Colorectal Cancer Screening and Quality Improvement in Perioperative Care

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Huntington Cancer Center, an Affiliate of Cedars-Sinai Cancer
Medical Director, Surgical Growth Strategy, Huntington Health
State Chair, Zone S, American College of Surgeons Commission on Cancer

September 21, 2024 L.A. Care Quality Improvement Conference
Hilton Woodland Hills, CA

Disclosures

The following CME Planners do not have relevant financial relationships with ineligible companies in the past 24 months:

- Leilanie Mercurio, L.A. Care Provider Continuing Education (PCE) Program Manager, CME Planner.
- Donna Sutton, Senior Director, Stars Excellence, Quality Improvement, L.A. Care Health Plan, CME Planner.
- Bettsy Santana, MPH, Senior Manager of Initiatives, Quality Improvement, L.A. Care Health Plan, CME Planner.

The following ineligible companies have relevant financial relationships with Presenter Howard Kaufman, MD, MBA, FACS, Regional Medical Director and Cancer Committee Chairman of the Huntington Cancer Center, an affiliate of Cedars-Sinai Cancer; and Medical Director of Surgical Growth Strategy, Huntington Health.

- Medtronic – Consultant, Advisory Board; ROMTech – Investor; and Pacira Biosciences – Consultant.

Dr. Howard Kaufman is a consultant and on the Advisory Board of Medtronic; an investor of ROMTech and a consultant for Pacira Biosciences.

All relevant financial relationships of Dr. Howard Kaufman, CME Faculty, with ineligible companies have been mitigated.

An ineligible company is any entity whose primary business is producing, marketing, selling, re-selling, or distributing healthcare products used by or on patients.

Commercial support was not received for this CME/CE activity.

Learning Objectives

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At the completion of the activity, learners can:

1. Summarize options for colorectal cancer screening.
2. Identify differences and disparities in colorectal cancer incidence and mortality by sex, race, and ethnicity.
3. Apply at least two (2) strategies to eliminate disparities in colorectal cancer screening outcomes.
4. Identify components of Enhanced Recovery Pathways that are associated with reduced length of stay in patients undergoing minimally invasive colorectal surgery.

Agenda

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- Colorectal cancer burden
- Age, ethnic, and racial disparities
- Screening – recommendations and options
- Reducing disparities in colorectal cancer screening and outcomes
- Prevention

- QI in colorectal surgery
  - Minimally invasive surgery (MIS)
  - Enhanced Recovery Pathways (ERP)
  - Enhanced Recovery after Surgery (ERAS)

Colorectal Cancer Statistics

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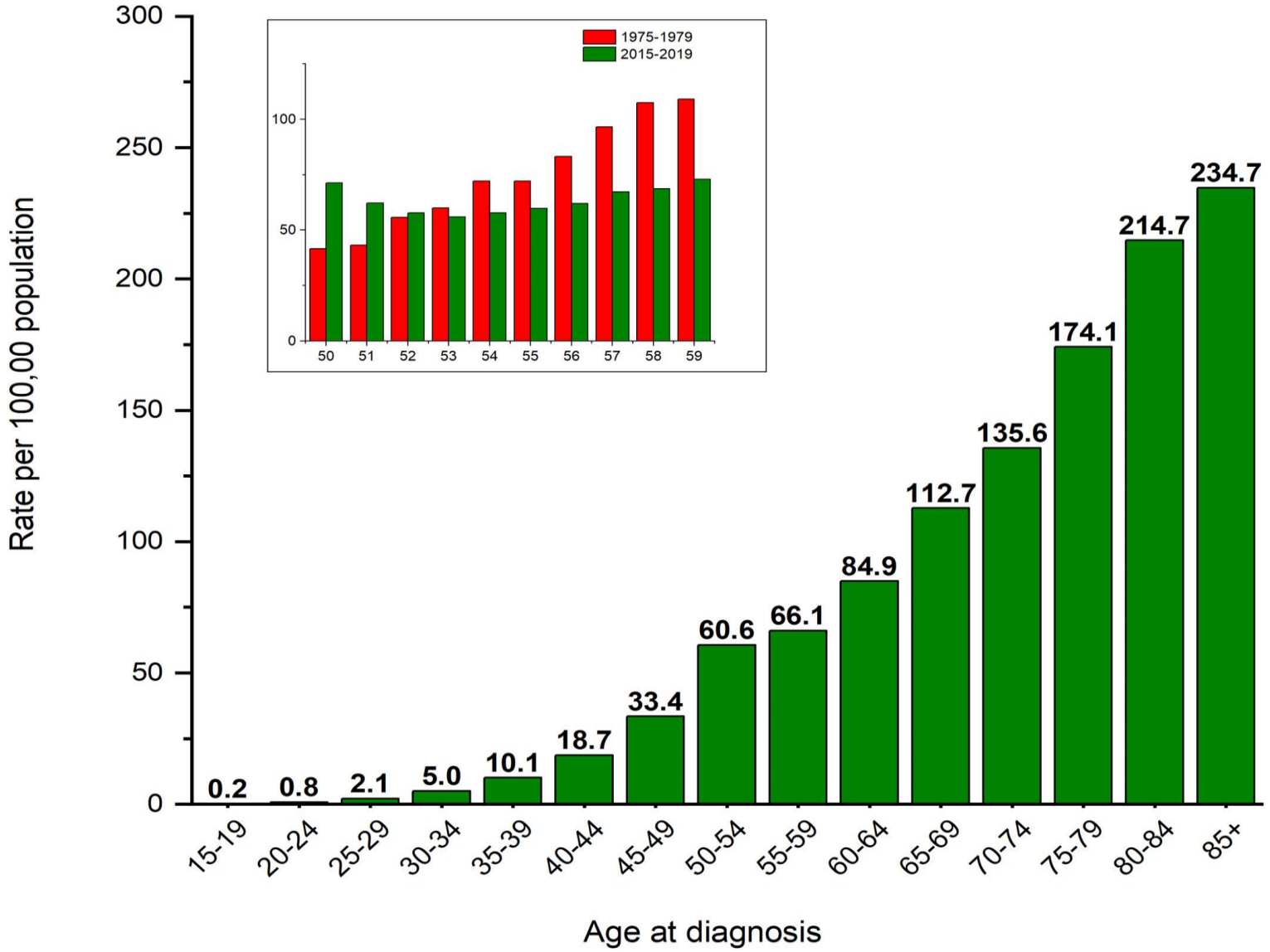
- 3rd most common cancer in US
- 2nd leading cause of cancer death
- Incidence - 2024
  - Colon cancer – 106,590
  - Rectal cancer – 46,220
- Deaths – 53,010
- Adults born ~1990 have 2X risk of colon cancer and 4X risk of rectal cancer than those born in 1950

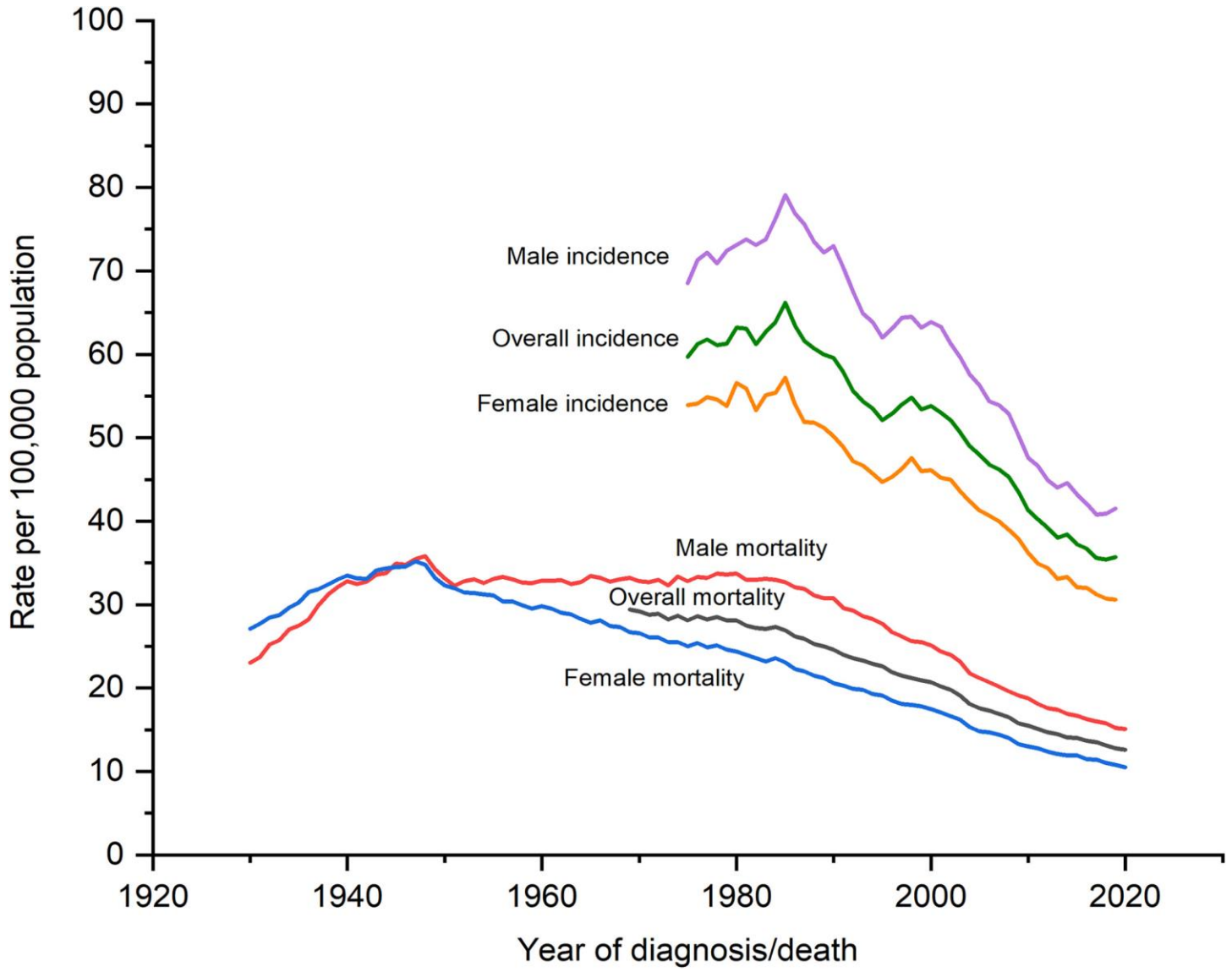
Colorectal Cancer Statistics - 2023

Huntington Cancer Center | An Affiliate of Cedars Sinai Cancer



CA: A Cancer Journal for Clinicians, Volume: 73, Issue: 3, Pages: 233-254, First published: 01 March 2023, DOI: (10.3322/caac.21772

Trends in Incidence and Mortality



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Trends in CRC by Age and Stage

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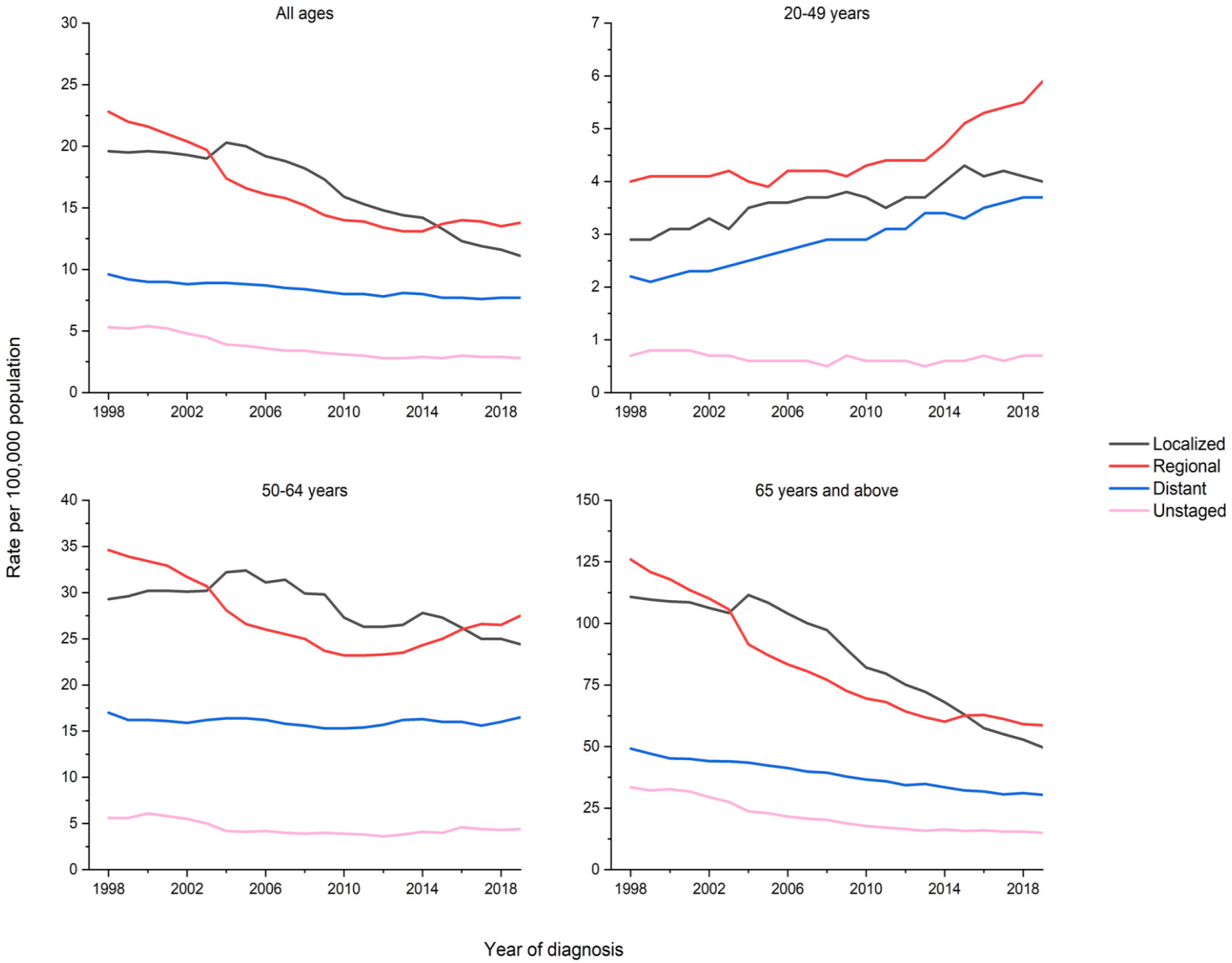
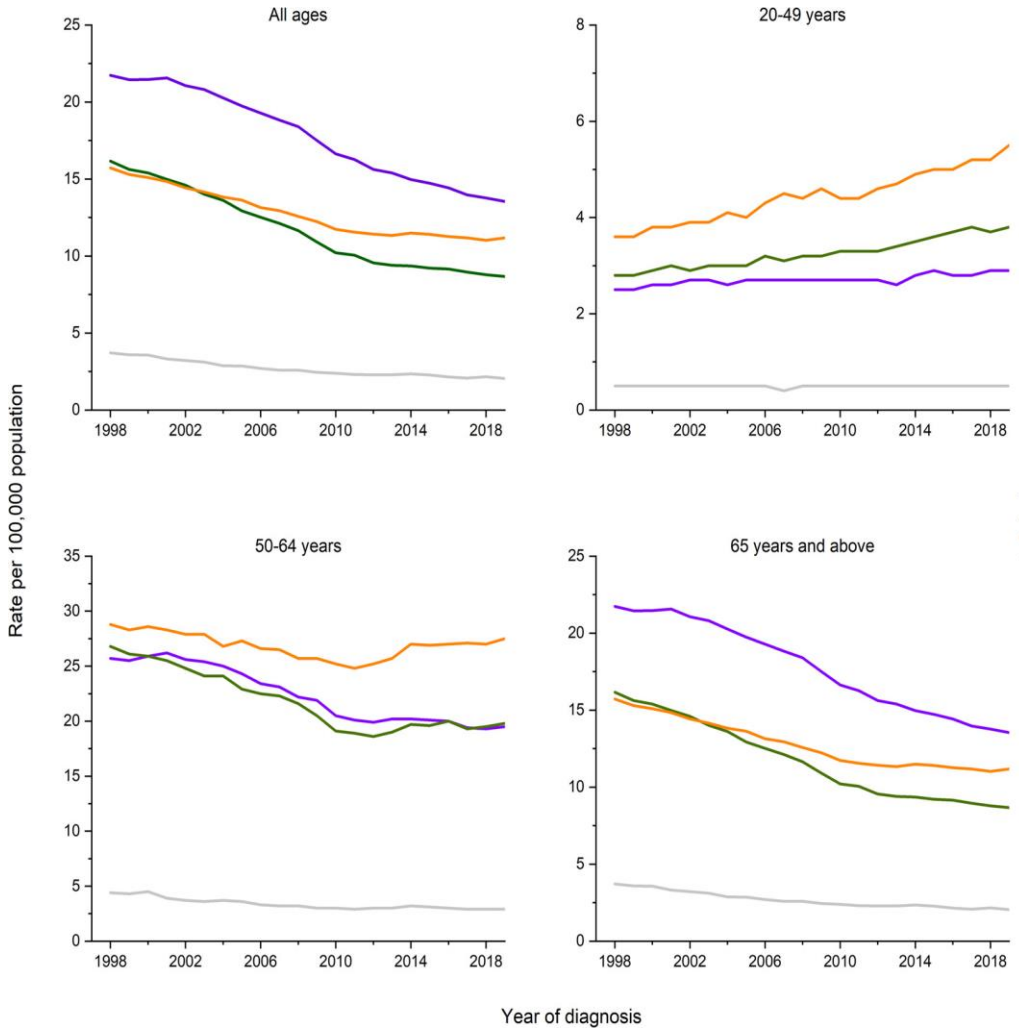
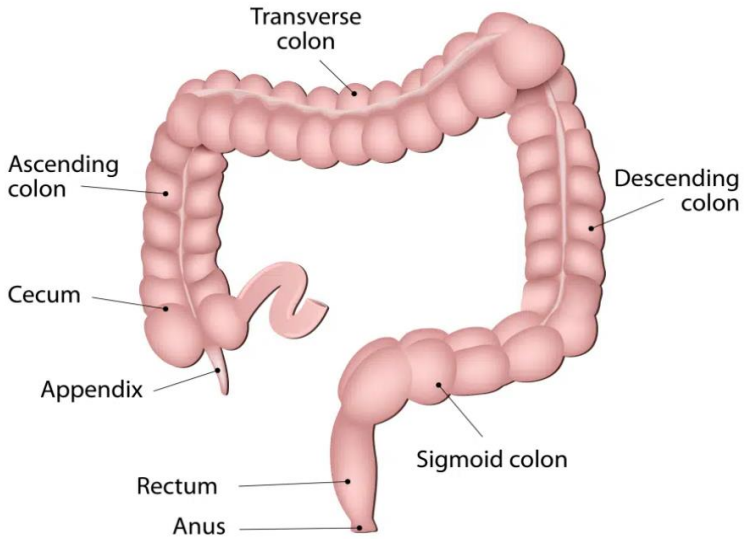


CA: A Cancer Journal for Clinicians, Volume: 73, Issue: 3, Pages: 233-254, First published: 01 March 2023, DOI: (10.3322/caac.21772

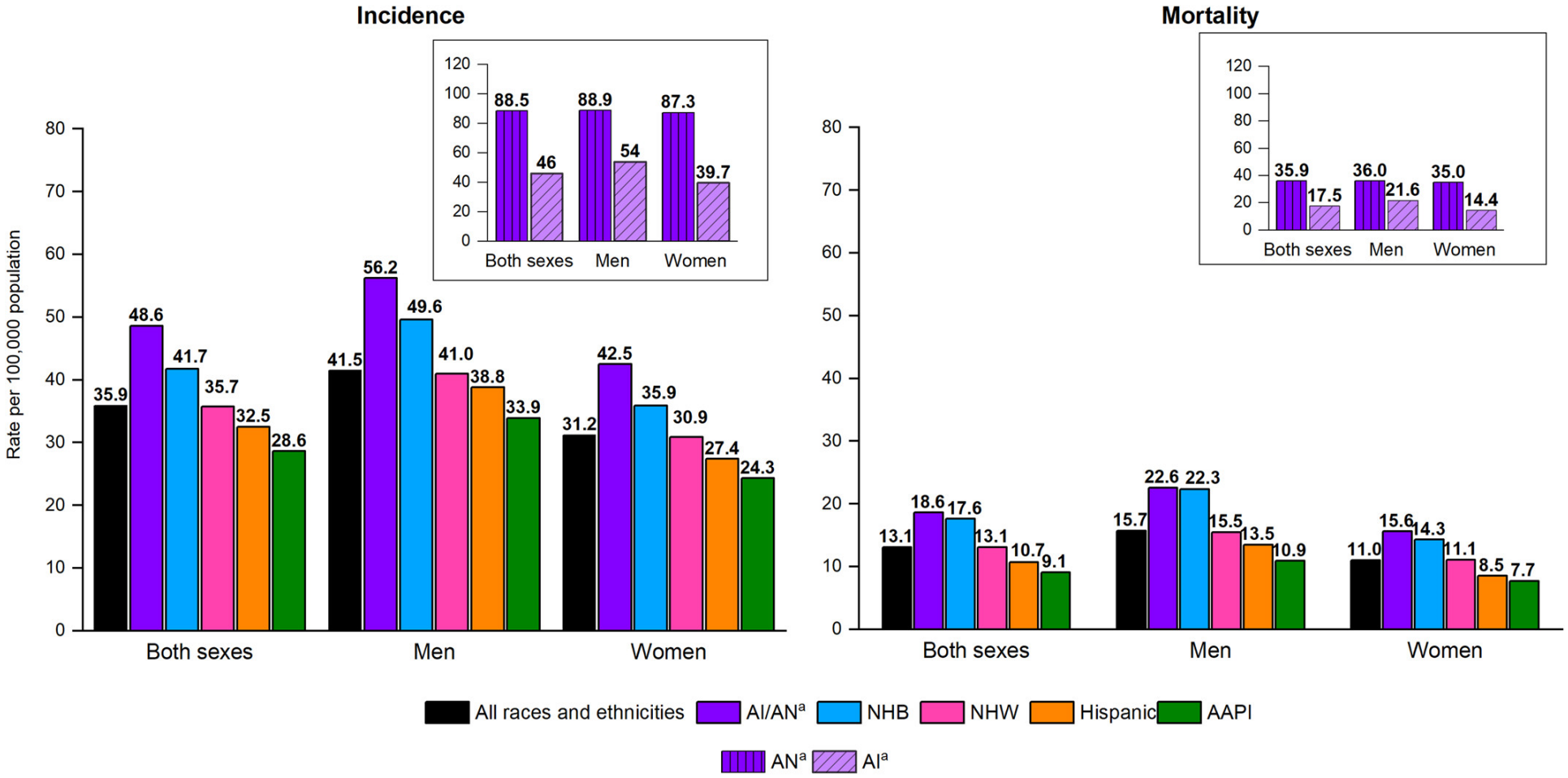
Trends in CRC by Age and Subsite





CA: A Cancer Journal for Clinicians, Volume: 73, Issue: 3, Pages: 233-254, First published: 01 March 2023, DOI: (10.3322/caac.21772

CRC Incidence and Mortality by Sex, Race, Ethnicity



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CRC Stage Distribution by Age, Race, and Ethnicity (2015-2019)

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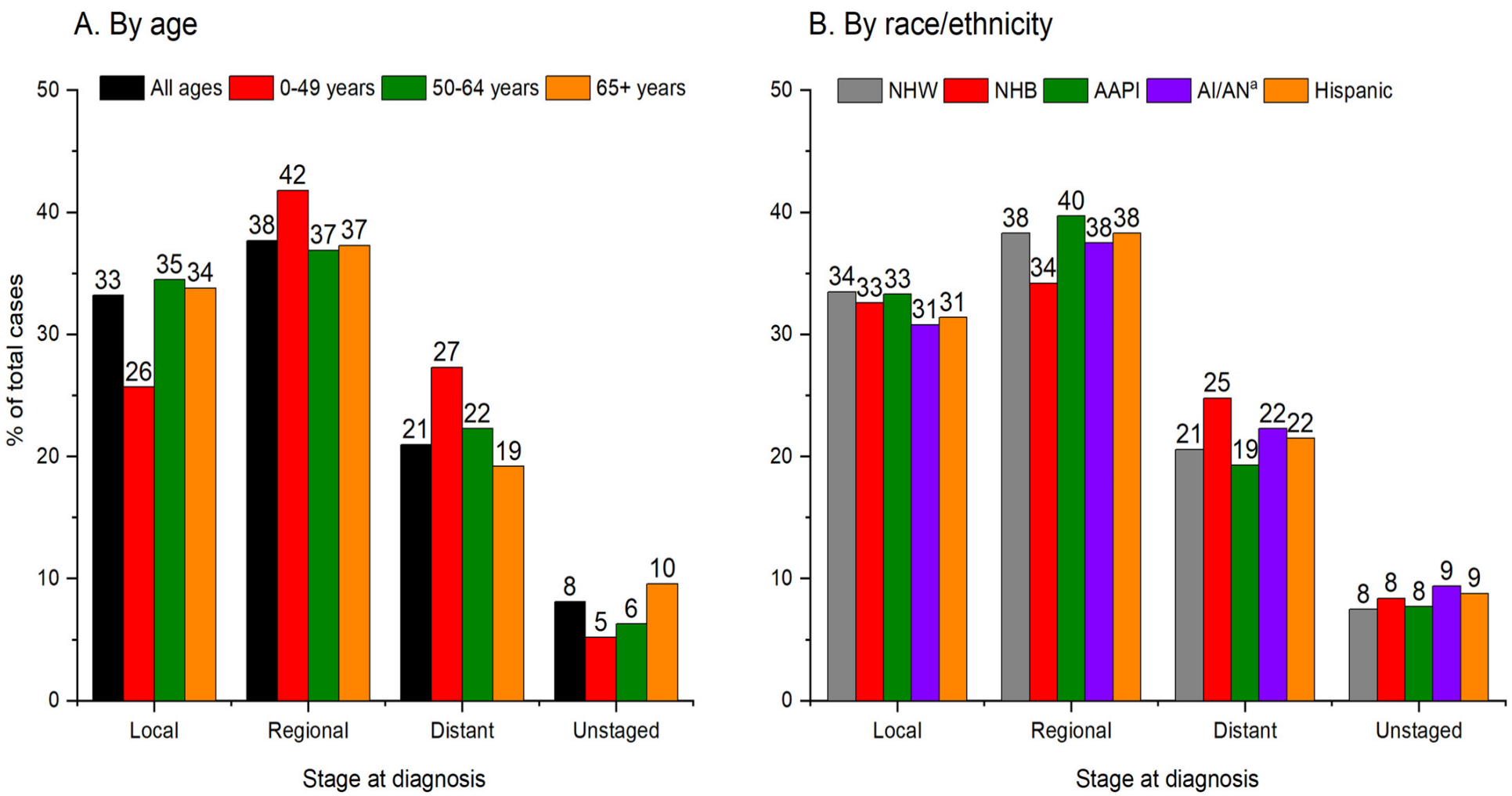

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Increasing Age Disparities in CRC

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Original Investigation

Increasing Disparities in the Age-Related Incidences of Colon and Rectal Cancers in the United States, 1975-2010

Christina E. Bailey, MD, MSCI; Chung-Yuan Hu, MPH, PhD; Y. Nancy You, MD, MHSc; Brian K. Bednarski, MD; Miguel A. Rodriguez-Bigas, MD; John M. Skibber, MD; Scott B. Cantor, PhD; George J. Chang, MD, MS

Baily CE et al. JAMA Surg. 2015;150(1):17-22. doi:10.1001/jamasurg.2014.1756

Increasing Age Disparities in CRC

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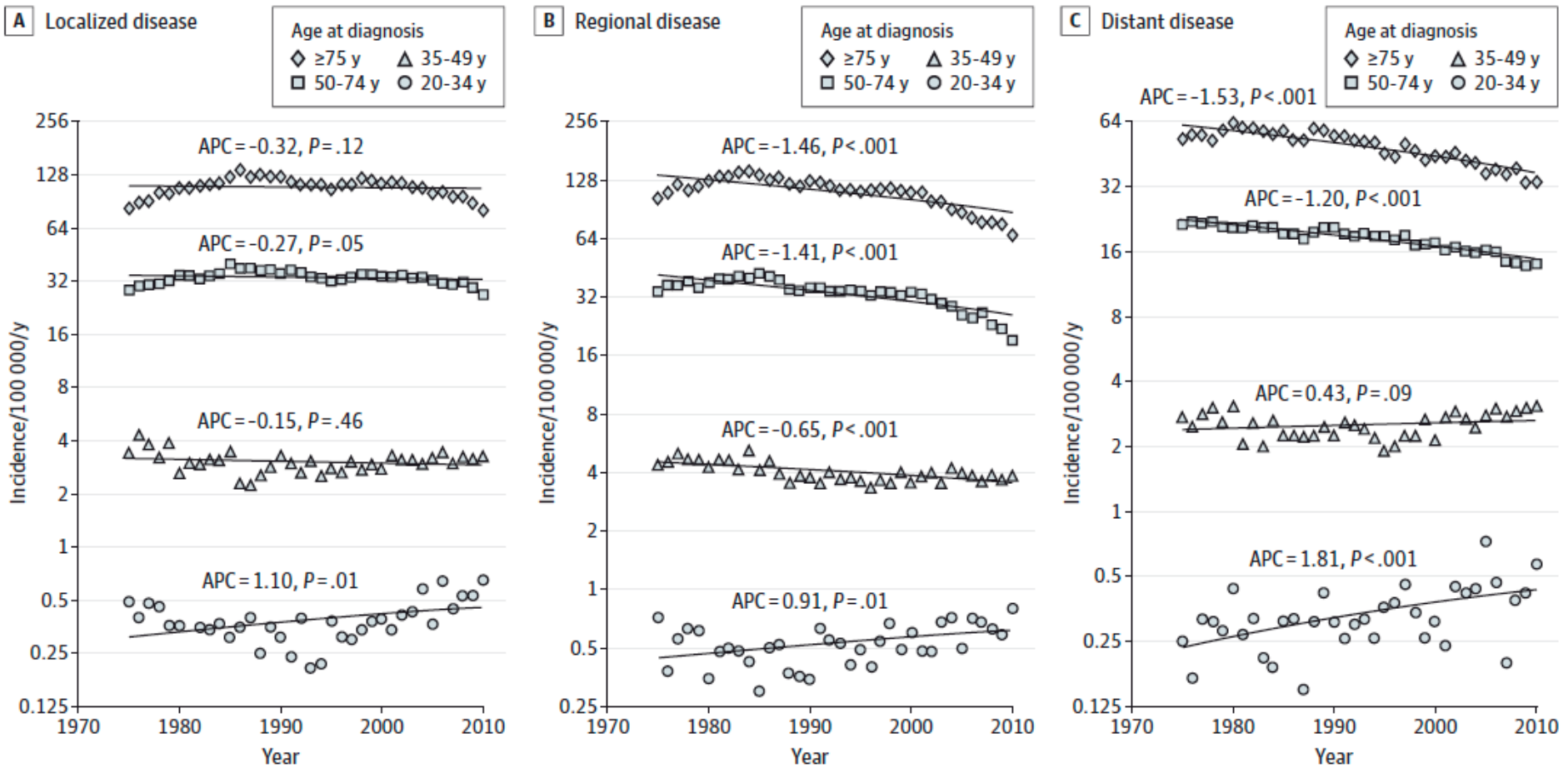
Figure 1. Annual Incidence Rates of Colon Cancer From 1975 to 2010



Rates are per 100 000 and age adjusted to the 2000 US standard population for localized disease (A), regional disease (B), and distant disease (C). The trend lines are logarithmic. APC indicates annual percentage change.

Baily CE et al. JAMA Surg. 2015;150(1):17-22. doi:10.1001/jamasurg.2014.1756

Increasing Age Disparities in CRC

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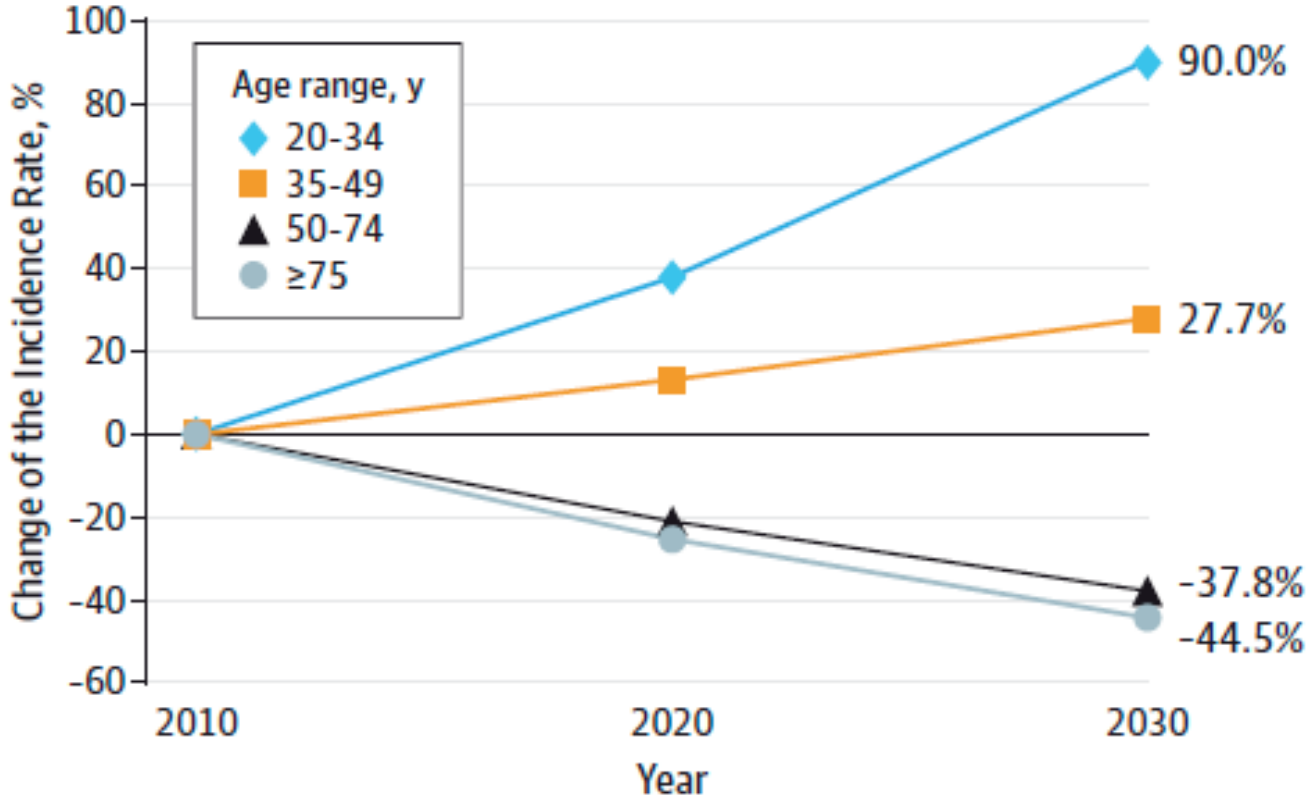
Figure 2. Annual Percentage Change–Based Predicted Incidence Rates of Colon Cancer by Age Compared With Incidence Rate in 2010



Baily CE et al. JAMA Surg. 2015;150(1):17-22. doi:10.1001/jamasurg.2014.1756

Increasing Age Disparities in CRC

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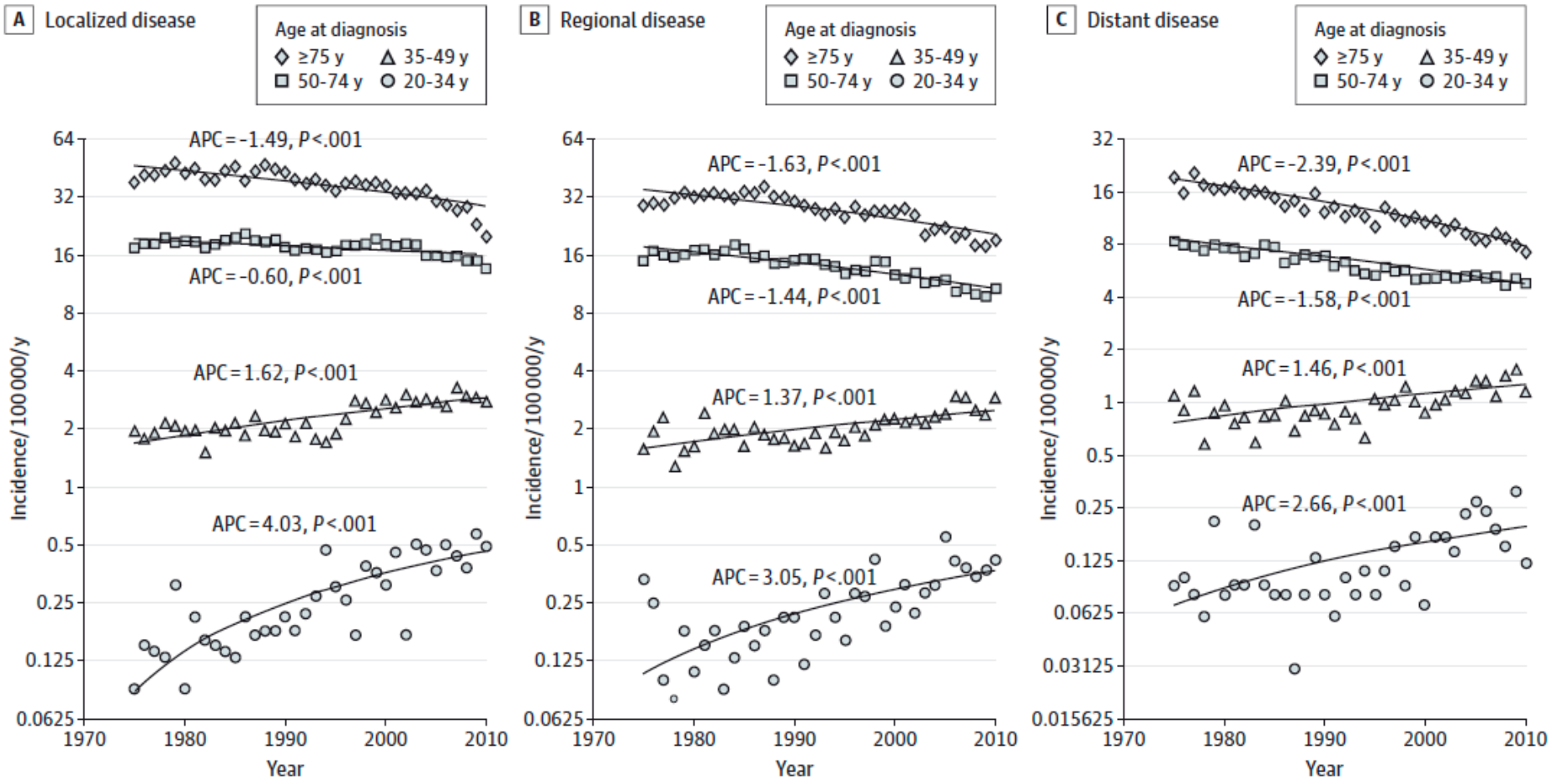
Figure 3. Annual Incidence Rates of Rectosigmoid and Rectal Cancers From 1975 to 2010



Rates are per 100 000 and age adjusted to the 2000 US standard population for localized disease (A), regional disease (B), and distant disease (C). The trend lines are logarithmic. APC indicates annual percentage change.

Baily CE et al. JAMA Surg. 2015;150(1):17-22. doi:10.1001/jamasurg.2014.1756

Increasing Age Disparities in CRC

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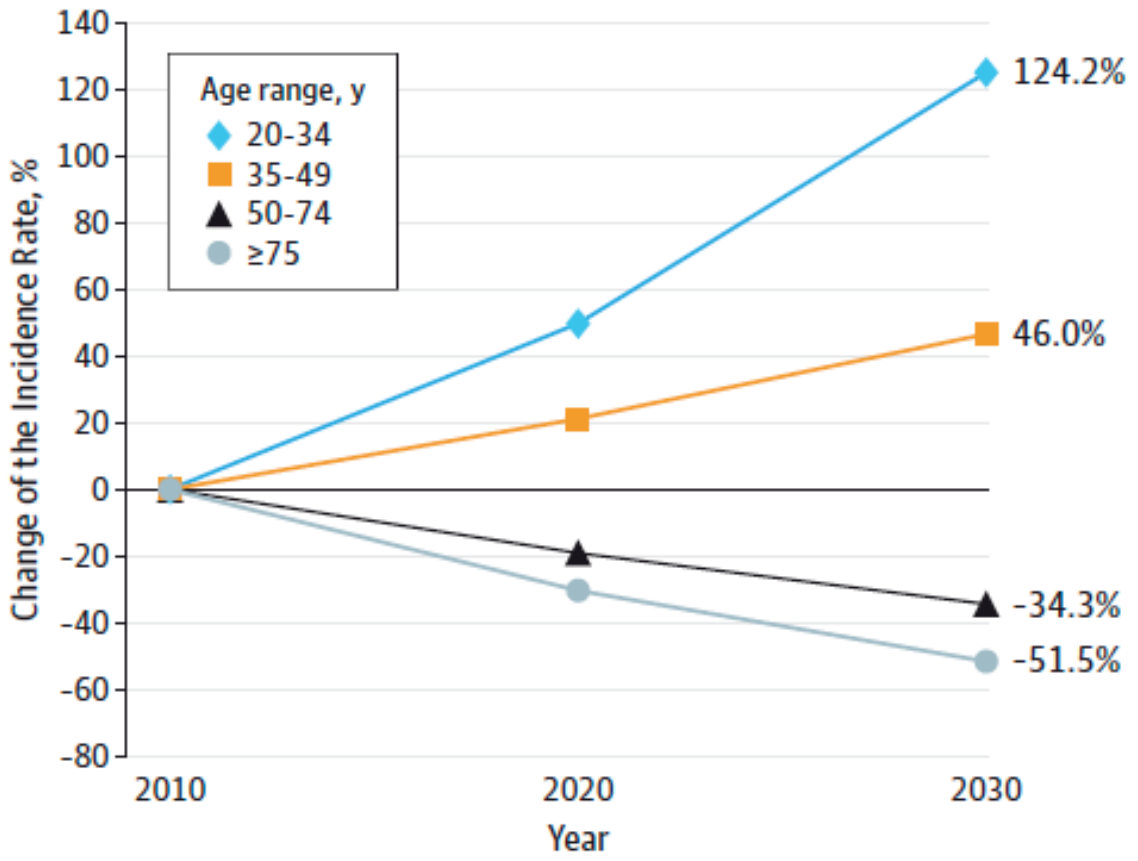
Figure 4. Annual Percentage Change–Based Predicted Incidence Rates of Rectosigmoid and Rectal Cancers by Age Compared With Incidence Rate in 2010



Baily CE et al. JAMA Surg. 2015;150(1):17-22. doi:10.1001/jamasurg.2014.1756

Increasing Age Disparities in CRC

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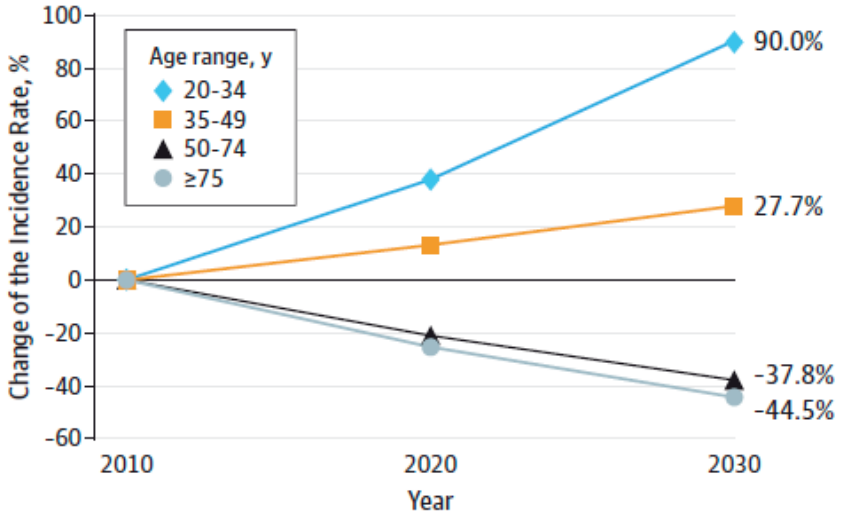

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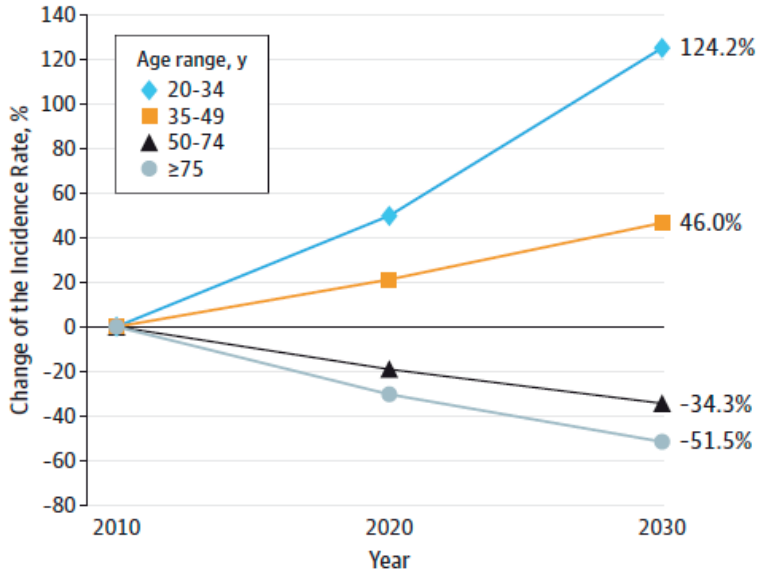

Baily CE et al. JAMA Surg. 2015;150(1):17-22. doi:10.1001/jamasurg.2014.1756

Early Onset CRC

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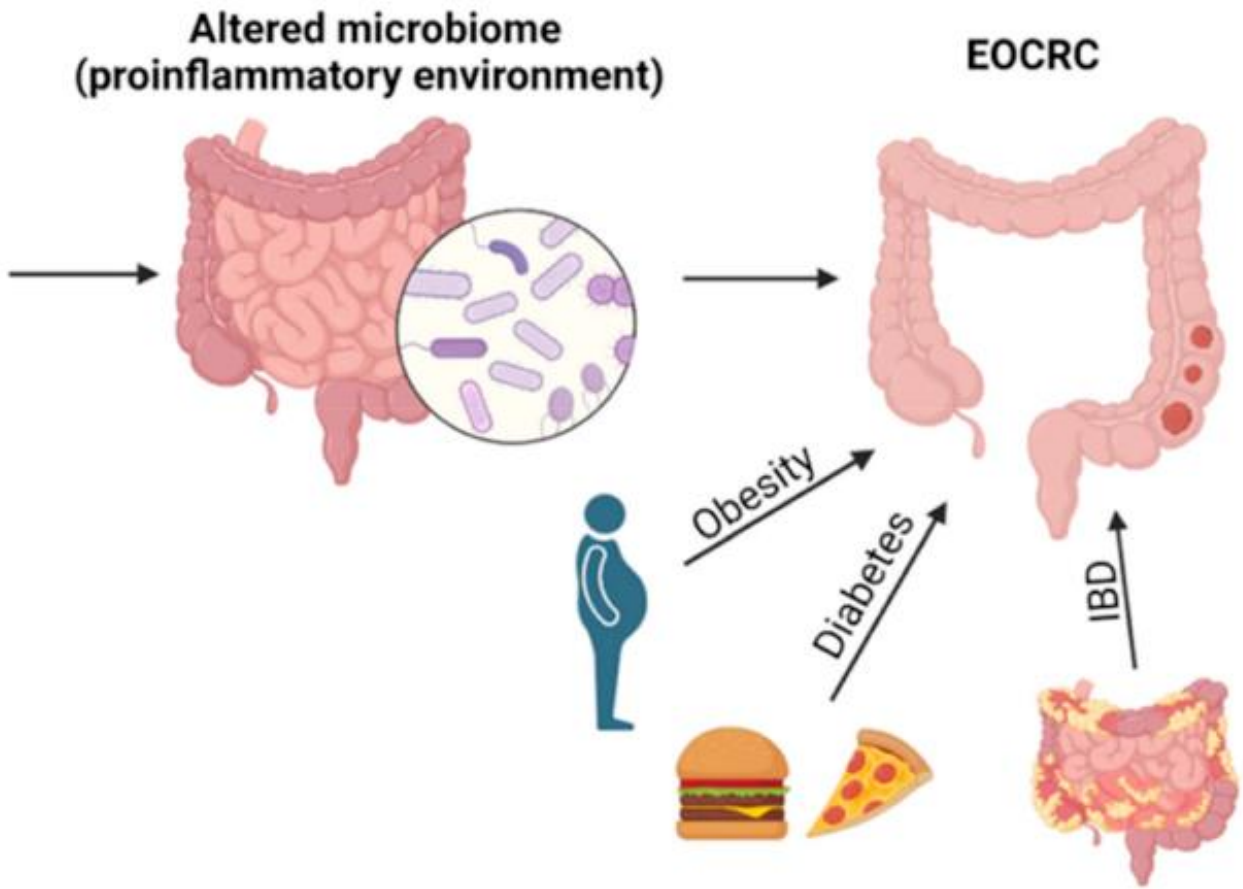
Risk Factors for EOCRC

- Western diet
- Red and processed meats
- Synthetic dyes
- High-fructose corn syrup
- Smoking & alcohol
- Physical inactivity
- Antibiotic exposure
- Genetic (hereditary cancer syndromes)



Cancers **2023**, *15*(12), 3202; https://doi.org/10.3390/cancers15123202

Molecular Subtypes in CRC

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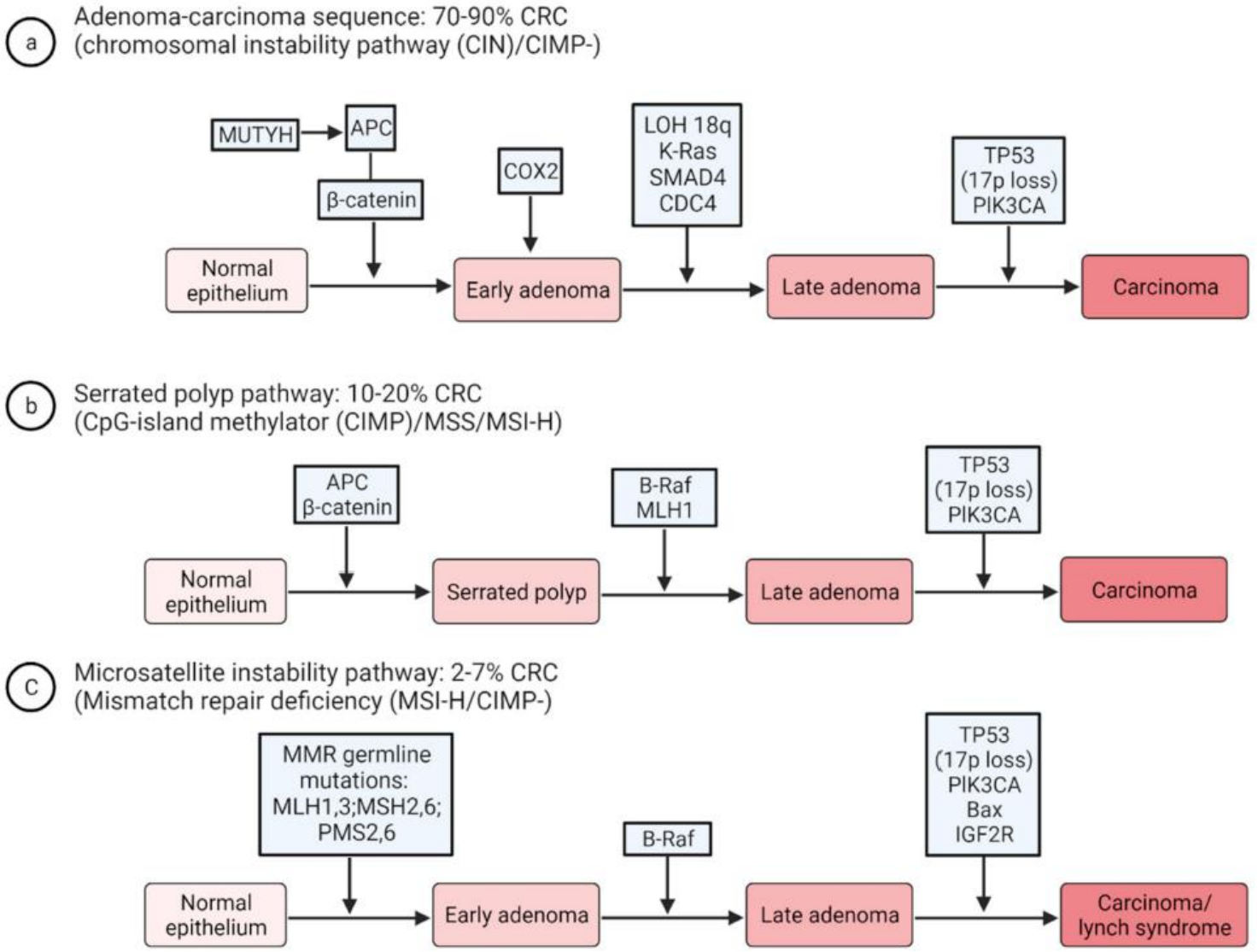


Cancers **2023**, *15*(12), 3202; https://doi.org/10.3390/cancers15123202

CA CANCER J CLIN 2018;00:00–00

Colorectal Cancer Screening for Average-Risk Adults: 2018 Guideline Update From the American Cancer Society

Andrew M. D. Wolf, MD[1]; Elizabeth T. H. Fontham, MPH, DrPH[2]; Timothy R. Church, PhD[3]; Christopher R. Flowers, MD, MS[4]; Carmen E. Guerra, MD[5]; Samuel J. LaMonte, MD[6]; Ruth Etzioni, PhD[7]; Matthew T. McKenna, MD[8]; Kevin C. Oeffinger, MD[9]; Ya-Chen Tina Shih, PhD[10]; Louise C. Walter, MD[11]; Kimberly S. Andrews, BA[12]; Otis W. Brawley, MD[13]; Durado Brooks, MD, MPH[14]; Stacey A. Fedewa, PhD, MPH[15]; Deana Manassaram-Baptiste, PhD, MPH[16]; Rebecca L. Siegel, MPH[17]; Richard C. Wender, MD[18]; Robert A. Smith, PhD[19]

People at average risk

- Men and women should start regular screening at **age 45**
- People who are in good health and with a life expectancy of more than 10 years should continue regular colorectal cancer screening through **age 75**
- For people **ages 76 through 85**, the decision to be screened should be based on their preferences, life expectancy, overall health, and prior screening history
- People over **age 85** should no longer get colorectal cancer screening

Test Options for Colorectal Cancer Screening

Visual exams:

- Colonoscopy every 10 years, OR
- CT colonography (virtual colonoscopy)* every 5 years, OR
- Flexible sigmoidoscopy* every 5 years

* If a person chooses to be screened with a test other than colonoscopy, any abnormal test result should be followed up with colonoscopy.

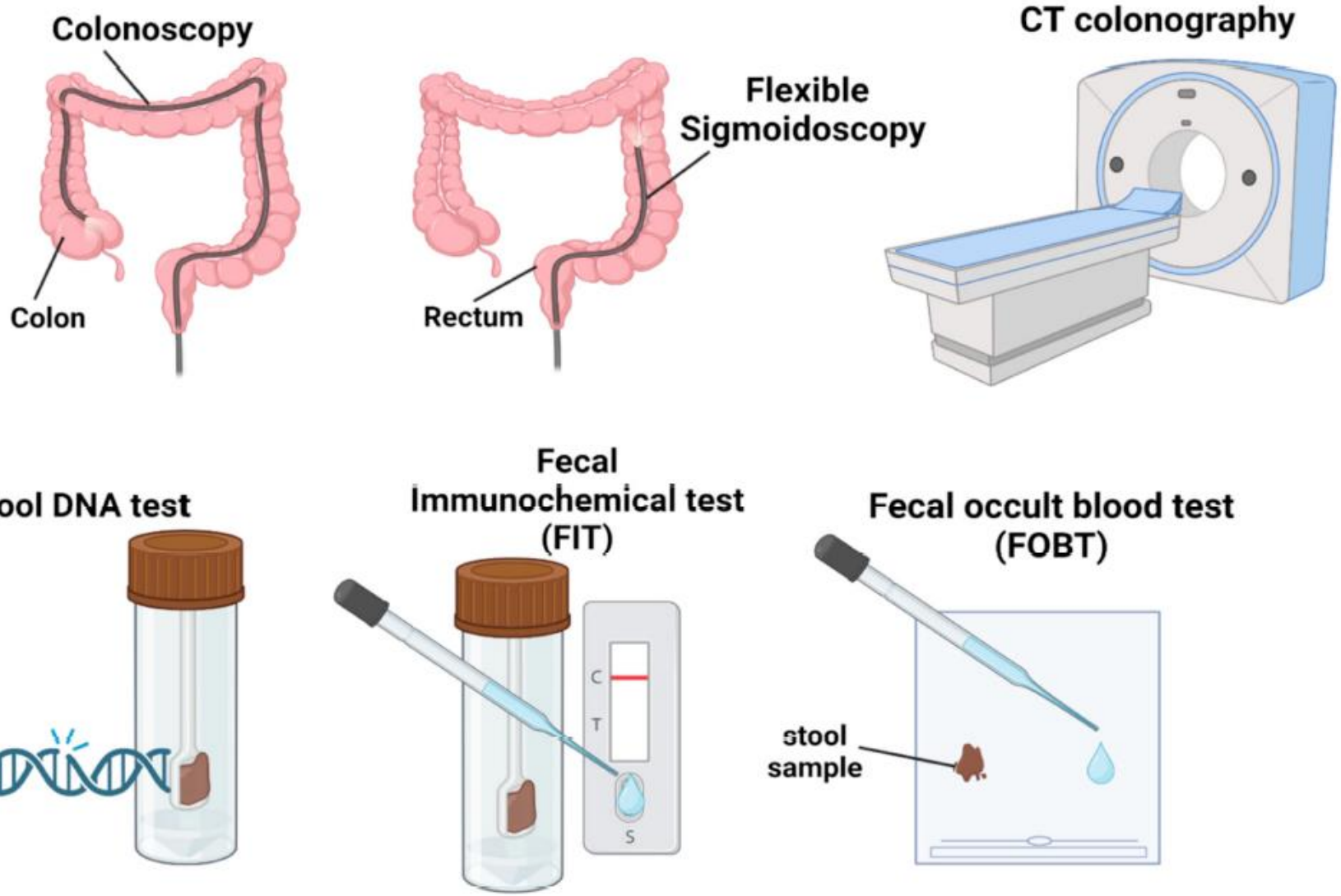
Test Options for Colorectal Cancer Screening

Stool-based tests:

- Highly sensitive fecal immunochemical test (FIT)* every year, OR
- Highly sensitive guaiac-based fecal occult blood test (gFOBT)* every year, OR
- Multi-targeted stool DNA test (MT-sDNA)* every 3 years

* If a person chooses to be screened with a test other than colonoscopy, any abnormal test result should be followed up with colonoscopy.

Screening Options



Cancers **2023**, *15*(12), 3202; https://doi.org/10.3390/cancers15123202

U.S. Preventive Services TASK FORCE 40 YEARS OF IMPROVING HEALTH

Final Recommendation Statement

Colorectal Cancer: Screening

May 18, 2021

Recommendation Summary

Population	Recommendation	Grade
Adults aged 50 to 75 years	The USPSTF recommends screening for colorectal cancer in all adults aged 50 to 75 years. See the "Practice Considerations" section and Table 1 for details about screening strategies.	A
Adults aged 45 to 49 years	The USPSTF recommends screening for colorectal cancer in adults aged 45 to 49 years. See the "Practice Considerations" section and Table 1 for details about screening strategies.	B
Adults aged 76 to 85 years	The USPSTF recommends that clinicians selectively offer screening for colorectal cancer in adults aged 76 to 85 years. Evidence indicates that the net benefit of screening all persons in this age group is small. In determining whether this service is appropriate in individual cases, patients and clinicians should consider the patient's overall health, prior screening history, and preferences.	C

Screening Test Characteristics

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Test	Sensitivity for CRC	Sensitivity for adv. Adenoma	Specificity for CRC	Evidence	Risk	Deaths averted per 1000 screened
High sensitivity guaiac FOBT	62-79%	7%	87%-96%	Strong	Low	26
FIT	76-95%	27%-47%	89%-96%	Weak	Low	26
FIT-DNA (Cologuard)	93%	43%	85%	Early	Low	28 (yearly) 25 (Q 3 years)
CT Colonography	96%	67%-94% (>10mm) 73%-98% (6mm)	86%-98% (>10mm) 80%-93% (>6mm)	Weak	Low	26
Flexible Sigmoidoscopy	58-75%	72%-86%	92%	Strong	Interm ediate	24 (28 with FIT)
Colonoscopy	95%	89%-98% (>10mm) 75%-93% (>6mm)	90%	Interme diate	High	28

Davidson K, et al. JAMA. 2021;325(19):1965-1977.
Knudsen et al. JAMA. 2021; 325(19): :1998-2011.
May F. Huntington Health grand rounds Sept 6, 2024

Patient Considerations

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	HSgFOBT	FIT	FIT-DNA	CT Colonography	FS (+ FIT)	Colonoscopy
Invasiveness	+	+	+	++	++	+++
Home test	Yes	Yes	Yes	No	No	No
Dietary restrictions	Yes	No	No	Yes	Yes	Yes
Interval	1 year	1 year	1-3 years	5 years	5 (10 years)	10 years (if normal)
Complications	Negligible	Negligible	Negligible	Few	Few	Low (0.1%)
Patient Participation	Moderate	Moderate	Moderate	Moderate	Moderate	Lowest
Cost	$	$	$$	$$	$	$$

Robertson et al. AJG; 2017: 112; 37-53.
Inadomi. NEJM; 2017; 376:1598-1600.
May F. Huntington Health grand rounds Sept 6, 2024

Blood tests for colorectal cancer?

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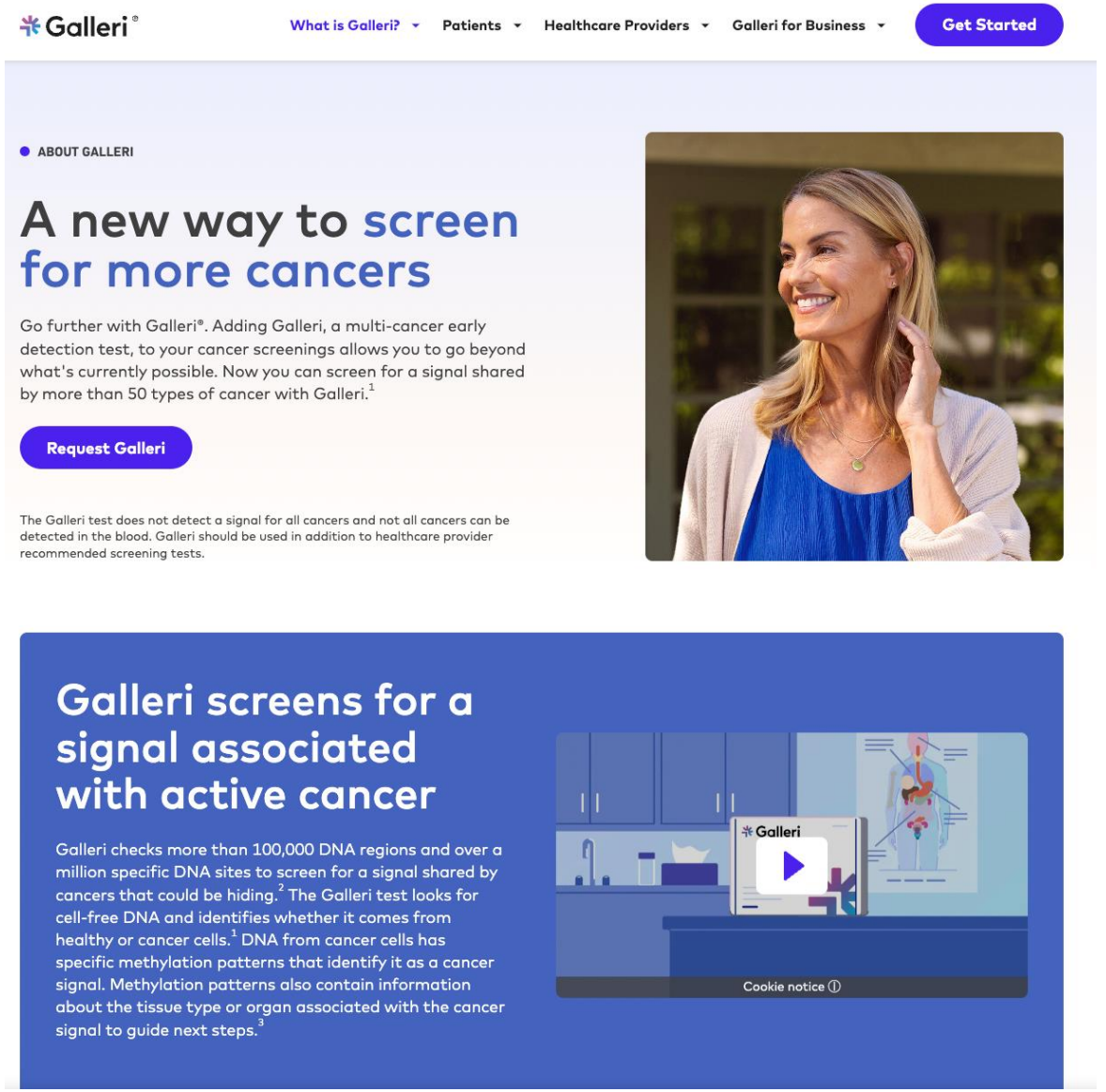
epi pro colon®

Epi proColon® is an FDA-approved blood test for colorectal cancer screening. This test is intended for persons age 50 and older who are unwilling or unable to be screened by recommended methods.

Rx Only



Blood tests for colorectal cancer?

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Freenome

Our Science | Clinical Expertise | Our Company | Newsroom | Careers

A comprehensive clinical studies program

Our clinical research program drives discovery, development, and validation of our early cancer detection tests.

The PREEMPT CRC Study | The PROACT LUNG Study | The Vallania Study

Our colorectal cancer screening study: The PREEMPT CRC® Study

The PREEMPT CRC Study is the largest clinical study validating a blood-based colorectal screening test. The PREEMPT CRC Study included more than 200 study sites across urban and rural communities, enrolling more than 40,000 participants across a range of racial, ethnic, and socioeconomic backgrounds.

We are thankful for the time and commitment of our participants and investigators to help Freenome develop tests to detect cancer early.

Recruitment complete

Get more information on our PREEMPT CRC Study.

Learn more at clinicaltrials.gov

Blood tests for colorectal cancer?

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GUARDANT™

July 29, 2024

- *Shield is first blood test approved by FDA as a primary screening option for colorectal cancer and that meets performance requirements for Medicare coverage*
- *Blood test offers easy, convenient and pleasant screening option with potential for improving colorectal cancer screening rates*
- *Guardant Health to host investor conference call and webcast Monday, July 29, at 8:30 a.m. ET / 5:30 a.m. PT*

PALO ALTO, Calif.--(BUSINESS WIRE)-- Guardant Health, Inc. (Nasdaq: GH), a leading precision oncology company, today announced the U.S. Food and Drug Administration (FDA) has approved the company's Shield™ blood test for colorectal cancer (CRC) screening in adults age 45 and older who are at average risk for the disease. It is the first blood test to be approved by the FDA as a primary screening option for CRC, meaning healthcare providers can offer Shield in a manner similar to all other non-invasive methods recommended in screening guidelines. Shield is also the first blood test for CRC screening that meets the requirements for Medicare coverage. [1]

Blood tests for colorectal cancer?

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Volume 390 Issue 11 March 14, 2024

A Cell-free DNA Blood-Based Test for Colorectal Cancer Screening

Daniel C. Chung, M.D., Darrell M. Gray II, M.D., M.P.H., Harminder Singh, M.D., Rachel B. Issaka, M.D., M.A.S., Victoria M. Raymond, M.S., Craig Eagle, M.D., Sylvia Hu, Ph.D., Darya I. Chudova, Ph.D., AmirAli Talasaz, Ph.D., Joel K. Greenson, M.D., Frank A. Sinicrope, M.D., Samir Gupta, M.D., M.S.C.S., and William M. Grady, M.D

Blood tests for colorectal cancer?

Huntington Cancer Center | An Affiliate of Cedars Sinai Cancer

Table 2. Sensitivity and Specificity of the Cell-free DNA (cfDNA) Blood-Based Test for the Most Advanced Findings on Colonoscopy.*

Variable	Most Advanced Finding on Colonoscopy	cfDNA Blood-Based Test	
		Positive Test	Sensitivity (95% CI)
	no.	*no.*	%
Colorectal cancer			
Any	65	54	83.1 (72.2–90.3)
Stage I, II, or III*	48	42	87.5 (75.3–94.1)
Advanced precancerous lesions†	1116	147	13.2 (11.3–15.3)
			Specificity (95% CI)
Nonadvanced adenomas, nonneoplastic findings, and negative colonoscopy	6680	698	89.6 (88.8–90.3)
Nonneoplastic findings and negative colonoscopy	4514	457	89.9 (89.0–90.7)

* Excluded were 10 stage IV and 7 pathologically confirmed, incompletely staged colorectal cancers.
† Advanced precancerous lesions include advanced adenomas and sessile serrated lesions at least 10 mm in the largest dimension.

Blood tests for colorectal cancer?

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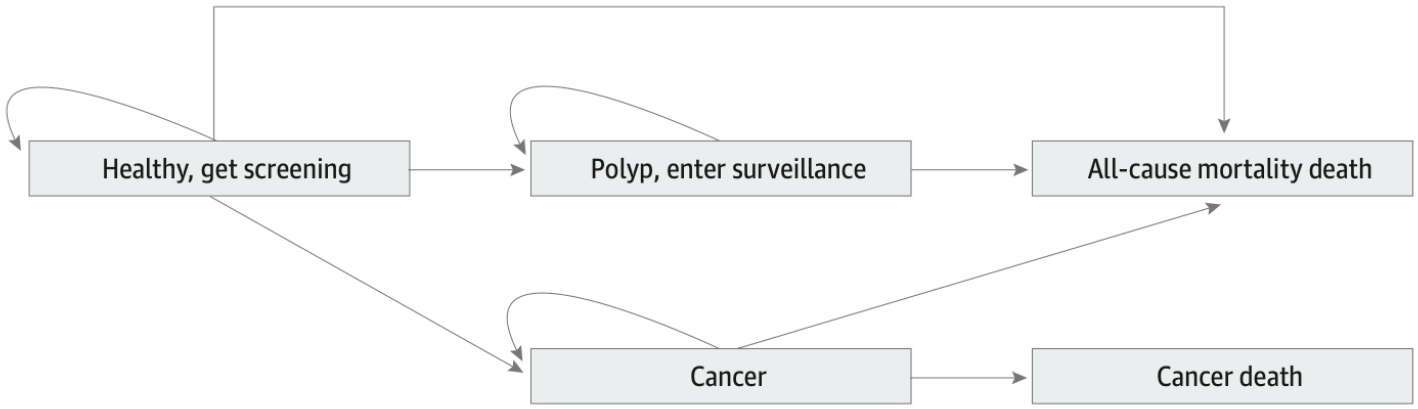
JAMA Network Open™

Original Investigation | Gastroenterology and Hepatology

Cost-Effectiveness of Liquid Biopsy for Colorectal Cancer Screening in Patients Who Are Unscreened

Zainab Aziz, BS; Sophie Wagner, BS; Alice Agyekum, BS; Yoanna S. Pumpalova, MD; Matthew Prest, MS; Francesca Lim, MS; Sheila Rustgi, MD; Fay Kastrinos, MD, MPH; William M. Grady, MD; Chin Hur, MD, MPH

Figure 1. Markov Model Schematic



JAMA Network Open. 2023;6(11):e2343392. doi:10.1001/jamanetworkopen.2023.43392

Blood tests for colorectal cancer?

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Discussion

In this study, we used a Markov simulation to analyze the cost-effectiveness of LB, used both as a novel first or second-line screening modality. We present the first analysis that integrates novel LB into paradigms for CRC screening and systematically explores scenarios to determine the cost-effectiveness of LB.

The most cost-effective screening strategy in our base-case model was colonoscopy, with an ICER of $28 071 per LYG. While C-LB had the highest number of LYG and prevented the most cancers, the cost of LB would have to reduce by 66% (from $949 to $324) for the C-LB strategy to become cost-effective in our model. Compared with NH, the cost of LB would have to be reduced by 94% for its ICER to drop below the WTP threshold of $100 000 per LYG. When compared with stool-based tests, the cost of LB would have to decrease by 43% to 80% to be cost-effective. LB and C-LB had more LYG when polyp detection was introduced, but they did not achieve cost-effectiveness at LB's current price even with perfect performance.

JAMA Network Open. 2023;6(11):e2343392. doi:10.1001/jamanetworkopen.2023.43392

Colorectal Cancer Symptoms

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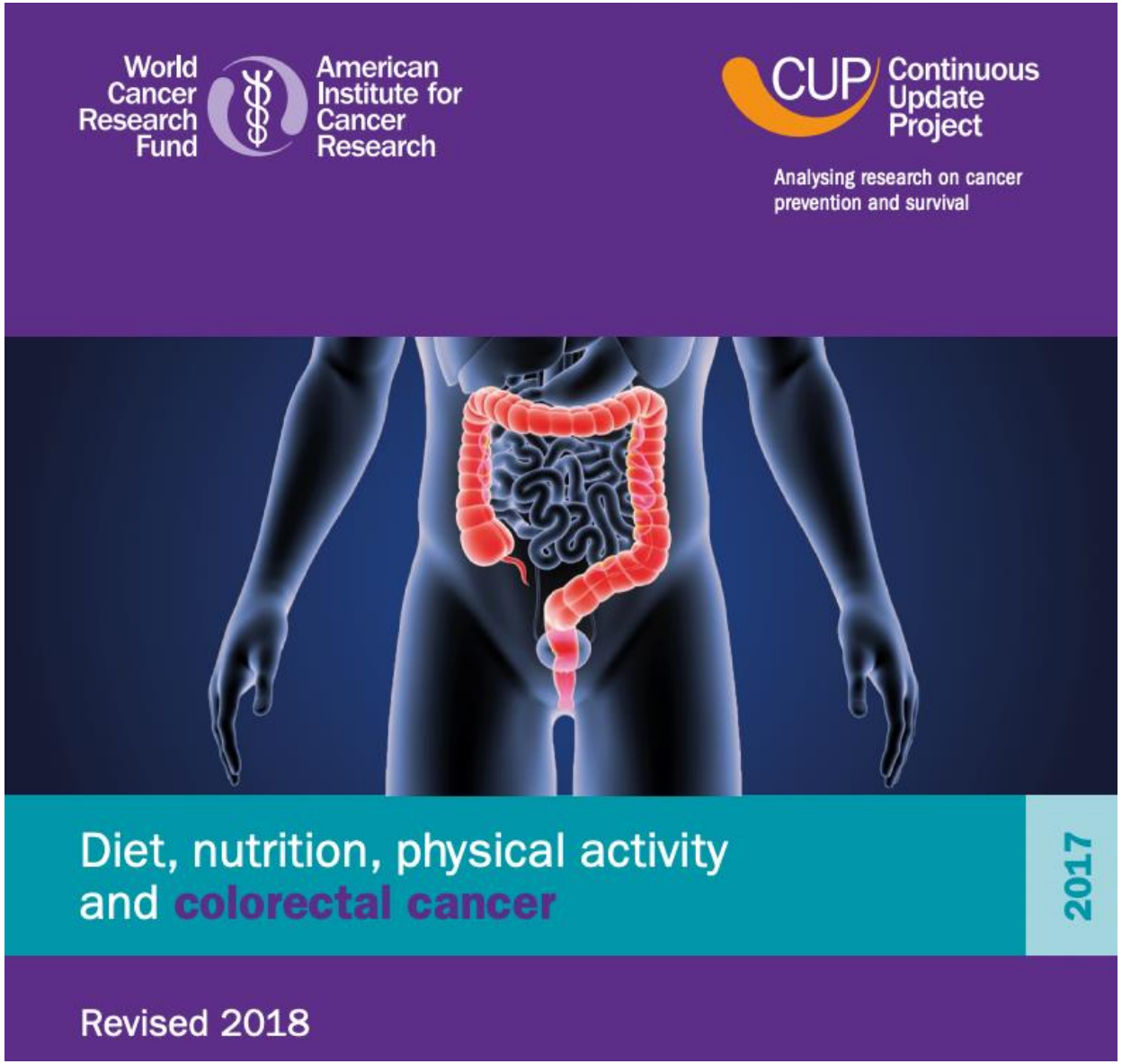
- Most people with early cancer have no symptoms
- Change in stool – shape, color, blood
- Change in bowel habits (persists)
- Abdominal pain, cramping
- Urges to have bowel movements
- Unintentional weight loss

Prevention (AICR)



https://www.aicr.org/wp-content/uploads/2020/01/colorectal-cancer-2017-report.pdf

Prevention (AICR)

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2017	DIET, NUTRITION, PHYSICAL ACTIVITY AND COLORECTAL CANCER		
		DECREASES RISK	INCREASES RISK
STRONG EVIDENCE	Convincing	Physical activity[1,2]	Processed meat[3] Alcoholic drinks[4] Body fatness[5] Adult attained height[6]
	Probable	Wholegrains Foods containing dietary fibre[7] Dairy products[8] Calcium supplements[9]	Red meat[10]
LIMITED EVIDENCE	Limited – suggestive	Foods containing vitamin C[11] Fish Vitamin D[12] Multivitamin supplements[13]	Low intakes of non-starchy vegetables[14] Low intakes of fruits[14] Foods containing haem iron[15]
	Limited – no conclusion	Cereals (grains) and their products; potatoes; animal fat; poultry; shellfish and other seafood; fatty acid composition; cholesterol; dietary n-3 fatty acid from fish; legumes; garlic; non-dairy sources of calcium; foods containing added sugars; sugar (sucrose); coffee; tea; caffeine; carbohydrate; total fat; starch; glycaemic load; glycaemic index; folate; vitamin A; vitamin B6; vitamin E; selenium; low fat; methionine; beta-carotene; alpha-carotene; lycopene; retinol; energy intake; meal frequency; dietary pattern	
STRONG EVIDENCE	Substantial effect on risk unlikely		

https://www.aicr.org/wp-content/uploads/2020/01/colorectal-cancer-2017-report.pdf

Prevention (NCI)
Factors associated with ↑ risk

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- Age
- Family history of colon cancer
- Personal history
- Alcohol
- Cigarette smoking
- Obesity

https://www.cancer.gov/types/colorectal/patient/colorectal-prevention-pdq

Prevention
Factors associated with ↓ risk

- Physical activity
- Aspirin
- Combination hormone replacement therapy
- Polyp removal

https://www.cancer.gov/types/colorectal/patient/colorectal-prevention-pdq

Prevention
Other Factors…

- Unclear affects on risk:
  - NSAIDs other than aspirin
  - Calcium
  - Diet
- No affects on risk
  - HRT with estrogen only
  - Statins

https://www.cancer.gov/types/colorectal/patient/colorectal-prevention-pdq

Prevention

- Get screened regularly
- Maintain a healthy weight
- Adopt a physically active lifestyle
- Consume a healthy diet
  - ≥5 daily servings of fruits/vegetables
  - Limit red meat/processed meat
  - Choose whole grains instead of processed
- Limit alcohol consumption

American Cancer Society, 2011

Published in final edited form as:
Adv Cancer Res. 2021 ; 151: 197–229. doi:10.1016/bs.acr.2021.02.007.

Racial and Ethnic Disparities in Colorectal Cancer Incidence and Mortality

John M. Carethers
Division of Gastroenterology and Hepatology, Department of Internal Medicine, and Department of Human Genetics and Rogel Cancer Center, University of Michigan, Ann Arbor, Michigan

Adv Cancer Res. 2021 ; 151: 197–229. doi:10.1016/bs.acr.2021.02.007.

Socioeconomic Disparities for CRC Risk Connections and Consequences

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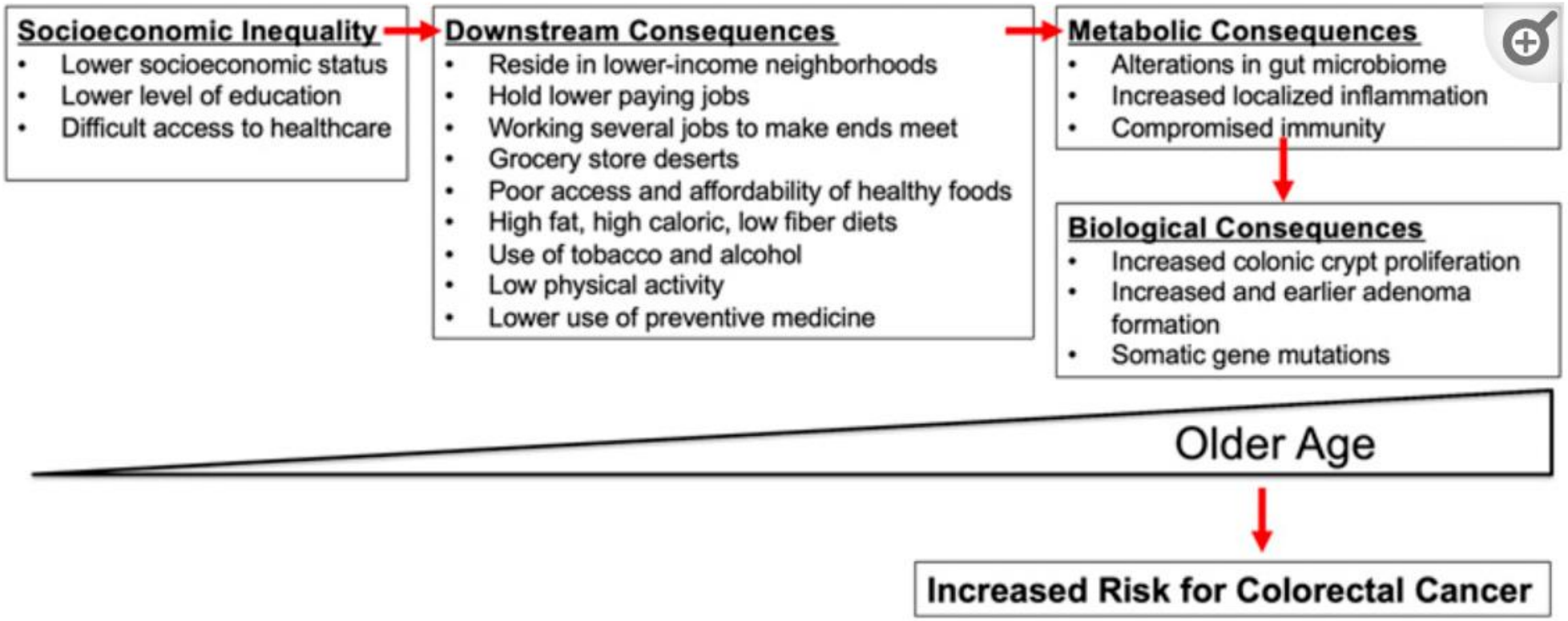

Adv Cancer Res. 2021 ; 151: 197–229. doi:10.1016/bs.acr.2021.02.007.

Framework/Strategies to Eliminate Disparities in CRC Screening Outcomes

Huntington Cancer Center | An Affiliate of Cedars Sinai Cancer

Published in final edited form as:

Annu Rev Med. 2021 January 27; 72: 383–398. doi:10.1146/annurev-med-051619-035840.

Framework and Strategies to Eliminate Disparities in Colorectal Cancer Screening Outcomes

Chyke A. Doubeni[1,2], **Kevin Selby**[3], **Samir Gupta**[4,5,6]

[1]Center for Health Equity and Community Engagement Research, Mayo Clinic, Rochester, Minnesota 55905, USA

[2]Department of Family Medicine, Mayo Clinic, Rochester, Minnesota 55905, USA

[3]Center for Primary Care and Public Health (Unisanté), Lausanne 1011, Switzerland

[4]Section of Gastroenterology, Veterans Affairs San Diego Healthcare System, San Diego, California 92161, USA

[5]Department of Medicine, University of California at San Diego, La Jolla, California 92103, USA

[6]Moores Cancer Center, University of California at San Diego, La Jolla, California 92103, USA

Doubeni, Chyke A., Kevin Selby, and Samir Gupta. "Framework and strategies to eliminate disparities in colorectal cancer screening outcomes." *Annual review of medicine* 72 (2021): 383-398.

Framework/Strategies to Eliminate Disparities in CRC Screening Outcomes

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BOX 1:

MAJOR STRATIFICATIONS OF DISPARITIES IN COLORECTAL CANCER SCREENING OUTCOMES

1. Race/ethnicity
2. English proficiency/Language
3. Immigrant status
4. Educational level
5. Income
6. Insurance coverage
7. Occupation
8. Age
9. Sex/Gender
10. Geography (neighborhoods, county, state, rural vs. urban, etc.)
11. Behavioral risk factors (e.g., obesity)

Doubeni, Chyke A., Kevin Selby, and Samir Gupta. "Framework and strategies to eliminate disparities in colorectal cancer screening outcomes." *Annual review of medicine* 72 (2021): 383-398.

Framework/Strategies to Eliminate Disparities in CRC Screening Outcomes

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BOX 2:

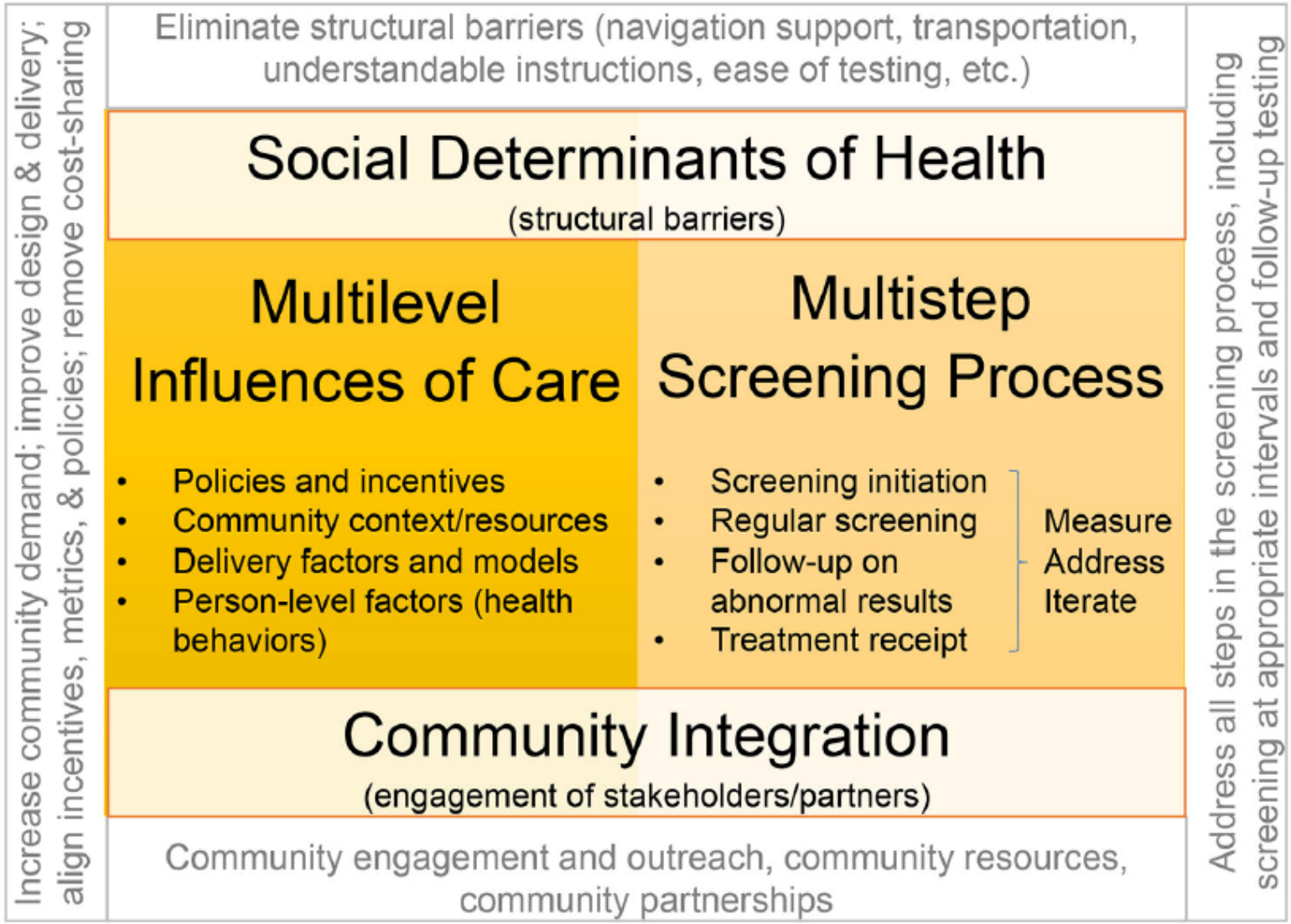
PRINCIPLES OF COMMUNITY ENGAGEMENT

1. Have shared goals with the community
2. Understand the community and its history of engagement
3. Build trust and seek commitment from stakeholders
4. Respect diverse perspectives within the community
5. Identify and mobilize community assets
6. Partner with the community
7. Assure community ownership and control of actions
8. Long-term commitment

Doubeni, Chyke A., Kevin Selby, and Samir Gupta. "Framework and strategies to eliminate disparities in colorectal cancer screening outcomes." *Annual review of medicine* 72 (2021): 383-398.

Framework/Strategies to Eliminate Disparities in CRC Screening Outcomes

Huntington Cancer Center | An Affiliate of Cedars Sinai Cancer



Doubeni, Chyke A., Kevin Selby, and Samir Gupta. "Framework and strategies to eliminate disparities in colorectal cancer screening outcomes." *Annual review of medicine* 72 (2021): 383-398.

The Delaware Model…

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Journal of Clinical Oncology®
An American Society of Clinical Oncology Journal

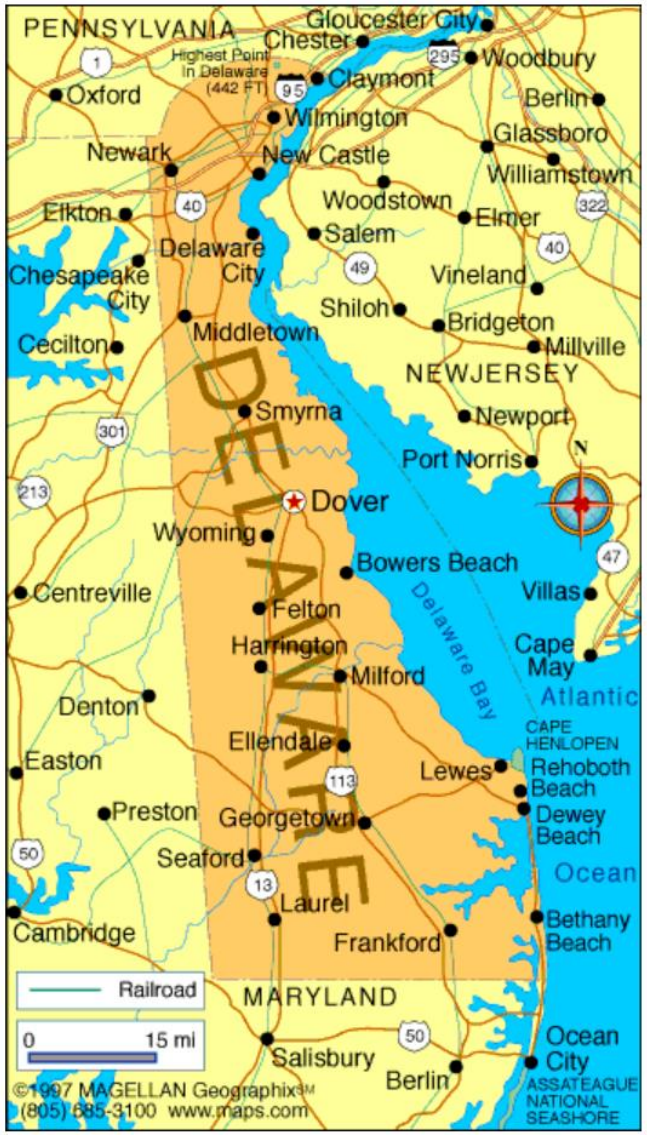
J Clin Oncol. 2013 Jun 1; 31(16): 1928–1930.
Published online 2013 Apr 15. doi: 10.1200/JCO.2012.47.8412

PMCID: PMC3661932
PMID: 23589553

Eliminating Racial Disparities in Colorectal Cancer in the Real World: It Took a Village

Stephen S. Grubbs, Blase N. Polite, John Carney, Jr, William Bowser, Jill Rogers, Nora Katurakes, Paula Hess, and Electra D. Paskett

The Delaware Model…



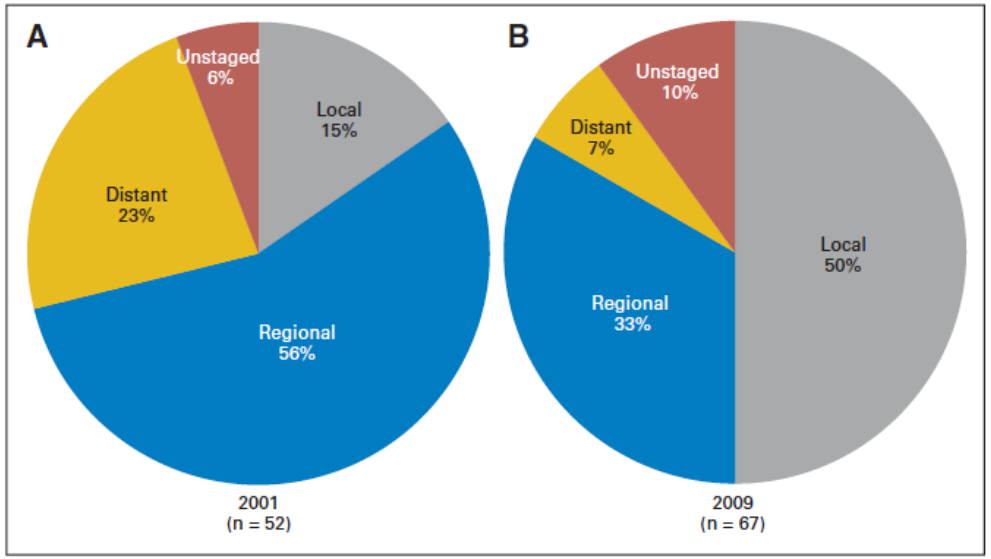


Fig 1. Colorectal cancer by stage of diagnosis among African Americans in Delaware (A) 2001 and (B) 2009.

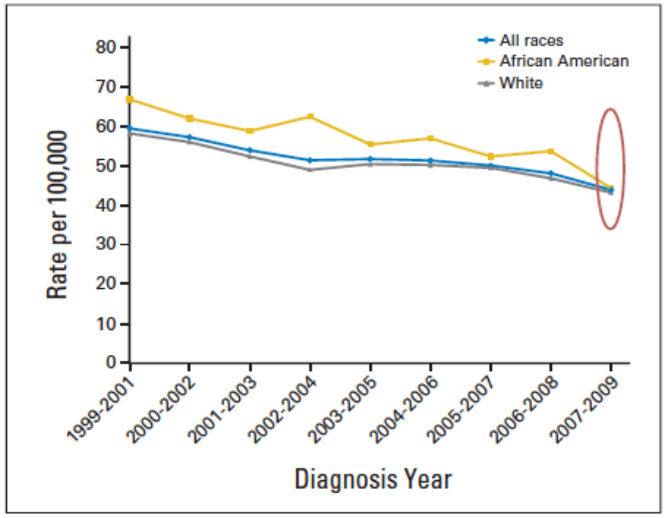


Fig 2. Age-adjusted colorectal cancer incidence rates (rolling 3-year averages) by race in Delaware from 1999 to 2009.

J Clin Oncol. 2013 Jun 1; 31(16): 1928–1930

The Delaware Model…

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Trends in CRC Screening, Incidence, and Mortality Rates by Race in Delaware: 2001 and 2009

	2001[*]		2009		>Change From 2001 to 2009 (%)	
Trend	**Black**	**White**	**Black**	**White**	**Black**	**White**
Ever had screening colonoscopy, %	47.8	58.0	73.5	74.7	54	29
CRC incidence rate per 100,000[‡]	66.9	58.2	44.3	43.2	−34	−26
Total No. of cases[‡]	205	1,206	235	1,149		
CRC mortality rate per 100,000[‡]	31.2	19.5	18.0	16.9	−42	−13
Total No. of cases[§]	88	398	75	420		

J Clin Oncol. 2013 Jun 1; 31(16): 1928–1930

Published in final edited form as:
Adv Cancer Res. 2021 ; 151: 197–229. doi:10.1016/bs.acr.2021.02.007.

Racial and Ethnic Disparities in Colorectal Cancer Incidence and Mortality

John M. Carethers
Division of Gastroenterology and Hepatology, Department of Internal Medicine, and Department of Human Genetics and Rogel Cancer Center, University of Michigan, Ann Arbor, Michigan

Adv Cancer Res. 2021 ; 151: 197–229. doi:10.1016/bs.acr.2021.02.007.

Socioeconomic Disparities for CRC Risk Mitigation

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Colonoscopy	Non-invasive Screening
Navigation personnel's racial/ethnic background similar to patient's background; use native language	Telemedicine (phone or video) instructions and advice from virtual assistants
Multifaceted points of communication and execution: (a) provides general education about the procedure, including its importance in reducing cancer risk, (b) ensure prep is picked up and/or delivered, (c) instructions and coaching on prep utilization and completion, (d) arrange transportation to and from colonoscopy site, (e) arrange observer post-procedure with follow-up contact within hours post procedure	Post-navigation follow-up after test evaluation for transmission of results and next steps
Mitigates screening costs through insurance and other means for underinsured patients	Move to colonoscopy navigation if non-invasive test is positive
With healthcare provider, communicates results of colonoscopy and any pathology, and next steps	Persistent community education presence on importance of colorectal cancer screening for racial/ethnic groups

Adv Cancer Res. 2021 ; 151: 197–229. doi:10.1016/bs.acr.2021.02.007.

Disparities in Screening

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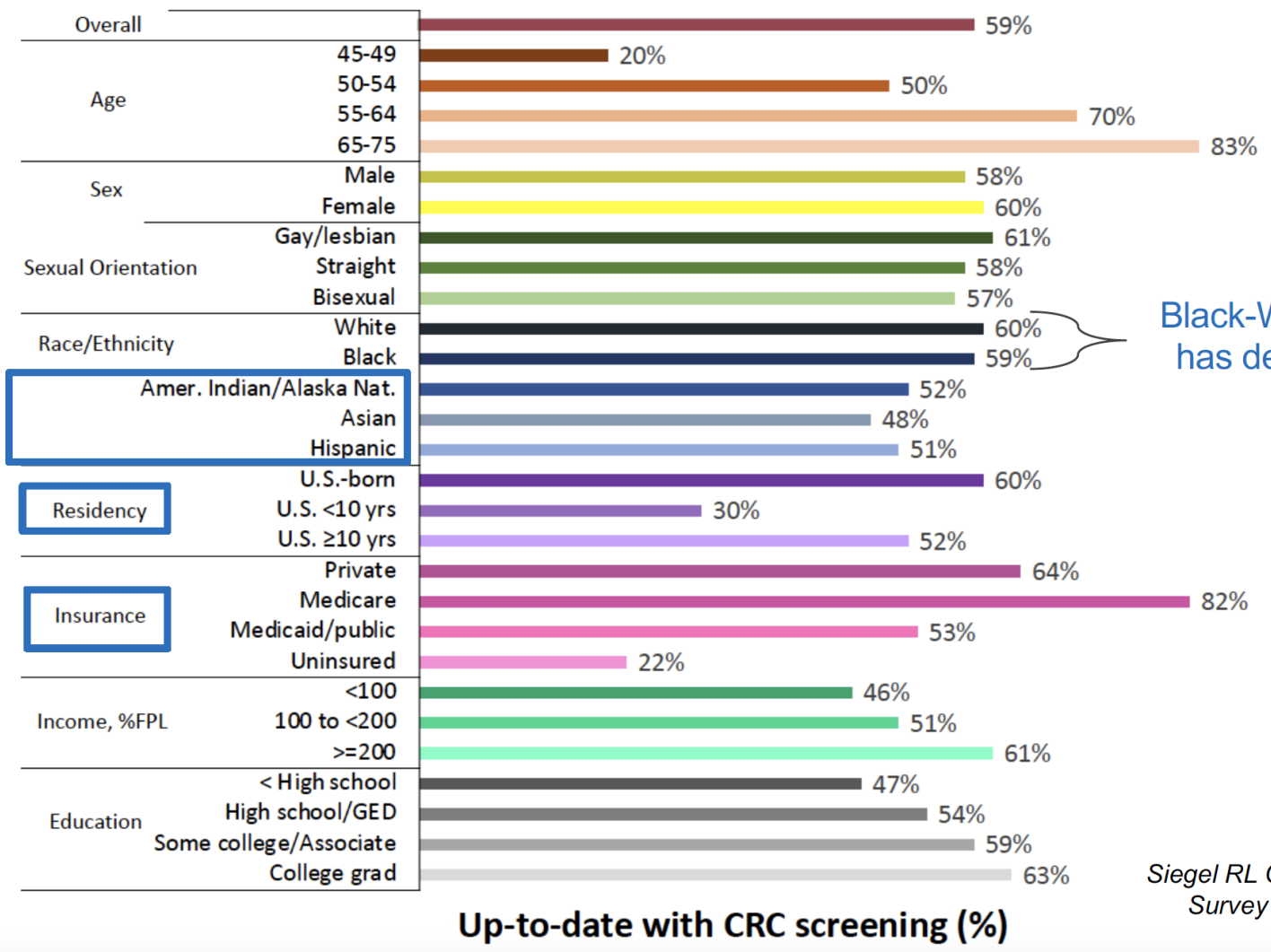


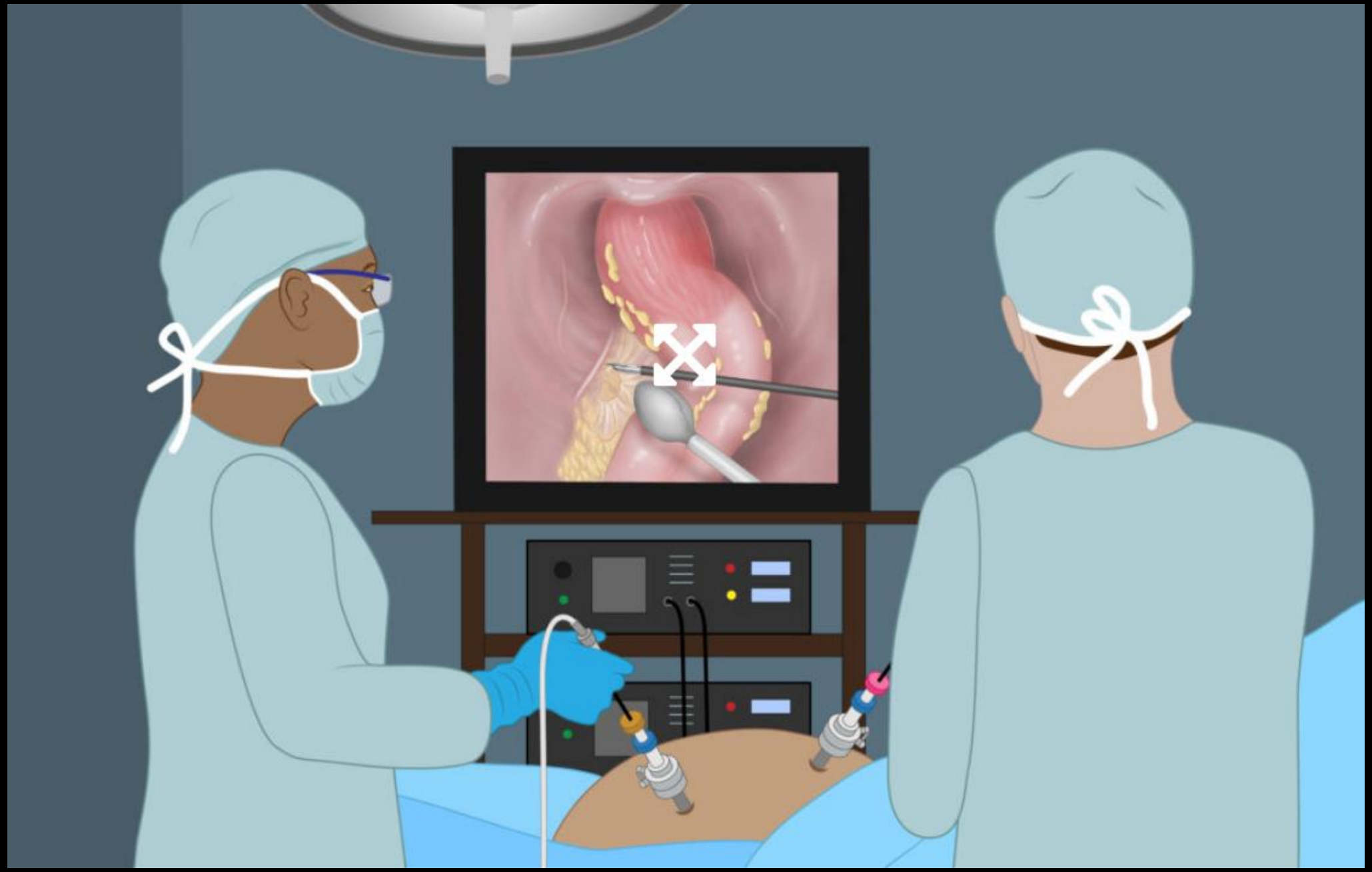
Variation in Screening Participation

Black-White screening gap has decreased over time

Siegel RL CA Cancer J Clin 2023; National Health Interview Survey 2021; Health Resources Services Administration Uniform Data Set; Ladabaum U Gastro 2023.

QI for colorectal surgery

- What's new(er) in treatment
  - Minimally invasive surgery (MIS)
  - Enhanced recovery pathways
    - Opiate reducing strategies
    - Reduced complications
    - Shorter hospital stay
    - Reduced costs



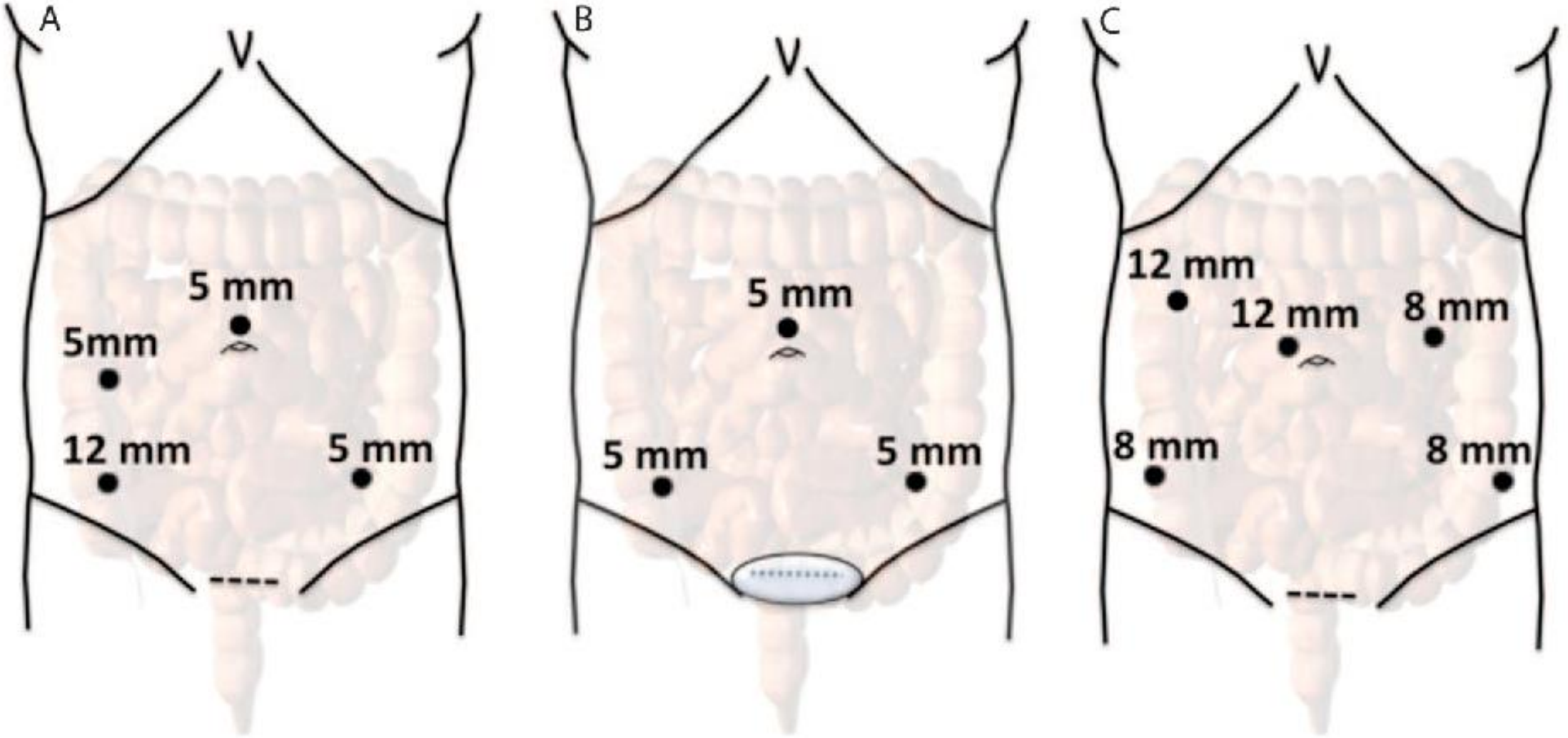
Randomized Controlled Trial > Ann Surg. 2007 Oct;246(4):655-62; discussion 662-4.
doi: 10.1097/SLA.0b013e318155a762.

Laparoscopic colectomy for cancer is not inferior to open surgery based on 5-year data from the COST Study Group trial

James Fleshman [1], Daniel J Sargent, Erin Green, Mehran Anvari, Steven J Stryker, Robert W Beart Jr, Michael Hellinger, Richard Flanagan Jr, Walter Peters, Heidi Nelson, Clinical Outcomes of Surgical Therapy Study Group

Affiliations + expand

PMID: 17893502 DOI: 10.1097/SLA.0b013e318155a762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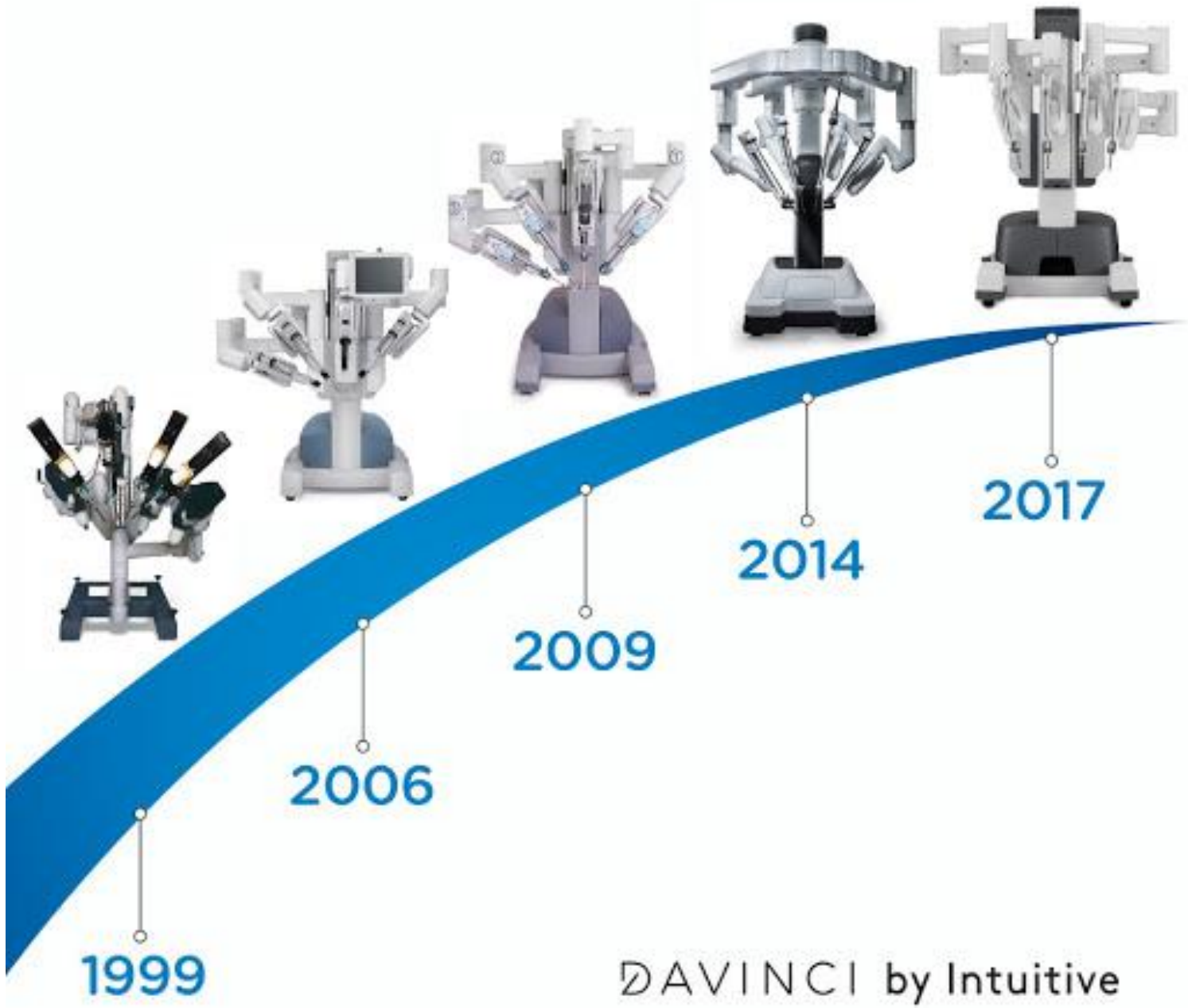
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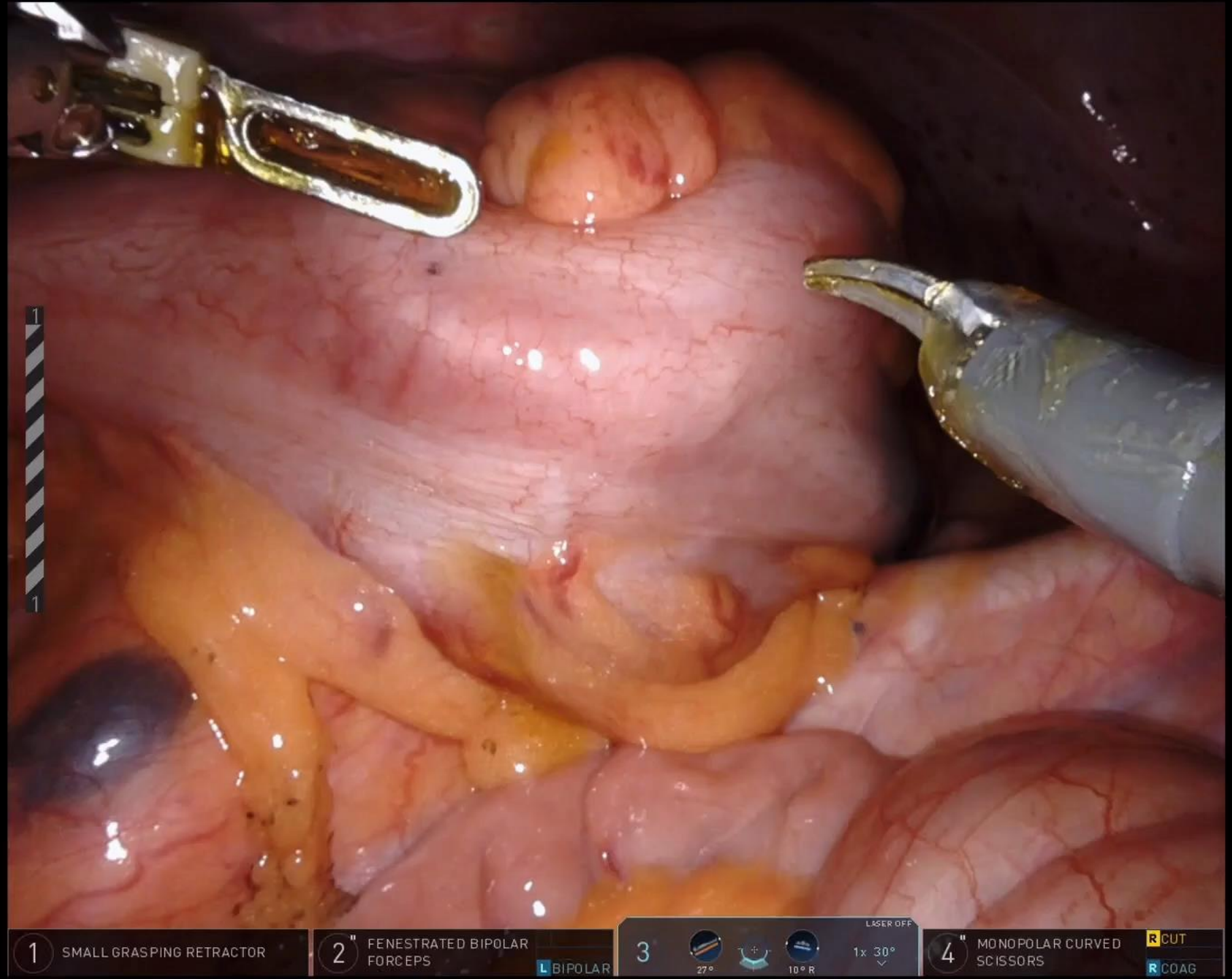
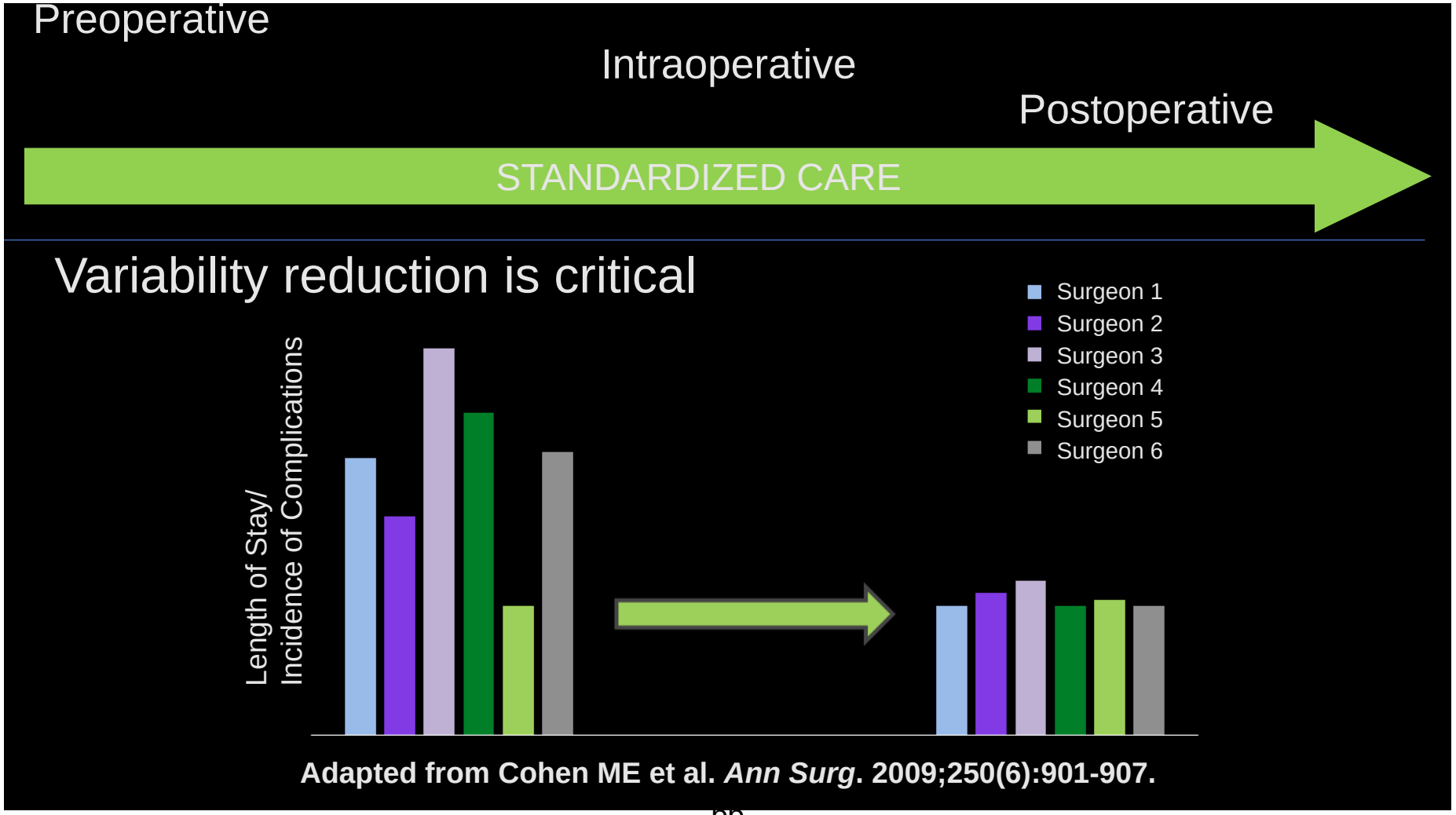

1
1
1 SMALL GRASPING RETRACTOR
2 FENESTRATED BIPOLAR FORCEPS
L BIPOLAR
3
LASER OFF
27°
10° R
1x 30°
4 MONOPOLAR CURVED SCISSORS
R CUT
R COAG

Current Surgical Challenges



What Is Enhanced Recovery After Surgery?[1,2]

ERAS protocols are:

- Multidisciplinary care pathways
  - From decision of need for procedure to return to baseline level of function

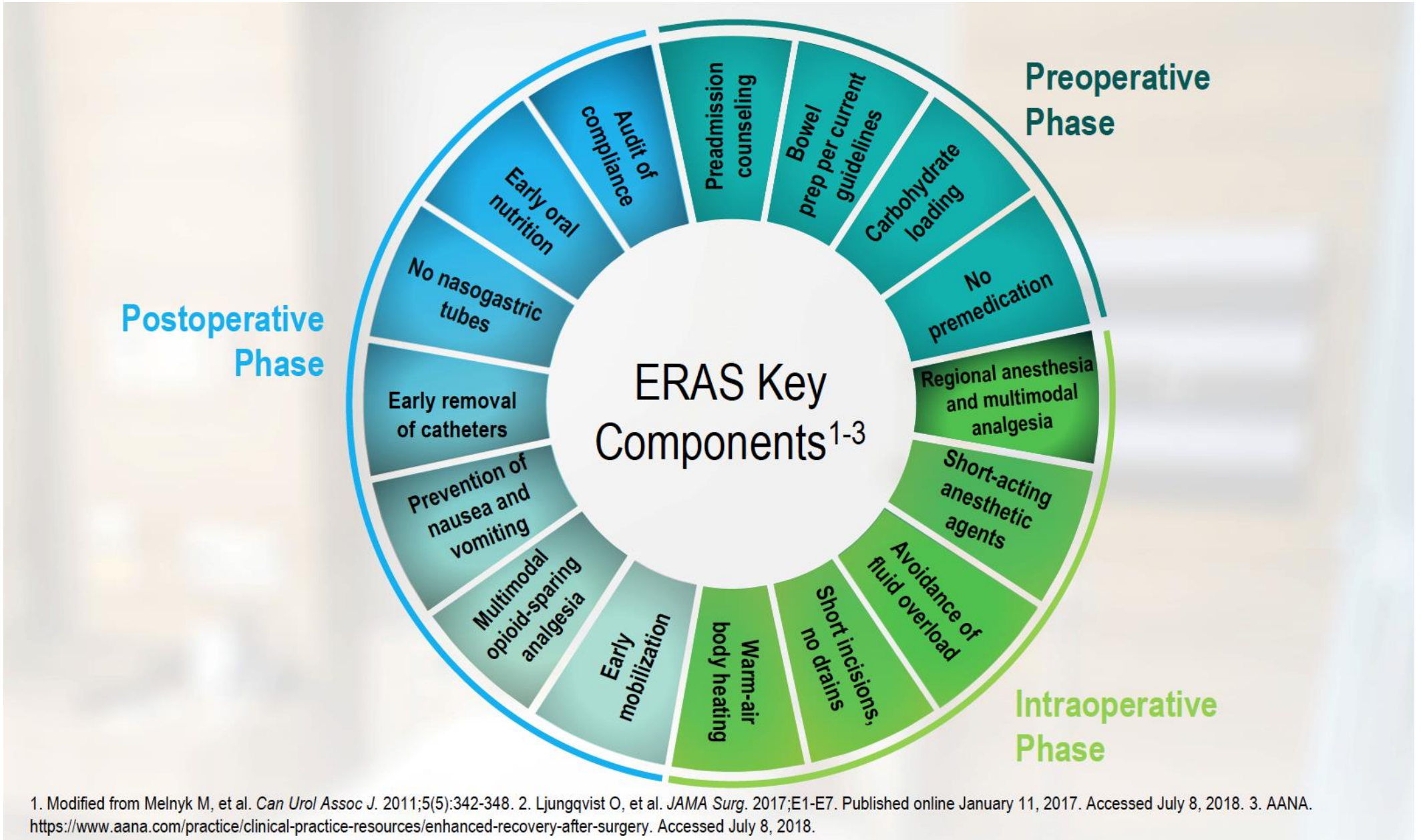
ERAS key characteristics:

- Evidence-based, patient-centered care
- Designed to reduce patients' stress response to surgery
- Includes prehabilitation
- Patient involved in his/her own preparation/recovery

Integrated continuum from:

Home → Preoperative → Intraoperative → Postoperative → Home

1. Ljungqvist O, et al. *JAMA Surg*. 2017;E1-E7. Published online January 11, 2017. Accessed July 8, 2018. 2. AANA. https://www.aana.com/practice/clinical-practice-resources/enhanced-recovery-after-surgery. Accessed July 8, 2018.



1. Modified from Melnyk M, et al. *Can Urol Assoc J.* 2011;5(5):342-348. 2. Ljungqvist O, et al. *JAMA Surg.* 2017;E1-E7. Published online January 11, 2017. Accessed July 8, 2018. 3. AANA. https://www.aana.com/practice/clinical-practice-resources/enhanced-recovery-after-surgery. Accessed July 8, 2018.

Early Feeding

Huntington Cancer Center | An Affiliate of Cedars Sinai Cancer

ANNALS OF SURGERY

ORIGINAL ARTICLES

A Clinical Pathway to Accelerate Recovery After Colonic Resection

Basse, Linda MD; Hjort Jakobsen, Dorthe RN; Billesbølle, Per MD; Werner, Mads MD, PhD; Kehlet, Henrik MD, PhD

Author Information

Annals of Surgery 232(1):p 51-57, July 2000.

Early Studies – Open Surgery

- Prospectively study (n=60), mean age 74
- Defined anesthesia and analgesia
- Enforced early mobilization
- Early enteral nutrition
- Planned 48-hour postop stay

Basse L, et al. Ann Surg 2000;232.

Postoperative Regimen

- No NG tube
- Mobilization
- Cisapride, magnesium oxide
- Epidural discontinued at 44 hours
- Patient discharged at 48 hours

Basse L, et al. Ann Surg 2000;232.

Results

- 53 patients - no risk factors precluding 2d stay
- Right hemicolectomy (23), transverse (2), left (34), subtotal (1)
- Median stay - 2 days
- 57 patients defecated within 2 days
- 2 deaths (3.3%), 5 serious complications (8.3%)
- 73% of patients were satisfied with short stay

Basse L, et al. Ann Surg 2000;232.

World J Surg (2019) 43:659–695
https://doi.org/10.1007/s00268-018-4844-y

SCIENTIFIC REVIEW

Guidelines for Perioperative Care in Elective Colorectal Surgery: Enhanced Recovery After Surgery (ERAS®) Society Recommendations: 2018

U. O. Gustafsson[1] · M. J. Scott[2,3] · M. Hubner[4] · J. Nygren[5] · N. Demartines[4] · N. Francis[6,7] · T. A. Rockall[8] · T. M. Young-Fadok[9] · A. G. Hill[10] · M. Soop[11] · H. D. de Boer[12] · R. D. Urman[13] · G. J. Chang[14] · A. Fichera[15] · H. Kessler[16] · F. Grass[4] · E. E. Whang[17] · W. J. Fawcett[18] · F. Carli[19] · D. N. Lobo[20] · K. E. Rollins[20] · A. Balfour[21] · G. Baldini[19] · B. Riedel[22] · O. Ljungqvist[23]

Published online: 13 November 2018

Gustafsson, U.O., Scott, M.J., Hubner, M. *et al.* Guidelines for Perioperative Care in Elective Colorectal Surgery: Enhanced Recovery After Surgery (ERAS®) Society Recommendations: 2018. *World J Surg* **43**, 659–695 (2019). https://doi.org/10.1007/s00268-018-4844-y

ERAS ® Society recommendations

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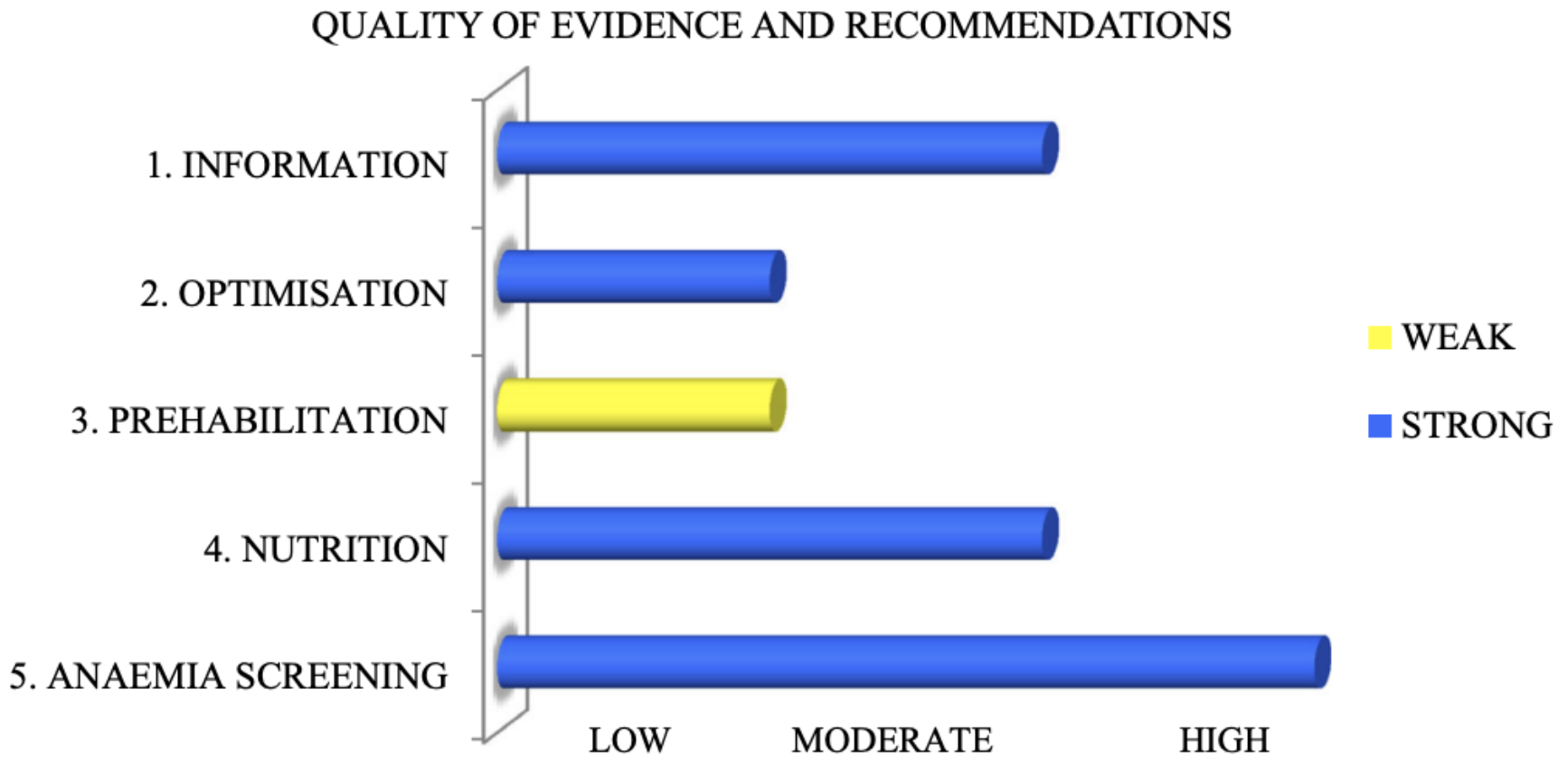
Fig. 1 Preadmission items

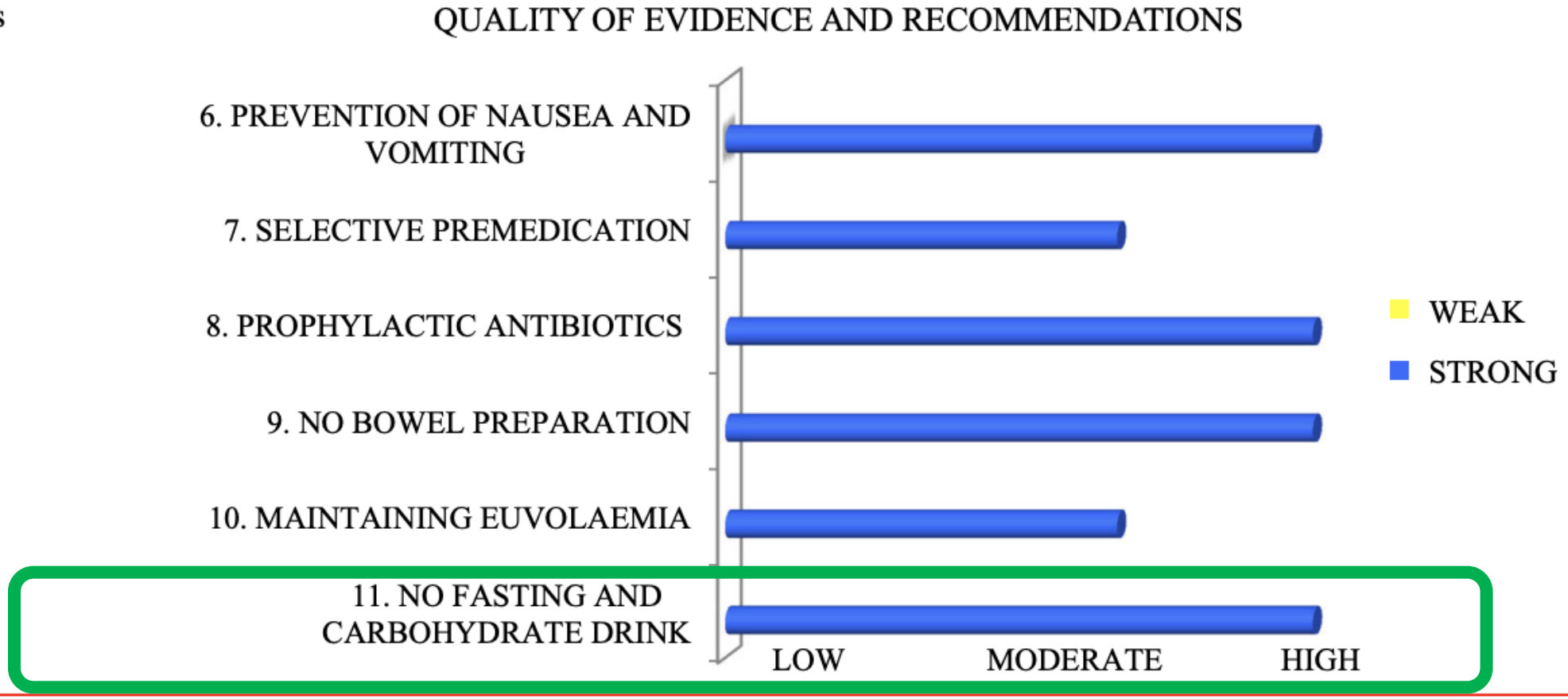


Gustafsson, U.O., Scott, M.J., Hubner, M. *et al.* Guidelines for Perioperative Care in Elective Colorectal Surgery: Enhanced Recovery After Surgery (ERAS®) Society Recommendations: 2018. *World J Surg* **43**, 659–695 (2019). https://doi.org/10.1007/s00268-018-4844-y

ERAS® Society recommendations

Huntington Cancer Center | An Affiliate of Cedars Sinai Cancer

Fig. 2 Preoperative items



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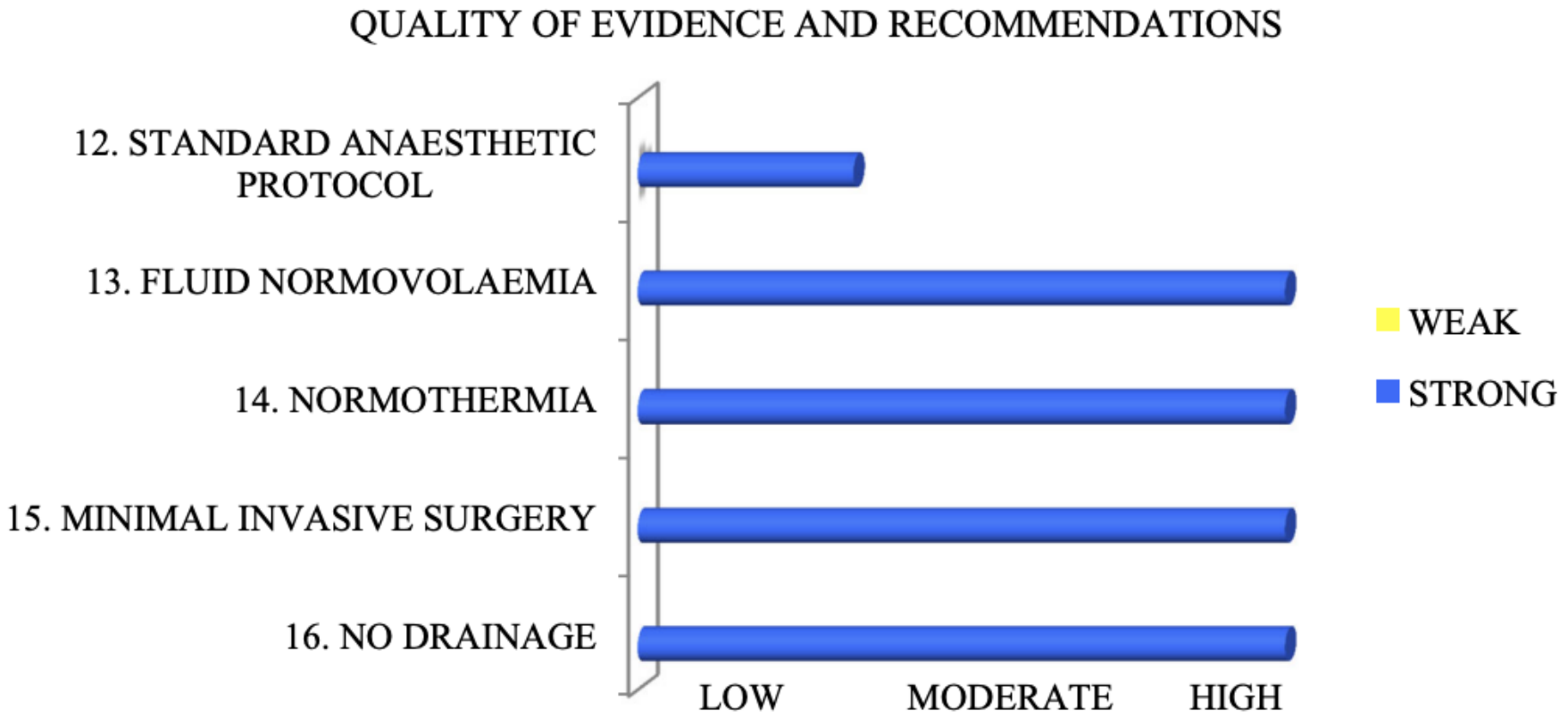
ERAS® Society recommendations

Huntington Cancer Center | An Affiliate of Cedars Sinai Cancer

Fig. 3 Intraoperative items



Gustafsson, U.O., Scott, M.J., Hubner, M. *et al.* Guidelines for Perioperative Care in Elective Colorectal Surgery: Enhanced Recovery After Surgery (ERAS®) Society Recommendations: 2018. *World J Surg* **43**, 659–695 (2019). https://doi.org/10.1007/s00268-018-4844-y

ERAS ® Society recommendations

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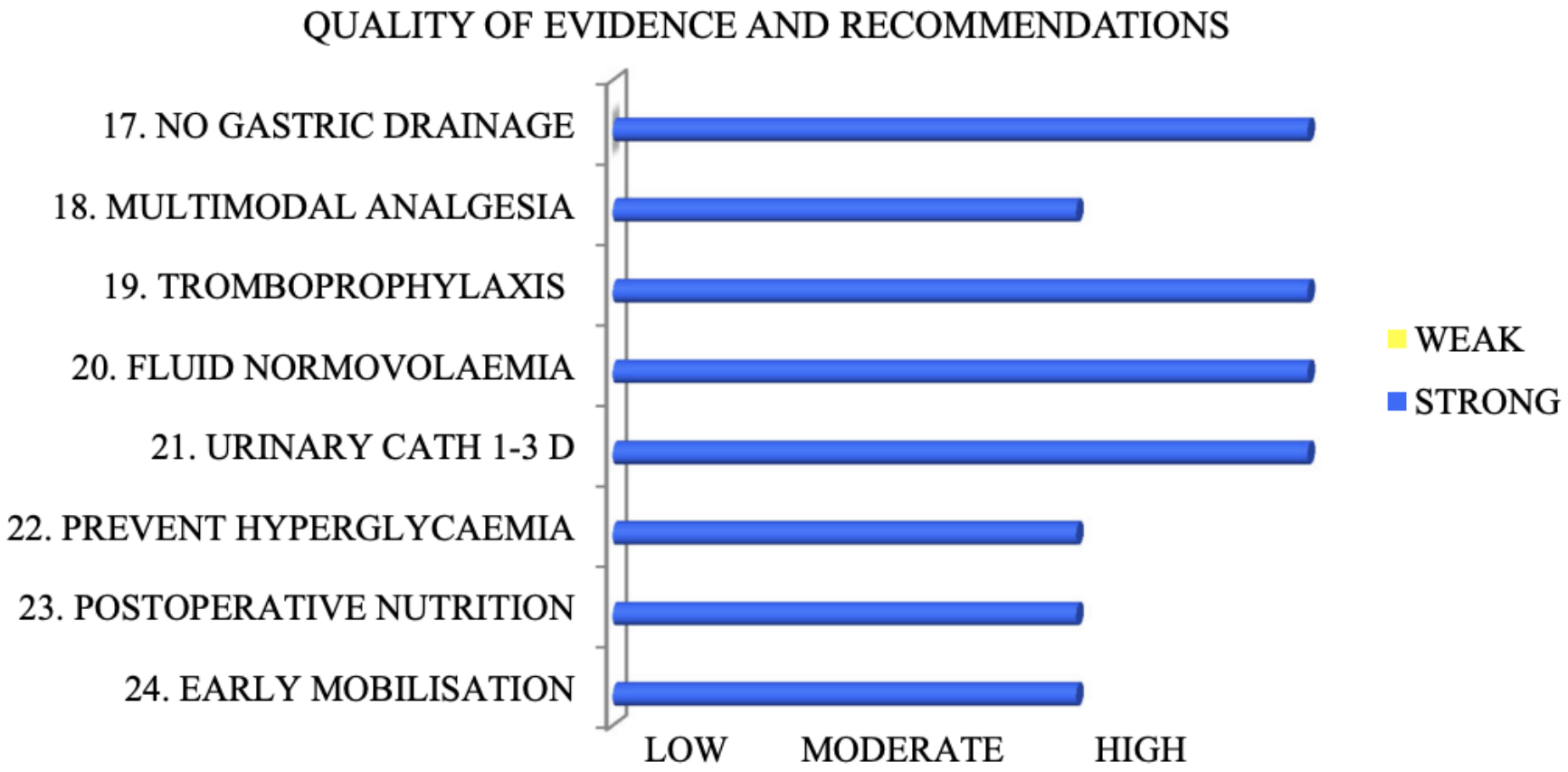
Fig. 4 Postoperative items



Gustafsson, U.O., Scott, M.J., Hubner, M. *et al.* Guidelines for Perioperative Care in Elective Colorectal Surgery: Enhanced Recovery After Surgery (ERAS®) Society Recommendations: 2018. *World J Surg* **43**, 659–695 (2019). https://doi.org/10.1007/s00268-018-4844-y

OXFORD

BJS Open, 2024, zrae094
https://doi.org/10.1093/bjsopen/zrae094
Original Article

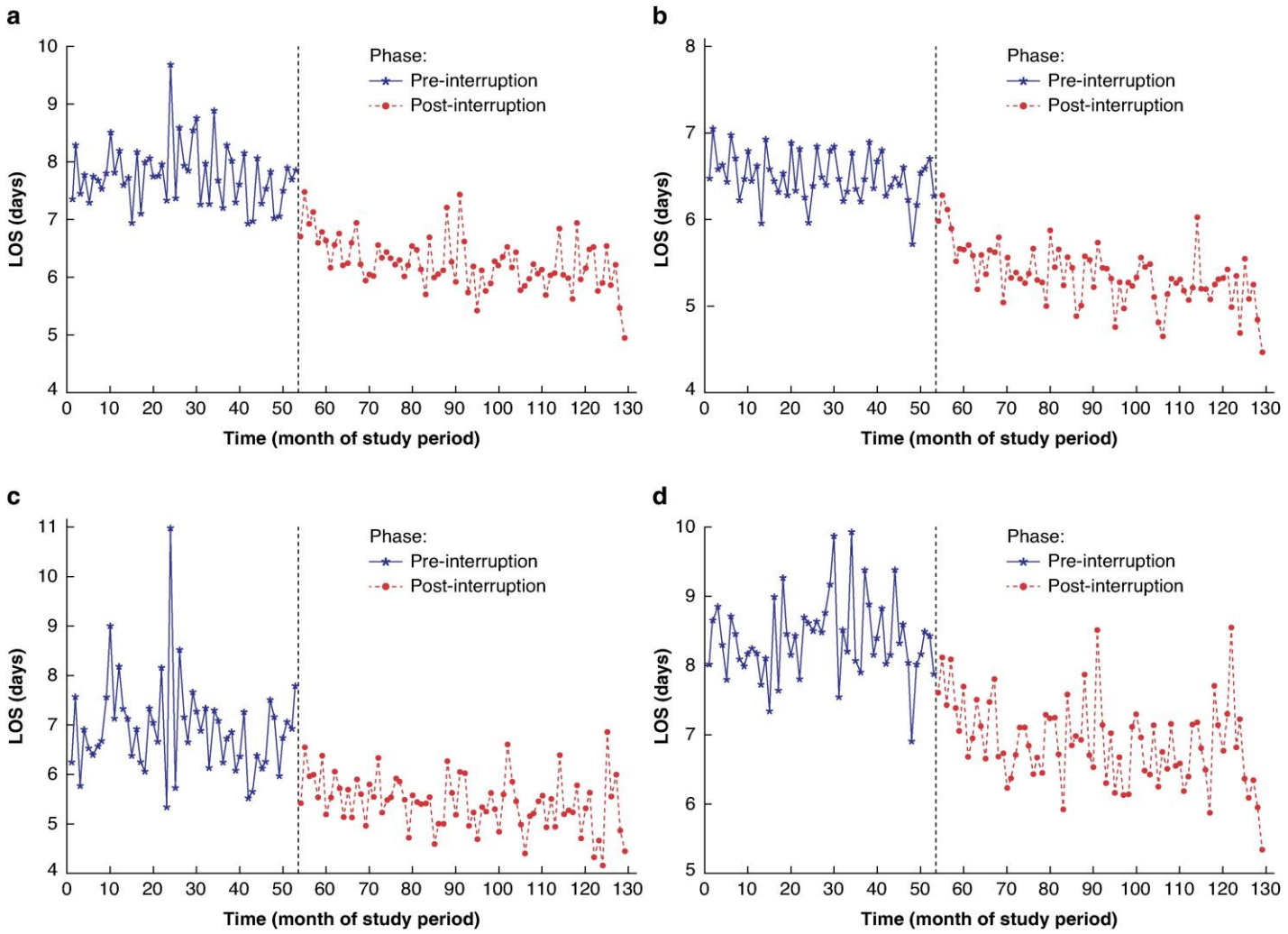
Impact of structured multicentre enhanced recovery after surgery (ERAS) protocol implementation on length of stay after colorectal surgery

Zubair Bayat[1,2,3], Anand Govindarajan[1,2,3,4], J. Charles Victor[2,4] and Erin D. Kennedy[1,2,3,*]

[1]Division of General Surgery, Department of Surgery, University of Toronto, Toronto, Ontario, Canada
[2]Institute of Health Policy Management and Evaluation, University of Toronto, Toronto, Ontario, Canada
[3]Department of Surgery, Mount Sinai Hospital, Sinai Health System, Toronto, Ontario, Canada
[4]Institute for Clinical Evaluative Sciences, Toronto, Ontario, Canada

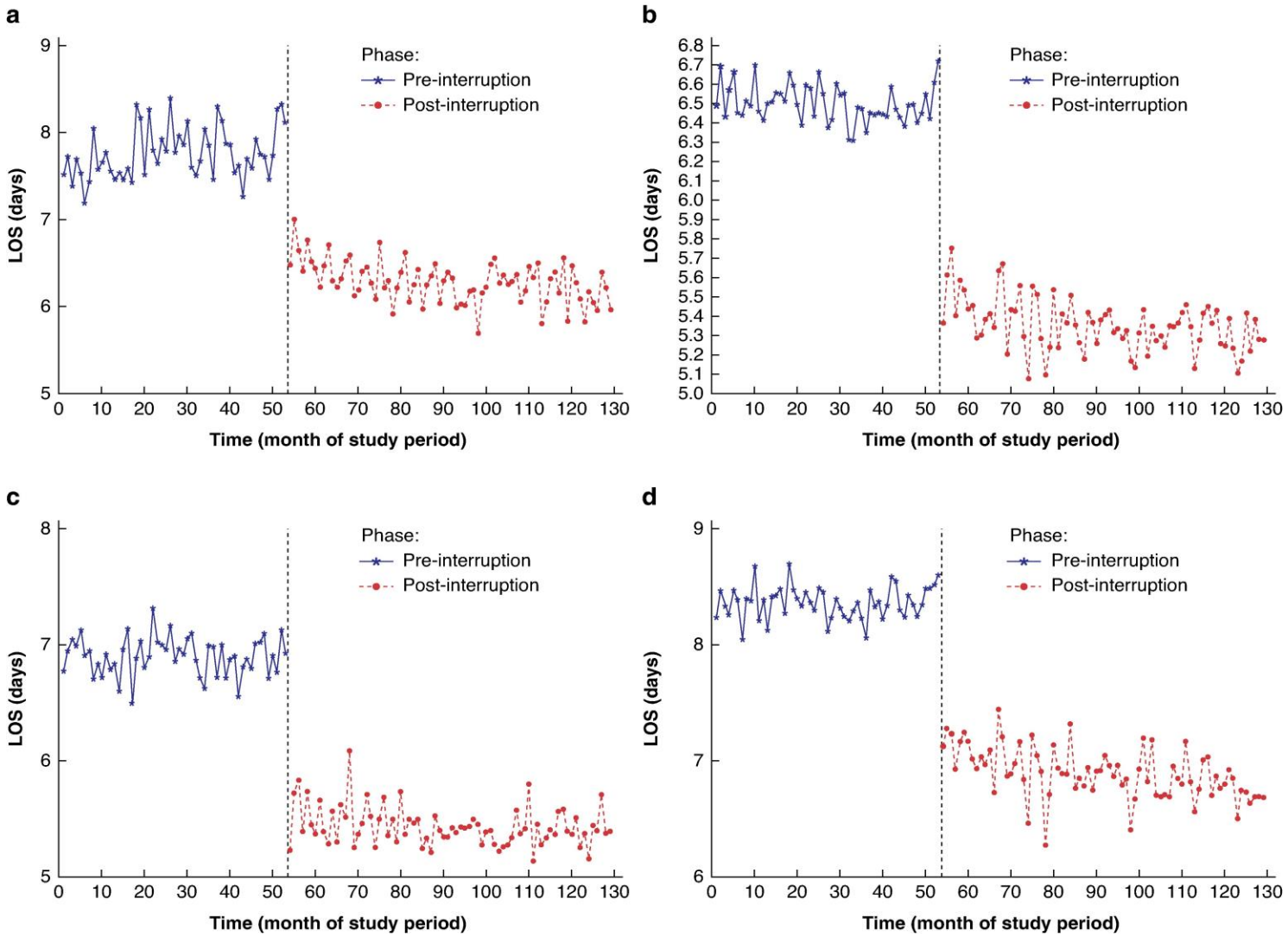
*Correspondence to: Erin D. Kennedy, Department of Surgery, Mount Sinai Hospital, Suite 449, 600 University Avenue, Toronto, Ontario, M5G 1X5, Canada (e-mail: erin.kennedy@sinaihealth.ca)

Fig. 1 Results of the interrupted time series analysis for the impact of the introduction of ERAS protocols on LOS



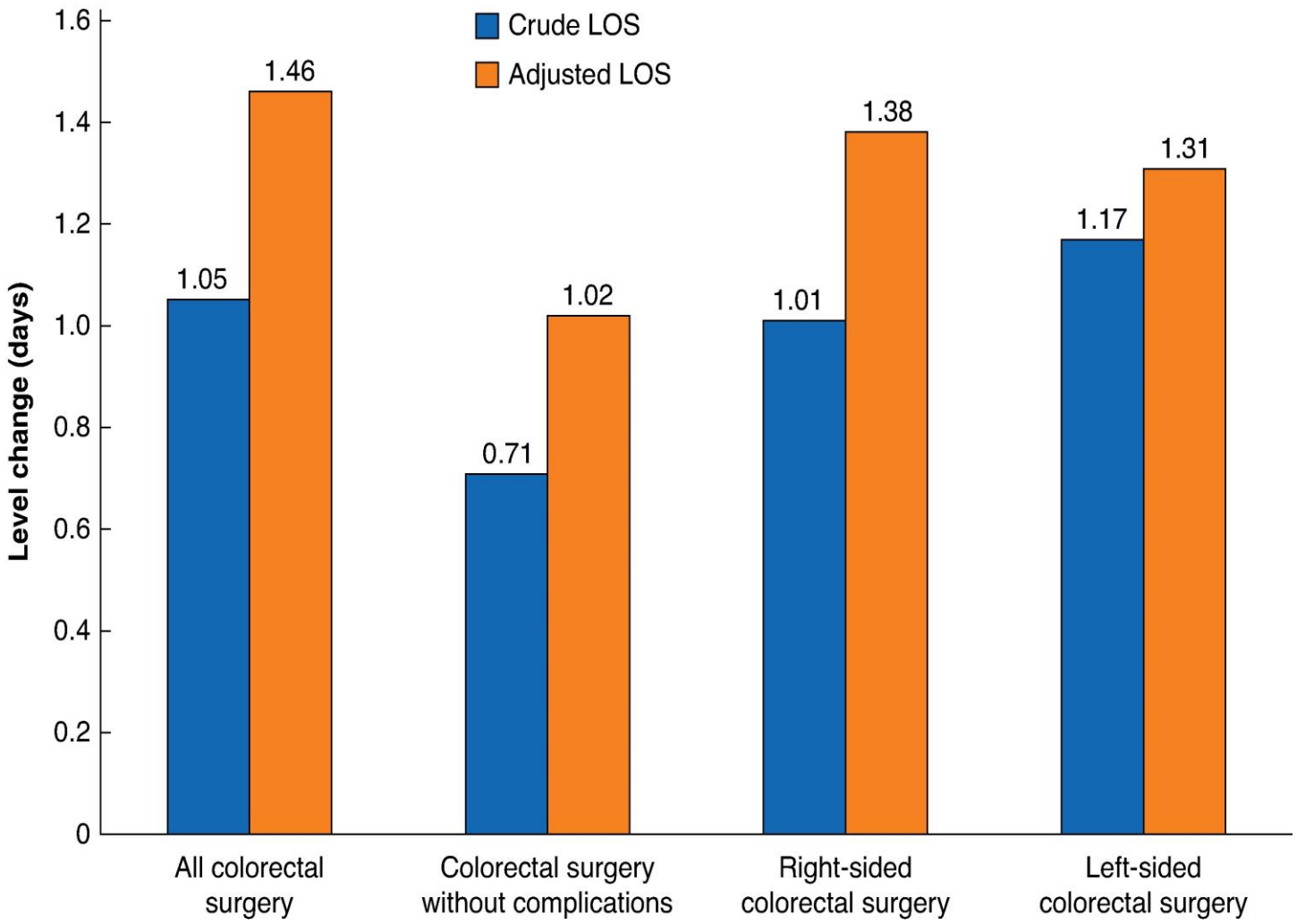
BJS Open, Volume 8, Issue 5, October 2024, zrae094, https://doi.org/10.1093/bjsopen/zrae094

Fig. 2 Results of the interrupted time series analysis for the impact of the introduction of ERAS protocols on adjusted LOS



BJS Open, Volume 8, Issue 5, October 2024, zrae094, https://doi.org/10.1093/bjsopen/zrae094

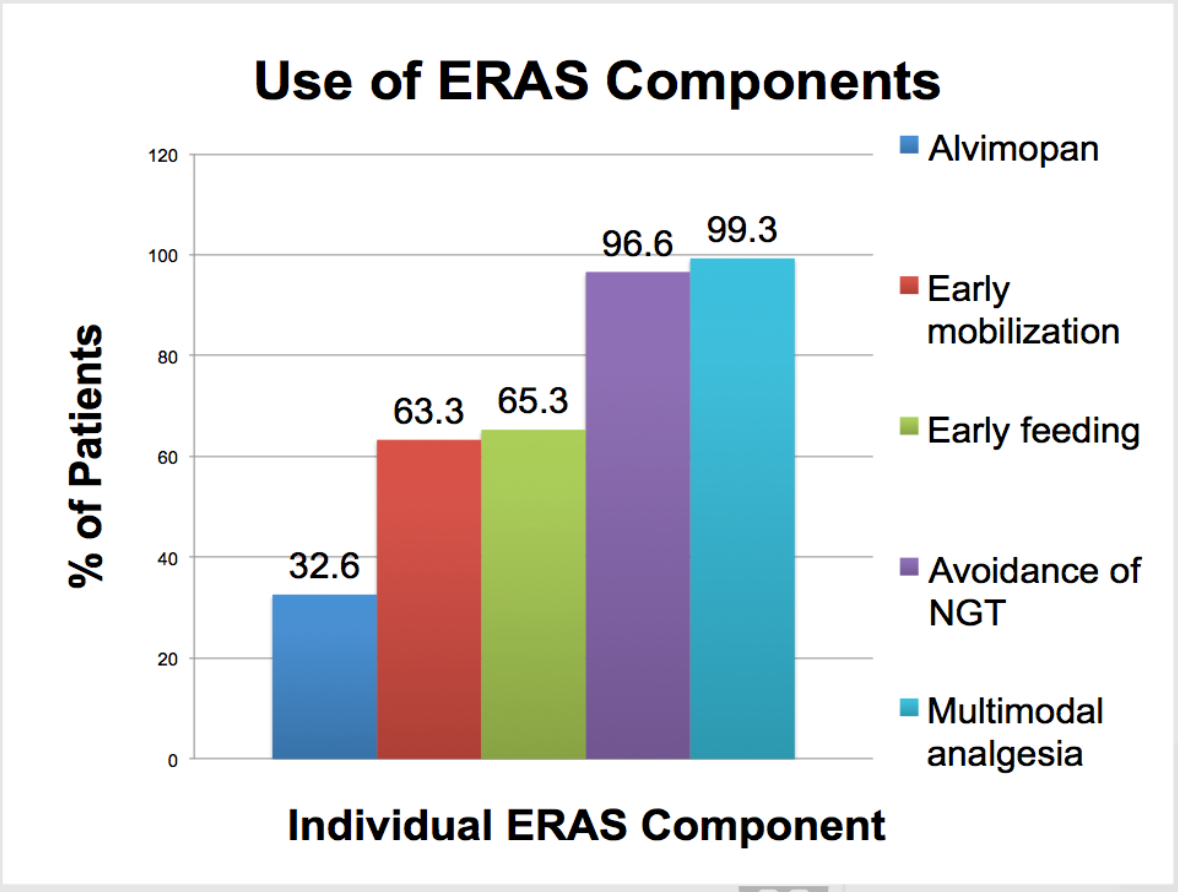
Fig. 3 Graph depicting the level change (decrease in LOS, measured in days) after ERAS protocol implementation for patients in each cohort



BJS Open, Volume 8, Issue 5, October 2024, zrae094, https://doi.org/10.1093/bjsopen/zrae094

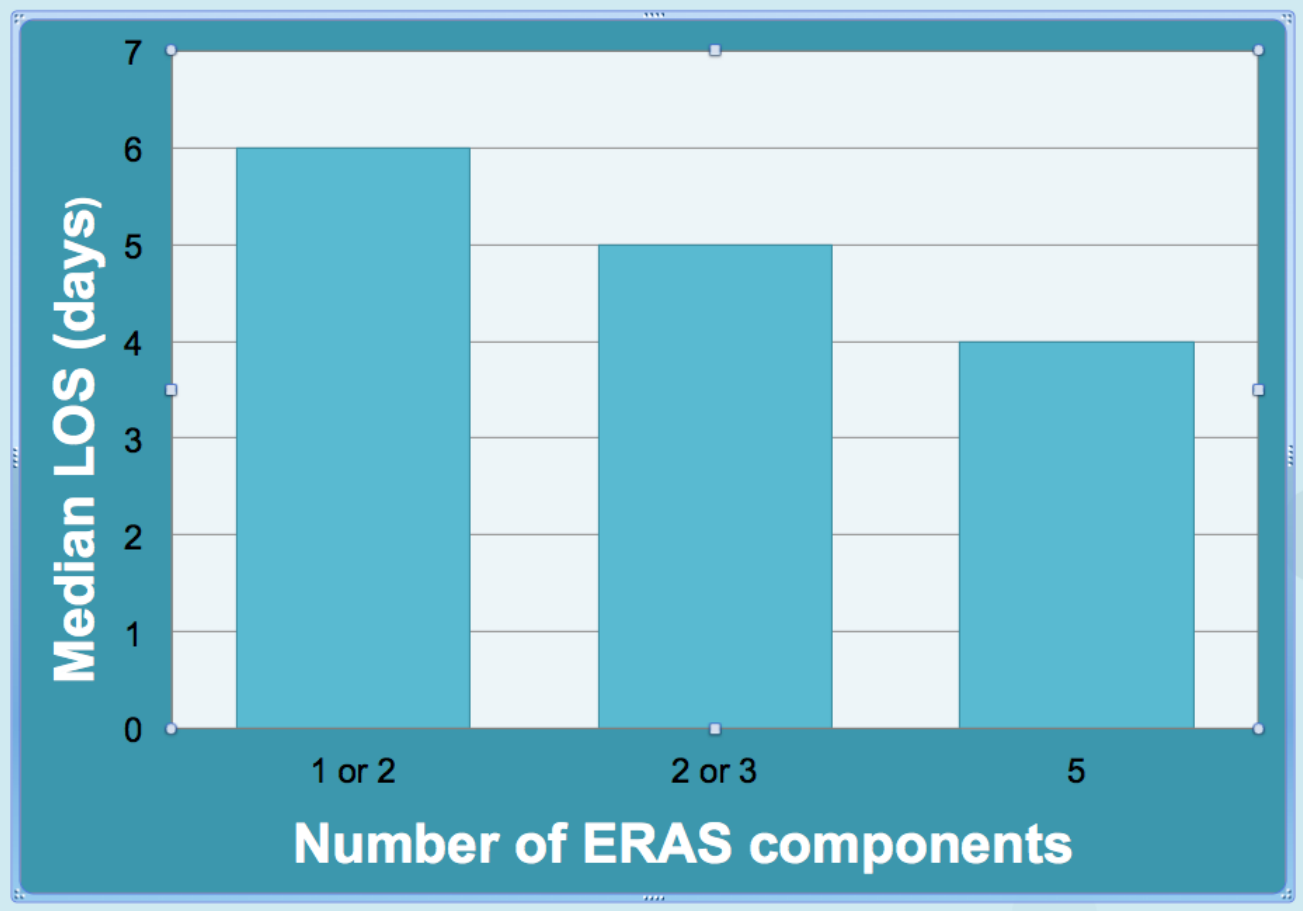
Audit of ERP adoption

Post EHR (Cerner)
126 Consecutive patients
MIS colorectal surgery 3/14-12/15



Cruz JY, et al. *Gastroenterology*, 2017;152(5):S1280.

Audit of ERP adoption



Cruz JY, et al. *Gastroenterology*, 2017;152(5):S1280.

Ambulatory Colectomy?

Huntington Health | An Affiliate of Cedars Sinai

Identification of Eligibility Criteria for Ambulatory Colectomy

Seija Maniskas, MD, MS; Dena Nasir, MD; Allison McCurdy, MD; Juliane Y. Golan, MD; Gabriel Akopian, MD; Howard S. Kaufman, MD

QI - Ambulatory Colectomy?

Patients identified using ICD 9/10 and CPT codes

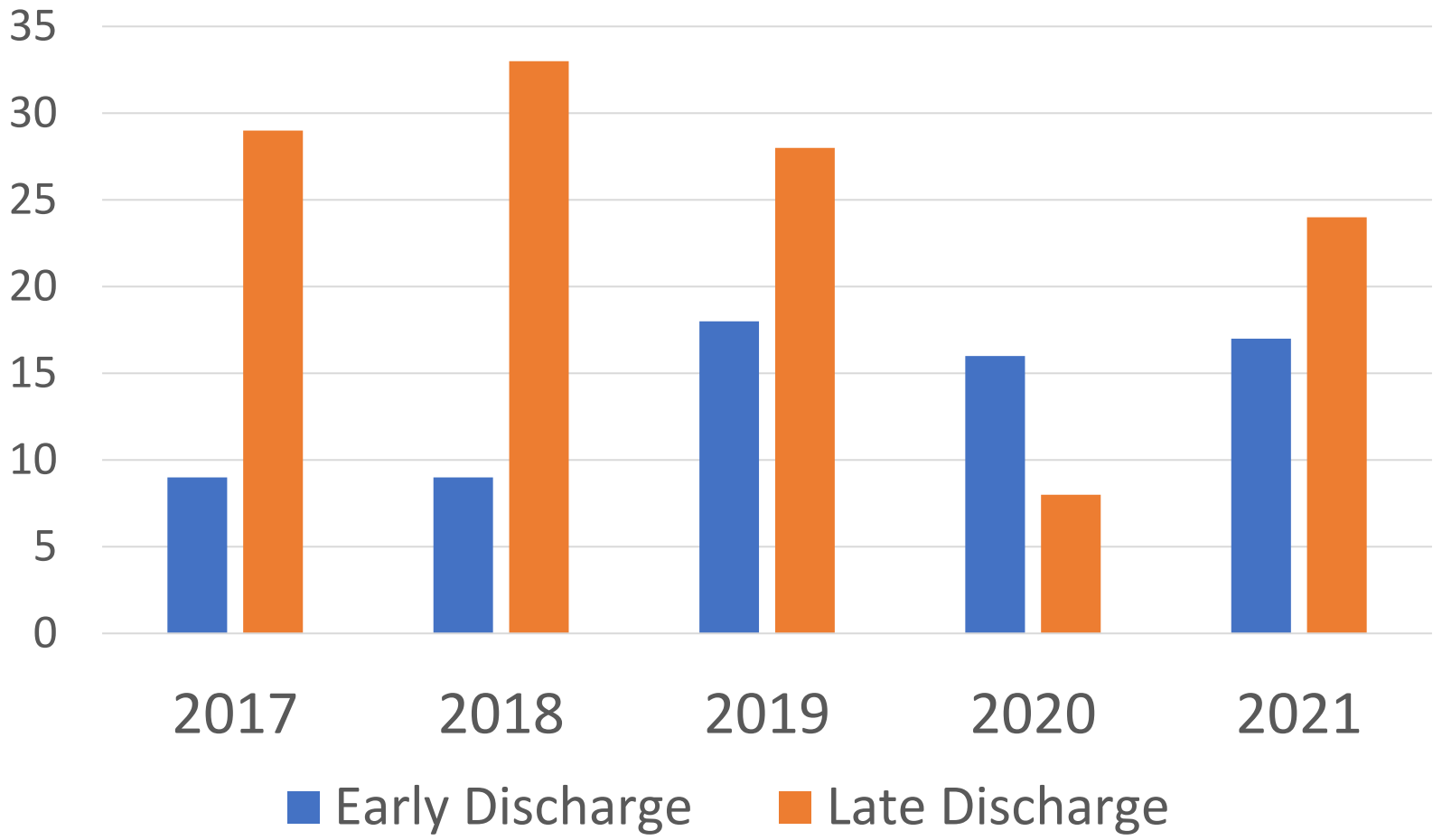
Data collected (2017-21):

- Demographics
- Disease data
- Procedural data
- Perioperative/Post operative data

Patients were divided into groups based on LOS:
Early Discharge (≤ 2d, n=70) vs. **Late Discharge (>2d, n=125)**

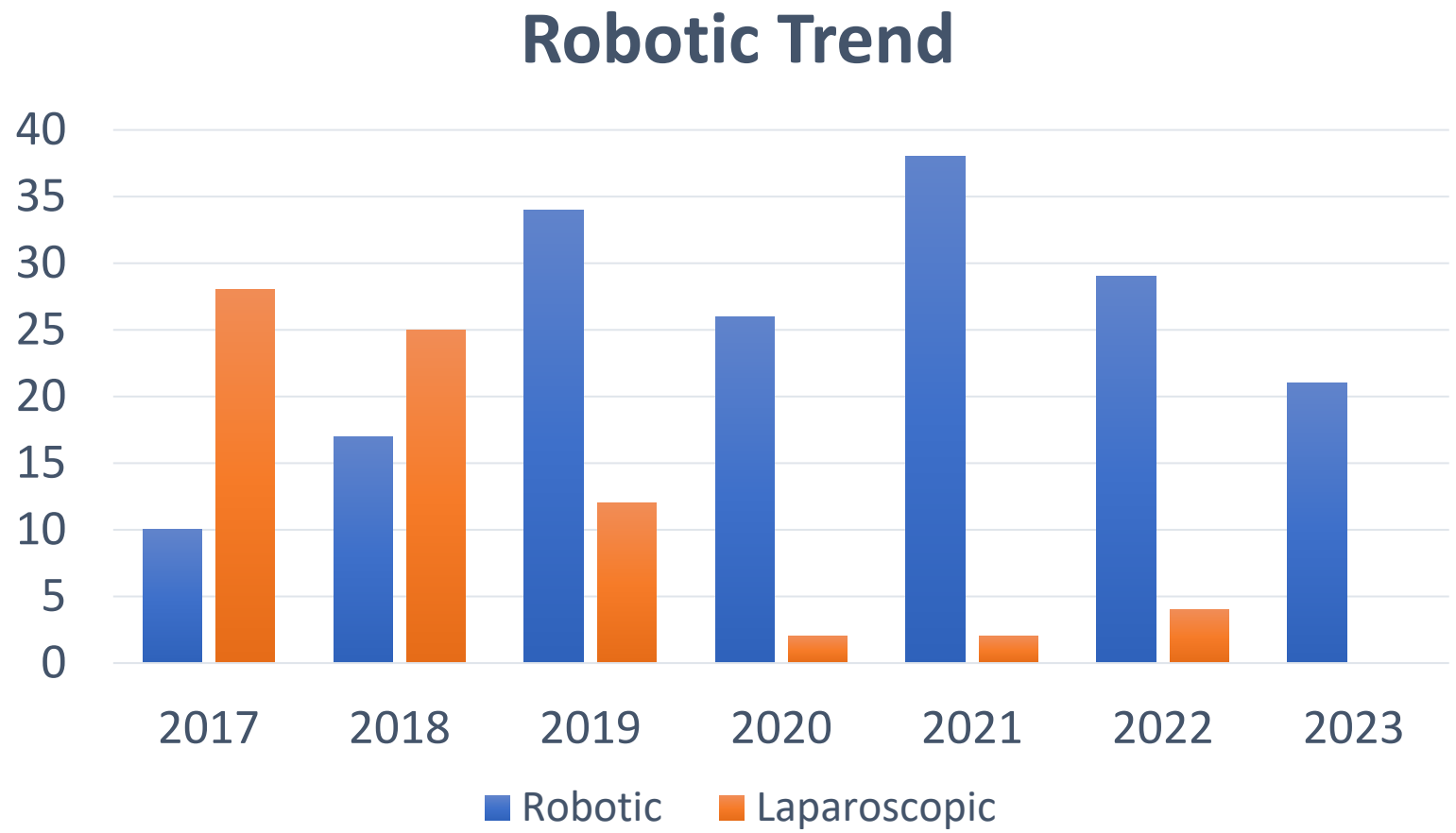
Analyses performed on SPSS

QI - Ambulatory Colectomy?



Robotics

Huntington Health | An Affiliate of Cedars Sinai



Patient Factors

	Early Discharge (70)	Late Discharge (125)	
	Median	Median	*p*
Age	63	68	**0.006**
BMI	27	26	0.76
	n (%)	n (%)	
DM	10 (14)	25 (20)	.32
Prior Abdominal/Pelvic Surgery	27 (39)	63 (50)	.11
Steroids	2 (3)	1 (1)	.29
Anticoagulation	4 (6)	11 (9)	.58

Procedural Variables

	Early Discharge	Late Discharge	*p*
	n (%)	n (%)	
Robotic	55 (79)	71 (57)	**0.002**
Extraction Incision			**0.004**
Pfannenstiel	55 (79)	69 (55)	
Minilap (midline)	12 (17)	50 (40)	
Other	3 (4)	6 (5)	
Anastomosis			**0.006**
Intracorporeal	55 (79)	74 (59)	
Extracorporeal	15 (21)	51 (41)	
LOA	11 (15)	24 (19)	0.54

Procedural Variables

	Early Discharge	Late Discharge	
	n (%)	n (%)	*p*
TAP Block	59 (84)	97 (78)	0.26
Alvimopan	59 (84)	69 (55)	**<.001**
Physical Therapy	14 (20)	43 (34)	**0.03**
Complications	2 (3)	13 (10)	0.06
30 Day Readmission	3 (4)	4 (3)	0.68
	Median	Median	*p*
MME POD 0	16	20	0.19
MME POD 1	18	33	**0.02**
MME POD 0 + 1	39	55	**0.02**

Procedural Variables

	Early Discharge	Late Discharge	
	n (%)	n (%)	*p*
Side of Resection	18	18	0.33
Left	30 (43)	41 (33)	
Right	39 (56)	83 (66)	
Subtotal	1 (1)	1 (1)	
Surgeon Specialty			**0.001**
Colorectal	43 (61)	40 (32)	
Surgical Oncology	22 (31)	68 (54)	
Minimally Invasive	1 (1)	7 (6)	
General	4 (6)	10 (8)	
Intraoperative Complication	1 (1)	1 (1)	0.68

Other benefits of ERAS

- ChatGPT (2019-2023)
  - Opioid prescription reduction ↓ 30-50%
    - Effective nonopioid analgesia
    - Fewer opioid-related side effects
  - Complication rates ↓ 40%
  - Pneumonia/DVT ↓ 5-10%
  - Average cost/patient ↓ 15-25%
  - Patient satisfaction ↑ 20% on average

Summary

- Common, 2nd leading US cause of cancer death
- Screening saves lives, multiple options exist
- Disparities in age, race, ethnicity
- System- and community-wide efforts are needed to address disparities
- Improved outcomes including opioid reduction through MIS and ERPs
- More to come…
  - Outpatient colorectal surgery?

FAQs

Huntington Cancer Center | An Affiliate of Cedars Sinai Cancer

1. What are the 2018 American Cancer Society recommendations for colorectal cancer screening for average-risk adults?

a. Begin screening at age 50.

b. Continue to screen all individuals after age 85.

c. Screen all average-risk individuals age 45 to 75; selectively offer screening up to age 85.

2. Which is a true statement regarding colorectal cancer in younger individuals?

a. Individuals born in the 1990s have an approximately fourfold greater risk of developing rectal cancer than those born in the 1950s

b. A personal history of inflammatory bowel disease is not a risk factor for developing colorectal cancer

c. Rectal bleeding in a young individual can always be attributed to hemorrhoids and does not require further evaluation.

FAQs

Huntington Cancer Center | An Affiliate of Cedars Sinai Cancer

3. Which outcomes should be tracked to identify disparities in colorectal cancer screening?

a. Rates of screening participation, income, and geography

b. Follow up for abnormal results

c. Incidence of colorectal cancer by age, race, and ethnicity

(d.) All of the above

4. Which of the following statements are true regarding enhanced recovery for colorectal surgery?

a. Enhanced recovery pathways are limited to postoperative care

b. Diets should be started only after the return of bowel sounds

(c.) Multimodality pain management is associated with decreased postoperative opioid needs

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Thank you!

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