OBJECTIVE

- Offer interactive case studies
- Provide lists of clinical pearls
- Discuss the latest cutting edge procedures or treatment options
- Provide a thorough review for individuals preparing for the certification or re-certification process
- Demonstrate and facilitate hands-on practice of various techniques, clinical skills, or behaviors

WHAT IS THE PROSTATE? WHAT DOES IT DO?

- Male sex gland
- Adds the fluids to carry sperm
- The urethra (urine channel/tube) runs through the middle of the prostate

Source: [www.cancer.gov/cancertopics/wyntk/prostate/page2](http://www.cancer.gov/cancertopics/wyntk/prostate/page2)
WHAT IS PROSTATE CANCER?

- Abnormal cells growing out of control
- Begins in the prostate gland
- Can spread and invade tissues, organs, and bones

PROSTATE CANCER STATISTICS

Cases in U.S.
- New (180,890)
- Deaths (27,575)
- Living (2.5 million)
- 1 in 7 Men in U.S.

Cancer Deaths in U.S.
- #1 Lung Cancer
- #2 Prostate Cancer

POSSIBLE SYMPTOMS OF PROSTATE CANCER

NO SYMPTOMS AT FIRST

Later on will see:
- Trouble urinating
- Frequent urination, especially at night
- Painful or burning urination
- Blood in urine or semen
- Pain in the back, hips, or pelvis that won’t go away
- Painful ejaculation

MYTH: If you don’t have symptoms, you don’t have prostate cancer.

FACT: Many men with prostate cancer have NO symptoms at all. Your doctor is often the first one to detect signs of prostate cancer during a check-up.

Source: http://www.cdc.gov/cancer/prostate/basic_info/symptoms.htm
The greatest benefit of screening appears to be in men ages 55 to 69 years.

- PSA screening involves weighing the benefits of preventing prostate cancer mortality in 1 man for every 1,000 men screened over a decade against the known potential harms associated with screening and treatment.

- For men younger than age 55 years at higher risk (e.g., positive family history or African American race), decisions regarding prostate cancer screening should be individualized.

To reduce the harms of screening, a routine screening interval of two years or more may be preferred over annual screening in those men who have participated in shared decision-making and decided on screening. As compared to annual screening, it is expected that screening intervals of two years preserve the majority of the benefits and reduce overdiagnosis and false positives.

Some men age 70+ years who are in excellent health may benefit from prostate cancer screening.

**PSA CONTROVERSY**

U.S. Preventive Services Task Force

In 2012, the task force recommended against (grade D) routine screening with PSA tests for men of any age. The position put the USPSTF at odds with the American Urological Association (AUA) and, to a lesser extent, the American Cancer Society (ACS), both of which supported decision making based on clinician-patient discussion.

The 2017 update to the USPSTF screening recommendation supports an individualized approach to screening based on clinician-patient discussions about the potential harms and benefits of screening.
UPDATED RESEARCH - PSA

- Prostate, Lung, Colorectal and Ovarian Cancer Screening Trial (PLCO), initially did not find any difference in deaths from prostate cancer among men 55 to 74 years who were screened with PSA and men who were not screened. This was updated in October 2017.

- PSA testing results in a decrease in prostate cancer deaths of anywhere from 25% to 32%, compared to men who aren't screened.

WHY BURY YOUR HEAD INTO THE SAND?

TRADITIONAL TESTING

Prostate Cancer Tests

- PSA (Prostate Specific Antigen) Blood Test
- DRE is a physical rectal exam to look for bumps
Diagnostics

Blood

Urine

Biopsy

4Kscore Test

Imaging

Types of Biopsy

- Ultrasound Guided
- MRI Guided
- Fusion

- Ultrasound
- MRI

- Total PSA
- Free PSA
- PSA Density
- PSA Velocity
- SelectMDx
- MRI
- Trans Perineal
- Trans Rectal
- Random
- Fusion

SelectMDx for Prostate Cancer

Liquid Biopsy

Likelihood of prostate cancer upon biopsy: 95%

35% likelihood of low-grade prostate cancer
50% likelihood of high-grade prostate cancer

4Kscore Test

The only blood test that accurately identifies risk for aggressive prostate cancer.
WHAT HAPPENS IF THESE TESTS ARE ABNORMAL?

- Do nothing
- Follow PSA values
- Imaging – MRI
- Biopsy

References:

MRI Fusion Biopsy
UNDERSTANDING THE BIOPSY RESULTS

Your doctor will use the biopsy results to see:

- If you have prostate cancer or not
- If it is slow growing or aggressive (fast growing)


![Gleason's Pattern Scale]

<table>
<thead>
<tr>
<th>Gleason Score</th>
<th>Growth</th>
</tr>
</thead>
<tbody>
<tr>
<td>3+3=6</td>
<td>Slow</td>
</tr>
<tr>
<td>3+4=7</td>
<td>Average</td>
</tr>
<tr>
<td>4+3=7</td>
<td>Moderate Fast</td>
</tr>
<tr>
<td>4+4=8</td>
<td>Faster</td>
</tr>
<tr>
<td>5+5=10</td>
<td>Very Fast</td>
</tr>
</tbody>
</table>
ANSWERS AREN'T ALWAYS AS CLEAR AS WE WOULD LIKE

AUA Low Risk Patients
- Without immediate treatment, patients will die of PCa
- Too many are treated unnecessarily

AUA Intermediate Risk Patients
- More than half will experience BCR with single-modality treatment alone
- Yet the majority do not receive multi-modality treatment

AUA High Risk Patients
- Over-treatment Problem

AUA Intermediate Risk Patients
- Under-treatment Problem


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Prolaris: new test on cell cycle proteins may improve prognosis over Gleason score

To Truly Understand the Aggressiveness of the Patient's Cancer...

We need to look beyond the microscope
AUA Risk categorizes these two patients as the same average risk category bucket.

Looking at Two Similar Patients:

John, age 65

Carl, age 68

But the reality in our two patients...
TREATMENTS FOR LOCALIZED PROSTATE CANCER

<table>
<thead>
<tr>
<th>Active Surveillance</th>
<th>Surgery</th>
<th>Radiation</th>
<th>Other Treatments</th>
</tr>
</thead>
<tbody>
<tr>
<td>What it means to you</td>
<td>Live with your prostate cancer and be tested regularly</td>
<td>The prostate and cancer cells will be removed</td>
<td>The cancer cells may be killed but not removed</td>
</tr>
<tr>
<td>How it’s done</td>
<td>• PSAT and DRE every 3-6 months</td>
<td>• Robotic assisted prostatectomy</td>
<td>• High Intensity Focused Ultrasound</td>
</tr>
<tr>
<td></td>
<td>• Repeat biopsy at 12-18 months with possible adjuvant therapy</td>
<td></td>
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</tr>
</tbody>
</table>

PROSTATE TESTING FOR CANCER AND TREATMENT (PROTECT) TRIAL – 10 YEAR STUDY

- 1,600 men with localized prostate cancer were randomized for active surveillance, surgery, and radiation
- 75% of patients had low-risk disease

Active surveillance — Half decided to go to treatment at 5 years in
- 1.5% of patients died from prostate cancer and 6.3% had metastatic disease

Surgery and Radiation
- 0.9% of patients died from prostate cancer and 2.4% had metastatic disease

There was no difference in metastasis-free or overall survival between the radical prostatectomy and external beam radiation therapy groups, and a "winner" cannot be declared. However, the nature, duration, and QOL impact of the side effects were different.

More and More Physicians and Patients Are Choosing Active Surveillance

- Low Risk (CAPRA score range: 0-2)
- Prostate-specific antigen (PSA) levels and treatment options over time
- Active surveillance, watchful waiting, radical prostatectomy, radiation therapy, and hormone deprivation therapy

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## SURGERY (PROSTATECTOMY)

<table>
<thead>
<tr>
<th>Pros</th>
<th>Cons</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Best chance for a cure for localized prostate cancer 1-3</td>
<td>• Possible short-term change in sexual potency and bladder control but normally recover over time 4-6</td>
</tr>
<tr>
<td>• Short treatment</td>
<td>• A small chance of having major complications 7</td>
</tr>
<tr>
<td>• Sexual potency is back within 1 year for most patients 4-5</td>
<td>• Hospital stay required (length of stay depends on the type of surgery chosen) 8</td>
</tr>
<tr>
<td>• Urinary function is back within 1-3 months for most patients 4-5</td>
<td>• Results from robotic-assisted surgery for most patients. Traditional open surgery leads to longer recovery time.</td>
</tr>
<tr>
<td>• If the cancer returns, there are several back-up treatments</td>
<td></td>
</tr>
</tbody>
</table>

References:

## HOW IS DA VINCI® SURGERY PERFORMED?

- Typically only a few small incisions are needed
- Surgeon controls the highly precise instruments the entire time to:
  - View in 3D-HD with up to 10x magnification
  - Remove the prostate & cancer cells meticulously
  - Work around the important nerves when indicated

## RADIATION

<table>
<thead>
<tr>
<th>Pros</th>
<th>Cons</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Good chance for a cure for appropriate patients</td>
<td>• Increased fatigue during treatment 6</td>
</tr>
<tr>
<td>• No hospital stay</td>
<td>• Urinary and bowel problems could last for years, and sexual potency tends to get worse over time</td>
</tr>
<tr>
<td>• Few restrictions after treatment, if any</td>
<td>• More likely to have another cancer – your prostate can move during treatment and radiation can hit nearby tissues</td>
</tr>
<tr>
<td>• May be used after surgery if cancer has spread outside of the prostate</td>
<td>• Very difficult to treat if the prostate cancer returns after radiation</td>
</tr>
</tbody>
</table>

References:
What is SpaceOAR Hydrogel?

SpaceOAR System – Spacing Organs at Risk (OAR): Rectal Protection for Prostate Cancer Radiation Therapy Patients

SpaceOAR System reduces rectal injury in men receiving prostate cancer radiation therapy (RT) by acting as a spacer – pushing the rectum away from the prostate.

Anatomy without SpaceOAR System

The rectum is next to the prostate complicating prostate radiation therapy.

HIFU – HIGH INTENSITY FOCUSED ULTRASOUND

non-invasive, outpatient treatment for prostate cancer that preserves patient quality of life

HIFU

LESS MAY BE MORE IN PROSTATE CANCER TREATMENT

HIFU
The Myriad myRisk Hereditary Cancer test is a 28-gene panel that identifies an elevated risk for eight important cancers:

- Hereditary cancer is seen in 14% of patients with prostate cancer (similar to breast cancer)
  - Prevalence of BRCA mutation in US: 1 in 300-500 and in Jews is 1 in 40
  - Lynch Syndrome is seen in 1 in 300-500

Criteria include:

- Gleason 7 prostate cancer AND
- Family history: breast cancer < 50 years of age, ovarian cancer, pancreatic cancer, high grade prostate cancer
### THE MYRIAD MYRISK HEREDITARY CANCER TEST

1. Help with patient immediate treatment decision
   (TP53 mutations should avoid radiation as this can increase risk of additional cancer)
2. Help identify secondary cancer risk
   (If with BRCA 1 or 2, patient could develop male breast cancer, risk is up to 6.8%)
3. ID family members at risk

### CASE STUDIES

#### Actual case

NOTES:

Patient is a prominent family doctor.
After initial biopsy results, he was adamant that he needed some sort of treatment! “I've seen low grade cancers become a problem.” His wife was tearful and wanted him to be treated.

<table>
<thead>
<tr>
<th>Patient Clinical Features</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age: 63</td>
</tr>
<tr>
<td>Gleason Score: 3+3</td>
</tr>
<tr>
<td>PSA Prior to Biopsy: 3.7</td>
</tr>
<tr>
<td>Clinical T -Stage: T1c</td>
</tr>
<tr>
<td>Biopsy Positive Cores/Cores Taken: 2/12</td>
</tr>
<tr>
<td>Risk: Low risk</td>
</tr>
</tbody>
</table>

The patient has a Gleason score of 3+3, PSA of 3.7, and a clinical stage of T1c. The biopsy results show 2 out of 12 cores were positive, and the patient is at low risk.
After seeing the Prolaris Test results, both patient and his wife were agreeable and confident to proceed with active surveillance. F/U PSA 6 months later was 3.2. Patient's family practice now exclusively sends all referrals my way for "state of the art care."

Patient is African American with a long family history of prostate cancer. Several of his brothers have had their prostates removed but are now impotent. He is married and wants to preserve sexual function but wants his prostate removed.

I was able to perform a bilateral nerve sparing prostatectomy with confidence! Post surgery pathology showed Gleason 3+3 disease in 10% and T stage of pT2a. Is Gleason score a sure thing? – Interobserver variability, around 25%, Epstein.
THANK YOU!

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