

Blood in urine

A plain-English guide for you and your family

WHAT IS HAPPENING

Normally, your urine is clear yellow with no blood in it at all. The kidneys filter your blood to pull out waste and extra water, but they keep blood cells locked inside the vessels where they belong. When blood shows up in urine — whether you see pink, red, or brown pee, or a lab test finds red blood cells under the microscope — something upstream is broken. The most common causes are a bladder infection (germs make the bladder lining bleed), a kidney stone (a sharp crystal scrapes the lining as it moves down), kidney disease (the filter itself is damaged and leaky), cancer (a tumor in the bladder, kidney, prostate, or the tube that connects them bleeds as it grows), injury (a hit to the belly or back), blood thinner medicine (warfarin or aspirin can make any tiny break bleed more), or an enlarged prostate (squeezes the urethra and causes small tears). Each of these leaves clues: infection usually comes with burning and fever, stone with sudden sharp back pain, cancer with no pain at all but blood you can see, and blood thinner with bruising elsewhere. The body tries to keep working — the kidneys keep making urine, the heart keeps pumping — but the blood keeps leaking until the broken part is fixed. That is why every case of blood in urine needs testing: urinalysis to confirm blood, urine culture to check for infection, CT scan or ultrasound to look for stones or tumors, and sometimes cystoscopy (a camera passed through the urethra into the bladder) to see the lining directly. The danger is missing bladder or kidney cancer, because painless visible blood is often the only early warning sign, and catching it early is when treatment works best.

What you might feel

- Blood you can see in the urine (urine looks pink, red, or cola-colored)
- Blood you cannot see (found only on a urine test)
- Pain or burning when you pee
- Needing to pee often or urgently
- Pain in the side or lower back (flank pain)
- Fever and chills
- Swelling in the legs, ankles, or around the eyes

- Trouble peeing or a weak stream (mostly in older men)

Call the doctor right away if...

- Visible blood in urine plus fever, severe back or side pain, or shaking chills (may mean kidney infection or blockage)
- Blood in urine plus sudden weakness, dizziness, very pale skin, or fast heart rate (may mean serious bleeding inside)
- New swelling in legs or face along with blood in urine (may mean kidney damage letting protein leak out)
- Blood in urine in someone over 35, especially if they smoke or have smoked, work with chemicals (dyes, rubber, leather), or have lost weight without trying (raises concern for bladder or kidney cancer)

What the care team will do

- Check vital signs including temperature, blood pressure, and heart rate every 4 hours
- Obtain clean-catch midstream urine sample for urinalysis and urine culture before giving antibiotics
- Measure and record urine output every shift and describe urine color and any clots
- Ask patient to drink 8 to 10 glasses of water daily unless doctor restricts fluids
- Hold or verify orders for anticoagulant medications and check INR or PT if patient takes warfarin
- Assess pain location, quality, and severity using 0 to 10 scale every 2 to 4 hours
- Prepare patient for imaging and procedures by ensuring NPO status if needed and explaining cystoscopy or CT scan process
- Document smoking history in pack-years and occupational chemical exposures in detail for urology referral

Medicines you may be given — and why

Trimethoprim-sulfamethoxazole (TMP-SMX) or nitrofurantoin

These pills kill the bacteria that invaded the bladder or kidney and caused the infection (and the blood). TMP-SMX stops bacteria from building the parts they need to multiply.

Nitrofurantoin damages bacterial DNA so the germs die. Once the infection clears, the inflammation settles and the bleeding stops.

Tamsulosin (Flomax)

Relaxes the smooth muscle in the prostate and bladder neck so urine can flow more easily. When the prostate is enlarged it squeezes the urethra (the tube that drains urine), causing strain and sometimes bleeding. Tamsulosin opens that bottleneck. It also helps small kidney stones pass by relaxing the ureter (the tube from kidney to bladder).

Potassium citrate

Makes the urine less acidic (more alkaline), which helps dissolve certain types of kidney stones (uric acid and cystine stones) and prevents new ones from forming. When stones shrink or stop forming, the sharp edges that scrape the kidney or ureter and cause bleeding go away.

Tranexamic acid

Stops the body from dissolving blood clots too quickly. Normally, after a clot forms to plug a bleeding spot, the body slowly breaks it down with an enzyme called plasmin. Tranexamic acid blocks plasmin, so clots stay in place longer and bleeding stops. Used for severe or persistent blood in urine when other treatments have not worked.

Cisplatin-based chemotherapy (e.g., cisplatin + gemcitabine)

Damages the DNA inside cancer cells so they cannot divide and grow. Cisplatin sticks to DNA and twists it; gemcitabine blocks the building blocks needed to copy DNA. Together they kill bladder, kidney, or urothelial (urinary-tract-lining) cancer cells that are causing bleeding. Used for muscle-invasive bladder cancer or advanced kidney cancer.

BCG (Bacillus Calmette-Guérin) intravesical therapy

A weakened live tuberculosis bacterium placed directly into the bladder through a catheter. It wakes up the immune system inside the bladder lining, causing inflammation that kills early-stage bladder cancer cells. Used after surgery to remove non-muscle-invasive bladder cancer, to prevent it from coming back.

Warfarin dose adjustment or vitamin K

Warfarin is a blood thinner that blocks vitamin K, which the liver needs to make clotting proteins. Too much warfarin means the blood is too thin, and even tiny breaks in blood vessels (in the bladder, kidney, or anywhere) bleed more than normal. Lowering the warfarin dose or giving vitamin K helps the liver make clotting factors again, so bleeding stops. Used when blood in urine is caused by over-anticoagulation.

ACE inhibitor (e.g., lisinopril) or ARB (e.g., losartan)

Lowers pressure inside the glomeruli (the tiny filters in the kidneys). High pressure stretches and damages the filter, causing protein and red blood cells to leak into the urine. ACE

inhibitors block the enzyme that makes angiotensin II (a hormone that squeezes blood vessels). ARBs block the receptor where angiotensin II works. Either way, the blood vessels relax, pressure drops, and the filter leaks less. Used for blood in urine caused by chronic kidney disease (especially from diabetes or high blood pressure).

Where this information comes from

- AUA Hematuria Guidelines 2020
- American College of Physicians
- National Kidney Foundation
- UpToDate Clinical Reference

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