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Colorectal Cancer and Screening

Introduction

Research presented by the Centers for Disease Control and Prevention (CDC) indicates that colorectal cancer is the third leading cause of cancer-related deaths in the United States. Research presented by the CDC also suggests that the incidents of colorectal cancer may be rising among both men and women. Fortunately, many times colorectal cancer can be prevented. This course will review colorectal cancer and colorectal cancer screening recommendations in order to build awareness among health care professionals so they may work to effectively prevent colorectal cancer among patients.

Section 1: Colorectal Cancer

A 60-year-old female patient presents to a health care facility. The patient's chief complaints are abdominal pain, constipation, and weight loss. Upon questioning from a health care professional, the patient reports that she has not been screened for colorectal cancer. As the patient describes additional symptoms, the health care professional begins to consider the possibility of colorectal cancer. Unfortunately, the scenario presented in the previous example is becoming more and more common in the current health care system. With colorectal cancer becoming increasingly prevalent, it is important for health care professionals to possess insight into colorectal cancer. With that in mind, this section of the course will provide insight into colorectal cancer. The information found within this section was derived from materials provided by the Centers for Disease Control and Prevention (CDC) unless, otherwise, specified (Centers for Disease Control and Prevention [CDC], 2021).

What is colorectal cancer?

- Colorectal cancer may refer to a type of cancer in which malignant (cancer) cells form in the tissues of the colon or the rectum.
- Health care professionals should note that cancer may refer to a disease or group or diseases characterized by abnormal cell growth and the potential destruction of body tissue.

What is the colon?

- The colon may refer to the longest portion of the large intestine that removes water, nutrients, and electrolytes from partially digested food.
- Health care professionals should note the following parts or sections of the colon: ascending colon, transverse colon, descending colon, and the sigmoid colon. Specific information regarding the aforementioned sections of the colon may be found below. The information found below was derived from materials provided by the American Cancer Society (American Cancer Society, 2020).
    - **Ascending colon** - the ascending colon may refer to the first section of the colon. The function of the ascending colon is to absorb any remaining water and key nutrients from indigestible material, which solidifies to form stool.
    - **Transverse colon** - the transverse colon may refer to the longest section of the colon, which is situated from right to left across the abdomen. The function of the transverse colon is to absorb water and salts.
    - **Descending colon** - the descending colon may refer to the section of the colon that descends or travels down the left portion of the abdomen. The function of the descending colon is to process waste.
    - **Sigmoid colon** - the sigmoid colon may refer to the last, "S" shaped, section of the colon. The function of the sigmoid colon is to store waste until it leaves the body.

What is the rectum?

- The rectum may refer to the portion of the large intestine that stores solid waste until it leaves the body.
- Health care professionals should note that the colon and rectum are essential parts of the digestive system, which work together.

How do the colon and rectum work together?

- The colon and the rectum work together to absorb water, nutrients, and electrolytes, as well as expel waste from the body.
- Health care professionals should note that the colon and the rectum are vital components of the human body that are susceptible to cancer.

How does cancer start in the colon/rectum?

- Cancer in the colon/rectum often starts as polyps. A polyp may refer to a small group of cells that form on the lining of the colon or rectum (note: not all polyps turn into cancer).
- Health care professionals should note that there are different types of polyps. Specific information regarding the different types of polyps may be found below. The information found below was derived from materials provided by the American Cancer Society (American Cancer Society, 2020).
    - **Hyperplastic polyps** - hyperplastic polyps are relatively common, and do not typically contain or develop into cancer.
    - **Inflammatory polyps** - inflammatory polyps are also relatively common, and do not typically contain or develop into cancer.
    - **Sessile serrated polyps** - sessile serrated polyps are a type of polyp that may contain or develop into cancer.
    - **Traditional serrated adenomas** - traditional serrated adenomas are a type of polyp that may contain or develop into cancer.
    - **Adenomatous polyps** - adenomatous polyps are a type of polyp that may contain or develop into cancer.

What factors increase the risk of a polyp containing or developing into cancer?

- The factors that can increase the risk of a polyp containing or developing into cancer include the following: polyp size (e.g., a polyp larger than 1 cm); the

number of polyps (e.g., more than three polyps); and dysplasia (American Cancer Society, 2020).

- Health care professionals should note that dysplasia is a term that is used to describe polyps that contain abnormal cells that may possess the potential to develop into cancer; a term used to describe cells in the lining of the colon or rectum that look abnormal, but are not cancer. Health care professionals should note the following: polyps that are mildly abnormal (i.e., don't look much like cancer under a microscope) are said to have low-grade dysplasia; polyps that are more abnormal (i.e., look like they are more likely to contain cancer) are said to have high-grade dysplasia (American Cancer Society, 2020).

What are the risk factors for colorectal cancer?

- **Age** - one of the first risk factors that may come to mind when considering colorectal cancer is age. Health care professionals should note the following: the risk for colorectal cancer increases as individuals age; individuals over the age of 45 are at an increased risk for developing colorectal cancer.
- **Family history of colorectal cancer** - another risk factor that may initially come to mind when considering colorectal cancer is a family history of colorectal cancer. Health care professionals should note the following: individuals with a history of colorectal cancer in a first-degree relative (e.g., parent, sibling, or child) are at increased risk for colorectal cancer; the risk for colorectal cancer increases if a first-degree relative was diagnosed with colorectal cancer when he or she was below the age of 50; the risk for colorectal cancer increases if more than one first-degree relative is diagnosed with colorectal cancer.
- **Diet** - diet, or more specifically a diet high in red meats (e.g., beef, pork, lamb, or liver) and processed meats (e.g., hot dogs), is a risk factor for colorectal cancer. Health care professionals should note that a diet low in vitamin D or low in foods that contain vitamin D (e.g., fish; eggs) can increase the risk for colorectal cancer.
- **Alcohol consumption** - colorectal cancer has been associated with moderate to heavy alcohol use. Health care professionals should note the following: heavy drinking may refer to the act of consuming eight or more alcoholic beverages per week for women or 15 or more alcoholic beverages per week for men.

- **Tobacco use** - in addition to alcohol consumption, colorectal cancer has also been associated with tobacco use. Health care professionals should note the following: research suggests that individuals who used/smoked tobacco for an extended period of time are more likely than non-smokers to develop and die from colorectal cancer.
- **Lack of physical activity** - a lack of physical activity is a risk factor for colorectal cancer (note: the term physical activity may refer to any bodily movement produced by the contraction of skeletal muscle that increases energy expenditure above a basal level) (U.S. Department of Health and Human Services, 2018). Health care professionals should note that a lack of physical activity may lead to or contribute to a sedentary lifestyle, which may further increase the risk for colorectal cancer (note: the term sedentary lifestyle may refer to an inactive lifestyle characterized by extended periods of sitting or laying down, with little to no physical activity).
- **Obesity** - individuals who are obese, or overweight, are at risk for colorectal cancer. Specific information regarding obesity may be found below.
    - Obesity may refer to a condition characterized by abnormal or excessive fat accumulation, which may impair health.
    - The fundamental cause of obesity is an energy imbalance between the calories consumed and the calories expended.
    - An individual may be considered to be obese when his or her body mass index (BMI) is greater than or equal to 30 kg/m^2; body mass index (BMI) may refer to a value derived from an individual's height and weight.
    - Health care professionals may use the following formula to calculate an individual's BMI: BMI = weight (kg) / height $(m)^2$; health care professionals may also use the following formula to calculate an individual's BMI: BMI = weight (lb) / $[height\ (in)]^2$ x 703.
    - Health care professionals should note that BMI does not measure body fat directly.
    - Health care professionals should note the following: BMI can be used to help determine if an individual is underweight, at a normal weight, overweight, and obese.

- Underweight - an individual may be considered to be underweight if his or her BMI is less than 18.5 kg/m^2.
- Normal weight - an individual may be considered to be at a normal weight if his or her BMI is between 18.5 - 24.9 kg/m^2.
- Overweight - an individual may be considered to be overweight if his or her BMI is between 25.0 - 29.9 kg/m^2.
- Obese - an individual may be considered to be obese if his or her BMI is greater than or equal to 30.0 kg/m^2.
- Obesity may be subdivided into the following categories: Class 1 (BMI of 30 kg/m^2 to < 35 kg/m^2); Class 2 (BMI of 35 kg/m^2 to < 40 kg/m^2); Class 3 (BMI of 40 kg/m^2 or higher) (note: Class 3 obesity may be categorized as extreme or severe obesity).

- **Lynch syndrome** - Lynch syndrome, also known as hereditary non-polyposis colorectal cancer (HNPCC), may refer to an inherited condition that increases the risk of colorectal cancer, as well as other types of cancers. Lynch syndrome is caused by an inherited defect in either the MLH1, MSH2 or MSH6 gene (CDC, 2020). Health care professionals should note the following: Lynch syndrome is the most common cause of hereditary colorectal cancer; individuals with Lynch syndrome are more likely to get colorectal cancer before the age of 50; Lynch syndrome is responsible for about 4,000 cases of colorectal cancers per year (CDC, 2020).

- **Peutz-Jeghers syndrome (PJS)** - Peutz-Jeghers syndrome (PJS) may refer to a rare inherited condition that is associated with an increased risk of growths along the lining of the gastrointestinal tract (called hamartomatous polyps) and certain types of cancer, such as colorectal cancer. PJS is caused by inherited defects/ changes in the STK11 gene. Health care professionals should note the following: PJS-related polyps commonly present in adolescence or early adulthood.

- **Turcot syndrome** - Turcot syndrome is another rare syndrome that increases the risk for colorectal cancer. Turcot syndrome may refer to a rare inherited condition associated with benign growths in the mucous lining of the gastrointestinal tract with tumors of the central nervous system. Health care professionals should note that Turcot syndrome affects both males and females.

- **Inflammatory bowel disease (IBD)** - inflammatory bowel disease (IBD) is a condition that increases the risk for colorectal cancer. Specific information regarding inflammatory bowel disease may be found below. The information found below was derived from materials provided by the CDC (CDC, 2018).
    - Inflammatory bowel disease (IBD) may refer to two conditions, Crohn's disease and ulcerative colitis, that are characterized by chronic inflammation of the gastrointestinal (GI) tract.
    - Crohn's disease can affect any part of the GI tract, from the mouth to the anus, however, it most often affects the portion of the small intestine before the large intestine/colon.
    - Ulcerative colitis often affects the large intestine (colon) and the rectum.
    - The symptoms of IBD include the following: persistent diarrhea, abdominal pain, rectal bleeding, bloody stools, weight loss, and fatigue.
    - IBD is diagnosed by using a combination of endoscopy (for Crohn's disease) or colonoscopy (for ulcerative colitis) and imaging studies.
- **Type 2 diabetes** - type 2 diabetes is another condition that increases the risk for colorectal cancer. Specific information regarding type 2 diabetes may be found below.
    - Type 2 diabetes may refer to a chronic condition that affects the way the body processes and uses insulin.
    - Risk factors associated with type 2 diabetes include the following: age, family history, inactivity, and obesity.
    - Type 2 diabetes typically develops when an individual's body becomes resistant to insulin or when an individual's pancreas is unable to produce enough insulin to meet the needs of the body.
    - Health care professionals should note the following: type 2 diabetes is often diagnosed in adult individuals or individuals over the age of 18.
    - The signs and symptoms of type 2 diabetes include the following: thirst, frequent urination, hunger, fatigue, and blurred vision.

- Patients suffering from type 2 diabetes may experience hyperglycemia. Hyperglycemia may refer to high blood sugar and/or a condition characterized by high blood sugar. Symptoms of hyperglycemia may include: excess thirst, frequent urination, and blurred vision. Health care professionals should note the following: hyperglycemia should be avoided in patients with diabetes.
- Health care professionals should note the following: while caring for patients suffering from type 2 diabetes, health care professionals should establish treatment goals; the A1C treatment goal for most individuals with diabetes is 7% or less.

What are the symptoms of colorectal cancer?

The symptoms of colorectal cancer include the following:

- Diarrhea
- Constipation
- A consistent feeling that the bowel is not "emptying all of the way"
- Blood in or on stool
- Consistent abdominal pain, aches, and/or cramps
- Weight loss

What are the stages of colorectal cancer?

Colorectal cancer is progressive - meaning it grows, spreads, and/or becomes more destructive to the body over time. Due to the progressive nature of colorectal cancer, it is classified into stages. The term stages or stage, when applied to cancer, is used to describe the state of cancer progression upon examination. In other words, the term stage is used to describe how much cancer is in the body, and the location of the cancer in the body when examined. With that in mind, specific information regarding the stages of colorectal cancer may be found below. The information found below was derived from materials provided by the American Cancer Society (American Cancer Society, 2020).

- The staging system most often used for colorectal cancer is the American Joint Committee on Cancer (AJCC) TNM system (note: the T in TNM stands for tumor; the N in TNM stands for nodes; the M in TNM stands for metastasis).
- The **TNM** system is based on the following three key elements: the extent (size) of the **T**umor; the spread to nearby lymph **N**odes (e.g., has the cancer spread to nearby lymph nodes); the **M**etastasis (i.e., spread) to distant sites (e.g., has the cancer spread to distant lymph nodes or distant organs such as the liver).
- The TNM system classifies, or describes, colorectal cancer in stages 0 - IV. Health care professionals should note the following: the earliest stage colorectal cancers are called stage 0 , and then range from stages I (1) through IV (4); the lower the stage number means the less the cancer has spread; the higher the stage number (e.g., stage IV) means the cancer has spread more than a lower stage number (e.g., stage I); within a stage, an earlier letter (e.g., A) means a lower stage.
    - **Stage 0** - in stage 0 colorectal cancer, the cancer is in its earliest stage; the cancer has not grown beyond the inner layer (mucosa) of the colon or rectum (note: stage 0 is also known as carcinoma in situ or intramucosal carcinoma [Tis]).
    - **Stage I** - in stage I colorectal cancer, the cancer has grown through the muscularis mucosa into the submucosa (T1), and it may also have grown into the muscularis propria (T2); the cancer has not spread to nearby lymph nodes (N0) or to distant sites (M0).
    - **Stage IIA** - in stage IIA colorectal cancer, the cancer has grown into the outermost layers of the colon or rectum but has not gone through them (T3); the cancer has not reached nearby organs; the cancer has not spread to nearby lymph nodes (N0) or to distant sites (M0).
    - **Stage IIB** - in stage IIB colorectal cancer, the cancer has grown through the wall of the colon or rectum but has not grown into other nearby tissues or organs (T4a); the cancer has not yet spread to nearby lymph nodes (N0) or to distant sites (M0).
    - **Stage IIC T4b** - in stage IIC T4b colorectal cancer, the cancer has grown through the wall of the colon or rectum and is attached to or has grown into other nearby tissues or organs (T4b); the cancer has not yet spread to nearby lymph nodes (N0) or to distant sites (M0).

- **Stage IIC T1 or T2** - in stage IIC T1 or T2 colorectal cancer, the cancer has grown through the mucosa into the submucosa (T1), and it may also have grown into the muscularis propria (T2); the cancer has spread to 1 to 3 nearby lymph nodes (N1) or into areas of fat near the lymph nodes but not the nodes themselves (N1c); the cancer has not spread to distant sites (M0).

- **Stage IIIA T1** - in stage IIIA T1 colorectal cancer, the cancer has grown through the mucosa into the submucosa (T1); the cancer has spread to 4 to 6 nearby lymph nodes (N2a); the cancer has not spread to distant sites (M0).

- **Stage IIIA T3 or T4a** - in stage IIIA T3 or T4a colorectal cancer, the cancer has grown into the outermost layers of the colon or rectum (T3) or through the visceral peritoneum (T4a) but has not reached nearby organs. It has spread to 1 to 3 nearby lymph nodes (N1a or N1b) or into areas of fat near the lymph nodes but not the nodes themselves (N1c); the cancer has not spread to distant sites (M0).

- **Stage IIIA T2 or T3** - in stage IIIA T2 or T3 colorectal cancer, the cancer has grown into the muscularis propria (T2) or into the outermost layers of the colon or rectum (T3); the cancer has spread to 4 to 6 nearby lymph nodes (N2a); the cancer has not spread to distant sites (M0).

- **Stage IIIB T1 or T2** - in stage IIIB T1 or T2 colorectal cancer, the cancer has grown through the mucosa into the submucosa (T1), and it might also have grown into the muscularis propria (T2); the cancer has spread to 7 or more nearby lymph nodes (N2b); the cancer has not spread to distant sites (M0).

- **Stage IIIB T4a** - in stage IIIB T4a colorectal cancer, the cancer has grown through the wall of the colon or rectum (including the visceral peritoneum) but has not reached nearby organs (T4a); the cancer has spread to 4 to 6 nearby lymph nodes (N2a); the cancer has not spread to distant sites (M0).

- **Stage IIIB T3 or T4a** - in stage IIIB T3 or T4a colorectal cancer, the cancer has grown into the outermost layers of the colon or rectum (T3) or through the visceral peritoneum (T4a) but has not reached nearby organs; the cancer has spread to 7 or more nearby lymph nodes (N2b); the cancer has not spread to distant sites (M0).

- **Stage IIIC** - in stage IIIC colorectal cancer, the cancer has grown through the wall of the colon or rectum and is attached to or has grown into other nearby tissues or organs (T4b); the cancer has spread to at least one nearby lymph node or into areas of fat near the lymph nodes (N1 or N2); the cancer has not spread to distant sites (M0).
- **Stage IVA** - in stage IVA colorectal cancer, the cancer may or may not have grown through the wall of the colon or rectum (Any T); the cancer might or might not have spread to nearby lymph nodes (Any N); the cancer has spread to one distant organ (such as the liver or lung) or distant set of lymph nodes, but not to distant parts of the peritoneum (i.e., the lining of the abdominal cavity) (M1a).
- **Stage IVB** - in stage IVB colorectal cancer, the cancer might or might not have grown through the wall of the colon or rectum (Any T); the cancer might or might not have spread to nearby lymph nodes (Any N); the cancer has spread to more than one distant organ (such as the liver or lung) or distant set of lymph nodes, but not to distant parts of the peritoneum (i.e., the lining of the abdominal cavity) (M1b).
- **Stage IVC** - in stage IVC colorectal cancer, the cancer might or might not have grown through the wall of the colon or rectum (Any T); the cancer might or might not have spread to nearby lymph nodes (Any N); the cancer has spread to distant parts of the peritoneum (i.e., the lining of the abdominal cavity), and may or may not have spread to distant organs or lymph nodes (M1c).

Section 1 Summary

Colorectal cancer may refer to a type of cancer in which malignant (cancer) cells form in the tissues of the colon or the rectum. Cancer in the colon/rectum often starts as polyps. The factors that can increase the risk of a polyp containing or developing into cancer include the following: polyp size (e.g., a polyp larger than 1 cm); the number of polyps (e.g., more than three polyps); and dysplasia. The risk factors for colorectal cancer include the following: age; family history of colorectal cancer; diet (e.g., a diet high in red meats and/or a diet low in vitamin D/foods that contain vitamin D); alcohol consumption; tobacco use; lack of physical activity; obesity; Lynch syndrome; PJS; Turcot syndrome; IBD; and type 2 diabetes. The symptoms of colorectal cancer include the

following: diarrhea; constipation; a consistent feeling that the bowel is not "empting all of the way;" blood in or on stool; consistent abdominal pain, aches, and/or cramps; weight lose. Health care professionals should note that colorectal cancer is progressive - meaning it grows, spreads, and/or becomes more destructive to the body over time. Due to the progressive nature of colorectal cancer, it is classified into stages. The staging system most often used for colorectal cancer is the American Joint Committee on Cancer (AJCC) TNM system. Finally, health care professionals should note that the TNM system classifies, or describes, colorectal cancer in stages 0 - IV.

Section 1 Key Concepts

- The parts or sections of the colon include the following: ascending colon, transverse colon, descending colon, and the sigmoid colon.
- The colon and rectum are essential parts of the digestive system, which work together.
- The colon and the rectum work together to absorb water, nutrients, and electrolytes, as well as expel waste from the body.
- Cancer in the colon/rectum often starts as polyps.
- The factors that can increase the risk of a polyp containing or developing into cancer include the following: polyp size (e.g., a polyp larger than 1 cm); the number of polyps (e.g., more than three polyps); and dysplasia.
- The risk factors for colorectal cancer include the following: age; family history of colorectal cancer; diet (e.g., a diet high in red meats and/or a diet low in vitamin D/foods that contain vitamin D); alcohol consumption; tobacco use; lack of physical activity; obesity; Lynch syndrome; PJS; Turcot syndrome; IBD; and type 2 diabetes.
- The symptoms of colorectal cancer include the following: diarrhea; constipation; a consistent feeling that the bowel is not "empting all of the way;" blood in or on stool; consistent abdominal pain, aches, and/or cramps; weight lose.
- Colorectal cancer is progressive - meaning it grows, spreads, and/or becomes more destructive to the body over time.
- Colorectal cancer, it is classified into stages.

- The staging system most often used for colorectal cancer is the American Joint Committee on Cancer (AJCC) TNM system.
- The **TNM** system is based on the following three key elements: the extent (size) of the **T**umor**;** the spread to nearby lymph **N**odes (e.g., has the cancer spread to nearby lymph nodes); the **M**etastasis (i.e., spread) to distant sites (e.g., has the cancer spread to distant lymph nodes or distant organs such as the liver).
- The TNM system classifies, or describes, colorectal cancer in stages 0 - IV; the lower the stage number means the less the cancer has spread; the higher the stage number (e.g., stage IV) means the cancer has spread more than a lower stage number.

Section 1 Key Terms

Colorectal cancer - a type of cancer in which malignant (cancer) cells form in the tissues of the colon or the rectum

Cancer - a disease or group or diseases characterized by abnormal cell growth and the potential destruction of body tissue

Colon - the longest portion of the large intestine that removes water, nutrients, and electrolytes from partially digested food

Ascending colon - the first section of the colon

Transverse colon - the longest section of the colon, which is situated from right to left across the abdomen

Descending colon - the section of the colon that descends or travels down the left portion of the abdomen

Sigmoid colon - the last, "S" shaped, section of the colon

Rectum - the portion of the large intestine that stores solid waste until it leaves the body

Polyp - a small group of cells that form on the lining of the colon or rectum

Dysplasia - a term that is used to describe polyps that contain abnormal cells that may possess the potential to develop into cancer; a term used to describe cells in the lining of the colon or rectum that look abnormal, but are not cancer

Heavy drinking - the act of consuming eight or more alcoholic beverages per week for women or 15 or more alcoholic beverages per week for men

Physical activity - any bodily movement produced by the contraction of skeletal muscle that increases energy expenditure above a basal level (U.S. Department of Health and Human Services, 2018)

Sedentary lifestyle - an inactive lifestyle characterized by extended periods of sitting or laying down, with little to no physical activity

Obesity - a condition characterized by abnormal or excessive fat accumulation, which may impair health

Body mass index (BMI) - a value derived from an individual's height and weight

Lynch syndrome (also known as hereditary non-polyposis colorectal cancer [HNPCC]) - an inherited condition that increases the risk of colonrectal cancer, as well as other types of cancers

Peutz-Jeghers syndrome (PJS) - a rare inherited condition that is associated with an increased risk of growths along the lining of the gastrointestinal tract (called hamartomatous polyps) and certain types of cancer, such as colorectal cancer

Turcot syndrome - a rare inherited condition associated with benign growths in the mucous lining of the gastrointestinal tract with tumors of the central nervous system

Inflammatory bowel disease (IBD) - two conditions, Crohn's disease and ulcerative colitis, that are characterized by chronic inflammation of the gastrointestinal (GI) tract

Type 2 diabetes - a chronic condition that affects the way the body processes and uses insulin

Hyperglycemia - high blood sugar and/or a condition characterized by high blood sugar

Stage (when applied to cancer) - the state of cancer progression upon examination

Section 1 Personal Reflection Question

Why is it important for health care professionals to identify risk factors associated with colorectal cancer?

Section 2: Colorectal Cancer Screening

Colorectal cancer can devastate an individual's health, overall well-being, and quality of life. It can also lead to death. Fortunately, many times colorectal cancer can be prevented. One of the most effective methods to prevent colorectal cancer is screening. Screening, when applied to cancer, may refer to a process used to detect cancer in an individual who may not have signs or symptoms of cancer. Due to the importance of screening, this section will review colorectal cancer screening recommendations. The information found within this section was derived from materials provided by the CDC unless, otherwise, specified (CDC, 2021).

Colorectal Cancer Screening Recommendations

- Men and women should initiate regular screening for colorectal cancer at age 45.
- Individuals who are in good health and with a life expectancy of more than 10 years should continue regular colorectal cancer screening through the age of 75.
- Colorectal cancer screening for individuals ages 76 through 85 should be based on an individual's preferences, life expectancy, overall health, and prior screening history.
- Individuals over 85 should no longer receive colorectal cancer screening.
- The following tests may be used to regularly screen individuals for colorectal cancer: guaiac-based fecal occult blood test (gFOBT), fecal immunochemical test (FIT), FIT-DNA test, flexible sigmoidoscopy, colonoscopy, and computed tomography (CT) colonography. Specific information regarding the aforementioned tests may be found below.
    - **Guaiac-based fecal occult blood test (gFOBT)** - the gFOBT may refer to a stool test that uses the chemical guaiac to detect blood in the stool. To complete the gFOBT, a patient is given a gFOBT test kit from a health care professional that should be used by the patient to obtain a small amount of stool, which should be returned to a health care professional for testing. Health care professionals should note that the gFOBT should be completed once a year.

- **Fecal immunochemical test (FIT)** - the FIT may refer to a stool test that utilizes antibodies to detect blood in the stool. The FIT is completed in a manner similar to the gFOBT. Health care professionals should note that the FIT should be completed once a year.

- **FIT-DNA test** - the FIT-DNA test, also referred to as the stool DNA test, may refer to a stool test that combines the FIT with a test that detects altered DNA in the stool. To complete the FIT-DNA test, a patient should collect an entire bowel movement, which is sent to a lab where it is checked for cancer cells. Health care professionals should note that the FIT-DNA test should be completed once every three years.

- **Flexible sigmoidoscopy** - flexible sigmoidoscopy may refer to a test or an examination conducted by a health care professional who utilizes a short, thin, flexible, lighted tube to check for polyps or cancer inside the rectum and lower third of the colon. Health care professionals should note that a flexible sigmoidoscopy should be completed every five years, or every 10 years with a FIT every year.

- **Colonoscopy** - colonoscopy may refer to a test or an examination conducted by a health care professional who utilizes a long, thin, flexible, lighted tube to check for polyps or cancer inside the rectum and the entire colon. Health care professionals should note the following: during a colonoscopy, a health care professional can find and remove polyps and some cancers; a colonoscopy can also be used as a follow-up test to recheck any abnormalities detected by other colorectal cancer screening tests. Health care professionals should note that a colonoscopy should be completed every 10 years for individuals that are considered to be at average risk for colorectal cancer.

- **Computed tomography (CT) colonography** - CT colonography may refer to a test that utilizes X-rays and computers to produce images of the entire colon, which are displayed on a computer screen for a health care professional to analyze. Health care professionals should note that a CT colonography should be completed every five years for individuals that are considered to be at average risk for colorectal cancer.

- Health care professionals should note that individuals are considered to be at average risk for colorectal cancer if they meet the following criteria: the individual

does not have a personal history of colorectal cancer or certain types of polyps; the individual does not have a family history of colorectal cancer; the individual does not have a history of inflammatory bowel disease (e.g., ulcerative colitis; Crohn's disease); the individual does not have a confirmed or suspected hereditary colorectal cancer syndrome, such as Lynch syndrome; the individual does not have a history of getting radiation to the abdomen (i.e., belly) or pelvic area to treat a prior cancer (American Cancer Society, 2020).

- Health care professionals should note that individuals are considered to be at increased or high risk for colorectal cancer if they meet the following criteria: the individual has a history of colorectal cancer or certain types of polyps; the individual has a family history of colorectal cancer or certain types of polyps; the individual has a history of inflammatory bowel disease (e.g., ulcerative colitis; Crohn's disease); the individual has a confirmed or suspected hereditary colorectal cancer syndrome, such as Lynch syndrome; the individual has a history of radiation to the abdomen (i.e., belly) or pelvic area to treat a prior cancer (American Cancer Society, 2020).
- Individuals who had certain types of polyps removed during a colonoscopy may require another colonoscopy again after three years, or sooner depending on the type, size, and number of polyps removed (American Cancer Society, 2020).
- Individuals with a history of colorectal cancer may require a colonoscopy yearly (American Cancer Society, 2020).
- Individuals with a history of radiation to the abdomen (i.e., belly) or pelvic area to treat a prior cancer should initiate colorectal cancer screening before the age of 45 (e.g., five years after the radiation was given or at age 30, whichever comes last). Individuals with a history of radiation to the abdomen (i.e., belly) or pelvic area may require colorectal screening every three to five years (American Cancer Society, 2020).
- Individuals with a history of inflammatory bowel disease (e.g., ulcerative colitis; Crohn's disease) should receive colorectal cancer screening/a colonoscopy starting at least eight years after they were diagnosed with inflammatory bowel disease; follow-up colonoscopies should be done every one to three years, depending on the individuals' risk factor for colorectal cancer and the findings of the previous colonoscopy (American Cancer Society, 2020).

- Individuals known or suspected to have relevant genetic syndromes may be required to initiate colorectal cancer screening with a colonoscopy between the ages of 12 - 20 (American Cancer Society, 2020).
- When screening patients for colorectal cancer, health care professionals should practice effective hand hygiene. Specific information regarding effective hand hygiene may be found below.
    - Hand hygiene may refer to the process of cleaning hands in order to prevent contamination and/or infections.
    - Hand hygiene is most effective when dirt, soil, microorganisms, and other contaminants are removed from the hands.
    - Health care professionals should complete effective hand hygiene when evaluating, assessing, and engaging with patients.
    - Health care professionals may use a variety of different products to carry out effective hand hygiene. The following products are typically available to health care professionals and may be used to carry out effective hand hygiene: detergents, plain soap, antimicrobial (medicated) soap, antiseptic agents, and alcohol-based handrubs.
    - The major indications for hand hygiene can be broken down into the following five key moments:
        1. Before patient contact
        2. Before an aseptic procedure or task
        3. After a body fluid exposure risk occurs
        4. After touching a patient
        5. After contact with a patient's surroundings
    - Health care professionals should wash their hands with soap and water when they are visibly dirty or visibly soiled with blood or other body fluids or after using the toilet.
    - Health care professionals should use an alcohol-based handrub when their hands are not visibly soiled to reduce bacterial counts.

- When screening patients for colorectal cancer, health care professionals should effectively don personal protective equipment (PPE), when appropriate. Specific information regarding PPE may be found below.
    - PPE may refer to equipment designed to protect, shield, and minimize exposure to hazards that may cause serious injury, illness, and/or disease.
    - Effectively donning PPE can prevent the spread of infectious materials and agents to patients.
    - PPE can include a variety of different types of equipment such as: masks, respirators, gloves, and gowns. Specific information regarding the aforementioned types of PPE may be found below.

        <u>Masks</u>

        - Health care professionals should don medical procedure masks, otherwise referred to as surgical masks or disposable face masks, when deemed necessary or required (note: a medical procedure mask may refer to a single-use mask that is not made of cloth and is not designed to be washed or laundered).
        - To effectively don a medical procedure mask, health care professionals should engage in hand hygiene before touching a mask; health care professionals should ensure the mask completely covers his or her mouth and nose. A health care professional should also ensure a mask fits snugly to the face and below the chin. Health care professionals should note that, often, masks can be secured to the head and neck via separate ties.
        - To effectively remove a medical procedure mask, health care professionals should untie the bottom ties, if applicable, followed by the upper ties. The mask should then be pulled off and discarded in the appropriate waste container. A health care professional should not touch a contaminated mask. Health care professionals should wash their hands or use an alcohol-based hand sanitizer after removing a mask; health care professionals should wash their hands or use an alcohol-based hand sanitizer after removing all PPE.

        <u>Respirators</u>

- A respirator may refer to a personal protective device that is worn on the face or head and covers at least the nose and mouth.
- A respirator is used to reduce the wearer's risk of inhaling hazardous airborne particles (including infectious agents), gases, or vapors.
- A N95 respirator may refer to a particulate-filtering, face piece respirator that filters at least 95% of airborne particles.
- Health care professionals should note that N95 respirators reduce the wearer's exposure to airborne particles.
- Health care professionals should note that N95 respirators are capable of filtering out all types of particles, including bacteria and viruses.
- A "fit test" may be required to determine the appropriate size respirator needed for each individual health care professional; health care professionals may also require training regarding how and when to use a respirator.
- Hand hygiene should be performed before donning a respirator.
- When donning a respirator, a health care professional should make sure the respirator completely covers his or her mouth and nose; health care professionals should also ensure the respirator fits snug to the face and below the chin; additionally, a health care professional should be sure the respirator is properly sealed.
- Health care professionals should note that achieving an adequate seal to the face is essential when wearing a N95 respirator.
- Health care professionals should note that when properly fitted and worn, minimal leakage should occur around edges of the respirator when the user inhales.
- To effectively remove a respirator, a health care professional should untie the bottom ties, if applicable, followed by the upper ties; the respirator should then be pulled off and discarded in the appropriate waste container; a health care professional should not touch a contaminated respirator. Health care professionals should engage in hand hygiene after removing respirators; health care professionals

should wash their hands or use an alcohol-based hand sanitizer after removing all PPE.

- Health care professionals should note the following: a surgical N95 respirator (also referred as a medical respirator) is recommended only for use by health care professionals who need protection from both airborne and fluid hazards (e.g., splashes, sprays).

Gloves

- Nonsterile disposable patient examination gloves, which are used for routine patient care in health care settings, are appropriate for patient care.
- The use of gloves does not replace the need for hand hygiene.
- Gloves do not provide complete protection against hand contamination.
- Health care professionals should be sure to wear gloves when it can be reasonably anticipated that contact with blood or other potentially infectious materials, mucous membranes, or non-intact skin, will occur.
- Health care professionals should note that the prolonged use of gloves for contact precautions in the absence of considering the need to perform hand hygiene can result in the transmission of germs.
- Health care professionals should note that the use of contaminated gloves caused by inappropriate storage, inappropriate patient care moments, and techniques for donning and removing gloves, may also result in germ transmission.
- Typically, gloves are single-use items, glove decontamination and reprocessing are not recommended and should be avoided.
- The CDC does not recommend wearing double gloves when providing care to patients.
- Hand hygiene should be performed before donning gloves.

- When donning gloves, health care professionals should be sure to touch only a restricted surface of a glove corresponding to the wrist (e.g., at the top edge of the cuff).
- When wearing gloves, health care professionals should avoid touch contamination; touch contamination may refer to touching one's self and/or other surfaces such as tables, light switches, and doors while wearing gloves; touch contamination may lead to contamination and/or the passing of potentially infectious materials.
- Health care professionals should change their gloves as they administer care to different patients (i.e., a new patient means a new pair of gloves).
- Health care professionals should remove gloves after caring for a patient.
- To effectively remove a pair of gloves, a health care professional should use one gloved hand to grasp the palm area of the other gloved hand; once the health care professional has a firm grip on the palm of one gloved hand, the health care professional should then peel off the first glove; after removing the first glove, the health care professional should then hold that glove in one hand; using his or her fingers, the health care professional should slide the fingers off his or her ungloved hand under the remaining glove at the wrist and peel off the second glove right over the first glove; both gloves should then be placed in the appropriate waste container.
- Health care professionals should engage hand hygiene after removing gloves; health care professionals should wash their hands or use an alcohol-based hand sanitizer after removing all PPE.

<u>Gowns</u>

- Gowns that protect against microorganisms are available to health care professionals; for health care activities with low, medium, or high risk of contamination, surgical gowns may be used (note: the term surgical gown may refer to a type of gown intended to be worn by various health care professionals during surgical procedures**).**

    - As with any type of PPE, the key to proper selection and use of a gown is to understand the hazards and the risk of exposure; some of the factors important to assessing the risk of exposure in health care facilities include: sources, modes of transmission, types of contact, and duration and type of tasks to be performed by the user of the PPE.
    - Health care professionals should engage in effective hand hygiene before donning a gown.
    - When putting on a gown, a health care professional should make sure the gown completely covers his or her torso from the neck to the knees; a gown should also completely cover a health care professional's arms and wrist; a gown should be wrapped around the back and fastened at the back of the neck and waist.
    - To effectively remove a gown, a health care professional should unfasten the gown's ties and pull the gown away from the neck and shoulders; when the gown is removed from the body, it should be rolled or folded and placed in the appropriate waste container.
    - Health care professionals should engage hand hygiene after removing a gown; health care professionals should wash their hands or use an alcohol-based hand sanitizer after removing all PPE.
- When screening patients for colorectal cancer, health care professionals should work to prevent the transmission of the virus that causes coronavirus disease 2019 (COVID-19).
    - Coronavirus disease 2019 (COVID-19) may refer to a respiratory illness that can spread from person to person, which is caused by a virus known as the severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2).
    - It is currently believed that the virus that causes COVID-19 is transmitted or spread through person to person contact (note: the term person-to-person contact may refer to the transmission of a communicable disease/ illness from a host to a healthy person by way of body fluids [e.g., respiratory droplets; blood])
    - COVID-19 may spread between individuals who are in close contact with one another (i.e., within about six feet).

- COVID-19 may spread through respiratory droplets produced when an infected individual coughs or sneezes.
- Health care professionals should note that they may work to prevent the transmission of the virus that causes COVID-19 by the following means: practicing effective hand hygiene, donning PPE (when appropriate), and by obtaining relevant vaccination.

- When screening patients for colorectal cancer or when providing patients with relevant colorectal cancer education, health care professionals should consider promoting physical activity, when applicable. Specific information and recommendations regarding physical activity may be found below. The information found below was derived from materials provided by the U.S. Department of Health and Human Services (U.S. Department of Health and Human Services, 2018).
    - Physical activity may refer to any bodily movement produced by the contraction of skeletal muscle that increases energy expenditure above a basal level.

      <u>Physical Activity Recommendations for Adults</u>

        - Adults should move more and sit less throughout the day. Some physical activity is better than none. Adults who sit less and do any amount of moderate-to-vigorous physical activity gain some health benefits.
        - For substantial health benefits, adults should do at least 150 minutes (2 hours and 30 minutes) to 300 minutes (5 hours) a week of moderate-intensity, or 75 minutes (1 hour and 15 minutes) to 150 minutes (2 hours and 30 minutes) a week of vigorous-intensity aerobic physical activity, or an equivalent combination of moderate- and vigorous-intensity aerobic activity. Preferably, aerobic activity should be spread throughout the week.
        - Additional health benefits are gained by engaging in physical activity beyond the equivalent of 300 minutes (5 hours) of moderate-intensity physical activity a week.

- Adults should also do muscle-strengthening activities of moderate or greater intensity and that involve all major muscle groups on 2 or more days a week, as these activities provide additional health benefits.

Physical Activity Recommendations for Older Adults

- As part of their weekly physical activity, older adults (note: the term older adult may refer to an individual 65 years or older) should do multicomponent physical activity that includes balance training, as well as aerobic and muscle-strengthening activities.
- Older adults should determine their level of effort for physical activity relative to their level of fitness.
- Older adults with chronic conditions should understand whether and how their conditions affect their ability to do regular physical activity safely.
- When older adults cannot do 150 minutes of moderate-intensity aerobic activity a week because of chronic conditions, they should be as physically active as their abilities and conditions allow.

Physical Activity Recommendations for Women During Pregnancy and the Postpartum Period

- Women should do at least 150 minutes (2 hours and 30 minutes) of moderate-intensity aerobic activity a week during pregnancy and the postpartum period. Preferably, aerobic activity should be spread throughout the week.
- Women who habitually engaged in vigorous-intensity aerobic activity or who were physically active before pregnancy can continue these activities during pregnancy and the postpartum period.
- Women who are pregnant should be under the care of a health care provider who can monitor the progress of the pregnancy. Women who are pregnant can consult their health care provider about whether or how to adjust their physical activity during pregnancy and after the baby is born.

Physical Activity Recommendations for Adults With Chronic Health Conditions and Adults With Disabilities

- Adults with chronic conditions or disabilities, who are able, should do at least 150 minutes (2 hours and 30 minutes) to 300 minutes (5 hours) a week of moderate-intensity, or 75 minutes (1 hour and 15 minutes) to 150 minutes (2 hours and 30 minutes) a week of vigorous-intensity aerobic physical activity, or an equivalent combination of moderate- and vigorous-intensity aerobic activity. Preferably, aerobic activity should be spread throughout the week.
- Adults with chronic conditions or disabilities, who are able, should also do muscle-strengthening activities of moderate or greater intensity and that involve all major muscle groups on 2 or more days a week, as these activities provide additional health benefits.
- When adults with chronic conditions or disabilities are not able to meet the above key guidelines, they should engage in regular physical activity according to their abilities and should avoid inactivity.
- Adults with chronic conditions or symptoms should be under the care of a health care professional. Individuals with chronic conditions can consult a health care professional or physical activity specialist about the types and amounts of activity appropriate for their abilities and chronic conditions.

Physical Activity Recommendations for Safe Physical Activity

- Individuals should understand the risks, yet be confident that physical activity can be safe for almost everyone.
- Individuals should choose types of physical activity that are appropriate for their current fitness level and health goals, because some activities are safer than others.
- Individuals should increase physical activity gradually over time to meet key guidelines or health goals. Inactive people should “start low and go slow” by starting with lower intensity activities and gradually increasing how often and how long activities are done.

    - Individuals should protect themselves by using appropriate gear and sports equipment, choosing safe environments, following rules and policies, and making sensible choices about when, where, and how to be active.

    - Individuals should be under the care of a health care provider if they have chronic conditions or symptoms. Individuals with chronic conditions and symptoms can consult a health care professional or physical activity specialist about the types and amounts of activity appropriate for them.

- When screening patients for colorectal cancer or when providing patients with relevant colorectal cancer education, health care professionals should consider promoting adequate nutrition, when applicable. Specific information and recommendations regarding adequate nutrition may be found below. The information found below was derived from materials provided by the U.S. Department of Health and Human Services (U.S. Department of Health and Human Services, 2020).

    - From 12 months through older adulthood, individuals should follow a healthy dietary pattern across their lifespan to meet nutrient needs, help achieve a healthy body weight, and reduce the risk of chronic disease (note: the term healthy dietary pattern may refer to the combination of foods and beverages that constitutes an individual's complete dietary intake over time; a description of a customary way of eating or a description of a combination of foods recommended for consumption).

    - Individuals should focus on meeting food group needs with nutrient-dense foods and beverages, and stay within calorie limits - nutrient-dense foods provide vitamins, minerals, and other health-promoting components and have no or little added sugars, saturated fat, and sodium. A healthy dietary pattern consists of nutrient-dense forms of foods and beverages across all food groups, in recommended amounts, and within calorie limits (note: the term nutrient-dense foods may refer to the foods and beverages that provide vitamins, minerals, and other health-promoting components and have little added sugars, saturated fat, and sodium).

    - Individuals should note that the core elements that make up a healthy dietary pattern include the following: vegetables of all types; fruits,

especially whole fruit; grains, at least half of which are whole grain; dairy, including fat-free or low-fat milk, yogurt, and cheese, and/or lactose-free versions and fortified soy beverages and yogurt as alternatives; protein foods, including lean meats, poultry, and eggs; oils, including vegetable oils and oils in food, such as seafood and nuts.

- Alcoholic beverages - adults of legal drinking age can choose not to drink, or to drink in moderation by limiting intake to two drinks or less in a day for men and one drink or less in a day for women, when alcohol is consumed. Drinking less is better for health than drinking more. There are some adults who should not drink alcohol, such as women who are pregnant.

- Male adults and male older adults should take in approximately 2,000 to 3,000 calories per day, depending on activity level.

- Female adults and female older adults should take in approximately 1,600 to 2,400 calories per day, depending on activity level.

- When screening patients for colorectal cancer or when providing patients with relevant colorectal cancer education, health care professionals should consider promoting weight loss, when applicable. Specific weight loss recommendations may be found below.

    - Set realistic weight loss goals - when applying weight loss services to patients, it is important that health care professionals set realistic weight loss goals. Realistic weight loss goals can help patients stay motivated, build confidence, and, perhaps most importantly, commit to weight loss. Health care professionals should note the following weight loss goal: 1 to 2 pounds per week for a period of approximately six months or until a patient reaches a healthy weight based on BMI. Health care professionals should also note the following: a diet that is individually planned to help create a deficit of 500 - 1,000 kcal/day may be used to help patients achieve a weight loss of 1 to 2 pounds per week.

    - Promote physical activity, when applicable - it should not be a surprise that health care professionals should promote physical activity when applying weight loss services to patients. Health care professionals should note the following: adequate physical activity can help patients lose weight and maintain a healthy weight.

- Promote adequate nutrition, when applicable - it should also not be a surprise that health care professionals should promote adequate nutrition when applying weight loss services to patients. Health care professionals should note that adequate nutrition can help patients loss weight and maintain a healthy weight.

- Encourage patients to self-monitor their weight - patients should be encouraged to self-monitor their weight in order to lose weight and maintain a healthy weight. The term self-monitor, as it relates to weight loss and maintenance, may refer to the act of observing and recording aspects of behavior related to weight, weight loss, and weight maintenance (e.g., calorie intake per day). Health care professionals should note the following: when applying weight loss services to older adults, health care professionals should encourage caregivers to monitor older adult's weight.

- Encourage patients to apply portion control - some patients should be encouraged to apply portion control in order to lose weight and maintain a healthy weight. Portion control may refer to a method of moderating an individual's diet by determining the number of calories in each serving of food, and limiting consumption to fall below a predetermined number of calories to help individuals lose weight and maintain a healthy weight. Health care professionals should note the following: portion control can help individuals take an active role in their weight loss; portion control may be most beneficial to patients who are highly motivated to lose weight. Health care professionals should also note the following: when applying weight loss services to older adults, health care professionals should encourage caregivers to assist in portion control.

- Encourage patients attempting to lose weight to seek support from family and friends - individuals who successfully lose weight and keep it off typically rely on support from others to help maintain motivation, a healthier lifestyle, and continued weight loss/healthy weight management. Health care professionals should note that this recommendation may be especially relevant to older adults who may completely rely on their family for support.

- Encourage patients attempting to lose weight to take part in support groups - in addition to family and friends, health care professionals should

consider recommending support groups to patients attempting to lose weight. Support groups can help patients suffering from obesity make connections with other individuals who can help them maintain motivation, a healthier lifestyle, and continued weight loss/healthy weight management. Additionally, support groups can help patients suffering from obesity avoid some of the complications associated with obesity such as: low self-esteem, relationship problems, social isolation, and suicidal ideation. Health care professionals should note the following: various types of support groups exist; an individual may participate in one or more support group at a time to cope or manage his or her obesity.

- When screening patients for colorectal cancer or when providing patients with relevant colorectal cancer education, health care professionals should consider assisting patients with tobacco cessation, when applicable. Specific information and recommendations regarding tobacco cessation may be found below.
    - Tobacco cessation may refer to the process of discontinuing or stopping tobacco smoking or use.
    - Nicotine is the addictive substance in tobacco.
    - Long-term use of nicotine can result in brain changes that contribute to addiction.
    - Chronic tobacco use can lead to cancer, cardiovascular disease, respiratory disease, and sexual dysfunction.
    - Individuals may use tobacco for the following reasons: improved concentration/alertness; sense of relaxation; sense of euphoria; stress reduction; social acceptance; relief from withdrawal symptoms; and weight management.
    - Individuals typically have trouble with tobacco cessation because tobacco use is both physically and psychologically additive. Individuals also have trouble with tobacco cessation because of tobacco-related withdrawal symptoms.
    - Tobacco-related withdrawal symptoms can include the following: decreased concentration, irritability, anxiety, depressed mood, insomnia, and increased eating.

- Health care professionals should note that withdrawal symptoms can last several weeks and can be severe.
- When presented with a patient, health care professionals should consider the five **A**s of tobacco cessation, which include: **A**sk, **A**dvise, **A**ssess, **A**ssist, and **A**rrange.
    - **A**sk - health care professionals should **A**sk every patient about tobacco use. Health care professionals should note the following strategies that may be used to support the **A**sk portion of tobacco cessation: identify all tobacco users at every visit; determine what form of tobacco is used by each patient; determine frequency of tobacco use; determine tobacco use status; note patients exposed to secondhand smoke.
    - **A**dvise - health care professionals should advise every patient who uses tobacco to quit. Health care professionals should note the following strategies that may be used to support the **A**dvise portion of tobacco cessation: avoid advising patients to quit tobacco use in a judgmental manner; avoid bias; employ empathy.
    - **A**ssess - health care professionals should **A**ssess the following: a patient's willingness to make a quit attempt within 30 days; determine where each patient is in terms of his or her readiness to quit tobacco use; past quit attempts. Health care professionals should note the following strategies that may be used to support the **A**ssess portion of tobacco cessation: obtain a tobacco patient history; talk with patients to determine if they are committed to stop tobacco use (note: often the first step to tobacco cessation is a decision and commitment by an individual to stop using tobacco); employ motivational interviewing, when applicable (note: motivational interviewing may refer to a method or process for enhancing intrinsic motivation to change by exploring and resolving ambivalence; motivational interviewing can help patients make a decision to stop tobacco use and engage in tobacco cessation); engage the patient in a discussion regarding the pros and cons of tobacco use if the patient cannot arrive at a clear decision to stop tobacco use.

- **A**ssist - when a patient arrives at the decision to stop tobacco use and commits to tobacco cessation, health care professionals should **A**ssist the patient with his or her tobacco cessation plan. Health care professionals should note the following strategies that may be used to support the **A**ssist portion of tobacco cessation: set a quit date; discard all tobacco products; discuss the use of approved nicotine replacement therapy options; discuss counseling or behavior therapy options; discuss enrollment in support groups.

- **A**rrange - health care professionals should **A**rrange a patient follow up appointment to evaluate/further assist with the patients' tobacco cessation. Health care professionals should note the following strategies that may be used to support the **A**rrange portion of tobacco cessation: schedule the patient's follow up appointment on a date closely following the patient's quite date; provide positive feedback; embrace patient tobacco cessation success; provide encouragement if the patient is experiencing difficulties with tobacco cessation; remain positive.

- When applying tobacco cessation services to patient care, health care professionals should remember that tobacco cessation is a process that could take weeks, months, or even years to complete.

- When applying tobacco cessation services to patient care, health care professionals should consider the four major points of tobacco cessation, which include: resist any desire to force tobacco cessation on patients; obtain insight into why a patient wants to quit smoking; listen to patients as they express themselves about tobacco use and tobacco cession; motivate and empower patients to quit smoking when they are ready and committed to quitting.

- When applying tobacco cessation services to patient care, health care professionals should note that patients may be using medications to help them stop tobacco use. Health care professionals should note the following information regarding tobacco cessation medications: tobacco cessation medications often provide relief for nicotine cravings and withdrawal symptoms; tobacco cessation medications allow individuals to continue to experience the stress release and increased arousal associated with tobacco, without the harmful chemicals in tobacco products; tobacco

cessation medications allow individuals to focus on changing behaviors related to tobacco use; tobacco cessation medications often improve the success rate of tobacco cessation.

- Health care professionals should note the following medications approved by the FDA for tobacco cessation: nicotine gum, nicotine lozenge, nicotine patch, nicotine nasal spray, nicotine inhaler, bupropion SR, and varenicline.
- Health care professionals should note the following: some patients may engage in vaping; vaping, within the context of tobacco cessation, may refer to the use or an electronic cigarette or similar device to release a solution containing nicotine for inhalation.
- Health care professionals should note the following information regarding vaping devices/electronic cigarettes: evidence suggests that the use of e-cigarettes may negatively impact tobacco abstinence; nicotine solutions for vaping devices/electronic cigarettes may be toxic if ingested.
- When applying tobacco cessation services to patient care, health care professionals should consider providing patients with relevant recommendations such as the following: reflect on reasons to stop using tobacco; determine a "stop date" (i.e., select a specific day to stop using tobacco products); dispose of all personal tobacco products; identify specific individuals that may provide support; adopt a method to curtail cravings (e.g., chew gum); take part in engaging hobbies (e.g., yoga); engage in journaling to help stay focused; avoid triggers that may potentiate tobacco use (e.g., going to a bar).

Section 2 Summary

Colorectal cancer can devastate an individual's health, overall well-being, and quality of life. It can also lead to death. Fortunately, many times colorectal cancer can be prevented. One of the most effective methods to prevent colorectal cancer is screening. Men and women should initiate regular screening for colorectal cancer at age 45. Finally, when screening patients for colorectal cancer, health care professionals should consider colorectal cancer screening recommendations.

Section 2 Key Concepts

- One of the most effective methods to prevent colorectal cancer is screening.
- Men and women should initiate regular screening for colorectal cancer at age 45.
- When screening patients for colorectal cancer, health care professionals should consider colorectal cancer screening recommendations.

Section 2 Key Terms

Screening (when applied to cancer) - a process used to detect cancer in an individual who may not have signs or symptoms of cancer

Guaiac-based fecal occult blood test (gFOBT) - a stool test that uses the chemical guaiac to detect blood in the stool

Fecal immunochemical test (FIT) - a stool test that utilizes antibodies to detect blood in the stool

FIT-DNA test (also referred to as the stool DNA test) - a stool test that combines the FIT with a test that detects altered DNA in the stool

Flexible sigmoidoscopy - a test or an examination conducted by a health care professional who utilizes a short, thin, flexible, lighted tube to check for polyps or cancer inside the rectum and lower third of the colon

Colonoscopy - a test or an examination conducted by a health care professional who utilizes a long, thin, flexible, lighted tube to check for polyps or cancer inside the rectum and the entire colon

Computed tomography (CT) colonography - a test that utilizes X-rays and computers to produce images of the entire colon, which are displayed on a computer screen for a health care professional to analyze

Hand hygiene - the process of cleaning hands in order to prevent contamination and/or infections

Personal protective equipment (PPE) - equipment designed to protect, shield, and minimize exposure to hazards that may cause serious injury, illness, and/or disease

Medical procedure mask (otherwise referred to as a surgical mask or a disposable face mask) - a single-use mask that is not made of cloth and is not designed to be washed or laundered

Respirator - a personal protective device that is worn on the face or head and covers at least the nose and mouth

N95 respirator - a particulate-filtering, face piece respirator that filters at least 95% of airborne particles

Touch contamination - touching one's self and/or other surfaces such as tables, light switches, and doors while wearing gloves

Surgical gown - a type of gown intended to be worn by various health care professionals during surgical procedures

Coronavirus disease 2019 (COVID-19) - a respiratory illness that can spread from person to person that is caused by a virus known as the severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2)

Person-to-person contact - the transmission of a communicable disease/illness from a host to a healthy person by way of body fluids

Older adult - an individual 65 years or older

Healthy dietary pattern - the combination of foods and beverages that constitutes an individual's complete dietary intake over time; a description of a customary way of eating or a description of a combination of foods recommended for consumption (U.S. Department of Health and Human Services, 2020)

Nutrient-dense foods - the foods and beverages that provide vitamins, minerals, and other health-promoting components and have little added sugars, saturated fat, and sodium (U.S. Department of Health and Human Services, 2020)

Self-monitor (as it relates to weight loss and maintenance) - the act of observing and recording aspects of behavior related to weight, weight loss, and weight maintenance

Portion control - a method of moderating an individual's diet by determining the number of calories in each serving of food, and limiting consumption to fall below a predetermined number of calories to help individuals lose weight and maintain a healthy weight

Tobacco cessation - the process of discontinuing or stopping tobacco smoking or use

Motivational interviewing - a method or process for enhancing intrinsic motivation to change by exploring and resolving ambivalence

Vaping (within the context of tobacco cessation) - the use or an electronic cigarette or similar device to release a solution containing nicotine for inhalation

Section 2 Personal Reflection Question

How can health care professionals use the above recommendations to safely and effectively screen patients for colorectal cancer?

Case Study: Colorectal Cancer

A case study is presented below to review the concepts found within this course. A case study review will follow the case study. The case study review includes the types of questions health care professionals should ask themselves when considering colorectal cancer and colorectal cancer screening. Additionally, reflection questions will be posed, within the case study review, to encourage further internal debate and consideration regarding the presented case study and colorectal cancer/ colorectal cancer screening. The information found within the case study and case study review was derived from materials provided by the CDC unless, otherwise, specified (CDC, 2021).

Case Study

A 50-year-old male patient presents to a health care facility for colorectal cancer screening. During the initial screening process, the patient reports that he is not experiencing any COVID-19 symptoms. The patient also reports that he does not have a fever. Upon questioning from a health care professional, the patient reports that he "smokes at least a half a pack a day." The patient also reports that he suffers from ulcerative colitis. After examining the patient the health care professional determines that the patient's BMI is 28.0 kg/m^2. Upon further questioning from the health care professional, the patient reveals that he was last screened for colorectal cancer "about five years ago." As the conversation with the health care professional concludes that patient asks the health care professional why he has to be screened for colorectal cancer so often.

Case Study Review

What patient details may be relevant to colorectal cancer/colorectal cancer screening?

The following patient details may be relevant to colorectal cancer/colorectal cancer screening: the patient is 50 years old; during the initial screening process, the patient reports that he is not experiencing any COVID-19 symptoms; the patient reports that he does not have a fever; the patient reports that he "smokes at least a half a pack a day;" the patient reports that he suffers from ulcerative colitis; the health care professional determines that the patient's BMI is 28.0 kg/m^2; the patient reveals that he was last screened for colorectal cancer "about five years ago;" the patient asks the health care professional why he has to be screened for colorectal cancer so often.

Are there any other patient details that may be relevant to colorectal cancer/colorectal cancer screening; if so, what are they?

How are each of the aforementioned patient details relevant to colorectal cancer/colorectal cancer screening?

Each of the previously highlighted patient details may be relevant to colorectal cancer/ colorectal cancer screening. The potential relevance of each patient detail may be found below.

The patient is 50 years old - the previous patient detail is relevant because the patient's age is a risk factor for colorectal cancer. Health care professionals should note the following: the risk for colorectal cancer increases as individuals age; individuals over the age of 45 are at an increased risk for developing colorectal cancer; men and women should start regular screening for colorectal cancer at age 45.

During the initial screening process, the patient reports that he is not experiencing any COVID-19 symptoms - the previous patient detail is relevant to COVID-19 screening. Health care professionals should note the following related recommendation: screen and triage everyone entering a health care facility for signs and symptoms of COVID-19 (note: the signs/symptoms of COVID-19 may include: fever, chills, cough, shortness of breath, aches and pain, fatigue, headaches, nasal congestion, runny nose, sore throat, nausea, vomiting, and diarrhea).

The patient reports that he does not have a fever - the previous patient detail is relevant to COVID-19 screening. Health care professionals should note the following related recommendation: establish a process to ensure that everyone (e.g., patients, health care professionals, and visitors) entering a health care facility is assessed for COVID-19 signs/ symptoms (note: fever can be either a measured temperature ≥ 100.0°F or a subjective fever [e.g., patient reported fever]; individuals might not notice symptoms of a fever at the lower temperature threshold that is used for those entering a health care facility; individuals should be encouraged to actively take their temperature at home or have their temperature taken upon arrival).

The patient reports that he "smokes at least a half a pack a day" - the previous patient detail is relevant because tobacco use is a risk factor for colorectal cancer. Health care professionals should note the following: colorectal cancer has been associated with tobacco use; research suggests that individuals who used/smoked tobacco for an extended period of time are more likely than non-smokers to develop and die from colorectal cancer.

The patient reports that he suffers from ulcerative colitis - the previous patient detail is relevant because IBD/ulcerative colitis is a risk factor for colorectal cancer. Health care professionals should note the following: IBD is a condition that increases the risk for colorectal cancer; IBD may refer to two conditions, Crohn's disease and ulcerative colitis, that are characterized by chronic inflammation of the gastrointestinal (GI) tract; ulcerative colitis often affects the large intestine (colon) and the rectum.

The health care professional determines that the patient's BMI is 28.0 kg/m^2 - the previous patient detail is relevant because it indicates that the patient is overweight. Health care professionals should note the following: individuals who are obese, or overweight, are at risk for colorectal cancer; an individual may be considered to be overweight if his or her BMI is between 25.0 - 29.9 kg/m^2; an individual may be considered to be obese if his or her BMI is greater than or equal to 30.0 kg/m^2.

The patient reveals that he was last screened for colorectal cancer "about five years ago" - the previous patient detail is relevant because it suggests that the patient is not following colorectal cancer screening recommendations. Health care professionals should note the following: individuals with a history of IBD (e.g., ulcerative colitis; Crohn's disease) should receive colorectal cancer screening/a colonoscopy starting at least eight years after they were diagnosed with inflammatory bowel disease; follow-up colonoscopies should be done every one to three years, depending on the individual's risk factor for colorectal cancer and the findings on the previous colonoscopy (American

Cancer Society, 2020). Health care professionals should also note the following: a colonoscopy may refer to a test or an examination conducted by a health care professional who utilizes a long, thin, flexible, lighted tube to check for polyps or cancer inside the rectum and the entire colon.

The patient asks the health care professional why he has to be screened for colorectal cancer so often - the previous patient detail is relevant because it suggests that the patient may require colorectal cancer counseling/education. Health care professionals should note patient questions during colorectal cancer screening. Patients that ask questions similar to the one posed by the patient in the above case study may require patient education. Health care professionals should consider the following education points when providing patients colorectal cancer counseling/education: colorectal cancer risk factors, colorectal cancer symptoms, colorectal cancer progression, physical activity recommendations, adequate nutrition recommendations, and tobacco cessation, when applicable.

What other ways, if any, are the previous patient details relevant to colorectal cancer/ colorectal cancer screening?

Is the patient, highlighted in the above case study, at increased/high risk for colorectal cancer?

Based on the information provided in the case study presented above, it does appear that the patient is at increased/high risk for colorectal cancer. Health care professionals should note that individuals are considered to be at increased or high risk for colorectal cancer if they meet the following criteria: the individual has a history of colorectal cancer or certain types of polyps; the individual has a family history of colorectal cancer or certain types of polyps; the individual has a history of IBD (e.g., ulcerative colitis; Crohn's disease); the individual has a confirmed or suspected hereditary colorectal cancer syndrome, such as Lynch syndrome; the individual has a history of radiation to the abdomen (belly) or pelvic area to treat a prior cancer (American Cancer Society, 2020).

How can health care professionals obtain additional patient information to optimize the colorectal cancer screening process?

Conclusion

Colorectal cancer may refer to a type of cancer in which malignant (cancer) cells form in the tissues of the colon or the rectum. Colorectal cancer is a progressive disease that can devastate an individual's health, overall well-being, and quality of life, as well as lead to death. Fortunately, many times colorectal cancer can be prevented. One of the most effective methods to prevent colorectal cancer is screening. Men and women should initiate regular screening for colorectal cancer at age 45. Finally, when screening patients for colorectal cancer, health care professionals should consider colorectal cancer screening recommendations.

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