Strang Cancer Prevention Institute
Dedicated to promoting cure by early detection and research to prevent cancer since 1933

Prostate Cancer Screening and Prevention

1. Guidelines for Screening

Risk Factors

Normal-risk men:
No family history of prostate cancer
No history of prior screening
Not African-American

High-risk men:
Family history of prostate cancer (father, brother, son)
African-American men

Screening guidelines for normal-risk men:

Discuss annual PSA screening to normal risk men age 55-69 after discussion of the benefits and harms

Prostate specific antigen (PSA) measured annually
Digital rectal examination (DRE) is not a useful screening test but may help decide whether to biopsy if PSA elevated

DRE abnormal
Refer to urologist

PSA < 2.5 ng/mL & PSA velocity (rate of increase over time) < 0.35 ng/mL/year
Annual follow-up

PSA > 2.5 - 4.0 ng/mL or PSA velocity > 0.35 - 0.75 ng/mL/year
Refer to urologist

Strang Cancer Prevention Institute has developed and updates guidelines for cancer screening and best practices for cancer prevention. Strang is synonymous with cancer screening and prevention. Strang was the first medical facility to introduce the Pap test into clinical practice which has saved millions of women's lives worldwide. Strang was opened by first lady Eleanor Roosevelt in 1933.

Screening recommendations for high-risk men:

Offer annual screening to men at high risk age 40 or older after discussion of the benefits and harms

Digital rectal examination (DRE) annually
Prostate specific antigen (PSA) annually

PSA >2.5 – 4 ng/mL or PSA velocity >0.35 - 0.4 ng/mL when PSA < 2.5 ng/mL
Refer to urologist for consideration of trans-rectal ultrasound (TRUS) – guided biopsy

PSA > 10 ng/mL
Refer to urologist for TRUS – guided biopsy

If you decide you want prostate cancer screening request your physician to do a digital rectal exam and a blood PSA test

2. Cancer Prevention

Finasteride and Dutasteride

Finasteride and dutasteride block the conversion of testosterone to dihydrotestosterone (DHT). DHT may have a role in prostate cancer development.

In the Prostate Cancer Prevention Trial (PCPT) in healthy men age 55 or older finasteride lowered rate of prostate cancer development compared to placebo, but those that did develop prostate cancer had more aggressive cancers. The number of deaths from prostate cancer was the same in those taking finasteride versus placebo.

In the Reduction by Dutasteride of Prostate Cancer Events (REDUCE) trial in men 50-75 years at increased risk for prostate cancer there were fewer cancers in those taking dutasteride compared to those taking placebo. Less aggressive prostate cancers were reduced but the number of more aggressive tumors was not.

Finasteride and dutasteride are associated with side effects which include loss of libido, erectile dysfunction and gynecomastia.

The FDA has added a warning that finasteride and dutasteride may increase the risk of high grade cancer.

THE FOLLOWING HAVE NOT BEEN SHOWN TO BE EFFECTIVE:
Vitamin E: The SELECT trial showed that Vitamin E increased the risk (not mortality) of prostate cancer by 9%

POSSIBLE RISK REDUCING STRATEGIES WHICH ARE UNPROVEN:
Selenium supplements (which can have serious side effects in excess)
Diet
Multivitamins
Lycopene (conflicting data)

PROSTATE CANCER
BENEFITS AND HARMS - FREQUENTLY ASKED QUESTIONS (FAQs)

How is screening done?
Screening is done with a blood test for PSA level, although a digital rectal exam may be helpful. If the PSA level is above normal, or normal but rising, it may indicate the presence of prostate cancer.

Who should have prostate cancer screening?
Whether or not prostate cancer screening should be done in anyone is highly controversial. The substantial likelihood of harms and the smaller likelihood of benefit have caused some groups to recommend against PSA screening.

Men with an increased risk such as those with a strong family history of prostate cancer (father, brother, son) or who are African-American may consider screening before age 55.

Low risk men age 55-69 may choose to have screening once they understand the benefits and harms (see below).

Men with a life expectancy of less than ten years are unlikely to benefit.

How often should screening be done in low-risk men who choose to be screened?
Baseline screening is started at age 50-55 years and repeated annually in the US.

How often should screening be done in men at increased risk?
Baseline screening may be started earlier than age 50-55 because high-risk men tend to have cancers diagnosed earlier. Testing is repeated annually.

What is the benefit of prostate cancer screening?
A small reduction in death from prostate cancer, although the benefit is uncertain.

What are the harms of prostate cancer screening?
In 80% of men with an increased PSA the test is a false positive and there is no cancer present. False-positive PSA test results are associated with negative psychological effects, including persistent worry about prostate cancer. Men who have a false-positive test result are more likely to have additional testing, including 1 or more needle biopsies, in the following year, than those who have a negative test result. Over 10 years, approximately 15% to 20% of men will have a PSA test result that triggers a biopsy, depending on the PSA threshold and testing interval used. A prostate biopsy may cause pain, fever, bleeding, infection, transient urinary difficulties; these complications are uncommon (1%).

What are the harms related to treatment of screen-detected cancer?
False positive PSA elevation, which is not due to cancer, may result in a biopsy which can be painful.

Nearly 90% of men with PSA-detected prostate cancer in the United States have early treatment with surgery, radiation, or male hormone (androgen) deprivation therapy.

- **Surgery:**

Up to 5 in 1000 men will die within 1 month of prostate cancer surgery and between 10 and 70 men in a thousand will have serious surgical complications. Long-term adverse effects

include erectile dysfunction which is more common after surgery than radiation therapy. Bowel problems can occur.

- **Radiation Therapy:**

Bowel problems occur more frequently with radiation therapy than surgery.

- **Surgery or Radiation Therapy:**

Urinary incontinence occurs more frequently after surgery or radioactive seed treatment (brachytherapy). Symptoms of urinary obstruction are reduced by surgery, initially increased but decreased over time with radiation therapy and markedly increase initialy and remain increased after brachytherapy. Erectile dysfunction occurs in at least 200 to 300 of 1000 men treated with these therapies.

- **Androgen Deprivation Therapy:**

This treatment is sometimes used as primary therapy for early-stage prostate cancer, particularly in older men, although it has not been approved for this use by the U.S. Food and Drug Administration (FDA) and it has not been shown to improve survival. Adequate evidence shows that the complications include erectile dysfunction (in approximately 400 of 1000 men treated), as well as male breast enlargement (gynecomastia) and bone thinning (osteoporosis) and hot flashes.

Over-Diagnosis:

There is convincing evidence that PSA-based screening leads to substantial over-diagnosis of prostate tumors. The amount of over-diagnosis of prostate cancer is of important concern. because a man with cancer that would not cause symptoms for the remainder of his life cannot benefit from screening or treatment.

Doctors and patients usually elect to treat most cases of screen-detected cancer, given our current inability to identify which tumors will lead to symptoms or death. There is convincing evidence that PSA-based screening for prostate cancer results in considerable overtreatment (treatment of cancers that would not otherwise grow) and its associated harms. The decision as to whether to undergo prostate cancer screening should only be made after review of the harms and benefits. The benefits may be greater in men at increased risk of prostate cancer.