

Prostate Cancer Screening – Make an Informed Decision

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Introductions

Kevin Bundy MD FAAFP

– Family Medicine Physician

- 20 years in practice
- Boulder Creek Family Medicine
- Boulder Community Health



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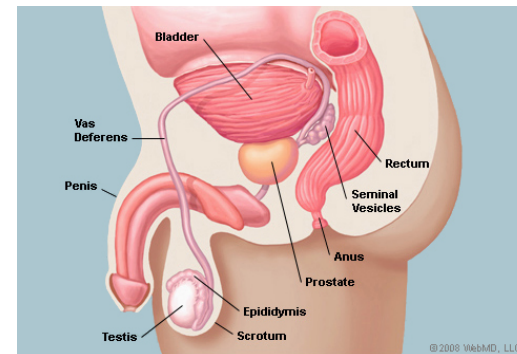
Objectives

1. To inform you about prostate cancer
2. To educate you about the basics of medical screening
3. To review guidelines regarding prostate cancer screening
4. To empower you to make informed decisions about screening



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What is the prostate?



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The Prostate Gland

- Walnut/ping pong ball sized gland
- Sits in front of the rectum and below the bladder
- Only men have a prostate
- Produces fluid to help carry sperm during ejaculation
- Surrounds the urethra as it exits the bladder



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Prostates Gone Wild: *diseases of the prostate*

1. Prostatitis
2. Benign Prostatic Hypertrophy
3. Prostate Cancer



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Prostate Cancer: *How common is it?*

- 1.3 million cases per year - worldwide
- 192 thousand cases per year - US
- Third leading cause of cancer / Second in men
- 12% lifetime risk of developing prostate cancer



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Prostate Cancer: *How deadly is it?*

- 359 thousand deaths per year - worldwide
- 33 thousand deaths per year - US
- 2.4% lifetime risk of death from prostate cancer



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Prostate Cancer: *How deadly is it?*

- Most men die of something else before prostate cancer kills them
- Prostate cancer found incidentally at autopsy
 - 50-70 years old = 30%
 - >70 years old = 70%



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Prostate Cancer: *Risk factors*

- Having a prostate
 - All men have some risk
- Age
 - Rare younger than 50
- African American
 - More common dx and death
- Family history
 - First degree relative with prostate cancer
 - Female relatives with BRCA related cancer
- Diet
 - High animal fat/low vegetables



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Screening Tests: *The basics*

- Screening is providing a test to an asymptomatic person to determine the likelihood of them having the disease
- Screening may not diagnose the illness
- Positive screens usually require further evaluation



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Screening Tests: *What's the point?*

- The goal of screening is to reduce morbidity or mortality from the disease by detecting it in an early stage when treatment is usually more successful.

New York State Department of Health



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Screening Tests:

What makes a good screening test?

- High Sensitivity/Specificity
- High Predictive Value
- Cost effective
 - Common disease
 - Low cost compared to treatment
- Easily available
- Safe/minimal discomfort
- Appropriate follow up
- Disease could have serious and irreversible consequences if not treated early/ early treatment must be more effective than waiting for symptoms

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Screening Tests:

Bio-statistics 101-Evaluation of a test

Sensitivity:

- the test's ability to identify the presence of a disease
- Low sensitivity = false negatives

Specificity:

- the test's ability to identify the absence of a disease
- Low specificity = false positives



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Screening Tests:

Bio-statistics 101-Evaluation of a patient

Positive Predictive Value:

- The likelihood of a person having the disease if the test is positive
- Low PPV = false positives
- Overdiagnosis

Negative Predictive Value:

- The likelihood of a person *NOT* having the disease if the test is negative
- Low NPV= false negatives
- Missed cases



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Prostate Cancer Screening:

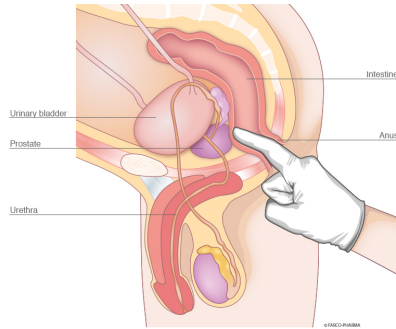
What tests do we have?

- Digital Rectal Exam (DRE)
- Prostate Specific Antigen (PSA)



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Prostate Cancer Screening: *Digital Rectal Exam*



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Prostate Cancer Screening: *Digital Rectal Exam*

- Early cancers (T1) not palpable
- Positive DRE = ninefold increase in odds of metastatic disease (non curable)
- High variability between providers
- Low concordance/agreement between examiners
 - Urologists disagree regarding exam findings about 20% of the time
- When added to PSA detection rates increased 1.2%
 - Smith DS, Catalona WS
 - Urology 1995

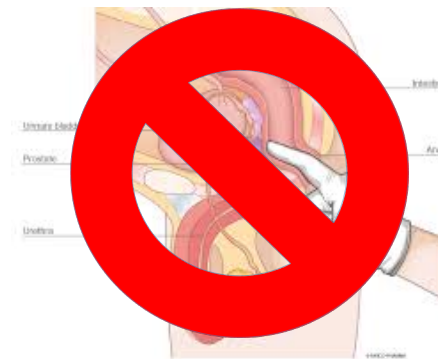
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Prostate Cancer Screening: *Digital Rectal Exam*

- Sensitivity = 51%
 - 49% false negatives
- Specificity = 59%
 - 41% false positives
- Positive predictive value = 41%
 - 59% false positives
- Negative predictive value = 64%
 - 46% false negatives

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Prostate Cancer Screening: *Digital Rectal Exam*



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Prostate Cancer Screening: *PSA*



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Prostate Cancer Screening: *PSA – What is it?*

- Protein produced by the prostate/measured in the blood
- Experiments started in 1960s
 - Quantitative blood test 1980s
 - Tested as cancer marker

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Prostate Cancer Screening: *PSA*

- Elevated in prostate cancer
- Most common reason for elevation = BPH (benign growth)
- Also elevated with infection, trauma, sexual activity

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Prostate Cancer Screening: *PSA*

- Decreased with some drugs
 - 5 alpha reductase inhibitors (BPH)
 - Up to 50% reduction
 - NSAIDS/ASA
 - Up to 40%
 - Thiazide diuretics
 - Up to 26% reduction
 - Statins
 - 4% reduction
 - » Reduced incidence of prostate cancer

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Prostate Cancer Screening: PSA numbers – it's complicated

- Incidence increases with age
 - Skews predictive values
- PSA is quantitative
 - Cut off value changes sensitivity and specificity (standard is 4.0 ng/ml)
- Serial testing has different attributes than one-time testing



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Prostate Cancer Screening: PSA - numbers

- Sensitivity
 - 20% -80%
- Specificity
 - 60% - 94%
- Positive predictive value (PPV)
 - 30% **70% false positives**
 - Overdiagnosis
- Negative predictive value
 - 85% **15% false negative**
 - Missed cases

A Review on the Clinical Utility of PSA in Cancer Prostate
Mohan Adhyam corresponding author and Anish Kumar Gupta



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Prostate Cancer Screening: PSA – Should we use it?



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Prostate Cancer Screening: Recommendations

- USPSTF
 - Shared decision making at 55-69*
 - Younger if increased risk
- ACP
 - Shared decision making at 50-69
 - Younger if increased risk
- National Cancer Institute
 - Insufficient evidence for or against

*suggest screening only if > 10 year life expectancy



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Prostate Cancer Screening: Recommendations

- AUA
 - Screen 40-54 only if increased risk
 - 55-69 shared decision making
 - 2-year interval
- ACS
 - Shared decision making
- Choosing wisely
 - No routine screening

*suggest screening only if > 10 year life expectancy



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Weighing the Evidence

Pros-

- 20% lower chance of dying from prostate cancer after 13 years
- 30% lower chance of metastatic disease
- Screening finds earlier disease
- 5-year survival for early stage prostate cancer is 100%
- Test is easy and accurate

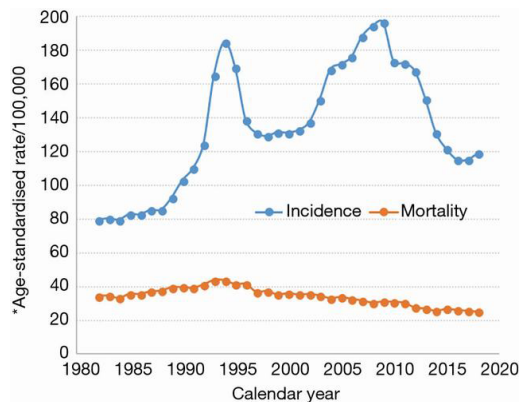
Cons-

- 1 fewer death for 1,000 men screened after 13 years (other studies have found no decrease in mortality)
- 75% of men with an elevated PSA underwent prostate biopsy with no cancer
- 5-year survival for early stage prostate cancer is 100%
- Many cancers found are unlikely to cause death or disability



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Prostate Cancer Screening: A picture's worth a thousand words



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Prostate Cancer Screening: How to Decide? - food for thought

- Do I want to know if I have prostate cancer?
- Would I choose to be treated?
- How do I feel about the risks of being treated?
- How do I feel about the possibility of getting aggressive prostate cancer?
- Would I be willing to accept side effects from treatment in return for a small chance of living longer?



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Time stands still for no recommendation

“Grey Zone” PSA (4-10)

Watchful Waiting-

- Palliative approach
- Occasional PSA
- No/ limited biopsies
- Late treatment based on symptoms
- Older/Sicker men

Active Surveillance-

- Curative approach
- Frequent PSA
- Repeat biopsy
- Early treatment based on PSA testing / Gleason score
- Younger/Healthy men

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Time stands still for no recommendation

“Grey Zone” PSA (4-10)

- Age adjusted PSA
- PSA velocity
- PSA Density
- Free/Total PSA
- Complexed PSA
- Percent pro[-2]PSA Ppsa/Fpsa
- Prostate Health Index %pPSA/Total PSA



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Leaving Science Behind – My Opinion/Approach

Does not reflect the opinion of Boulder Community Health

Patient has an opinion-

1. Listen to the patient
2. Listen to the patient
3. Listen to the patient

Patient wants me to decide-

1. Remember the stats
PSA = PPV 30% NPV 85%
2. Remember the incidence
12% lifetime risk = 88% likelihood on not
3. Play the odds
4. Trust in advancements
5. Educate the patient


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Prostate Cancer Screening: How to decide? – more information


- Up-to-date
- National Cancer Institute
- American Cancer Society
- American Society of Clinical Oncology
- US Centers for Disease Control and Prevention
- Mayo Clinic




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Questions?




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