Colorectal Cancer Screening in Puerto Rico: 80% Screening by 2020

Memoriam Dr. Carlos Rubio Amador

San Juan, Puerto Rico. September 12, 2020

Learning Objectives

- To review the **epidemiology** of colorectal cancer in Puerto Rico
- To understand **screening methods and utilization** for colorectal cancer including the fecal immunological testing
- To discuss proposed implementation of a **national CRC screening program** using FIT in Puerto Rico

PROCLAMA DE LA GOBERNADORA

Boletín Administrativo Núm.: P-2020- 048

Mes de la Concienciación del Cáncer Colorrectal

POR CUANTO: El Gobierno de Puerto Rico conmemora el "Mes de la Concienciación del Cáncer Colorrectal en afirmación de la política pública que fomenta las iniciativas públicas y privadas dirigidas a salvaguardar la salud del pueblo puertorriqueño;

POR CUANTO: El cáncer colorrectal es la segunda causa de muerte por cáncer en los Estados Unidos y en Puerto Rico, enfermedad para la cual aún no existe cura. Sin embargo, el cáncer colorrectal se puede prevenir mediante las pruebas de cernimiento y en el 90% de los casos es curable si es detectado a tiempo.

POR CUANTO: La meta nacional establecida por la Mesa Redonda Nacional de Cáncer Colorrectal (NCCRT, por sus siglas en inglés) es lograr que el 80% de la población de 50 años o más se hagan las pruebas de cernimiento. Si la mayoría de las personas de 50 años o más se hicieran las pruebas de cernimiento, la muerte por esta enfermedad podría disminuir hasta un 70% en Puerto Rico;

POR TANTO: YO, WANDA VÁZQUEZ GARCED, Gobernadora de Puerto Rico, en virtud de la autoridad que me confieren la Constitución y las Leyes de Puerto Rico, proclamo marzo de 2020, **MES DE LA CONCIENCIACIÓN DEL CÁNCER COLORRECTAL.** Al así hacerlo, exhorto al pueblo de Puerto Rico, a las entidades públicas y privadas e igualmente, a los medios de comunicación, a difundir este importante mensaje de prevención para beneficio del pueblo puertorriqueño.

EN TESTIMONIO DE LO CUAL, firmo la presente y hago estampar en ella el Gran Sello Gobierno de Puerto Rico, en la Ciudad de San Juan, hoy, 6 de febrero de 2020.

Promulgada de acuerdo con la Ley, hoy, 6 de febrero de 2020.

ELMER L. ROMÁN GONZÁLEZ
Secretario de Estado

WANDA VÁZQUEZ GARCED

USA SITUATION

~44 MILLION

UNSCREENED PATIENTS

Despite national screening rates slowly increasing during the past 15 years, ~44 million adults remain unscreened[2-9*]

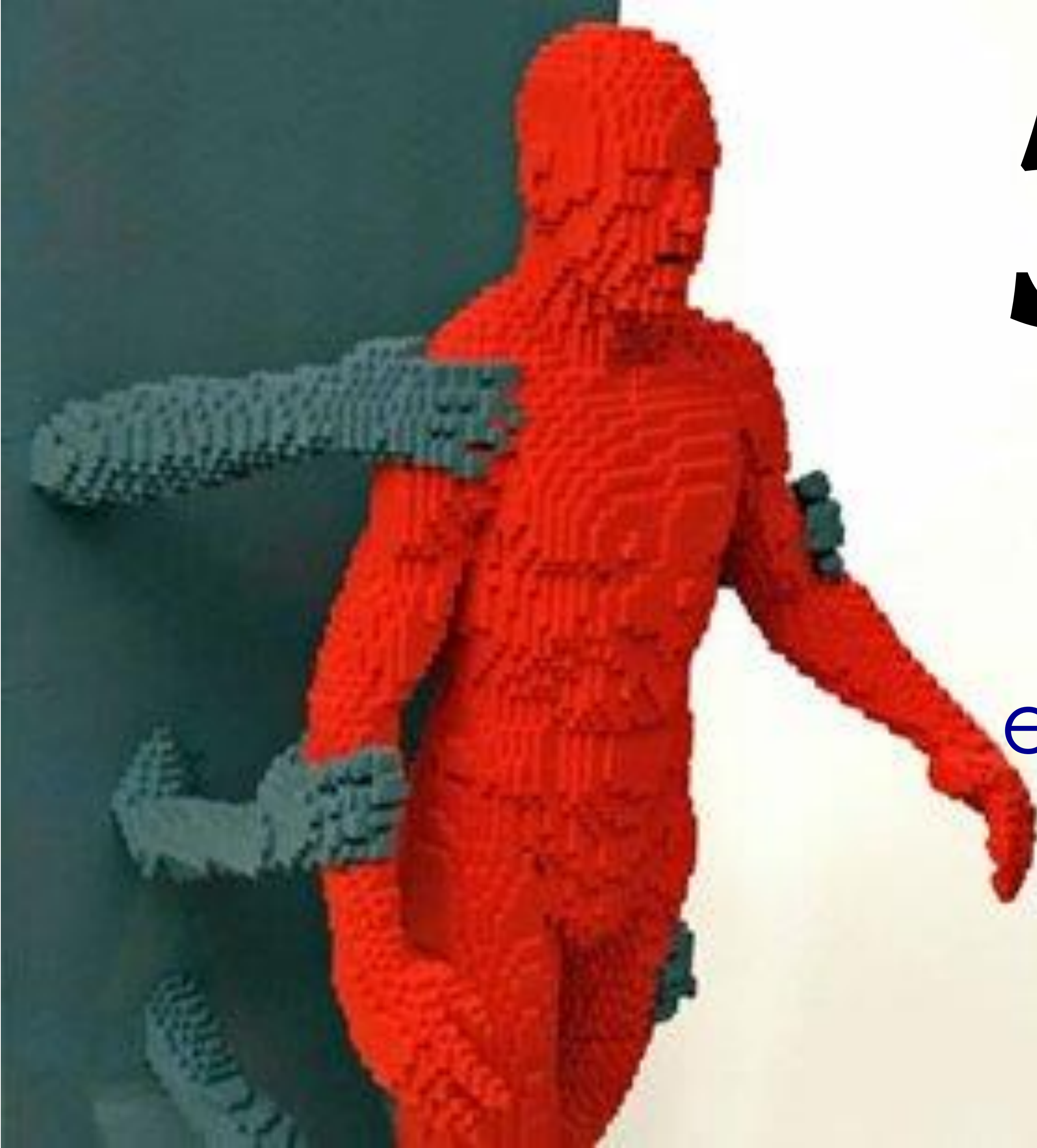
>51,000

DEATHS EACH YEAR

More than 51,000 deaths are estimated per year due to CRC, which is more than for breast or prostate cancer[10]

What is the Situation in PR?

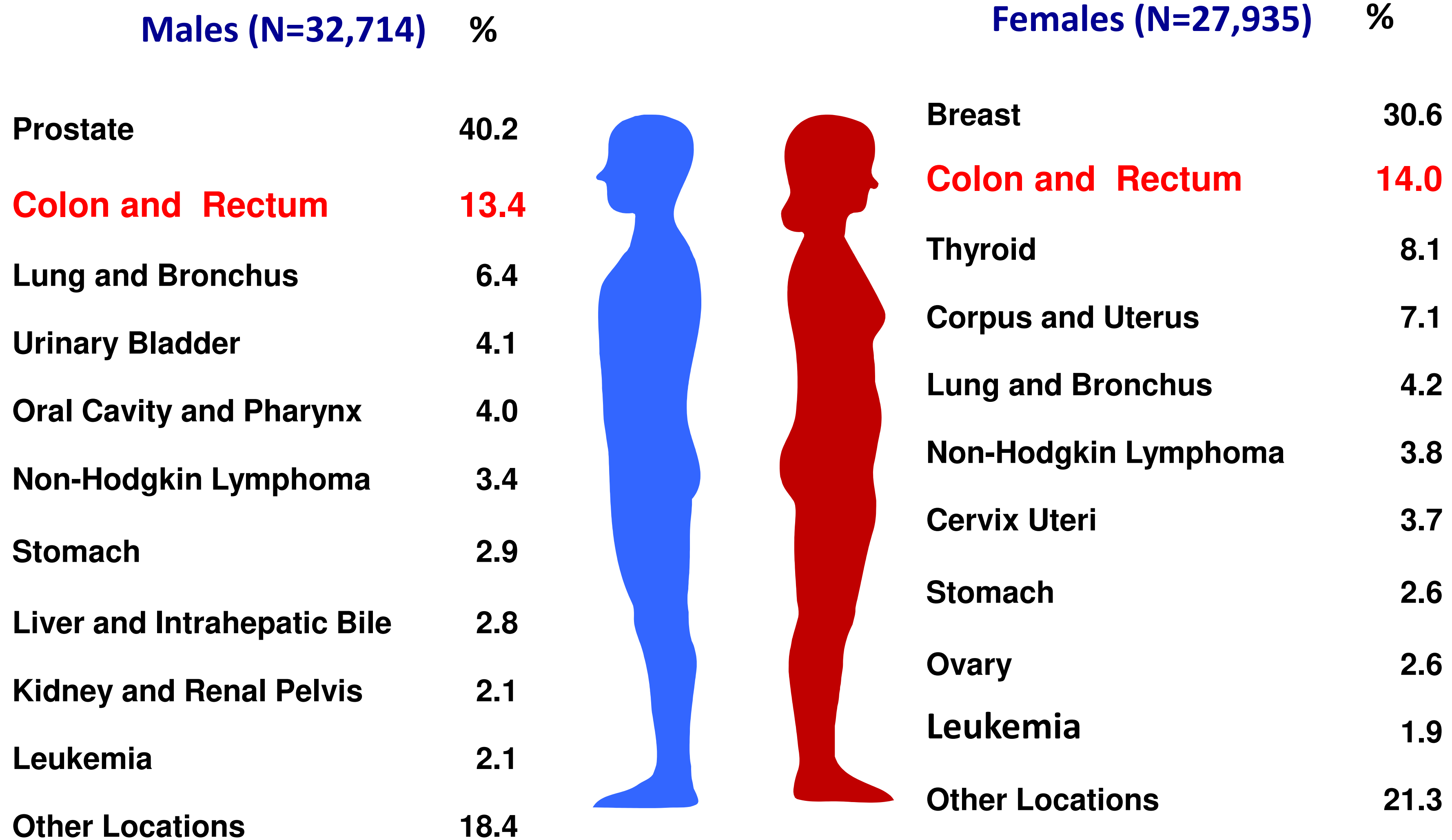
1 ***Out of each 20 people will be diagnosed with Colorectal Cancer in Puerto Rico***



5

New Colorectal Cancer Diagnosis every day in Puerto Rico

Top Ten Incidence Cancer Sites, 2005-2009*



Males (N=32,714)	%
Prostate	40.2
Colon and Rectum	13.4
Lung and Bronchus	6.4
Urinary Bladder	4.1
Oral Cavity and Pharynx	4.0
Non-Hodgkin Lymphoma	3.4
Stomach	2.9
Liver and Intrahepatic Bile	2.8
Kidney and Renal Pelvis	2.1
Leukemia	2.1
Other Locations	18.4

Females (N=27,935)	%
Breast	30.6
Colon and Rectum	14.0
Thyroid	8.1
Corpus and Uterus	7.1
Lung and Bronchus	4.2
Non-Hodgkin Lymphoma	3.8
Cervix Uteri	3.7
Stomach	2.6
Ovary	2.6
Leukemia	1.9
Other Locations	21.3

*Statistics are from an average of the years 2005-2009/statistics that presents the year 2009 are preliminary.
Cases with age unknown were included/ Statistics were generated from malignant cases only

Rates are per 100,000 and age-adjusted to the 2000 PR population

Data Source: Puerto Rico Central Cancer Registry, Preliminary Puerto Rico Cancer Incidence File (December, 2011)

Periodo 2008-2012

1st cause of cancer death en PR (3,436)

- Lung (3,052)
- Prostate (2,577)
- Breast (2,122)

¿Quién Esta a Riesgo?

¡¡Todos!!

coalición de cáncer colorrectal PUERTO RICO

Factores de Riesgo

- Edad mayor de 50 años
- Historial familiar de pólipos y/o cáncer de colon
- Fumar cigarrillos; beber alcohol en exceso
- Dieta alta en grasas saturadas
- Obesidad- estilos de vida sedentaria
- Enfermedad de Crohn y Colitis Ulcerosa

coalición de cáncer colorrectal PUERTO RICO

¿Cómo puedes reducir el riesgo de desarrollar cáncer colorrectal?

- **Llevando a cabo estilos de vida saludables tales como:**

✓Alimentación balanceada y saludable

✓Actividad física

✓Disminución del uso de alcohol

✓Evitar el cigarrillo

coalición de cáncer colorrectal PUERTO RICO

Factores Alimentarios para Prevenir el Cáncer Colorrectal

- Dieta alta en fibra
- Dieta baja en grasa
- Legumbres – antioxidantes
- Limitar el consumo carnes rojas y procesadas

coalición de cáncer colorrectal PUERTO RICO

¿Es posible identificar los signos y síntomas del cáncer colorrectal?

Desafortunadamente el cáncer colorrectal **no** presenta síntomas en etapas tempranas

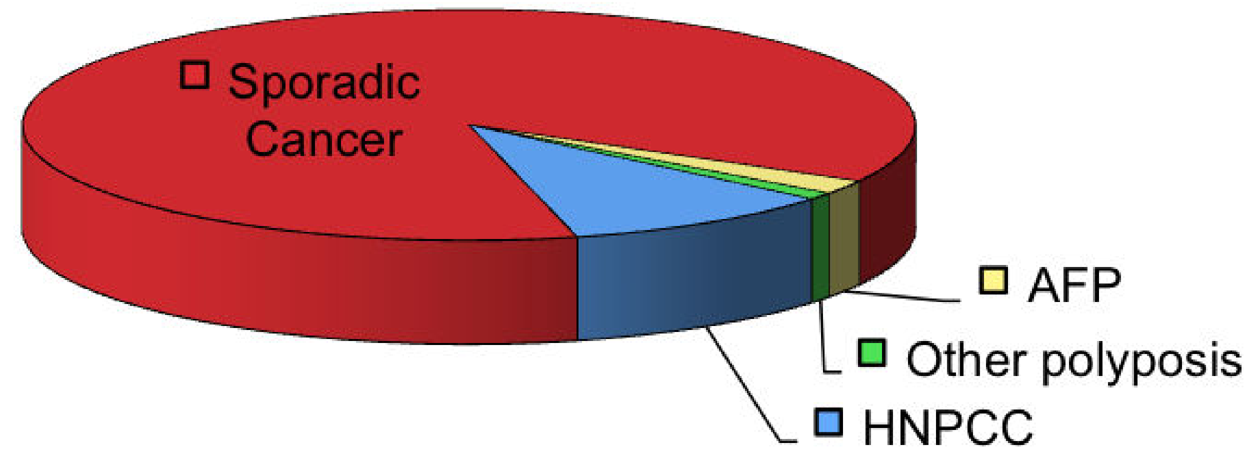
coalición de cáncer colorrectal PUERTO RICO

Cáncer Colorrectal: Posibles signos y síntomas

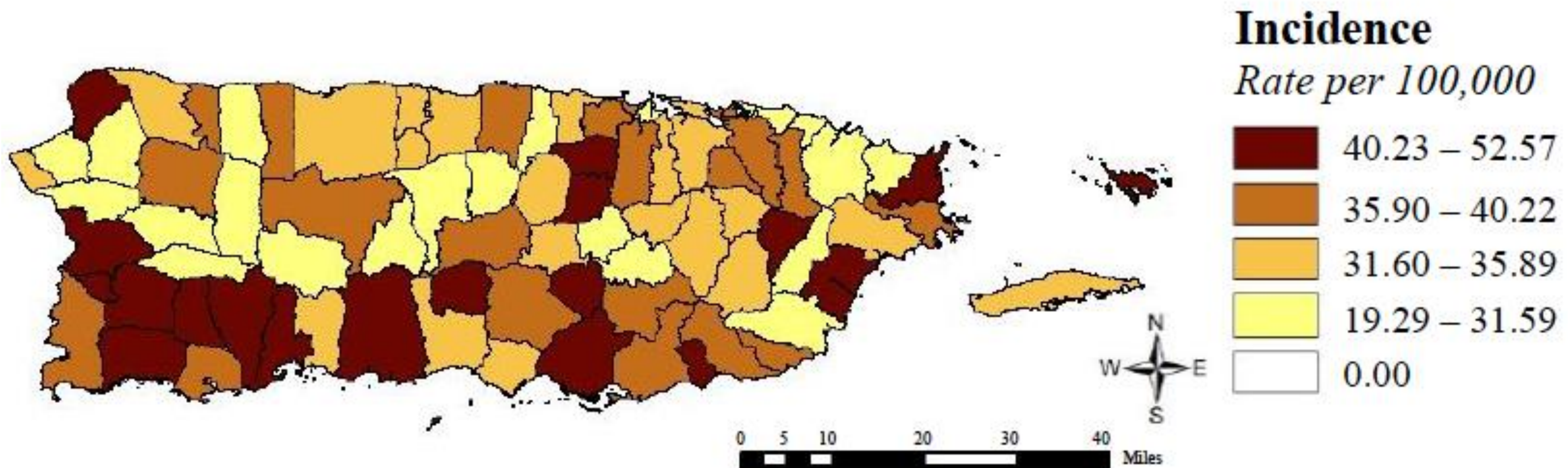
- Sangre en la excreta
- Dolor abdominal
- Cambio en los hábitos de ir al baño
- Perdida de peso
- Excretas oscuras y/o excretas finas
- Cansancio y anemia secundaria al sangrado
- Pólipos - En etapas tempranas son asintomáticos

coalición de cáncer colorrectal PUERTO RICO

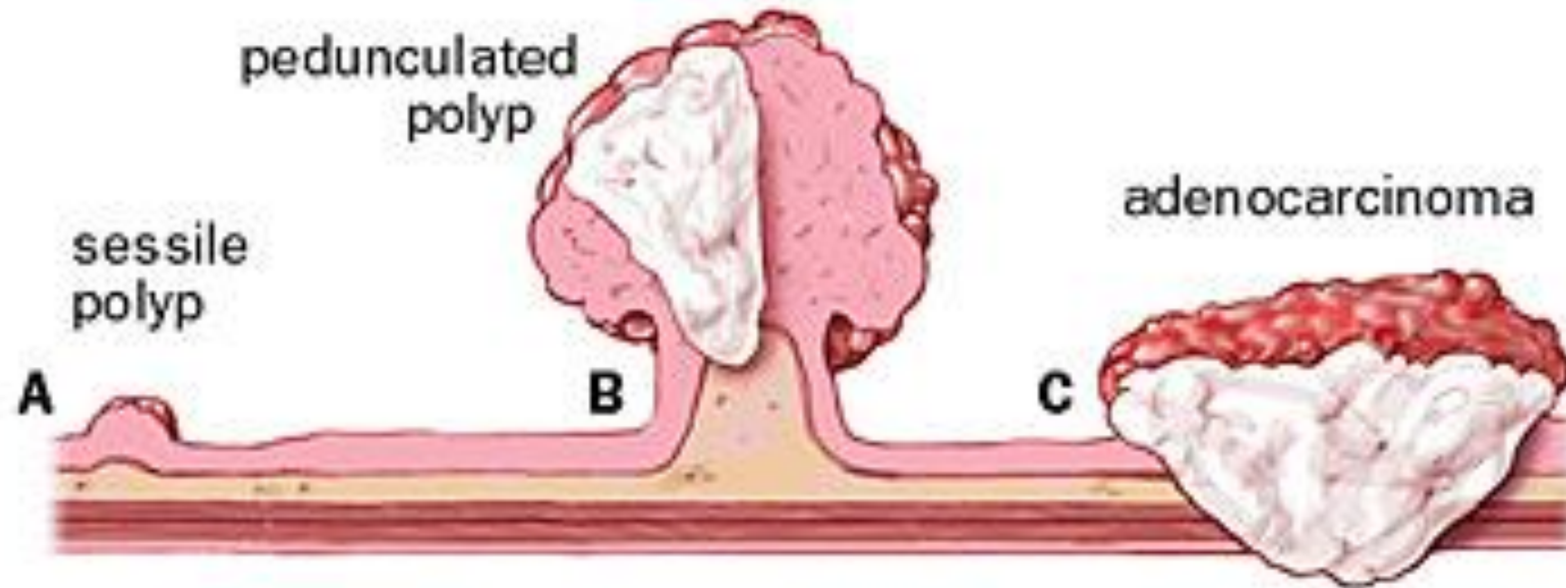
Etiology of Colorectal Cancer

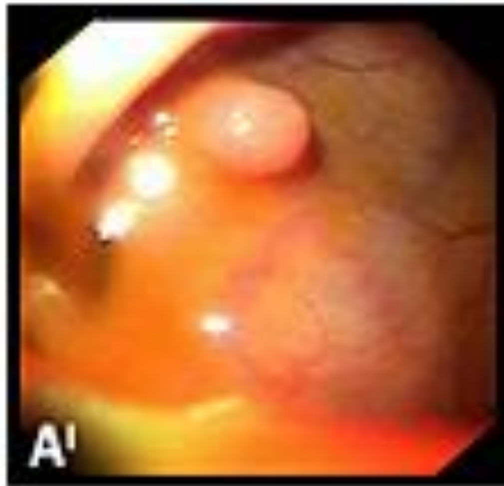


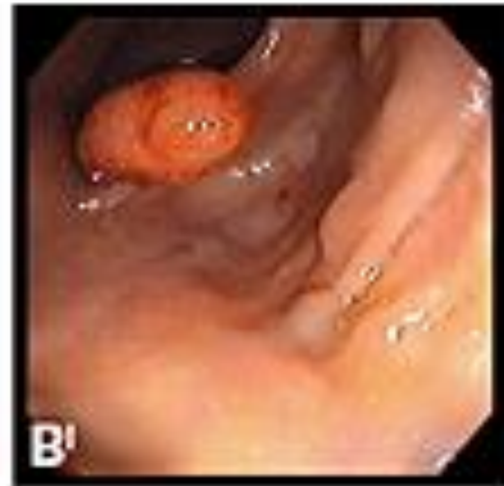
Age-Adjusted CRC Incidence Rates by Municipality

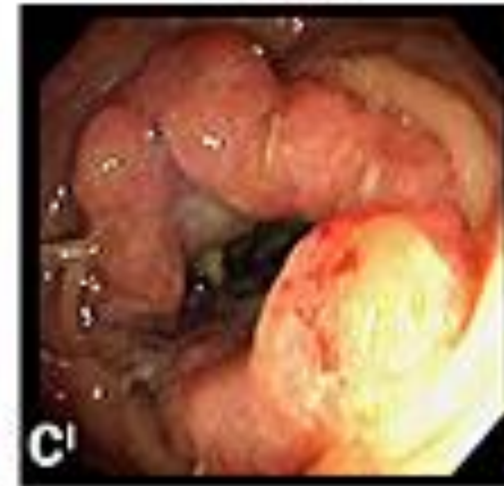


Colon Polyp to Cancer takes about 10-15 years



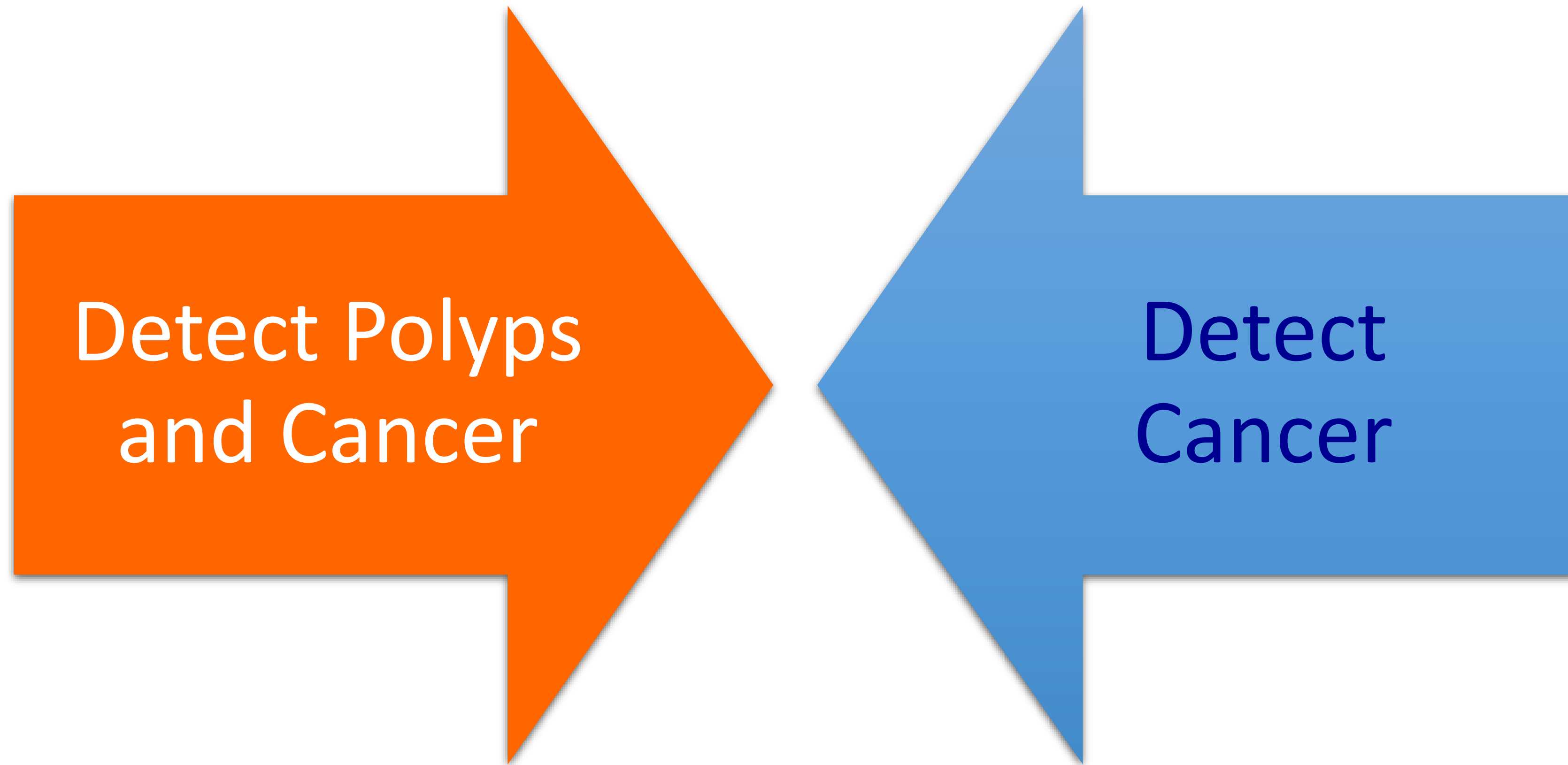






What are the Methods for Colorectal Cancer Screening?

Methods to Screen for Colorectal Cancer



Stool Based Tests

Types of Stool Testing

- Guiac-Based
  - Detects blood in stool through peroxidase activity in Heme/Hemoglobin
- Immunological
  - Detects Human globin, protein that constitutes Hemoglobin
- DNA
  - Detecting molecular markers associated to advanced neoplasia/cancer

Fecal Immunological Testing (FIT)

Benefits

- Use antibodies specific to human hemoglobin
- Specific to human blood
- Not affected by necessity of dietary and drug restrictions
- More specific to lower GI track source (globin digested by digestive enzymes)

Limitations

- No data from RCT (yet)
- Higher cost than gFOBT

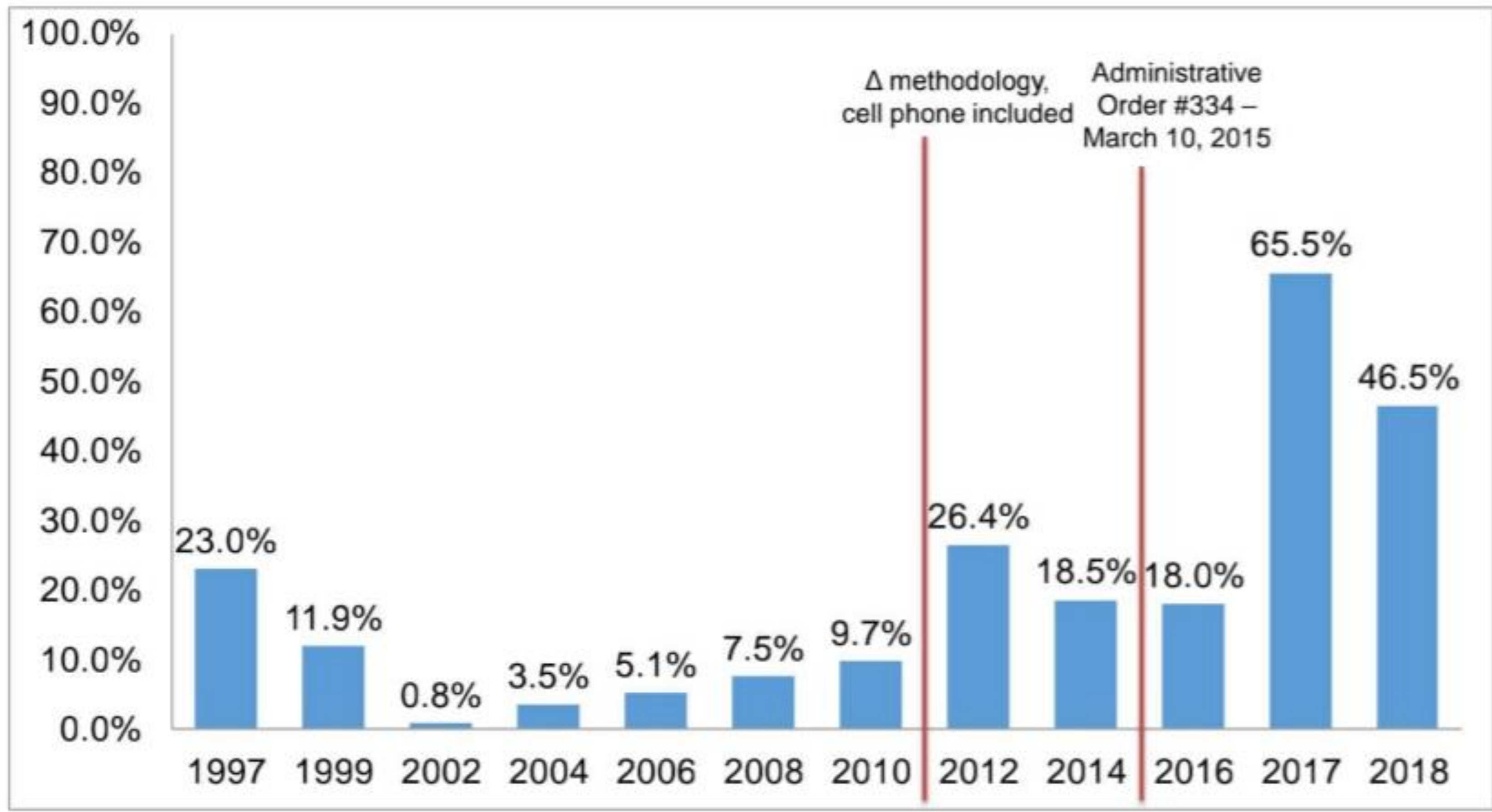
Fecal Immunological Testing (FIT)

Quantitative FIT provides greater sensitivity and higher rates of detection for CRC and advanced adenoma than gFOBT[1]

- Sensitivity (79%-88%) and specificity (84%-95%) for CRC (cutoff of 20 µg hemoglobin (Hb)/g feces)[2]
- **Improved quality control** with automated reading and the ability to adjust fecal hemoglobin cut-off concentrations to define a positive test[3]

[1]Rabeneck L, et al. Can J Gastroenterol 2012;26:131-47
[2]Lin JS et al. Screening for Colorectal Cancer: Agency for Healthcare Research and Quality; 2016. AHRQ publication 14-05203-EF-1
[3]Robertson D, et al. Gastroenterology 2017;152:1217–1237

Figure 1. Adults aged ≥ 50 years who have had a blood stool test within the past two years, Puerto Rico*, 1997-2018



*Data Source: BRFSS

1997-2014: Adults aged **50+ years** who have had a blood stool test **within the past two years**

2016: Adults aged **50-75 years** who have had a blood stool test **within the past year**

2017-18: Adults aged **40+ years** who have had a blood stool test **within the past years**

Why a Stool-Based DNA Assay for Colorectal Neoplasia?

- Colorectal cancer results from an accumulation of mutations in genes that control cell growth and normal cell death
- The DNA alterations are known
- Cells with mutated DNA continuously shed into the feces (DNA is stable in stool)
- The DNA changes identified are fundamental to the neoplastic process and serve as biomarkers of risk or disease

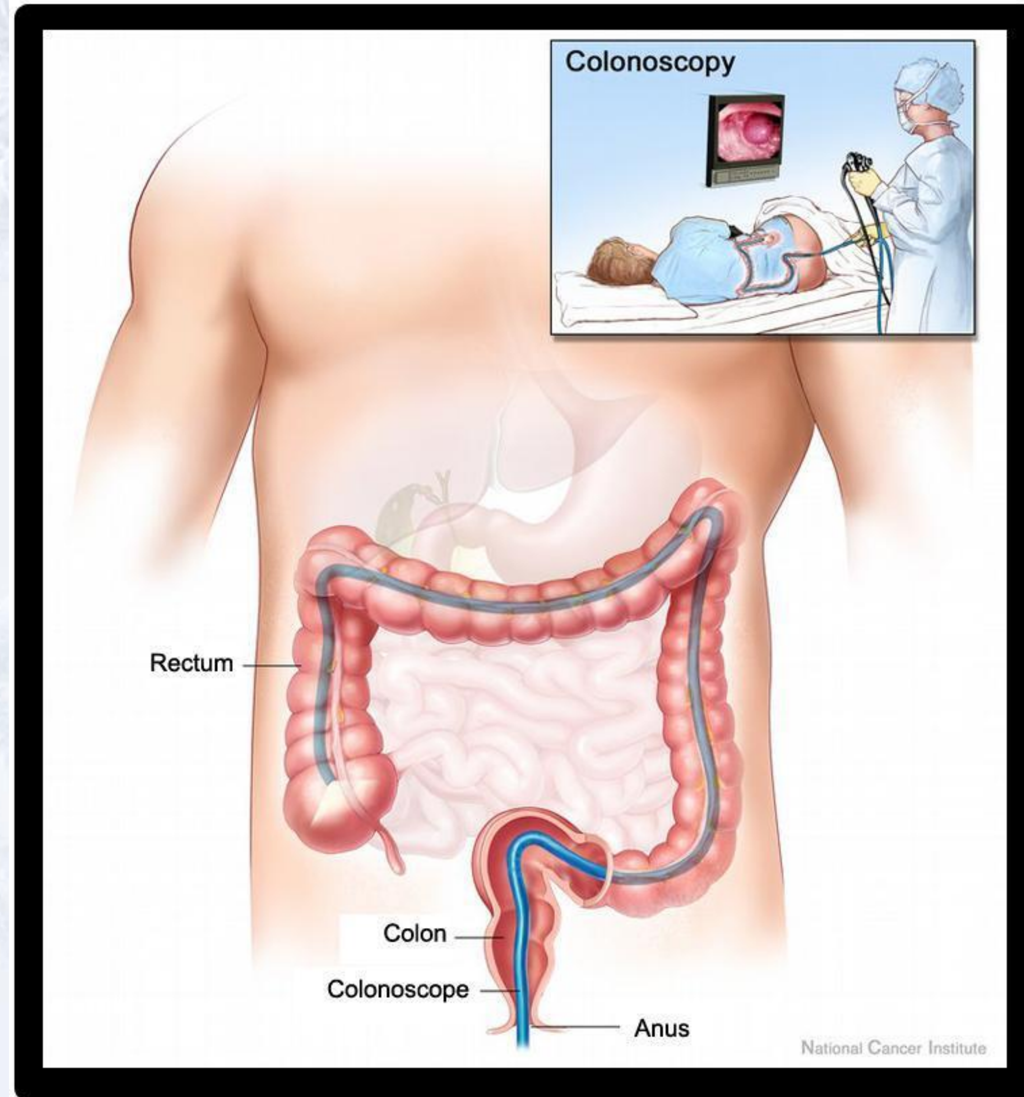
Summary Stool Testing

	gFOBT	HS-FOBT	FIT	sDNA
DiagnosticAccuracy	+	++	+++	++++
Dietary Restrictions	+	+	-	-
Annual Evaluation	+	+	+	3 yrs
Cost	+	++	++	++++++

Colonoscopy

Colorectal Cancer Screening

- Starting at age 50 yrs



Colonoscopy: Advantages

- Only test that allows examination of the entire colon & provides ability for ***removal*** of polyps
- Adenoma Detection Rate: Men 30%
  Women 20%
  Mean 25%
- Although no controlled trials several cohort, observational and 1 case-controlled study → reduction in CRC mortality
- Every 1% increase in colonoscopy use, the risk of death from colon cancer dropped 3%

Linda Rabeneck MD, MPH[1], Am J Gastroenterology 2010

Colonoscopy: *Limitations*

- Cost
- Complications
  - Perforations - 1:1000 in screening colonoscopy
    - 2:1000 in all colonoscopies
  - Death 1-3 in 10,000

- Incomplete procedure 5 - 15%
- Adenoma miss rate 9 - 26%
- Interval cancer 2.1% - 7.1%
- ⬇ADR : ⬆Interval Cancer
- High level of expertise

Mortality Benefit from Colonoscopy

- Prospective Cohort and case-control studies demonstrated **reduction in CRC mortality** (60-80%)

- **No RCT** evaluating benefit of Colonoscopy to reduce mortality of CRC

- The Northern-European Initiative on Colorectal Cancer (2026)
- Screening of Swedish Colons (SCREESCO) (2034)
- Barcelona (2021)
- Colonoscopy Vs. FIT in (CONFIRM) (2027)

Kahi CJ et al. Clin J Gastro Hepatology, 2009
Singh H et al. Gastroenterology 2010
Brenner H et al. J Clin Oncol 2011

High-Risk CRC Screening

	Start	Test, Intervals
Single FDR age ≥ 60	40y	Same as Average Risk
Single FDR age < 60 or multiple FDR	40y or 10y before youngest FDR	Colonoscopy q 5y
Lynch Syndrome*	20-25y	Colonoscopy q 2y until 40, then q 1y
FAP*	10-11y	Sigmo q 1y

***Consider Genetic Testing**

Summary CRC Screening Guidelines

	NCCN 2016	USPSTF 2016	Canadian 2016
Detect Cancer			
gFOBT	Annual	Annual	Every 2 y
FIT*	Annual	Annual	Every 2 y
Stool DNA (FIT-DNA)	Every 3 y	Every 1-3 y	---
Detect Polyps & Cancer			
Flexible Sigmoidoscopy	Every 5-10 y ± gFOBT/FIT at y 3	Every 5 y OR Every 10 y + annual FIT	Every 10
Colonoscopy	Every 10 y	Every 10 y	Not using
CT Colonography	----	----	---

USPSTF

- ✓ Absence of preferred screening method
- ✓ The Best Screening is the one that Gets Done
- ✓ Ages 50-75 years old

JAMA 2016;315(23); CMAJ, 2016, 188(5)

Gastroenterology 2017;153:307–323

CONSENSUS GUIDELINE

Colorectal Cancer Screening: Recommendations for Physicians and Patients From the U.S. Multi-Society Task Force on Colorectal Cancer

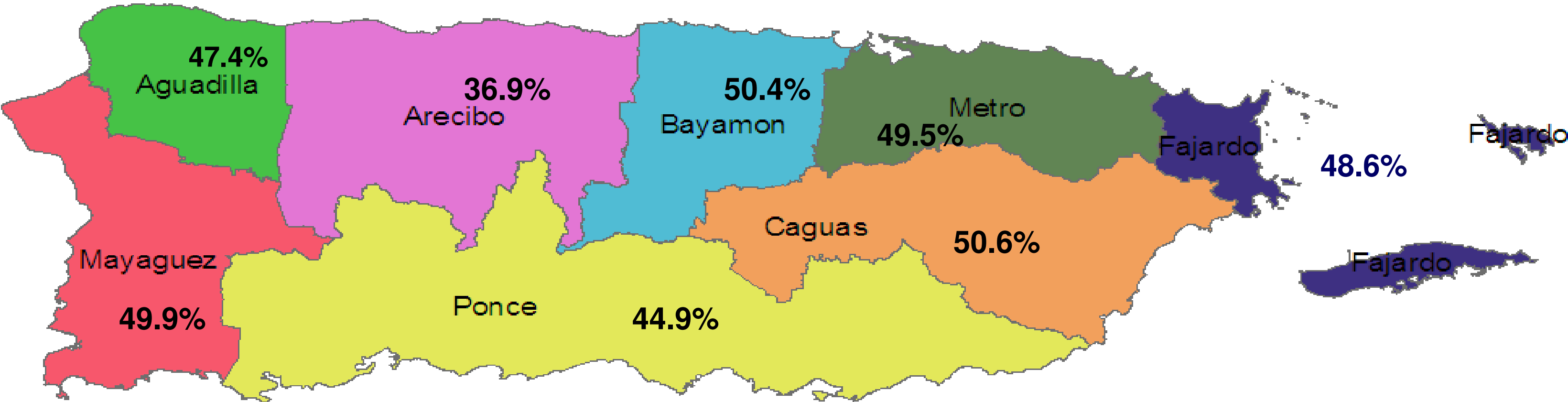
Douglas K. Rex,[1] C. Richard Boland,[2] Jason A. Dominitz,[3] Francis M. Giardiello,[4] David A. Johnson,[5] Tonya Kaltenbach,[6] Theodore R. Levin,[7] David Lieberman,[8] and Douglas J. Robertson[9]

Table 4. Multi-Society Task Force Ranking of Current Colorectal Cancer Screening Tests

Tier 1
Colonoscopy every 10 years
Annual fecal immunochemical test
Tier 2
CT colonography every 5 years
FIT–fecal DNA every 3 years
Flexible sigmoidoscopy every 10 years (or every 5 years)
Tier 3
Capsule colonoscopy every 5 years
Available tests not currently recommended
Septin 9

Are We Screening For Cancer In PR?

Self-reported Prevalence of Adults Aged 50+ Who Have Ever Had a Sigmoidoscopy or Colonoscopy Puerto Rico, 2012



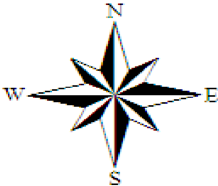
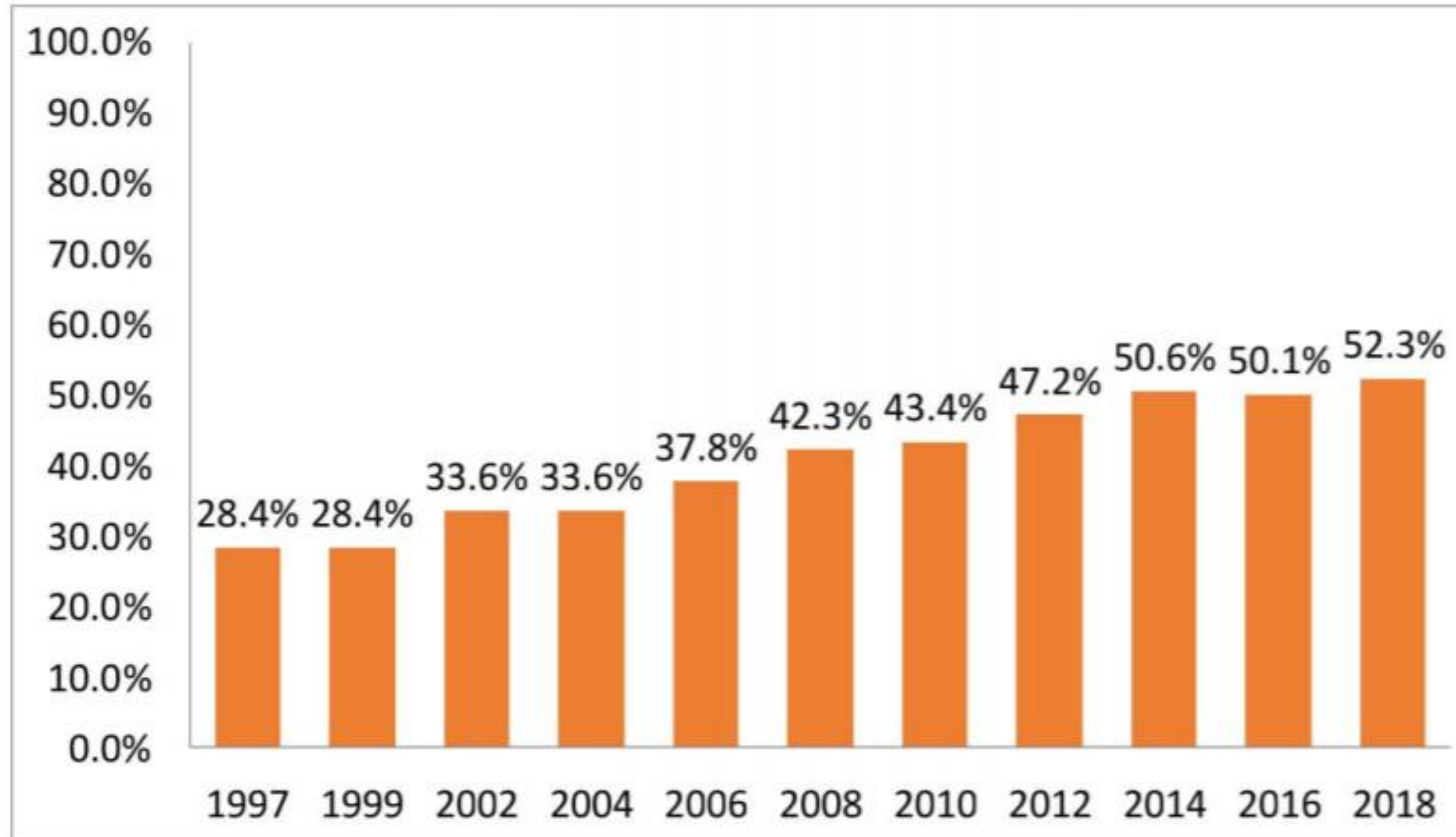


Figure 2. Adults aged ≥ 50 years who have ever had a sigmoidoscopy or colonoscopy, Puerto Rico*, 1997-2018

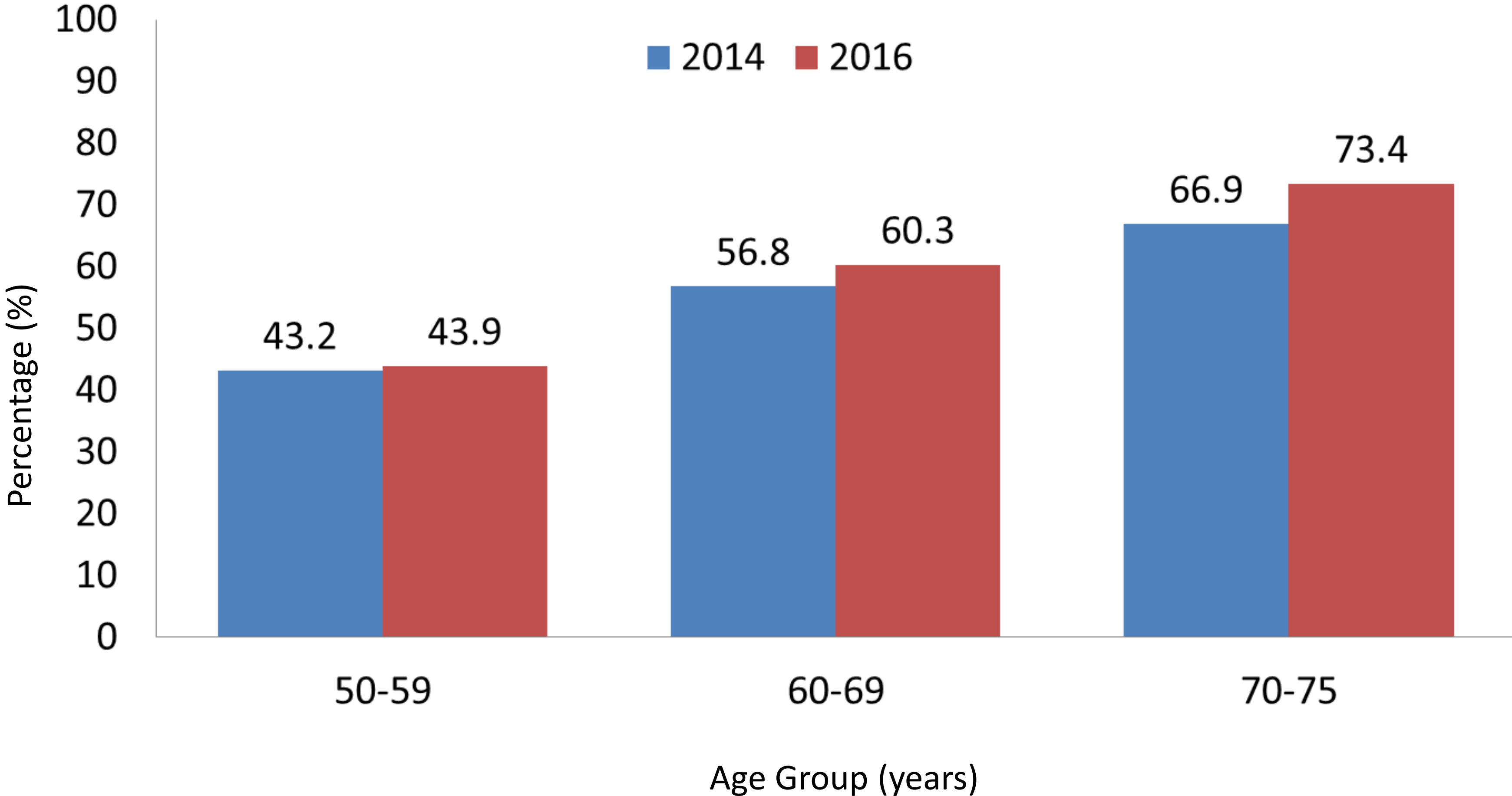


*Data Source: BRFSS

1997-2014: Adults aged **50+ years** who have **ever had a sigmoidoscopy or colonoscopy**

2016: Adults aged **50-75 years** who **had a colonoscopy in the past 10 years**

Prevalence of Adults Aged 50-75 Years Who Have Fully Met The USPSTF Recommendation By Age Groups, PUERTO RICO, 2014-2016



Source: Puerto Rico Department of Health, Puerto Rico-BRFSS

How Much does CRC Cost to PR?

- Annual direct cost **$64 Millions**
- Average cost per patient **$37,000**
- **$194M** anual cost for PR (direct and lost of productivity)

Department of Health
Administrative Order 334
March 10, 2015

- Begin CRC screening at age 40
- National program using:
  - **FIT** (1 sample vs. 3 FOBT cards) for <u>average risk</u>
  - **Colonoscopy** for those with high risk (family history of CRC or Inflammatory Bowel Disease)

How to select the test for CRC Screening

Have family history of CRC ?
Have Inflammatory Bowel Disease?

Yes → Colonoscopy (discuss with MD starting age)

No

Are you between the ages of 40-75?

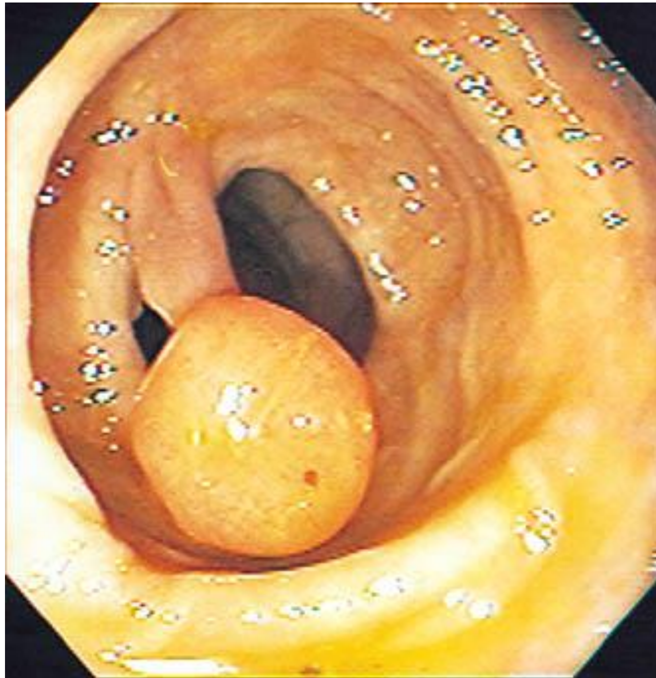
Yes → F.I.T. Every Year

No → **If you are > 75 years old discuss with your doctor if CRC screening is needed**

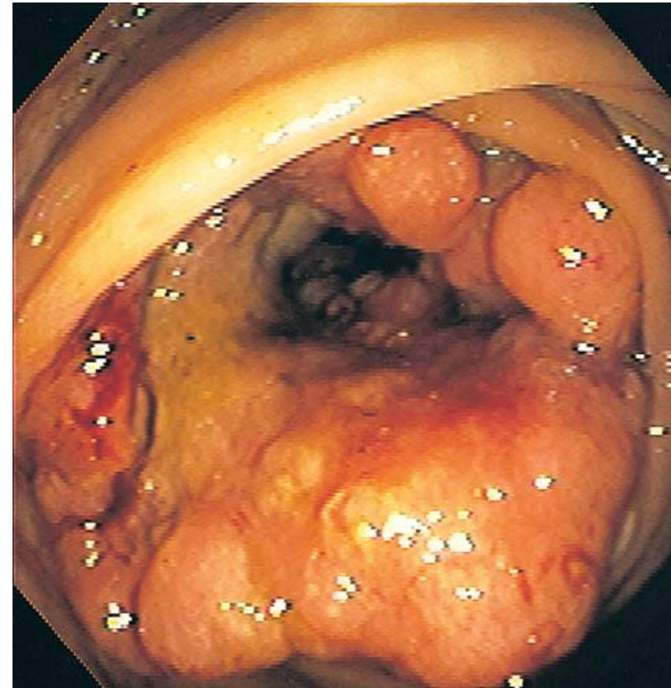
When to Stop?

- Average lead time for adenoma to CRC: 10 yrs
- Consider life expectancy & benefit from surveillance
- Surveillance until 75 yrs, then continue depending on risk & co-morbidities

!!La prevención para el cáncer colorrectal es efectiva!!!



Pólipo



Cáncer Colorrectal

For Follow-up colonoscopy following a patient's initial high-quality exam:	
Patient has no polyps	Next Colonoscopy in ten years
Patient has 1-2 polyps <10mm	Next Colonoscopy in 7-10 years (instead of 5- 10 years)
Patient has 3-4 polyps <10mm	Next Colonoscopy in 3-5 years (instead of 3 years)
Patient has more than 10 polyps	Next Colonoscopy in 1 year (instead of 3 years)
Patient has serrated polyps	Review the publications for complete recommendations
Patient has advanced polyps	Next Colonoscopy in 3 years

Artificial Intelligence for the Determination of a Management Strategy for Diminutive Colorectal Polyps: Hype, Hope, or Help

Bum-Joo Cho, MD, PhD[1,2] and Chang Seok Bang, MD, PhD[2,3,4]

Abstract: Most colorectal polyps are diminutive, and malignant potential for these polyps is uncommon, especially for those in the rectosigmoid. However, many diminutive polyps are still being resected to determine whether these are adenomas or serrated/hyperplastic polyps. Resecting all the diminutive polyps is not cost-effective. Therefore, gastroenterologists have proposed optical diagnosis using image-enhanced endoscopy for polyp characterization. These technologies have achieved favorable outcomes, but are not widely available. Artificial intelligence has been used in clinical medicine to classify lesions. Here, artificial intelligence technology for the characterization of colorectal polyps is discussed in a decision-making context regarding diminutive colorectal polyps.

Am J Gastroenterol 2020;115:70–72. https://doi.org/10.14309/ajg.0000000000000476

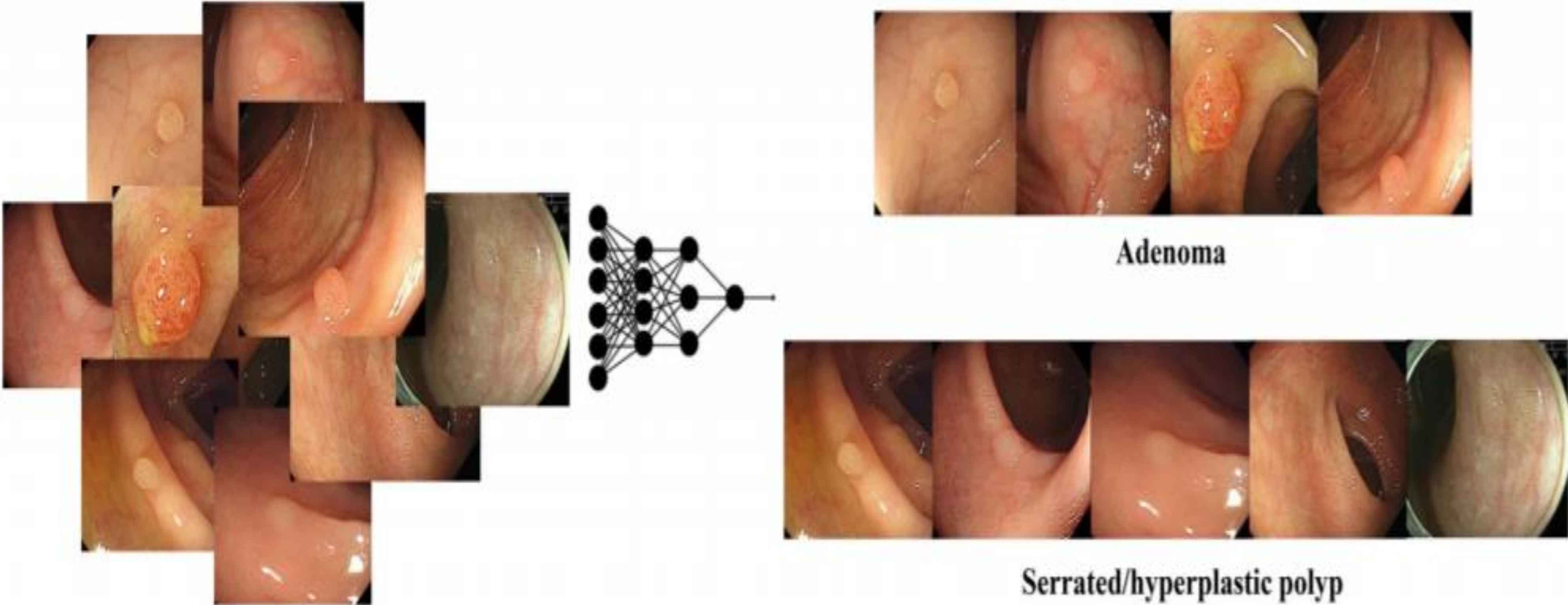


Figure 1. Automatic classification of diminutive colorectal polyps.

¿Cómo se afecta la utilización de las pruebas de cernimiento de cáncer colorectal, durante la pandemia?

"Preventive Cancer Screenings during COVID-19 Pandemic"

Epic Health Research Network.
May/1/2020

coalición de cáncer colorrectal PUERTO RICO

¿Cómo se afecta la utilización de las pruebas de cernimiento de cáncer colorectal, durante la pandemia?

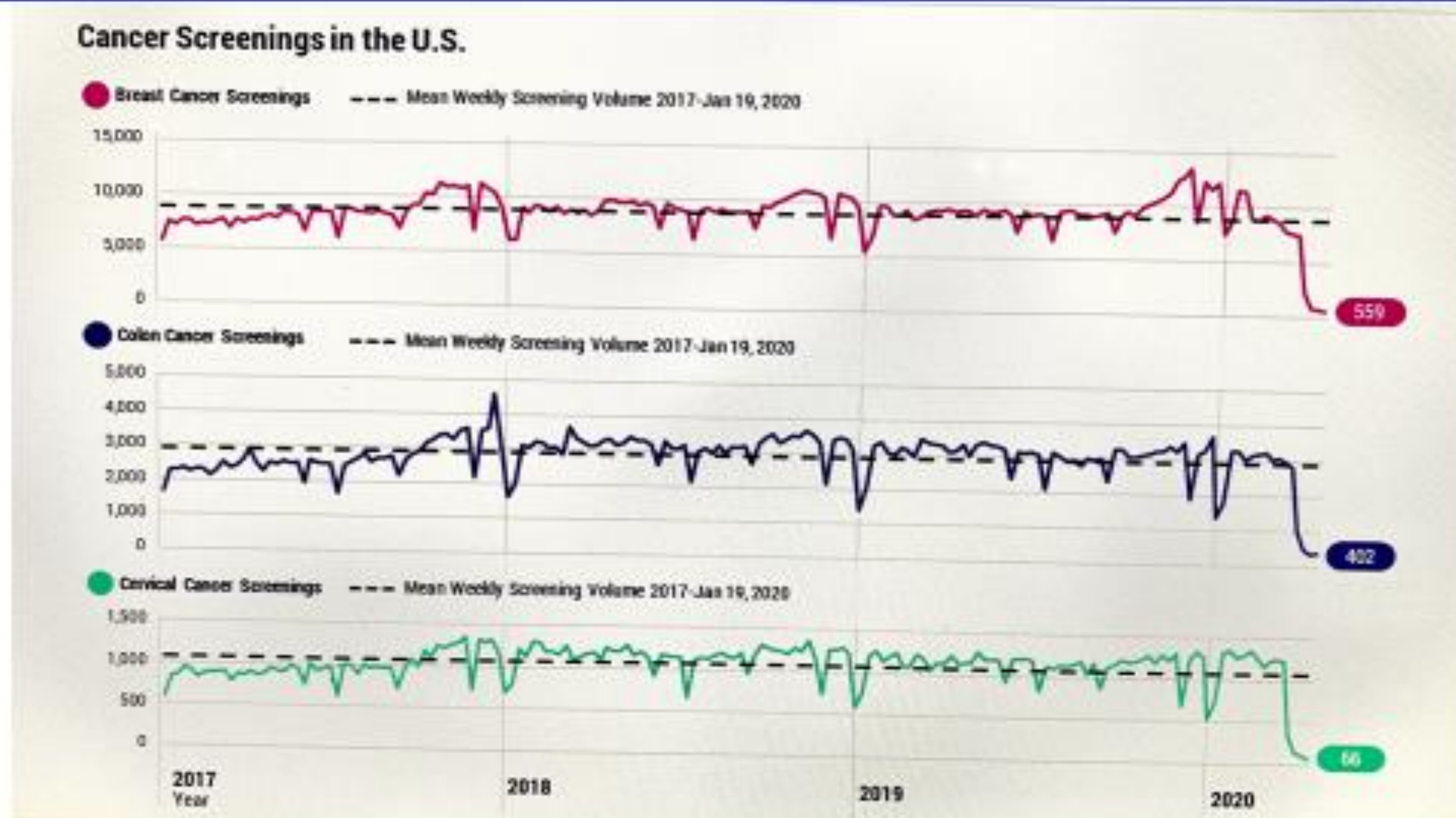
Propósito:

Identificar el impacto de la Pandemia Covid-19 en la utilización de las técnicas de cernimiento en cáncer de colon, mama, y cervix

Data incluye:

- 2.7 millones de pacientes hasta abril 25, 2020.
- 39 sistemas de salud
- representando 90 hospitales
- En 23 estados.

"Preventive Cancer Screenings during COVID-19 Pandemic"



coalición de cáncer colorrectal PUERTO RICO

¿Cómo se afecta la utilización de las pruebas de cernimiento de cáncer colorectal, durante la pandemia?

Conclusión:

La citas para evaluación de cernimiento en marzo de 2020 disminuyeron de un **86 - 94%** comparado con el volumen promedio desde 1 de enero de 2017 a 19 de enero de 2019.

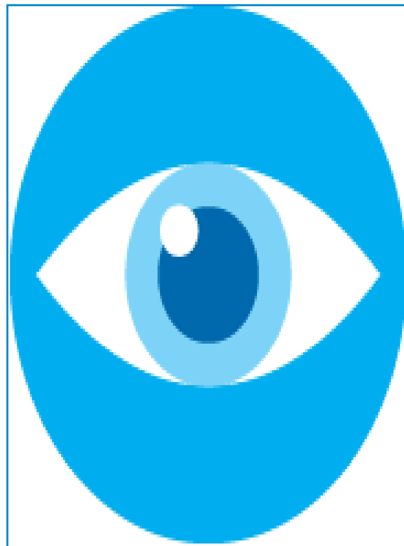
coalición de cáncer colorrectal PUERTO RICO

coalición de
cáncer
colorrectal
PUERTO RICO
st Colon Golf
Tournament
October 18th, 2019
Palmas Golf Course
Palmas del Mar

SUPREP®
First

FIT Tour Workers Program
Strategy to Increase CRC Screening in PR

Effort lead by the PR Colorectal Cancer Coalition and the PR Gastroenterology Association



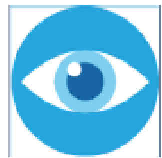
Awareness

Education

Health interventions

Rewards

Workers' FIT Tour Program Manual



Awareness

Education

Health interventions

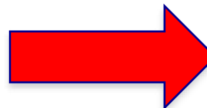
Rewards

2017

- Visits to Companies/Employers in Puerto Rico
- Targeting young adults 40-65
- Provide education manual, seminar, and support for the company staff
- FIT test card is given at their places of work

Health interventions

Health Questionnaire



Cuestionario Para Prueba de Cernimiento de Cáncer Colorrectal

Fecha:_________ Nombre: ____

Compania para la cual trabaja: _____________________________________

Telefono:___________________________ email:_________________________

¿ Qué edad usted tiene? ______	Si tiene entre **40 años** a **75 años** debe realizarse una prueba de cernimiento para cáncer colorrectal
¿ Tiene **historial familiar** de cáncer colorrectal? Si_____ No_____	Si usted tiene historial familiar de cáncer colorrectal debe visitar un gastroenterólogo y realizarse una **colonoscopía.**
¿ Quién en su familia ha sido diagnosticado con cáncer colorrectal? **Primera línea** (mamá, papá, hijos, hermanos) Si_____; edad al diagnostico de cancer _____ No____ **Segunda línea** (abuelos o tíos) Si_____ No_____ **Tercera línea** (Primos) Si_____ No_____	Personas con familiares de primera línea con cancer de colon tienen un riesgo mayor de desarrollar cancer colorrectal. Debe visitar un gastroenterólogo para determinar cuando y cuan frecuentemente realizar la colonoscopia.
¿ Ha experimentado alguno de los siguientes **síntomas** en los últimos meses? a) Dolor abdominal b) Sangrado rectal c) Cambios en sus evacuaciones d) Heces fecales finas semejantes a un lápiz e) Pérdida de peso espontanea	Si usted ha experimentado alguno de éstos síntomas debe visitar su médico.
¿Alguna vez se ha realizado una colonoscopía para detección temprana de cancer colorrectal? Si________ No______ ¿Cuándo se realizo la colonoscopia?__________	Si usted se realizó una colonoscopía de cernimiento en los pasados 5 años *debe discutir con su medico cuando necesitara otra prueba de cernimiento para cancer colorrectal.* Dependiendo del resultado de su colonoscopia, su próxima prueba puede ser una colonoscopia o una prueba para detección de sangre oculta en la excreta (FIT).
¿Ha sido diagnosticado con alguna **Enfermedad Inflamatoria del Intestino** como Colitis Ulcerosa o Enfermedad de Crohn? Si_____ No_____	Si tiene alguna Enfermedad Inflamatoria del Intestino debe realizarse una **colonoscopía**.

Si usted tiene 40 a 75 años y respondió NO a las preguntas previas, la prueba de cernimiento para cancer colorrectal indicada para usted es detección para sangre oculta en la excreta (**Fecal Immunochemical Test – F.I.T.**).
Orden Administrativa 334 (Marzo 2015) Departamento de Salud de Puerto Rico.

Fecal Immunochemical Test
(Prueba Inmunoquímica Fecal)

Programa Nacional para Prevención del Cáncer Colorrectal en Puerto Rico

- El cáncer colorrectal es el **segundo tipo de cáncer más común diagnosticado en Puerto Rico** y la primera causa de muerte por cáncer en Puerto Rico.
- La orden administrativa 334 del Departamento de Salud, de marzo de 2015, recomienda que **toda persona mayor de 40 años se haga la prueba de F.I.T. anualmente.**
- Se recomienda colonoscopía, en lugar de F.I.T., para aquellas personas con **historial familiar de cáncer colorrectal o enfermedad inflamatoria del intestino.**
- **Sé parte del cambio** para aumentar el número de puertorriqueños que se hacen la prueba para detección de sangre oculta.

Utilice estos códigos para ordenar la prueba de F.I.T.

Rx

Fecal Immunochemical Test
(CPT: G0328)

Dx. CRC Screening
(ICD-10: Z12.11)

FIRMA

*No requiere cambio de dieta del paciente
*Solo una prueba anual

www.cancercolonpr.org

coalición de cáncer colorrectal PUERTO RICO

Departamento de Salud

Summary

- Screening guidelines apply for Average Risk Individuals
- High risk individuals should undergo only screening with ***colonoscopy***
- FIT requires **yearly** examination (1-test); test for early CRC/low cost
- Awareness for CRC screening and prevention is still low

Prevencion hoy…Vida Mañana

www.coloncancerpr.org

@coloncancerpr

Facebook: Coalicion Cancer PR