<table>
<thead>
<tr>
<th>PowerPoint Slides</th>
<th>English Text</th>
<th>Spanish Translation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Review of Colorectal Cancer Video/Transcript</td>
<td>Revisión del cáncer colorrectal Transcripción del video</td>
<td></td>
</tr>
<tr>
<td>Professional Oncology Education Review of Colorectal Cancer Time: 13:01</td>
<td>Educación Oncológica Profesional Revisión del cáncer colorrectal Duración: 13:01</td>
<td></td>
</tr>
<tr>
<td>Aki Ohinata, MSPA-C Physician Assistant Gastrointestinal Medical Oncology The University of Texas, MD Anderson Cancer Center</td>
<td>Aki Ohinata, MSPA-C Asistente Médica Oncología Médica Gastrointestinal MD Anderson Cancer Center de la Universidad de Texas</td>
<td></td>
</tr>
</tbody>
</table>

Hello. My name is Aki Ohinata. I'm a Physician Assistant at Department of GI Medical Oncology at University of Texas MD Anderson Cancer Center. Today, I'll be discussing overview of the colorectal cancer as part of the Colorectal Survivorship Program.

Hola. Mi nombre es Aki Ohinata y soy asistente médica en el Departamento de Oncología Médica Gastrointestinal del MD Anderson Cancer Center de la Universidad de Texas. Hoy hablaré de las generalidades del cáncer colorrectal como parte del Programa de Supervivencia al Cáncer Colorrectal.
Objectives

At the conclusion of this lesson, the participant will be able to:

- Discuss the epidemiology and etiology of colorectal cancer (CRC)
- Identify those at increased risk of the disease
- List advantages and disadvantages for various screening tests
- Define the stage of disease using American Joint Committee on Cancer Staging System
- Order appropriate testing for newly diagnosed patients

Epidemiology

- Colorectal cancer (CRC) is the second leading cause of cancer-related deaths in the United States when both sexes are combined
- Expected death in 2010 is roughly 51,370 (26,580 in men and 24,790 in women)
- Lifetime risk of men developing CRC is slightly higher than women (1 in 19 males vs. 1 in 20 females)
**Etiology**

**Carcinogenesis:**

Colorectal cancer is thought to result from sequential accumulation over the years of genetic and molecular alterations that ultimately lead to transformation of normal epithelium into intraepithelial neoplasia/dysplasia, then malignant epithelium.

Seventy-five percent of all colorectal cancer patients have sporadic disease. [The] remaining 25 percent of the patients have a family history of colorectal cancer. Genetic mutations have been identified as the cause of inherited cancer risk in some colon cancer-prone families, but these mutations are estimated to only account for five to six percent of colorectal cancer cases overall.

Se cree que el cáncer colorrectal es resultado de la acumulación secuencial durante años de alteraciones genéticas y moleculares que transforman el epitelio normal en una neoplasia o displasia intraepitelial, y luego en epitelio maligno.

El 75% de los pacientes con cáncer colorrectal son casos esporádicos, mientras que el 25% restante tienen antecedentes familiares de este cáncer. En algunas familias propensas a desarrollar cáncer de colon se han identificado mutaciones genéticas como causa del riesgo de cáncer hereditario, y se estima que estas mutaciones responden al 5% o 6% del total de los casos de cáncer colorrectal.

---

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Estimated Relative and Absolute Risk of Developing Colorectal Cancer (CRC)

<table>
<thead>
<tr>
<th>Family History</th>
<th>Relative Risk for CRC</th>
<th>Absolute Risk of CRC by Age 79</th>
</tr>
</thead>
<tbody>
<tr>
<td>No family history</td>
<td>1</td>
<td>4%¹</td>
</tr>
<tr>
<td>One first-degree relative with CRC</td>
<td>2.3 (95% CI, 2.0–2.5)</td>
<td>9%¹</td>
</tr>
<tr>
<td>More than one first-degree relative with CRC</td>
<td>4.3 (95% CI, 3.6–6.1)</td>
<td>16%²</td>
</tr>
<tr>
<td>One affected first-degree relative diagnosed with CRC before age 45 y</td>
<td>3.9 (95% CI, 2.4–6.2)</td>
<td>15%²</td>
</tr>
<tr>
<td>One first-degree relative with colorectal adenoma</td>
<td>2.0 (95% CI, 1.6–2.6)</td>
<td>8%²</td>
</tr>
</tbody>
</table>

CI = Confidence interval  
¹ = Data from the surveillance, epidemiology, and end results database  
² = The absolute risks of CRC for individuals with affected relatives was calculated using the relative risks for CRC and the absolute risk of CRC by age 79 y.

As mentioned on the previous slide, inherited gene mutations being the cause of colorectal cancer is a small percentage in overall cases. However, these patients do have higher increased risk of developing the cancer compared to the general sporadic colon cancer patients. Mutation in the APC gene, which is a tumor suppressor gene, is shown in familial adenomatous polyposis and Gardner syndrome. Mutation in DNA repair gene is seen in hereditary nonpolyposis colon cancer, or HNPCC, also known as the Lynch syndrome. Peutz-Jeghers syndrome is known to have a mutation in STK11 gene, which is also thought to be a tumor suppressor gene. A mutation in MDAH4 [speaker meant to say MADH4] gene is associated with the juvenile polyposis.

Etiology

Inherited gene mutations

- Mutation in APC gene (tumor suppressor gene)
  - Familial adenomatous polyposis (FAP)  
  - Gardner syndrome
- Mutation in DNA repair gene
  - Hereditary nonpolyposis colon cancer (HNPCC) aka Lynch syndrome
- Mutation in STK11 gene (thought to be the tumor suppressor gene)
  - Peutz-Jeghers syndrome
- Mutation in MADH4 gene
  - Juvenile polyposis

This chart describes the relative and absolute risk of developing colorectal cancer, based upon the patient's family history, mainly looking into the involvement of first-degree relatives with colorectal cancer. And, as you could tell, the more patients with first-degree --- more than one first-degree relative with colorectal cancer diagnosis have the higher risk of developing cancer themselves. And, the close second will be one affected first-degree relative diagnosed with colorectal cancer before the age of 45.

Esta tabla describe el riesgo relativo y absoluto de desarrollar cáncer colorrectal, basado en el historial familiar del paciente y buscando principalmente familiares de primer grado con este tipo de cáncer. Como pueden apreciar, los pacientes con más de un familiar de primer grado con diagnóstico de cáncer colorrectal son quienes tienen mayor riesgo de desarrollar cáncer. Los siguientes en riesgo son aquellos con un familiar de primer grado diagnosticado con cáncer colorrectal antes de los 45 años.

As mentioned on the previous slide, inherited gene mutations being the cause of colorectal cancer is a small percentage in overall cases. However, these patients do have higher increased risk of developing the cancer compared to the general sporadic colon cancer patients. Mutation in the APC gene, which is a tumor suppressor gene, is shown in familial adenomatous polyposis and Gardner syndrome. Mutation in DNA repair gene is seen in hereditary nonpolyposis colon cancer, or HNPCC, also known as the Lynch syndrome. Peutz-Jeghers syndrome is known to have a mutation in STK11 gene, which is also thought to be a tumor suppressor gene. A mutation in MDAH4 [speaker meant to say MADH4] gene is associated with the juvenile polyposis.

- Mutation in APC gene (tumor suppressor gene)  
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  - Gardner syndrome
- Mutation in DNA repair gene
  - Hereditary nonpolyposis colon cancer (HNPCC) aka Lynch syndrome
- Mutation in STK11 gene (thought to be the tumor suppressor gene)
  - Peutz-Jeghers syndrome
- Mutation in MADH4 gene
  - Juvenile polyposis

http://www.cancer.gov/cancertopics/pdq/genetics/colorectal/HealthProfessional/page4
### Absolute Risks of Colorectal Cancer for Mutation Carriers in Hereditary Colorectal Cancer Syndromes

<table>
<thead>
<tr>
<th>Syndrome</th>
<th>Absolute Risk in Mutation Carriers</th>
</tr>
</thead>
<tbody>
<tr>
<td>FAP</td>
<td>90% by age 45 y</td>
</tr>
<tr>
<td>Attenuated FAP</td>
<td>69% by age 80 y</td>
</tr>
<tr>
<td>Lynch Syndrome/HNPCC</td>
<td>40% to 80% by age 75 y</td>
</tr>
<tr>
<td>Mu Y Homologue-associated neoplasia</td>
<td>Not established</td>
</tr>
<tr>
<td>Peutz-Jeghers Syndrome</td>
<td>39% by age 70 y</td>
</tr>
<tr>
<td>Juvenile polyposis</td>
<td>17% to 68% by age 60 y</td>
</tr>
</tbody>
</table>

This chart describes as absolute risk factors for colorectal cancer for mutation carriers in hereditary colorectal cancer syndromes. In this chart, it shows that FAP does have the highest absolute risk in mutation carriers where there is a 90 percent risk by age 45 years old. Lynch syndrome also has a higher absolute risk of 40 percent to 80 percent by the age 75.

### Etiology

- Other risk factors for colorectal cancer
  - Diet high in total fat and meat (both red and white meat)
  - Cigarette smoking
  - Sedentary lifestyle
  - Inflammatory bowel disease (IBD)
  - Older age
  - Low fiber diet
  - Obesity

Other risk factors for colorectal cancer includes diet high in total fat and meat, including both red and white meat, cigarette smoking, sedentary lifestyle, inflammatory bowel disease, older age, low fiber diet, and obesity.

Esta tabla muestra los factores de riesgo absoluto de cáncer colorrectal para los portadores de mutaciones en los síndromes hereditarios. La poliposis adenomatosa familiar o FAP tiene el mayor riesgo absoluto en los portadores, con un riesgo del 90% a los 45 años. El síndrome de Lynch también tiene un mayor riesgo absoluto, de 40 a 80% a los 75 años.

Otros factores de riesgo de cáncer colorrectal son una dieta con alto contenido de grasa total y carnes rojas o blancas, tabaquismo, estilo de vida sedentario, enfermedad inflamatoria intestinal, edad avanzada, dieta baja en fibra y obesidad.
Screening and Diagnosis

- Patients without increased risk of colorectal cancer should undergo screening at age 50.
- Patients with increased risk for colorectal cancer (i.e., personal/family history of colorectal cancer, adenomatous polyps, IBD) should undergo screening before age 50.

Colorectal Cancer Screening Methods

<table>
<thead>
<tr>
<th>Test Type</th>
<th>Pros</th>
<th>Cons</th>
</tr>
</thead>
</table>
| Fecal Occult Blood Test (FOBT) | - No preparation required  
- Can be completed at home  
- Not an invasive test  
- False positive test results  
- Fail to detect most polyps and/or cancer  
- Additional test for abnormal finding | - False positive test results  
- Fails to detect most polyps and/or cancer  
- Additional test for abnormal finding |
| Sigmoidoscopy (flex sig)      | - Quick with minimal discomfort  
- Can be performed in physician office  
- Obtain tissue biopsy  
- Requires some bowel preparation  
- Only able to exam the lower half of the colon and rectum | | |
| Colonoscopy                   | - Most sensitive test currently available to diagnose or screen for colorectal cancer  
- Able to obtain tissue biopsy/remove polyps  
- Thorough bowel preparation  
- More invasive than other tests  
- Thorough bowel preparation  
- Colonoscopy to remove polyps if found | - Thorough bowel preparation  
- Colonoscopy to remove polyps if found  
- Colonoscopy to remove polyps if found  
- Requires some bowel preparation  
- Only able to exam the lower half of the colon and rectum  
- False positive test results |
|Virtual Colonoscopy            | - Not an invasive procedure  
- Obtain tissue biopsy/remove polyps  
- Only able to exam the lower half of the colon and rectum | |
| Double Contrast Barium Enema (DCBE) | - Complications are rare  
- Does not require sedation  
- Obtain tissue biopsy/remove polyps  
- False positive test results | - Complications are rare  
- Does not require sedation  
- Obtain tissue biopsy/remove polyps  
- False positive test results |
|Digital Rectal Exam (DRE)      | - Most simple test  
- Usually part of physical exam | - Only able to detect abnormalities in the lower rectum |

Los pacientes sin riesgo incrementado deben hacerse exámenes de detección a partir de los 50 años, mientras que los pacientes con mayor riesgo o historia familiar de cáncer colorrectal, pólipos adenomatosos o enfermedad inflamatoria intestinal deben hacerlos antes de los 50.

This chart explains available test types for screening methods and other pros and cons. Fecal occult blood test is a very simple test that could be completed at home by the patient, but it does fail to detect most polyps and/or cancer, and also could show puls ---false positive results. Sigmoidoscopy is a common test that could be done in the physician’s office, and it is also helpful to obtain tissue biopsy. The limitation is that this study can only examine the lower half of the colon and the rectum. Colonoscopy is the most sensitive test currently available to diagnose or screen for colorectal cancer. And, this can obtain tissue biopsies and remove polyps, if needed. The thorough bowel preparation is required to undergo this test. Virtual colonoscopy is a noninvasive procedure. However, this also requires a thorough bowel prep. If abnormality is found, patient is required to have a colonoscopy done, and this also accounts for its limitations. Double bari --- or double contrast barium enema is a test where the patient is required to have a colonoscopy done, and this also accounts for its limitations.
complications are very rare. However, this also cannot remove polyps or obtain biopsy, if needed. A digital rectal exam is the most simple test usually done by the --- in the physician’s office. However, it can only detect abnormality in the lower rectum.

### Recommendations for Colorectal Cancer Screening

This chart describes --- I’m sorry --- this chart shows the frequency of the testing required for colorectal cancer screening. For general population with average risk, recommendation is for colonoscopy every 10 years or fecal occult blood test annually and flexible sigmoidoscopy every five years beginning at age 50. Depending on [the] patient’s risk factors or family history, the frequency of these screenings are shortened and most of the time the testing are started at a younger age than 50 years old.

<table>
<thead>
<tr>
<th>Patient (Pt) Populations</th>
<th>Screening Tests</th>
</tr>
</thead>
<tbody>
<tr>
<td>General population with average risk</td>
<td>Colonoscopy q 10y (preferred method), or FOBT annually and flex sig q 5 y beginning at age 50 y</td>
</tr>
<tr>
<td>First-degree relative with CRC</td>
<td>Colonoscopy every 3-5 yrs beginning at age 40 y or 10 y younger than youngest affected relative</td>
</tr>
<tr>
<td>Two related first-degree relatives with CRC</td>
<td>Colonoscopy every 3-5 yrs beginning at age 40 y or 10 y younger than youngest affected relative</td>
</tr>
<tr>
<td>Two related second-degree relatives with CRC</td>
<td>Colonoscopy every 5 yrs starting at age 50 y</td>
</tr>
<tr>
<td>Inflammatory bowel disease</td>
<td>Start screening 8-10 yrs after onset of symptoms. Colonoscopy every 1-2 yrs.</td>
</tr>
<tr>
<td>Family history of Classical FAP, mutation known</td>
<td>APC +: Flex sig or colonoscopy annually at age 10-15 y. APC -: Average risk screening</td>
</tr>
<tr>
<td>APC +: Flex sig or colonoscopy annually at age 10-15 y. APC -: Average risk screening</td>
<td></td>
</tr>
<tr>
<td>Family history of HNPCC</td>
<td>Colonoscopy every 1 y following resection or within 2-5 yrs after preoperative colonoscopy. Repeat every 2-3 yrs if negative/no polyps.</td>
</tr>
<tr>
<td>Family history of HNPCC</td>
<td>Colonoscopy every 1-2 yrs beginning at age 20-25 y or 2-5 yrs prior to the earliest colon cancer if diagnosed &lt; 25 y</td>
</tr>
<tr>
<td>Personal History of CRC</td>
<td>Colonoscopy in 1 yr following resection or within 2-5 yrs if complete/ incomplete resection/adenoma/SSP. Repeat every 2-5 yrs, then 3-5 yrs if free of adenomas/polyps.</td>
</tr>
</tbody>
</table>

www.NCCN.org; NCCN Guidelines TM Colorectal Cancer Screening Version 2.2011

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tiene complicaciones muy poco frecuentes, pero tampoco permite extirpar pólips o tomar biopsias. La prueba más simple es un examen rectal digital, generalmente en el consultorio médico, pero solo detecta anomalías en el recto inferior.
### Screening and Diagnosis

- Colonoscopy is currently the most sensitive test available for detection of colorectal cancer.

### Histology

<table>
<thead>
<tr>
<th>A</th>
<th>B</th>
</tr>
</thead>
<tbody>
<tr>
<td>Normal Colonic Mucosa</td>
<td>Hyperplastic Polyp</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>C</th>
<th>D</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adenocarcinoma</td>
<td>Adenomatous Polyp</td>
</tr>
</tbody>
</table>

[Okay]. I'll be discussing some histologies.

La colonoscopia es actualmente el examen más sensible para diagnosticar cáncer colorrectal.

Ahora hablaré ahora de histología.
### Histology

- **Immunohistochemical Markers**
  - Typical colorectal adenocarcinoma staining
    - CK7-, CK20+, CEA+, CDX2+ and TTF1-
  - Microsatellite instability (MSI) test
    - MSI-stable/low: No absent immunostains of mismatch repair proteins (MLH1, MSH2, MSH6, and PMS2)
    - MSI-high: Absent staining in one or more of mismatch repair proteins
      - Consider genetics counseling for MSI-high patients

### AJCC (TNM) Staging System

<table>
<thead>
<tr>
<th>Tumor</th>
<th>T1: Tumor invades submucosa</th>
<th>T2: Tumor invades muscularis propia</th>
<th>T3: Tumor invades through the muscularis propia into the subserosa, pericolic or perirectal tissues</th>
<th>T4: Tumor directly invades other organs or structures, and/or perforates the colon wall</th>
</tr>
</thead>
<tbody>
<tr>
<td>Node</td>
<td>N0: No regional lymph node metastasis</td>
<td>N1: Metastasis in 1 to 3 regional lymph nodes</td>
<td>N2: Metastasis in greater than 3 regional lymph nodes</td>
<td></td>
</tr>
<tr>
<td>Metastasis</td>
<td>M0: No distant metastasis</td>
<td>M1: Distant metastasis present</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>T1</th>
<th>T2</th>
<th>T3</th>
<th>T4</th>
</tr>
</thead>
<tbody>
<tr>
<td>N0</td>
<td>I</td>
<td>I</td>
<td>IIA</td>
</tr>
<tr>
<td>N1</td>
<td>IIIA</td>
<td>IIIA</td>
<td>IIIB</td>
</tr>
<tr>
<td>N2</td>
<td>IIIC</td>
<td>IIIC</td>
<td>IIIC</td>
</tr>
<tr>
<td>M1</td>
<td>IV</td>
<td>IV</td>
<td>IV</td>
</tr>
</tbody>
</table>

- Immunohistochemical markers: These are the typical colorectal cancer staining when seen under the microscope. These are po --- negative for CK7, positive for CK20, positive for CEA, positive for CDX2, and negative: TTF1. Microsatellite instability test is performed mainly for screening inherited cancer risk factors. MSI-low are stable, shows no absent immunostains of mismatch repair proteins. MSI-high suggests absence of staining in one or more of the mismatch repair proteins and for these MSI-high patients [he or she] should consider genetic testing to rule out or further evaluate possibility of inherited cancer genes, such as the Lynch syndrome.

- Marcadores inmunohistoquímicos: Son las típicas tinciones de cáncer colorrectal vistas al microscopio. Resultan negativas para CK7, positivas para CK20, CEA y CDX2, y negativas para TTF1. La prueba de inestabilidad de microsatélites o MSI detecta factores de riesgo de cáncer hereditario. Si es baja o estable, no hay ausencia de inmunotinciones en proteínas reparadoras de desapareamiento. Si es alta, muestra ausencia de tinción en una o más de estas proteínas, en cuyo caso se deben considerar pruebas genéticas para descartar o confirmar la posibilidad de genes de cáncer hereditario, como el síndrome de Lynch.

- The AJCC staging system is utilized for appropriate staging of colorectal cancer. T stands for the tumor, N for the node, and M for metastatic disease. This chart is actually the Sixth Edition of the AJCC Cancer Staging Guidelines.

- El sistema de estadificación del AJCC se utiliza para clasificar el cáncer colorrectal. T significa tumor; N, nódulo; y M, enfermedad metastásica. Esta tabla corresponde a la sexta edición de las Pautas de Estadificación del AJCC.
<table>
<thead>
<tr>
<th><strong>AJCC (TNM) Staging System</strong></th>
<th>This is an illustration of difference between Stage I through IV of the colon cancer.</th>
<th>Esta es una ilustración de las diferencias entre los estadios I y IV del cáncer de colon.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>AJCC (TNM) Staging System</strong></td>
<td>We do have the AJCC Seventh Edition available which can be obtained through this website listed.</td>
<td>Hay una séptima edición de las pautas, que se puede obtener del sitio web indicado en la pantalla.</td>
</tr>
<tr>
<td>• AJCC 7th edition cancer staging manual is current available</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- <a href="http://www.cancerstaging.org">www.cancerstaging.org</a></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Survivor Rate Based on Staging

This chart describes the survivor rate based upon the staging. Traditionally, the earlier the staging [the] better the five-year survival rate. And, as higher end staging or increased lymph node involvement decreases the overall five-year survival rate.

<table>
<thead>
<tr>
<th>Stage</th>
<th>5 Year Survivor Rate (Rectal)</th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
<td>74% (74%)</td>
</tr>
<tr>
<td>II A</td>
<td>67% (65%)</td>
</tr>
<tr>
<td>IIB</td>
<td>59% (52%)</td>
</tr>
<tr>
<td>IIC</td>
<td>37% (32%)</td>
</tr>
<tr>
<td>III A</td>
<td>73% (74%)*</td>
</tr>
<tr>
<td>III B</td>
<td>46% (45%)*</td>
</tr>
<tr>
<td>III C</td>
<td>28% (33%)</td>
</tr>
<tr>
<td>IV</td>
<td>6% (6%)</td>
</tr>
</tbody>
</table>

Data based on study of the National Cancer Institute’s SEER database, looking at more than 28,000 people diagnosed with colon cancer between 1998 and 2000

*In this study, survival was better for some stage III cancers than for some stage II cancers. The reasons for this are not clear.

Patient Referral

- Once the diagnosis of colorectal cancer has been made, patients should have a baseline tumor marker, the CEA, drawn along with standard lab work including CBCs and chemistries. Staging workup via imaging studies such as CT scan, MRI or PET-CT scan should be completed. CT scan is ideal for baseline and restaging workup. For rectal cancer, flexible sigmoidoscopy with EUS or MRI of the pelvis can be used to evaluate the T and the N staging preoperatively. Refer patients to oncologists for evaluation and management.

Esta tabla muestra la tasa de supervivencia según el estadío del paciente. Cuanto más incipiente es el estadío, tanto mayor es la tasa de supervivencia a cinco años. Si es más avanzado o es mayor el compromiso de los ganglios linfáticos, tanto menor es la tasa de supervivencia general.

- Si se diagnostica cáncer colorrectal, debe medirse como referencia el antígeno carcinoembrionario o CEA, un marcador tumoral, junto con análisis de laboratorio, un hemograma completo y análisis bioquímicos. También se debe evaluar el estadío con tomografía computarizada, resonancia magnética o tomografía de positrones. La tomografía computarizada es ideal para referencia y reestadificación. En el cáncer rectal, la sigmoidoscopia flexible con ecografía endoscópica y la resonancia magnética de pelvis permiten evaluar el estadío tumoral y nodular antes de la operación. Refiera a los pacientes a oncólogos para su evaluación y tratamiento.
This chart shows an algorithm on referral process for patients newly diagnosed with colon cancer. Once the diagnosis of colon cancer has been made, it is recommended to obtain baseline CEA and CT including the chest, abdomen, and pelvis. If the patient is found not to have metastatic disease, then they should be referred to a colorectal surgeon for resection. Based upon the staging, the patient will then receive appropriate treatment, if necessary. For patients with metastatic disease at the time of presentation, it is recommended for them to be referred to a medical oncologist to initiate systemic therapy. If the patient presents with obstructive symptoms, they could be considered to be referred to a surgeon for possible diverting surgery or stent placement.

For patients with newly diagnosed rectal cancer, the initial workup is similar, including the baseline CEA and CT of the chest, abdomen, and pelvis. But, in addition to this, we rec --- rec --- recommend obtaining a flexible sigmoidoscopy with EUS or MRI of the pelvis for the preoperative T and N staging. Patients without metastatic disease and was found to have Stage I rectal cancer, they should be referred to the colorectal surgeon for resection followed by surveillance. For patients with Stage II or III rectal cancer, [he or she] should be referred to the radiation oncologist and medical oncologist for neoadjuvant chemoradiation therapy followed by resection by the colorectal surgeon. These patients will then go on to receive the adjuvant therapy as needed. A patient who is found to have metastatic disease at time of presentation should be referred to the medical oncologist for initiation of systemic therapy. Again, if the patient presents with obstructive symptoms, bleeding, or severe rectal pain, they sh --- may benefit from evaluation by the surgeon and/or radiation oncology.

Este gráfico muestra el algoritmo para referir pacientes recientemente diagnosticados con cáncer de colon. Luego del diagnóstico, se recomienda medir el CEA de referencia y hacer tomografías de tórax, abdomen y pelvis. Si el paciente no tiene enfermedad metastásica, debe ser referido a un cirujano colorrectal para una resección. Luego, el paciente recibirá el tratamiento apropiado para su estadificación. Se recomienda referir los pacientes con enfermedad metastásica a un oncólogo médico a fin de iniciar una terapia sistémica. Si el paciente presenta síntomas obstructivos, se puede referir a un cirujano para una cirugía de desviación o colocación de un stent.

Para los pacientes con cáncer rectal reciente, la evaluación inicial es similar e incluye el CEA de referencia y tomografías de tórax, abdomen y pelvis. También recomendamos una sigmoidoscopia flexible con ecografía endoscópica o una resonancia de pelvis para determinar el estadío tumoral y nodular antes de la operación. Los pacientes sin metástasis y con cáncer de recto de estadio I deben ser referidos a un cirujano colorrectal para una resección seguida de monitoreo. Los pacientes con cáncer rectal de estadio II o III deben ser referidos al radiooncólogo y al oncólogo médico para terapia de quimiorradioterapia neoadyuvante, seguida de una resección por el cirujano colorrectal. Luego recibirán terapia adyuvante, según sea necesario. Un paciente con enfermedad metastásica debe ser referido a un oncólogo médico para iniciar una terapia sistémica. Si presenta síntomas obstructivos, sangrado o dolor rectal grave, puede beneficiarse de la evaluación del cirujano colorrectal.
## Summary

- Colorectal cancer is the second leading cause of cancer-related deaths in the United States when both sexes are combined.
- It is a preventable disease (in many cases) with routine screening.
- Importance of identifying patient population at increased risk of colorectal cancer early on to start screening.
- Efficient referral process to an oncologist once the diagnosis has been made.

In summary, colorectal cancer is the second leading cause of cancer-related death in the United States when both sexes are combined. It is a preventable disease in many cases with routine screening. It is important to identify a patient population at increased risk of colorectal cancer early on to start the screening, and once the diagnosis of cancer has been made, to efficiently refer these patients to an oncologist. Thank you very much for your time. We appreciate any feedback. Thank you.

El cáncer colorrectal es la segunda causa de muerte relacionada con el cáncer en los Estados Unidos cuando se combinan ambos sexos. Es importante identificar precozmente la población de pacientes con mayor riesgo de cáncer colorrectal para iniciar los exámenes. Si se diagnostica cáncer, deben ser referidos a un oncólogo. Muchas gracias por su tiempo. Agradeceremos cualquier comentario. Gracias.