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## Ethical dilemma of colorectal screening: What age should a screening colonoscopy start and stop?

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### Abstract

Many advanced age patients who are diagnosed with colorectal cancer are often not offered surgical treatment due to presumed high risks of the procedure. While there is data to support surgical treatment of colorectal cancer in advanced age patients, screening colonoscopy is not currently recommended for patients older than 85 years. Moreover, recent studies concluded that the incidence of colorectal cancer in patients 80 years and older is increasing. This raises the concern that the current guidelines are withholding screening colonoscopy for healthy elderly patients. Another concern contrary to this would be the new trend of growing incidence of advanced colorectal cancer in the younger patient population. Together they raise the ethical dilemma of how to best utilize colonoscopies as well as surgical intervention, as they are limited resources.

**Key Words:** Colonoscopy; Colorectal cancer; Screening; Advanced age patient; Screening colonoscopy

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**Core Tip:** Flynn *et al* collected data on surgery in colorectal cancer patients who are 85 years or older. They concluded that surgery in this patient population is safe, and that age alone is not a reason to withhold surgery. The incidence of colorectal cancer in patients 80 years and older is increasing. This raises the concern that the current

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guidelines are withholding screening colonoscopy for healthy elderly patients. On the other hand, a greater number of younger patients are being diagnosed with colorectal cancer. This raises an inevitable ethical dilemma of how to best utilize screening and treatment resources.

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## TO THE EDITOR

Continuous development and new advances in medical treatment have extended the life expectancy of the average patient. As a result, the advanced age population is increasing worldwide, with the United States Census Bureau estimating that 16.5 percent of the population in the United States in 2019 is 65 years of age or older[1]. The prevalence of colorectal cancer is increasing alongside extended life expectancies[2,3]. The significance of this is that an increasing number of individuals over the age of 65 years have colorectal cancer and must be screened and treated appropriately. Colorectal cancer continues to be the fourth most common cancer and is the second leading cause of cancer-related deaths worldwide, with many cases diagnosed between 50 and 70 years old[4]. While there are many advanced age patients that are diagnosed with colorectal cancer[5], surgery is frequently withheld due to presumed high risks associated with it given scarce data on surgical treatment outcomes in this patient population. Given this gap in epidemiological data, Flynn *et al*[6] sought to evaluate the post-operative outcomes for patients 85 years or older following colorectal cancer resection as well as compare outcomes in patients who underwent laparoscopic procedures *vs* open abdominal procedures.

Flynn *et al*[6] performed a single institution, retrospective cohort study of patients at The Prince Charles Hospital who underwent resection of colorectal cancer from January 2010 to December 2018. A total of 533 patients were identified: 136 patients were between the ages of 75-85 years old, and 48 patients were 85 years of age at the time of the surgery. Short-term post-operative outcomes were assessed in patients over the age of 85 in terms of operative technique, that being laparoscopic *vs* open colorectal resection. They found that 30-d mortality was similar between the open surgery (9 percent) and laparoscopic intervention (0 percent) groups. They also found no significant difference between the two age groups regarding short-term surgical outcomes in terms of length of stay, grading of complications, and 30-d mortality. Flynn *et al*[6] concluded that resection of colorectal cancer in patients over the age of 85 is safe and effective, and that age alone is not a sufficient reason to withhold surgical treatment in this patient population.

The study had a long follow up period and is well powered with 533 patients. However, only 136 patients were of age 75-85 years old and only 48 patients were at least 85 years old, and therefore were included in the analysis. There were disproportionately more women in the age group 85 years and older, which may have affected the results of the study. The study included analysis on the most common surgical interventions for colorectal cancer, using t-tests, chi squared tests, and Fisher's exact tests with statistically significant results having  $P < 0.05$ . The study, however, was retrospective as well as a single institution study which may introduce some unknown geographical variables and therefore affect this study's external validity. Lastly, when comparing 30-d mortality between laparoscopic and open methods, it was not accounted for that many of the open cases were more likely to be emergent cases. While Flynn *et al*[6] proposed that surgical intervention is safe in the older patient population with colorectal cancer, this is yet to be confirmed by a larger scale prospective randomized controlled study.

Recent studies concluded that the incidence rate of colorectal cancer in patients who are 80 years or older is increasing[1,2]. Despite that, the American Gastroenterological Association (AGA) 2020 guidelines for colorectal cancer screening suggest that screening should be discontinued once a patient reaches 75 years of age or had less



than ten years of life expectancy, given they have been up to date with screening and have had negative results[7]. The screening remains optional for 75 to 85 years of age and depends on risk factors and comorbidities[7]. AGA also expressed concerns about increasing incidence of colorectal cancer in the younger patient population, and it is now recommended to do a thorough diagnostic evaluation for persons under 50 years of age with colorectal bleeding[7]. Mauri *et al*[8] also discussed how colorectal cancer incidence in individuals younger than 50 years has been increasing by two percent per year since 1994. As of this year, routine screening of the average risk individual should begin at 50 years old, except in African Americans, in whom limited evidence suggests screening at 45 years old[7]. Currently, only patients with significant family history are considered for colorectal cancer screening at 40 years old or earlier[7]. The United States Preventive Services Task Force supported AGA's guidelines to screen adults ages 50 years to 75 years[9]. They concluded with moderate certainty that screening for colorectal cancer in adults of 45 years to 49 years has moderate benefit and that screening of adults of 75 years to 85 years has a small net benefit[9].

It remains unclear how to best utilize colonoscopies, as they are a limited resource. Given the recent concerning trend of a growing number of younger patients being diagnosed with advanced colorectal cancer[10,11], the question is raised whether younger patients could benefit from earlier screening and whether resources should be diverted to a younger patient group. It is important to note that patients of 35 years or younger are more likely to be diagnosed with stage III or IV colorectal cancer[4]. Interestingly, the 5 and 10-year overall survival is also decreased in patients younger than 35 years old[4]. Overall, younger patients diagnosed with colorectal cancer have a worse prognosis because of a higher proportion of advanced stage tumors.

In conclusion, it is evident that elderly individuals are still suffering from colorectal cancer in spite of current screening guidelines. Flynn *et al*[6] emphasized how the elderly population beyond age 85 years are indeed good surgical candidates for resection of colorectal cancer and that age should not be considered when determining surgical risk. With this being said, we propose that screening should be continued in adults over 85 years old despite no available recommendations for screening. Additionally, there is a concerning trend in younger individuals being diagnosed with colorectal cancer prior to initiation of screening at 50 years of age. The increasing incidence of colorectal cancer in the elderly population beyond 75 years of age as well as the increasing incidence of advanced stage colorectal cancer in patients younger than 50 years of age raises an important concern of whether colorectal cancer screening is being done appropriately. If elderly patients do well undergoing surgery, should colorectal cancer screening be stopped and/or reduced at 75 years of age? Likewise, should colorectal cancer screening be initiated prior to age 50 years old? While Flynn *et al*[6] provided no data on long term outcomes and on increase in life expectancy, screening and treatment for the very elderly, or those who are 86 years and older, may not necessarily provide a large gain in additional life-years, especially in comparison to those who are 76-85 years of age. Long term outcomes and effects on the life expectancy is something that still needs to be investigated. We propose that colorectal cancer screening, with colonoscopies in particular, should be extended to both the younger population of 40 years of age as well as patients 75 years or older based on risk factors and patient profile rather than on age as a number alone. By creating a scale or grading system, patients over 75 years and under 45 years could be stratified into high risk *vs* low risk for development of colorectal cancer. This would allow for diverging of resources towards the population(s) that would have the most benefit from screening[12,13]. This idea remains to be proven with prospective large scale randomized controlled studies.

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