

Mens Sexual Health STI Prevention and Prep

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THE STORY IN ONE SENTENCE

Sexual health is real medicine — ask about it, test for it, vaccinate, and prevent what you can before it spreads or breaks something downstream.

“Men's sexual health and STI prevention is frontline medicine: take a full sexual history every time, test on the right schedule, offer PrEP to anyone at risk for HIV, vaccinate against HPV and hepatitis B, and treat infections early before they silently wreck fertility, hearts, brains, and newborns.”

Normal anatomy — the body's job

Healthy male sexual function is a coordinated job between blood vessels, nerves, hormones, and the brain. An erection happens when nerve signals tell arteries in the penis to relax and fill three spongy chambers (the corpora cavernosa — think of them as three long balloons inside the shaft of the penis) with blood, while veins squeeze shut to trap that blood and keep the penis firm. Testosterone (the main male hormone made in the testes, the two glands in your scrotum) fuels sex drive, sperm production, muscle and bone strength, and mood. The limbic system in your brain (especially the hypothalamus, which controls hunger and hormones, and the amygdala, your alarm center) runs desire and arousal. The autonomic nervous system (the part you cannot control on purpose, like your heartbeat) runs the mechanics of erection and ejaculation. Your skin and the mucous membranes (the wet, delicate lining of your genitals, mouth, and rectum) are the first barrier against germs. Keep this normal picture in your head, because every sexual health problem is a break in one or more of these jobs.

BODY'S JOB

Blood vessels in the penis must dilate (open wide) and fill with blood fast, while veins clamp down to trap that blood — that is the hydraulic system that makes an erection. Testosterone from the testes travels in your blood to your brain and body, telling cells to build muscle, make sperm, keep bones dense, and keep your sex drive alive. Nerves from your spinal cord (the sacral plexus, a bundle of nerves at the very base of your spine near your tailbone) send signals to the penis to start and stop erections and ejaculation. The limbic system and prefrontal cortex (the front of your brain that plans and puts the brakes on impulses) in your brain process arousal, emotion, and social cues that turn desire on or off. The skin and mucous membranes of your penis, urethra (the tube inside the penis that carries urine and semen out), anus, and mouth act as physical and immune barriers to block bacteria, viruses, and parasites from entering your body during sex. When all these parts work together, sexual function is smooth and infection-free.

1. Your brain's limbic system (the hypothalamus, amygdala, and reward circuits deep inside that handle pleasure and emotion) receives arousal signals from what you see, feel, smell, or think, then sends a 'go' signal down your spinal cord.
2. Nerves from the sacral spinal cord (the S2, S3, and S4 nerve roots at the very base of your spine, near your tailbone) branch out to your penis and tell the smooth muscle wrapped around the penile arteries to relax.
3. When those arteries relax, blood rushes into the three spongy cylinders inside the penis (the corpora cavernosa — two on top and one on the bottom), filling them like water balloons.
4. At the same time, veins that normally drain blood out of the penis get squeezed shut by the swollen tissue around them, trapping blood inside and keeping the penis firm — that is the erection.
5. Testosterone made in your testes (the two oval glands in your scrotum) circulates in your blood and binds to receptors in your brain, muscles, bones, and genitals to keep sex drive alive, make sperm, build muscle mass, and maintain bone density.
6. The urethra (the narrow tube running through the center of your penis from your bladder to the tip) is lined with mucous membrane that makes a thin protective layer and has immune cells ready to fight germs that try to enter.
7. The skin of your penis, scrotum, and anus has layers of keratin (a tough protein, the same stuff in your fingernails) and immune cells that block most bacteria and viruses from entering your bloodstream.

8. If a sexually transmitted germ gets past these barriers — through a tiny scrape in the skin, directly into the urethra, or across the mucous membranes of your genitals, mouth, or rectum — it can infect the local tissue or hitch a ride in your bloodstream or lymph system (the network of vessels that drains fluid and immune cells) to other organs.

What breaks

Men's sexual health breaks when infection, blood vessel disease, low hormones, mental health problems, or medication side effects mess up the normal blood flow, nerve signals, testosterone levels, or brain circuits that run sexual function. The most common upstream breaks are sexually transmitted infections — bacteria like gonorrhea (*Neisseria gonorrhoeae*), chlamydia (*Chlamydia trachomatis*), and syphilis (*Treponema pallidum*), and viruses like HIV, herpes (HSV-2 or HSV-1), and HPV (human papillomavirus) — erectile dysfunction (often from diabetes damaging nerves and blood vessels or fatty plaque clogging the small arteries in the penis), low testosterone (hypogonadism, from aging, obesity, long-term pain pills, or your pituitary gland not sending the right hormone signals), anxiety and depression (which dampen the limbic system's arousal signals and keep the fight-or-flight system turned on), and drugs (antidepressants, blood pressure pills, alcohol, opioids like oxycodone or morphine) that interfere with erections or desire. Many men do not report these problems unless the doctor asks directly, because of shame or the belief that sexual issues are not 'real' medical problems. That silence lets infections spread silently to partners and lets complications build over years — infertility, heart disease, brain damage, blindness in newborns, AIDS.

CLINICAL TERM

The upstream pathology in men's sexual health includes sexually transmitted infections (*Neisseria gonorrhoeae*, *Chlamydia trachomatis*, *Treponema pallidum*, HIV, HSV-2, HPV), erectile dysfunction (ED) from endothelial dysfunction and reduced nitric oxide bioavailability in penile arteries (often secondary to diabetes mellitus, high blood pressure (hypertension), hyperlipidemia, atherosclerotic cardiovascular disease, or tobacco use), primary or secondary hypogonadism (low testosterone from testicular failure or suppression of the hypothalamic-pituitary-gonadal axis), major depressive disorder and generalized anxiety disorder (which suppress libido via altered serotonin, dopamine, and norepinephrine signaling in mesolimbic reward pathways), and caused by medical care (iatrogenic) sexual dysfunction from selective serotonin reuptake inhibitors (SSRIs), beta-adrenergic blockers, thiazide diuretics, 5-alpha-reductase inhibitors (finasteride), and chronic opioid therapy. Barriers to disclosure include stigma, provider failure to take routine sexual histories, and patient perception that sexual complaints are not legitimate medical concerns. Untreated STIs cause local complications (urethritis, epididymitis, proctitis), systemic dissemination (disseminated gonococcal infection, neurosyphilis, tertiary cardiovascular and gummatous syphilis, progressive HIV immunosuppression leading to AIDS), and transmission to sexual partners with serious after-effects (sequelae) (pelvic inflammatory disease, ectopic pregnancy, tubal infertility, neonatal conjunctivitis, congenital syphilis).

How the body compensates

The body has no good compensation for untreated STIs — infections spread silently while you feel fine or have only mild symptoms that you ignore. That is the dangerous middle: a man with chlamydia or early syphilis with no symptoms looks completely well, heart rate and blood pressure are normal, but the bacteria are already infecting partners and planting the seeds for future complications — pelvic inflammatory disease (PID) and infertility in female partners, blindness in newborns, aortic aneurysm and brain damage from syphilis, immune system collapse from HIV. For erectile dysfunction and low testosterone, the body cannot fix broken blood vessels or restart hormone production on its own. Men often compensate psychologically by avoiding intimacy, which strains relationships and worsens anxiety and depression, creating a downward spiral. The clinical job is to screen (ask about sexual history, number of partners, types of sex, condom use), test (urine or urethral swab for gonorrhea and chlamydia, blood tests for syphilis and HIV, throat and rectal swabs if indicated), vaccinate (HPV vaccine through age 26, catch-up to 45 with shared decision-making; hepatitis B vaccine if not immune), offer PrEP (pre-exposure prevention (prophylaxis), a daily pill — tenofovir/emtricitabine or tenofovir alafenamide/emtricitabine — for anyone at higher risk of HIV), and treat early — before the silent infection spreads, before the heart disease progresses, before

the bone density drops — because once complications like aortic rupture, AIDS-defining illness, tubal infertility, or pathologic fracture occur, the window to reverse damage closes.

1. Sexually transmitted infections often cause no symptoms or only mild discharge and burning when you pee, so you feel fine and do not seek care — that is the silent phase where you are infectious and complications are building in you and your partners.
2. Gonorrhea (*Neisseria gonorrhoeae*) and chlamydia (*Chlamydia trachomatis*) in men may produce urethral discharge (pus dripping from the tip of the penis) and burning with urination (dysuria) (burning pain when you urinate), but up to 50 percent of chlamydia infections and 10 percent of gonorrhea infections cause no symptoms at all. You feel completely normal, but the bacteria are still alive in your urethra, still infectious, and can still crawl up to your epididymis (causing painful testicular swelling) or spread to every partner you have sex with.
3. Primary syphilis causes a painless chancre (a firm, round ulcer, usually on the penis, anus, or mouth) that heals on its own in three to six weeks without treatment, making you think the infection is gone and everything is fine. Meanwhile, *Treponema pallidum* bacteria are multiplying in your bloodstream and lymph system and will cause secondary syphilis (body-wide rash, swollen lymph nodes, fever, patchy hair loss) weeks to months later, then go dormant and hide in your organs for years before attacking your aorta, brain, eyes, and bones decades later — tertiary syphilis.
4. HIV causes acute retroviral syndrome (a flu-like illness with fever, sore throat, rash, swollen lymph nodes, muscle aches) two to four weeks after infection, then the symptoms disappear and the virus goes quiet for years while it slowly kills CD4 T-cells (the immune system's quarterback cells). You feel completely well during this latent phase — vital signs normal, routine blood counts and chemistry normal — but your viral load (the amount of virus in your blood) is high and you are highly infectious. Without treatment, CD4 counts eventually drop below 200 cells per microliter (normal is 500–1,500), the immune system collapses, and opportunistic infections (pneumocystis pneumonia, tuberculosis, toxoplasmosis, cryptococcal meningitis, CMV retinitis, Kaposi sarcoma) appear — that is AIDS. From infection to AIDS without treatment takes an average of eight to ten years.
5. Erectile dysfunction has no physiologic compensation. Your body cannot grow new arteries in the penis or reverse endothelial damage from years of high blood sugar, high blood pressure, high cholesterol, or smoking. The damaged endothelium cannot make enough nitric oxide (the gas that signals arteries to relax), so blood flow stays low. Men often try psychological strategies — avoiding intimacy, blaming the partner, using alcohol or recreational drugs — that worsen the problem, damage relationships, deepen depression and anxiety, and delay the medical care that could actually help (PDE5 inhibitors, managing cardiovascular risk factors, treating low testosterone or depression).

6. Low testosterone has no metabolic compensation. If your testes are failing (primary hypogonadism) or your pituitary gland is suppressed by opioids or obesity (secondary hypogonadism), your body cannot restart testosterone production on its own. There is no backup gland and no alternative pathway to make testosterone. Muscle mass declines, body fat increases, bone density drops silently (you cannot feel osteoporosis until a bone breaks), energy and mood worsen, sex drive disappears, and fertility declines. You may feel 'just tired' or 'getting old' and not realize it is a treatable hormone deficiency. Without treatment, bone density continues to drop and fracture risk climbs — hip fractures in older men carry up to 30 percent one-year mortality from complications like pneumonia, blood clots, and loss of independence.
7. The dangerous middle is the asymptomatic phase: you look well, vital signs are normal, you have no pain, no visible disease, but infection is spreading to partners, arteries are clogging, hormones are dropping, bone density is falling, and future complications are locked in. You will not feel the problem until it is too late to reverse — your partner is infertile, your newborn is blind, your aorta ruptures, you have a heart attack, you break your hip. Screening (sexual history, STI testing at the right intervals, cardiovascular risk assessment, testosterone level if symptoms suggest it) and prevention (condoms, vaccination, PrEP, early treatment, lifestyle modification) are the only tools that catch disease before the crash point.
8. The crash points to watch for are: a female partner developing pelvic inflammatory disease (PID) and tubal infertility from untreated chlamydia or gonorrhea you gave her; a newborn going blind from gonococcal conjunctivitis (severe eye infection) caught passing through an infected birth canal; a young man with chest pain from coronary artery disease signaled by erectile dysfunction three to five years earlier; aortic aneurysm rupture or aortic regurgitation (leaky heart valve) from tertiary syphilis; AIDS-defining illness (pneumocystis pneumonia, CNS toxoplasmosis, disseminated TB, cryptococcal meningitis) from untreated HIV; pathologic fracture (bone breaking from normal activity or a minor fall) from osteoporosis due to untreated low testosterone. Once these complications occur, the damage is often irreversible — you can treat the infection or replace the hormone, but you cannot un-scar fallopian tubes, regrow a destroyed immune system, reverse aortic valve damage, or bring back lost bone density in an elderly man.

9. Track trends, not single snapshots. A man who reports new erectile dysfunction should be screened for cardiovascular risk factors (hemoglobin A1c or fasting glucose for diabetes, blood pressure, lipid panel for cholesterol, smoking history, body mass index) because ED often precedes coronary events by three to five years — the same endothelial dysfunction and atherosclerosis that clog penile arteries are clogging coronary arteries. A patient with one STI is at higher risk for others and for reinfection — test for HIV, syphilis, gonorrhea, and chlamydia at all sites of sexual contact (urethra, pharynx throat, rectum) at the time of diagnosis and retest in three months (the window period for some infections). A man on chronic opioids should have testosterone checked because opioid-induced hypogonadism is common and undertreated.
10. A stable patient on a downhill slope is not really stable. The man with untreated HIV and a normal CD4 count today will have AIDS in eight to ten years without antiretroviral therapy. The man with asymptomatic low testosterone will lose bone density silently — one to two percent per year — until a hip fracture happens and kills him. The man who does not disclose sexual history because you did not ask will miss the chance for PrEP and acquire HIV from a partner, or will unknowingly spread chlamydia that makes his girlfriend infertile. Prevention (full sexual history, risk-based STI screening per CDC guidelines, PrEP for anyone with HIV risk factors, HPV and hepatitis B vaccination, condom counseling) and early treatment are the only tools that change the trajectory.

Domino effect

1. Untreated gonorrhea (*Neisseria gonorrhoeae* bacteria) or chlamydia (*Chlamydia trachomatis* bacteria) in a man infects his sexual partner because bacteria living in his urethra (the tube inside the penis that carries semen and urine) transfer directly to the partner's cervix, vagina, or rectum during sex. — The urethra and the genital tract are open tubes lined with mucous membranes (moist tissue that secretes protective mucus). Bacteria living in one person's urethra coat the penis and semen. During intercourse, there is direct skin-to-mucous-membrane contact, and bacteria easily jump from infected discharge into the partner's genital tract because mucous membranes absorb fluid and germs can attach to and invade the cells lining the cervix and vagina.
2. In the female partner, gonorrhea or chlamydia bacteria travel up from the cervix (the opening of the uterus) through the uterus and into the fallopian tubes (the two narrow tubes, one on each side, that carry eggs from the ovaries to the uterus) — that upward spread is pelvic inflammatory disease, or PID. — The female genital tract is one continuous open pathway from the vagina through the cervix, across the uterine cavity, through the fallopian tubes, and out into the abdominal cavity near the ovaries. There is no barrier to stop bacteria from crawling upstream, especially during menstruation when the cervix is slightly open and blood flow helps carry bacteria higher. Gonorrhea and chlamydia are built to attach to and invade the cells lining these tubes.

3. The immune system fights the infection in the fallopian tubes by sending neutrophils (white blood cells that eat bacteria). The neutrophils release enzymes and inflammatory chemicals to kill the bacteria, but those same chemicals damage the delicate inner lining of the tubes and leave scar tissue that blocks or narrows the tube — that is tubal factor infertility. — The fallopian tubes are very narrow inside — about the diameter of a pencil lead, roughly one to two millimeters — and lined with tiny hair-like projections called cilia that sweep the egg gently toward the uterus. The lining is delicate and easily damaged. Even mild inflammation and scarring can glue the walls of the tube together or destroy the cilia, so the egg cannot travel through. If both tubes are blocked, sperm and egg never meet, and natural pregnancy cannot happen. If only one tube is blocked or partly blocked, the risk of ectopic pregnancy (egg getting stuck in the tube) skyrockets.
4. If the fallopian tube is only partly blocked by scar tissue, a fertilized egg (embryo) can get stuck in the tube instead of reaching the uterus — that is an ectopic pregnancy, which is life-threatening because the growing embryo will rupture the tube and cause massive internal bleeding. — A fertilized egg is a rapidly growing ball of cells that needs space and a rich blood supply to survive. The uterus is built for this — thick muscular walls, stretchy, filled with blood vessels. The fallopian tube is not. It is a narrow, thin-walled tube with a small blood supply. As the embryo grows over days to weeks, it stretches the tube wall until the wall tears. When the tube ruptures, blood vessels inside rip open and blood pours into the abdominal cavity. The woman suddenly feels severe, sharp abdominal pain (often one-sided), becomes dizzy and pale from blood loss, her blood pressure drops, and she can go into shock (not enough blood circulating to keep organs alive). This is a surgical emergency — she needs emergency surgery (often laparoscopy to remove the ruptured tube and stop the bleeding) or she will bleed to death.
5. A baby born to a mother with untreated gonorrhea or chlamydia passes through the infected birth canal during vaginal delivery, and bacteria coat the baby's face and get into the baby's eyes — that is neonatal conjunctivitis (also called ophthalmia neonatorum, a severe eye infection in newborns), which causes permanent blindness if not treated in the first hours to days of life. — The baby's eyelids are closed and protected in the womb, but open during and after birth. As the baby moves through the vagina (the birth canal), any bacteria, blood, or discharge present coat the baby's face, and bacteria enter the eyes. *Neisseria gonorrhoeae* (gonorrhea bacteria) is especially aggressive — it causes severe pus, swelling, and redness in the conjunctiva (the clear membrane covering the white of the eye and lining the eyelids) within 24 to 48 hours. If not treated immediately with antibiotics (usually IV or IM ceftriaxone plus eye irrigation and topical antibiotics), the infection eats through the cornea (the clear front window of the eye), leaving a permanent scar or hole that causes blindness. That is why every single newborn in the United States gets antibiotic eye ointment (erythromycin) squirted into both eyes within one hour of birth, no exceptions — it is a state-mandated public health intervention that has nearly eliminated neonatal blindness from gonorrhea.

6. Untreated syphilis (*Treponema pallidum* bacteria) hides in the bloodstream and tissues for years after the initial chancre (painless sore) heals. One to three decades later, the bacteria attack the wall of the aorta (the body's largest artery, which carries oxygen-rich blood from the left ventricle of the heart to the rest of the body) — that is cardiovascular syphilis, or syphilitic aortitis — weakening the aortic wall and causing an aortic aneurysm (a bulge in the artery that can rupture and cause sudden death) or aortic regurgitation (the aortic valve at the base of the aorta leaks backward, overworking the heart and causing heart failure). — The aorta is under constant high pressure — 120 millimeters of mercury or more with each heartbeat. The aortic wall has three layers: a thin inner lining (intima), a thick middle layer of smooth muscle and elastic fibers (media), and an outer protective layer (adventitia) fed by tiny blood vessels called the vasa vasorum. *Treponema pallidum* bacteria travel through the bloodstream, invade the vasa vasorum, and trigger chronic inflammation (an ongoing immune attack that releases enzymes and inflammatory chemicals). That inflammation destroys the elastic fibers and smooth muscle in the media, replacing them with scar tissue. The wall becomes weak, stiff, and unable to handle the pressure. The weakened section bulges out like a balloon (aneurysm). If the aneurysm ruptures, blood explodes into the chest cavity and the patient bleeds to death in minutes. If the base of the aorta (the ascending aorta, right above the heart) stretches, the aortic valve ring widens, the three leaflets of the valve cannot meet in the middle anymore, and blood leaks backward into the left ventricle with every heartbeat (aortic regurgitation). The left ventricle has to pump harder to make up for the leak, the heart muscle thickens and stretches (dilates), and eventually the ventricle fails — that is heart failure, causing shortness of breath, leg swelling, and death if untreated.

7. A man under 50 with chest pain, especially if he already has erectile dysfunction, may have coronary artery disease (blockage in the arteries that feed the heart muscle) because the same vascular damage — endothelial dysfunction (damaged artery lining), atherosclerosis (plaque buildup), and reduced nitric oxide (the signal that tells arteries to relax) — that blocks blood flow to the penis also blocks blood flow to the heart. — The arteries in the penis (the dorsal and cavernosal arteries) are very small, about one to two millimeters in diameter. The coronary arteries (the vessels that wrap around the heart and supply oxygen to the heart muscle) are larger, about three to four millimeters. When you have cardiovascular risk factors — diabetes (high blood sugar damages the endothelium and nerves), high cholesterol (LDL particles burrow into the artery wall and form plaques), high blood pressure (constant high pressure injures the endothelium), smoking (toxins damage endothelial cells and make blood clot more easily) — atherosclerotic plaque (a mixture of cholesterol, calcium, immune cells, and scar tissue) builds up inside artery walls throughout the body. Because the penile arteries are smaller, they get clogged first. That is why erectile dysfunction often appears three to five years before a heart attack or stroke. When the coronary arteries narrow from plaque, the heart muscle does not get enough oxygen during exertion (exercise, sex, stress) — that oxygen shortage is starved blood flow (ischemia), and it causes chest pain or pressure (angina). If a plaque ruptures, the rough surface triggers a blood clot (thrombus) that blocks the artery completely, cutting off all blood flow to a section of heart muscle — that is a heart attack (myocardial infarction) (heart attack). The muscle cells die within minutes to hours, the heart rhythm can go haywire (ventricular fibrillation), and the patient can die suddenly or be left with permanent heart damage and heart failure.
8. Untreated low testosterone (hypogonadism) quietly weakens bones over months to years because testosterone is needed to maintain bone mineral density. Men with chronic low testosterone lose bone density and develop osteoporosis (porous, brittle bones), raising the risk of fractures — especially hip fractures, spine fractures, and wrist fractures — from minor trauma or even normal activity. — Bone is living tissue that constantly remodels itself. Osteoclasts (cells that dissolve old bone) and osteoblasts (cells that build new bone) work in balance to keep bones strong. Osteoblasts need testosterone (and estrogen, which men make by converting some testosterone) to function efficiently. When testosterone is low, osteoblast activity slows down, but osteoclasts keep dissolving bone at the normal rate. The balance tips: bone breaks down faster than it rebuilds. Over time — usually years — bones lose mineral density, becoming porous and weak (osteoporosis). A minor fall, lifting something heavy, or even coughing can cause a fracture. Hip fractures are especially dangerous in older men: up to 30 percent die within one year from complications like pneumonia (from being bedridden and unable to cough and clear the lungs), a clot in a deep leg vein (deep vein thrombosis) and pulmonary embolism (a clot lodging in a lung artery) (blood clots in the legs that break off and travel to the lungs), and loss of independence (unable to walk, needing nursing home care, depression, giving up).

9. None of these complications is random or separate. Each one — infertility in your partner from PID, blindness in your newborn from gonococcal conjunctivitis, a ruptured aortic aneurysm from tertiary syphilis, a heart attack signaled by erectile dysfunction, a hip fracture from osteoporosis — traces directly back to one upstream break: an untreated sexually transmitted infection, undiagnosed erectile dysfunction, or low testosterone that no one asked about and you did not know to report. — The body is one connected system. Bacteria in your urethra spread through mucous membrane contact during sex to your partner's cervix and up into the fallopian tubes, and to your baby's eyes during birth. Vascular damage (endothelial dysfunction, atherosclerosis) that blocks blood flow in the small penile arteries also blocks blood flow in the coronary arteries, the brain arteries (causing stroke), and the leg arteries (causing claudication, or pain when walking). Hormone deficiency (low testosterone) that reduces sex drive also reduces bone-building activity and muscle mass. Sexual health is not separate from the rest of medicine — it is a window into cardiovascular risk, infectious disease, hormonal balance, mental health, and relationship well-being. If you take a full sexual history at every visit (number of partners, types of sex, condom use, symptoms, concerns), screen for STIs on the right schedule (CDC recommends annual screening for sexually active men under 25 and anyone with risk factors; more frequent screening every 3–6 months for men who have sex with men or multiple partners), offer PrEP (daily tenofovir/emtricitabine or event-driven dosing) to anyone at risk for HIV, vaccinate against HPV (through age 26, shared decision-making to age 45) and hepatitis B, treat erectile dysfunction early (PDE5 inhibitors, address cardiovascular risk factors, treat depression or low testosterone if present), and replace testosterone when indicated (after confirming low morning total testosterone on two separate tests and ruling out secondary causes), you prevent all these downstream dominoes from falling.

Symptoms · what the patient feels, and why

- Discharge from the penis (clear, white, yellow, or green): Bacteria such as *Neisseria gonorrhoeae* (the germ that causes gonorrhea) or *Chlamydia trachomatis* infect the urethra (the tube inside the penis that carries urine and semen out). The infection makes the lining swell and leak fluid—a mix of dead cells, immune fighters, and bacteria—that shows up as discharge at the tip.
- Burning or pain when you pee: When bacteria inflame the inside of the urethra, the lining becomes raw and swollen. Urine passing over that irritated tissue stings sharply—like pouring lemon juice on a cut.

- Sores, blisters, or ulcers on or around the penis, scrotum, or anus: Viruses like herpes simplex (HSV-1 or HSV-2) or bacteria like *Treponema pallidum* (which causes syphilis) attack and kill skin cells, forming open wounds. Herpes typically creates clusters of small, painful blisters that burst into sores. Syphilis often causes a single, firm, painless ulcer called a chancre. Both are the body's visible proof that infection is damaging tissue.
- Itching or tingling around the genitals or anus: Nerve endings in the skin pick up signals from nearby inflammation—swelling and chemical messengers released by immune cells. In herpes, the virus hides in nerve roots and can irritate them directly, sending tingling or itching signals to the brain hours or days before blisters appear.
- Swollen, tender lymph nodes in the groin: Lymph nodes are small bean-shaped glands that filter germs from nearby tissue. When bacteria or viruses from an STI drain into these nodes, immune cells flood in to attack the invaders. The node swells and becomes tender as it works overtime to stop the infection from spreading through the body.
- Pain or swelling in one or both testicles: Bacteria from the urethra—usually gonorrhea or chlamydia—can travel backward up the vas deferens (the tube that carries sperm) and infect the epididymis (the coiled storage tube on top of the testicle). This causes epididymitis: painful swelling of the testicle and the tube. If untreated, scar tissue can block sperm flow and harm fertility.
- Rectal pain, discharge, or bleeding: Bacteria (gonorrhea, chlamydia) or viruses (herpes, HPV) infect the lining of the rectum during receptive anal sex. Inflammation causes the tissue to swell, leak pus, and sometimes tear, leading to pain, mucus-like discharge, or small streaks of blood on stool or toilet paper.
- Fever, body aches, or flu-like feeling: When an STI spreads beyond the initial infection site—or when the body first encounters HIV or secondary syphilis—the immune system releases chemical messengers called cytokines (interleukin-1, tumor tissue death (necrosis) factor) that reset the brain's temperature control and trigger muscle aches. This reaction mimics the flu and signals the infection is systemic (spreading through the whole body).
- No symptoms at all: Many STIs—especially chlamydia, gonorrhea, and early HIV—multiply quietly without causing enough inflammation to trigger pain or visible signs. The infection is still active and contagious; you can pass it to partners even when you feel completely fine. This is why routine screening is so important for sexually active people.

Focused exam

- Urethral discharge (clear, milky, or yellow-green fluid dripping from the opening of the penis): Discharge means bacteria — usually *Neisseria gonorrhoeae* (the germ that causes gonorrhea) or *Chlamydia trachomatis* (the germ that causes chlamydia) — are multiplying inside the urethra, the tube that carries urine and semen out through the penis. If you treat fast, you stop the man from passing it to partners and you stop the bacteria from climbing up the tube into the epididymis, the coiled storage tube on top of the testicle. Infection in the epididymis causes painful swelling (called epididymitis) and can scar the tube shut, which lowers fertility because sperm cannot flow through.
- Burning with urination (Dysuria) (pain or burning when urinating): Burning when you pee means the inside lining of the urethra is inflamed — the bacteria are irritating the tissue like sandpaper rubbing raw skin. This is your body's alarm bell. Test and treat right away so the infection does not spread to partners or move up into the epididymis or prostate.
- Genital ulcers or sores (open breaks in the skin on the penis, scrotum, or around the anus): A sore can be *Treponema pallidum* (the spiral-shaped bacterium that causes syphilis), herpes simplex virus (HSV, the virus that causes genital herpes), or *Haemophilus ducreyi* (the bacterium that causes chancroid, a rare painful ulcer). Syphilis is the most dangerous. Without treatment, the bacteria hide in your body for years, then attack the aorta (the main artery leaving your heart, causing a bulge called an aneurysm that can burst), the brain (causing dementia and stroke), the spinal cord (causing loss of balance and shooting leg pains called tabes dorsalis), or the eyes (causing blindness). You must swab the sore or test blood to know which germ it is so you pick the right treatment.
- Inguinal swollen lymph nodes (lymphadenopathy) (swollen, tender lumps in the groin where the leg meets the body): Lymph nodes are filter stations where your immune cells trap and kill germs. When the nodes in your groin swell and hurt, your immune system is fighting an infection nearby — often syphilis, herpes, or lymphogranuloma venereum (LGV, a severe strain of chlamydia that invades lymph nodes and can cause large abscesses). The swelling confirms the infection is real and spreading into the lymph system, not just sitting on the surface.
- No symptoms at all (asymptomatic screening in sexually active men): Most men infected with gonorrhea or chlamydia in the throat, rectum, or urethra have zero symptoms but still carry live bacteria and pass them to every partner they have sex with. That is why CDC says test sexually active men who have sex with men at all three sites — urethra, rectum, throat — every 3 to 6 months, and test any man with a new partner or multiple partners at least once a year, even when nothing hurts.

- Testicular or scrotal pain with swelling on one side (unilateral epididymitis): Pain and swelling in one testicle usually means gonorrhea or chlamydia climbed up the vas deferens, the tube that carries sperm from the testicle, into the epididymis. This is the domino effect: one untreated urethral infection spreads higher. If both epididymides scar, the scarred tubes can block sperm flow and lower fertility.
- HIV and PrEP risk assessment: condomless anal or vaginal sex, multiple or anonymous partners, a partner with HIV whose viral load is unknown or detectable, injection drug use, recent STI diagnosis in the past 6 months, or a request for post-exposure prevention (prophylaxis) (PEP): These risks tell you if the man qualifies for pre-exposure prevention (prophylaxis), or PrEP — daily tenofovir-emtricitabine pills or cabotegravir injections every 2 months. PrEP cuts HIV infection risk by more than 99 percent when taken as directed. If he is already on PrEP, you check adherence (is he actually taking it) and test for HIV, creatinine (to check kidney health), and sexually transmitted infections every 3 months, following CDC PrEP guidelines.

Diagnostics · every test answers a question

- Nucleic acid amplification test (NAAT) for *Neisseria gonorrhoeae* and *Chlamydia trachomatis* from first-catch urine (or urethral swab), rectal swab, and pharyngeal (throat) swab → Does this man have gonorrhea or chlamydia in his urethra, rectum, or throat right now?
- Syphilis serology: nontreponemal test (RPR or VDRL) plus treponemal test (TP-PA, TP-EIA, or FTA-ABS) → Does this man have syphilis, and if so, is it active or old and already treated?
- HIV antigen/antibody combination test (4th-generation enzyme immunoassay, or EIA) with reflex to HIV-1/HIV-2 differentiation immunoassay and HIV-1 RNA viral load if positive → Is this man infected with HIV?
- Hepatitis B surface antigen (HBsAg), hepatitis B surface antibody (anti-HBs), and hepatitis B core antibody total (anti-HBc total) → Is this man immune to hepatitis B, currently infected, or susceptible and needing the vaccine?
- Hepatitis C antibody (anti-HCV) with reflex to hepatitis C virus RNA (HCV RNA) if antibody is positive → Does this man have hepatitis C, which spreads through blood and sometimes through anal sex when small tears happen?
- Serum creatinine and estimated glomerular filtration rate (eGFR) before starting tenofovir-based PrEP and every 3 to 6 months while taking it → Are this man's kidneys healthy enough to handle tenofovir, the main drug in PrEP?
- Gonorrhea culture with antimicrobial susceptibility testing if NAAT detects pharyngeal gonorrhea or if treatment fails and symptoms persist after 7 days → Is this gonorrhea strain resistant to the antibiotics we usually use?

- Test of cure: repeat NAAT 3 months after completing treatment for gonorrhea or chlamydia → Did the treatment kill the infection, or did the man get reinfected from an untreated or new partner?

Treatment logic

- Ceftriaxone 500 mg intramuscular (IM) single dose (use 1 gram IM if weight is 150 kg or more) PLUS doxycycline 100 mg by mouth twice daily for 7 days → Ceftriaxone is a third-generation cephalosporin that kills *Neisseria gonorrhoeae* (the gonorrhea bacterium) by binding to proteins in the bacterial cell wall and breaking it open, like popping a balloon. Doxycycline is a tetracycline that kills *Chlamydia trachomatis* by sitting on the bacterial ribosome (the protein factory) and stopping it from making new proteins the bacteria need to survive. Together they cure over 95 percent of urethral, rectal, and pharyngeal infections and stop you from spreading gonorrhea and chlamydia to partners. This is CDC first-line therapy, 2021 STI guidelines.
- Daily oral PrEP: tenofovir disoproxil fumarate 300 mg plus emtricitabine 200 mg (Truvada or generic) by mouth once daily, OR tenofovir alafenamide 25 mg plus emtricitabine 200 mg (Descovy) once daily, for cisgender men and transgender women at high HIV risk → Tenofovir and emtricitabine are nucleoside reverse-transcriptase inhibitors, or NRTIs. They sit inside your CD4 T-cells (the immune cells HIV attacks) disguised as building blocks. When HIV tries to copy its RNA into DNA using the reverse transcriptase enzyme, the fake blocks get incorporated and stop the chain, like a broken zipper, so the virus cannot multiply even if it enters your blood during sex. When taken 7 days a week, PrEP reduces HIV infection risk by more than 99 percent, following CDC PrEP guidelines and the iPrEx trial. You must test HIV-negative before starting and retest every 3 months.
- Long-acting injectable PrEP: cabotegravir 600 mg intramuscular (IM) every 2 months (after two initial loading doses 1 month apart) for cisgender men and transgender women at high HIV risk → Cabotegravir is an integrase strand-transfer inhibitor, or INSTI. It blocks HIV integrase, the enzyme that splices the virus's DNA into your cell's chromosomes. Without integrase, the virus cannot establish a permanent infection. The HPTN 083 trial showed cabotegravir shots cut HIV infection risk 69 percent more than daily tenofovir-emtricitabine pills, mainly because you do not have to remember a pill every day — you get a shot in the clinic every 2 months.

- Doxycycline post-exposure prevention (prophylaxis) (doxy-PEP): doxycycline 200 mg by mouth as a single dose within 24 to 72 hours after condomless sex → Doxycycline stops bacterial ribosomes (the protein factories) from working, which kills *Chlamydia trachomatis* and *Treponema pallidum* (syphilis) before they multiply enough to cause symptoms. The DoxyPEP trial in men who have sex with men showed doxy-PEP cut chlamydia infections by 66 percent and syphilis by 73 percent, but gonorrhea by only 55 percent because many gonorrhea strains are now doxycycline-resistant. CDC issued interim guidance in 2024 supporting doxy-PEP for men who have sex with men and transgender women at high STI risk.
- Expedited partner therapy (EPT): give the patient a prescription or a medication pack — ceftriaxone 500 mg IM plus doxycycline 100 mg twice daily for 7 days — to deliver directly to their sexual partner(s) without the partner seeing a clinician first → Treats the partner's gonorrhea and chlamydia immediately so they cannot reinfect the patient (the ping-pong effect, where partners keep passing the infection back and forth) and cannot develop complications like epididymitis in men or pelvic inflammatory disease (infection of the uterus, fallopian tubes, and ovaries) in women. EPT cuts reinfection rates by about 50 percent, following Cochrane review and CDC STI guidelines. It is legal in most US states and recommended by CDC when the partner is unlikely to seek care quickly.
- Benzathine penicillin G 2.4 million units intramuscular (IM) single dose for primary syphilis (painless ulcer called a chancre), secondary syphilis (rash on palms and soles, mucous patches, or condyloma lata), or early latent syphilis (infection less than 1 year); OR three weekly doses (2.4 million units IM each week for 3 weeks) for late latent or unknown-duration syphilis → Penicillin kills *Treponema pallidum* (the syphilis bacterium) by breaking its cell wall when the bacteria try to divide. One shot cures over 95 percent of early syphilis and stops progression to neurosyphilis (brain and spinal cord infection causing dementia, stroke, tabes dorsalis with shooting leg pains and loss of balance, or meningitis), cardiovascular syphilis (aortic aneurysm that can rupture and kill you), or gummas (destructive rubbery lumps in bones, liver, and skin). Penicillin is the only antibiotic proven to cure syphilis — no other drug matches it, following CDC STI guidelines.

- Hepatitis B vaccine series: Engerix-B 20 micrograms or Recombivax HB 10 micrograms or Heplisav-B 20 micrograms intramuscular (IM) at 0, 1, and 6 months (or Heplisav-B at 0 and 1 month) for all non-immune sexually active adults, especially men who have sex with men, people with HIV, and people with multiple sexual partners → The vaccine contains hepatitis B surface protein made in yeast cells. Your immune system learns to recognize this protein, makes antibodies against it, and stores memory B-cells like soldiers on standby. If hepatitis B virus enters during sex or through blood exposure, your antibodies destroy it before it can infect liver cells. A protective anti-HBs level (10 milli-international units per milliliter or higher) gives over 95 percent protection for at least 20 years. Chronic hepatitis B causes cirrhosis (scarring that stops the liver from working) and liver cancer (hepatocellular carcinoma), and it spreads easily through semen, vaginal fluid, and blood.

Medications

Ceftriaxone (injection) · Cephalosporin antibiotic

Ceftriaxone kills gonorrhea bacteria by punching holes in their cell walls so they burst and die. It stops the bacteria from building the strong outer shell they need to survive.

1. You get a single shot of ceftriaxone into a muscle (usually the butt or thigh).
2. The antibiotic travels through your blood to infected tissues.
3. It binds to proteins on the gonorrhea bacteria's cell wall.
4. It blocks the bacteria from building and repairing their protective wall.
5. The bacteria burst open and die because they can't hold themselves together.
6. Your immune system clears out the dead bacteria.

SAFETY WATCH

Tell your doctor if you have ever had a severe allergic reaction to penicillin or other antibiotics; most people with penicillin allergy can safely take ceftriaxone, but a small number cannot. · The shot may sting or make the muscle sore for a day or two. · Very rare: severe allergic reaction (trouble breathing, swelling, rash) within minutes to hours—seek emergency care immediately. · Finish the full treatment even if symptoms improve quickly; stopping early can let resistant bacteria survive.

Doxycycline (pill) · Tetracycline antibiotic

Doxycycline stops chlamydia and some other bacteria from making the proteins they need to grow and multiply. Without those proteins, the bacteria can't reproduce and eventually die off.

1. You swallow a doxycycline pill (usually 100 mg twice a day for 7 days for chlamydia, or a single 200 mg dose within 72 hours after sex for doxyPEP prevention).

2. Your stomach and intestine absorb the drug into your bloodstream.
3. The antibiotic enters infected cells and bacteria.
4. It locks onto the bacteria's ribosomes (the tiny factories that make proteins).
5. The bacteria can't build new proteins, so they stop growing and dividing.
6. Your immune system finishes clearing the weakened bacteria.

SAFETY WATCH

Take the pill with a full glass of water and stay upright (sitting or standing) for at least 30 minutes to avoid throat or stomach irritation. · Do not take it with dairy (milk, yogurt, cheese) or calcium supplements at the same time; calcium blocks absorption—wait at least 2 hours. · Doxycycline makes your skin much more sensitive to sunlight; wear sunscreen and protective clothing or you may burn badly. · Finish the entire course even if you feel better; stopping early lets resistant bacteria survive. · Tell your doctor if you are pregnant or breastfeeding; doxycycline can harm a baby's growing teeth and bones.

Tenofovir disoproxil fumarate + emtricitabine (TDF/FTC, brand name Truvada) – daily pill · Nucleoside/nucleotide reverse transcriptase inhibitors (NRTIs) for HIV pre-exposure prevention (prophylaxis) (PrEP)

TDF/FTC gives your cells fake building blocks that HIV tries to use to copy itself. When the virus grabs these fakes, it can't finish building new virus particles, so HIV can't take root in your body even if you are exposed.

1. You swallow one pill every day at roughly the same time.
2. Your intestine absorbs both drugs into your bloodstream.
3. The drugs travel to cells all over your body, especially immune cells.
4. If HIV enters one of those cells, it must copy its genetic code (RNA) into DNA using an enzyme called reverse transcriptase.
5. Tenofovir and emtricitabine look like the normal DNA building blocks, so reverse transcriptase grabs them by mistake.
6. Once the fake block is in place, the enzyme can't add the next piece—the chain stops and the virus can't finish copying itself.
7. The broken virus fragments are cleared away, and HIV never establishes a lasting infection.

SAFETY WATCH

You must test negative for HIV before starting; if you already have HIV, taking only two drugs can breed resistance. · Get an HIV test every 3 months while on PrEP to catch any breakthrough infection early. · Check kidney function (creatinine blood test) before starting and every 6–12 months; tenofovir can rarely harm the kidneys. · Check bone density if you have osteoporosis risk factors; long-term tenofovir can slightly weaken bones. · Take the pill every day without skipping; missing doses drops protection—it takes about 7 days of daily pills to reach full protection for anal sex and about 20 days for vaginal sex. · Tell your doctor about all other medications, especially other drugs that affect the kidneys (NSAIDs like ibuprofen in high doses, some blood-pressure pills).

Cabotegravir long-acting injectable (brand name Apretude) - every-8-weeks shot · Integrase strand transfer inhibitor (INSTI) for HIV pre-exposure prevention (prophylaxis) (PrEP)

Cabotegravir blocks the enzyme (integrase) that HIV uses to glue its genetic code into your cell's DNA. Without that step, the virus can't hide inside your cells or make new copies, so even if you are exposed, HIV can't establish an infection.

1. You get two shots (one in each butt cheek) of cabotegravir, then repeat every 8 weeks (or monthly in some schedules).
2. The drug sits in your muscle and slowly releases into your bloodstream over weeks.
3. It travels to immune cells throughout your body.
4. If HIV enters a cell, it must cut open the cell's DNA and paste in its own code using the integrase enzyme.
5. Cabotegravir locks onto integrase and stops it from making the cut.
6. The virus's genetic material floats in the cell but can't integrate, so it gets broken down and the cell stays uninfected.

SAFETY WATCH

You must test negative for HIV before each injection; if you have HIV, a single drug will not control it and will breed resistance. · Get an HIV test before every injection visit (every 8 weeks). · The shots can cause temporary pain, swelling, lumps, or itching at the injection site—this is common and usually fades in a few days. · Very rare: severe allergic reaction (trouble breathing, rash, swelling)—seek emergency care immediately. · If you stop the shots, cabotegravir stays in your body at low levels for many months; you must switch to daily oral PrEP or use condoms consistently during that tail period to stay protected. · Tell your doctor about all medications, especially other drugs that affect liver enzymes (rifampin, some seizure medicines), because they can lower cabotegravir levels.

Doxycycline post-exposure prevention (prophylaxis) (doxyPEP) - single dose within 72 hours after sex · Tetracycline antibiotic used as prevention

DoxyPEP works the same way as treatment doxycycline—it stops bacteria from making proteins—but you take it as a single 200 mg dose within 72 hours (ideally within 24 hours) after condomless sex to kill chlamydia or syphilis bacteria before they can cause infection.

1. You swallow a 200 mg doxycycline pill within 72 hours after condomless oral, anal, or vaginal sex.
2. Your stomach absorbs the drug into your bloodstream.
3. The antibiotic spreads to the tissues where bacteria might be starting to grow.
4. It locks onto bacterial ribosomes (the protein-making machines) and stops them from working.
5. The bacteria can't multiply, and your immune system clears them before a full infection takes hold.

SAFETY WATCH

Take the pill with a full glass of water and stay upright for at least 30 minutes to avoid throat irritation. · Do not take it with dairy or calcium supplements; wait at least 2 hours before or after. · Doxycycline makes your skin very sensitive to sunlight; use sunscreen and cover up. · Current CDC and guidelines recommend doxyPEP for men who have sex with men and transgender women at high STI risk; talk to your doctor to see if it fits your situation. · Get tested for bacterial STIs (syphilis, chlamydia, gonorrhea) every 3–6 months even if you use doxyPEP; it is not 100% effective and does not cover all infections. · Tell your doctor if you are pregnant or breastfeeding; doxycycline can harm a baby's teeth and bones.

Sildenafil (Viagra), tadalafil (Cialis), vardenafil (Levitra), avanafil (Stendra) - PDE5 inhibitors · Phosphodiesterase type 5 (PDE5) inhibitors

PDE5 inhibitors help you get and keep an erection by blocking an enzyme (PDE5) that normally breaks down a chemical messenger (cGMP) in the penis. With more cGMP around, the smooth muscle in penile blood vessels stays relaxed, blood flows in easily, and the erection lasts longer.

1. You take the pill 30 minutes to 1 hour before sex (timing varies by drug; tadalafil can work up to 36 hours).
2. Sexual arousal (touch, thoughts, visual cues) triggers nerves in the penis to release nitric oxide.
3. Nitric oxide tells cells in the penile arteries to make cGMP.
4. cGMP relaxes the smooth muscle, so the arteries widen and blood rushes into the spongy tissue.

5. Normally, an enzyme called PDE5 breaks down cGMP quickly, ending the erection.
6. The PDE5 inhibitor blocks that enzyme, so cGMP sticks around longer.
7. Blood stays in the penis, keeping it firm until sexual activity ends and arousal drops.

SAFETY WATCH

Never take a PDE5 inhibitor if you use nitrate medicines for chest pain (nitroglycerin, isosorbide)—the combination can cause a dangerous drop in blood pressure. · Tell your doctor if you have heart disease, recent stroke or heart attack, very low blood pressure, or severe liver or kidney disease; these conditions may make PDE5 inhibitors unsafe. · Common side effects: headache, flushing (red face), stuffy nose, upset stomach, back pain, blue-tinted vision (sildenafil especially). · Rare but serious: sudden vision loss (usually in one eye) or sudden hearing loss—stop the drug and get medical help immediately. · Very rare: erection lasting more than 4 hours (priapism)—this is a medical emergency; go to the ER to prevent permanent damage. · Alcohol can increase side effects and make it harder to get an erection; limit drinking when using these drugs. · Some drugs (certain antibiotics, antifungals, HIV medicines) raise PDE5 inhibitor levels and increase side effects—tell your doctor about all medications you take.

Expedited partner therapy (EPT) - giving your partner antibiotics without an exam · Public-health strategy using the same antibiotics (usually azithromycin or doxycycline for chlamydia; cefixime plus azithromycin for gonorrhea where permitted)

EPT means your doctor gives you a prescription or medication packet to deliver to your sexual partner so they can be treated for chlamydia or gonorrhea without coming in for a visit. This stops the infection from bouncing back and forth (re-infection) and protects the partner's health.

1. You test positive for chlamydia or gonorrhea (or the doctor treats you based on symptoms).
2. Your doctor gives you a second prescription or pre-packaged medication for your partner.
3. You give it to your partner and tell them to take it as directed.
4. The antibiotics kill the bacteria in your partner, even though they haven't been examined.
5. Both of you finish treatment at roughly the same time, so you don't re-infect each other.
6. You both avoid sex for 7 days after finishing treatment to be sure the infection is gone.

SAFETY WATCH

Make sure your partner is not allergic to the antibiotics you are giving them (ask about past reactions to penicillin, cephalosporins, macrolides, or tetracyclines). · EPT is not safe if your partner might be pregnant and the drug is doxycycline (it can harm the baby); use azithromycin instead. · Encourage your partner to get a full STI screening as soon as possible, because EPT only treats the one infection you passed on—it does not check for HIV, syphilis, herpes, or other problems. · Both of you must finish the full course of antibiotics and avoid sex for 7 days after the last dose to prevent re-infection. · If your partner has symptoms that could mean something more serious (pelvic pain, testicular pain, fever), they should see a doctor in person rather than relying on EPT alone.

Red flags

- Sores or ulcers on the genitals—may be syphilis (a single painless firm sore) or herpes (grouped painful blisters). Both need immediate testing and treatment to stop spread, prevent complications, and protect partners.
- Swollen, painful testicle—signals epididymitis, meaning infection has climbed into the reproductive tubes. Without fast antibiotic treatment, scarring can block sperm flow and threaten fertility.
- Fever plus genital symptoms—means the infection may be spreading into the bloodstream or deeper organs (disseminated gonorrhea, secondary syphilis, or acute HIV). Requires urgent evaluation and antibiotics.
- Severe belly pain in a partner—if a female partner develops pelvic or lower belly pain, it may be pelvic inflammatory disease (PID) from gonorrhea or chlamydia you passed on. She needs urgent care, and you need testing and treatment to stop further transmission.
- Acute HIV infection signs (fever, rash, swollen glands, sore throat within 2–4 weeks of exposure)—early antiretroviral treatment started during this window dramatically lowers the amount of virus in the body and improves long-term health.

Nursing priorities

1. Screen for HIV, syphilis (a bacterial infection spread by sex), hepatitis B, and hepatitis C with blood tests before starting PrEP (pre-exposure prevention (prophylaxis), medicine to prevent HIV) — PrEP only works if the person does not already have HIV; giving PrEP to someone with undiagnosed HIV can cause drug resistance (the virus stops responding to medicine) and missing syphilis or hepatitis means lost chances to cure or treat serious infections

2. Check kidney function with creatinine (a waste product the kidneys filter) and calculate eGFR (estimated glomerular filtration rate, how well kidneys clean blood) before tenofovir and every 3 to 6 months during use — Tenofovir can damage kidney tubules (the tiny tubes inside kidneys that filter waste) and cause the kidneys to stop working properly, especially in people who already have kidney disease or take other medicines that hurt kidneys
3. Give ceftriaxone 500 mg as an intramuscular injection (shot into muscle) in the upper outer buttock or thigh, not the arm, for gonorrhea (a bacterial STI) — The gluteal or vastus lateralis muscle can hold the full 500 mg volume better than the deltoid (shoulder muscle) and reduces pain; ceftriaxone kills *Neisseria gonorrhoeae* bacteria that now resist most other antibiotics
4. Teach the patient to take doxycycline with a full glass of water while sitting or standing up and to wait 30 minutes before lying down — Doxycycline can burn the esophagus (the tube from mouth to stomach) and cause ulcers (sores) if pills get stuck; taking it upright with water moves the medicine into the stomach safely
5. Ask about all current medicines, vitamins, and supplements before starting PrEP or doxycycline because of drug interactions (when one medicine changes how another works) — Tenofovir with NSAIDs like ibuprofen increases kidney damage risk; cabotegravir levels drop with rifampin (a TB medicine) making PrEP fail; doxycycline makes birth control pills less effective and should not mix with antacids containing aluminum or calcium
6. Schedule HIV testing every 3 months for anyone taking daily tenofovir-emtricitabine PrEP or before each cabotegravir injection — If HIV infection happens while on PrEP, early detection prevents drug resistance and allows fast switch to full HIV treatment with three medicines instead of the two in PrEP
7. Provide written instructions for partner notification and expedited partner therapy (giving medicine to sex partners without them seeing a doctor) where state law allows — Partners who do not get treated will reinfect the patient creating a ping-pong effect; treating partners fast stops the STI from spreading in the community and prevents complications like infertility (not being able to have children) and disseminated infection (bacteria traveling through blood to joints and heart)
8. Teach condom use, safer sex practices, and that PrEP prevents HIV but does not stop other STIs like gonorrhea, chlamydia, or syphilis — Men on PrEP sometimes stop using condoms thinking they are fully protected, but STI rates stay high; combining condoms with PrEP gives the best protection and regular STI screening every 3 to 6 months catches infections early before they cause permanent damage

Sources

- CDC Sexually Transmitted Infections Treatment Guidelines 2021
- U.S. Public Health Service PrEP Clinical Practice Guideline 2021

- WHO Guidelines on HIV Pre-Exposure Prophylaxis 2022
- IDSA Clinical Practice Guidelines

Last reviewed: 2026-07-07