Age-Specific Trends in Colorectal Cancer Mortality Rates Over a 27-Year Period

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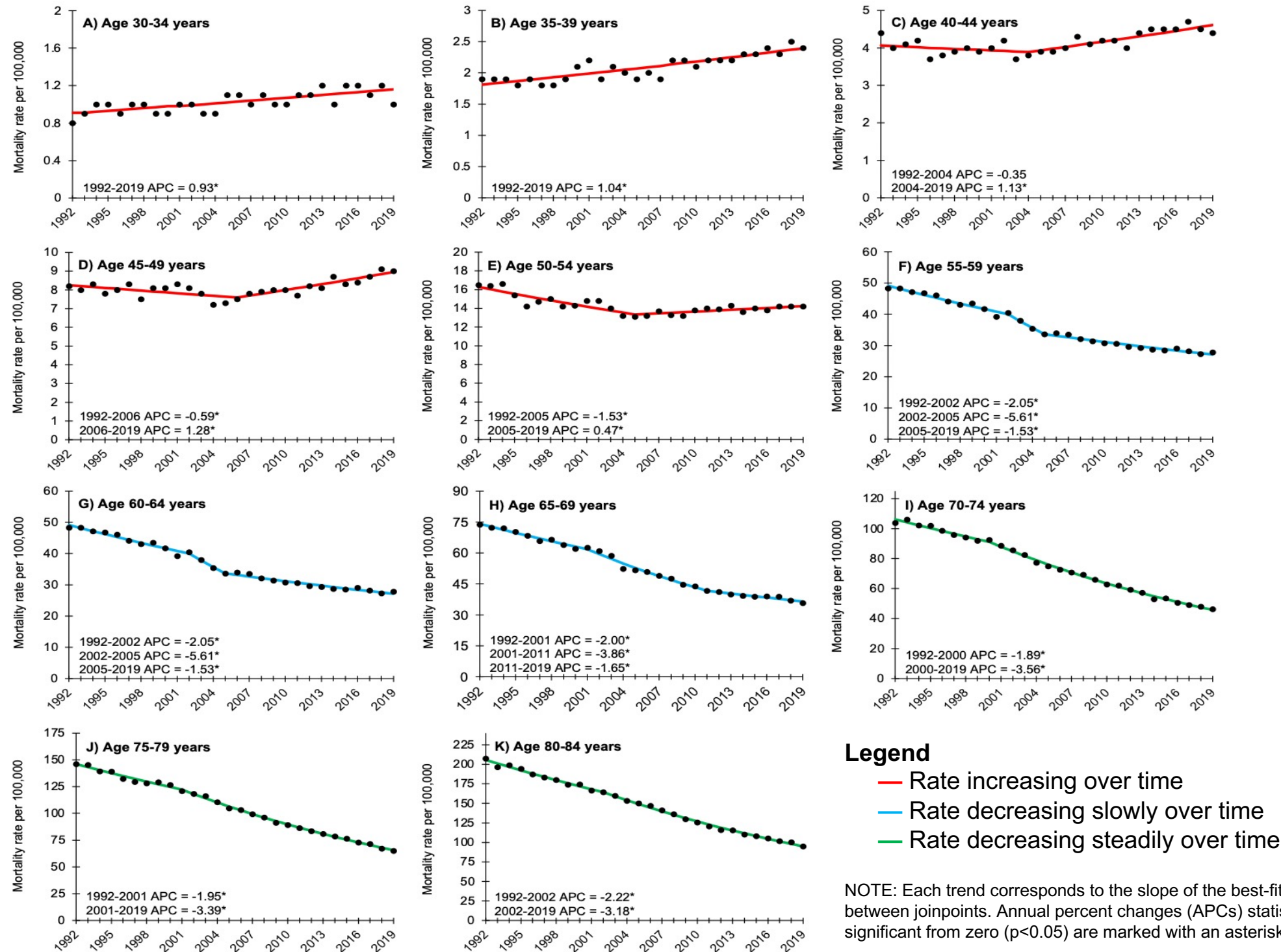
Background

- Incidence rates of colorectal cancer (CRC) are increasing among younger adults (age <50 years) in the U.S.
- More recently, rates have increased in persons age 50-54 years.
- To better understand the corresponding changes in mortality, we examined trends in CRC mortality rates by age over a 27-year time period.

Methods

- We used population-based data from the National Cancer Institute's Surveillance, Epidemiology, and End Results program of cancer registries to estimate age-specific (30-84 years, by 5-year age group) mortality rates per 100,000 persons in 1992–2019.
- We used joinpoint regression analysis to quantify changes in the direction and magnitude of mortality rates.
- The slope of the best-fit line between joinpoints corresponds to the annual percent change (APC) in mortality, with p<0.05 indicating a statistically significant difference from a slope of zero.

Figure. Annual percent change in age-specific mortality rates of colorectal cancer, National Center for Health Statistics, 1992 – 2019

A) Age 30-34 years — 1992-2019 APC = 0.93*

B) Age 35-39 years — 1992-2019 APC = 1.04*

C) Age 40-44 years — 1992-2004 APC = -0.35; 2004-2019 APC = 1.13*

D) Age 45-49 years — 1992-2006 APC = -0.59*; 2006-2019 APC = 1.28*

E) Age 50-54 years — 1992-2005 APC = -1.53*; 2005-2019 APC = 0.47*

F) Age 55-59 years — 1992-2002 APC = -2.05*; 2002-2005 APC = -5.61*; 2005-2019 APC = -1.53*

G) Age 60-64 years — 1992-2002 APC = -2.05*; 2002-2005 APC = -5.61*; 2005-2019 APC = -1.53*

H) Age 65-69 years — 1992-2001 APC = -2.00*; 2001-2011 APC = -3.86*; 2011-2019 APC = -1.65*

I) Age 70-74 years — 1992-2000 APC = -1.89*; 2000-2019 APC = -3.56*

J) Age 75-79 years — 1992-2001 APC = -1.95*; 2001-2019 APC = -3.39*

K) Age 80-84 years — 1992-2002 APC = -2.22*; 2002-2019 APC = -3.18*

Legend
— Rate increasing over time
— Rate decreasing slowly over time
— Rate decreasing steadily over time

NOTE: Each trend corresponds to the slope of the best-fit line between joinpoints. Annual percent changes (APCs) statistically significant from zero (p<0.05) are marked with an asterisk.

Results

- Age-specific CRC mortality rates mirror the well-described trends in CRC incidence rates.
- We observed increasing mortality rates in every age group up to 50-54 years and slowing rates in age groups 55-59 to 65-69 years.
- After age 69, mortality rates decreased steadily.

Conclusion

- Our findings suggest that CRC diagnoses and deaths are increasingly common in middle-aged adults, despite the availability of screening and improved treatment options.
- Future efforts should identify factors contributing to increasing CRC mortality rates, as well as implement strategies to improve screening participation in these age groups.