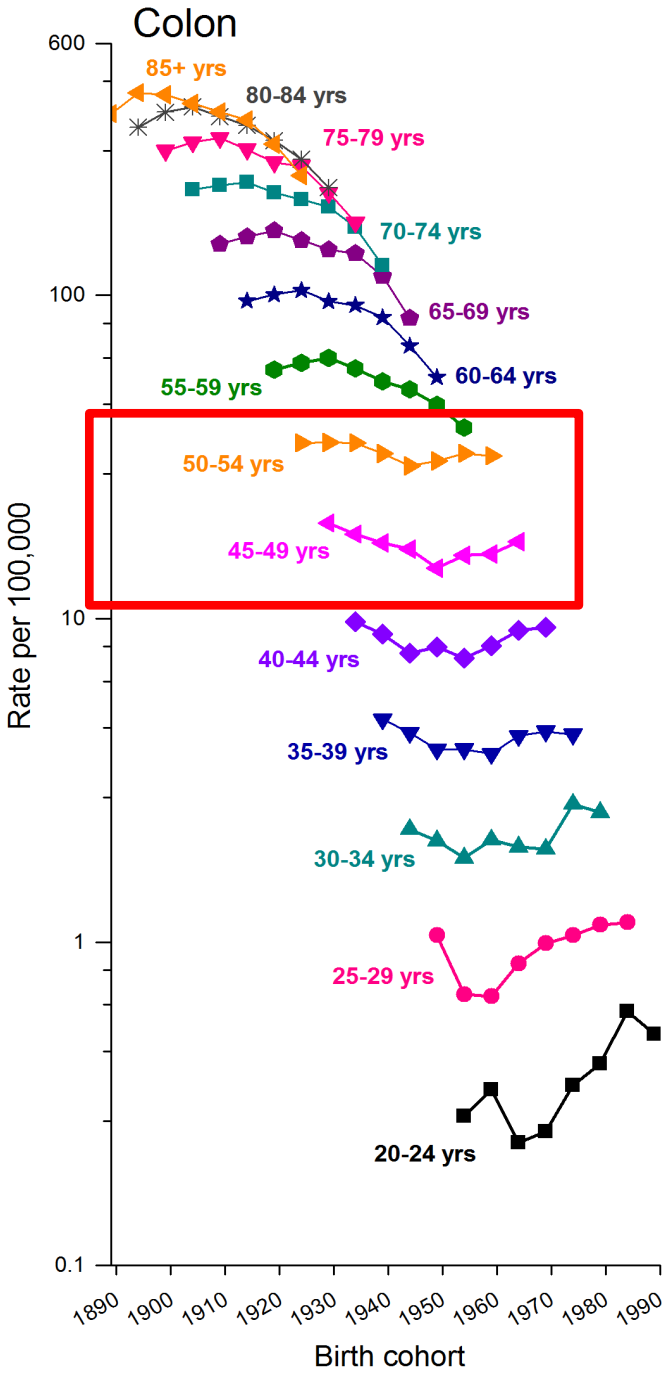
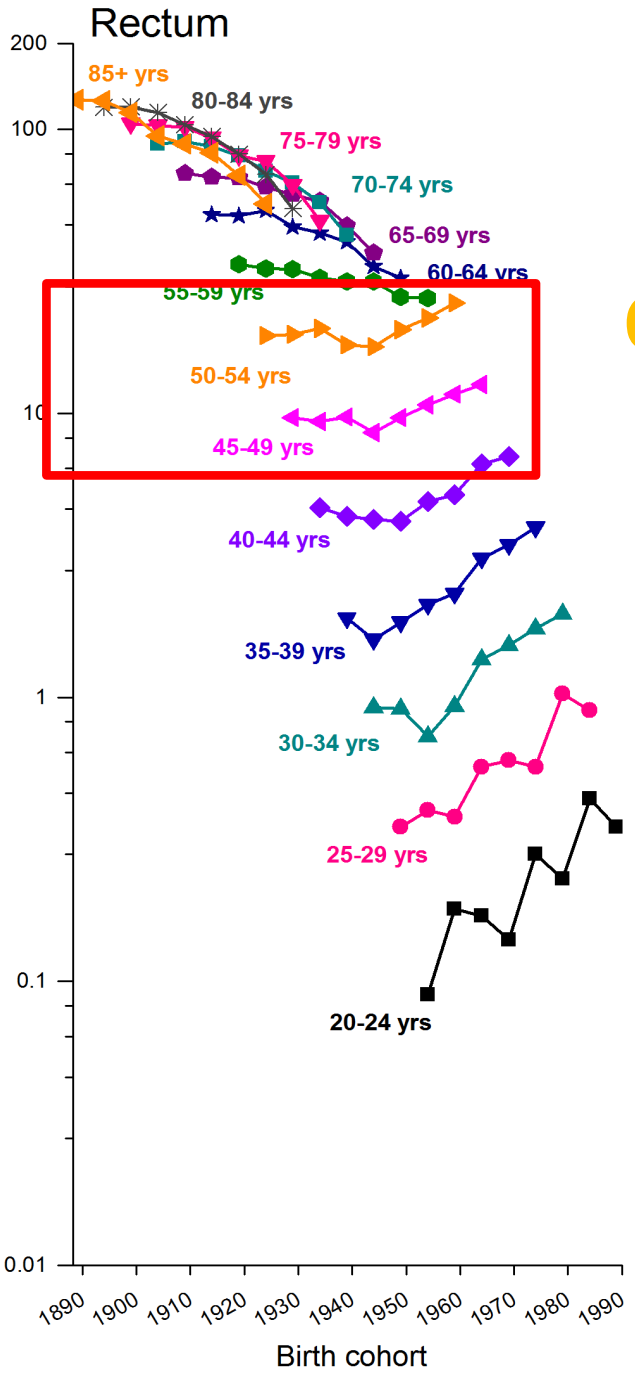
Among individuals at average risk for colorectal cancer, should screening be initiated at age 45 instead of 50?

YES!

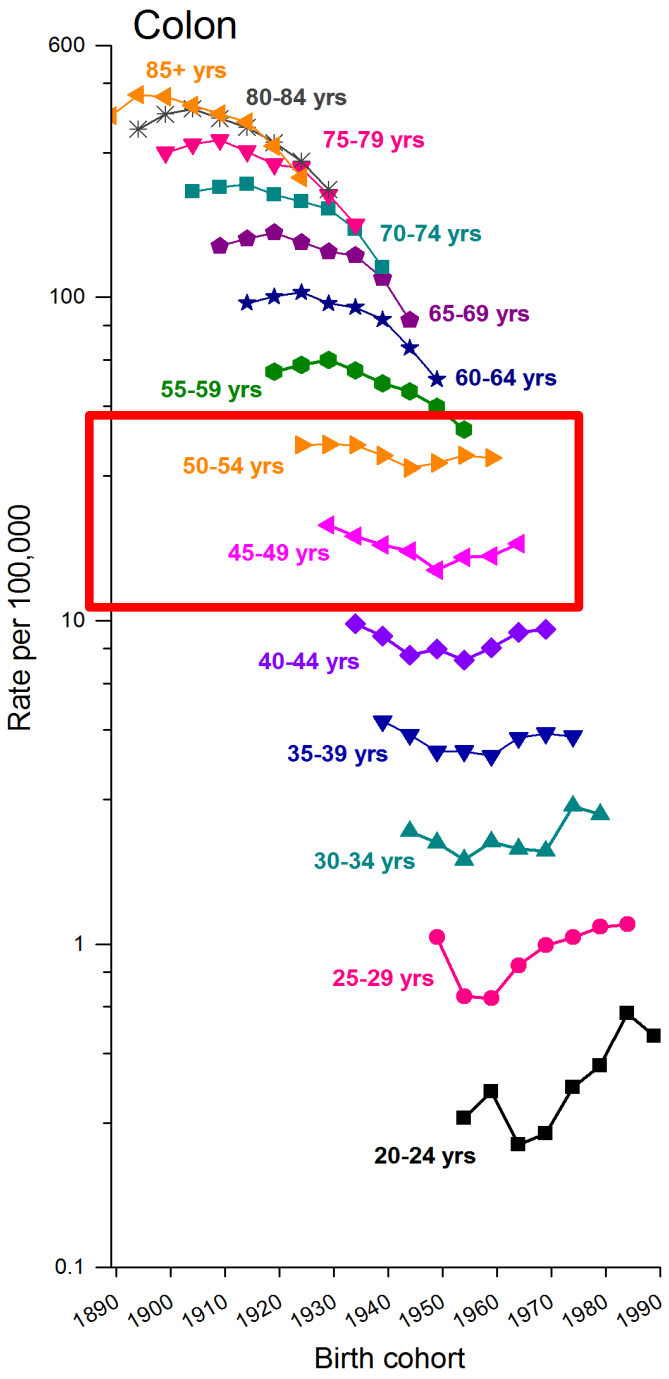


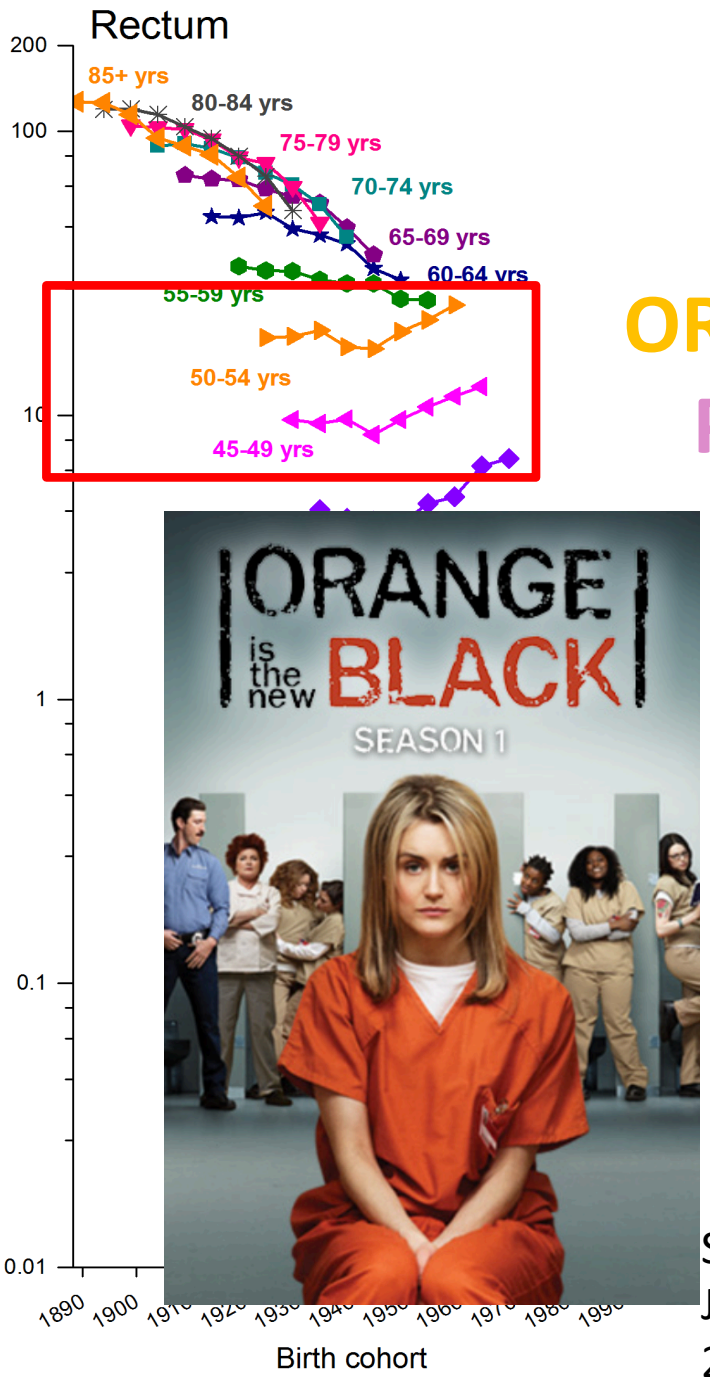


ORANGE

PINK

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





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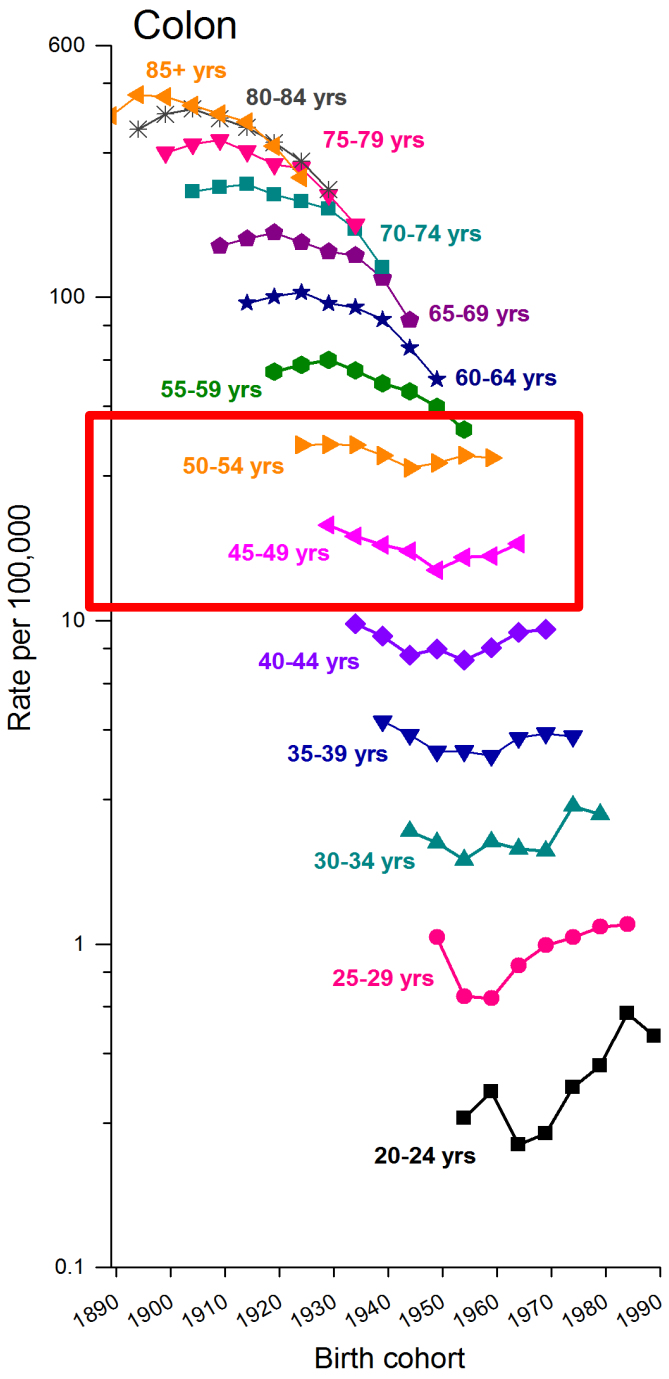
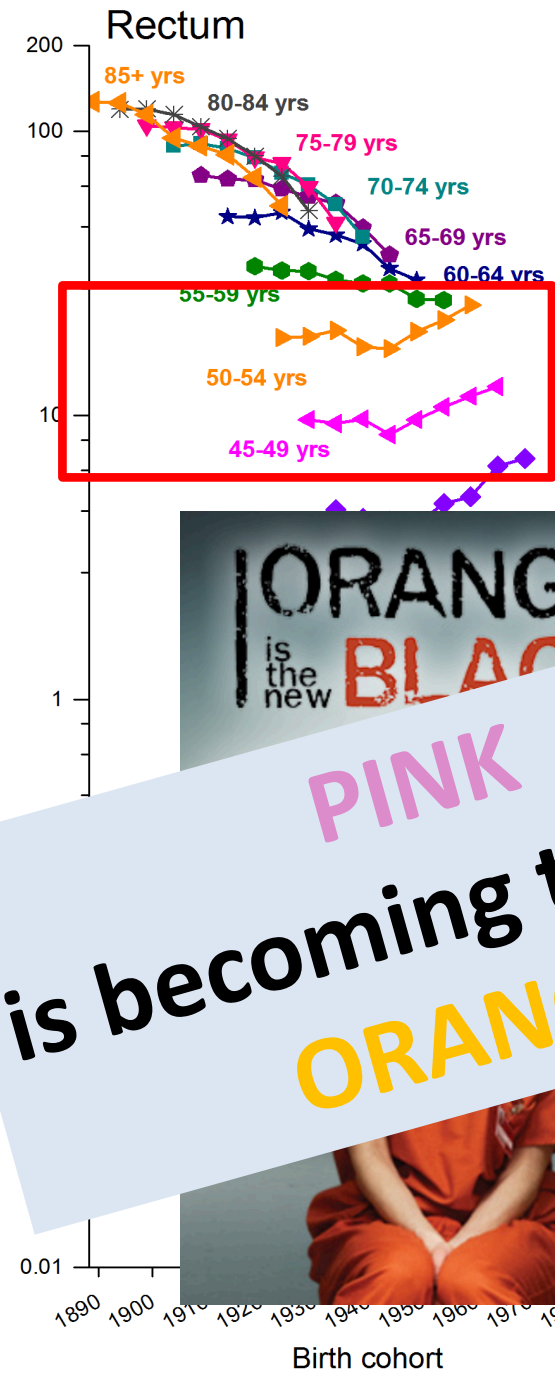
Siegel et al., JNCI 2017;109(8)





ORANGE

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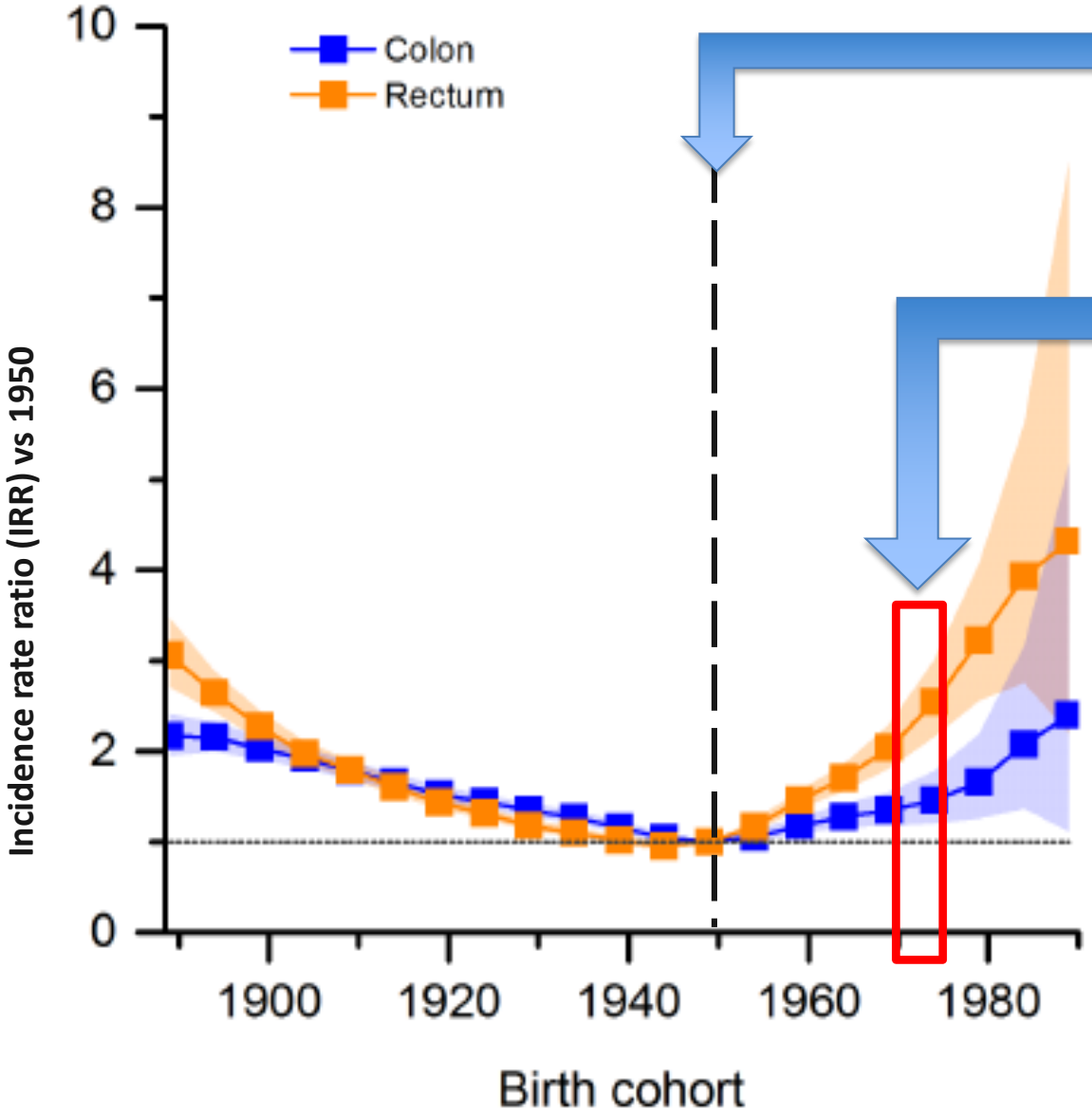
is becoming the new

ORANGE

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

Increasing CRC risk under age 50



50 year-olds in 2000

45-49 year-olds TODAY in 2020

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

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

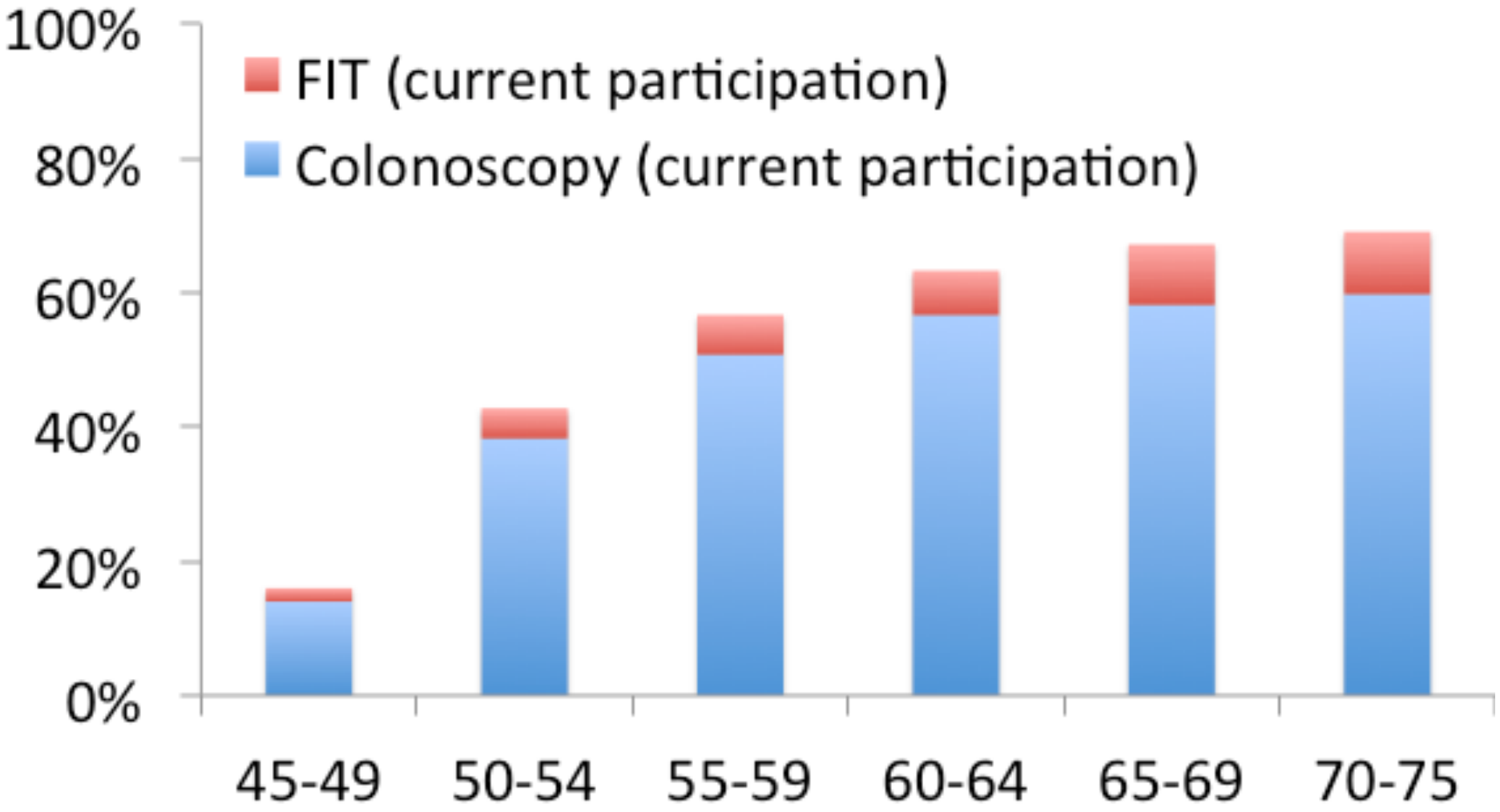
Siegel et al., JNCI 2017;109(8)

Base Case Cost-effectiveness (discounted)

	Colo 45-75 vs. 50-75	FIT 45-75 vs. 50-75
People (n)	1,000	1,000
Incr #colo	758	267
CRCs averted	4	4
CRC deaths averted	2	1
QALYs gained	14.4	14.0
Incr cost	$486,500	$107,800
Cost/QALY	**$33,900**	**$7,700**

Ladabaum et al, Gastroenterology 2019;157:137

Current screening participation



Sauer et al., Prev Med 2018;106:94 [NHIS data]

Why start screening at 45?

- Today's 45 year-olds are like yesterday's 50 year-olds
- No reason to believe screening "won't work" at 45-49
- It is estimated to be cost-effective – and we can do it!
- Start the message early – people act late

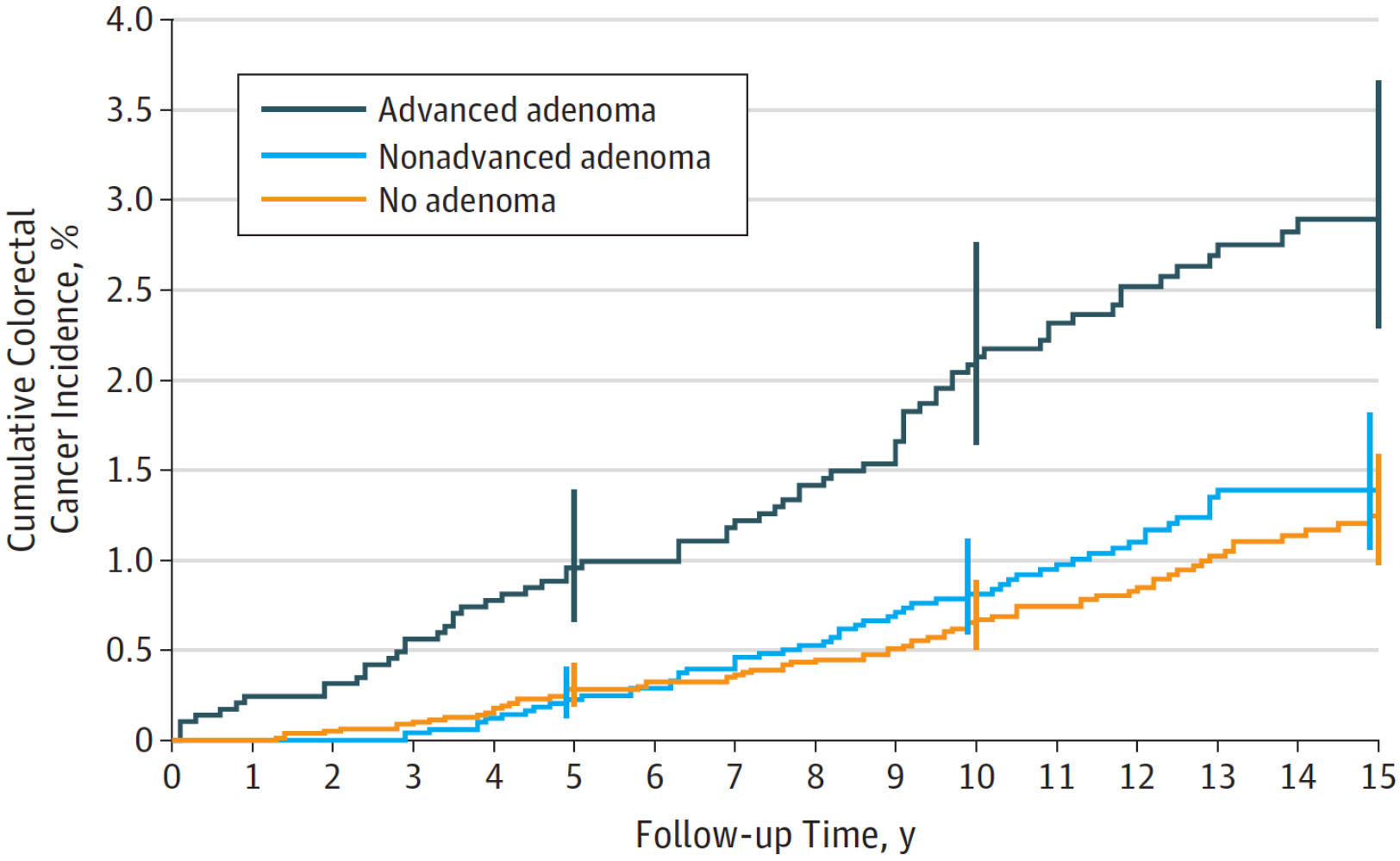
60 is
the new
40

For CRC screening,
45 is the new 50!

Among individuals with a low risk adenoma (1-2 adenomas <10mm in size) should a shorter (e.g. 5 year) versus a longer (e.g. 10 year) follow up interval be recommended?

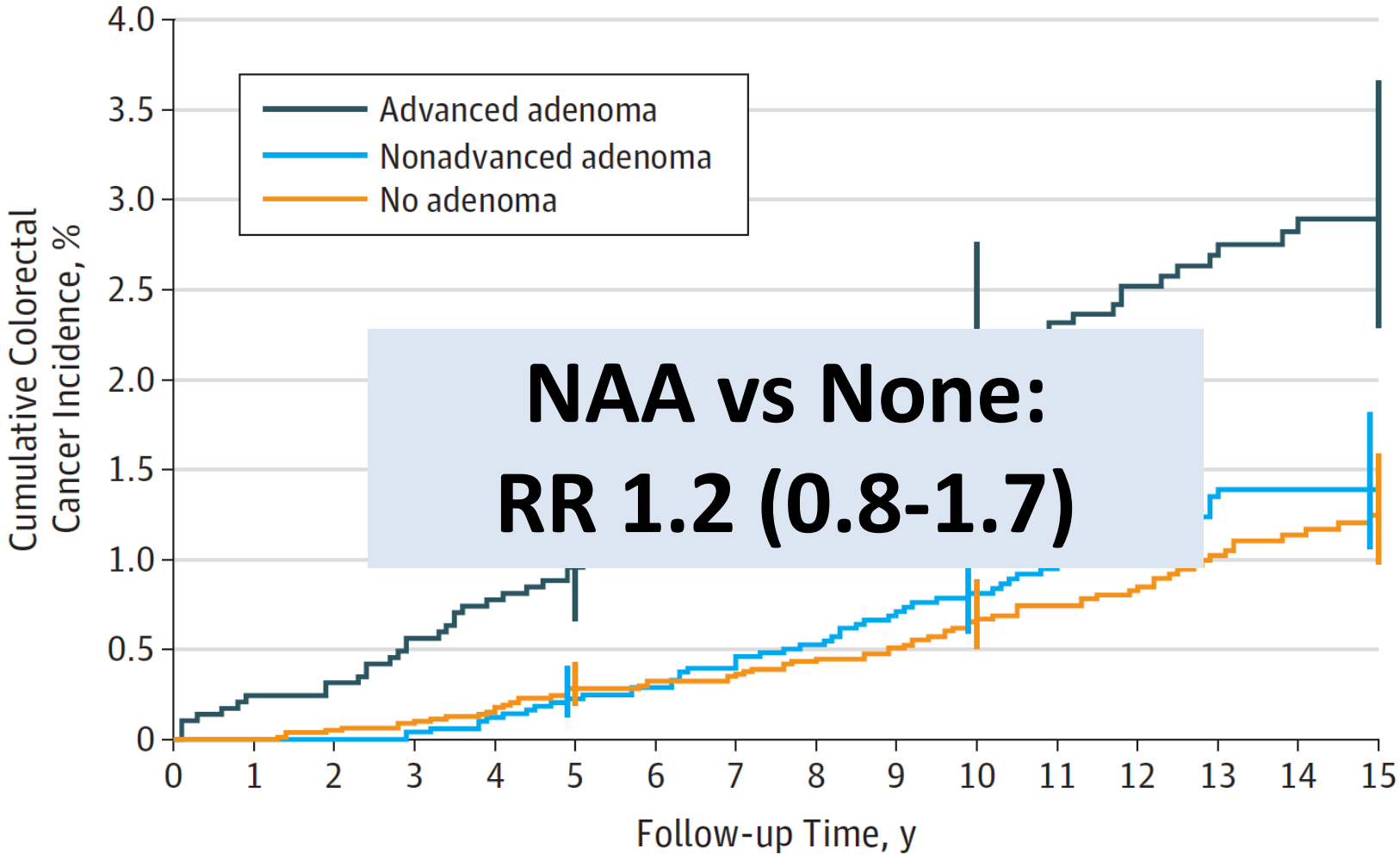
YES!

PLCO follow-up



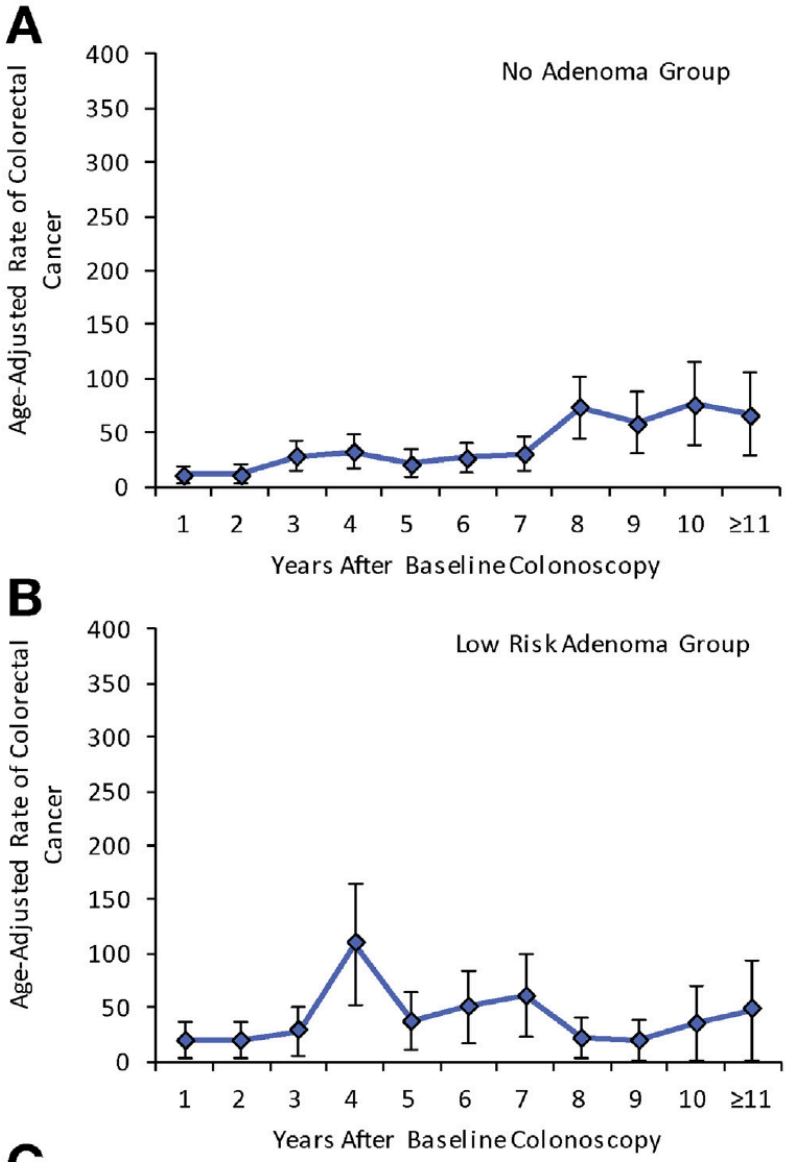
Click et al., JAMA. 2018;319:2021

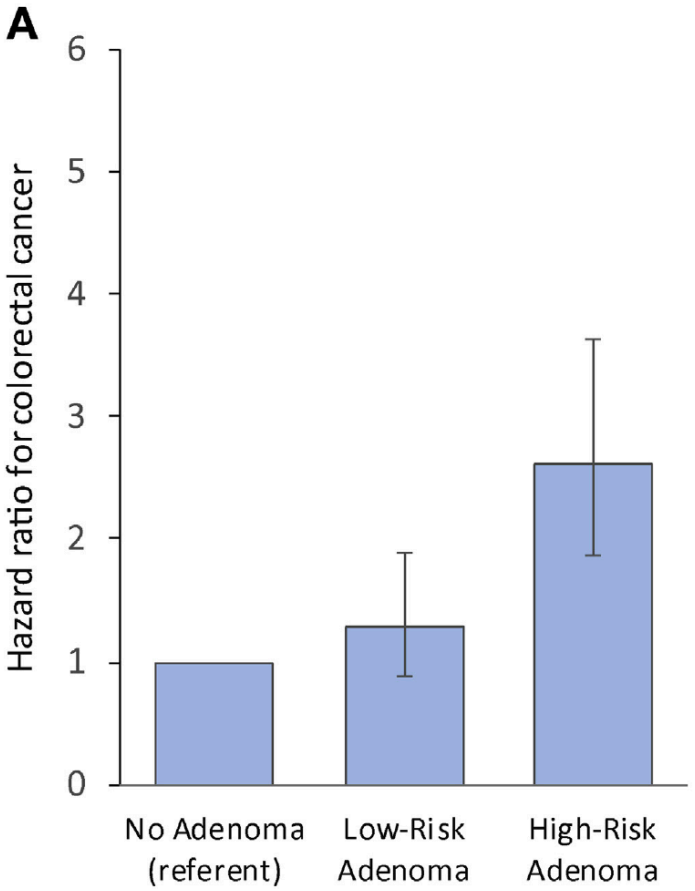
PLCO follow-up



Click et al., JAMA. 2018;319:2021

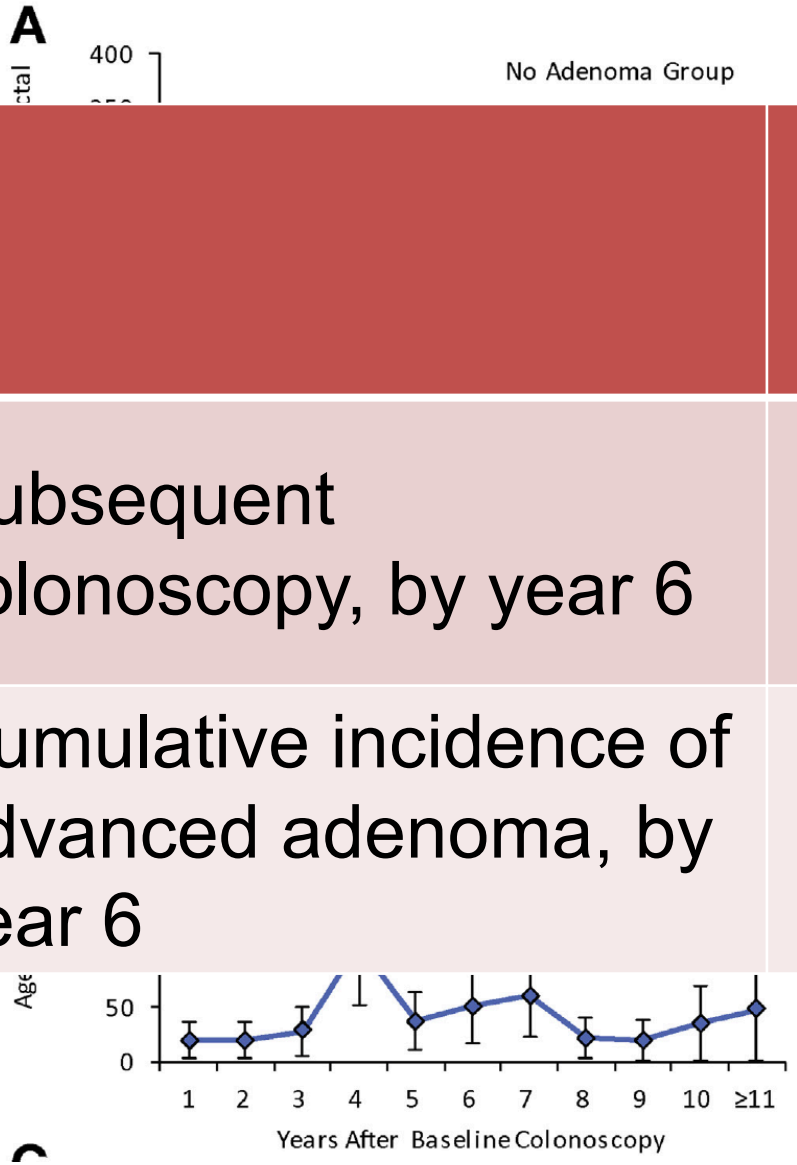
Kaiser NorCal





Lee et al., Gastro 2020;158:884

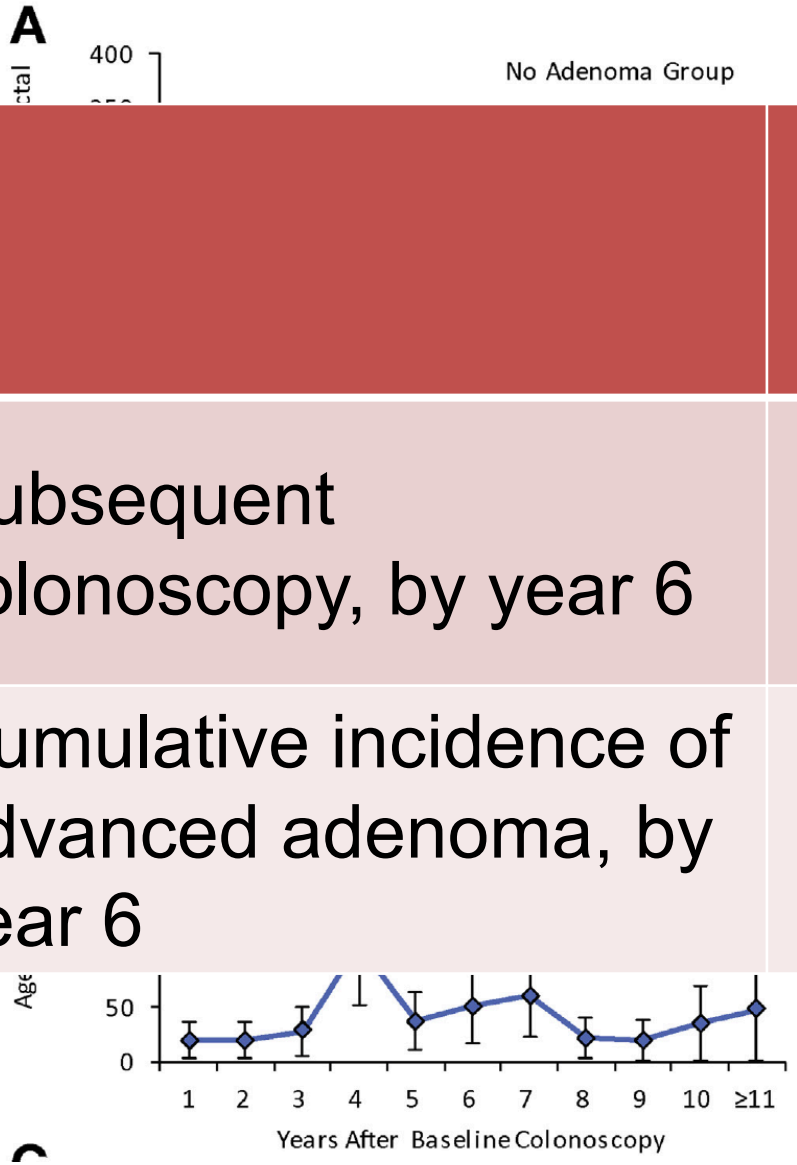
Kaiser NorCal



	No adenoma	Low-risk adenoma
Subsequent colonoscopy, by year 6	9.3%	
Cumulative incidence of advanced adenoma, by year 6	1.7%	

Lee et al., Gastro 2020;158:884

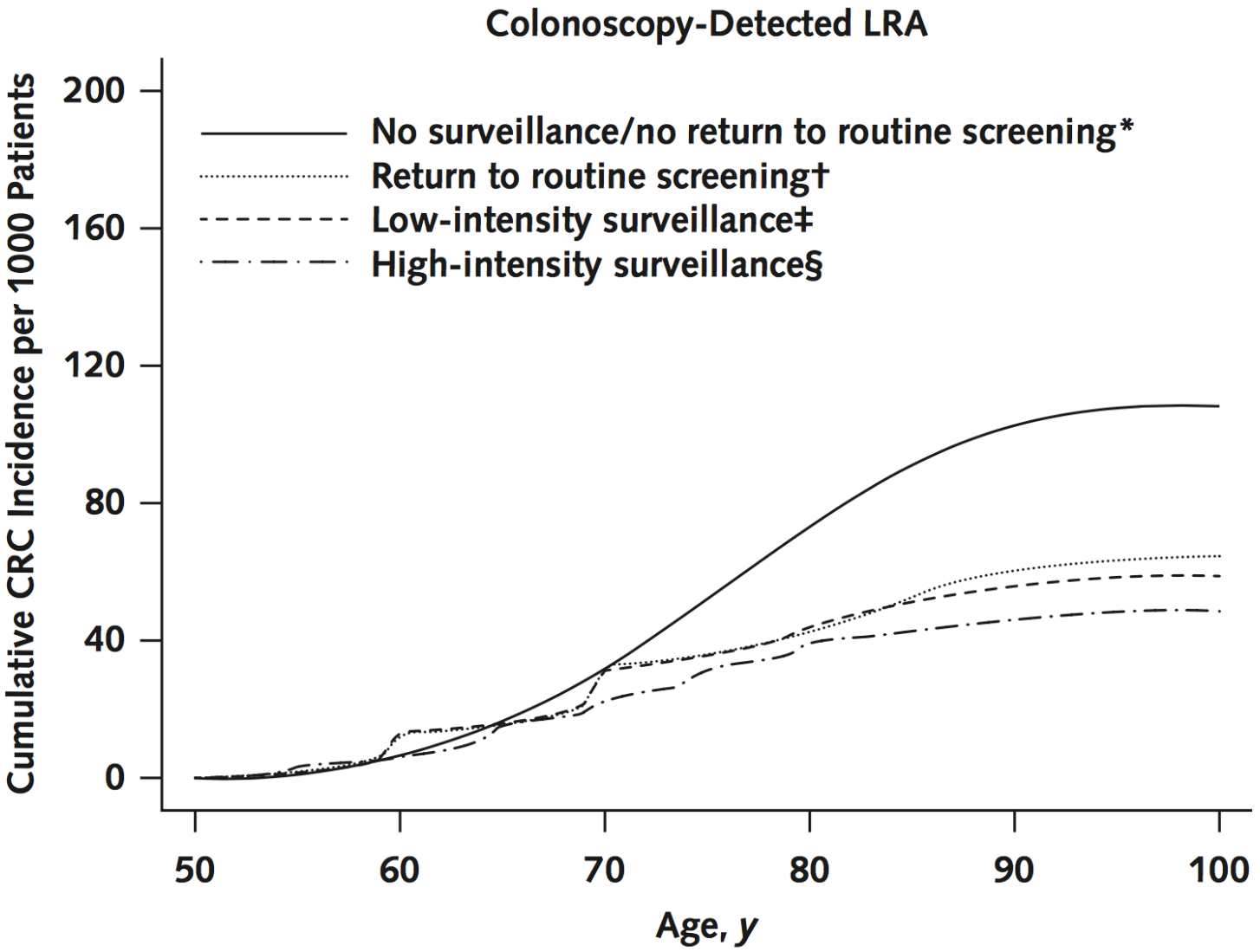
Kaiser NorCal



	No adenoma	Low-risk adenoma
Subsequent colonoscopy, by year 6	9.3%	**40.5%**
Cumulative incidence of advanced adenoma, by year 6	1.7%	**4.1%**

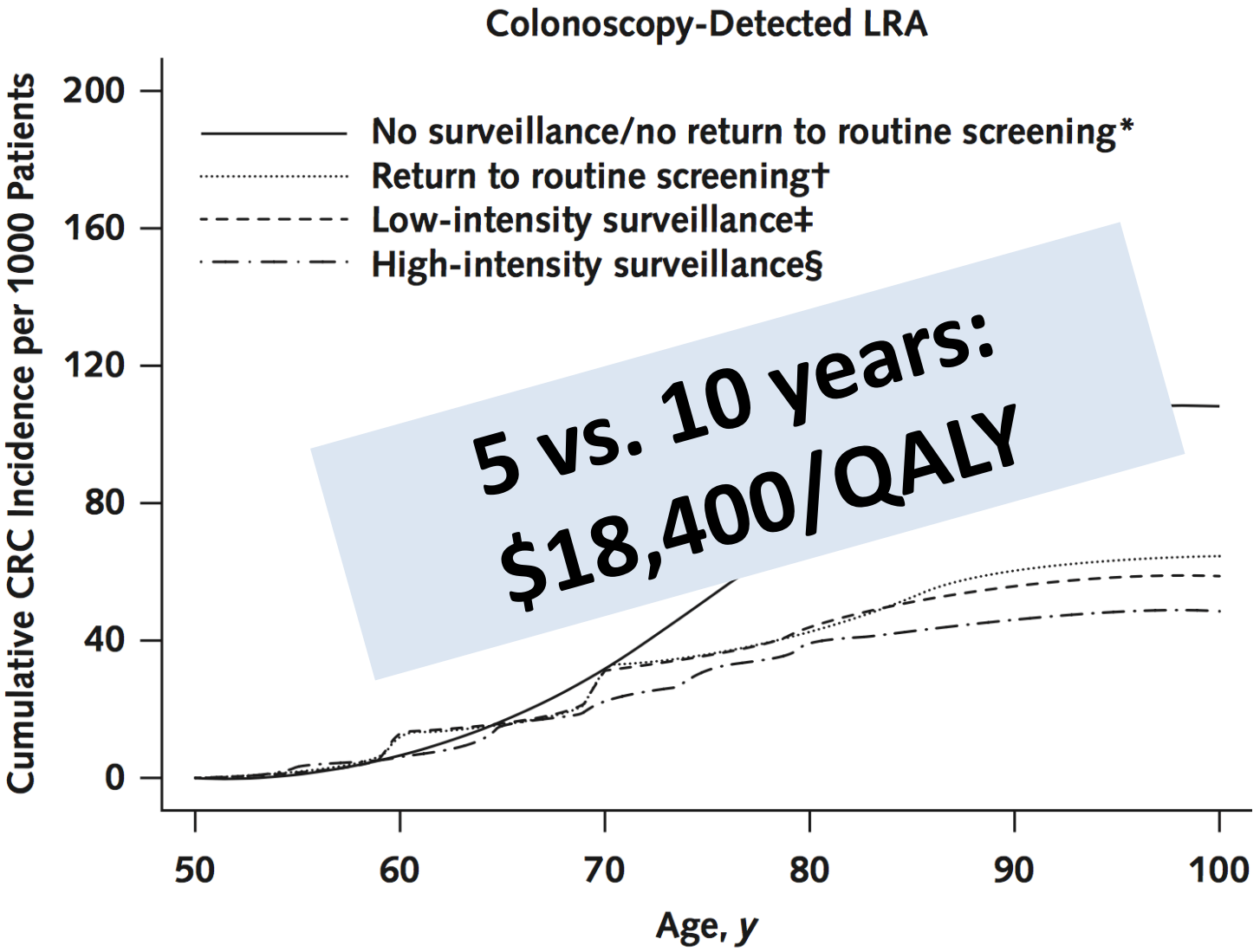
Lee et al., Gastro 2020;158:884

Surveillance at 5 vs. 10 years



Meester et al., Ann Intern Med. 2019;171:612

Surveillance at 5 vs. 10 years



Meester et al., Ann Intern Med. 2019;171:612

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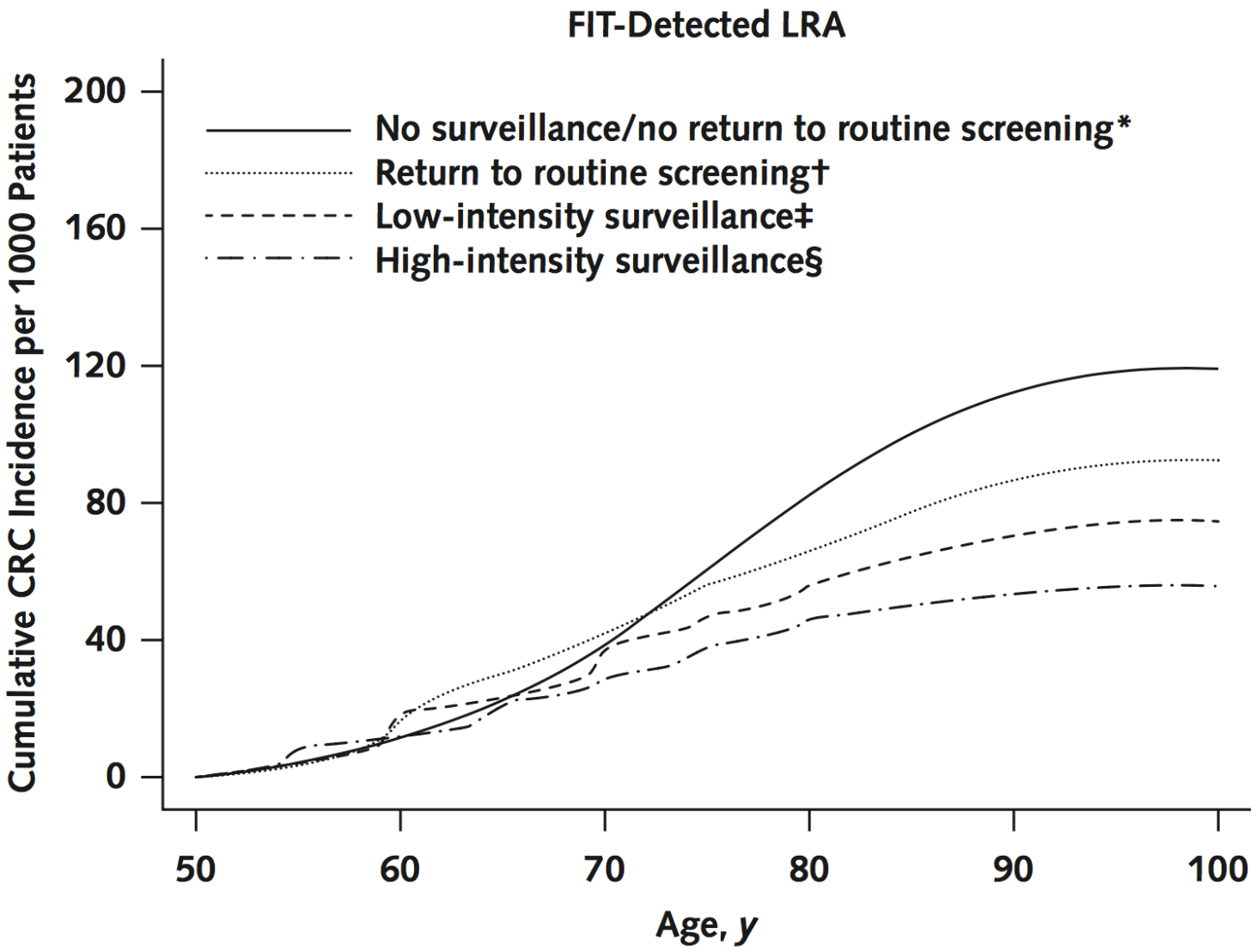
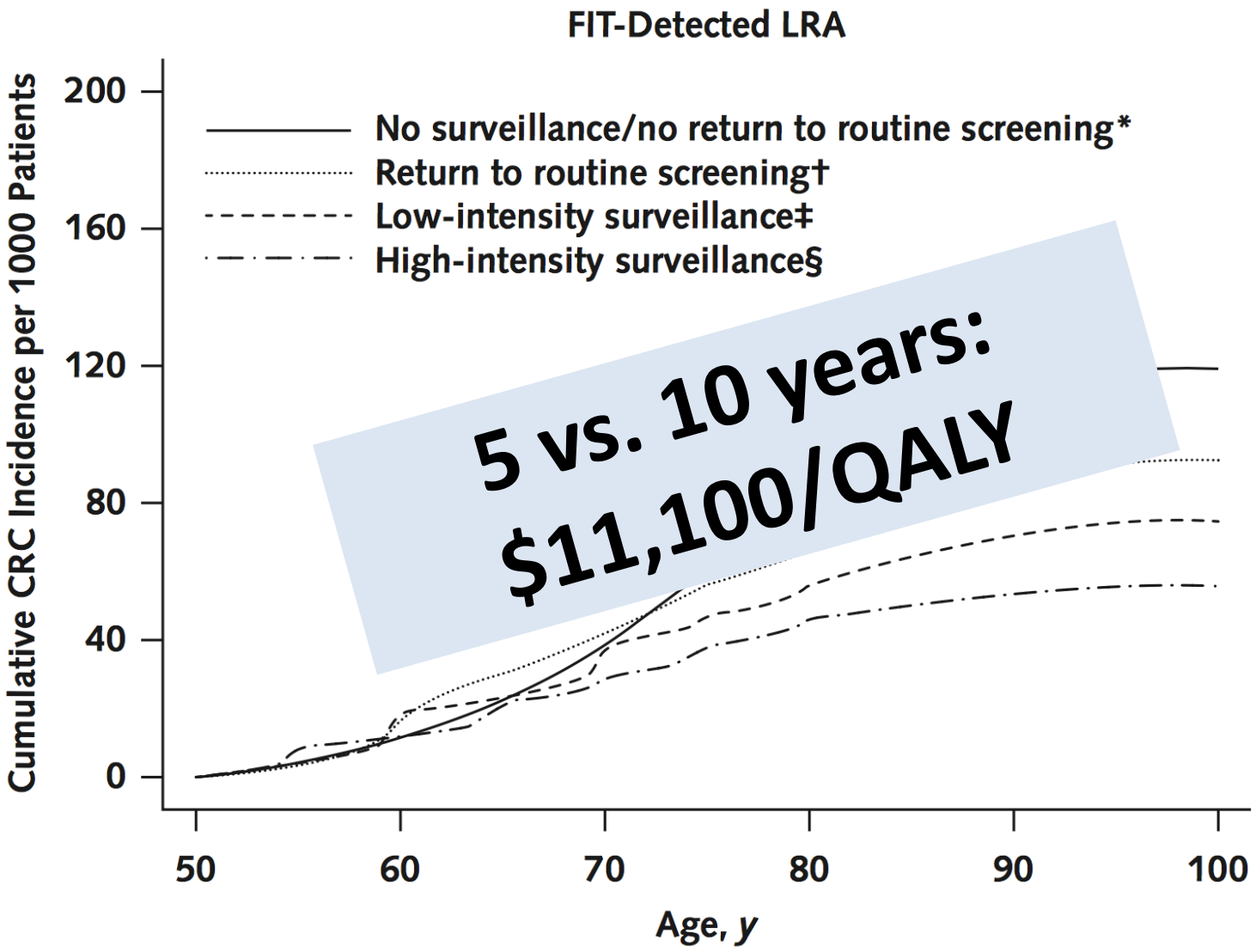


Meester et al., Ann Intern Med. 2019;171:612

Surveillance at 5 vs. 10 years



Meester et al., Ann Intern Med. 2019;171:612

Why do LRA surveillance at 5 years?

- Even with interval surveillance in LRA, upper bound of CI includes meaningfully increased risk *vs.* no adenoma
- Without interval surveillance at <10 years, CRC risk may well be higher *vs.* no adenoma
- It may take >15 years to see effect (not studied yet; modeled)
- It is estimated to be cost-effective – and we can do it!

THE JUICE IS WORTH THE SQUEEZE

Among individuals at average risk for colorectal cancer, should screening be initiated at a later age for women than men?

No!

Number needed to screen by age and sex

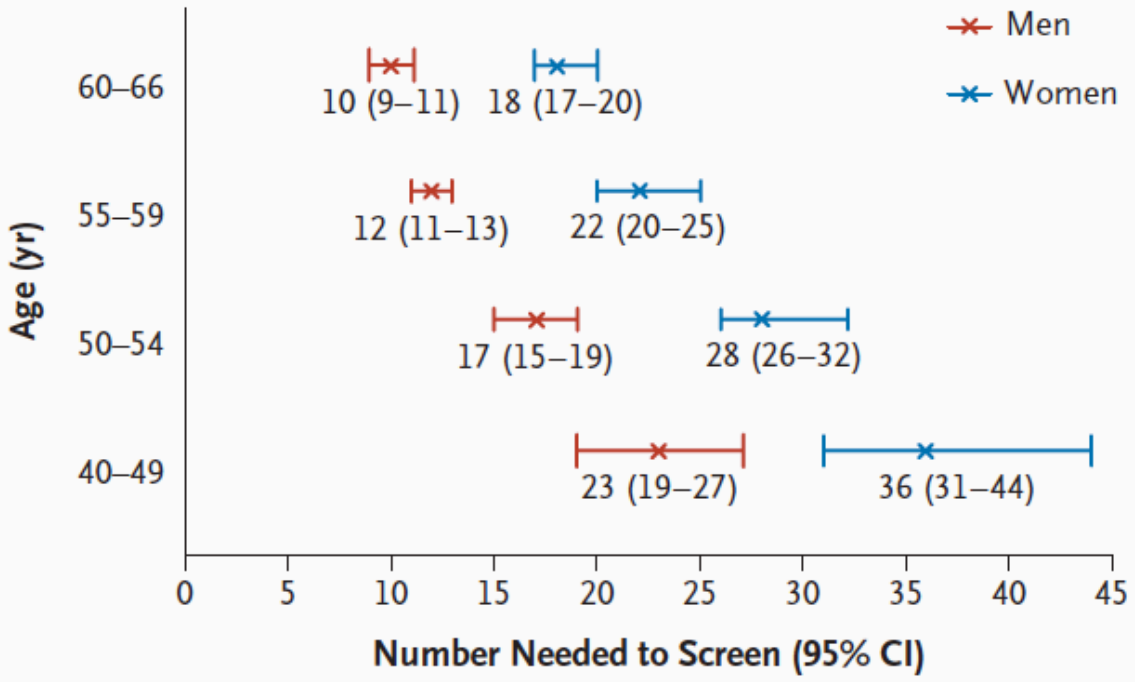


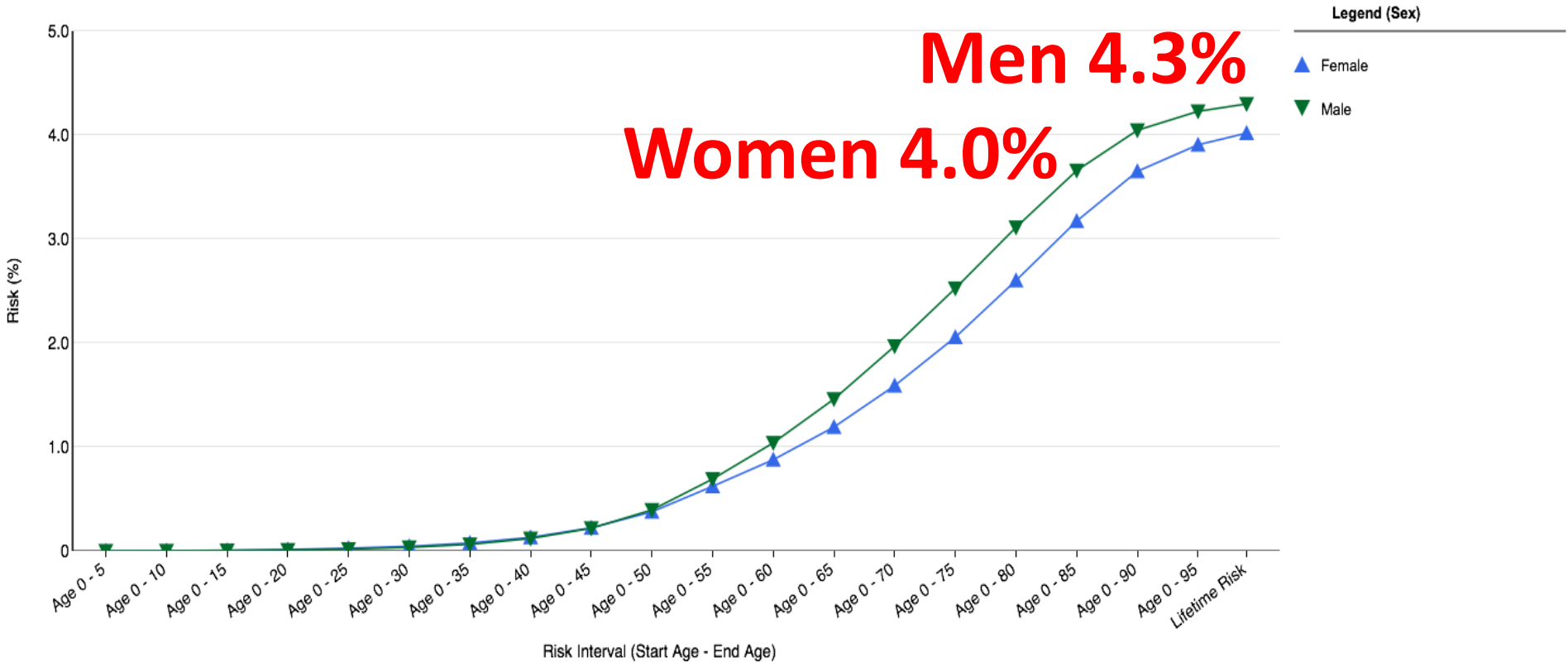
Figure 1. Numbers Needed to Screen in Order to Detect Advanced Neoplasia in the Large Bowel, According to Age Group and Sex.

All differences between men and women in the same age group were significant. Participants 40 to 49 years of age had different inclusion criteria than older participants, including a family history of any neoplasm (66.3% had a family history of colorectal cancer).

Regula *et al*, NEJM 2006;355:1863

Lifetime risk: Women vs. Men

Colon and Rectum Cancer
Cancer Risk From Birth Over Time, 2015-2017
By Sex, All Races (includes Hispanic), Risk of Being Diagnosed with Cancer



Created by https://seer.cancer.gov/explorer on Sun Sep 20 2020.
Underlying Incidence data are from the SEER 21 areas [http://seer.cancer.gov/registries/terms.html] (San Francisco, Connecticut, Detroit, Hawaii, Iowa, New Mexico, Seattle, Utah, Atlanta, San Jose-Monterey, Los Angeles, Alaska Native Registry, Rral Georgia, California excluding SF/SJM/LA, Kentucky, Louisiana, New Jersey, Georgia excluding ATL/RG, Idaho, New York and Massachusetts).
Underlying Mortality data are from the NCHS public use data file for the total US.
Risk estimates are calculated using the DevCan application.
Rates for American Indians/Alaska Natives only include cases that are in a Purchased/Referred Care Delivery Area (PRCDA). See SEER Race Recode Documentation for American Indian/Alaskan Native Statistics [http://seer.cancer.gov/seerstat/variables/seer/race_ethnicity/#ai-an].
Hispanics and Non-Hispanics are not mutually exclusive from whites, blacks, Asian/Pacific Islanders, and American Indians/Alaska Natives.
Incidence data for Hispanics and Non-Hispanics are based on the NAACCR Hispanic Latino Identification Algorithm (NHIA) and exclude cases from the Alaska Native Registry. See SEER Race Recode Documentation for Spanish-Hispanic-Latino Ethnicity [http://seer.cancer.gov/seerstat/variables/seer/race_ethnicity/#hispanic].
See the Policy for Calculating Hispanic Mortality [http://seer.cancer.gov/seerstat/variables/mort/origin_recode_1990+/index.html] for information about underlying Hiapnic mortality rates.
Cancer sites are defined using the SEER Site Recode ICD-O-3/WHO 2008 Definition [https://seer.cancer.gov/siterecode/icdo3_dwhoheme/index.html] and the SEER Cause of Death Recode 1969+ (04/16/2012).

https://seer.cancer.gov/explorer

Current screening participation in U.S.

	BRFSS	NHIS
Women	66.7% (66.3 – 67.1%)	57.2% (55.9 – 58.4%)
Men	64.2% (63.8 – 64.7%)	58.1% (56.9 – 59.2%)

Sauer et al., Prev Med 2018;106:94

Preferred age (<50 colonoscopies/LYG)

	White F	Black F	White M	Black M
MISCAN				
Stable CRC Risk				
Increased CRC Risk				
SimCRC				
Stable CRC Risk				
Increased CRC Risk				

Meester et al., Prev Med 2018;124:2974

Preferred age (<50 colonoscopies/LYG)

	White F	Black F	White M	Black M
MISCAN				
Stable CRC Risk	50	45	50	45
Increased CRC Risk				
SimCRC				
Stable CRC Risk	45	45	45	45
Increased CRC Risk				

Meester et al., Prev Med 2018;124:2974

Preferred age (<50 colonoscopies/LYG)

	White F	Black F	White M	Black M
MISCAN				
Stable CRC Risk	50	45	50	45
Increased CRC Risk	45	45	45	45
SimCRC				
Stable CRC Risk	45	45	45	45
Increased CRC Risk	45	45	45	45

Meester et al., Prev Med 2018;124:2974

"Average Risk" CRC Screening

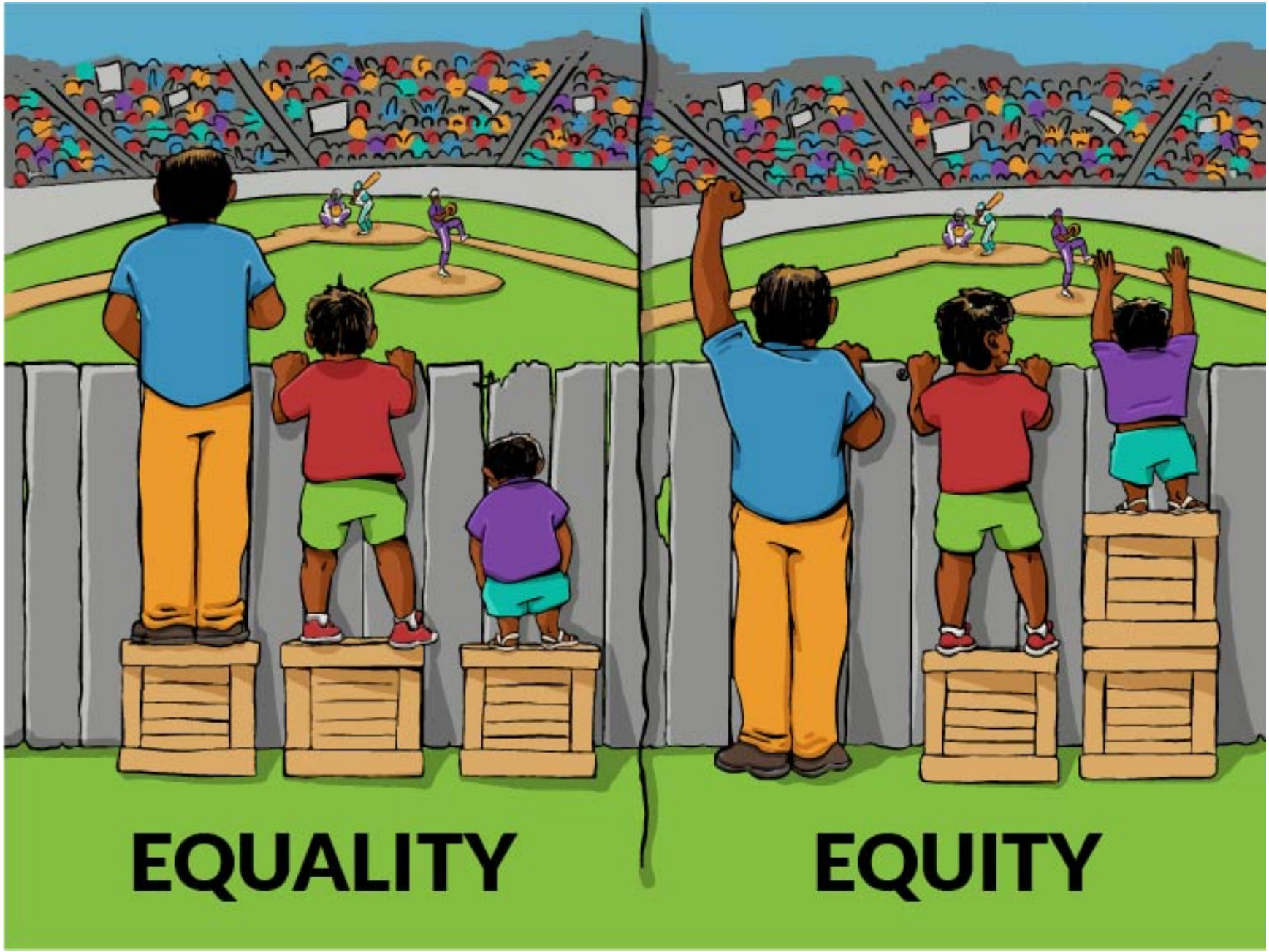
One Size Fits All

or

Personalized Tailoring?

Why screen women the same as men?

- Epidemiological differences are not dramatic, and women live longer
- Age 45 is acceptable for both sexes
- If aim for better risk stratification, sex is only one factor
- Avoid confusion in guidelines and suspicion by patients
  - Delaying a benefit in women?
  - Or sparing a burden in women?



Interaction Institute for Social Change | Artist: Angus Maguire