# African Americans should be screened at an earlier age for colorectal cancer CME

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**Background:** African Americans (AAs) have been shown to exhibit a higher incidence of colorectal cancer and experience lower survival compared with whites. There is disagreement regarding the age at which to initiate screening in AAs.

**Objectives:** To calculate the age-specific incidence in AAs compared with whites while controlling for differences in socioeconomic status (SES) and to calculate the joinpoint at which the incidence begins to increase in each race.

**Design:** Retrospective database review.

**Setting:** Surveillance, Epidemiology, and End Results database.

**Patients:** All patients with adenocarcinoma of the colon or rectum from 2000 through 2011 in the SEER 18 database.

**Interventions:** We calculated the joinpoint of the upward trend of the age-adjusted incidence rate to determine the age at which the slope of the incidence curve began to increase in each race, while controlling for differences in SES by using a composite socioeconomic index.

**Main Outcome Measurements:** Age-adjusted incidence of colon and rectal cancer.

**Results:** The age-specific incidence of colorectal cancer (cases per 100,000 population) was 0.3 versus 0.4 in whites compared with AAs at 20 years of age. At 50 years of age, the incidence was 44.2 compared with 62.6 in whites compared with AAs. The model indicated a joinpoint at 47 years of age for whites (95% confidence interval, 45-49) and 43 for AAs (95% confidence interval, 42-45) ($P < .001$.) When SES was considered in stratification, joinpoints for whites were 48, 47, and 46 at high, middle, and low SES, respectively. Conversely, joinpoints of 43, 44, and 42 in the corresponding SES for AAs were noted ($P \leq .001$).

**Limitations:** There was no intervention, and we cannot conclude that changing screening policy would affect this disparity.

**Conclusion:** There is a disparity in the age-specific incidence of colorectal cancer in AAs compared with whites beginning at 45 years of age. These differences persist across socioeconomic strata. (Gastrointest Endosc 2015;82:878-83.)

Over the past 5 years, an average of 145,000 new cases of colorectal cancer (CRC) were diagnosed per year in the United States, whereas 49,000 people per year died of this disease.[1] The American Cancer Society estimates that 50% to 60% of these deaths may have been prevented if all men and women older than 50 years of age were routinely

*Abbreviations: AA, African American; ACG, American College of Gastroenterology; ASGE, American Society for Gastrointestinal Endoscopy; CRC, colorectal cancer; JR, joint regression; SEER, Surveillance Epidemiology and End Results Database; SES, socioeconomic status.*

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screened.[2] Screening for CRC has been widely advocated by multiple professional organizations since it was first proposed in 1996.[3] Colonoscopy has been shown to reduce the incidence of,[4] as well as reduce the risk of death from,[5] CRC. Multiple agencies have proposed screening guidelines for the early detection and prevention of CRC.[6-9] Recent data indicate that the incidence of CRC in the United States has been decreasing,[10] whereas other countries without aggressive screening and education have not seen the same decreases.[11]

There is additional interest in identifying vulnerable populations who may benefit from more intense screening. Patients with a family history of CRC, ulcerative colitis, hereditary nonpolyposis CRC, or familial adenomatous polyposis have been selected for more intense screening regimens compared with the general public.[6-9] The American College of Gastroenterology (ACG) recently added the African American (AA) race as another high-risk patient group, proposing screening average-risk AA patients with colonoscopy starting at 45 years of age instead of 50 years of age.[9] This recommendation was based on a special report from the ACG Committee on Minority Affairs and Cultural Diversity from 2005,[12] which found a higher incidence of CRC in AAs,[10,13-16] a lower survival rate in AAs with CRC,[17-21] and a more proximal distribution of cancers in AAs.[22-24] Despite these findings suggesting a higher overall incidence of CRC in AAs, the recommendation was made without citing any literature to suggest an earlier incidence of CRC in AAs. In 2010, the American Society for Gastrointestinal Endoscopy (ASGE) also recommended screening AAs at 45 years of age, citing the ACG recommendation as the basis for this recommendation.[25] The joint American Cancer Society, U.S. Multi-Society Task Force, and American College of Radiology consensus agreed to postpone further recommendations on the age at which to initiate screening in AAs until a later date, citing a lack of evidence that early screening in AA patients would positively affect screening or survival rates.[8]

To make informed recommendations about the age of screening initiation, we must understand the epidemiology of CRC among different populations. The purpose of this study was to clarify the age-specific incidence of CRC in AAs compared with whites, while accounting for socioeconomic factors, because lower socioeconomic status (SES) was previously correlated with lower use of screening modalities.

## METHODS

The Surveillance, Epidemiology, and End Results (SEER) database from the National Cancer Institute from 2000 through 2011 was used to determine the epidemiology of CRC by calculating the age-specific incidence in AAs compared with whites.

### SEER database

Description taken from the SEER Web site[26]: "The Surveillance, Epidemiology, and End Results (SEER) Program of the National Cancer Institute currently collects and publishes cancer incidence and survival data from population-based cancer registries covering approximately 28% of the U.S. population. For more information on this, please view the SEER Research Data. SEER coverage includes 26 percent of African Americans, 38 percent of Hispanics, 44 percent of American Indians and Alaska Natives, 50 percent of Asians, and 67 percent of Hawaiian/Pacific Islanders. The SEER Program registries routinely collect data on patient demographics, primary tumor site, tumor morphology and stage at diagnosis, first course of treatment, and follow-up for vital status. Geographic areas were selected for inclusion in the SEER program based on their ability to operate and maintain a high quality population-based cancer reporting system and for their epidemiologically significant population groups." Registries represent the Northeast (Connecticut and New Jersey), South (Kentucky, Louisiana, Atlanta, Rural Georgia, and Greater Georgia), North-Central (Detroit and Iowa), and West (Hawaii, New Mexico, Seattle-Puget Sound, Utah, San Francisco-Oakland, San Jose-Monterey, Los Angeles, Greater California, Arizona, and Alaska).

We used SEER Stat version 8.02 software (National Cancer Institute, Silver Spring Md). The SEER database for the period from 2000 to 2011 was used to calculate the age-specific incidence of colon and rectal adenocarcinoma based on race and socioeconomic factors. Incidence rates were age-adjusted to the age of the U.S. census population from 2000 and reported as the number of cases per 100,000. We selected patients from the SEER 18 registry with a confirmed cancer diagnosis and older than 20 years of age. The populations in the dataset were adjusted by SEER for population shifts that occurred as a result of Hurricane Katrina. Cases were selected by site (colon excluding appendix and rectum) and histology codes (adenocarcinoma).

To account for socioeconomic factors, we stratified our incidence calculations by county-level SES by using the poverty rate, described as the percentage of families below the poverty level, as previously detailed by Singh et al.[27] The poverty rate has been shown to be a measure of economic deprivation and an uneven distribution of economic resources in a given population. It has also been shown to correlate highly with other methods of economic deprivation such as educational attainment, unemployment rate, and occupational composition.[27] Patients were stratified by quartiles according to county-level poverty rate.

Joinpoint regression (JR) models were used to fit the upward trend of the age-adjusted incidence rate and determine the age at which the slope of the incidence curve began to increase in each race. Standard errors of age-adjusted incidence rates were used as weights to account for heteroscedasticity in the weighted least-squares estimates of the JR models. Initial results from single and