

# Colon Cancer Screening

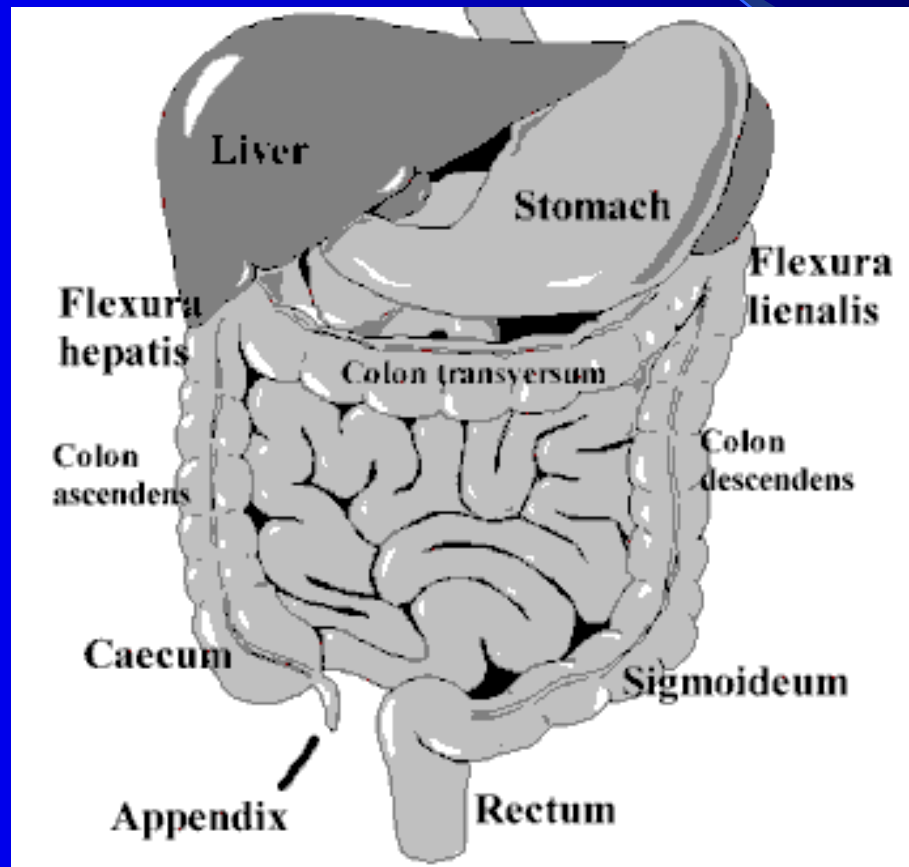
**Gina C. Guzman, MD**

**Second Vice President & Medical Director**

**Munich American Reassurance Company**



# Anatomy



# Colon Cancer Statistics

- Third most common cancer in the USA
- Five to six of every 100 people will develop colorectal cancer in their lifetime
- #1 cause of cancer death in non-smokers
- 150,000 new cases in 2005
- 56,000 will die from it

American Cancer Society



# Good News!

Colon cancer can be  
**PREVENTABLE!**

Colon cancer can be  
**CURABLE** if found early!

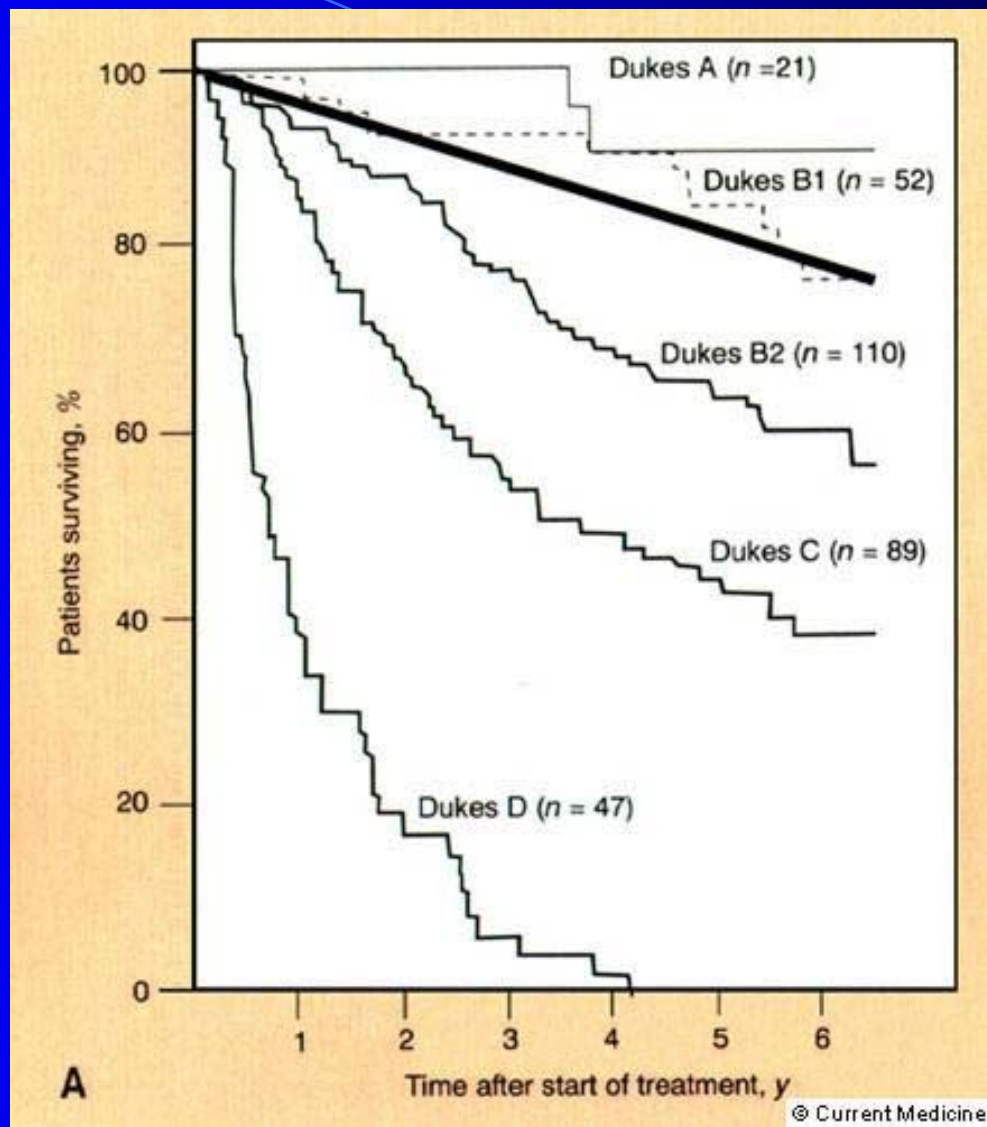


# Facts about Colon Cancer

- Cancer detected in the early stages has a 5-year survival rate of 95%
- Only 39% are discovered in early stage
- Nearly half of those newly diagnosed are expected to die within 5 years, largely due to the late stage of detection



# Survival probabilities according to stage of disease (A)



# Colon Testing Saves Lives!

**30,000 lives** could be saved per year if everyone age 50 and older got tested for colon cancer

We can cut mortality in half!



# Why aren't people getting tested?

- Only 53% of people over 50 years old actually undergo screening for colon cancer



**TABLE 1. Number and percentage of respondents aged  $\geq 50$  years who reported colorectal cancer screening tests within recommended period, by test type — Behavioral Risk Factor Surveillance System (BRFSS), United States, 1997 and 1999\***

| Test   | 1997   |        |                        | 1999   |        |                 |
|--|--------|--------|------------------------|--------|--------|-----------------|
|  | No.    | (%)    | (95% CI <sup>†</sup> ) | No.    | (%)    | (95% CI)        |
| Fecal occult blood test<br>within 1 year     | 9,832  | (19.6) | ( $\pm 0.5\%$ )        | 12,518 | (20.6) | ( $\pm 0.5\%$ ) |
| Sigmoidoscopy <sup>§</sup><br>within 5 years | 14,678 | (30.3) | ( $\pm 0.6\%$ )        | 19,535 | (33.6) | ( $\pm 0.6\%$ ) |

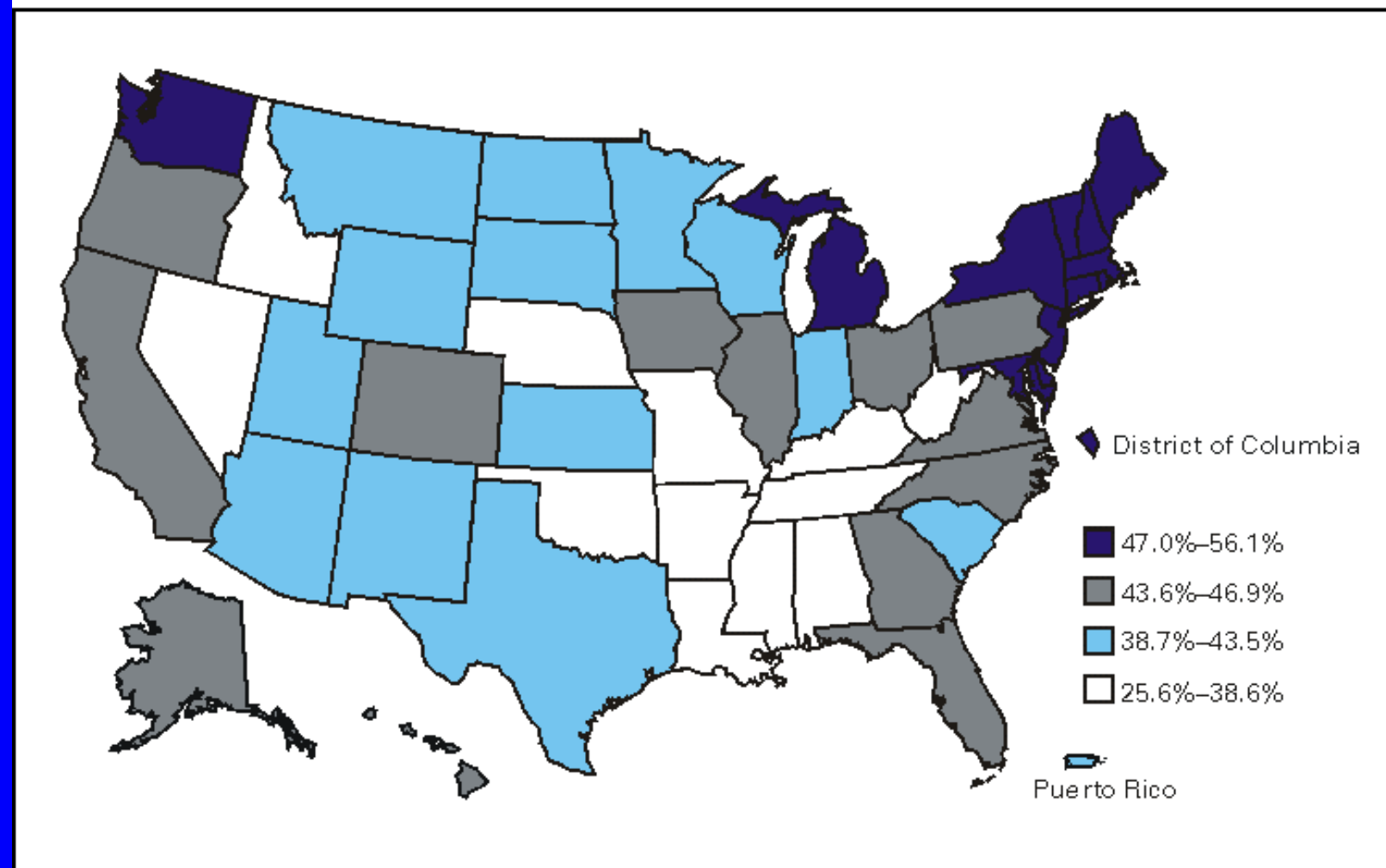
\*1997 and 1999 estimates age adjusted to the 1999 BRFSS population.

<sup>†</sup> Confidence interval.

<sup>§</sup> For 1997 data, "sigmoidoscopy" refers to "sigmoidoscopy/proctoscopy." For 1999 data, "sigmoidoscopy" refers to "sigmoidoscopy/colonoscopy."



**FIGURE 1. Proportion of respondents using fecal occult blood test and/or sigmoidoscopy within recommended period, by state — Behavioral Risk Factor Surveillance System, United States, 1999**



# Symptoms

- **No symptoms**
- Rectal Bleeding
- Change in bowel habits
  - Diarrhea
  - Constipation
  - Change in the caliber of stool
- Anemia
- Fatigue



# The goal is to increase awareness!

- March 2005 is colon cancer awareness month (American Cancer Society)
- Increase awareness
- Increase screening for colon cancer
- Decrease incidence of colon cancer
- Decrease mortality from colon cancer



# What is screening?

- Screening tests look for diseases early
- Before any symptoms
- Before any history of disease
- Before the cancer has spread
- Before it's too late!



# More Facts about Colon Cancer

- Majority begin as benign polyps
- Often produce no symptoms
- Slow growing
- Takes several years to transform into cancer
- Ideal disease for screening



# Colon polyps

- Small, mushroom-like growths on the inside of the colon
- Precursors to colon cancer
- Adenomatous polyps (or adenomas) are most likely to become cancers
- Increased number and increased size => increased risk of colon cancer



# Benign Colon Polyp



[www.gastrolab.net](http://www.gastrolab.net)



# Colon Polyps

- Usually takes several years before cancer develops in a polyp
- May be surgically removed



# Colon Testing Saves Lives!

- Screening for colon cancer can lower the risk of dying of colon cancer by finding and removing polyps before they transform into cancer.
- If cancer is already present, screening increases the likelihood of finding the cancer at an early, curable stage.

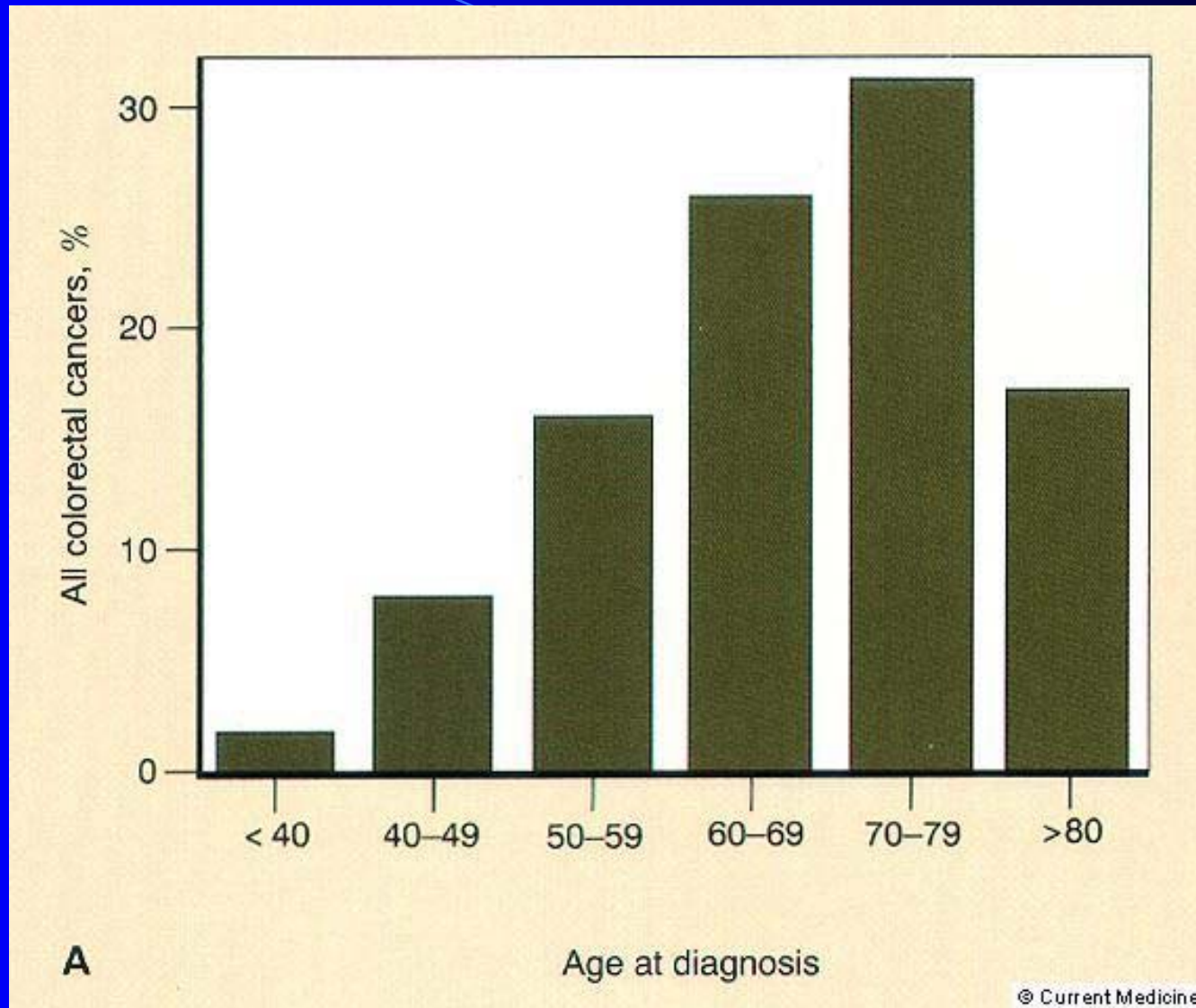


# Additional Risk Factors

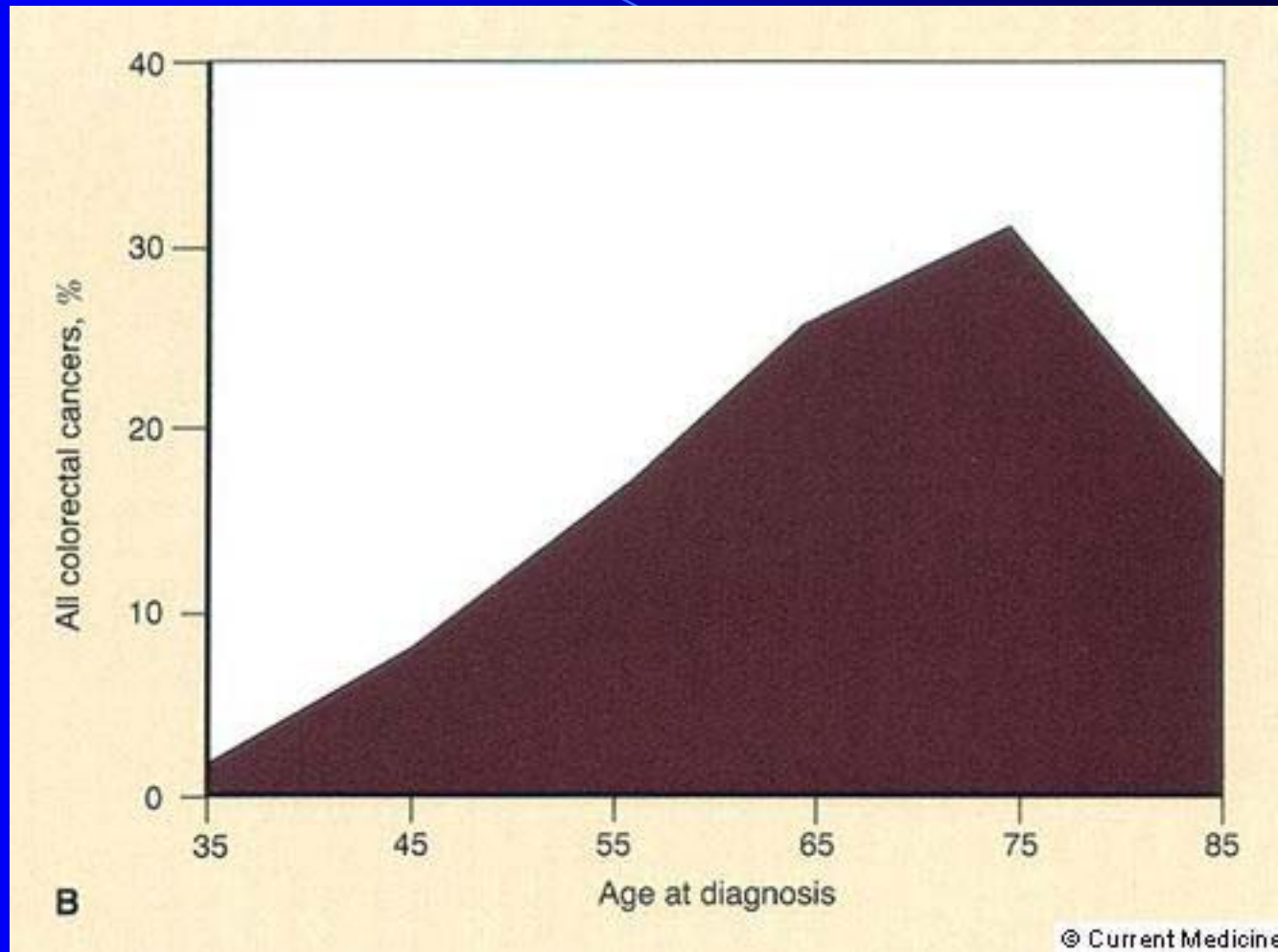
- **Age**
- High fat intake
- Obesity
- Diabetes
- Smoking
- Alcohol Abuse



# Colorectal cancer incidence by age in the US (A)



## Colorectal cancer incidence by age in the US (B)



# Additional Risk Factors

- Age
- **High fat intake**
- Obesity
- Diabetes
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- Alcohol Abuse



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# Family History

- 1<sup>st</sup> degree relative (parent, child, sibling) especially if diagnosed under age 60
- Familial hereditary colorectal cancer syndrome (5-10%)
  - Familial adenomatous polyposis (FAP) – 1%
  - Hereditary nonpolyposis colorectal cancer (HNPCC) – 3-4%



# Screening Tests

- Fecal occult blood test (FOBT)
- Flexible sigmoidoscopy
- Colonoscopy
- Barium enema with air contrast
- Virtual colonoscopy
- Fecal DNA test



# Fecal Occult Blood Test

- Stool guaiac test or Hemoccult test
- Looks for traces of blood in the stool
- Simple, chemical test
- Tests three or six consecutive stool samples obtained at home
- Once per year



# Fecal Occult Blood Testing Kit



# Advantages

- Simple and easy to perform
- Non-invasive
- Inexpensive (\$3 per test)
- Studies have confirmed a mortality benefit



# Disadvantages

- Must follow diet/medication restrictions
- High false positive rate
- Limited ability to detect early lesions
  - Detects only 25-50% of cancers, 10% of adenomas
- Positive results must be followed by colonoscopy
- Low population compliance
- Variable use by physicians in practice



# Flexible Sigmoidoscopy

- A slender, flexible, lighted tube
- Direct visualization of the lower third of the colon (60 cm)
  - 50% of cancers will be in this territory
- May be connected to a video camera for ease of viewing
- Every 5 years along with yearly FOBT
- Cost \$150 - \$300



# *Flexible Sigmoidoscopy*



**Fiberoptic sigmoidoscope**

# Advantages

- May be done in the doctor's office without sedation
- Exam lasts 15 – 20 minutes
- Polyps may be removed, if seen
- Less preparation than BE or colonoscopy
- Less invasive than colonoscopy
- Confirmed mortality benefit



# Disadvantages

- Mild discomfort, usually no sedation given
- Would miss proximal lesions
- Results dependent on the skill of the provider



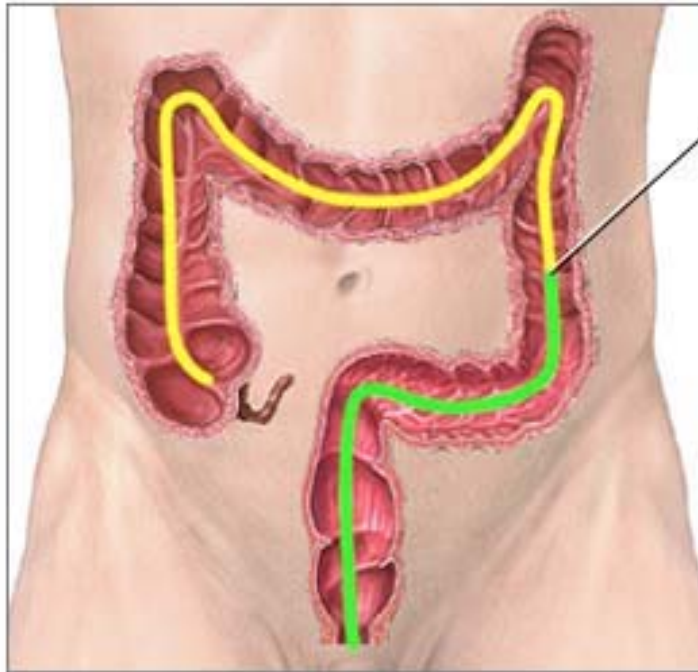
# Colonoscopy

- The most accurate screening test
- Longer version of the flexible sigmoidoscopy
- Connected to a video camera and TV monitor for ease of viewing
- Once every 10 years
- Cost \$500-\$1000



# Colonoscope





End of  
sigmoidoscopy



Colonoscopy examines the entire length of the colon; sigmoidoscopy examines only the lower third

ADAM.

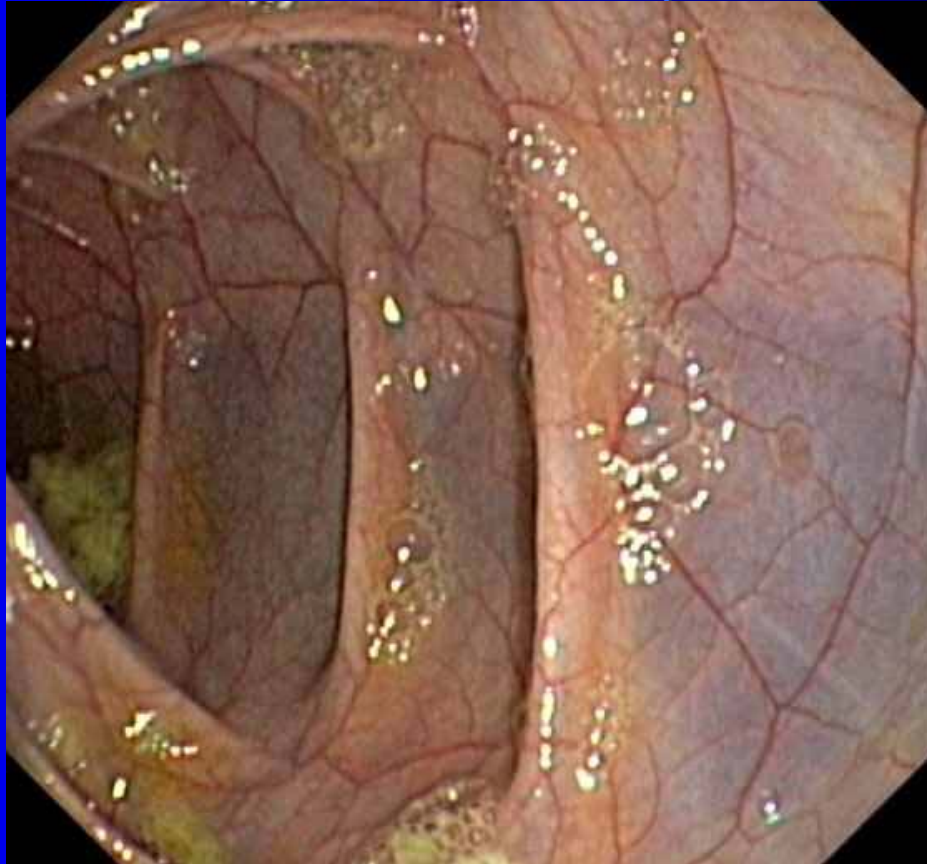


# Advantages

- Ability to look at the entire colon
- Ability to remove polyps, if found
- Usually done with sedation, generally more comfortable
- Can be done in less than 30 minutes
- Medicare reimbursement for all people over 50



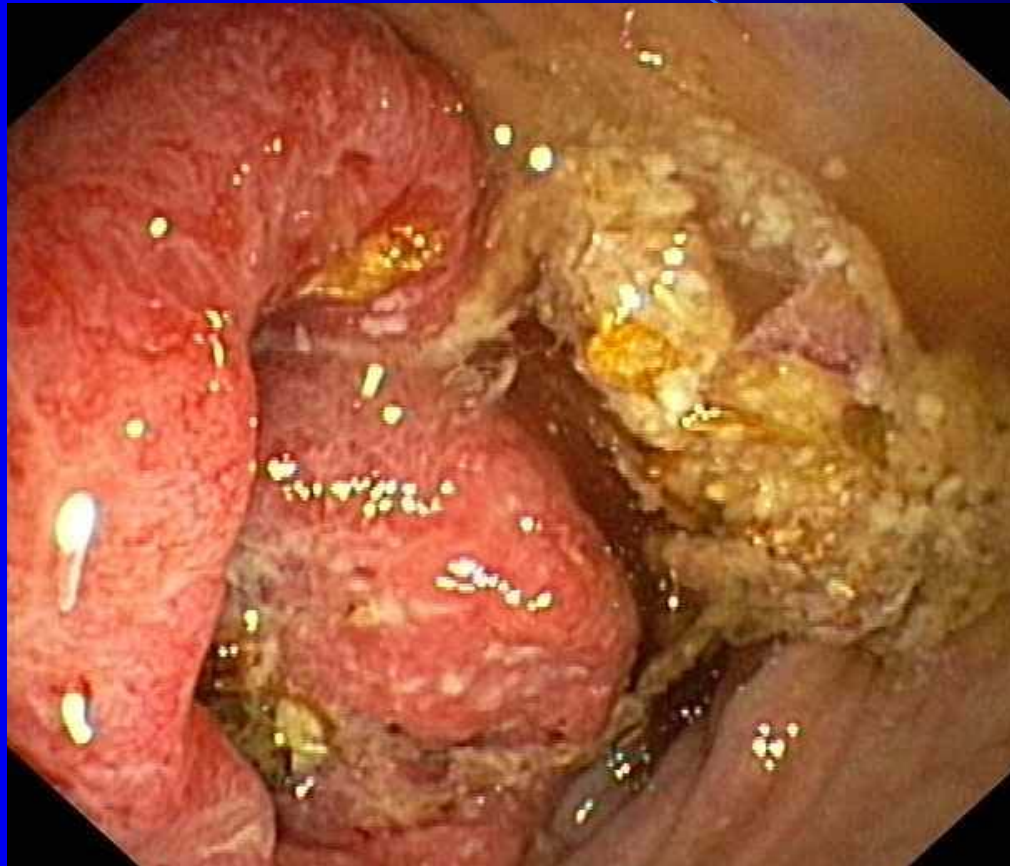
# Normal Colon



[www.gastrolab.net](http://www.gastrolab.net)



# Colon Cancer



[www.gastrolab.net](http://www.gastrolab.net)



# Disadvantages

- Bowel preparation required
- Risks
  - Bleeding (0.3%)
  - Perforation (0.1%)
  - Infection

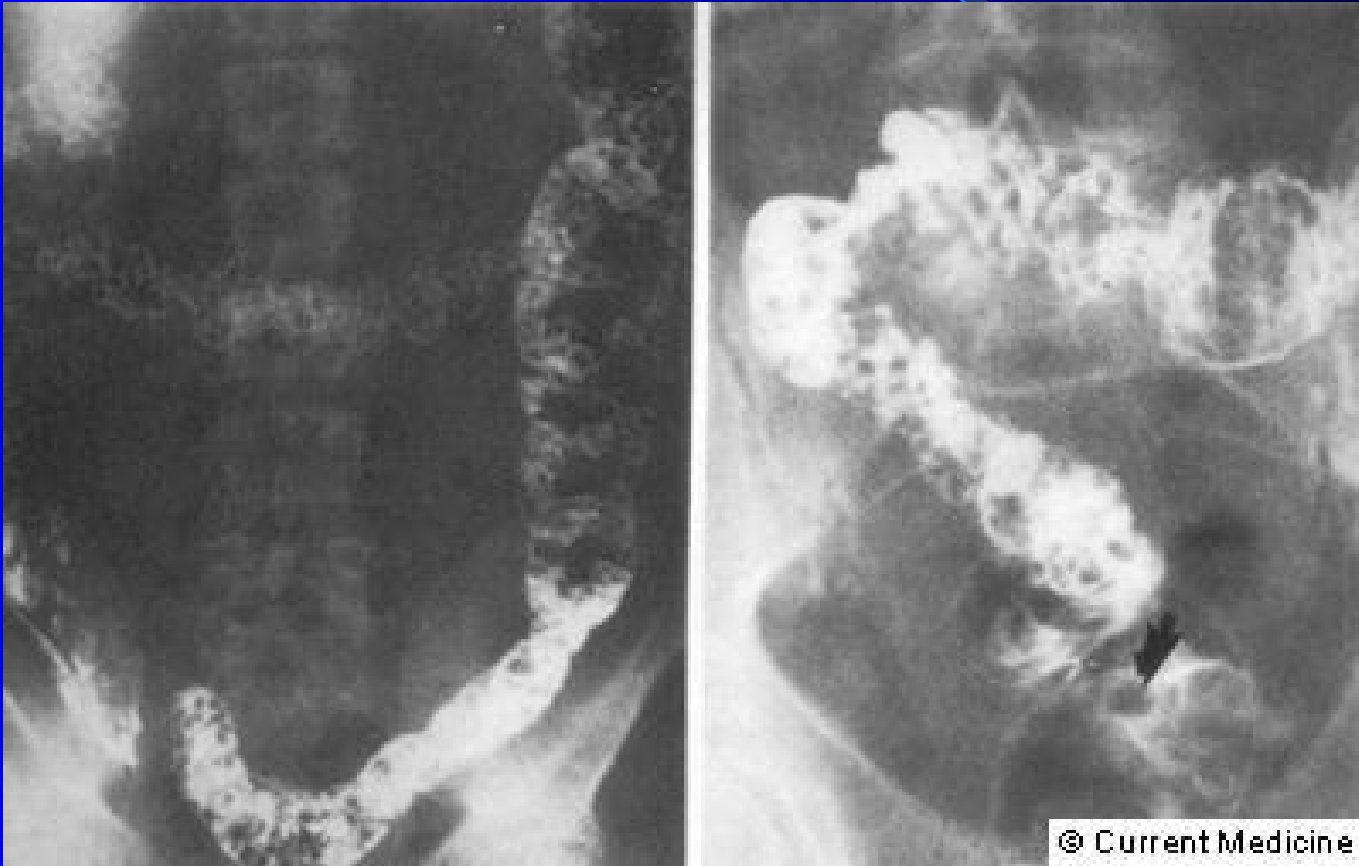


# Barium Enema

- Double-contrast barium enema
- Specialized X-ray of the colon
- Chalky, barium is inserted into your rectum via a small tube along with air
- Requires bowel preparation with laxatives and an enema



# Barium Enema



# Disadvantages

- No option for biopsy
- Abnormal findings require colonoscopy
- Polyps may be missed
  - Sensitivity for detecting polyps is much lower than colonoscopy
- No trials using DCBE as a screening tool

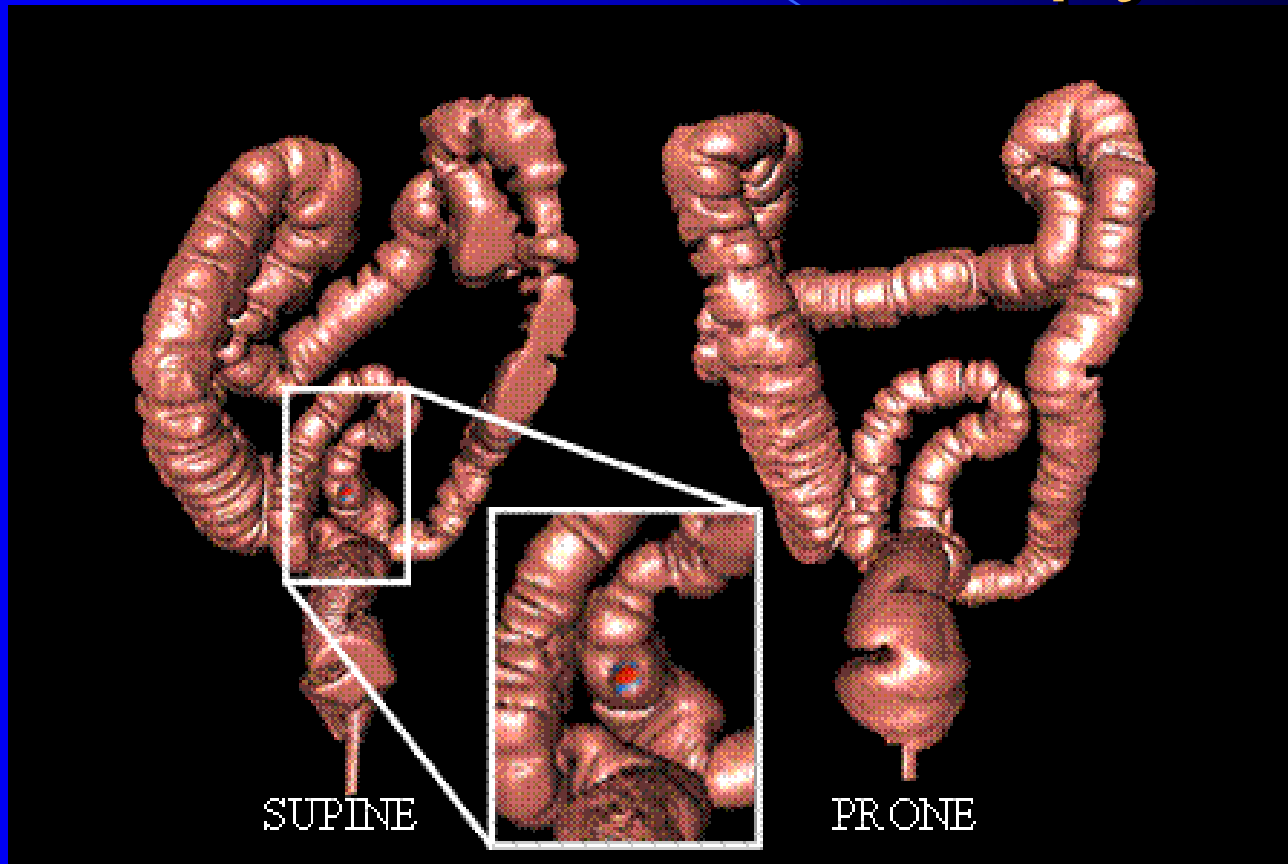


# Virtual Colonoscopy

- Computer-assisted 3-D reconstruction of the colon
- CT colonography
- Colonic distention with air
- Must hold breath for a few seconds while scan is being done
- Cost \$900



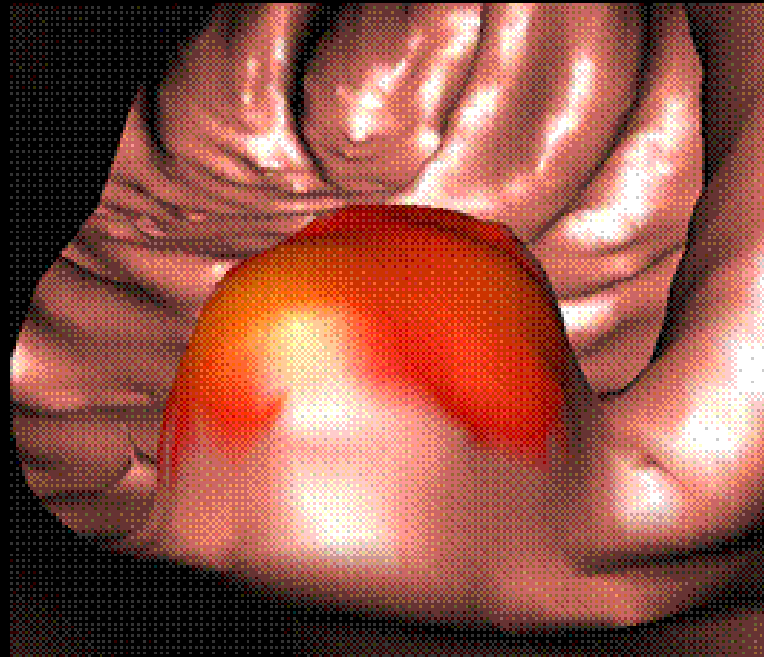
# Virtual Colonoscopy



Dr. Ronald M. Summers, Radiology Dept., NIH



# Polyp detected by Virtual Colonoscopy



Dr. Ronald M. Summers, Radiology Dept., NIH



# Advantages

- Simple, non-invasive screening test
- No sedation needed
- Clear, detailed images
- Takes less time (10-20 minutes)



# Disadvantages

- Same bowel prep required as colonoscopy
- Polyps may be missed especially those less than 1 cm
- Doctors cannot take tissue samples or remove polyps
- All abnormalities must be followed by a colonoscopy
- Currently not covered by insurance plans



# Fecal DNA test

- 85% colon cancers result from gene mutations
- Fecal DNA panel = 21 mutations
- Mutations are detectable in the stool
- Studies ongoing looking into capacity of detecting advanced colonic polyps



# Advantages

- Non-invasive
- No preparation required, no dietary restrictions
- More sensitive than FOBT
- Only one sample required



# Disadvantages

- Must collect and refrigerate an entire bowel movement
- COST! (\$400-\$800 per test)
- Limited availability
- Limited coverage by insurance
- Currently not recommended as a screening test



# American Cancer Society Guidelines

Beginning at age 50, those at average risk should have one of the following:

- FOBT every year
- Flexible sigmoidoscopy every 5 years
- Both #1 and #2 (preferable)
- Double-contrast barium enema every 5 yrs
- Colonoscopy every 10 years

(Screen earlier and/or more often if risk factors present)



# Colon Testing Saves Lives!

Earlier detection of colon cancer through proper screening can save lives.



# Good News!

Colon cancer can be  
**PREVENTABLE!**

Colon cancer can be  
**CURABLE** if found early!



**STOP COLON CANCER  
BEFORE IT STARTS!**





It's one cancer  
you can avoid.

**Colon testing  
saves lives.**

