

Prostate Cancer

Prostate cancer means screen the right men at the right age, stage the cancer carefully, watch low-risk tumors closely, and use surgery or radiation for high-risk disease.

THE ONE-LINE TRUTH

Prostate cancer is very common, usually grows slowly, and often needs watching more than treating right away.

The chain — how it unfolds

1. DNA mutations let prostate cells ignore growth stop signals. — why: Aging, inherited genes (like BRCA1, BRCA2, or Lynch syndrome mutations), and cumulative DNA damage turn off genes that normally stop cells from dividing. Without brakes, the cells keep copying themselves and form a tumor.
2. Testosterone fuels the cancer's growth. — why: Testosterone (made in the testicles) travels through the blood to the prostate, where an enzyme called 5-alpha reductase converts it to DHT. DHT binds to androgen receptors inside prostate cells and switches on genes that tell the cell to grow and survive. Cancer cells hijack this pathway and multiply faster.
3. The tumor grows inside the prostate for years without symptoms. — why: Because early tumors are small and tucked inside the gland, they do not block urine flow or press on nerves, so the man feels nothing. Only a PSA blood test or digital rectal exam can hint that something is wrong.
4. When the tumor grows large or reaches the urethra, urinary symptoms appear. — why: The tumor squeezes the urethra from the outside or invades its wall, narrowing the channel. The bladder has to push harder to empty, causing a weak stream, hesitancy, frequent urination, and dribbling. Bleeding from the tumor causes blood in urine or semen.
5. Cancer cells break off and spread to pelvic lymph nodes. — why: Lymph vessels drain fluid from the prostate to nearby lymph nodes. Cancer cells hitch a ride in this flow, settle in the nodes, and start new colonies. Lymph node spread means the cancer is no longer confined to the prostate.

6. Cancer spreads to bones, especially the spine, pelvis, and ribs. — why: Prostate cancer cells release signals like endothelin-1 and bone morphogenetic proteins that wake up osteoblasts (cells that build bone). The new bone forms in a patchy, dense, painful way. Bone metastases show up as hot spots on a bone scan and cause deep, aching pain and fracture risk.
7. Spinal metastases can compress the spinal cord, causing paralysis. — why: A tumor growing in a spine bone can push into the spinal canal and squeeze the spinal cord. This cuts off nerve signals to the legs, bladder, and bowels. Without emergency treatment (steroids, radiation, or surgery), the damage becomes permanent within hours.
8. Blocking testosterone slows or shrinks the cancer. — why: Because most prostate cancers depend on testosterone to grow, drugs that lower testosterone (GnRH agonists like leuprolide, or anti-androgens like enzalutamide) starve the cancer and shrink tumors — though over time, some cancers learn to grow without testosterone (castration-resistant prostate cancer).

Spot it — what you see, and why

- Weak urine stream or trouble starting to pee: The growing cancer can press on the urethra (the tube that carries pee out) and squeeze it partly shut, making it harder for urine to flow through, like stepping on a garden hose.
- Needing to pee often, especially at night: The tumor pushes on the bladder and makes it think it is full even when it is not, so the bladder sends the urge signal over and over.
- Blood in the urine or semen: The cancer can break tiny blood vessels in the prostate or nearby passages, letting blood leak into the urine or the fluid that carries sperm.
- Pain in the lower back, hips, or pelvis that does not go away: If the cancer has spread to bones, it eats into the bone and triggers pain nerves; this happens because prostate cancer cells often travel through the blood to the spine, pelvis, or hip bones.
- Trouble getting or keeping an erection: The tumor or swelling can damage nerves and blood vessels that run right next to the prostate and are needed for an erection to work.
- Painful ejaculation: The cancer or inflammation squeezes the ducts that carry semen, or the tumor presses on surrounding tissue, causing pain when fluid is pushed through during climax.

Red flags — act now

- Blood in the urine or semen
- Bone pain in the back, hips, or pelvis that does not go away
- Sudden trouble holding urine or moving your legs (could mean the cancer is pressing on the spinal cord)

- Unexplained weight loss and deep tiredness
- PSA rising very fast or staying high after treatment

Treat it — in this order

1. PSA screening with shared decision-making for men age 55-69 (or starting at 40-45 for Black men or those with family history) → Catches slow-growing cancer early when it is still inside the prostate and easier to cure or watch safely. Early detection means you can choose less harsh treatment or even careful watching instead of rushing into surgery.
2. Active surveillance (PSA every 3-6 months, repeat MRI and biopsy every 1-3 years) for Gleason 6 or low-volume Gleason 7 cancer confined to the prostate → Avoids surgery or radiation side effects (like incontinence and erectile dysfunction) when the cancer is growing so slowly it may never threaten your life. You watch it closely and only treat if it starts growing faster.
3. Radical prostatectomy (surgery to remove the entire prostate and seminal vesicles) for localized intermediate- or high-risk cancer → Physically removes all the cancer cells from the body if the tumor is still trapped inside the prostate. Aims for cure. Best chance to stop cancer before it spreads to bones or lymph nodes.
4. External beam radiation therapy (often with brachytherapy seed implants for boost) for localized intermediate- or high-risk cancer → Kills cancer cells inside the prostate with focused radiation beams. Works as well as surgery for cure when cancer is still local. Good option if surgery risk is too high or patient prefers to keep the prostate in place.
5. Androgen deprivation therapy (ADT): GnRH agonists (leuprolide, goserelin) or antagonists (degarelix, relugolix) to block testosterone → Prostate cancer cells need testosterone to grow. ADT starves them by shutting down testosterone production in the testicles. Shrinks tumors, slows spread, and controls metastatic disease for months to years. Used with radiation for high-risk local cancer or alone for advanced cancer.

Your top priorities at the bedside

1. Check for signs of spinal cord compression every shift: leg strength, sensation in both legs, ability to urinate and have a bowel movement. — why: Prostate cancer metastases (spread) to the spine can press on the spinal cord. Compression cuts off nerve signals and blood flow. Catching it in the first 24 hours prevents permanent paralysis and loss of bladder and bowel control.

2. Monitor pain level using a 0-to-10 scale and give prescribed pain medicine on time, especially for bone pain. — why: Bone metastases release chemicals that activate pain nerves and weaken bone structure. Uncontrolled pain raises stress hormones like cortisol, which suppress the immune system and make cancer grow faster. Pain control also lets patients stay active and prevents blood clots.
3. Track urinary output and watch for difficulty urinating, blood clots in urine, or inability to pass urine. — why: The prostate wraps around the urethra. A growing tumor can squeeze it shut, causing acute urinary retention (complete blockage). Urine backs up into the kidneys, raising pressure and damaging kidney tissue. Also, blood clots from cancer can block the catheter or urethra.