6 New
- 6 New Universities
- 1 New Tribe



DP15-1502 CRCCP Grantees

- Alabama State Department of Health
- Arkansas Department of Health
- California Department of Public Health
- Colorado Department of Public Health and Environment
- Delaware Department of Health and Social Services
- District of Columbia Department of Health
- Florida Department of Health
- Great Plains Tribal Chairmen's Health Board
- Idaho Department of Health and Welfare
- Iowa Department of Public Health
- Kentucky Cabinet for Health and Family Services
- Louisiana State University Health Sciences Center
- Maine Department of Health and Human Services
- Mary Hitchcock Memorial Hospital (NH)
- Maryland Department of Health and Mental Hygiene
- Massachusetts Department of Public Health
- Michigan Department of Community Health
- Minnesota Department of Health
- Montana Department of Public Health and Human Services
- Nevada Division of Public and Behavioral Health
- New York State Department of Health
- Oregon Health Authority
- Rhode Island Department of Health
- South Dakota Department of Health
- University of Chicago
- University of Puerto Rico
- University of South Carolina
- University of Wisconsin
- Virginia Department of Health
- Washington State Department of Health
- West Virginia University

Note: 31 Health Systems Change (Component 1) Grantees; 6 Screening Provision (Component 2) Grantees

Priority
Evidence-
based
Strategies

- **Provider Assessment and Feedback**
- **Provider Reminder Systems**
- **Client Reminder Systems**
- **Reducing Structural Barriers**

Community Guide Evidence-based Recommendations for Cancer Screening Interventions (as of April 13, 2015)

| Client-Directed Interventions | Breast Cancer | Cervical Cancer | Colorectal Cancer |
|---|--|-----------------------|-----------------------|
| <i>Increasing Community Demand</i> | | | |
| Client Reminders | Recommended | Recommended | Recommended |
| Client Incentives | Insufficient Evidence | Insufficient Evidence | Insufficient Evidence |
| Small Media | Recommended | Recommended | Recommended |
| Mass Media | Insufficient Evidence | Insufficient Evidence | Insufficient Evidence |
| Group Education | Recommended | Insufficient Evidence | Insufficient Evidence |
| One-on-One Education | Recommended | Recommended | Recommended |
| <i>Enhancing Community Access</i> | | | |
| Reducing Structural Barriers | Recommended | Insufficient Evidence | Recommended |
| Reducing Out-of-Pocket Costs | Recommended | Insufficient Evidence | Insufficient Evidence |
| Provider-Directed Interventions | Breast, Cervical & Colorectal cancers | | |
| Provider Assessment & Feedback | Recommended | | |
| Provider Incentives | Insufficient evidence | | |
| Provider Reminders | Recommended | | |
| Multicomponent interventions | Recommended | | |

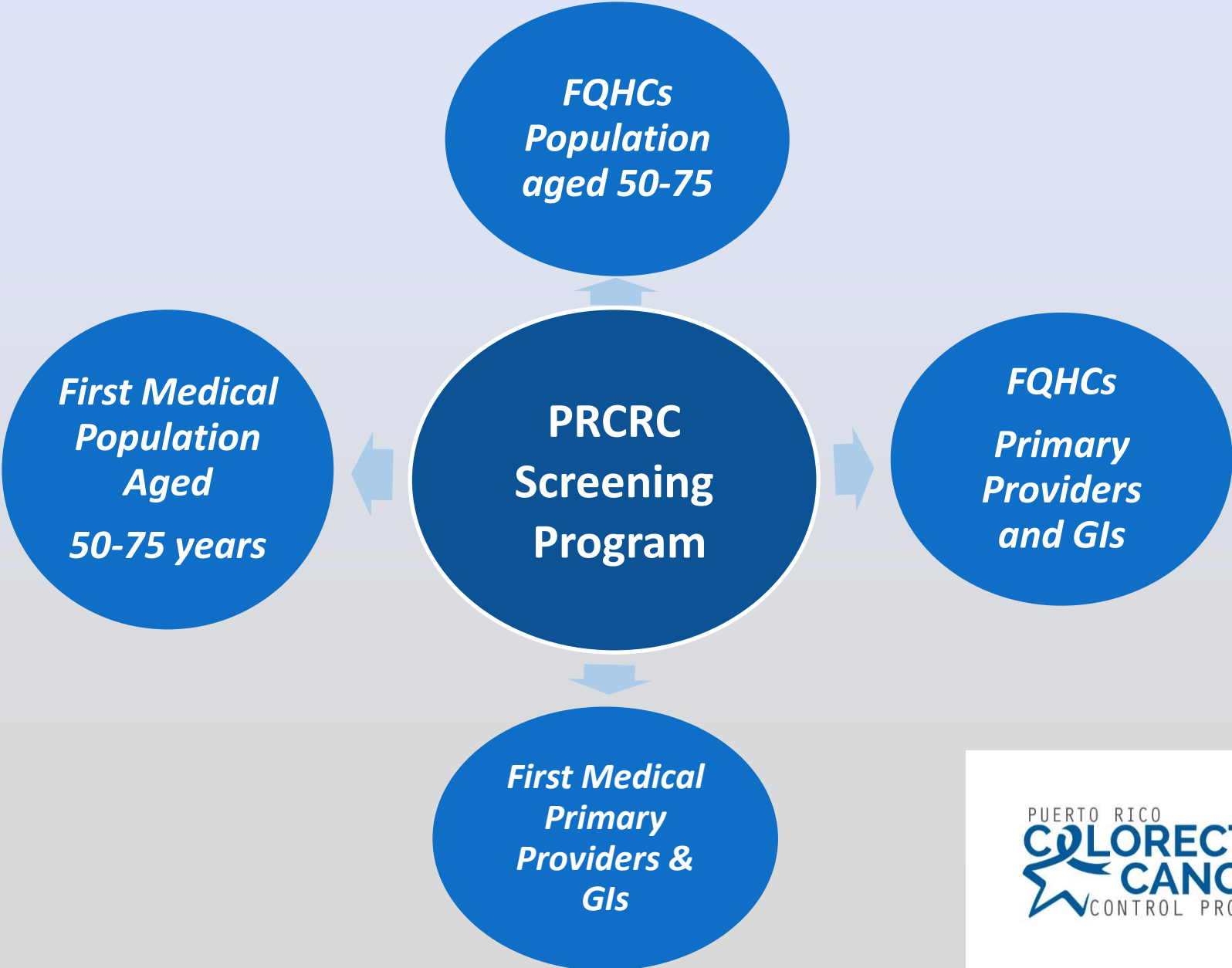
*The Community Guide --
<http://www.thecommunityguide.org/cancer/index.html>

*ACA authorizes The Community Preventive Services Task Force (2010)
<http://www.thecommunityguide.org/library/ARC2011/>

*Note: Small media is a supporting CRCCP activity

**Note: Community Guide recommendations are based on FOBT. There is insufficient evidence for colonoscopy.

PRCRC Screening Program Priority Populations



PRCRC Program Target Populations

Partner Health Systems

- PRPHA (FQHCs)
- First Medical Health, Inc.

Population

- Men and Women
- Age 50-75 Years

Healthcare Providers

- Primary Providers
- Gastroenterologists

PRCRC Program Strategies by Target Population

Population aged 50-75 years

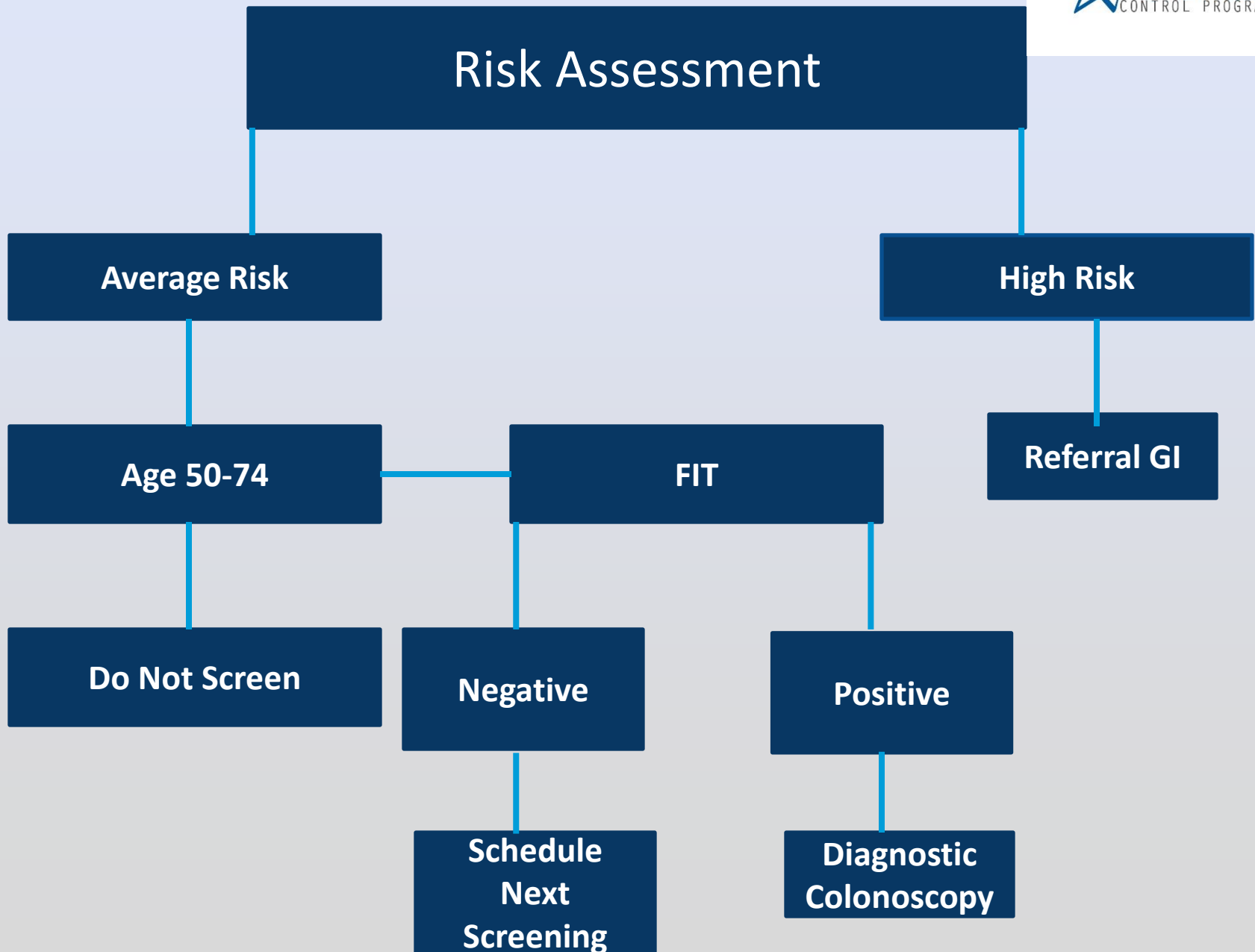
- Small Media (Posters, brochures, banners, flyers)
- Webpage
- Social Media (Facebook & LinkedIn)

Providers

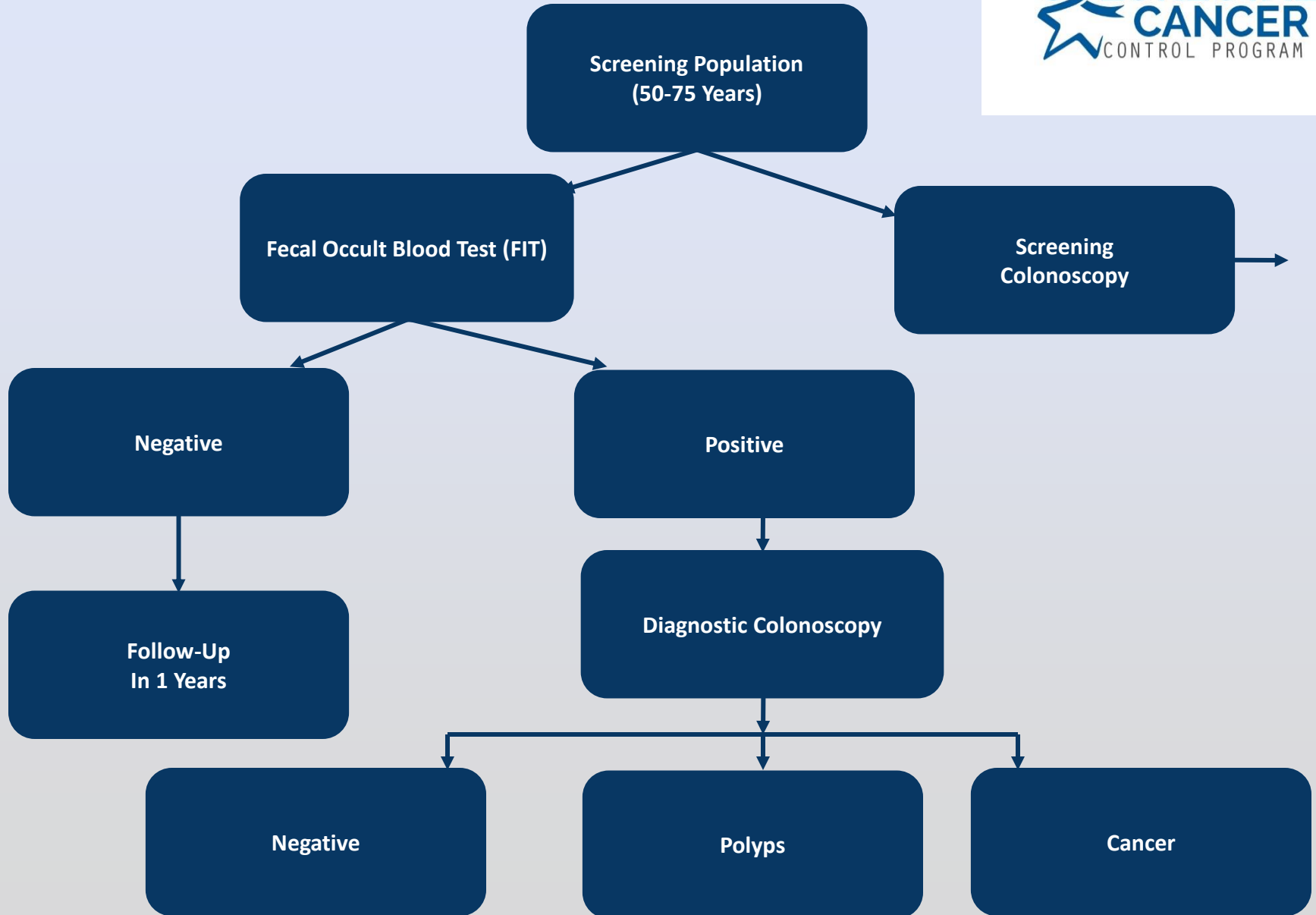
- Conferences/Symposium
- Webinars
- E-Learning courses
- Educational Materials

System Interventions

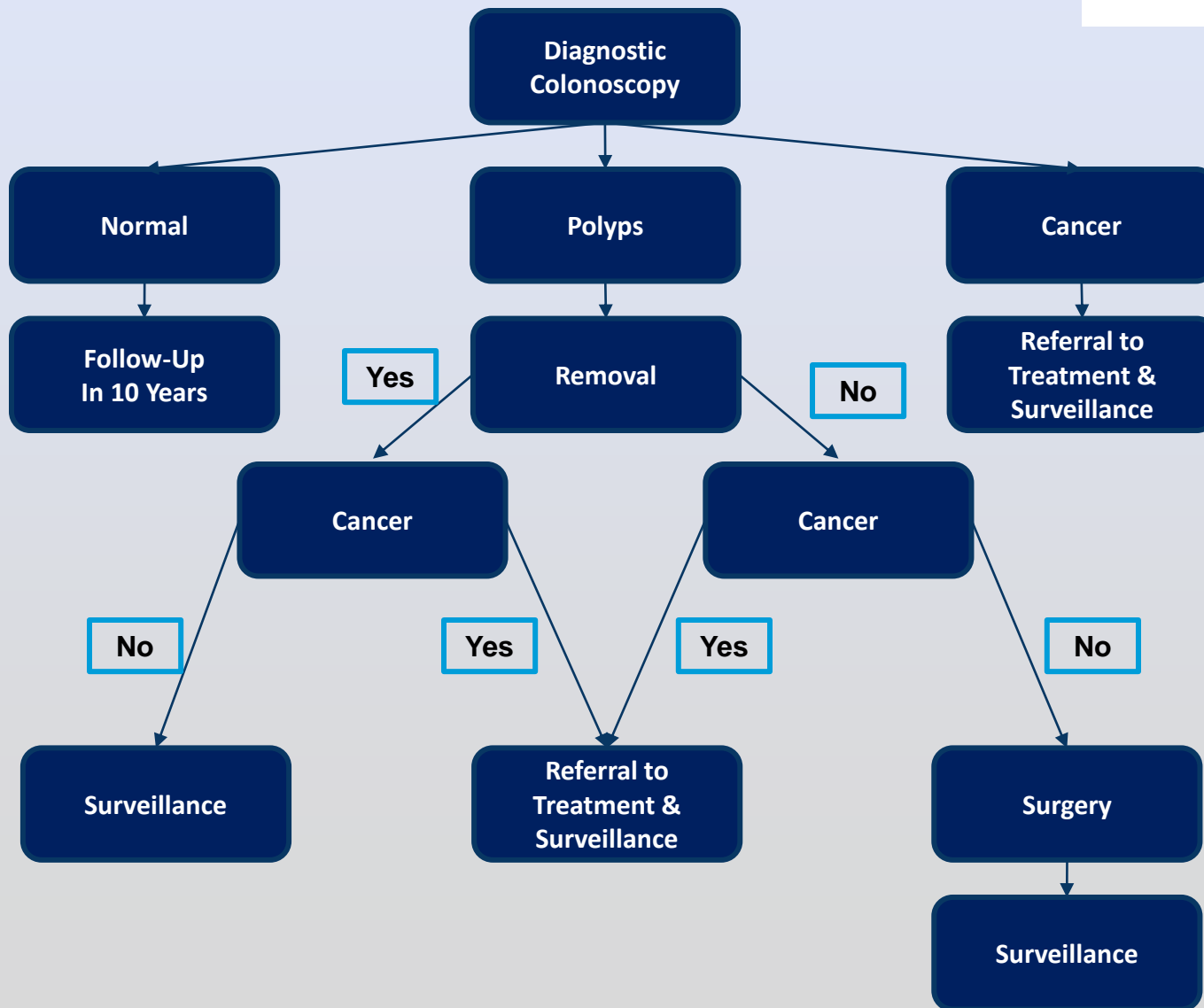
- Physician Reminder/Recall System
- Patient Reminder
- Screening Process (FIT Kits, Standing Orders)
- Small Media (Posters, brochures, banners, flyers)
- Navigation Services
- CRC Screening and Follow-up Policies



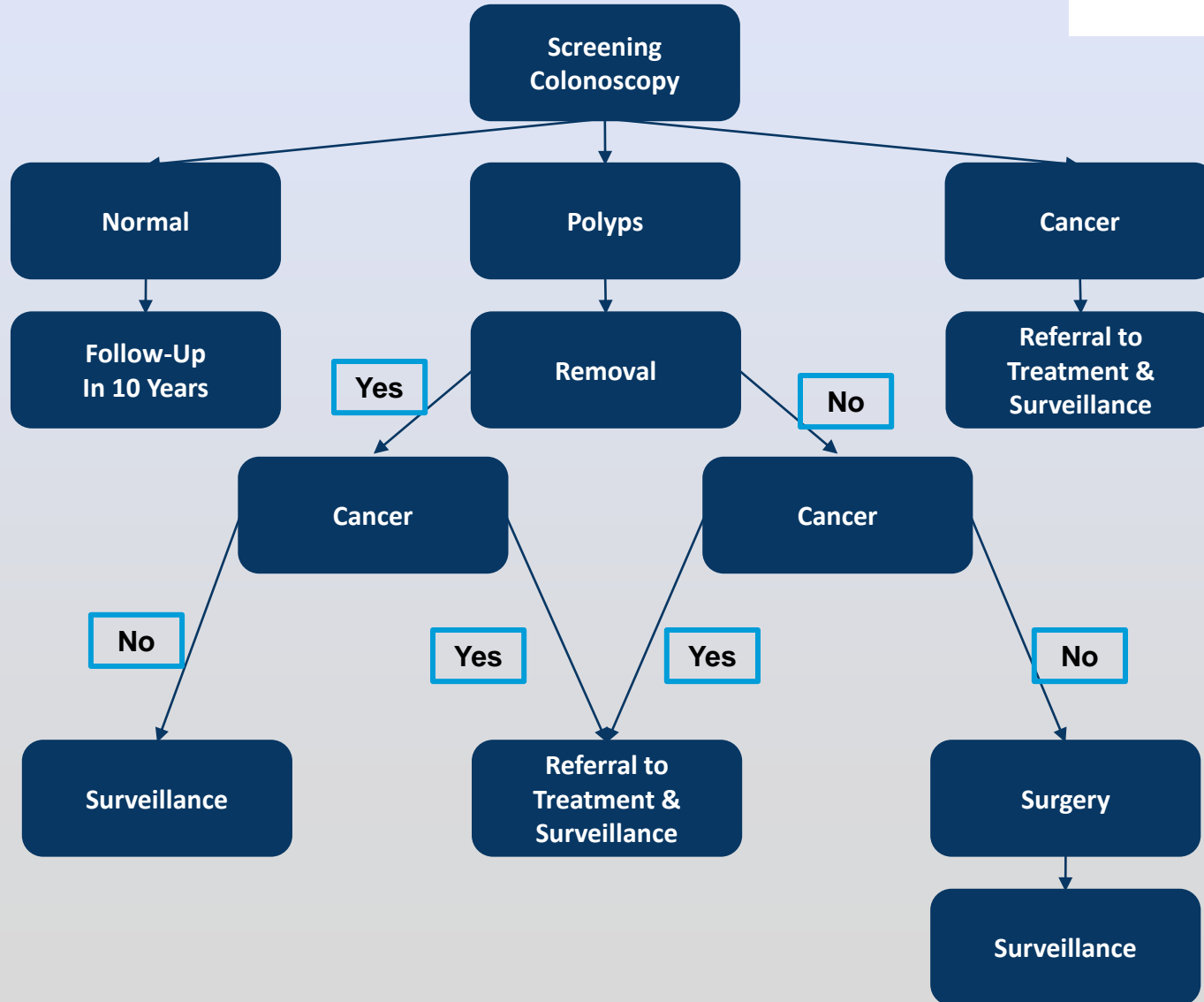
CRC Screening with FIT Flowchart



Diagnostic Colonoscopy Clinical Flowchart



Screening Colonoscopy Clinical Flowchart



PUERTO RICO
**COLORECTAL
CANCER**
CONTROL PROGRAM

Thank you







PESCADORES

UNIDOS

BOQUERON

