State of the Art Summary

Colorectal Cancer Screening: Age and Screening Modalities

June 5, 2026
International Asian Conference of Cancer Screening

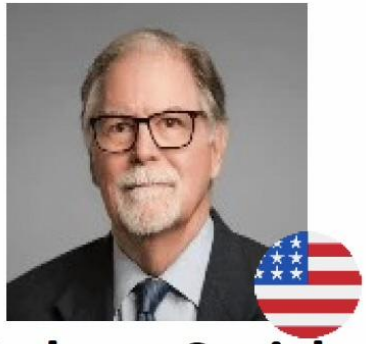
Uri Ladabaum, M.D., M.S.
Professor of Medicine; Director, GI Cancer Prevention Program
Stanford University School of Medicine

Lowering the Age to start screening: Evidence and Implementation Challenges	 **Jeffrey Lee** Kaiser Permanente
Extending The Upper Age Limit in Counties with High Life Expectancy	 **Jeongkuk Seo** Chung-Ang University College of Medicine
Providing Multiple Options for CRC Screening Programs: Is It a Breakthrough for Improving Screening Participation?	 **Takahisa Matsuda** Toho University

Lowering the Age to start screening: Evidence and Implementation Challenges

Jeffrey Lee

Kaiser Permanente



Robert Smith

American Cancer Society

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]

2018: Reactions

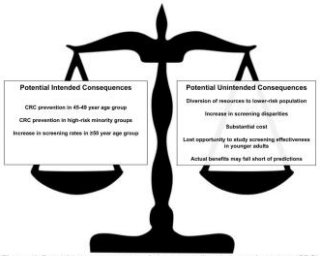


Figure 1. Potential consequences of recommending colorectal cancer (CRC) screening initiation at age 45 instead of age 50 years.

Potential Intended Consequences

CRC prevention in 45-49 year age group

CRC prevention in high-risk minority groups

Increase in screening rates in ≥50 year age group

Liang et al., Gastro 2018; 55:950

2018: Reactions

Figure 1. Potential consequences of recommending colorectal cancer (CRC) screening initiation at age 45 instead of age 50 years.

Potential Intended Consequences

CRC prevention in 45-49 year age group

CRC prevention in high-risk minority groups

Increase in screening rates in ≥50 year age group

Potential Unintended Consequences

Diversion of resources to lower-risk population

Increase in screening disparities

Substantial cost

Lost opportunity to study screening effectiveness in younger adults

Actual benefits may fall short of predictions

Liang et al., Gastro 2018; 55:950

“Should we lower the screening age?

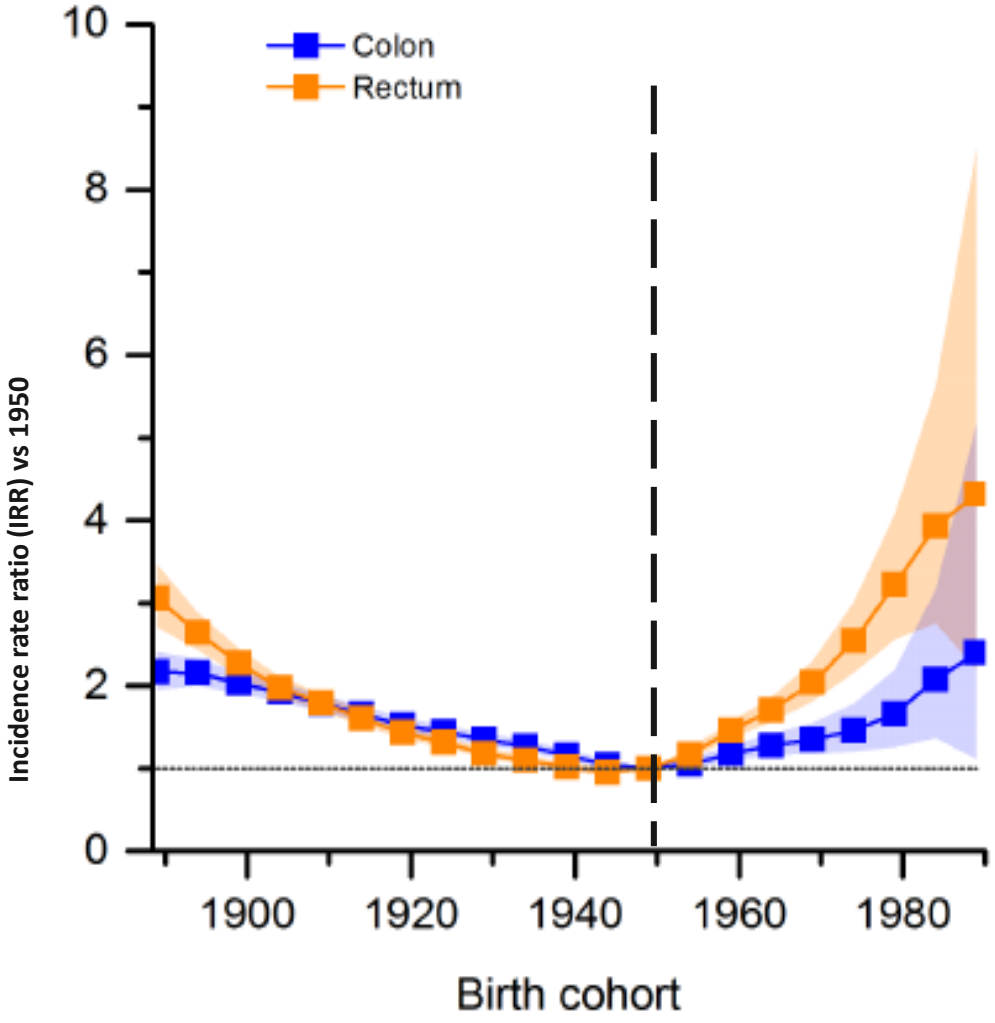
Or should we concentrate on persons 50 and older who are not up-to-date with screening?”

Uri Ladabaum
Stanford University

Robert Smith
American Cancer Society

“We should do both”

Increasing CRC risk under age 50 (USA)

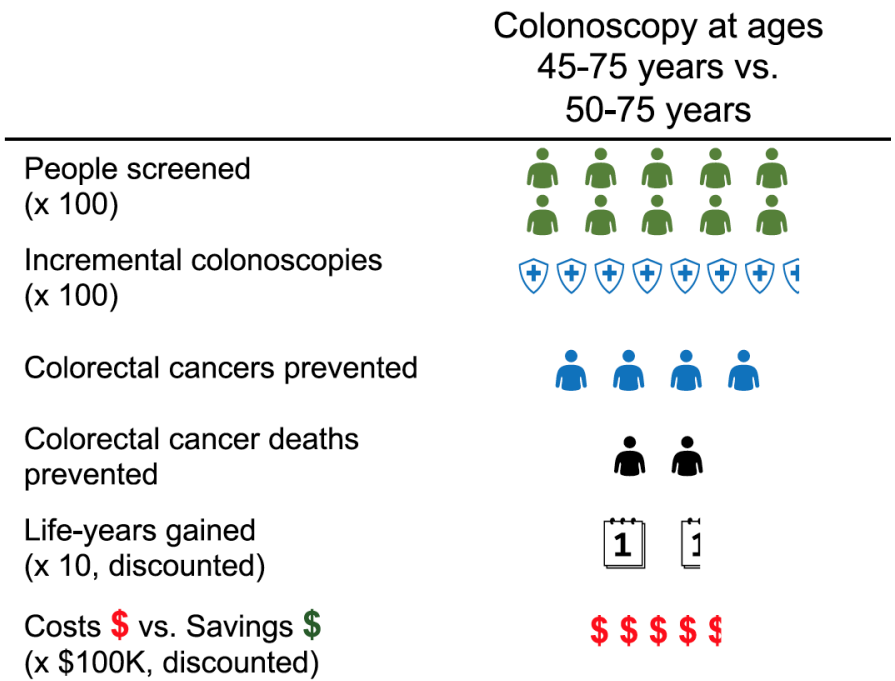


Rectum: IRR=4.3 (95% CI, 2.2-8.5)

Colon: IRR=2.4 (95% CI, 1.1-5.2)

Siegel et al., JNCI 2017;109(8)

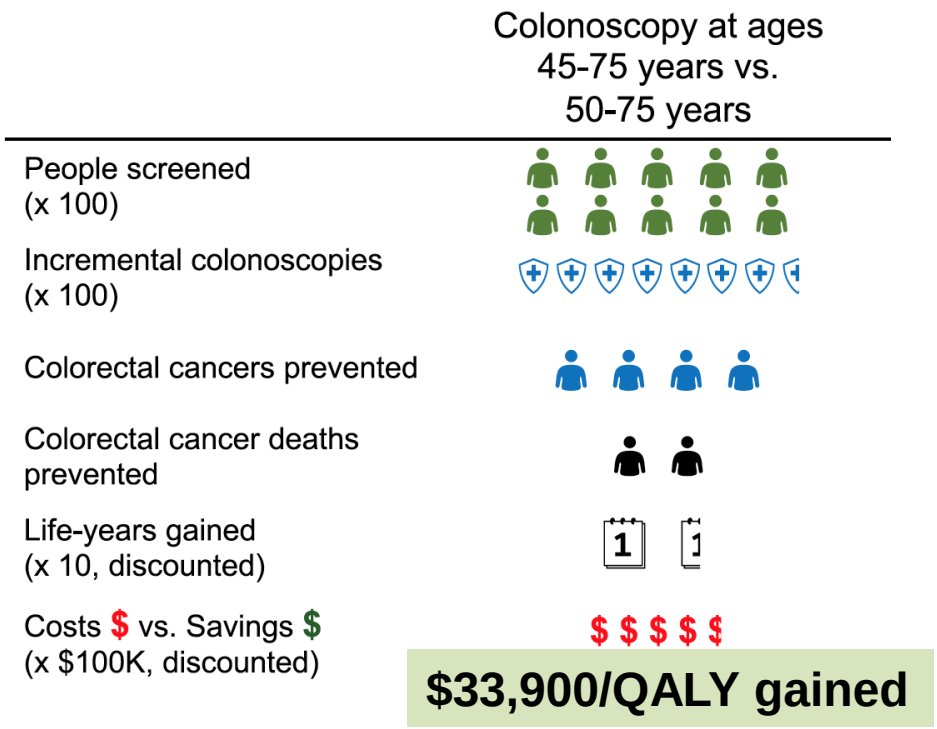
Modeling effectiveness and cost-effectiveness



Gastroenterology

Ladabaum et al, Gastroenterology 2019;157:137

Modeling effectiveness and cost-effectiveness



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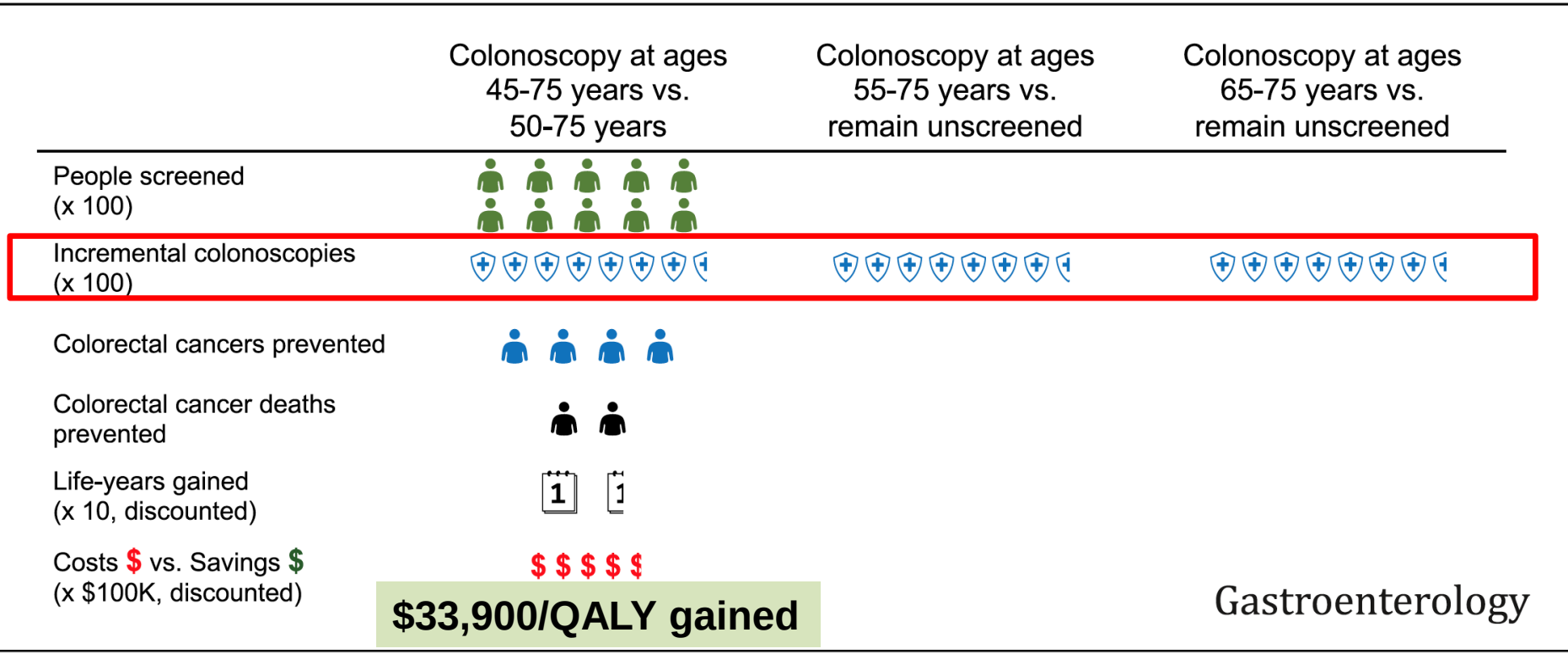
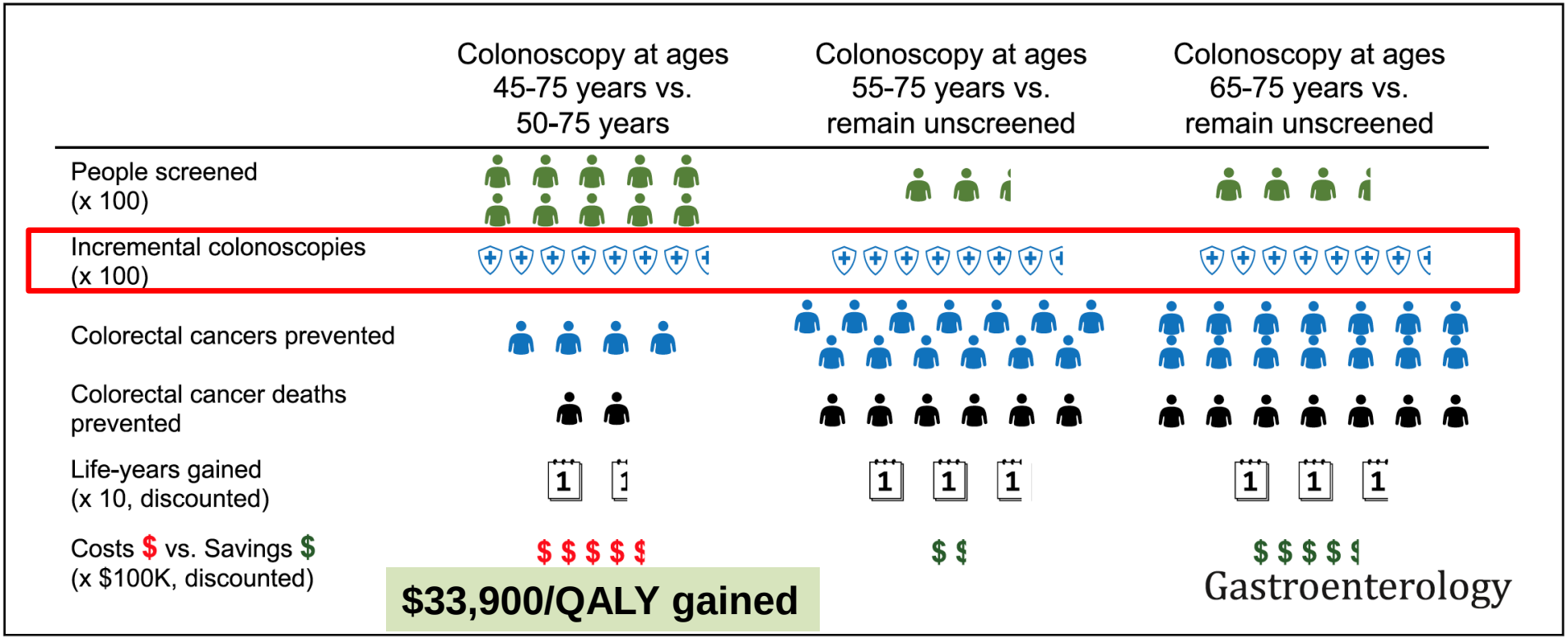


Ladabaum et al, Gastroenterology 2019;157:137

Modeling effectiveness and cost-effectiveness



Ladabaum et al, Gastroenterology 2019;157:137

Modeling effectiveness and cost-effectiveness

	Scenario 1: start screening colonoscopy every 10 years at age 45 instead of 50 years	Scenario 2: provide screening colonoscopy every 10 years to currently unscreened 55-year-olds	Scenario 3: provide screening colonoscopy every 10 years to currently unscreened 65-year-olds	Scenario 4: increase follow-up colonoscopy completion rate after abnormal FIT result from 60% to 90% in cohort currently participating in annual FIT[a]
Cohort size, n	1000	231	342	3935[b]
Incremental number of colonoscopies required over a lifetime, n	758	758	758	758
CRC cases averted, n	4	13	14	22
CRC deaths averted, n	2	6	7	10
Absolute gain in QALYs (discounted)	14	28	27	36
Absolute incremental cost (discounted)[c]	$486,500	($163,700)	($445,800)	($843,900)

Ladabaum et al, Gastroenterology 2019;157:137

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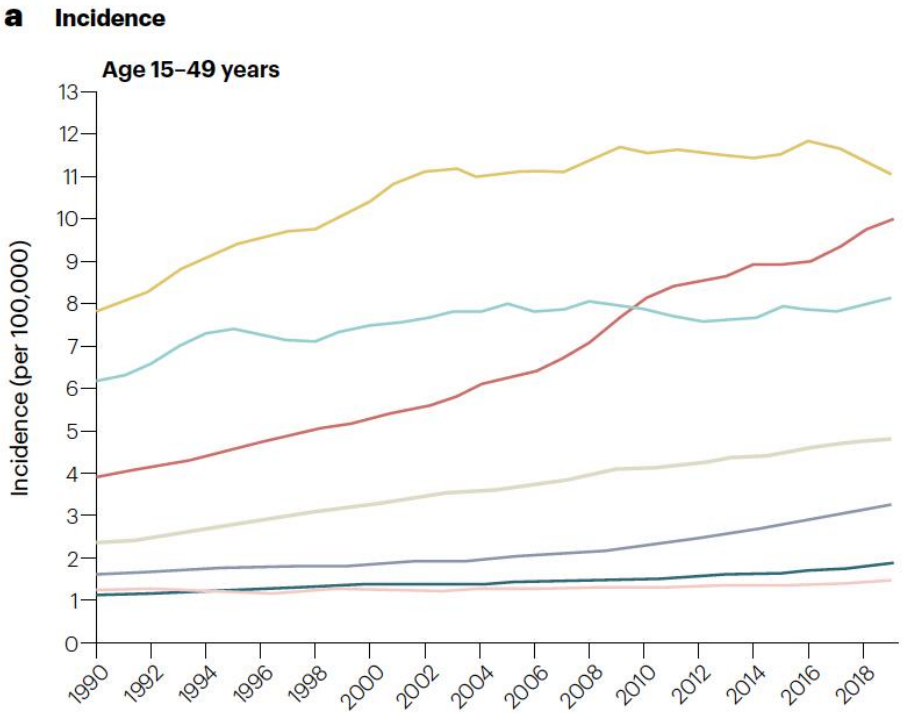
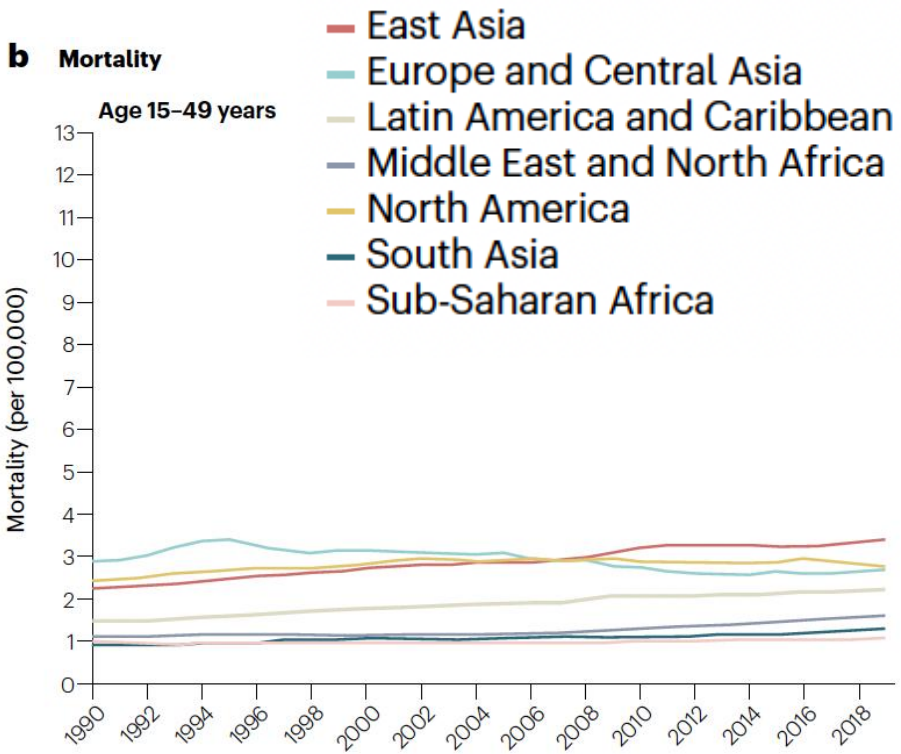
Ladabaum et al, Gastroenterology 2019;157:137

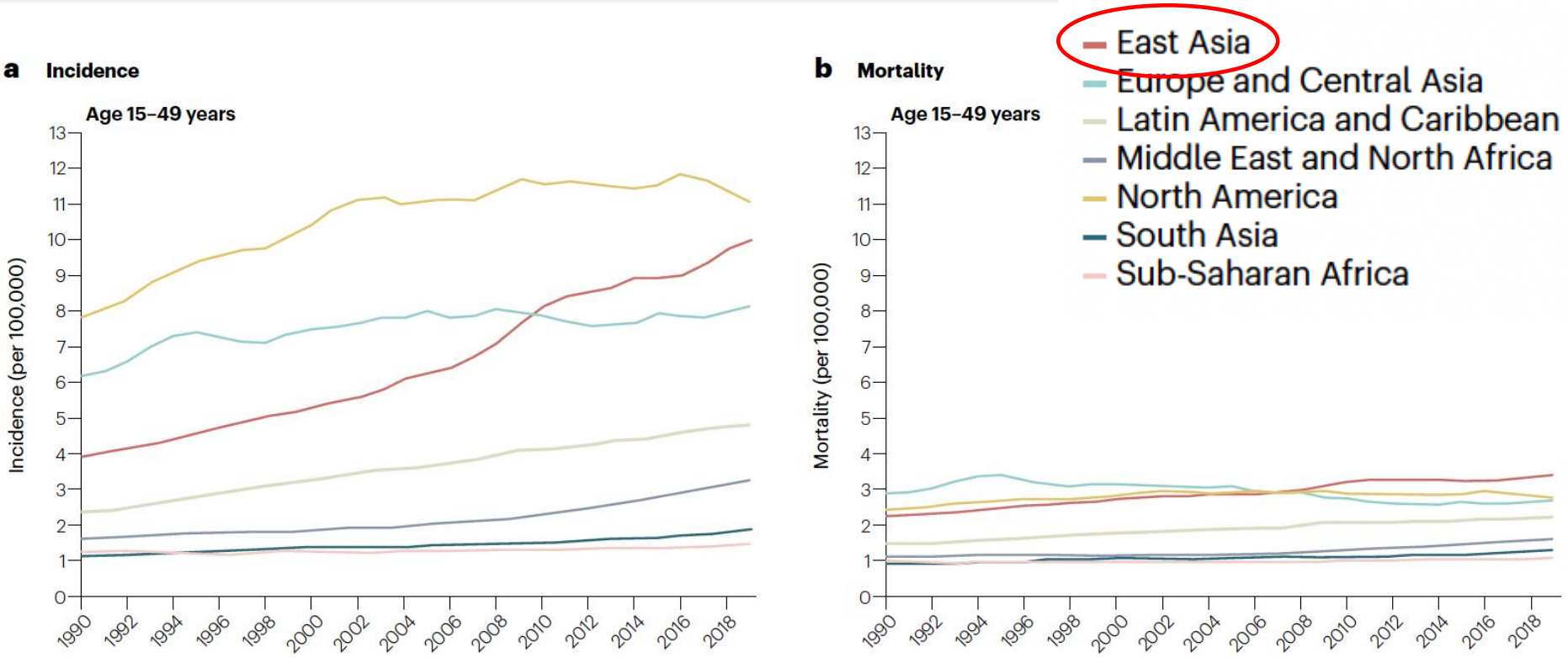
15-49 y: Increases across continents





Murphy et al, Nature Rev Gastro Hep 2024;21:25

15-49 y: Increases across continents



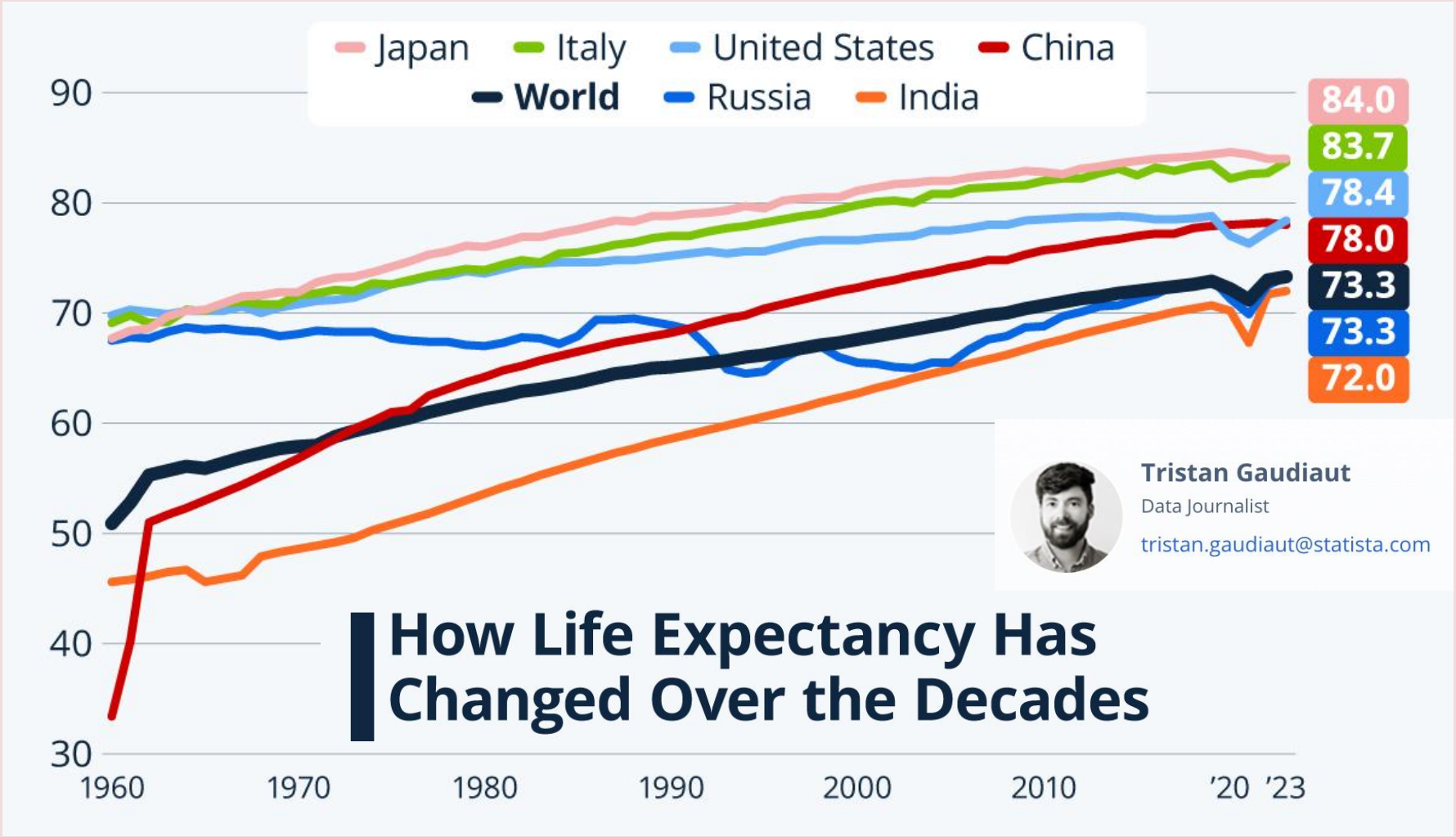
Murphy et al, Nature Rev Gastro Hep 2024;21:25

Lowering the Age to start screening: Evidence and Implementation Challenges

- It should “work” as well as at older ages
- Local CRC risk in younger people?
- Local CRC screening uptake in older persons?
- Local resources and priorities?
- *Does not address the tragic very young-onset*
- *Risk prediction / personalization?*

Extending The Upper Age Limit in Counties with High Life Expectancy

Jeongkuk Seo
Chung-Ang University
College of Medicine


Japan
Italy
United States
China
World
Russia
India
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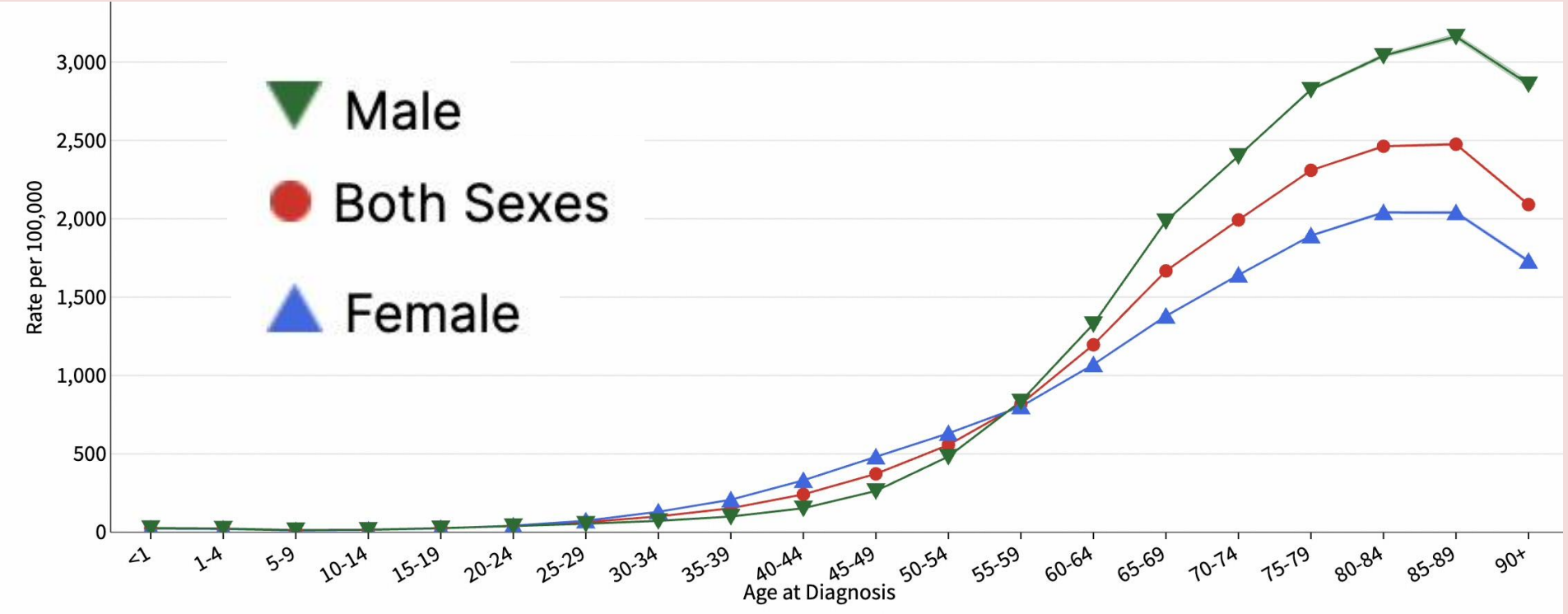
2000
2010
'20
'23
84.0
83.7
78.4
78.0
73.3
73.3
72.0
How Life Expectancy Has Changed Over the Decades
Tristan Gaudiaut
Data Journalist
tristan.gaudiaut@statista.com

All Cancer Sites Combined
SEER Incidence Rates by Age at Diagnosis, 2019-2023



https://seer.cancer.gov/statistics-network/

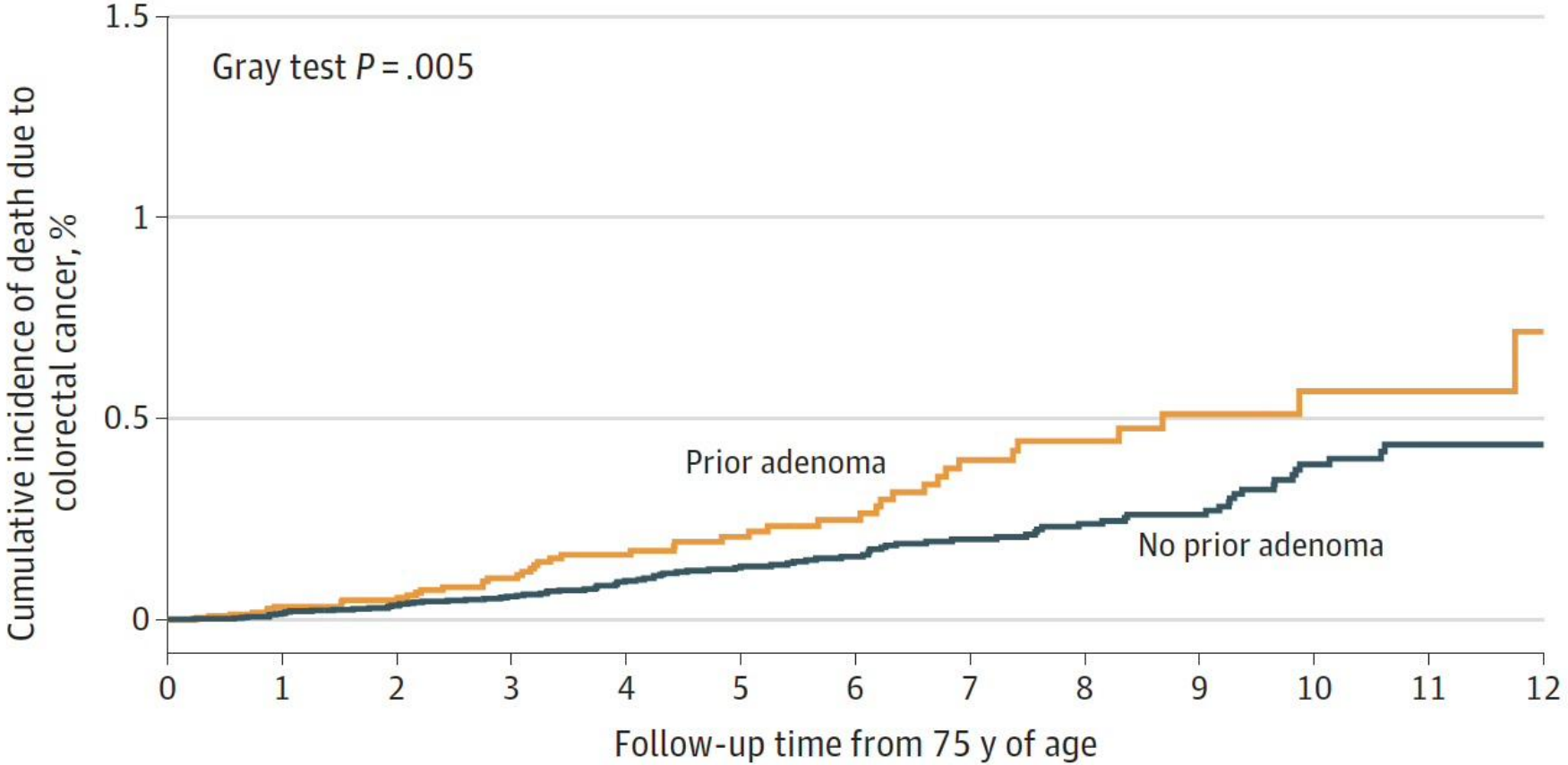
JAMA | Original Investigation

Colorectal Cancer and Mortality Risk Among Older Adults With vs Without Adenoma on Prior Colonoscopy

Samir Gupta, MD, MSCS; Lin Liu, PhD; Joshua Demb, PhD; Jiyue Qin, MS; Ashley Earles, MPH; Mark Lamm, MPH; Xinyi Huang, MS; Shailja C. Shah, MD; Neetu Chawla, PhD; Yi Le, MS; Tamra Burns Loeb, PhD; Jason A. Dominitz, MD, MHS; Douglas J. Robertson, MD, MPH; Nancy L. Schoenborn, MD; Audrey H. Calderwood, MD, MS; Theodore R. Levin, MD; Benjamin J. Seligman, MD, PhD; Folasade P. May, MD, PhD

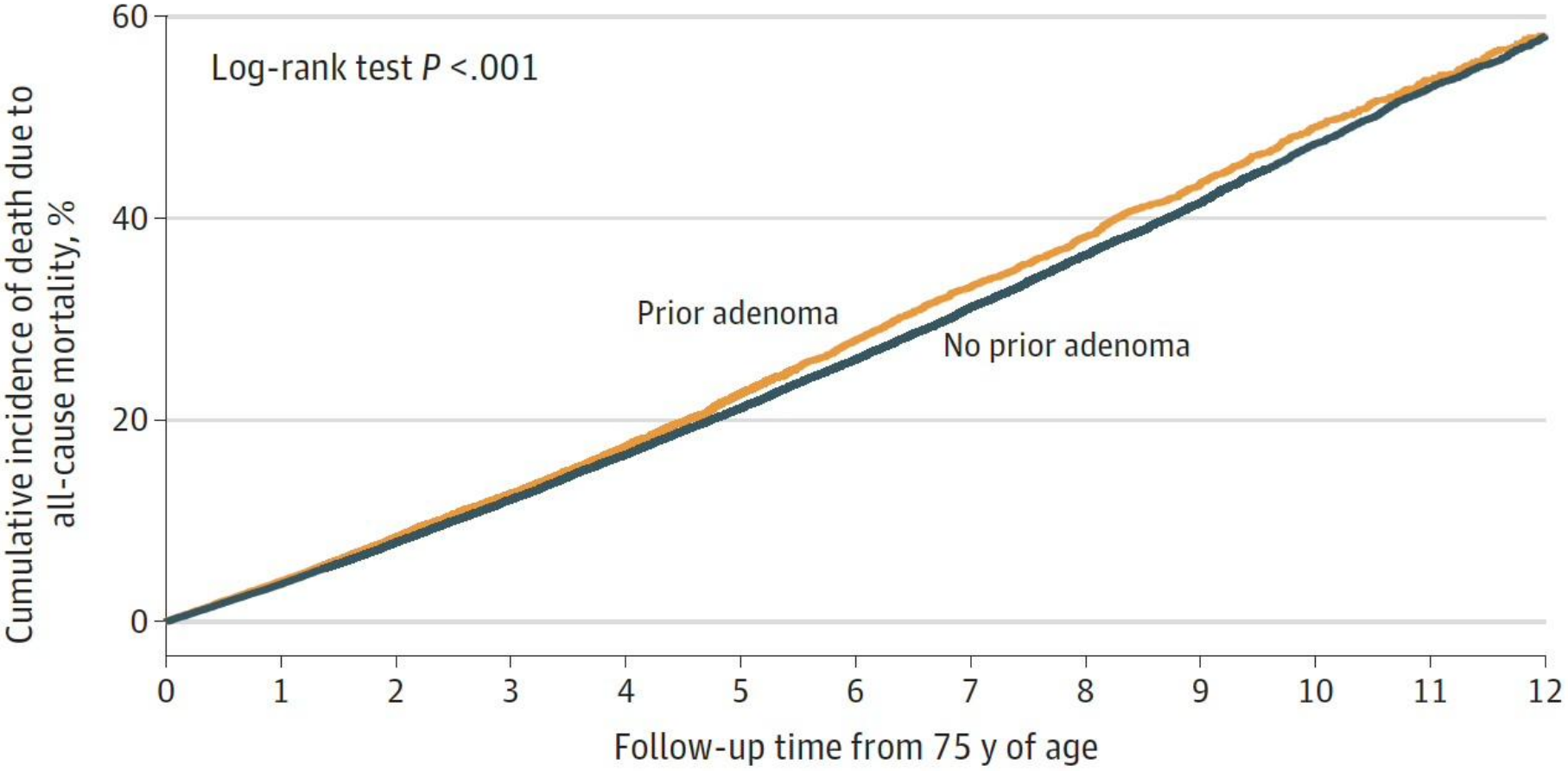
JAMA. 2026;335(17):1499-1506. doi:10.1001/jama.2026.3414

Cumulative incidence of death due to colorectal cancer



JAMA. 2026;335(17):1499-1506. doi:10.1001/jama.2026.3414

Cumulative incidence of all-cause mortality



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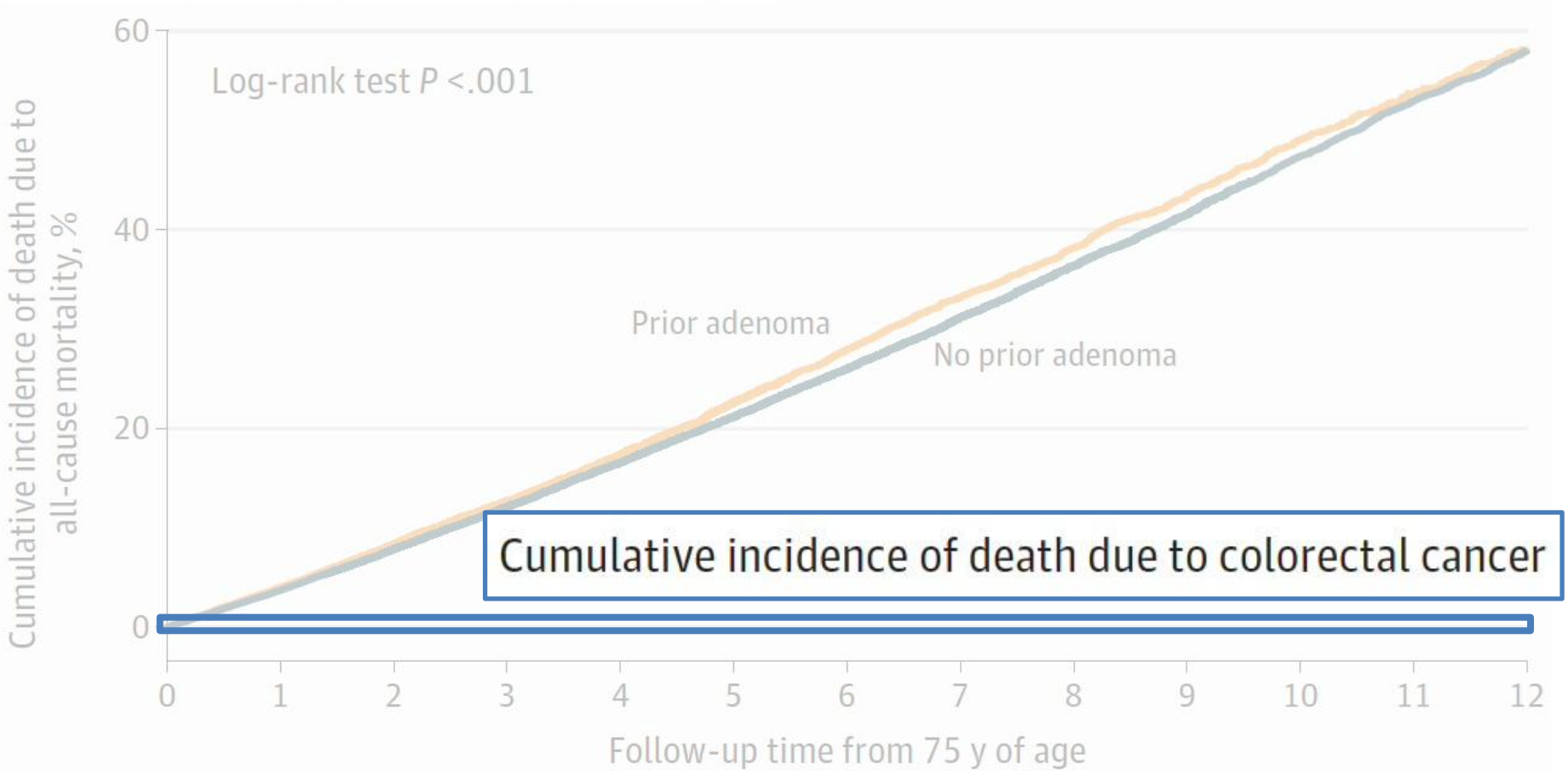


JAMA. 2026;335(17):1499-1506. doi:10.1001/jama.2026.3414

Older Adult Perspectives Toward Surveillance Colonoscopy

A Qualitative Study

Audrey H. Calderwood, MD, MS,† Kathy Cazares, PharmD,† and Sharon O'Connor, MS, MBA‡*

- Should make decision with input from clinician
- Based on personal history and health…
- …**NOT age or actuarial data**
- *[Patients are asking for risk prediction/personalization!]*

J Clin Gastroenterol • Volume 54, Number 1, January 2020

Extending The Upper Age Limit in Counties with High Life Expectancy

- Actual CRC death risk at older and extreme older age?
- The older unscreened vs. those up-to-date
- Local CRC screening uptake in screen-eligible?
- Local resources and priorities?
- *CRC screening does not address most causes of death*
- *Risk prediction / **prioritization** / personalization?*

Providing Multiple Options for CRC Screening Programs: Is It a Breakthrough for Improving Screening Participation?

Takahisa Matsuda

Toho University

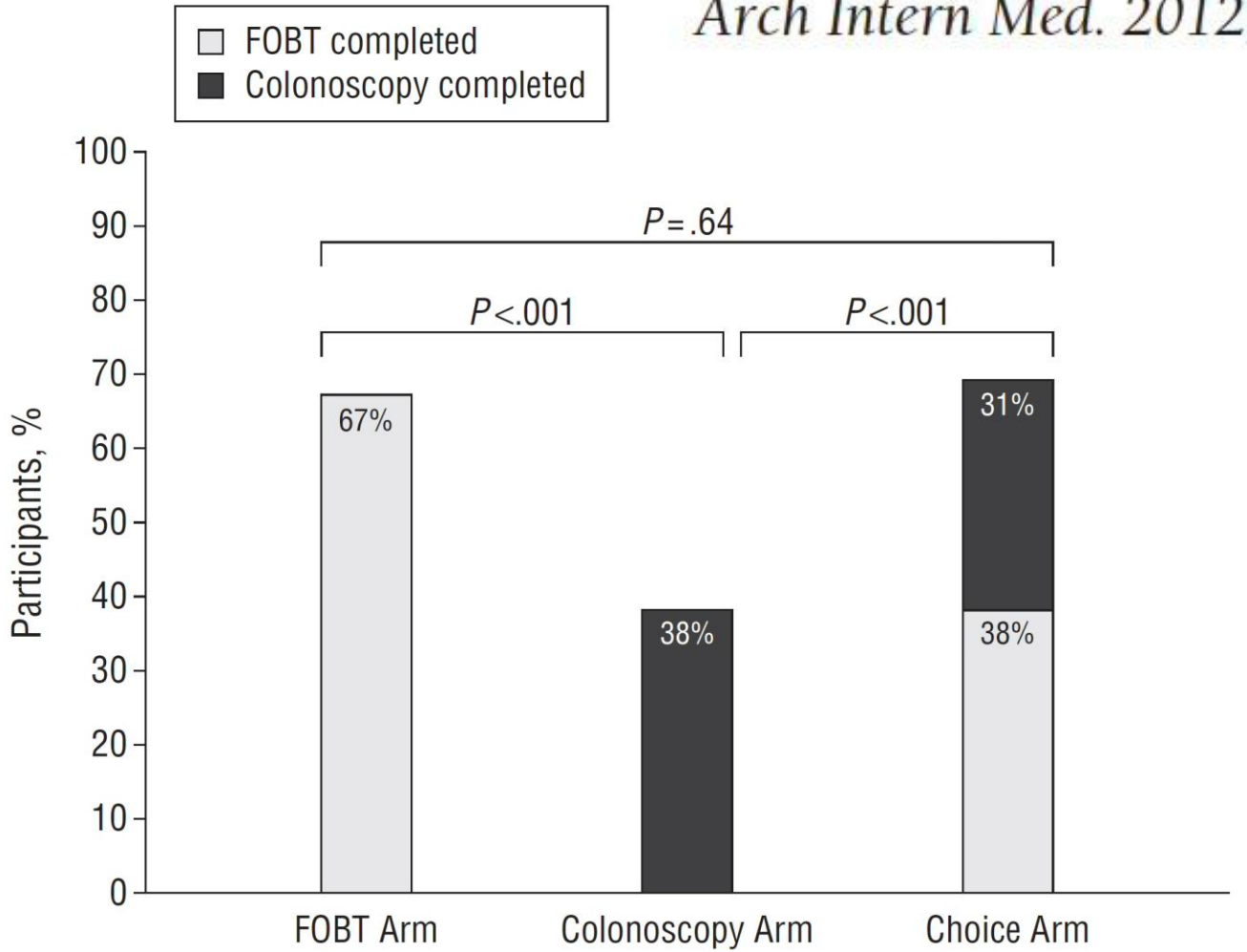
Adherence to Colorectal Cancer Screening

A Randomized Clinical Trial of Competing Strategies

John M. Inadomi, MD; Sandeep Vijan, MD, MS; Nancy K. Janz, PhD; Angela Fagerlin, PhD; Jennifer P. Thomas, BS; Yunghui V. Lin, RN, MA; Roxana Muñoz; Chim Lau, BA; Ma Somsouk, MD, MAS; Najwa El-Nachef, MD; Rodney A. Hayward, MD

Arch Intern Med. 2012;172(7):575-582

Arch Intern Med. 2012;172(7):575-582



Effect of invitation to colonoscopy versus faecal immunochemical test screening on colorectal cancer mortality (COLONPREV): a pragmatic, randomised, controlled, non-inferiority trial

Antoni Castells, Enrique Quintero*, Luis Bujanda, Susana Castán-Cameo, Joaquín Cubiella, José Díaz-Tasende, Ángel Lanas, Akiko Ono, Miquel Serra-Burriel, Eladio Frías-Arrocha, Cristina Hernández, Rodrigo Jover, Montserrat Andreu, Fernando Carballo, Juan Diego Morillas, Dolores Salas, Raquel Almazán, Inmaculada Alonso-Abreu, Jesús M Banales, Vicent Hernández, Isabel Portillo, Mercedes Vanaclocha-Espí, Mariola de la Vega, on behalf of the COLONPREV study investigators†*

- Population-based invitations: one-time colonoscopy or biennial FIT
- No “no screening” control
- Participation rate (any modality; cross-over allowed):
  - FIT arm: 39.9%
  - Colonoscopy arm: 31.8%

Castells *et al,* Lancet 2025;405:1231

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- Participation rate (any modality; cross-over allowed):
  - FIT arm: 39.9% (**FIT 39.4%**, colonoscopy 0.5%)
  - Colonoscopy arm: 31.8% (FIT 11.7%, **colonoscopy 20.1%)**

Castells *et al,* Lancet 2025;405:1231

Designing and Evaluating Choice Architecture in Colorectal Cancer Screening Programs

WEO Colorectal Cancer Screening Committee
May 1, 2026

Shivan Mehta, MD, MBA, MSHP
Associate Professor of Medicine and Health Policy, University of Pennsylvania
Faculty Director, Population Health Lab
Associate Chief Innovation Officer, Penn Medicine

Consumer response to choices

40% looked
12% purchased

60% looked
2% purchased

Choice overload conditions

- Low familiarity
- Higher stakes
- Limited motivation

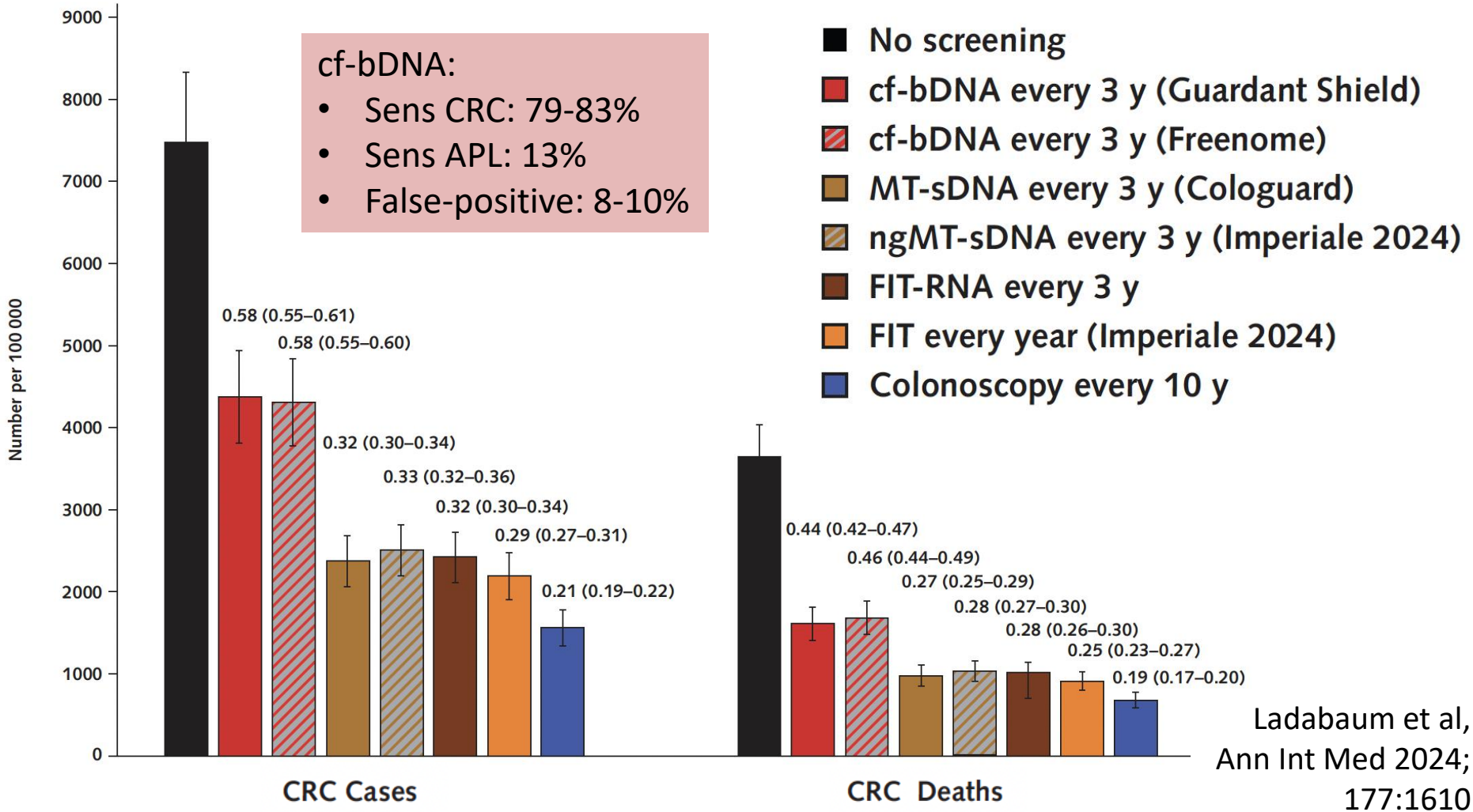
Iyengar SS et al. Person Proc and Indiv Diff, 2000; Chernov A et al. Journal of Consumer Psychology, 2015.

Ladabaum et al,
Ann Int Med 2024;
177:1610

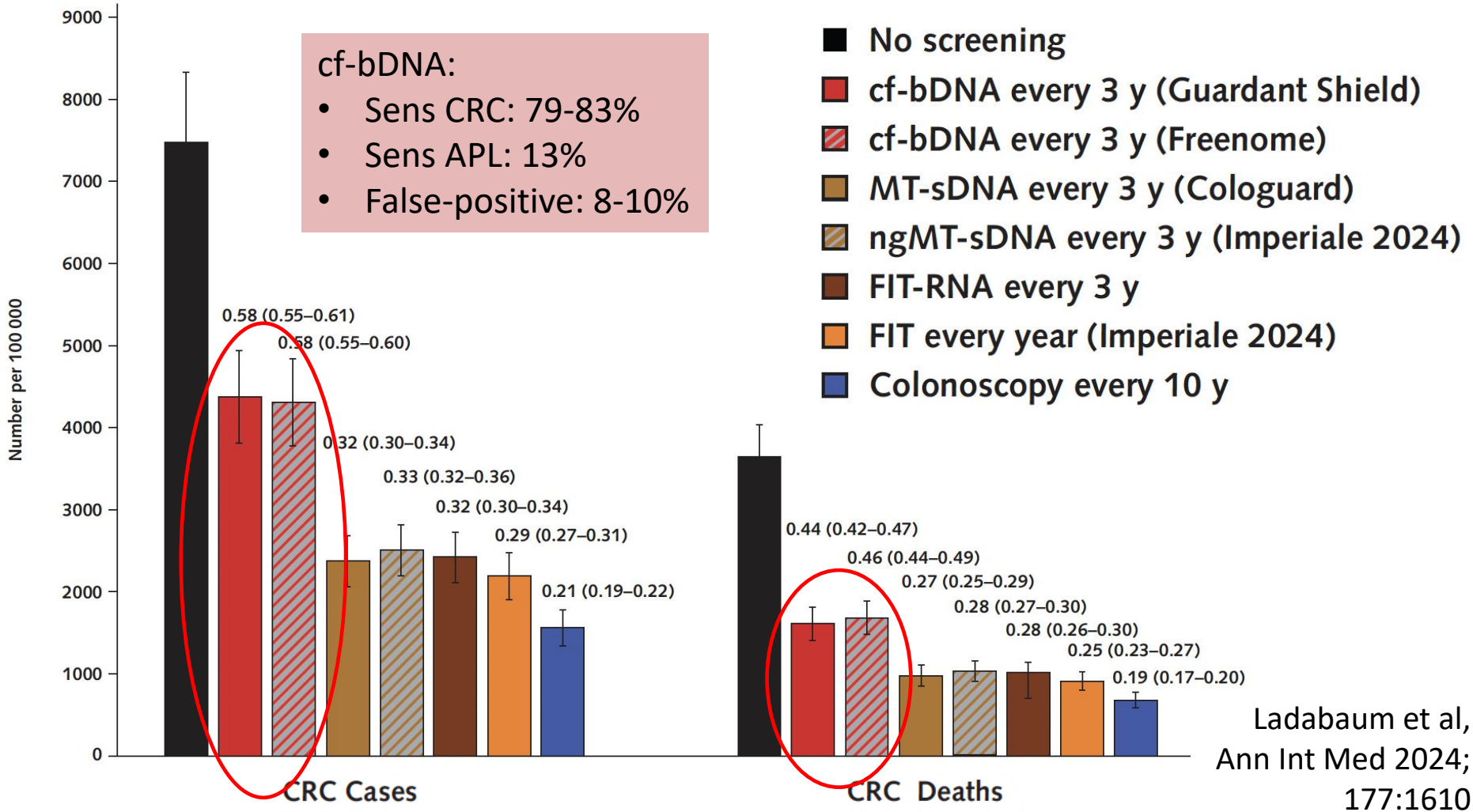
cf-bDNA:

- Sens CRC: 79-83%
- Sens APL: 13%
- False-positive: 8-10%

Ladabaum et al,
Ann Int Med 2024;
177:1610



Ladabaum et al, Ann Int Med 2024; 177:1610

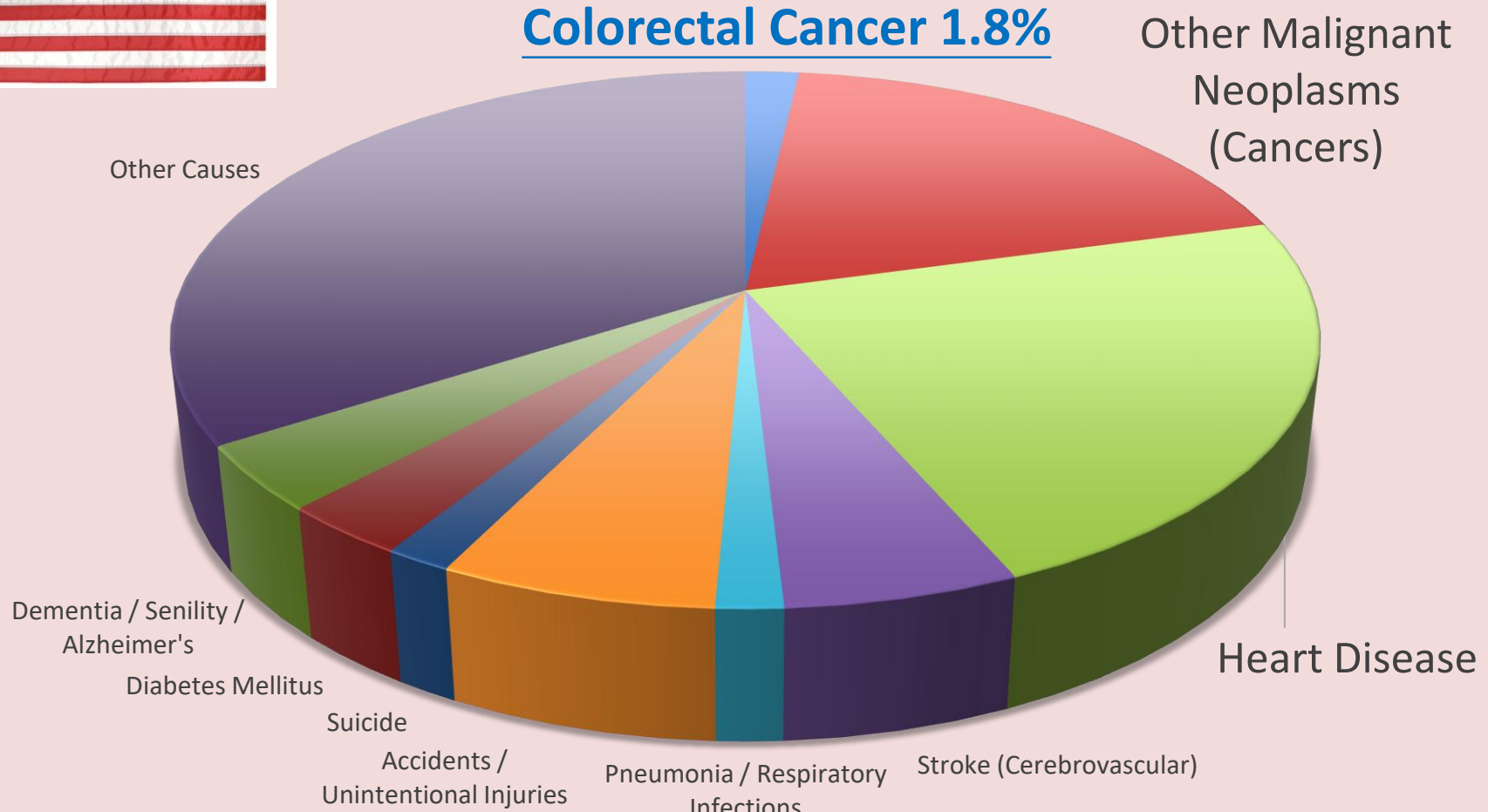


Ladabaum et al,
Ann Int Med 2024;
177:1610

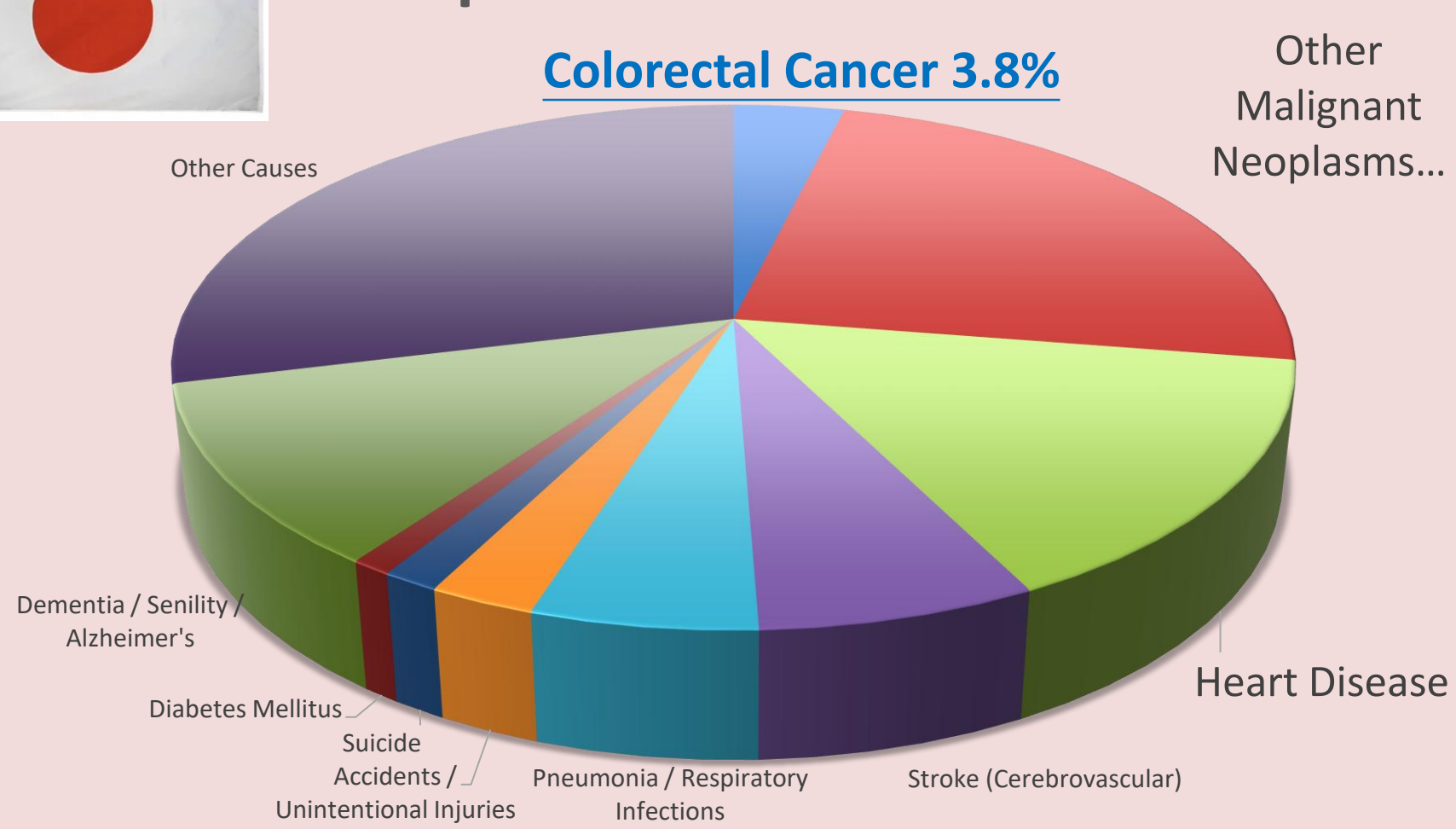
Providing Multiple Options for CRC Screening Programs: Is It a Breakthrough for Improving Screening Participation?

- Limited choice ***may*** improve participation
- Too many choices → paralysis
- Local resources and priorities?
- Locally viable tests / strategies?
- *Can AI / technology help improve personalization → participation?*

United States Causes of Death

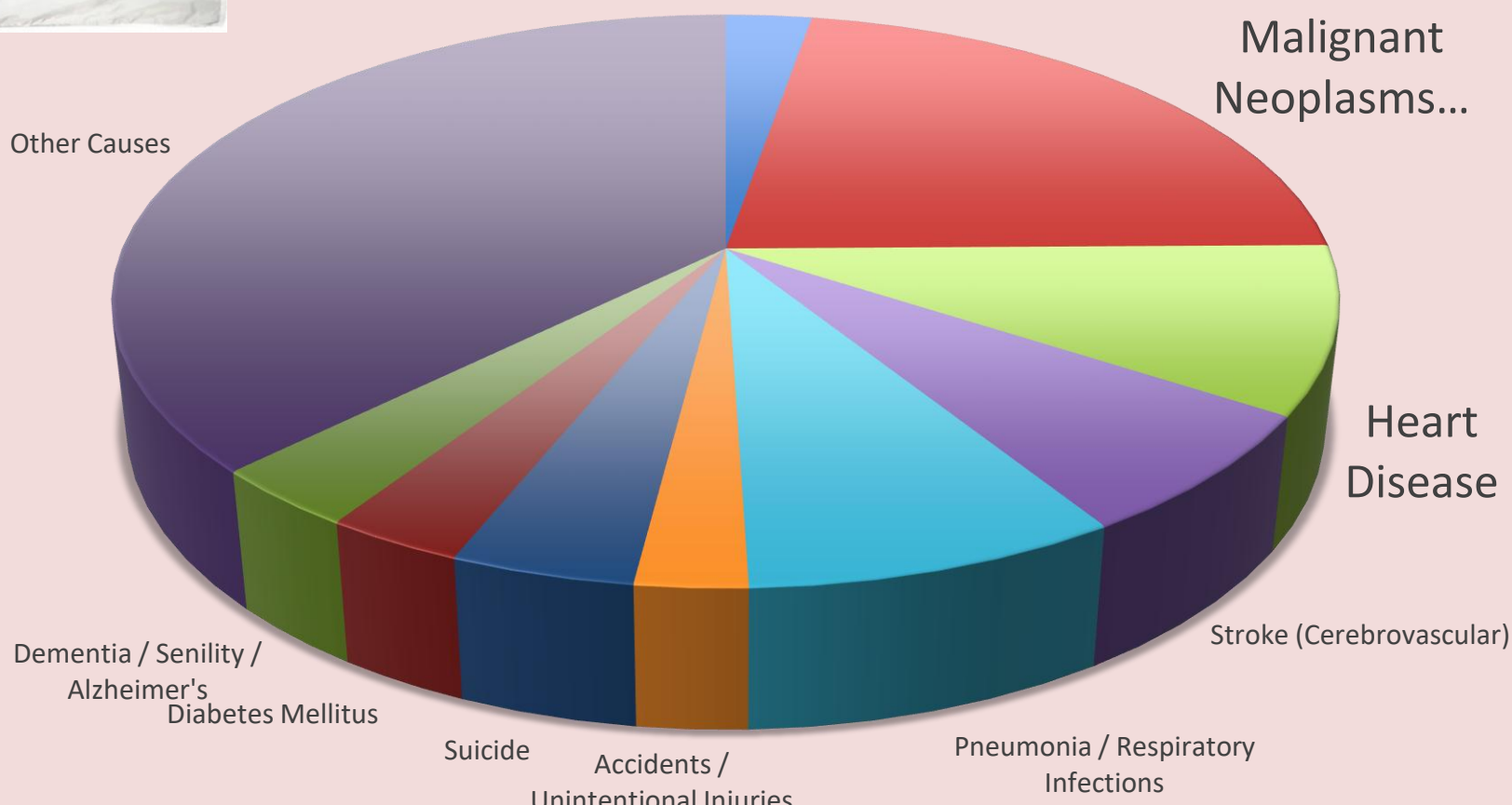


Japan Causes of Death

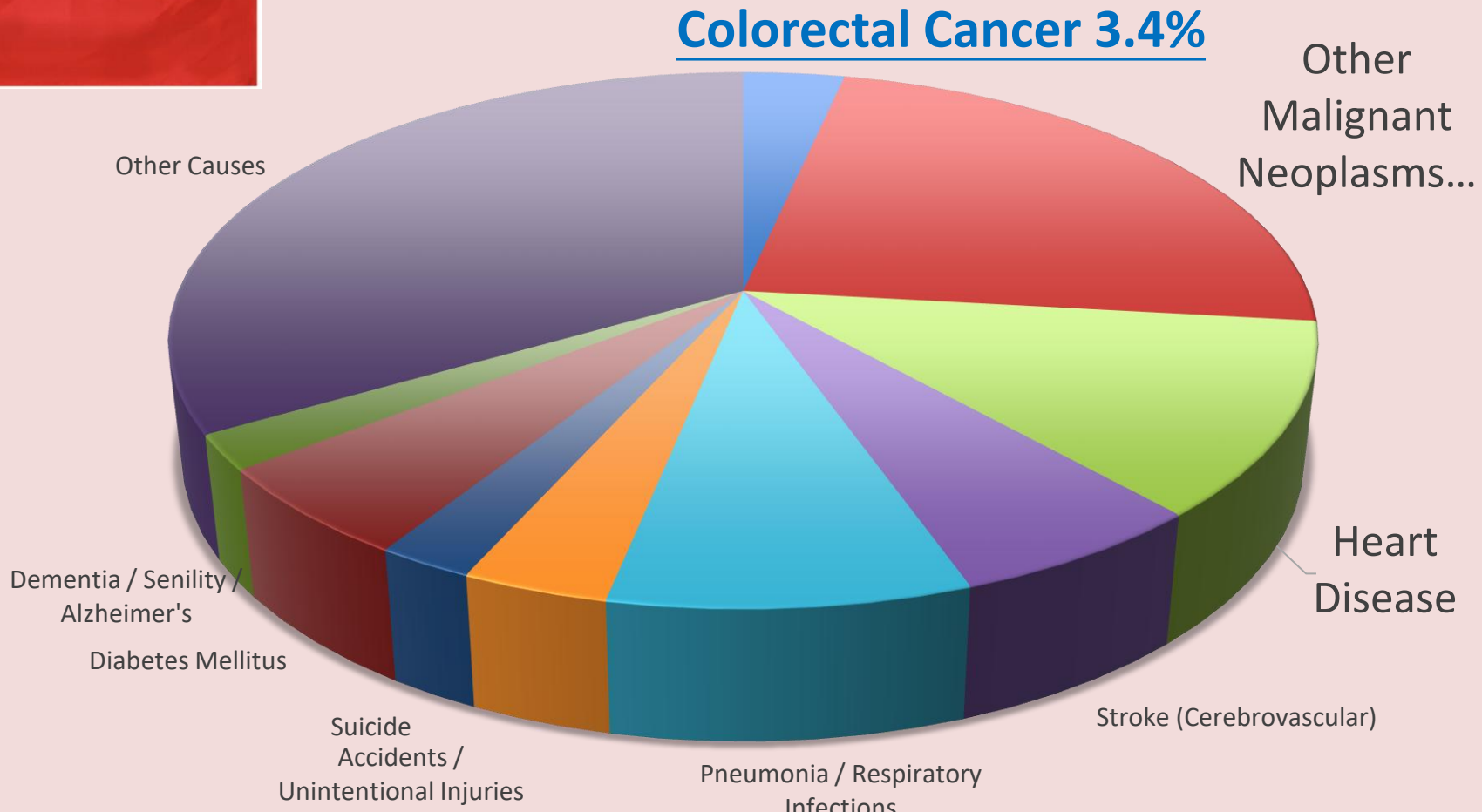


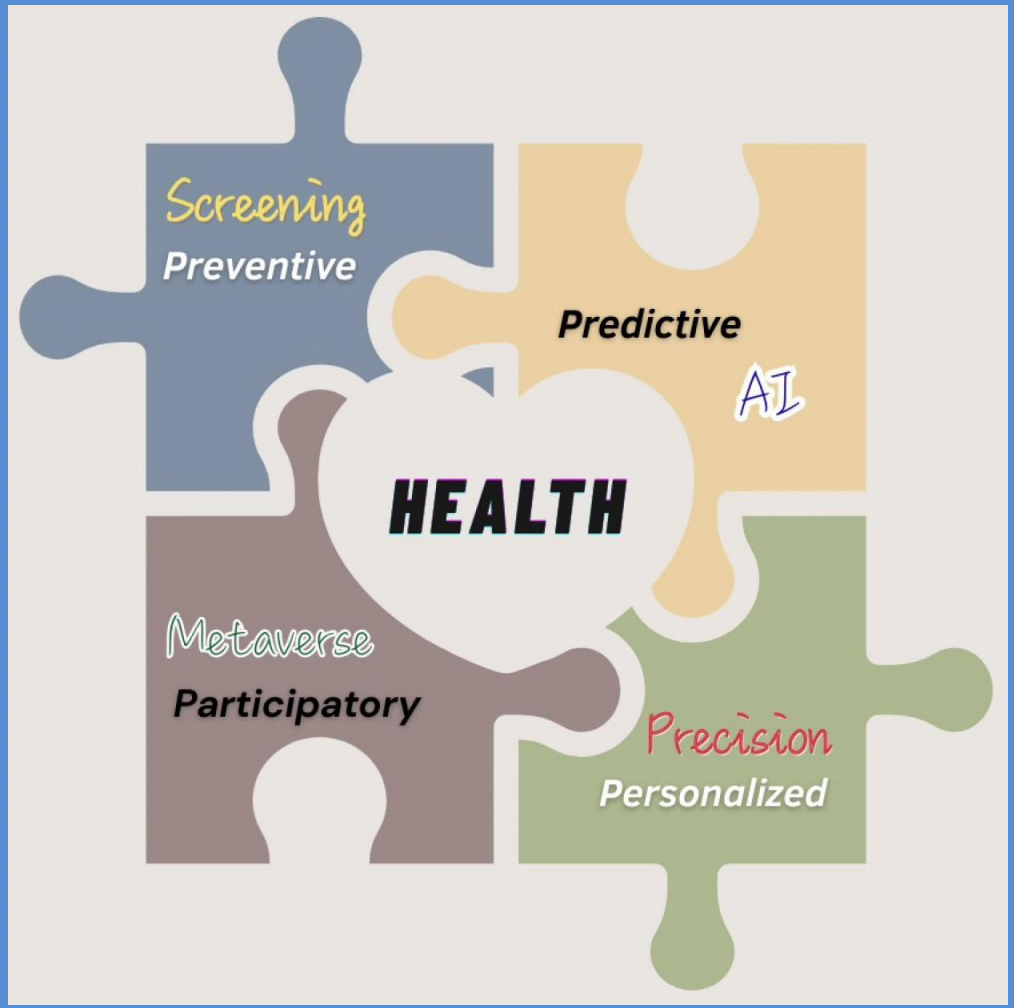
South Korea Causes of Death

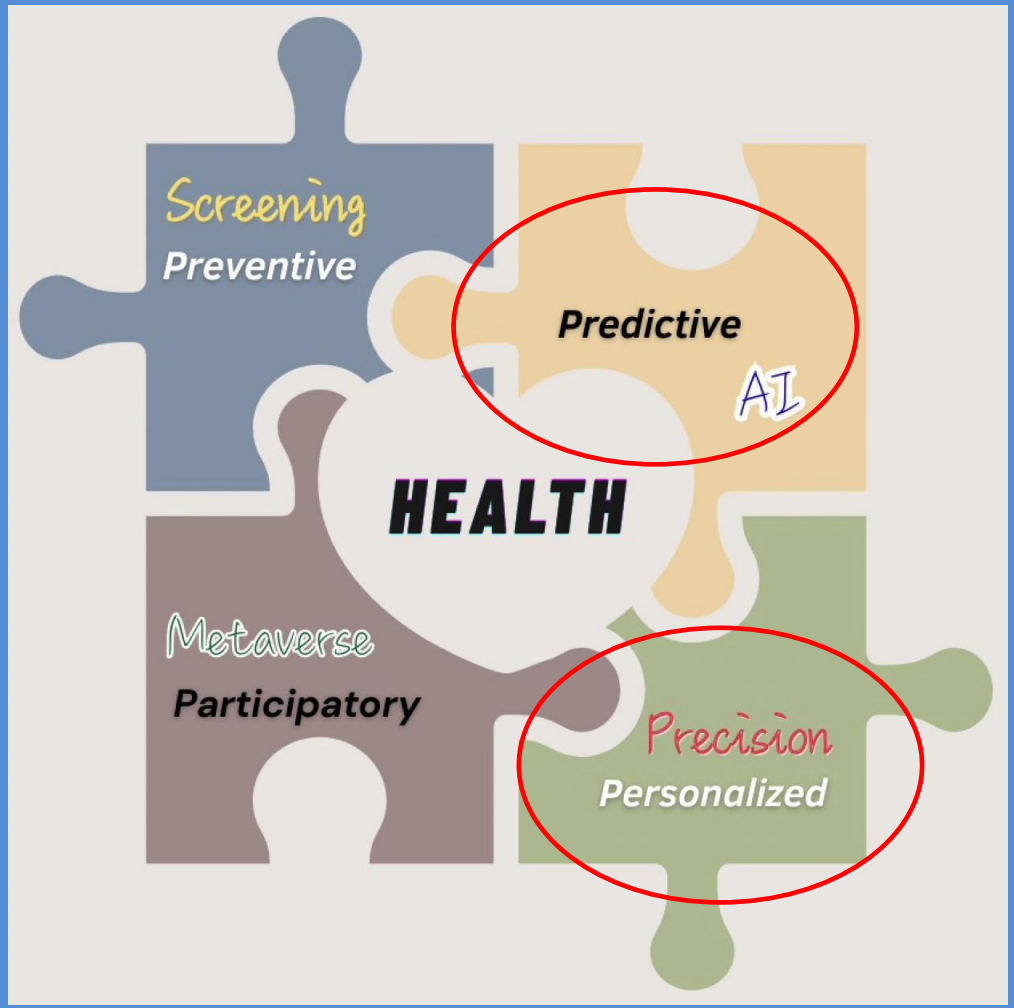
Colorectal Cancer 2.7%



Taiwan Causes of Death




Screening
Preventive
Predictive
AI
HEALTH
Metaverse
Participatory
Precision
Personalized


Screening
Preventive
Predictive
AI
HEALTH
Metaverse
Participatory
Precision
Personalized

Colorectal and Gastric Cancer Screening

AI-empowered Precision Disease Screening

Community-based Onsite Visit

Cancer and Chronic Disease Prevention

Multi-thronged disease Screening

Aiming for new heights