NCPD 2.0 ANCC Contact Hours

Linda Morrow, DNP, MSN, MBA, NE-BC, CPHQ, CNOR, RN
Beverly Greenwald, PhD, MSN, APRN, FNP-BC, NP-C, CGRN, RN

Healthy Food Choices, Physical Activity, and Screening Reduce the Risk of Colorectal Cancer

ABSTRACT

Cancer is the second leading cause of death in the United States with an estimated 1,806,590 new cases and 606,520 deaths in 2020. Cancer is a public health concern due to the numbers of cases, financial costs, and morbidity and mortality rates. An estimated 42% of all diagnosed cancers and 45% of cancer deaths in the United States in 2014 could be attributed to modifiable risk factors. Colorectal cancer screening is effective because small polyps take years to grow and turn to cancers allowing for early detection and removal of precancerous polyps. Primary prevention of colorectal cancer by risk factor reduction is also effective as these factors cause over half of colorectal cancer cases and deaths. Physical activity, weight control, healthy dietary choices, and abstinence from alcohol and tobacco are protective. The gastroenterology nurse can assess physical activity and food choices as vital signs and recommend a gradual addition of physical activity and a more plant-based diet with reduced processed food. All nurses need to advocate for policy improvements per our pledge to the Code of Ethics for Nurses. Policy changes improve the health of large numbers of people and make healthy behaviors a normalized way of life.

Cancer is the second leading cause of death in the United States (U.S.) with an estimated 1,806,590 new cases and 606,520 deaths in 2020. The three most-diagnosed cancers in men are prostate (191,130; 21%), lung and bronchus (116,300; 13%), and colorectal (CRC; 78,300; 9%). The top three cancers for women are breast (276,480; 30%), lung and bronchus (112,520; 12%), and CRC (69,650; 8%). The three leading causes of cancer deaths in men are lung and bronchus (72,500; 23%), prostate (33,330; 10%), and CRC (26,630; 9%). The most frequent cancer deaths in women are from lung and bronchus (63,220; 22%), breast (42,170; 15%), and CRC (24,579; 9%; Siegel, Miller, & Jemal, 2020). When men and women are combined, CRC is the second most common cause of cancer deaths (Siegel, Miller, Sauer, et al., 2020). Cancer is therefore a major public health concern due to the numbers of cases, the morbidity and mortality rates (Siegel, Miller, & Jemal, 2020), and the financial costs associated with cancer treatments (Gapstur et al., 2018).

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About the authors: *Linda Morrow, DNP, MSN, MBA, NE-BC, CPHQ, CNOR, RN, is Program Director, Nursing Management and Executive Leadership, and Clinical Associate Professor of Nursing, Dr Susan L. Davis & Richard J. Henley College of Nursing, Sacred Heart University, Fairfield, Connecticut.*

Beverly Greenwald, PhD, MSN, APRN, FNP-BC, NP-C, CGRN, RN, is Professor of Nursing, Department of Nursing, Archer College of Health and Human Services, Angelo State University, San Angelo, Texas.

Linda Morrow conceived the idea for this report, assisted in drafting the manuscript and revising the content, approved the final version for submission, and agrees to be accountable for all aspects of this work. Beverly Greenwald assisted in drafting the manuscript and revising the content, approved the final version for submission, and agrees to be accountable for all aspects of this work.

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Correspondence to: *Beverly Greenwald, PhD, MSN, APRN, FNP-BC, NP-C, CGRN, RN, 6127 22nd St. S, Fargo, ND 58104 (Beverly.Greenwald@Angelo.edu).*

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Background

An estimated 42% of all diagnosed cancers and 45% of cancer deaths in the U.S. in 2014 could be attributed to modifiable risk factors (Table 1). These factors include the use of tobacco and alcohol; overweight or obesity; low intake of fiber, fruits, and vegetables; consumption of processed and red meats; low calcium

TABLE 1. Cancers Associated With Modifiable Lifestyle Factors

Inactivity (Rock et al., 2020)	Overweight and Obesity (Rock et al., 2020)	Poor Food and Beverage Choices (Rock et al., 2020)	Alcohol (Rock et al., 2020)	Tobacco Use (Gapstur et al., 2018)
Strong evidence available to support lifestyle factor association with these cancers				
Colon Breast Endometrium Kidney	Colorectal Breast Endometrium Kidney Liver Ovary Pancreas Thyroid Gastrum Esophagus	Colorectal Lung Gastrum	Colorectal Breast Liver Oral Pharynx Larynx Esophagus	Colorectal Nasopharynx Nasal cavity and accessory sinuses Oral cavity Oropharynx Hypopharynx Larynx Esophagus Lung Liver Pancreas Gastrum Kidney Urinary bladder Ureter Ovary Cervix Myeloid leukemia
Some evidence available to support lifestyle factor association with these cancers				
Rectal Liver Lung Ovary Pancreas Gastrum Esophagus	Gallbladder	Pancreas	Gastrum	

intake; sedentary lifestyle; ultraviolet radiation; and infections (Gapstur et al., 2018). Public Health efforts to reduce exposure to these risk factors would reduce the overall cancer burden.

Other public health initiatives include primary prevention of cancer through screening and vaccinations for human papilloma virus, which is associated with cervical, oral cavity, pharynx, and other cancers (Siegel, Miller, & Jemal, 2020). Screening is especially effective for CRC because small polyps take years to grow and turn to cancers, allowing for detection and removal of precancerous polyps, therefore preventing CRC. For this reason, CRC has been described as the disease no one has to die from and "preventable, treatable, and beatable" (American Society for Gastrointestinal Endoscopy, 2019).

Colorectal Cancer Screening

We have a special opportunity to reduce the burden of CRC because CRC screening saves lives. This screening is covered as a preventive service by Medicare (Medicare Interactive, 2020), and the Affordable Care Act requires that preventive services are covered (Patient Protection and Affordable Care Act, 2006). The American Cancer Society (ACS) released recommendations to drop the screening age from 50 years to 45 years in 2018 (Wolf et al., 2018) as did the U.S. Preventive Services Task Force (USPSTF, 2021) and the American College of Gastroenterologists (Shaukat et al., 2021) in 2021. The rationale for these changes is the increase in early-onset CRC (before age 50 years), the causes of which are not understood.

The risk of colon cancer for someone born in 1990 is twice that of someone born in 1950, whereas the risk of rectal cancer for these same individuals is four times higher. Some speculations about the reasons for this development include family history, obesity, consumption of red and processed meats, diabetes, and a sedentary lifestyle. These younger-onset patients also experience a greater delay in diagnosis after symptoms due to both patient and provider factors.

Providers need to keep an index of suspicion for CRC, use an aggressive diagnostic approach, and refer patients of any age with symptoms of abdominal pain, rectal bleeding, or unexplained weight loss for diagnostic testing, including colonoscopy (Smith et al., 2019). Early-onset, CRC-related deaths increased by 2% per year from 2007 to 2016 in the population

younger than age 55 years (ACS, 2020b). An estimated 17,930 (12%) new cases diagnosed in 2020 would be among those 50 years or younger, as would 3,640 (7%) deaths. Stage at diagnosis is the most significant predictor of survival; younger age is one factor associated with more advanced stage at diagnosis, particularly among Blacks (Siegel, Miller, Sauer, et al., 2020).

Colorectal Cancer Screening Options

Multiple organizations have screening guidelines and there are multiple CRC screening test options. Multiple organizations have screening guidelines and there are multiple CRC screening test options. The ACS (Wolf et al., 2018), the American College of Gastroenterologists (Shaukat et al., 2021), and the USPSTF (2021) provide CRC screening guidelines. The ACS (Wolf et al., 2018) and the American College of Gastroenterologists (Shaukat et al., 2021) also provide CRC screening guidelines. The screening tests and intervals recommended are similar (Table 2). The best test is the test the patient will have done. For this reason, the choice of test for people of average risk is made between the patient and provider in a collaborative discussion based upon personal history, family history, and personal preference (Wolf et al., 2018). Patients should consult their insurance companies about coverage.

TABLE 2. Screening Tests or Procedures for Asymptomatic, Average-Risk Individuals

CRC Screening Test or Procedure	Recommended Interval
Stool-based tests	
High-sensitivity, guaiac-based fecal occult blood test[a] Fecal immunochemical test	Annually
Multitarget stool DNA test	Every 3 years (per manufacturer's recommendation)
Visual tests	
Flexible sigmoidoscopy	Every 5 years
Colonoscopy	Every 10 years
CT colonography	Every 5 years

Note. CRC = colorectal cancer; CT = computed tomography. Data from "Cancer Screening in the United States, 2019: A Review of Current American Cancer Society Guidelines and Current Issues in Cancer Screening," by R. A. Smith, K. S. Andrews, D. Brooks, S. A. Fedewa, D. Manassaram-Baptiste, D. Saslow, and R. C. Wender, 2019, *CA: A Cancer Journal for Clinicians, 69*(3), 184–210.

[a]Use spontaneously passed stools per the manufacturer's FDA applications. The digital rectal examination for stool collection is deemed unacceptable (Smith et al., 2017).

An annual test with a highly sensitive stool test provides a similar risk reduction for both CRC and death from CRC compared with colonoscopy (Smith et al., 2017). Any positive, noncolonoscopy screening test should be followed by a colonoscopy (Smith et al., 2019). This two-step process is necessary to determine whether there is an advanced adenomatous polyp, cancer, or other pathology (Smith et al., 2017).

Progress on Colorectal Cancer Prevention

The National Colorectal Cancer Roundtable (NCCRT) was established in 1996 in joint effort of the ACS and the Centers for Disease Control and Prevention (CDC). The NCCRT has the lofty goal of "80% in Every Community" referring to CRC screening availability for everyone, everywhere. In an effort to increase the national screening rate from 66% (in 2018) to 80%, they provide extensive, evidence-based interventions on their website (nccrt.org), available for anyone to implement to promote CRC screening. These interventions are hoped to accelerate the decline in CRC deaths.

Adults 50 years and older had a drop in CRC incidence of 32% between 2000 and 2013 and death reduction of 34% between 2000 and 2014 (Smith et al., 2019). Data from the Behavioral Risk Factor Surveillance System show an increase in screening rates for U.S. adults age 50 to 70 years from 65.2% in 2012 to 68.8% in 2018. This 3.5% increase reflects 9.3 million more adults screened for CRC in just a 6-year period (NCCRT, 2020). The adoption of a younger screening age plus the continued increase in screening rates provide an incredible opportunity to prevent more CRC by the removal of precancerous polyps.

Colorectal Cancer Risk Reduction With Dietary Choices and Lifestyle

Adults should adopt a physically active lifestyle with 75 minutes of vigorous-intensity activity or 150 minutes of moderate-intensity activity, weekly. Children and adolescents should get daily exercise of at least one hour of moderate or vigorous intensity. Everyone should limit sedentary behavior, including lying, sitting, and screen time such as television or computerized devices (Rock et al., 2020).

A healthy weight is best. Avoid gaining weight and stay in the healthy weight range throughout life. Healthy dietary choices and a plan for eating healthy help with weight management. Choose foods that are nutrient dense in quantities that maintain a healthy weight. Choose whole grains and eat 2.5 to 3.0 cups of vegetables and 1.5 to 2.0 cups of fruits, daily. Limit consumption of red and processed meats, highly processed foods, and sugar-sweetened beverages. There is

no safe level of alcohol consumption. If alcohol is consumed, limit to no more than one drink per day for women or two drinks per day for men (Rock et al., 2020). Over half of CRC cases and deaths are due to these modifiable risk factors (Siegel, Miller, Sauer, et al., 2020). The ACS, the American Diabetes Association, and the American Heart Association (AHA) have health-promotion recommendations similar to the Dietary Guidelines for Americans and the Physical Activity Guidelines for Americans intended to prevent the top causes of death in Americans (heart disease, cancer, and diabetes) (Rock et al., 2020).

Physical Activity

"Sit less, move more" is the basic formula for physical activity. Sedentary time fills over half of America's nonwork time: 53% is spent on screen time including phones, television, and computers. Sitting is associated with heart disease, diabetes, premature mortality, and cancers including colon, lung, and endometrium. Conversely, increased physical activity is strongly associated with reduced risk for colon cancer as well as breast, esophagus, gastrum, kidney, endometrium, and bladder cancers. There is evidence to suggest a reduced risk of head and neck, hematologic, pancreatic, ovarian, and prostate cancers (Rock et al., 2020).

Almost half of American adults (46.7%) do not meet the minimum recommendation for moderate to vigorous physical activity of 150–300 minutes of moderate-intensity aerobic activity or 75–150 minutes of vigorous activity weekly (or an equivalent combination thereof) plus muscle-strengthening twice weekly (Rock et al., 2020). Examples of moderate activity are of the intensity of a brisk walk (dancing, canoeing, leisurely bike ride, yard work, soft ball, and tennis). Vigorous activity accelerates the heart and respiratory rates and results in sweating (running, swimming, weight training, basketball, soccer, and heavy manual labor). In keeping with the "sit less, move more" mantra, increased activity provides health benefits, even if at less than the recommended levels (Kushi et al., 2012). The gastroenterology nurse can incorporate physical activity as a vital sign and recommend a gradual increase in activity levels as approved by a provider. Providers might make a referral to physical therapy for assistance with activity choices for patients with limitations.

Weight Control

Overweight is defined as a body mass index (BMI) of 25.0–29.9 kg/m^2. Obesity can be classified as either class 1 (BMI 30.0–34.9 kg/m^2), class 2 (BMI 35.0–39.9 kg/m^2), or class 3 (or "morbid obesity," BMI ≥40.0 kg/m^2). The 2016 estimate is that 39.6% of Americans are obese (Gapstur et al., 2018). Obesity is a medical condition associated with excess energy intake and low energy expenditure and is directly linked to CRC and 12 other cancers (thyroid, breast, kidney, esophagus, gastrum, pancreatic, liver, gallbladder, ovary, endometrium, multiple myeloma, and meningioma). Unfortunately, CRC and some of these cancers (gallbladder, pancreatic, kidney, and multiple myeloma) increased in incidence among younger adults between 1995 and 2014. There is concern that the U.S. obesity rate could slow or even reverse the several-decades-long progress made on cancer mortality reduction (Rock et al., 2020).

A healthier eating pattern includes portions that help maintain a BMI in the normal range of 18.5–24.9 kg/m^2. Unfortunately, our Western-type diet features sugar-sweetened beverages (SSB), high amounts of meat and fat, and fast foods, which are associated with excess body fat. Although it is recommended that less than 10% of calories be from added sugars, 60% of energy consumed in America is in highly processed foods and beverages. In contrast, more features from a Mediterranean diet may reduce the risks of excess body fat (Rock et al., 2020). The AHA (2020) provides easy-to-follow basics on the Mediterranean menu (Table 3).

Healthy Dietary Choices

A plant-based menu of fruits and vegetables of a variety of colors, whole grains, legumes, seeds, nuts, fish, and poultry, with limited processed and red meats, SSB, saturated fats, and highly processed foods is associated with a lower risk of CRC and overall cancer incidence. An estimated 4.2%–5.2% of cancers may be attributable to poor food choices (Rock et al., 2020). The gastroenterology nurse can incorporate an assessment of food choices as a vital sign and recommend a gradual addition of a more plant-based diet and processed food reduction. Providers can make a referral for nutrition counseling.

Calcium, Vitamin D, and Other Supplements

A plant-based menu may reduce the risk of cancers, but the evidence supporting the use of supplements is either limited or inconsistent. In contrast, high-dose supplements of vitamins A and E and β-carotene can

TABLE 3. Top Recommendations From the Mediterranean Diet[a]

Predominantly plant-based menu including fruits, vegetables, beans, legumes, and whole grains.
Vegetable oils (especially olive oil) and low-fat or no-fat products with limited saturated fats and no trans-fats.
Fat-free or low-fat dairy products.
Limit highly processed foods, sugary beverages, sugars, refined carbohydrates, and sodium.

[a]Data from the American Heart Association (2020).

increase the risk of cancer. For these reasons, the ACS does not recommend dietary supplements to reduce cancer risk. The one exception may be supplemental calcium, which may reduce the risk of CRC. Vitamin D assists with the absorption of calcium and has had some evidence to demonstrate lowering CRC risk. The USPSTF does not have a screening recommendation for vitamin D levels, although many Americans have inadequate levels which may need treatment (Rock et al., 2020).

Alcohol

Alcoholism trails smoking and an unhealthy diet and/or low activity levels as the third leading lifestyle-related cause of death. Alcoholism affects 17% of men and 8% of women in their lifetimes (American Addictions Centers, 2020). Drinking seven or more drinks per week for women and 14 for men, on average, for the past year meets the criteria of heavy drinking (CDC, 2020a). People older than 18 years self-reported alcohol consumption "at some time" (85.6%), "in the last year" (69.5%), and "in the last month" (54.9%). Of those surveyed, 25.8% reported binge drinking in the last month and 6.3% reported heavy drinking (National Institute on Alcohol Abuse and Alcoholism, 2020).

Alcohol use is associated with 12.8% of CRC (Gapster et al., 2018) and is also a risk for cancers of the mouth, pharynx, larynx, esophagus, liver, breast, and possibly gastrum (Rock et al., 2020). A recent report indicates these health risks demonstrate there is no safe amount of alcohol consumption, the risk and mortality increases with the level of consumption, and the consumption should be zero to minimize the risk of alcohol (Global Burden of Disease 2016 Alcohol Collaborators, 2018). The ACS therefore recommends to not drink alcohol.

Women who do drink alcohol should limit consumption to one drink per day whereas men should limit to two drinks per day. One "drink" is defined as 14 g of alcohol, which is the equivalent of 1.5 oz of 80-proof alcohol, 12 oz of beer, or 5 oz of wine (Rock et al., 2020). The World Health Organization developed the 10-question Alcohol Use Disorder Identification Test (AUDIT) to quickly screen for problematic consumption, behaviors, and alcohol use problems (National Institute of Health, n.d.). Gastroenterology nurses and providers can refer patients with positive screens to treatment programs or alcohol support groups.

Tobacco Use

Tobacco use is associated with 40% of cancer cases and is the most preventable cause of cancer cases and cancer deaths (CDC, 2016). Unfortunately, 14% of adults continue to smoke tobacco (CDC, 2020b) and 2.4% of adults use smokeless tobacco (CDC, 2020d). In addition to CRC, tobacco use is associated with cancer of the nasopharynx, nasal cavity and accessory sinuses, oral cavity, oropharynx, hypopharynx, larynx, esophagus, lung, liver, pancreas, gastrum, kidney, urinary bladder, ureter, ovary, cervix, and myeloid leukemia (Gapstur et al., 2018).

Assisting patients with tobacco cessation needs to be a top priority for this reason. A quick yet effective strategy is to use the five As Smoking Cessation Method (Ask, Advise, Assess, Assist, and Arrange) and determine the user's readiness to quit. These five steps are to (1) ask about tobacco use, (2) advise to stop using tobacco, (3) assess regarding desire for a quit attempt, (4) assist with establishing a quit date and provide counseling and assistive medications, and (5) arrange a 1-week follow-up (Agency for Healthcare Research and Quality, 2012). The gastroenterology nurse can refer patients to the CDC's free resources including their quit line (1-800-QUITNOW), recommendations for medications to manage cravings and withdrawal symptoms, online resources including counseling, coaching and tips to quit smoking, texting resources, and a mobile application (CDC, 2020c).

Policy Implications for Nurses

All nurses need to advocate for policy improvements on behalf of patients per our pledge to the Code of Ethics for Nurses (American Nurses Association, 2015). Policy changes at the local, state, and national level more easily improve the health of large numbers of people and make healthy behaviors a normalized way of life. Areas of focus include 1) easy access to healthy food choices in schools, workplaces, and communities; (2) reduced access to and marking of low-nutrient foods and SSB, especially to vulnerable youth; (3) allocation of resources that promote physical activity in schools, workplaces, and communities; (4) smoking prevention and cessation support, particularly among vulnerable youth; and (5) strategies to minimize the consumption of alcohol because it has been shown that no level of alcohol consumption is safe (Rock et al., 2020). The promotion of excise taxes on SSB, cigarettes, and alcohol not only reduces their consumption but also provides revenue to fund state health promotion programs (Gapstur et al., 2018).

The World Cancer Research Fund International Policy Framework is a useful policy action strategy for nurses. This framework includes three broad domains: health-enhancing environments, behavioral change communication, and system change. The belief is that all three domains must work together to promote

effective cancer-preventing behavior changes to create a healthy population (Gapstur et al., 2018).

The recommendations for health-enhancing environments include healthy urban designs, incentives within communities, improved food and drink supply, marketing restrictions, fiscal policies, the creation of healthy and safe settings, and improved labeling and packaging. Behavioral change communication recommendations include to provide information, counseling in healthcare, and education and skill development to the population. The net outcome of these two domains would be a system change where the actions would be integrated across sectors of the population (Gapstur et al., 2018). The application of this framework will help the gastroenterology nurse target a variety of effective methods to advocate for policy improvements on behalf of patients.

Conclusion

The gastroenterology nurse has an opportunity at every patient encounter to utilize these best recommendations for CRC and other cancer prevention. We are accustomed to advocating for CRC prevention and screening per the recommended CRC screening guidelines. We can also advocate for CRC prevention by using the "physical activity" and "dietary consumption" vital signs to assess physical activity levels and healthy food choices. A brief intervention with both encouragement and referral to useful resources can help our patients make gradual but positive improvements in dietary choices and lifestyles such as by the use of the ACS patient summary page (ACS, 2020a) or the CDC's smoking cessation resources (CDC, 2020c). A new recommendation by the ACS is that no level of alcohol is safe. These recommendations can help our patients not only prevent CRC and other cancers but also heart disease and diabetes, the top causes of death in Americans.

It is our duty as nurses to advocate for policy changes that promote healthy communities that produce healthy populations. Americans need legislation that normalizes healthy behaviors and provides them the resources to access healthy food choices and safe, enjoyable, physical activity for all ages in all communities. ✪

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