



THE UNIVERSITY OF ARIZONA
Cancer Center

Colorectal Cancer 101

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Deputy Director,

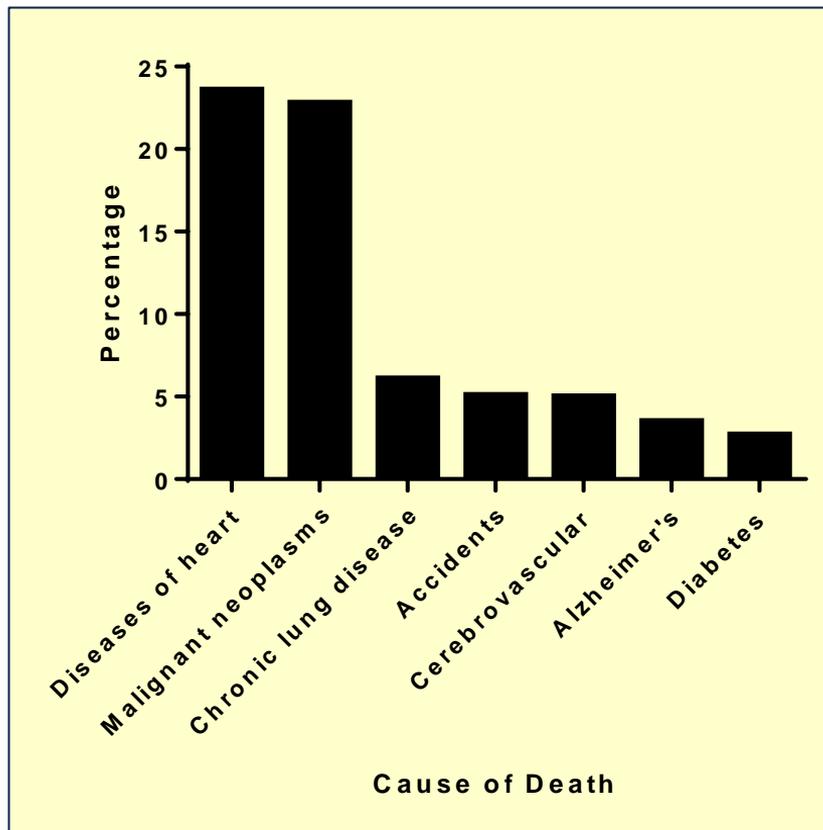
University of Arizona Cancer Center

Arizona Colorectal Cancer Roundtable

April 11, 2016



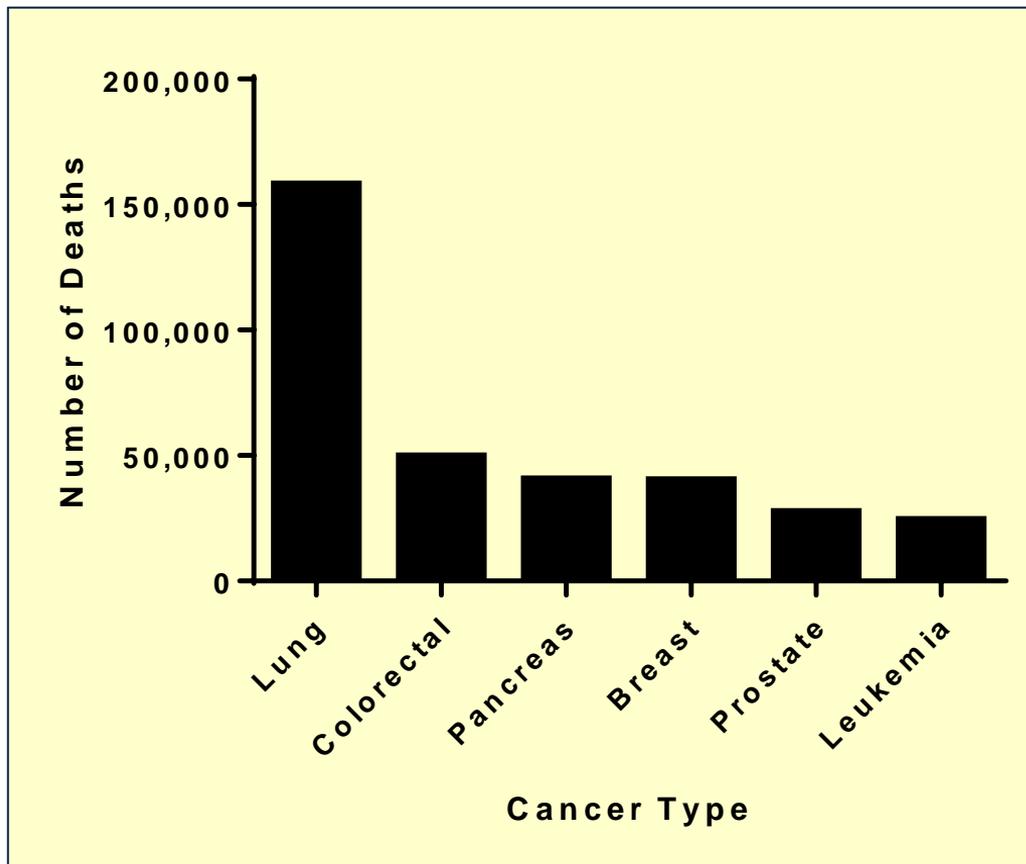
US Leading Causes of Death, 2012



All causes: 2,175,178
Almost 50% heart + malignancy



Estimated Cancer Deaths, 2015

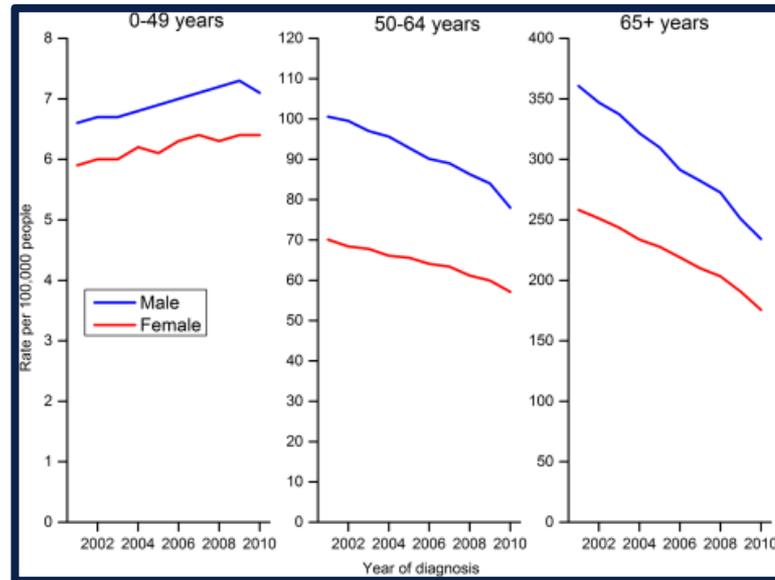
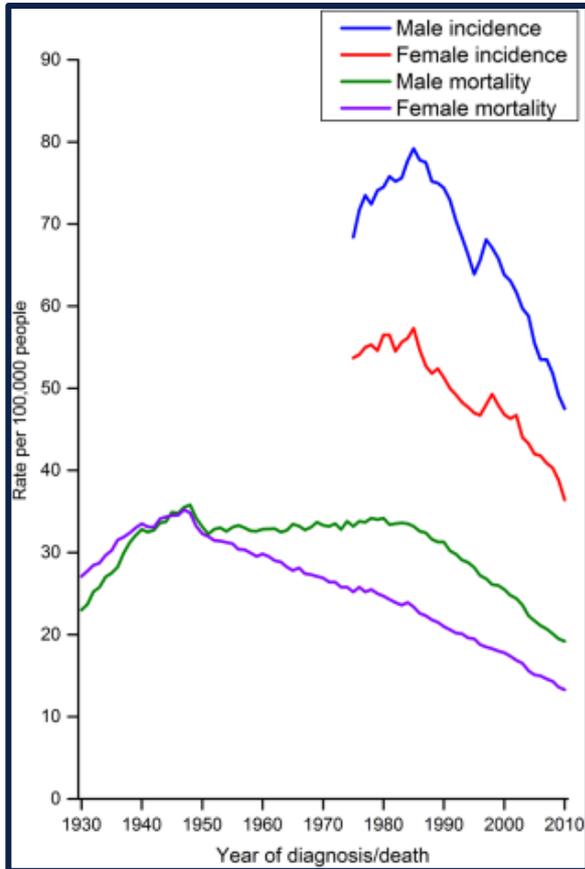


All sites: 589,430

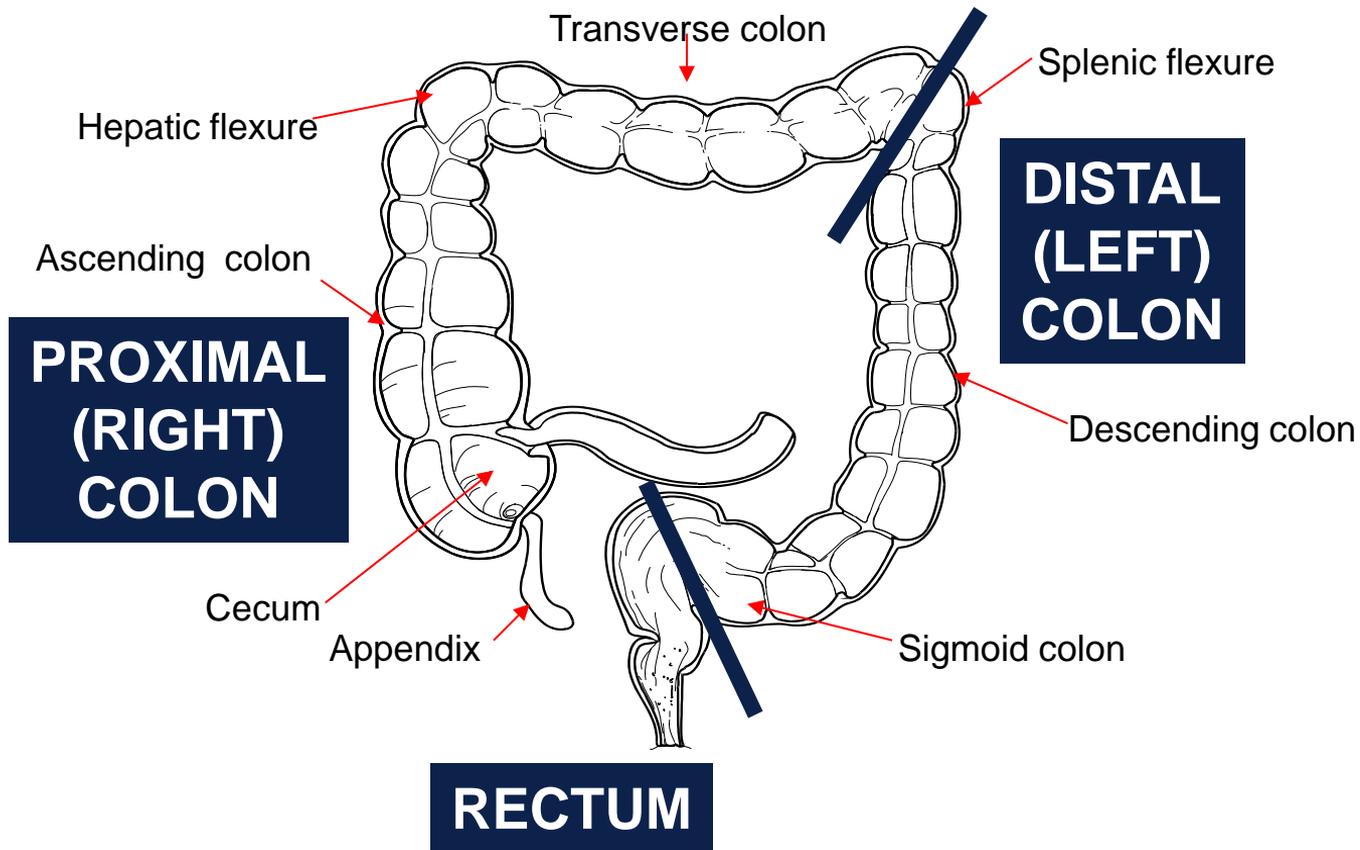


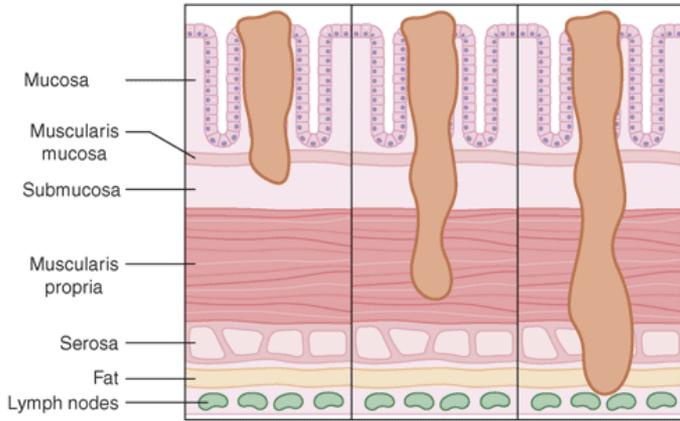
Colorectal Cancer Rates

- Overall incidence & mortality ↓ 10% in past 10 y
- Screening credited
- **BUT** ↑ by 2-3% per year in under 50's

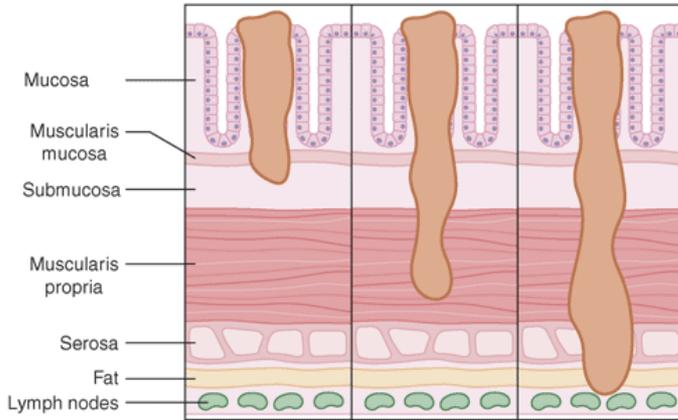


Anatomy of the Colon and Rectum





Tumor invasion (T1-4)



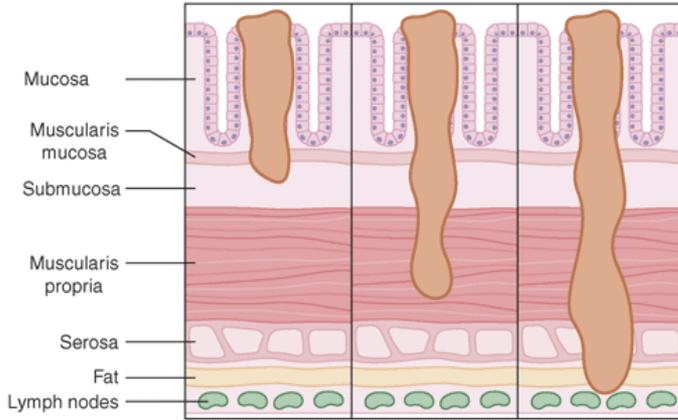
**Tumor invasion
(T1-4)**



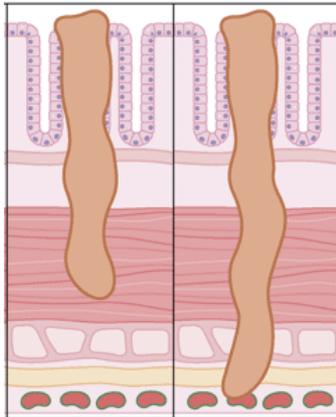
**Node involvement
(N1-2)**



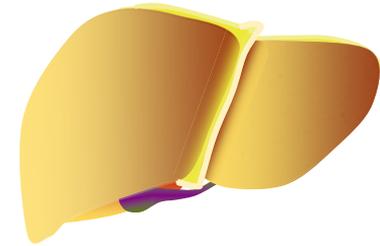
Colorectal Cancer Staging – TNM



**Tumor invasion
(T1-4)**



**Node involvement
(N1-2)**

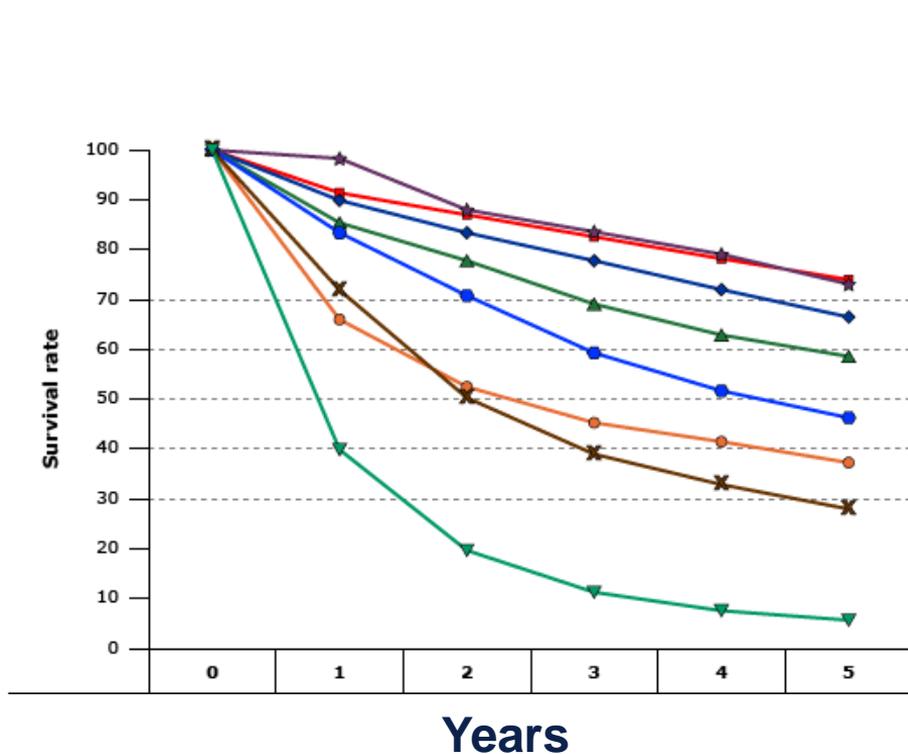


**Metastasis
(M1)**

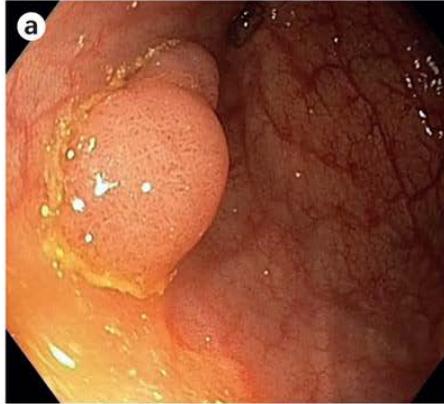


CRC Stage and Prognosis

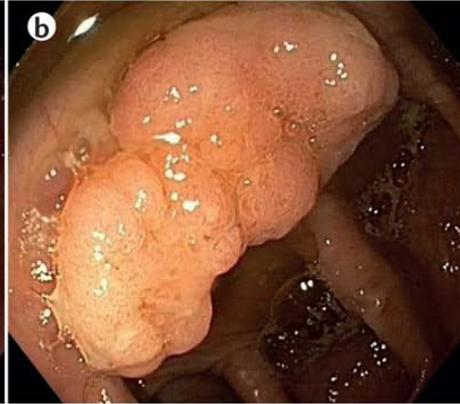
| Stage | TNM | 5-Y Surviv. |
|-------------|-----------------|-------------|
| I | T1 or 2, N0, M0 | 74% |
| IIA | T3, N0, M0 | 67% |
| IIB | T4a, N0, M0 | 59% |
| IIC | T4b, N0, M0 | 37% |
| IIIA | T1 or 2, N1, M0 | 73% |
| IIIB | T3 or 4, N1, M0 | 46% |
| IIIC | Any T, N2, M0 | 28% |
| IV | Any T, any N, M | 6% |



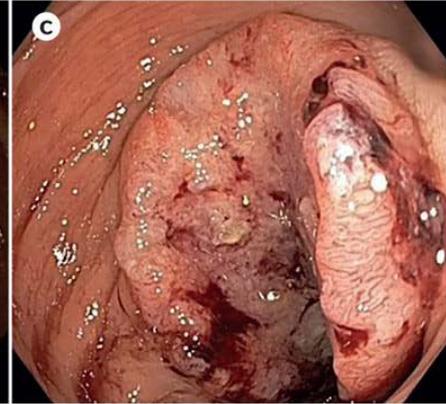
AJCC Cancer Staging Manual, 7th Ed. (2010)



**Small
Adenoma**



**Advanced
Adenoma**



**Adeno-
carcinoma**

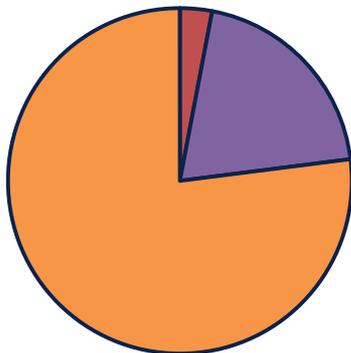
1 – 2 decades



Fewer than 10% of adenomas progress



Triaging Colorectal Cancer Risk



- Hereditary (2-3%):** FAP, Lynch
 - autosomal dominant
- Familial (20-30%)**
 - 1+ first degree relative(s)
- Sporadic (70-75%)**
 - no known genetic predisposition

INDIVIDUALS AND THEIR PCPs MUST KNOW FH OF CRC

- Hereditary:** Expert genetic & subspecialty management
- Familial:** Colonoscopy, starting at least 10 years before index case's age when first diagnosed with colorectal cancer
- Sporadic:** From age 50 – 75 years according to guidelines
 - US Preventive Services Task Force
 - US Multi-Society Task Force: ACS, ACG, ACR, ASGE, AGA



1. Primary prevention



Lifestyle Risk Factors for Colorectal Cancer

| | Decreases Risk | Increases Risk |
|--------------------------------|---|---|
| Convincing | <i>Physical activity</i> | <i>Red & processed meat, alcohol (M), body &/or abdominal fatness</i> |
| Probable | Dietary fiber, garlic, Ca ²⁺ | Alcohol (F) |
| Limited/ Suggestive | Fruits & veg, fish, folate, Se, vitamin D | Fe, cheese, animal fat, sugar |

WCRF. http://www.dietandcancerreport.org/expert_report



Non-Communicable Diseases (NCDs)

NCDs

- Cardiovascular
- Cancer
- Chronic lung
- Diabetes

*65% of deaths
worldwide already*



Risk Factors

- Tobacco*
- Diet*
- Lack of exercise
- Excess alcohol*

**Aggressively
marketed industrial
products*

- Only population/public health approaches will be effective
- Thus, prevention of NCDs is a political issue



1. *Primary prevention*
2. **Improved treatment for established disease**

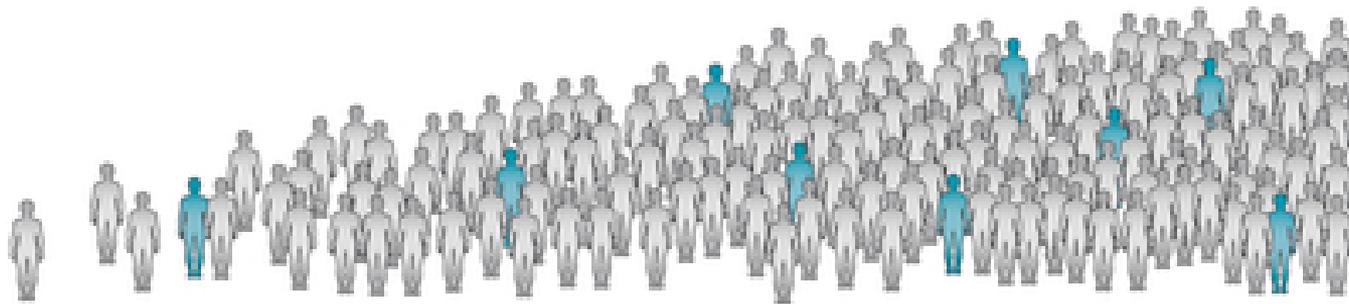


1. *Primary prevention*
2. *Improved treatment for established disease*
3. **Early detection**
 - i. **Prognosis excellent for early-stage disease**
 - ii. **Removal of adenomas prevents progression to cancer**

**But....adenomas and most early-stage cancers
do NOT cause symptoms**



Searching for the needle in the haystack



Sensitivity and specificity



Colorectal Cancer Screening

AVERAGE RISK

- FBT – annual
- Flex sig – every 10 y + annual FBT
- Colonoscopy – every 10 y

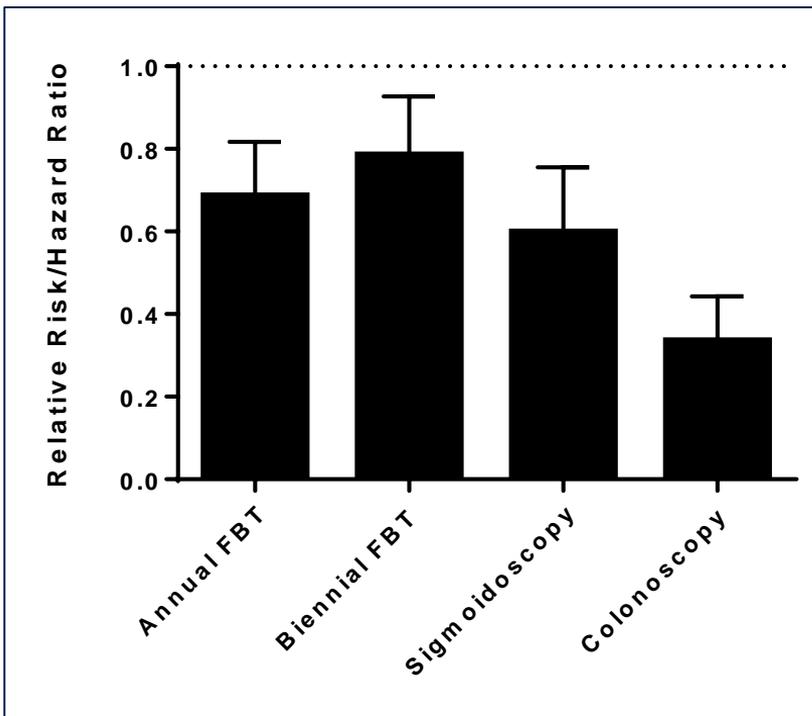
USPSTF, October 2015

- All individuals at average risk
- From age 50-75 years





CRC Screening Efficacy



| Test | Mortality ↓ |
|---------------|-------------|
| Annual FBT* | 32% |
| Biennial FBT | 22% |
| Sigmoidoscopy | 41% |
| Colonoscopy | 68% |

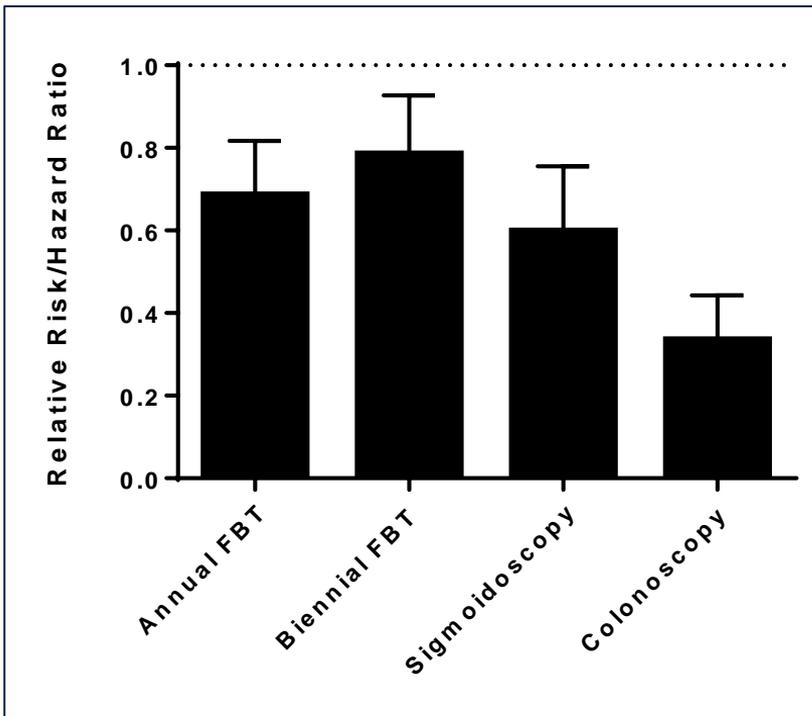
*FBT: Fecal Blood Test

NEJM 369: 1095-1105 (2013)

NEJM 369: 1106-1114 (2013)



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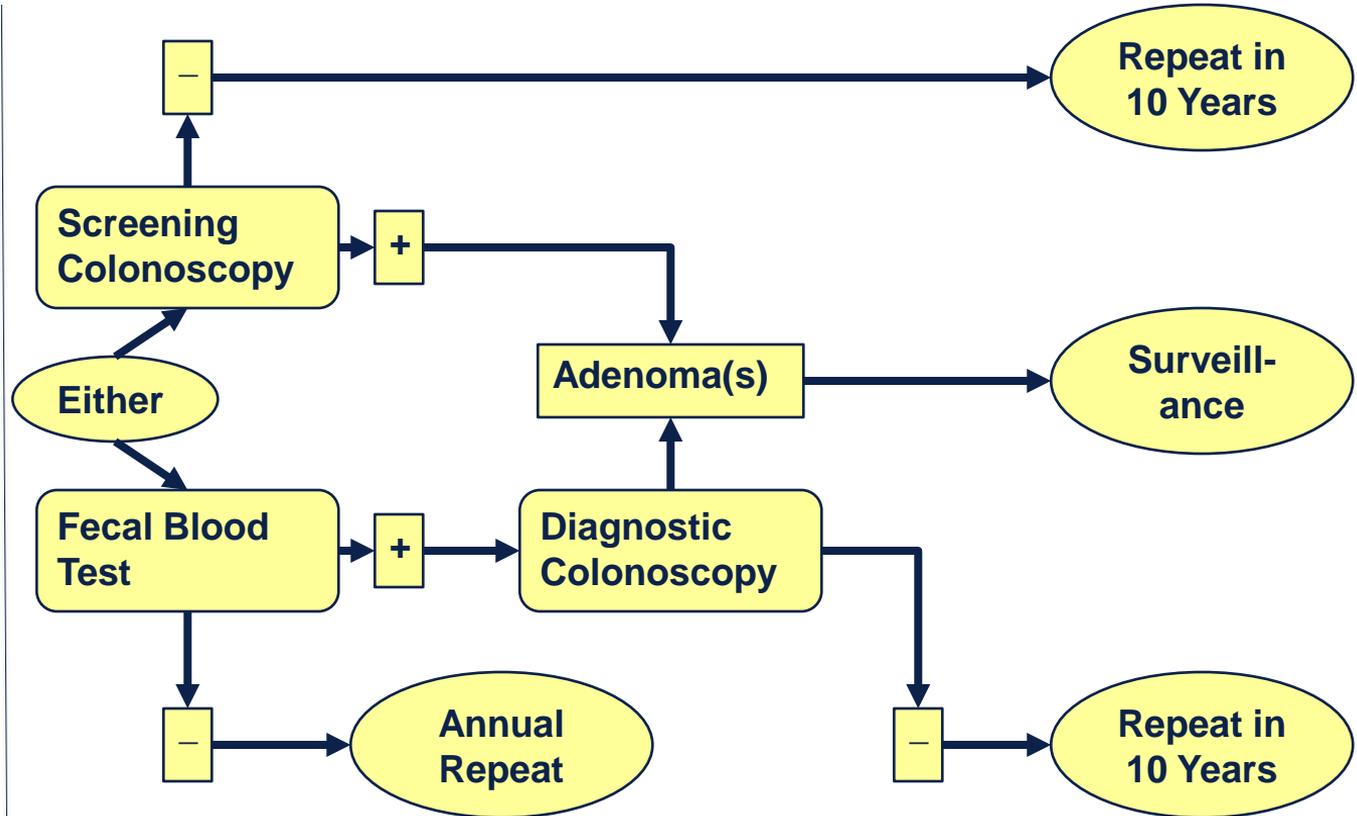
| Mortality ↓: Other Cancer Sites | |
|---------------------------------|-----|
| Breast | 15% |
| Lung | 20% |



Colorectal Cancer Screening

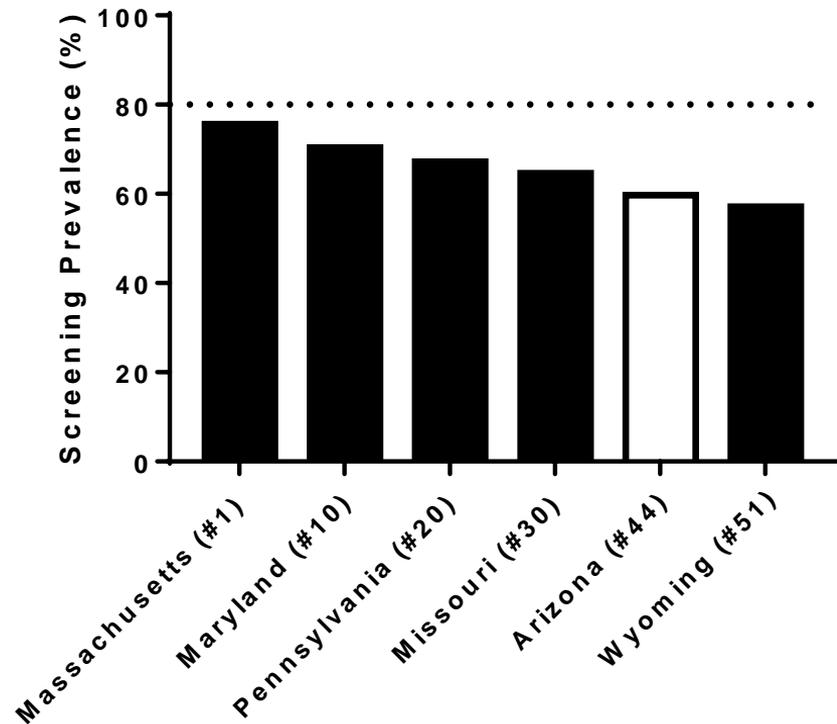
AVERAGE RISK

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 - Flex sig – every 10 y + annual FBT
 - Colonoscopy – every 10 y
- USPSTF, October 2015*





Current Rates



- All individuals aged 50-75 y
- Current rate ~60%
- FIT based
- Substantial challenge



Drivers of consumers' health care decisions

