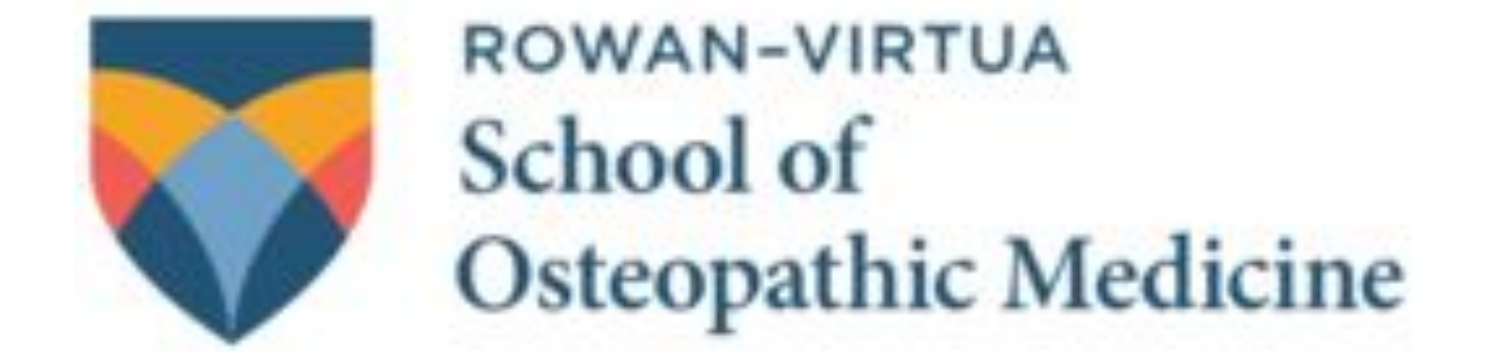


Decreasing Age Threshold For Colorectal Cancer Screening: Mortality and Incidence in the Younger Population

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Introduction and Objective

- USPSTF (United States Preventive Services Task Force) guidelines previously recommended routine colorectal cancer (CRC) screenings, such as colonoscopy, fecal occult-blood testing (FOBT), and sigmoidoscopy, in all adults aged 50-75 years old.
- In May 2021, the guidelines were updated to decrease the age of screening onset from 50 to 45 because there was a 15% increase in CRC incidence in adults aged 40 to 49 from 2000-2016.¹²
- This study analyzed longitudinal trends in incidence, prevalence, and mortality of CRC in patients aged 20-49 and 50-75 years old from various time periods by utilizing data sets gathered by national surveys and reviewing current literature.
- The purpose of this study is to highlight the strength of this recommendation and investigate if the age of CRC screening onset should be further adjusted.

Methods

- Data sets from the National Center for Health Statistics, the Centers for Disease Control from 2000-2015, Surveillance Epidemiology, and End Results Program SEER*Stat Databases from 1995-2014⁹, and literature reviews were used to identify trends in mortality, incidence, and frequency of CRC screenings in patients aged 20-49 and 50-75 years old.

Statistical Analysis

Incidence

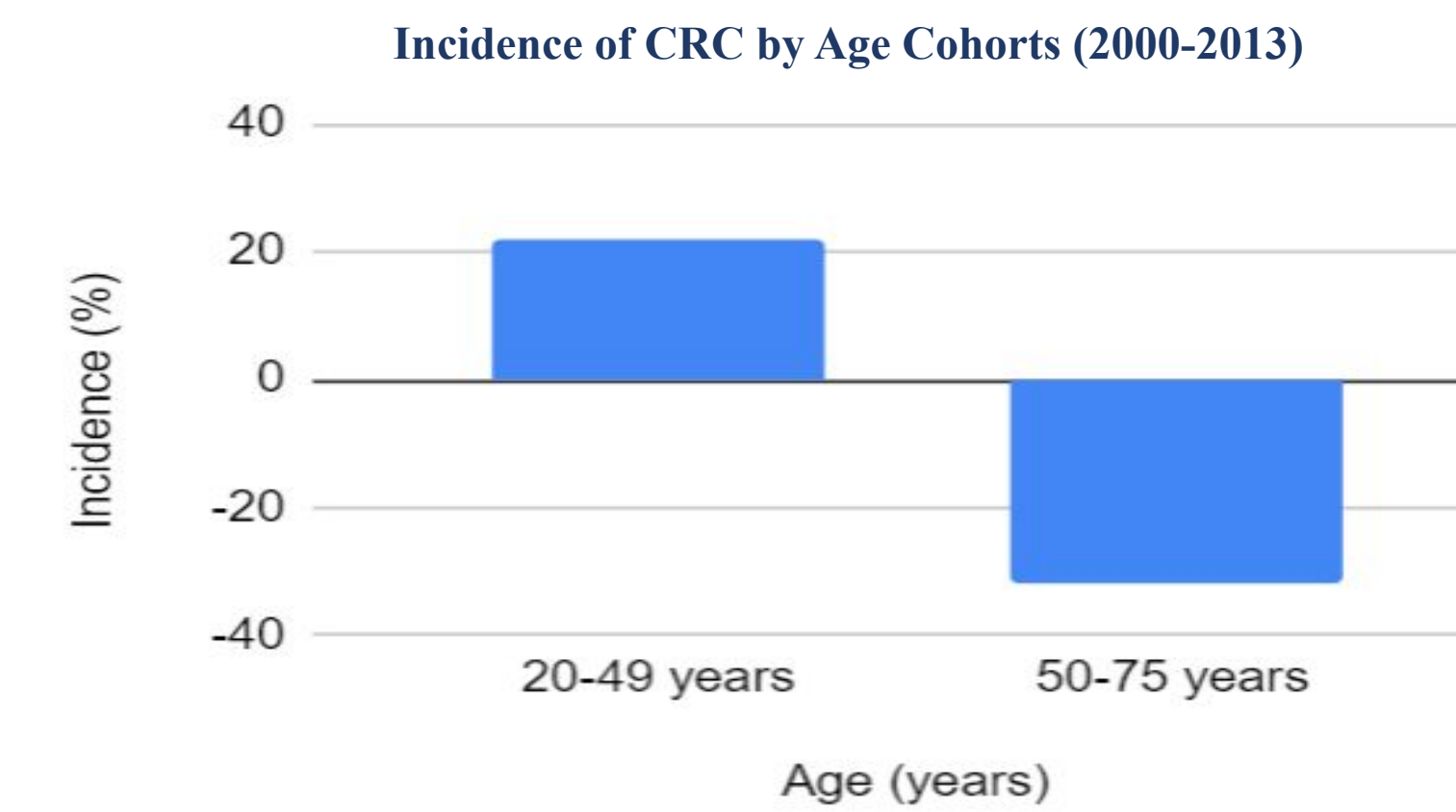


Figure 1

Screening

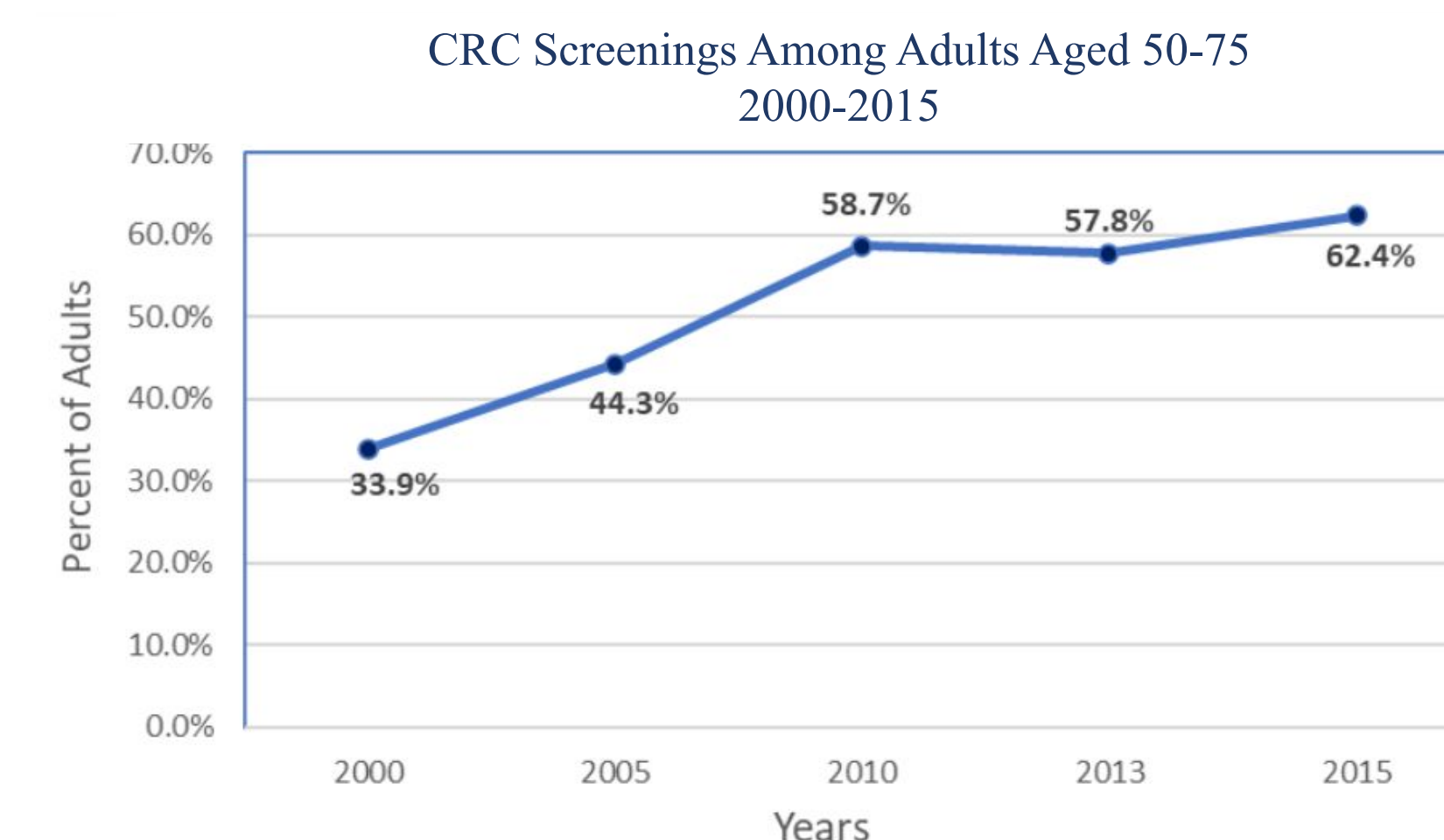


Figure 2

Prevalence of Neoplastic Polyps

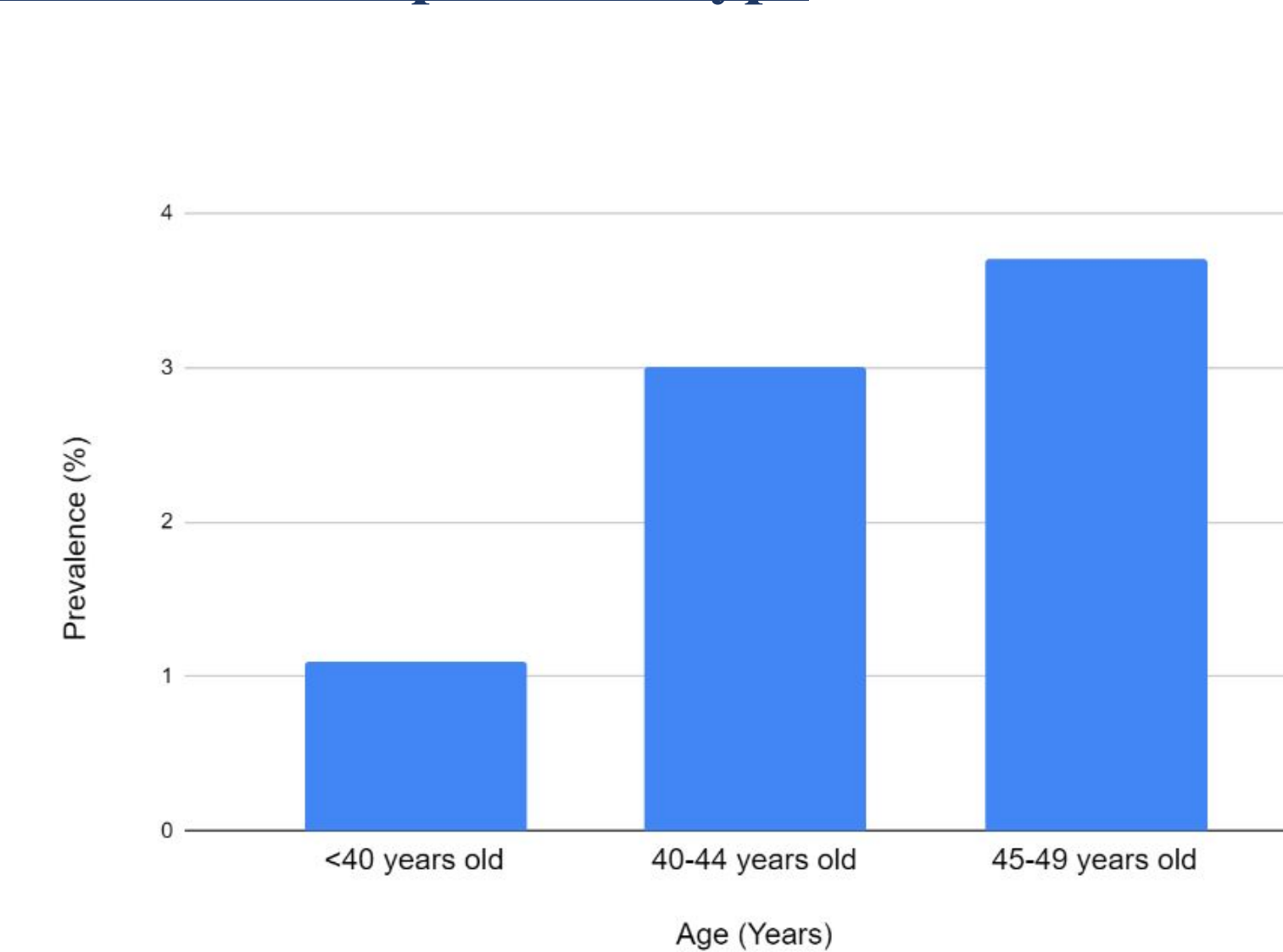


Figure 3

Mortality

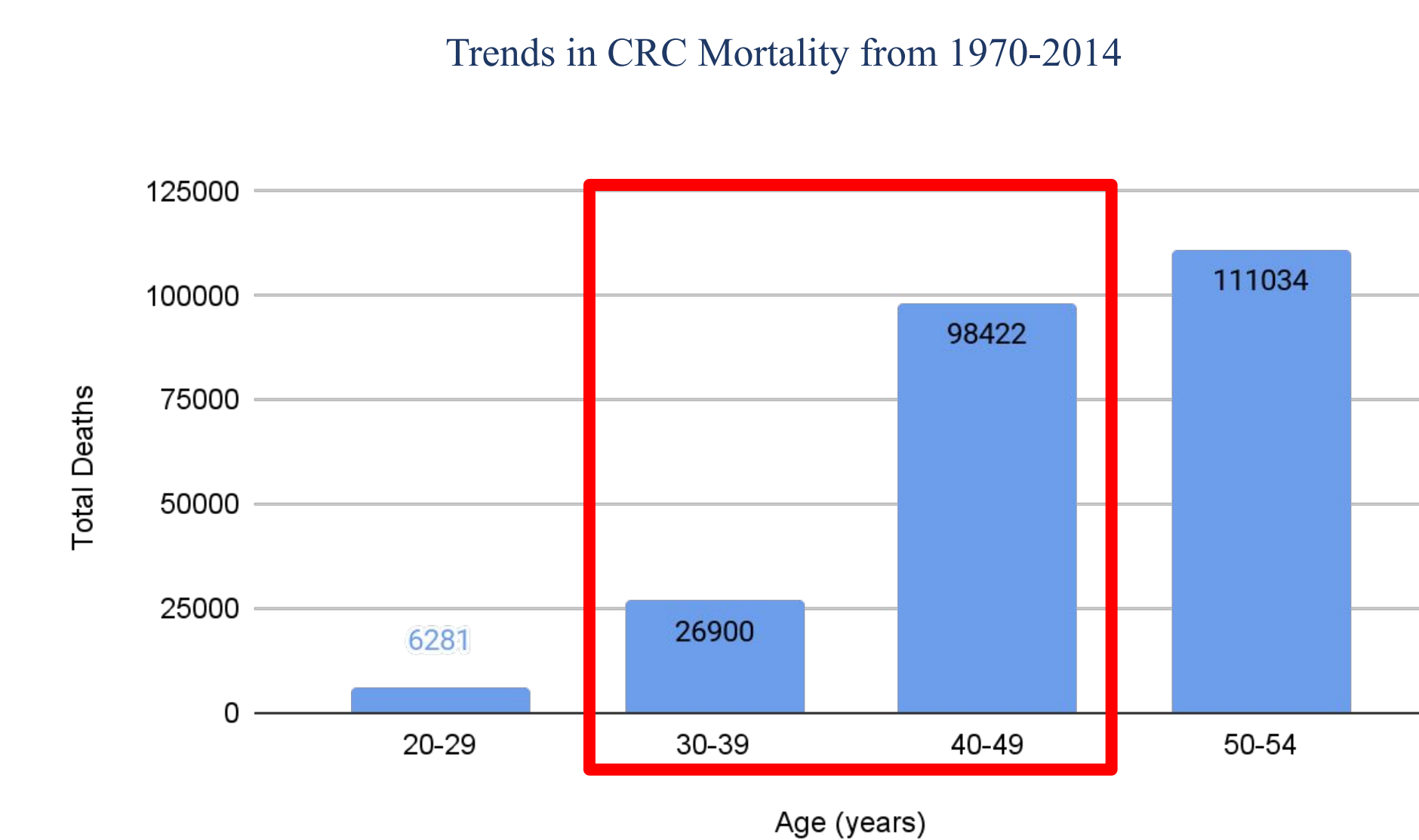


Figure 4

Results

Incidence

- Incidence of CRC decreased by 32% in patients 50-75 years from 2000-2013 as screening is routinely recommended in this cohort.⁷
- During that same time period, there was a 22% increase in CRC incidence in patients aged 20-49.⁷

Screening

- 28.5% increase in the number of patients undergoing routine CRC screening from 2000-2016 for all patients aged 50-75.⁵
- With this increase in screening there was a 6.9% decrease in mortality from 2000-2016 in patients aged 50-7.⁶
- Not enough data on screening and mortality on patients younger than 50 as screening is not routinely recommended in this population.

Prevalence of Neoplastic Polyps

- Colonic neoplastic polyps are masses of protruding tissue within the colon which can carry malignant potential. Malignancy and extent of dysplasia is most associated with villous histology and increasing polyp size.¹⁰
- In a sample size of 40,812 colonoscopies from the New Hampshire colonoscopy registry, prevalence of advanced neoplasia varies with age cohort¹:
 - <40 years: 1.1% prevalence of neoplastic polyps
 - 40-44 years: 3.0% prevalence of neoplastic polyps
 - 45-49 years: 3.7% prevalence of neoplastic polyps

Mortality

- In patients aged 20-54 years old, CRC mortality rates (measured in people per 100,000) declined by 2.4 from 1970-2004 and then increased by 1.0% (95% CI, 1.1% to 1.8%) annually to 4.3 in 2014.⁸
- Age stratification every 10 years show the largest increase in CRC mortality from 1970-2014 occurs between ages 30-39 and 40-49. This data supports the updated USPSTF screening age recommendation of 45.⁸

Conclusion and Limitations

- Decreasing CRC screening onset from 50 to 45 increased screening availability to 20 million more Americans but also increases the probability of procedural complications.¹¹
- USPSTF uses predictive models such as the Microsimulation Screening Analysis (MISCAN)³ which assumes a 100% adherence to routine screenings, yet the CDC reports a 69.7% CRC screening adherence in 2018 with the lowest adherence in the 50-54 age range.²
- In patients aged 40-45, the increased risk is evident, but more research is needed to elucidate if an increase in screening translates to an improvement in mortality and outcomes as well as cost vs benefit.
- Further studies should aim to quantify this risk as well as gather longitudinal data on the overall decrease in mortality in patients aged 45 and older compared to patients aged 50 and older.⁴
- In patients less than 45 years, the decision to start CRC screening should be individualized based on race, age, sex, and familial cancer syndromes, and family history.

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Disclosures

We have no disclosures.