

# **Colorectal Cancer**

## **Treatment of a Preventable Disease**

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**Fairfax Colon & Rectal Surgery**

# Fairfax Colon And Rectal Surgery



- Largest colorectal surgery practice in DC-Baltimore region
- Provide CRS service to entire No. VA area
- Perform 60-70% of all Surgeries for CRC in No VA

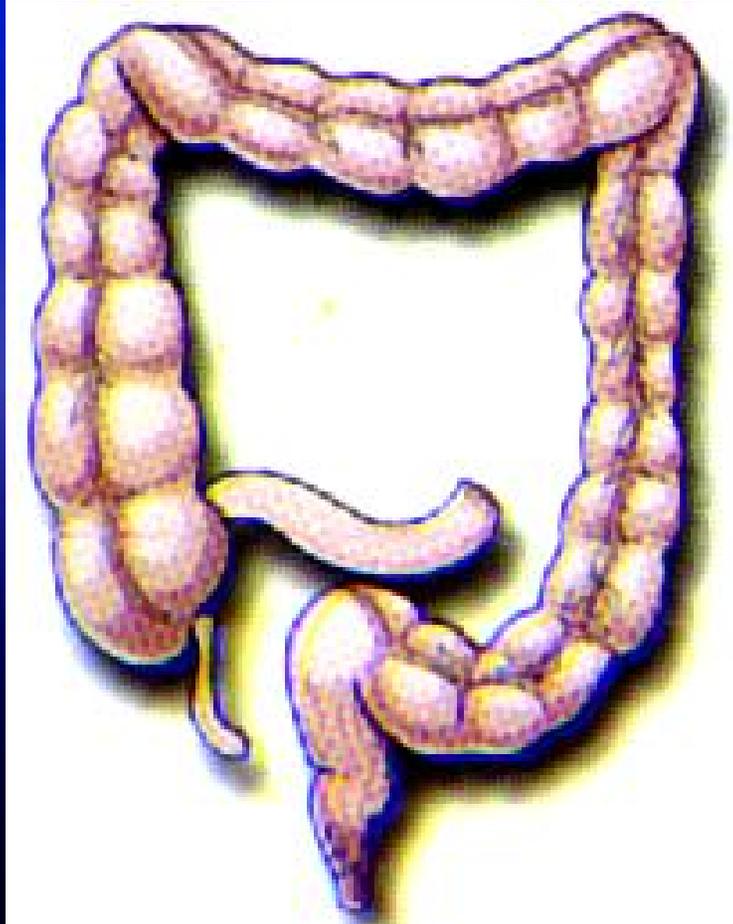
# Objectives: Answer three questions

1. Why Me?
2. Will I need a bag (a colostomy)?
3. Am I going to die from this?

# Objectives: Answer three questions

1. Why Me?
  1. Where does CRC come from?
  2. What causes it?
2. Will I need a bag (a colostomy)?
  1. How is CRC treated?
  2. What does the surgery entail?
  3. How often is a stoma necessary and will it be permanent?
3. Am I going to die from this?
  1. What determines the prognosis?
  2. How can we improve the prognosis?
  3. How can my family avoid having to go through this themselves?

# But first a little anatomy:



## The Large Intestine:

### 1.Colon

About 5 ft long

Absorbs water from waste

Little role in nutrition

### 2.Rectum

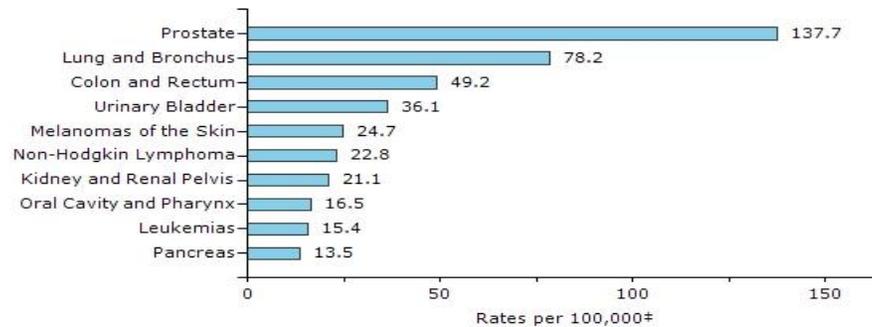
8 - 10 inches long

Stores waste

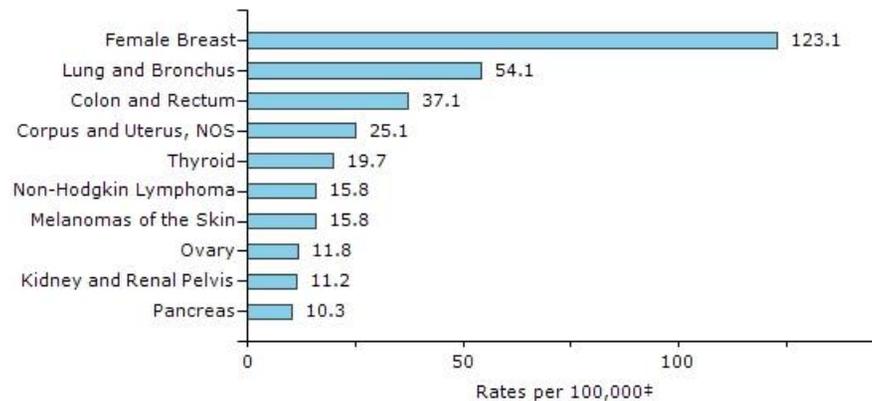
Very compliant - allows us to delay defecation.

# Incidence of Colorectal Cancer

Top 10 Cancer Sites: 2009, Male, United States—All Races



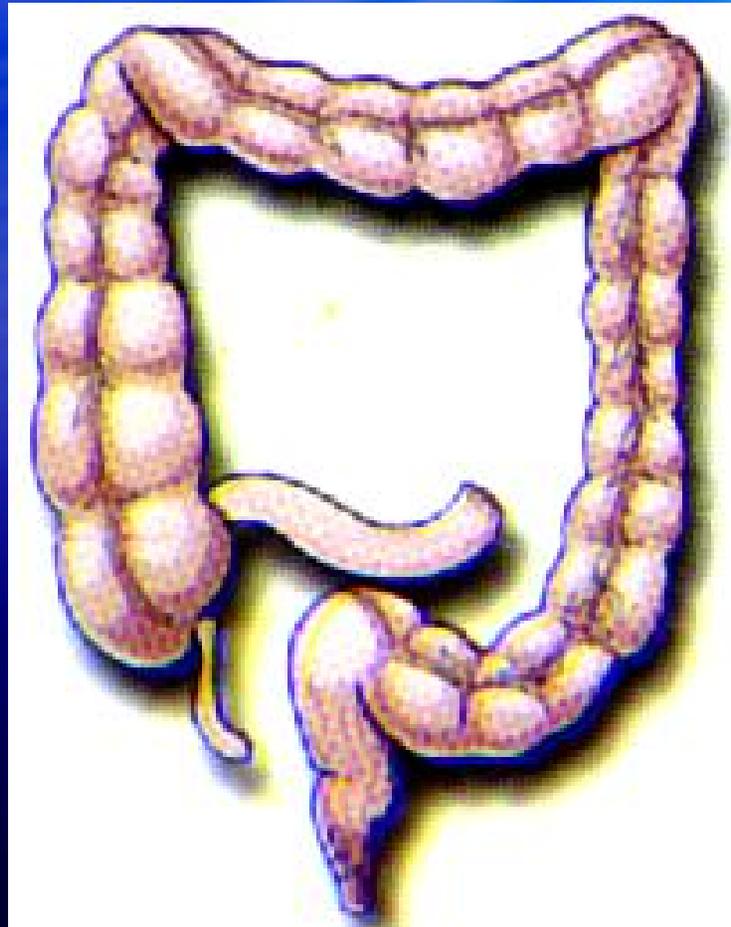
Top 10 Cancer Sites: 2009, Female, United States—All Races



- 148,000 new cases per year in U.S.
- 3rd most common cancer for men and women
- 2nd leading cause of cancer death
- White=Black=Asian
- Average age at diagnosis: 62 yrs

# Colorectal Cancer: Location

10% transverse



15% Descending

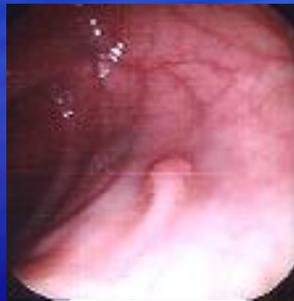
25% right  
colon

50% rectosigmoid

# 1. Why Me? What causes CRC?

- Polyps
  - Genetic Factors
  - Environmental Factors
  - Other Risk Factors

# Adenoma - Carcinoma Sequence



**Dwell Time ~ 10 years**

# Genetic mutation -> Polyp

- Colonic mucosa cells are constantly sloughed and replaced.
- Constant opportunity for gene mutations which could stimulate polyp growth.
- There are genes that repair gene mutations.
- If the repair gene mutates and doesn't work -> polyp
- Gene mutations may be:
  - 1) Inherited: head start on cancer (cancer at an earlier age)
  - 2) Stimulated by the environment

# 1. Why Me? What causes CRC?

- Polyps
- Genetic Factors
  - <5% of CRC due to identifiable inherited gene mutation
  - 25% Familial but don't know the gene
  - 75% develop from sporadic gene mutations
- Environmental Factors
- Other Risk Factors

# Genetic Factors

- Hereditary CRC

- FAP (1% of CRC)

- Develop 100s of polyps at early age
    - 100% will develop CRC by age 40
    - Defect in the APC gene on Chromosome 5

- HNPCC (<5% of CRC)

- No polyposis, cancer develops <50yr
    - Often in right colon
    - High risk of another colon cancer within 10yrs
    - Higher incidence of other cancers
    - Six different causative genes have been identified

- Undefined Familial CRC (20% of CRC)

- Strong family histories without an identifiable gene mutation

# Genetic Factors

- Hereditary CRC - Fam Hx/Genetic testing
  - FAP
  - HNPCC
  - Undefined Familial
- Sporadic CRC
  - Environmental factors

# 1. Why Me? What causes CRC?

- Polyps
- Genetic factors
- Environmental factors
  - Diet: low fiber, high fat diets
  - Activity level: Sedentary life style increases risk
  - Alcohol intake: increase 1.5 - 2X
  - Colonic Biom: role of type of bacteria in colon?
- Other Risk Factors
  - Inflammatory bowel disease
  - Prior radiation exposure

## 2. Will I need a bag? Treatment

### Colon Cancer vs. Rectal Cancer

- Colon Cancer
  - Straightforward evaluation
  - Surgery the primary mode of treatment
  - Radiation rarely ever utilized
- Rectal Cancer
  - Complex pre-operative evaluation
  - Technically challenging surgery
  - Often requires pre-operative chemoradiation for best results

# Preoperative Evaluation

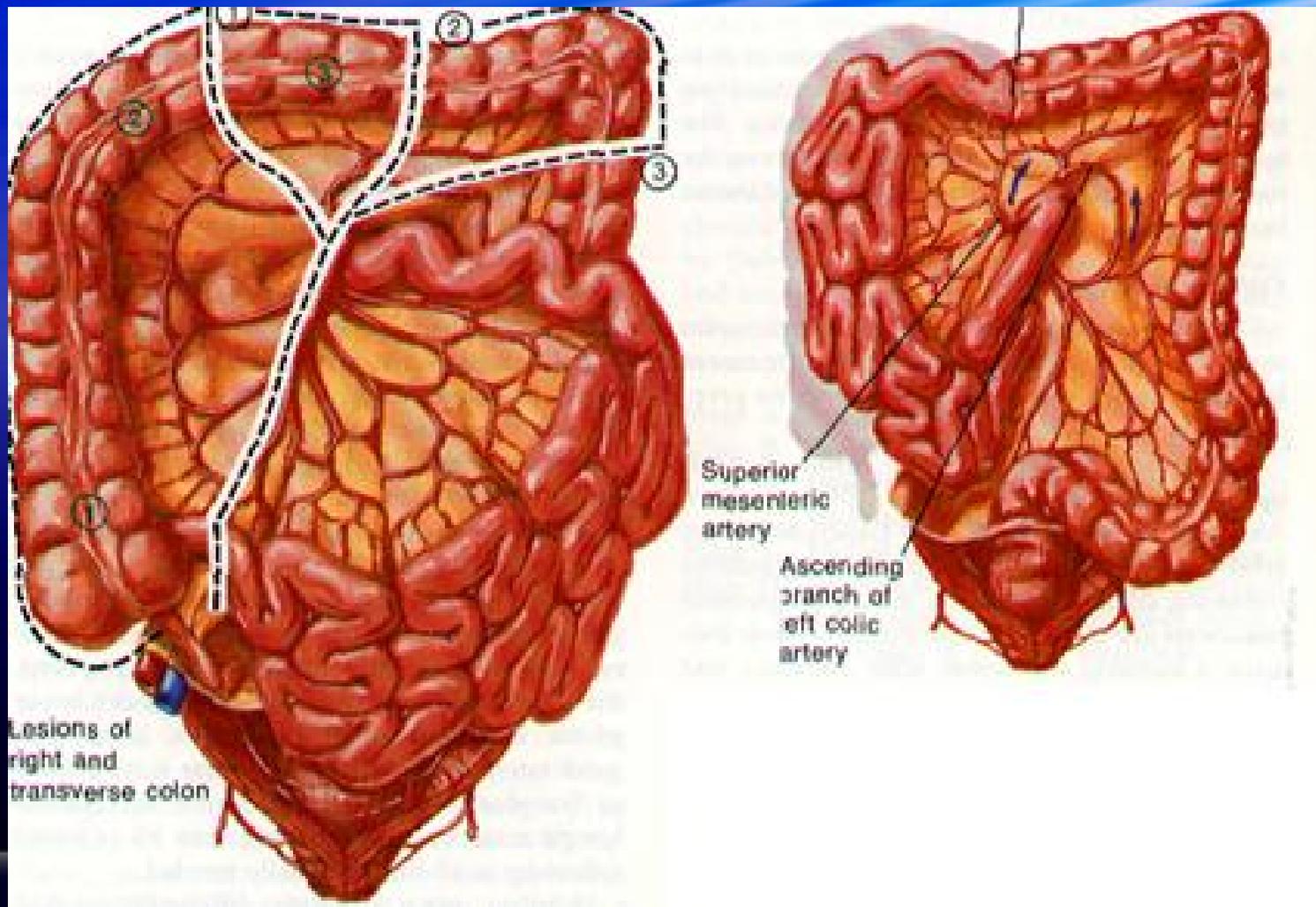
## Colon Cancer

- Colonoscopy
  - Find/remove other polyps, synchronous cancer
- CT scan of Chest, Abdomen & Pelvis
  - Assess for tumor invasion into adjacent organs
  - Assess for distant metastases
- ± PET Scan
  - A functional scan: Lights up areas likely to be cancer found on CT
- CEA Level
  - Blood test
  - Tumor marker for CRC
  - Level is followed postoperatively for recurrences

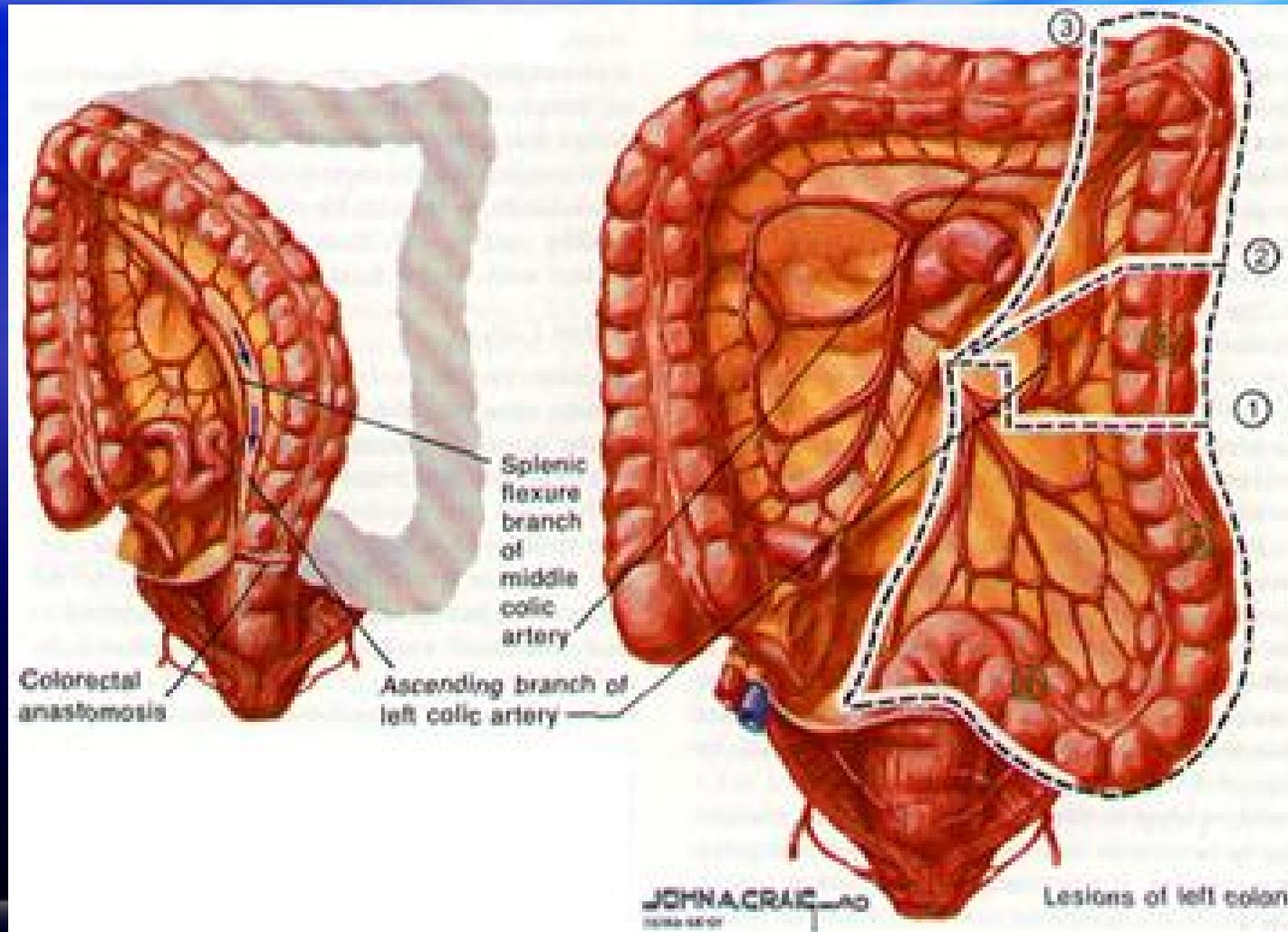
# Colon Cancer Resection Principles

- Wide margin on the cancer
- Remove lymph node drainage
- Maintain good blood supply to remaining segment
- No tension on the anastomosis
- Maintain function
- Performed laproscopically when feasible

# Right Colectomy



# Left Colectomy



# Colonic Resections

- Right Colectomy
- Left Colectomy
- Subtotal colectomy
  - Hereditary-linked cancer patients
  - Multiple cancers/polyps
  - Metachronous cancers
- Stomas not usually required
  - Emergencies
  - Poor health/nutritional status
- Most done Laproscopically
- Normal function is maintained in 90%
  - Healthy rectum
  - Normal anal sphincter

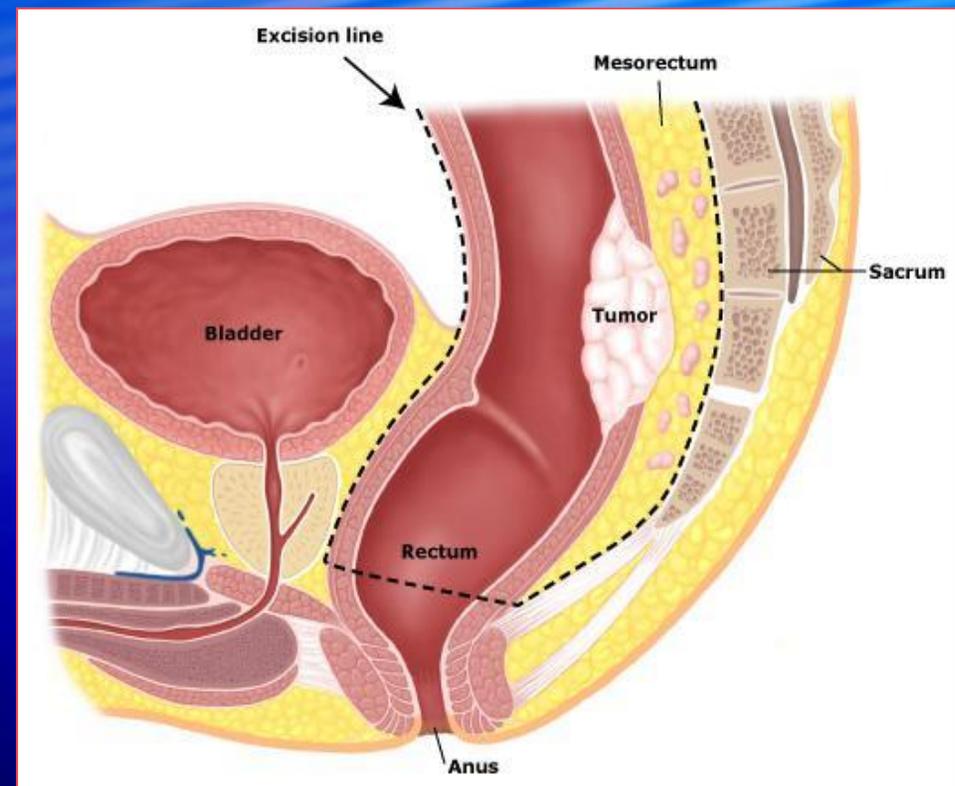
# Laparoscopic Colectomy

- 3-4 small incisions
- Less pain
- Faster return of bowel function
- Faster recovery
- Equal cancer outcomes to open surgery



# Rectal Cancer: A whole different animal

- Develops within the confines of boney pelvis
- Spread to structures that can't be removed easily
- Local recurrence rates higher than colon cancer
- Anal sphincter at risk



# Rectal Cancer: A whole different animal

## Pre-operative Evaluation Essential

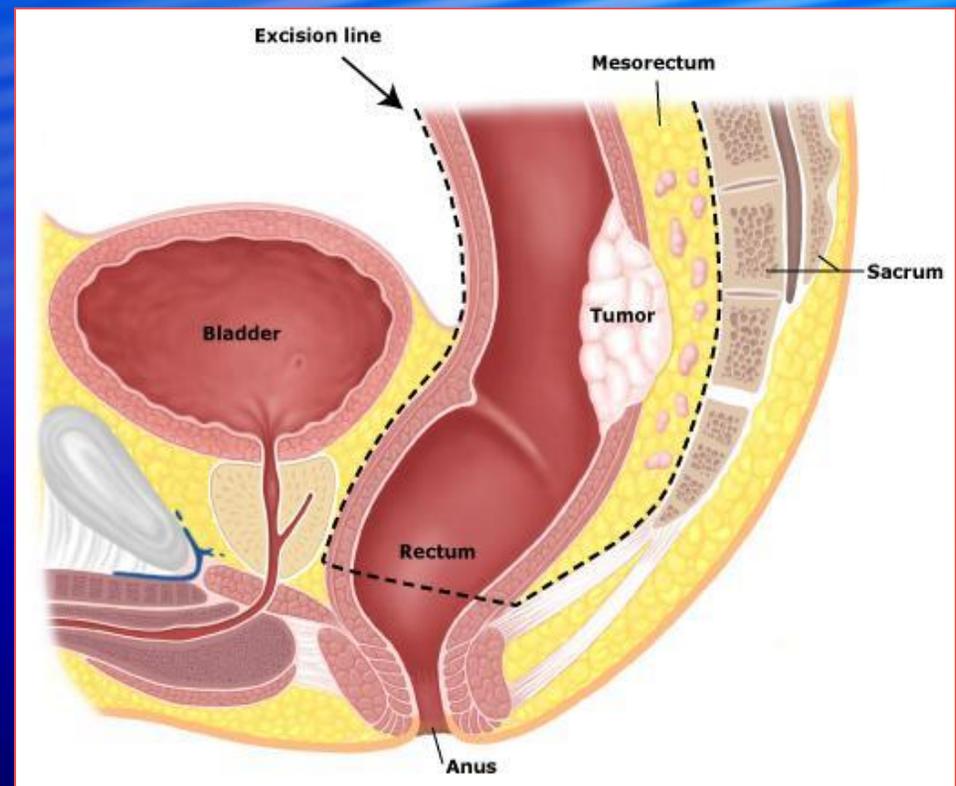
1. Evaluate the position of the tumor
  1. Digital rectal exam
  2. Rigid Proctoscopy  
How big, how far, what wall is it on?
  
2. Evaluate the extent of tumor present
  1. Transrectal ultrasound
  2. Pelvic MRI  
How far into the rectal wall, any enlarged nodes?
  
3. Evaluate for distant spread
  1. CT scan Chest Abdomen & Pelvis
  2. PET Scan

# Rectal Cancer: Treatment

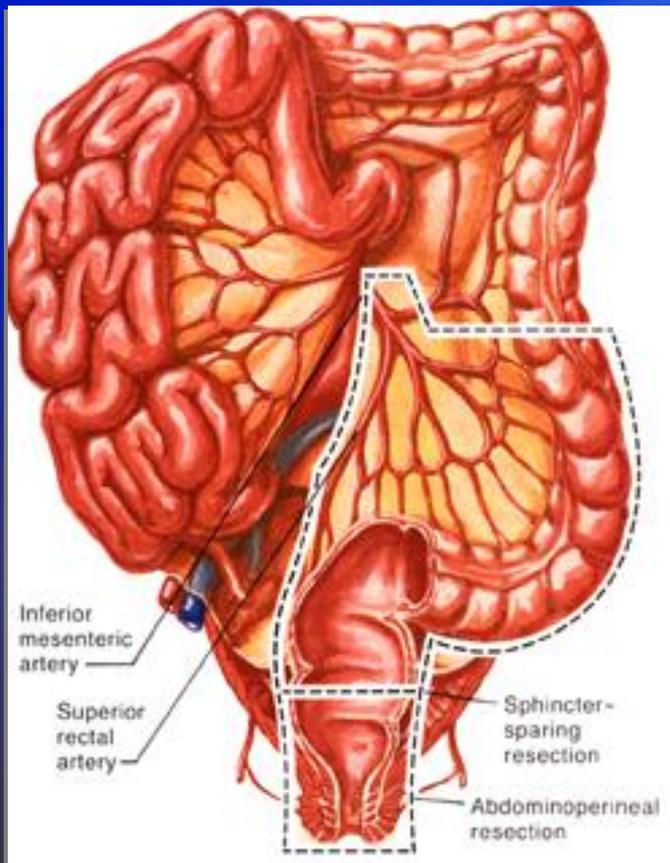
If tumor through the rectal wall or Nodes+:

Pre-operative XRT and chemotherapy given

- Shrink tumor
- Clear tumor from nodes and surrounding tissue
- Lowers local recurrence rates



# Rectal Cancer - Treatment

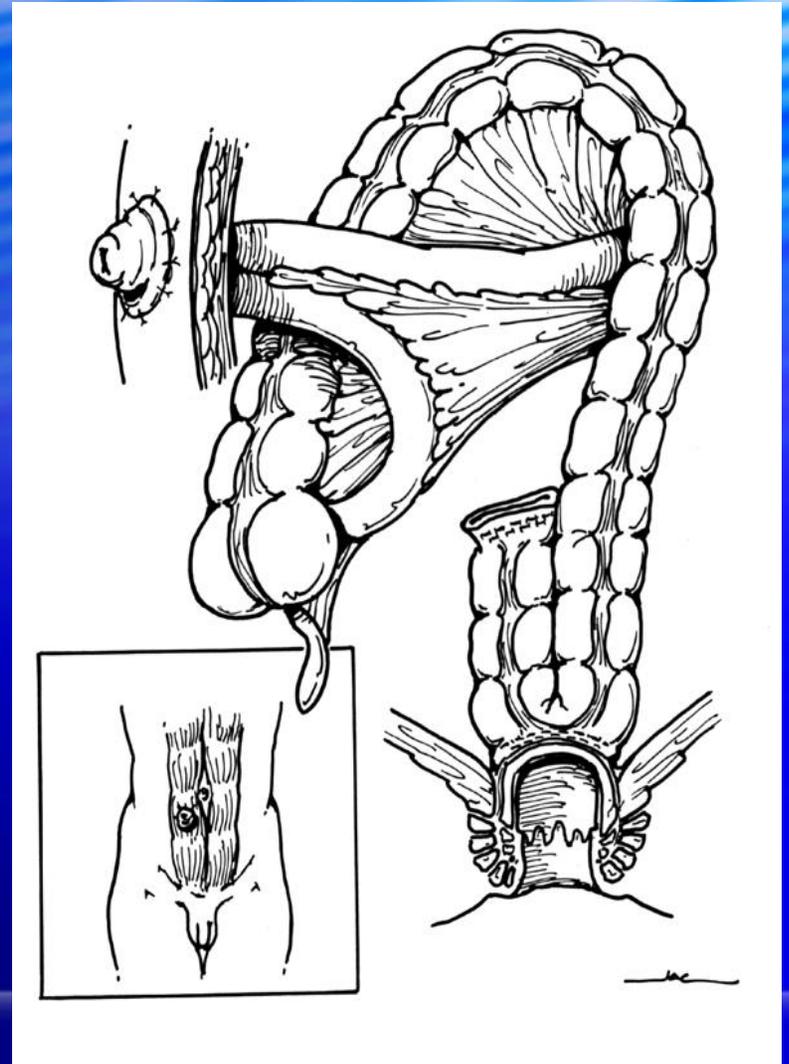


- Low Anterior Resection
  - Remove rectum, connect colon to anal canal
- Done 6-8 weeks after Radiation Tx
- If radiation given, will need a temporary ileostomy

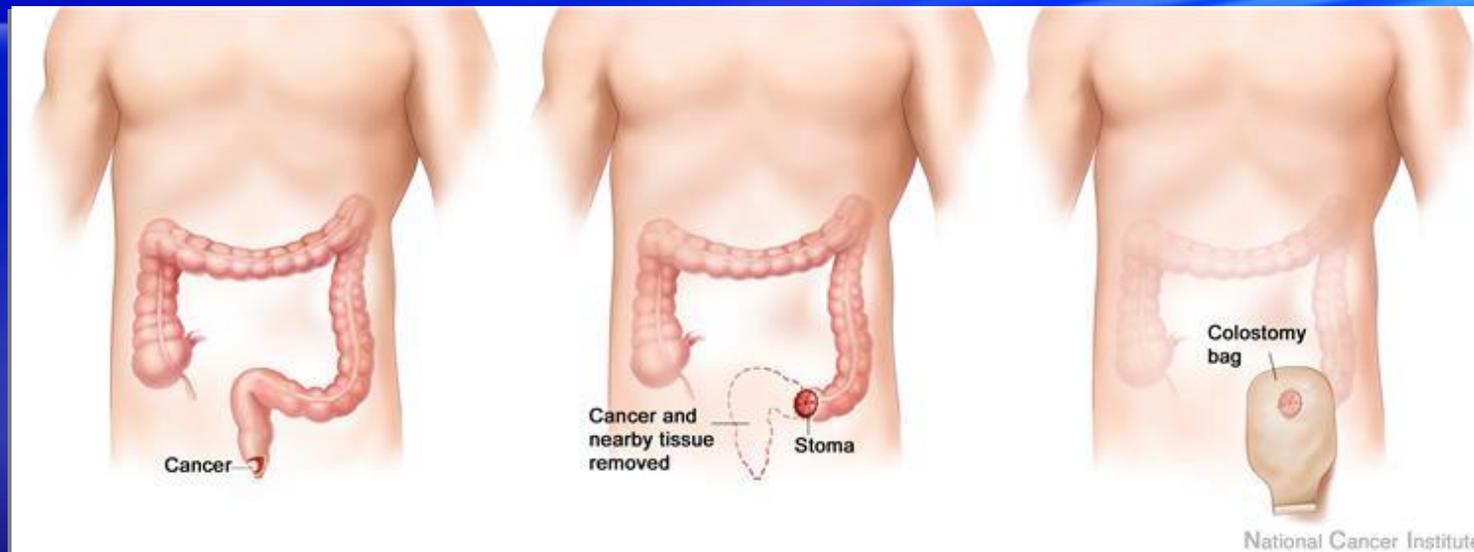
# Loop Ileostomy

## Ileostomy

- Delayed healing due to XRT/chemo
- Patient often require postoperative chemotherapy
- Closed in 6 months



# Rectal Cancer - Treatment



- Abdominal Perineal Resection
  - Necessary when tumor is adjacent to anal canal
  - Removing the tumor requires excision of anus as well
  - Permanent colostomy required.

# LAR and APR

- Technically difficult procedures
- Higher risk of complications
- Higher risk of effects on bowel function
- Can be performed as an open operation, Laproscopically or Robotically

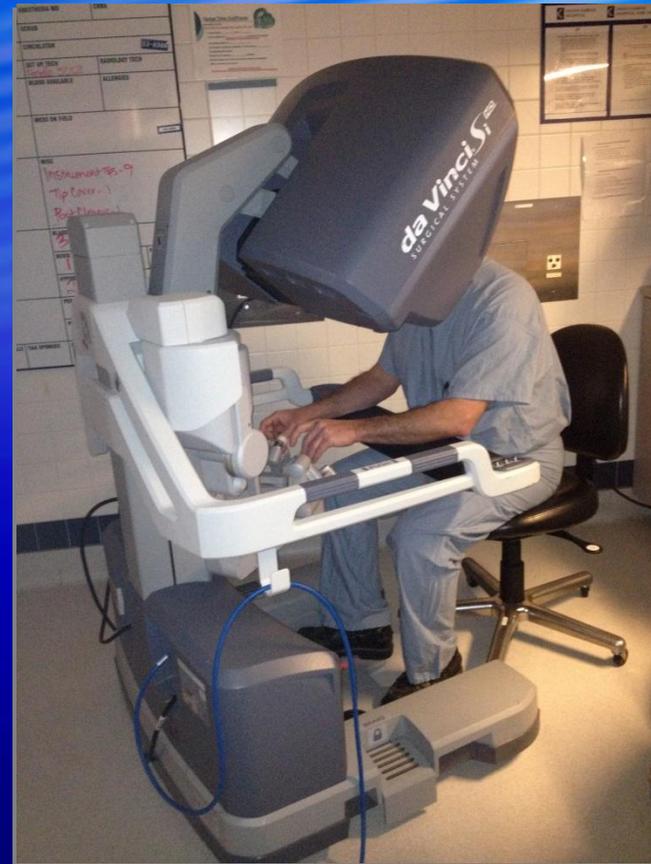
# Robotic Colectomy



- A laproscopic tool
- Greater magnification, 3-D image
- Instruments have greater flexibility at point of dissection
- Where's the surgeon?

# Robotic Colectomy

- Surgeon sits at consol - potentially could be in another country!
- Surgeon controls all robot arms
- Requires extensive training
- Most useful for pelvic dissections
- True added value still be evaluated



# Will I need a bag?

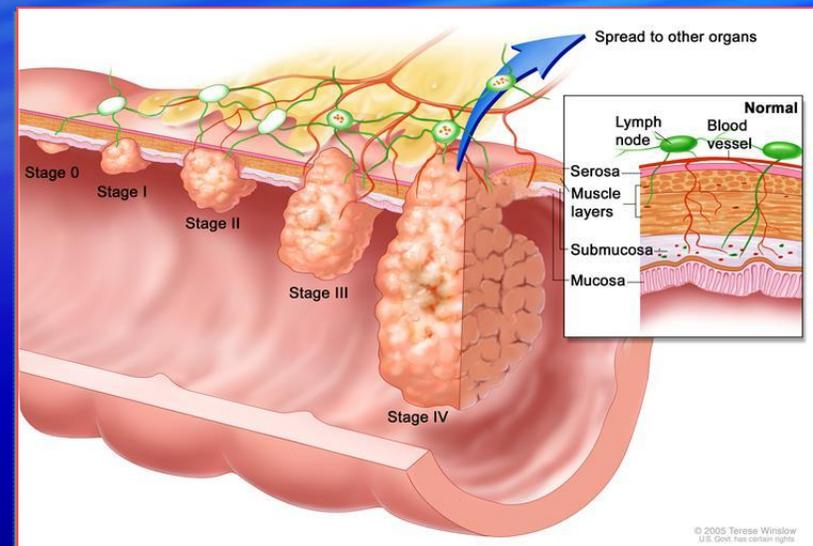
- Vast majority of CRC patients will not require a stoma
- Approximately 10% will need a temporary stoma
- < 5% will need a permanent stoma

# Am I going to Die? Prognosis

The Stage at time of diagnosis is the most important determinant of prognosis

Stage determined by:

1. Extent of tumor into bowel wall
2. Presence of + nodes
3. Presence of distant spread



# Am I going to Die? Prognosis

## Staging and Survival

Stage	Survival
I	90-95%
II	75-85%
III	45-55%
IV	5-8%*

\*Advances in Chemotherapy and radiation treatment for metastases have substantially improved length of survival

# Am I going to Die? Prognosis

## Other determinants of survival:

- Other histologic tumor factors
  - Differentiation of the tumor
  - Neuro/microvascular invasion
- General health of the patient
- The experience/ability of the surgeon
  - Operations done by less experienced surgeons have higher rates of tumor recurrence

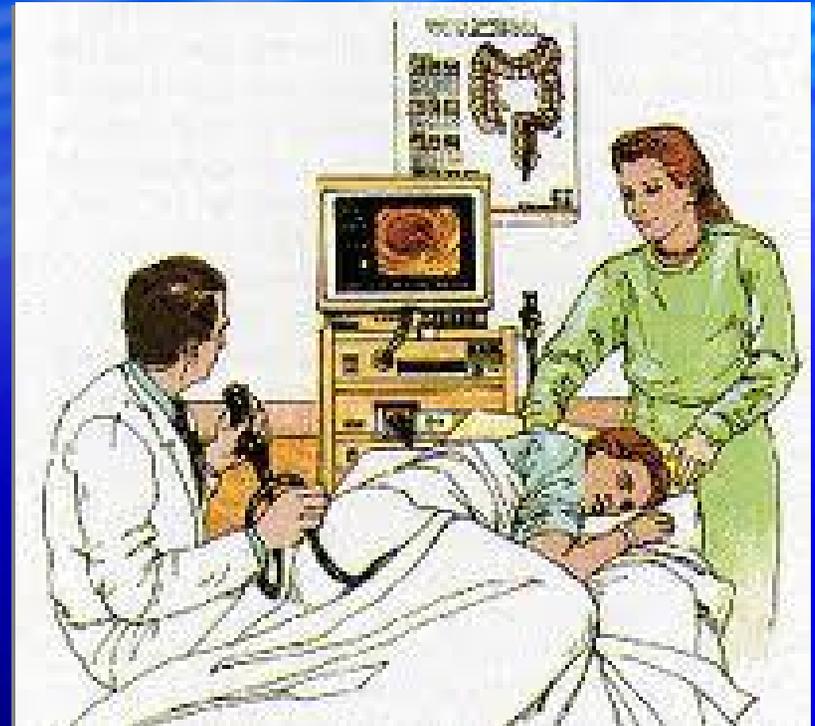
**How to improve the prognosis?**

**How Do I avoid all this?**

The answer is very simple.

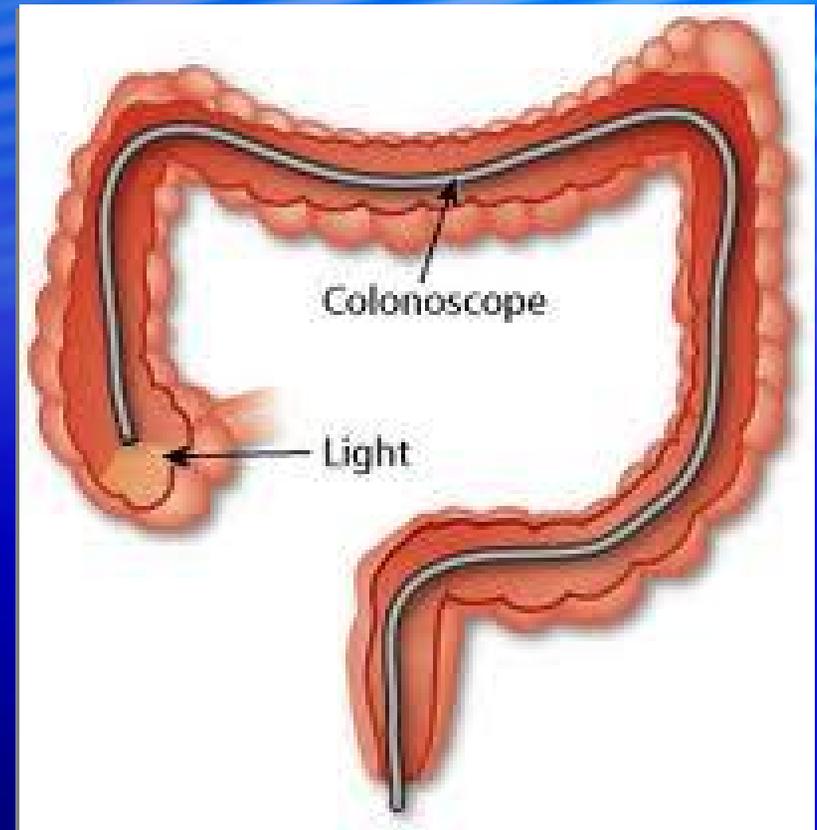
# Get a colonoscopy!!

- Colon polyps and early colon cancers are almost always asymptomatic
- Waiting for a symptom to occur increases the chance tumor will be found at latter stage
- Lack of a family history is not a reason to delay
  - 75% of patients with colorectal cancer had no family history



# Colonoscopy

- Finds and removes polyps before they become cancers
- Done under sedation
- Extremely safe
- Colonoscopy saves lives



# Colonoscopy Guidelines

No family history of colon cancer or polyps:

First colonoscopy at age 50

If normal scope, repeat in ten years

+ Family history of polyps/colon cancer:

First scope at age 40

If normal, repeat every five years

+ Family history of colon cancer age <50 yrs

First scope ten years prior to age of affected family member was diagnosed

If normal repeat every five years, consider genetic testing

**Thank you**

Questions?

# Total Mesorectal Excision

