What is the Impact on Indiana Residents?

Table 11. Burden of Invasive Prostate Cancer — Indiana, 2008–2012

	Average number of cases per year (2008–2012)	Rate per 100,000 people* (2008–2012)	Number of cases (2012)	Rate per 100,000 people* (2012)
Indiana Incidence	3,529	106.9	2,844	82.6
Indiana Mortality	584	21.9	606	21.9

Age-adjusted   Source: Indiana State Cancer Registry

Bottom Line

The prostate is an exocrine gland in the male reproductive system. Excluding all types of skin cancer, prostate cancer is the most commonly diagnosed cancer, and the second leading cause of cancer death among males in the US and Indiana.[1] Approximately one in six males in the US will be diagnosed with prostate cancer and one in 36 will die from it during their lifetime.

Who Gets Prostate Cancer Most Often?

- **Older males.** The chance of developing prostate cancer rises rapidly after age 50, with two out of three new diagnoses occurring among males over age 65.[7] About 60 percent of all prostate cancer cases are diagnosed in males ages 65 and older, and 97 percent occur in males 50 and older.[1]
- **African American Males.** African American males are more likely to develop prostate cancer (one in five lifetime incidence) [Table 12] than whites, and the mortality rate for African American males is twice as high as white males.[7] However, in Indiana, this disparity between African American and white males appears to be decreasing [Figure 26].
- **Males with a family history of prostate cancer.** Males with one first-degree relative (a father, brother, or son) with a history of prostate cancer are two to three times more likely to develop the disease.[2] This risk increases if more family members are diagnosed with prostate cancer.

Can Prostate Cancer Be Detected Early?
— see the "Be Aware" box for additional information

Not all medical experts agree that screening for prostate cancer will save lives. The controversy focuses on cost of screening, the age groups to be screened, and the potential for serious side effects associated with treatment after diagnosis. Not all forms of prostate cancer need treatment.

The American Cancer Society recommends that beginning at the age of 50, males 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 and limitations of prostate-specific antigen (PSA) testing. Males should have an opportunity to make an informed decision about whether or not to be tested based on their personal values and preferences. Males at high risk of developing prostate cancer, (African Americans or males with a close relative diagnosed with prostate cancer before the age of 65), should have this discussion with their health care provider beginning at 45. Males at even higher risk (because they have several close relatives diagnosed with prostate cancer at an early age) should have this discussion with their provider at 40.[1]

- Potential benefits of prostate cancer screening include:
  - Early detection
  - Increased treatment effectiveness
- Potential risks of prostate cancer screening include:
  - False-positive test results (indicating that you have prostate cancer when you do not) — potentially leading to unneeded testing and can cause anxiety.
  - Over-diagnosis — since prostate cancer may not grow or cause symptoms. Typical growth is slow and may not cause health problems.
  - Over-treatment of some prostate cancers that might not affect a man's health if left untreated. Also, treatment might lead to serious side effects such as impotence (inability to keep an erection) and incontinence (inability to control the flow of urine, resulting in leakage).[8]
- Given the potential risks linked to prostate cancer screening, it is vital for males to talk with their health care provider 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 to be screened or not at a level he desires.
  - Makes a decision consistent with his preferences and values.
- Tests commonly used to screen for prostate cancer include:
  - **Digital rectal exam (DRE).** A doctor or nurse 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.
  - **PSA test.** This is a blood test that measures levels of PSA, a substance made by the prostate. While high PSA levels may indicate the presence of prostate cancer, it may also indicate other noncancerous conditions.
  - If PSA or DRE tests are abnormal, doctors may perform additional tests, including use of transrectal ultrasounds and biopsies.
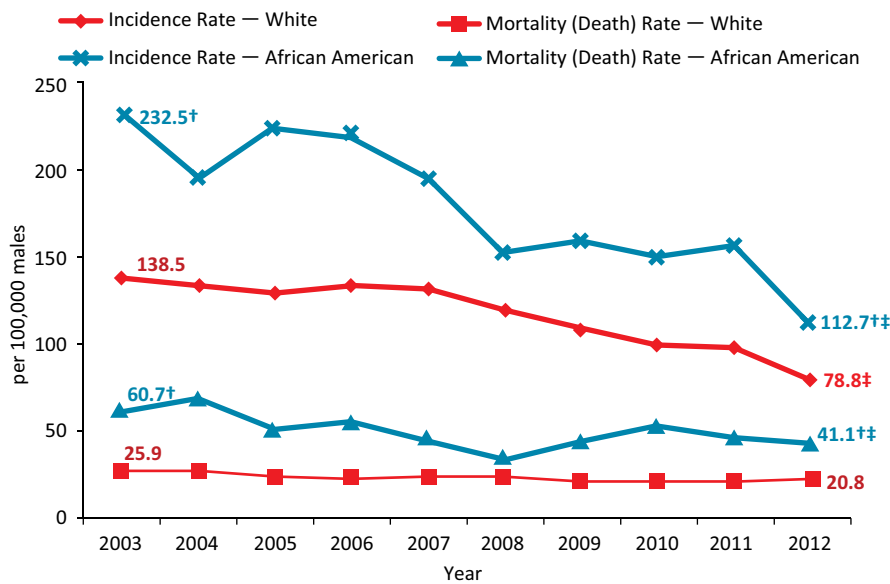
Table 12. Probability of Developing Prostate Cancer Over Selected Age Intervals by Race — US, 2009–2011*

Age	White		African American	
30 to 39	0.01	(1 in 12,288)	0.03	(1 in 4,000)
40 to 49	0.29	(1 in 390)	0.73	(1 in 138)
50 to 59	2.11	(1 in 47)	3.92	(1 in 25)
60 to 69	5.96	(1 in 16)	9.51	(1 in 10)
70 to 79	7.04	(1 in 14)	10.30	(1 in 9)
Lifetime risk	14.16	(1 in 7)	19.08	(1 in 5)

* For people free of cancer at beginning of age interval. Percentages and "1 in" numbers might not be equivalent because of rounding.

Source: DevCan: Probability of Developing or Dying of Cancer Software, Version 6.8.0. Statistical Research and Applications Branch, National Cancer Institute, August 2014. http://surveillance.cancer.gov/devcan/).

Figure 26. Prostate Cancer Incidence and Mortality (Death) Rates by Race* — Indiana, 2003–2012

* Incidence Rate — White
* Mortality (Death) Rate — White
* Incidence Rate — African American
* Mortality (Death) Rate — African American

X axis: Year (2003–2012)
Y axis: per 100,000 males

Data labels: 232.5†, 138.5, 60.7†, 25.9, 112.7†‡, 78.8‡, 41.1†‡, 20.8

* Age-adjusted

Source: Indiana State Cancer Registry

† Significantly elevated (P<.05) compared to white males

‡ Significantly lower (P<.05) compared to 2003

What Factors Influence Prostate Cancer Survival?

* **Stage of diagnosis.** After prostate cancer has been diagnosed, tests are performed to determine whether the cancer cells remain within the prostate or have spread to other parts of the body [Figure 27]. The grade assigned to the tumor, typically called the Gleason score, indicates the likely aggressiveness of the cancer.

* **Treatment options** vary depending on age, stage, and grade of cancer. The most common treatments for localized prostate cancer (confined to the prostate) include:

  o *Active surveillance (watchful waiting).* The patient's prostate cancer is closely monitored by performing the PSA and DRE tests regularly. Treatment occurs only if and when the prostate cancer causes symptoms or shows signs of growing. This can be more appropriate for males with less aggressive tumors and older males.

  o *Surgery (radical prostatectomy).* Prostatectomy is surgery to remove the prostate completely. Radical prostatectomy removes the prostate as well as the surrounding tissue.

  o *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.

  o *Hormone therapy.* This treatment, called androgen deprivation therapy (ADT), alters the effects of male hormones on the prostate through medical or surgical castration (elimination of testicular function) or administration of antiandrogen medications.

  o *Cyrotherapy.* This treatment involves the controlled freezing of the prostate gland in order to destroy cancerous cells.[5]

BE AWARE!

Common Signs and Symptoms of Prostate Cancer

* In early stages, prostate cancer may not cause symptoms. It is important to know that some males have no symptoms at all. [1,5]

* Symptoms* of prostate cancer can include:

  o Difficulty starting urination

  o Weak or interrupted flow of urine

  o Frequent urination, especially at night

  o Inability to empty the bladder completely

  o Pain or burning during urination

  o Blood in the urine or semen

  o Painful ejaculation

  o Trouble having an erection

  o Pain in the back, hips, or pelvis that doesn't go away**

*These symptoms also occur frequently as a result of non-cancerous conditions, such as prostate enlargement or infection and none are specific for prostate cancer

**This symptom is most associated with advanced prostate cancer since it commonly spreads to the bones.

Figure 27. Percent of Prostate Cases Diagnosed During Each Stage* — Indiana, 2008–2012
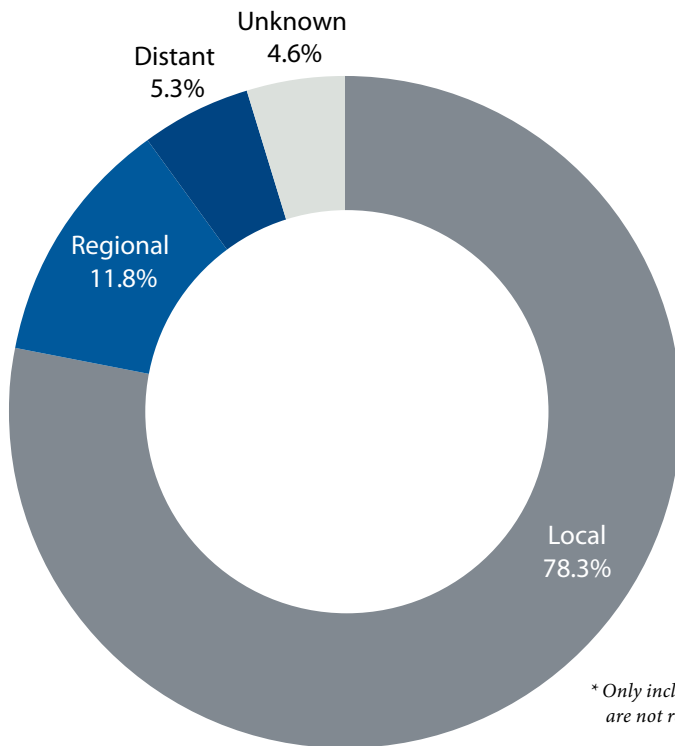
During 2008–2012, of the 17,643 Indiana residents who received an invasive prostate cancer diagnosis, 13,819 (78.3%) were diagnosed in the local stage, 2,090 (11.8%) were diagnosed in the regional stage, 928 were diagnosed in the distant stage (5.3%), and 806 (4.6%) had unknown staging.

* *Only includes invasive cases; in situ cases are not reportable*

Source: Indiana State Cancer Registry

- **Overall survival.** The majority (93 percent) of prostate cancers are discovered in the local or regional stages.[1] In the US, the five-year relative survival rate for prostate cancer among African Americans is 96 percent and nearly 100 percent among whites.[2] Obesity and smoking are associated with an increased risk of dying from prostate cancer.[1]

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TAKE CHARGE!
What You Can Do to Help Prevent Prostate Cancer

- Stay active, eat well, and maintain a healthy body weight. In particular:
  - Eat at least five servings of fruits and vegetables each day.
  - Limit intake of red meats (especially processed meats such as hot dogs, bologna, and lunch meat).
  - Avoid excessive consumption of dairy products (>3 servings/day) and calcium (>1,500 mg/day).
  - Include recommended levels of lycopene (antioxidants that help prevent damage to DNA which are found in tomatoes, pink grapefruit, and watermelon) and vitamin E in your diet.
  - Meet recommended levels of physical activity. (http://www.cdc.gov/physicalactivity/everyone/guidelines/index.html)[6]