



Prostate Cancer



Indiana
Department
of
Health



Bottom Line

The prostate is an exocrine gland in the male reproductive system. Prostate cancer is the most commonly diagnosed cancer among men in the United States and is the second leading cause of cancer death.¹ Approximately one in eight men in the U.S. will be diagnosed with prostate cancer. In 2024, an estimated 299,010 new cases of prostate cancer will be diagnosed in the U.S. and 35,250 men will die from the disease.² Most prostate cancers are adenocarcinomas, or cancers that arise in cells that make and release mucus or fluids. Prostate cancer tends to grow slowly, and most men with prostate cancer are aged 65 years or older and do not die from prostate cancer.¹ It is important for men to talk with their health care providers about the risks and benefits of screening tests for prostate cancer.³ Screening for prostate cancer offers a small potential benefit of reducing the chance of death from prostate cancer in some men.

Table 13. Burden of Invasive Prostate Cancer- Indiana, 2016-2020*

*Age-adjusted to the US 2000 Standard Population. Source: Indiana State Cancer Registry

	Average number of cases per year (2016-2020)	Rate per 100,000 males* (2016-2020)	Number of cases (2020)	Rate per 100,000 males* (2020)
Indiana Incidence	4,054	91.2	3,412	73.8
Indiana Deaths	612	14.1	557	12.3

Who Gets Prostate Cancer?

- **Age:** The chance of developing prostate cancer rises rapidly after age 50, with six out of ten diagnoses occurring among men over age 65.⁴ The average age of men at diagnosis is 66, and it is rare in men under 40.⁴
- **Race and ethnicity:** Black men are 76 percent more likely to develop prostate cancer [Table 14] than any other racial or ethnic group, and they are more than twice as likely to die from the disease compared to white men.⁵ However, in Indiana, this difference between Black and white males appears to be decreasing [Figure 30].⁶
- **Family history:** Men who have a first-degree relative (father, brother, son) with a history of prostate cancer are two to three times more likely to develop the disease.² Risk increases if more family members are diagnosed with prostate cancer.⁷
- **Genetic Conditions:** Inherited mutations of the BRCA1 or BRCA2 genes can increase prostate cancer risk in men. Men with Lynch syndrome, also known as hereditary non-polyposis colorectal cancer or HNPCC, also have an increased risk of developing prostate cancer.²



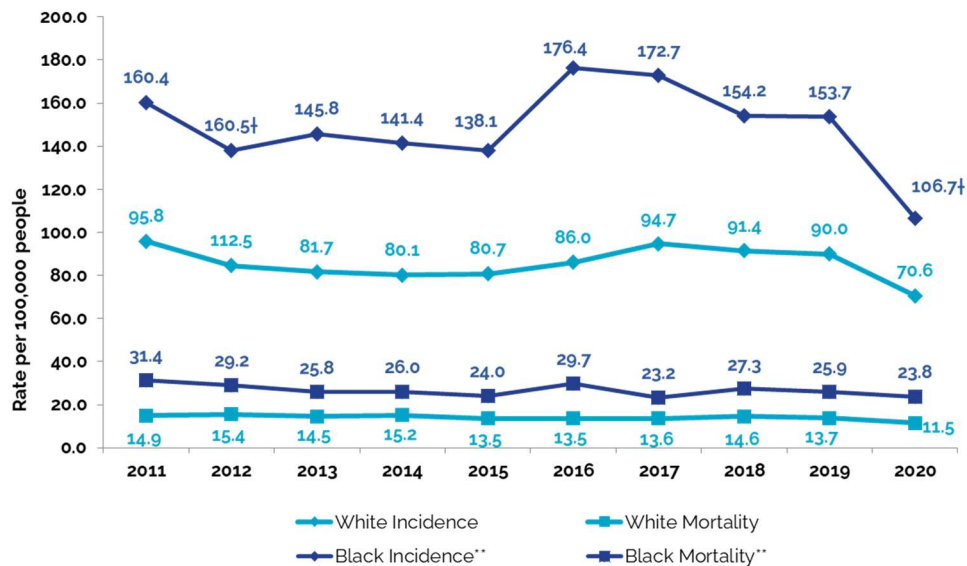
Table 14. Probability of Developing Prostate Cancer Over Selected Age Intervals by Race- United States, 2017-2019*

*For people free of cancer at the beginning of age interval. Percentages and "1 in" numbers might not be equivalent because of rounding. Source: SEER Cancer Statistics

Age	White Non-Hispanic	Black Non-Hispanic	Hispanic
Risk Interval (Start Age - End Age)	Risk (%)	Risk (%)	Risk (%)
0 to 40	<0.1	<0.1	<0.1
0 to 50	0.20	0.50	0.1
0 to 60	1.90	3.70	1.2
0 to 70	6.30	10.30	4.7
0 to 80	10.50	15.20	8.5
Lifetime risk	12.60	17.30	11.1

Figure 30. Prostate Cancer Incidence and Mortality (death) Rates by Race*- Indiana, 2011-2020*

*Age-adjusted to the US 2000 Standard Population. Source: Indiana State Cancer Registry



**All black rates are significantly elevated ($P < .05$) compared to whites.



Can Prostate Cancer Be Detected Early?

- Digital Rectal Exam (DRE): A health care provider inserts a gloved, lubricated finger into the rectum to feel the prostate. This allows the examiner to estimate the size of the prostate and feel for any lumps or other abnormalities.¹
- Prostate Specific Antigen (PSA) test: This is a blood test that measures levels of PSA, a substance made by the prostate. High PSA levels may indicate the presence of prostate cancer, but may also indicate other non-cancerous conditions—such as prostatitis (temporary rise) or benign prostate hypertrophy (gradual slow rise).
- The American Cancer Society (ACS) recommends that beginning at the age of 50, men who are at average risk of prostate cancer and have a life expectancy of at least 10 years have a conversation with their health care provider about the benefits, limitations, risks, and uncertainties of prostate cancer screening.¹
- The United States Preventive Services Task Force recommends men should have an opportunity to make an informed decision about whether or not to be tested based on their personal values and preferences.^{3,9}
- Men at high risk of developing prostate cancer, such as Black men or men with a close relative diagnosed with prostate cancer prior to age of 65, should have this discussion with their health care provider beginning at age 45.⁵
- Men at even higher risk (men with one or more first-degree relatives diagnosed with prostate cancer at an early age) should have this discussion with their health care provider at age 40.¹

Risks and Benefits of Prostate Cancer Screening

Making decisions about screening tests can be difficult and not all medical experts agree that screening for prostate cancer will save lives. Men should discuss the benefits and risks of prostate cancer screening with their health care providers.

- Potential benefits of prostate cancer screening include:
 - Early detection
 - Increased treatment effectiveness
 - Treatment can be less aggressive when the cancer is detected early (e.g. avoiding hormone therapy when giving radiation and preservation of nerves and muscle when doing surgery)
- Potential risks of prostate cancer screening include:
 - False-positive test results indicating that a man has prostate cancer when he does not. This can potentially lead to unnecessary tests, procedures, and anxiety.
 - False-negative test results indicating there is no cancer when there really is. This may cause a man to delay seeking medical care even if he has symptoms.
 - Over-diagnosis. Some prostate cancers may never cause symptoms and may never become life threatening. Not all forms of prostate cancer need treatment. Finding these types of cancer is called over-diagnosis because it is not clear whether early detection and treatment of these types of cancers will help a man live longer than if no treatment were given. Specifically, low-risk (Gleason 3+3) prostate cancer typically does not need to be treated, but can be followed with serial PSA checks every 6 months. By avoiding treatment for low-risk cancer, many of the downsides of PSA screening can be avoided.
 - Some treatments for prostate cancer, such as radical prostatectomy and radiation therapy, can have long-term side effects such as urinary incontinence (inability to control the flow of urine, resulting in leakage) and erectile dysfunction (inability to keep an erection)²



- There is evidence that statins, a class of drugs often prescribed by doctors to help lower cholesterol, may lower PSA levels.¹⁰ This could lead to false-negative test results and complicate prostate cancer detection. Men taking statins should discuss the potential impact of these medications on PSA test results with their health care providers

Prostate Cancer Screening Considerations

Given the potential risks linked to prostate cancer screening, it is important for men to talk with their health care providers to become informed decision makers. Each man should:

- Understand his risk of prostate cancer
- Understand the risks, benefits, and alternatives to screening
- Participate in the decision of whether to be screened or not
- Make a decision consistent with his preferences and values

What Factors Influence Prostate Cancer Survival?

- **Stage of diagnosis.** After prostate cancer has been diagnosed, tests are performed to determine whether the cancer cells are confined within the prostate (localized disease) or have spread to other parts of the body (regional or distant disease). The grade assigned to the tumor, typically called the Gleason Score, indicates the likely aggressiveness of the cancer.
- Treatment options vary depending on a man's age, stage, and grade of cancer, and might include:²
 - Watchful waiting: Men who are not expected to live long enough to experience symptoms of their cancer may be put on watchful waiting. Testing should be minimal as no treatment is expected.
 - Active surveillance: Prostate cancer is closely monitored by performing the PSA checks every 6 months. It is recommended that most low-risk prostate cancers be managed with active surveillance. A confirmatory biopsy with MRI guidance is typically done to rule out undiagnosed higher-grade cancer. Treatment occurs only if and when the prostate cancer causes symptoms or shows signs of growing. This can be more appropriate for men with less aggressive tumors and older men.
 - Surgery (radical prostatectomy): Radical prostatectomy is surgery to remove the prostate completely, as well as the surrounding tissue. The majority of radical prostatectomies performed in the United States are done through a laparoscopic (minimally invasive) approach with robotic assistance.
 - Radiation therapy: Radiation destroys cancer cells, or prevents them from growing, by directing high-energy X-rays (radiation) at the prostate. There are two types of radiation therapy:
 - External radiation therapy: A machine outside the body directs radiation at the cancer cells
 - Internal radiation therapy (brachytherapy): Radioactive seeds or pellets are surgically placed into or near the cancer to destroy the cancer cells
 - Hormone therapy: This treatment, called androgen suppression therapy, alters the effects of male hormones on the prostate through medical or surgical castration (elimination of testicular function) or administration of antiandrogen medications
 - Cryotherapy: This treatment involves the controlled freezing of the prostate gland in order to destroy cancerous cells
 - High Intensity Focused Ultrasound (HIFU): This is a focal heat treatment that is used for patients with radiation failure with persistent cancer in the prostate. It is considered



investigational at this point for treating primary cancer in the prostate. HIFU was invented at Indiana University

- **Overall survival:** The majority (89 percent) of prostate cancers are discovered at local or regional stages. In the US, the five-year relative survival rate for local or regional prostate cancers is close to 100 percent and is 30 percent for distant-stage disease. The 10-year survival rate for all stages combined is 98%.² Additionally, long-term lipid-lowering medication use, specifically statins (a class of drugs often prescribed by doctors to help lower cholesterol) was associated with lower risk of developing prostate cancer and may protect against aggressive prostate cancer.¹¹



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