



# Ways to Avoid Colon and Other Common Cancers

Flagstaff, AZ  
August 31, 2011

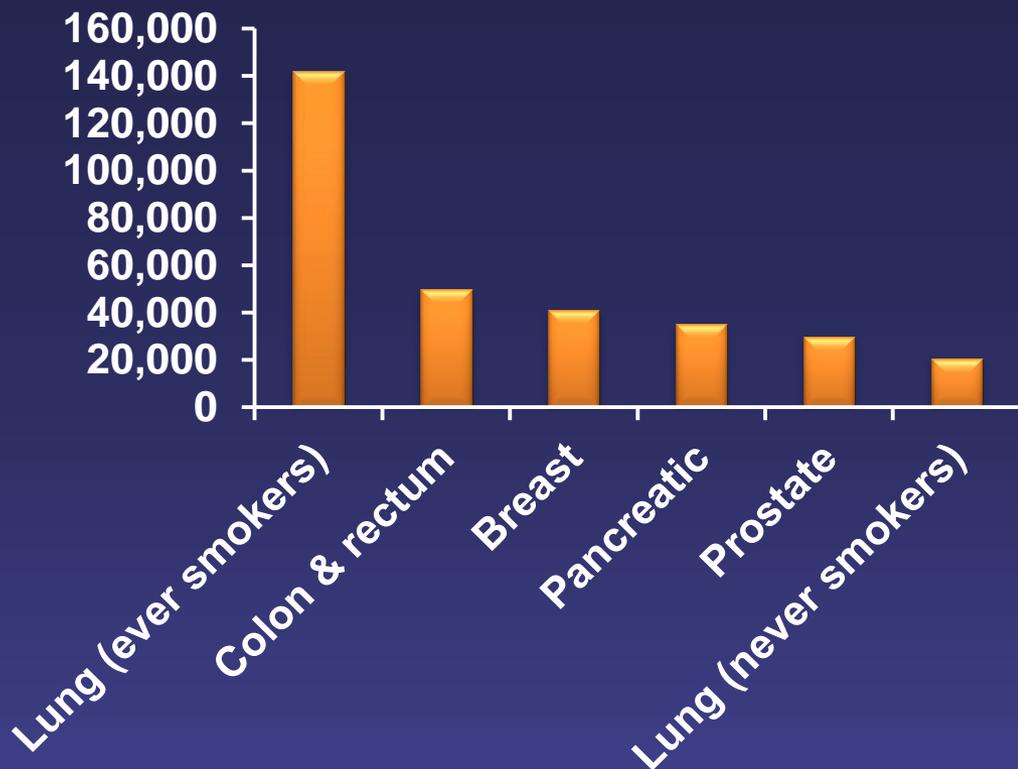
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Chief Cancer Prevention & Control Officer  
Arizona Cancer Center  
Medical Advisor, ADHS

# Death in America

Total number of deaths in 2009 (preliminary)	2,436,682
Deaths from heart disease & cancer	~48% of all deaths
New cases of cancer in 2011 (anticipated)	1,596,670
Deaths from cancer in 2011 (anticipated)	571,950 ~1,500 per day
Cancer deaths from smoking in 2011 (anticipated)	171,600
Cancer deaths related to overweight or obesity, physical inactivity & poor nutrition	~1 in 3 of all cancer deaths

# Common Causes of Cancer Death

*Clin Cancer Res* 15: 5622-5655 (2009)

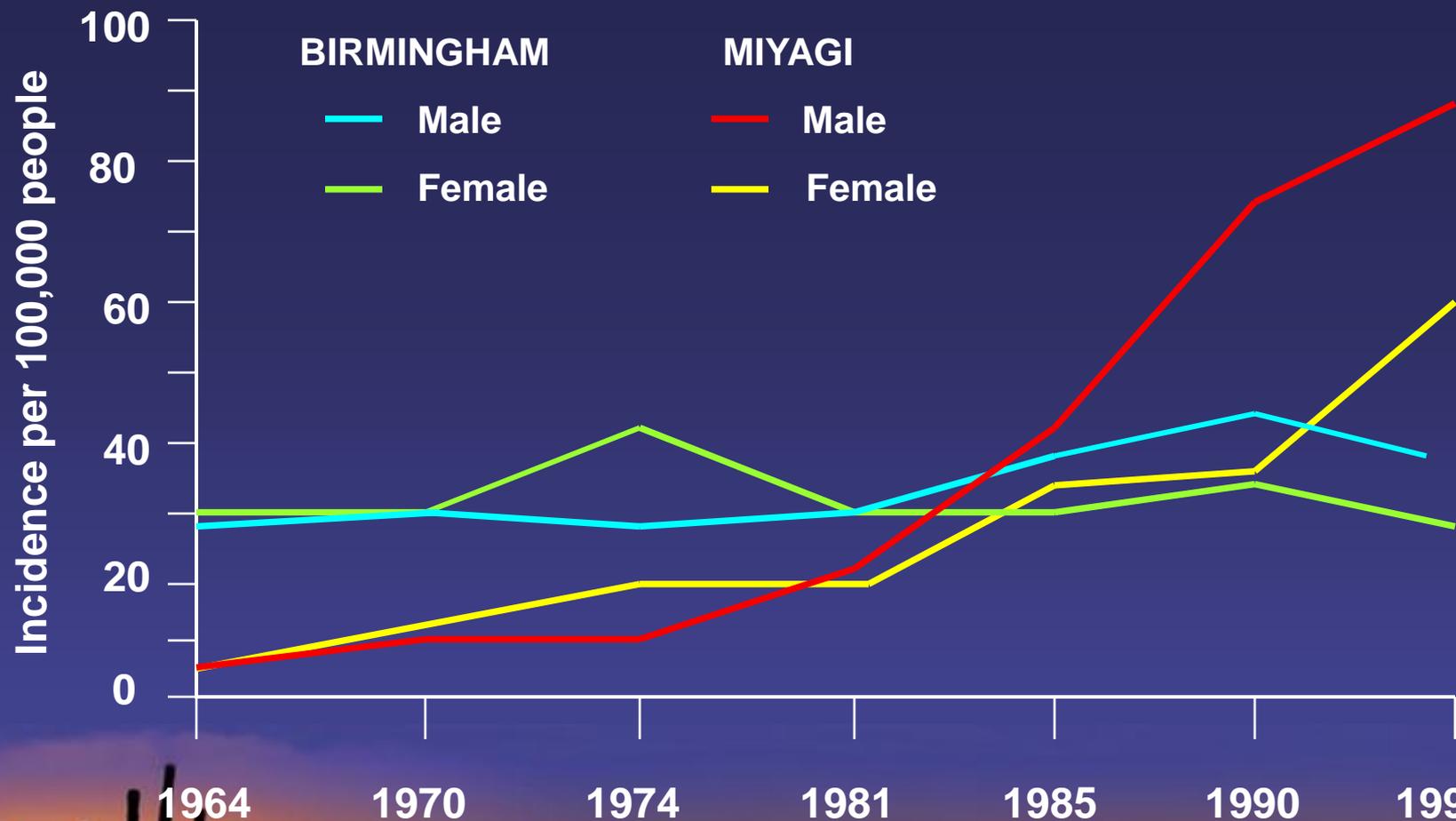


## Other Cancers

- Non-Hodgkins lymphoma
- Liver & intrahepatic biliary
- Ovarian
- Gastric
- Bladder
- Brain
- Kidney
- Myeloma
- Acute myeloid leukemia
- Melanoma

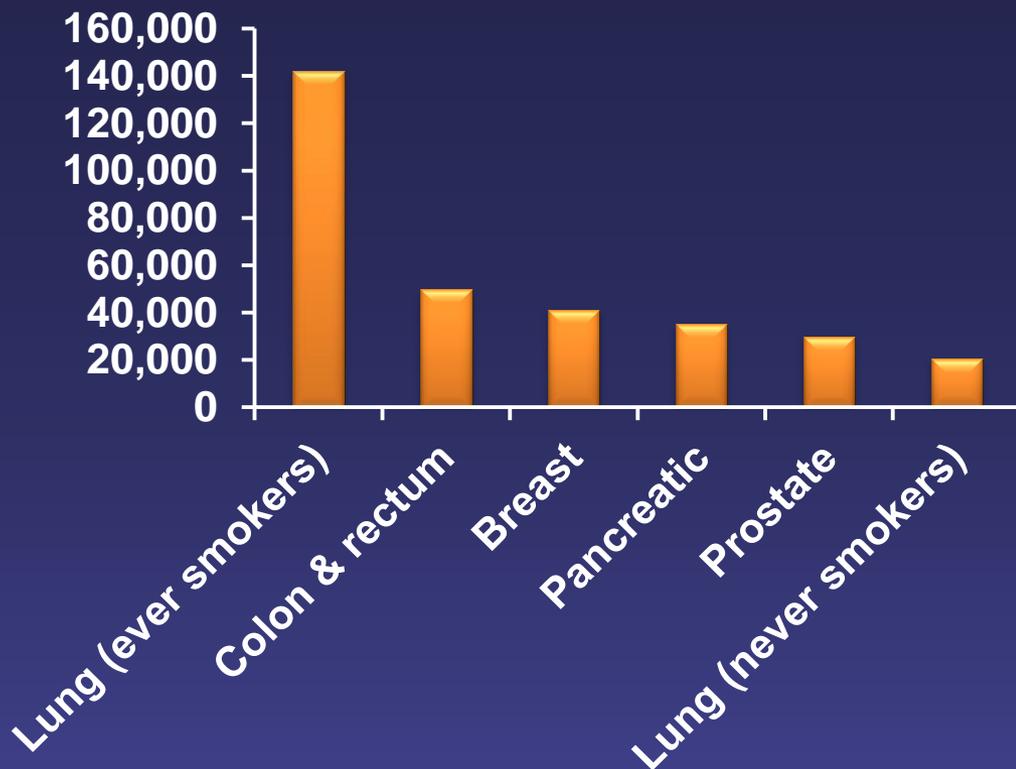
# Thirty-year Trends in Colon Cancer Rates for the United Kingdom and Japan

*Nat Rev Cancer* 4: 206-215 (2004)



# Common Causes of Cancer Death

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# Lifestyle Factors and Cancer Risk

- Tobacco
- Overweight and Obesity
- Physical inactivity

# The Ravages of Tobacco



# Treating Tobacco Dependence

*CA Cancer J Clin* 59: 314-326 (2009)

- Chronic disease, repeated interventions
- Counseling is effective
- Medications increase abstinence rates
  - Nicotine (gum, patch etc.)
  - Non-nicotine (bupropion, varenicline)
- Combination of counseling and medication is more effective than either alone
- Telephone quitline counseling is effective

# Overweight /Obesity and Cancer

<http://www.cancer.gov/cancertopics/factsheet/Risk/obesity>

Various cancers have been associated with obesity

## Clear Association

Colon

Breast

Endometrium (uterus)

Kidney

Esophagus

## Possible Association

Gallbladder

Ovary

Pancreas

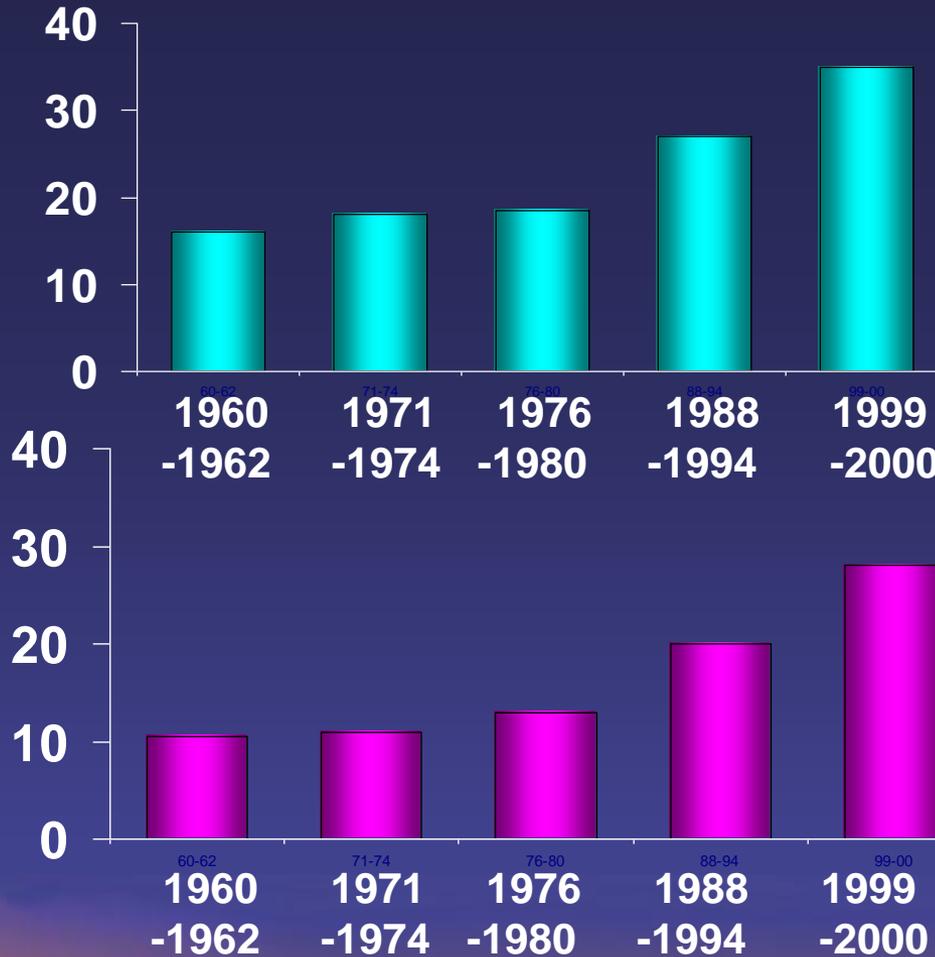
## Causes of Obesity

- Diet
- Sedentary lifestyle, i.e., inactivity

# Obesity Trends

[www.cdc.gov/obesity/data/trends.html](http://www.cdc.gov/obesity/data/trends.html)

Prevalence (%) of Obesity



Men

Women

# Body Mass Index (BMI)

*JAMA 303: 235-241 (2010)*

<http://www.nhlbisupport.com/bmi/>

- A number calculated from person's weight & height
- Fairly reliable indicator of body "fatness"
- Online calculators
- Everyone should know her/his BMI

BMI	Weight Status
Below 18.5	Underweight
18.5 – 24.9	Normal
25.0 – 29.9	Overweight
30.0 and Above	Obese

**US population: Overweight + Obese**

**Men 72.3% (obese, 32.2%)**

**Women 64.1% (obese, 35.5%)**

# Physical Activity and Cancer Risk

Physical activity can lower risk of colon and breast cancers

## Colon Cancer

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- Can ↓ risk by 50%
- Even moderate exercise beneficial
  - 3 to 4 hours brisk walking per week

## Breast Cancer

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- Postmenopausal women
- Can ↓ risk by 20%
  - Walking 30 min per day
  - Greater (37%) ↓ in non-obese women

# HEALTHY DIET

# Balancing Calories

- Enjoy your food but eat less
- Avoid oversized portions

## Foods to Increase

- Half your plate fruits & veg
- Fat-free or low-fat (1%) milk



## Foods to Reduce

- Sodium in soup, bread, frozen foods, etc – lower numbers
- Drink water instead of sugary drinks

<http://www.cnpp.usda.gov/dietaryguidelines.htm>

# PHYSICAL ACTIVITY

# Physical Activity Recipes

<http://www.cdc.gov/physicalactivity/everyone/guidelines/index.html>



**Aerobic: 2 hours 30 min brisk walking per week**

- raise heart rate and break a sweat



**Muscle-Strengthening: 2 days per week**

- push ups, sit ups; heavy gardening; lifting weights; yoga

**Don't be overwhelmed: 10-min walk, 3 times a day, 5 days a week—adds up to 2 hours 30 min moderate-intensity activity per week**

**WHAT ABOUT OUR CHILDREN?**

# **CANCER SCREENING/ EARLY DETECTION/ EARLY TREATMENT**

# CURRENT AND FUTURE RECOMMENDATIONS

**BREAST:** *Ann Intern Med* 151: 738-747 (2009)

Mammography every other year for all individuals from age 50-74 years; below 50, on an individual basis

**CERVIX:**  
<http://www.preventiveservices.ahrq.gov>

Cervical cytology screening every 3 years in women who have been sexually active and who have a cervix; HPV vaccine

**COLON:** *Ann Intern Med* 149: 627-637 (2008)

Regular screening for all individuals from age 50-74 years; fecal blood testing, sigmoidoscopy or colonoscopy

**LUNG:** *Radiology* 258: 243-253 (2011)

National Lung Screening Trial indicates spiral CT screening ↓ mortality by 20% in smokers

**PROSTATE:**  
*Ann Intern Med* 149: 192-199 (2008)

Benefits of prostate-specific antigen screening remain unproven; PSA screening not recommended for universal screening

# COLORECTAL CANCER

# Colorectal Cancer Screening Tests

## Structural

- Flexible sigmoidoscopy (FSIG)
- Optical colonoscopy (OC)
- Computed tomographic colonography (CTC)

## Fecal

- Fecal blood test (FBT)
  - Guaiac-based occult (gFOBT); Hemoccult II
  - High-sensitivity gFOBT; Hemoccult SENSA
  - Fecal immunochemical tests (FIT; FlexSure, HemeSelect)
- Stool DNA (sDNA)

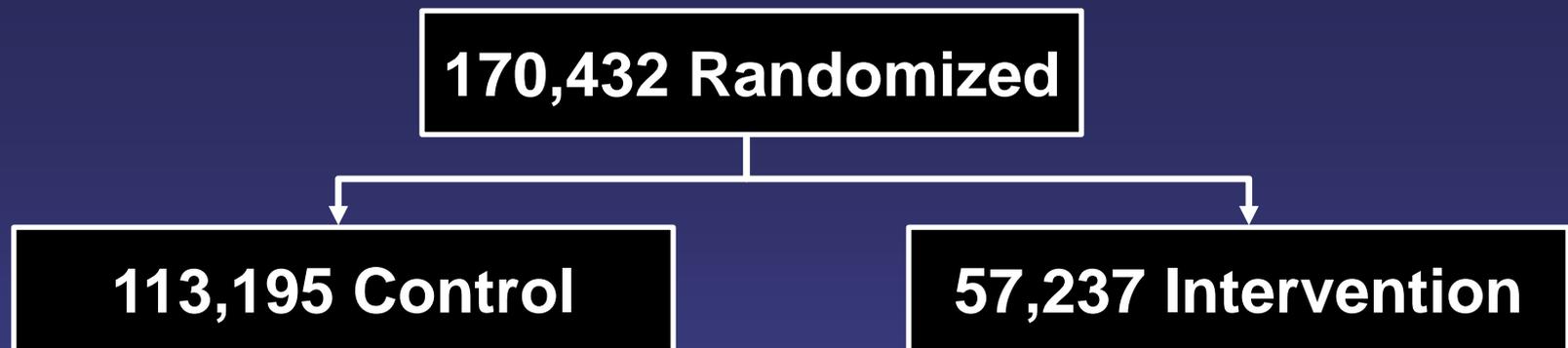
# Performance of Non-Invasive Screening Tests – Advanced Neoplasia

	Sensitivity	Specificity	Source
	%	%	
gFOBT	13	93	Morikawa 2005
FIT	20	95	Morikawa 2005
Fecal DNA	18	94	Imperiale 2004
<b>CTC</b>	<b>90</b>	<b>86</b>	<b>Johnson ACRIN, 2007</b>

# Once-Only Flexible Sigmoidoscopy (RCT)

*Atkin WS. Lancet. Published online April 28, 2010*

- Men and women aged 55-64 years
- Recruitment (FS) from 1994-1999
- High-risk polyps (1 cm+, villous, HGD) → colonoscopy (5%)
- Median follow-up of 11.2 years



<b>CRC incidence</b>	<b>↓ 33%</b>	<b>HR 0.67 (0.60 – 0.76)</b>
<b>CRC mortality</b>	<b>↓ 43%</b>	<b>HR 0.57 (0.45 – 0.72)</b>

# Colorectal Cancer Screening

## US Preventive Services Task Force

*Ann Intern Med* 149, 627-637 (2008)

### TEST

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### FREQUENCY

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High-sensitivity FBT,  
Hemocult SENSA or FIT

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Annual

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High-sensitivity FBT  
+ FSIG

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Every 3 years

Every 5 years

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Colonoscopy

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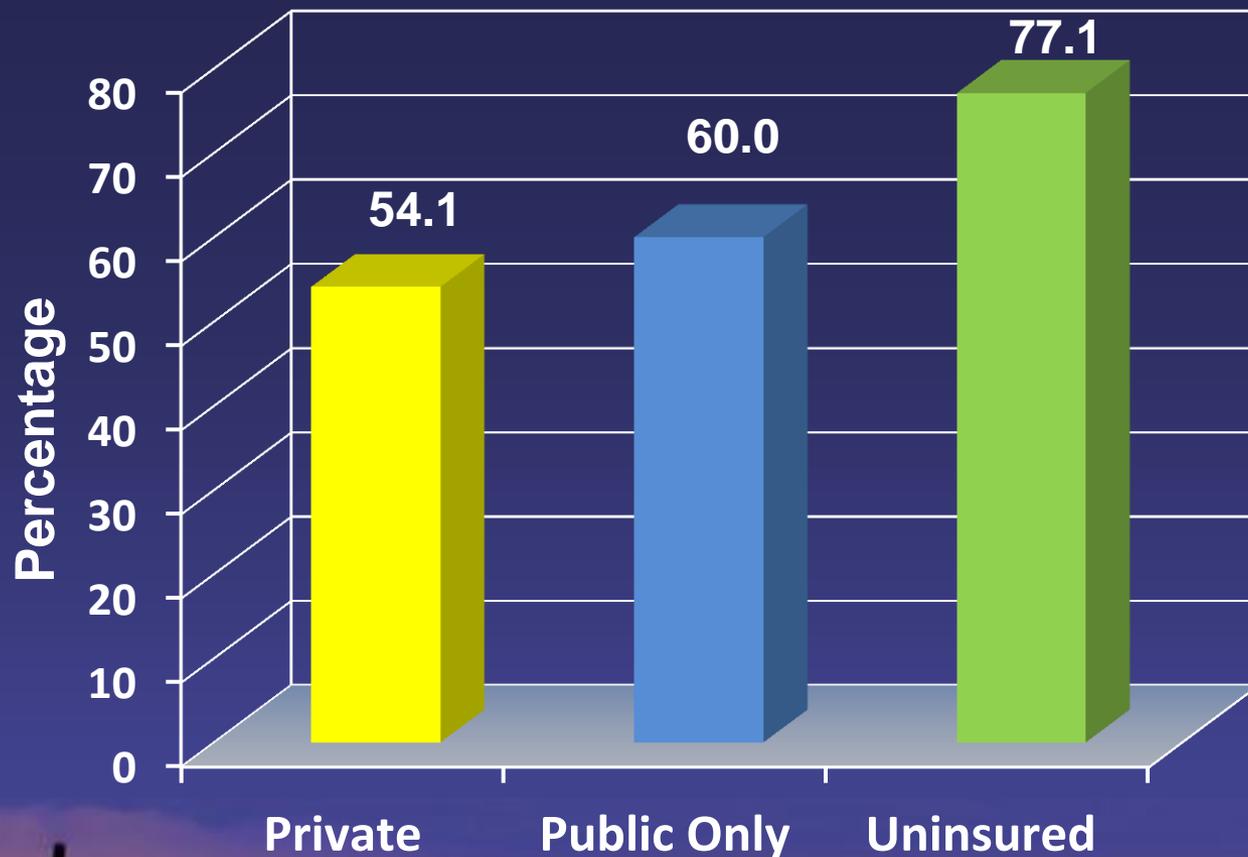
Every 10 years

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*For reasons not evidence-based, availability of  
FSIG is now very restricted in US*

# Adults Aged 50 to 64 Years Percentages Who Never Had Colonoscopy

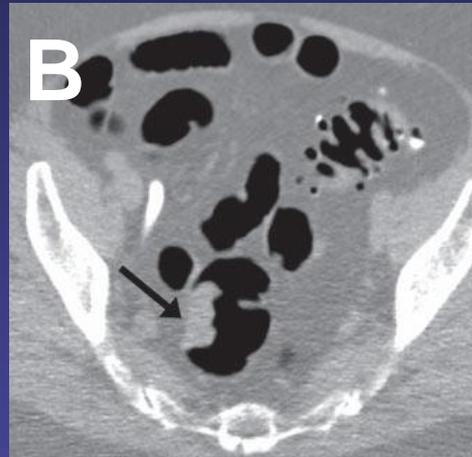
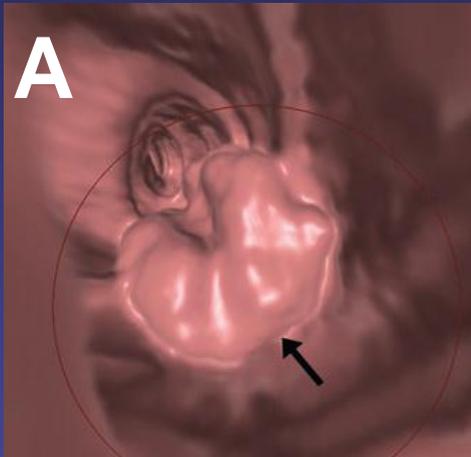
*Mitka M. JAMA 299, 622 (2008)*



# CT Colonoscopy at Navajo IHS Facilities

*AJR AM J Roentgenol* 195: 1110-1117 (2010)

Number Screened	321	
Technically Satisfactory	292	91%
Referred for Colonoscopy	45	14%
Polyp/Mass	18/45	41%



- Female, 64 yrs
- Cancer, sigmoid

A: Fly Through  
B: 2D

# RECOMMENDATION

Descending order of preference

Colonoscopy



CTC



FIT or Hemoccult SENSA



Hemoccult II

# LUNG CANCER

# National Lung Cancer Screening Trial

*N Engl J Med* 365: 395-409 (2011)



- 3 annual screenings
- Low-dose helical CT vs. PA CXR
- 53,454 persons at high-risk for lung cancer

	CT	CXR
Cases/100,000 person-years	645	572
Rate ratio	1.13 (95% CI, 1.03 – 1.23)	
Deaths/100,000 person-years	247	309
Relative reduction	20% (95% CI, 6.8 – 26.7; P=0.004)	

**Low-dose helical CT → 20% mortality reduction**

# PROSTATE CANCER

# Prostate Cancer

- Approx. 3% of men will die from prostate cancer
- Prostate-specific antigen (PSA) is NOT cancer-specific
- “OVER DIAGNOSIS PROBLEM”

The percentage of prostate cancers diagnosed by (PSA) screening that would NOT have been diagnosed before death

- Lifetime risk of a diagnosis of prostate cancer
  - 9% in 1985 (pre-PSA era)
  - 17% in 2003 – 2005 (PSA era)
  - Overdiagnosis probability ~50% in PSA era
- Perils of overdiagnosis
  - Erectile dysfunction
  - Urinary incontinence
  - Bowel symptoms

# Prostate-Specific Antigen (PSA) Testing

1. Rationally, biopsy should follow “positive” PSA
2. Who should NOT undergo PSA Testing?
  - a) Life expectancy <10 years
  - b) Age 75 years or older
3. What is customary approach of protagonists?
  - a) Age 50 years and older
  - b) Combine with DRE
  - c) Annual PSA
4. What constitutes a “positive” result?
  - a) 4.0 ng/mL cutpoint, but.....
  - b) PSA increases with age
  - c) Greater than median for age-group = “high risk”??
  - d) Velocity, free PSA, etc, etc—not evidence-based

**PCPT Risk Calculator**

<http://deb.uthscsa.edu/URORiskCalc/Pages/uroriskcalc.jsp>

# Ways to Avoid Colon and Other Common Cancers

1. Quit tobacco
2. Know your BMI
3. Eat a healthy diet
4. Regular aerobic and muscle strengthening activity
5. Follow screening guidelines for the common cancers

# Acknowledgements

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