

► Which urine tests are used to detect bladder cancer?

Urine tests can help diagnose bladder cancer in patients with hematuria. They can also help monitor for recurrence of bladder cancer following treatment. Urine cytology and urine tumor marker tests are often used in combination with imaging and cystoscopy to help detect or rule out bladder cancer.

► What are the benefits of urine testing?

- Non-invasive and painless
- Ease of sampling, including the option of in-home sample collection in some cases
- Results can be obtained quickly
- Provides relevant, reliable information about patient health

What is Urine Cytology?

Urine cytology is the microscopic examination of cells from a urine sample. It can detect cancerous cells in the urine of individuals with bladder cancer. Urine cytology to diagnose bladder cancer is based on the principle that rapidly multiplying cancer cells will be shed into the urine. The ability of urinary cytology to detect bladder cancer varies depending on tumor type. Uncertain results may require further investigation.

What are Urine Tumor Marker Tests?

A urine tumor marker is a biological molecule that indicates the presence of bladder cancer. If a patient has bladder cancer, cells from the tumor will release biomarkers into the urine. Urine tumor markers for bladder cancer include numerous proteins and metabolites, as well as genetic materials such as DNA and RNA. Tests that analyze this genetic material are known as genomic urine tests.

When combined with imaging and cystoscopy, urine tumor marker tests can:

- Improve detection accuracy (that is, less chance bladder cancer will be missed).
- Reduce the intensity of further testing and examination of hematuria patients who do not have cancer.
- A reduced frequency of cystoscopy in those being monitored for bladder cancer recurrence following treatment.

The specific urine test selected depends on several factors, including a patient's symptoms and their risk of bladder cancer.

► How are urine samples collected?

The urine collection process is quick and painless. The timing of collection will be set by your doctor or determined by access to a laboratory service. Depending on the purpose of the test, the first or second trip to the toilet may be preferred. Collection of urine from all voids over 8 or 24 hours, or sample collection at specific times after eating may also be necessary.

Urine collection is generally taken from a midstream sample. This involves peeing the first portion of urine into the toilet, collecting the midstream portion into a clean container, then peeing the remaining portion into the toilet. This reduces the risk of contaminants entering the sample.

Some tests give patients the option of collecting a urine sample in the comfort of their own home that is sent to a lab for analysis.

**ASK YOUR HEALTHCARE TEAM**

- *What should I do to prepare?*
- *When will I receive my results?*
- *What are my options? Would a tumor marker/genomic test be suitable in my case?*
- *Can I have more information on the different tests available?*
- *I'm being monitored for bladder cancer recurrence. Can a urine test reduce the frequency of my scheduled cystoscopies?*
- *Where can I submit my sample? Is in-home sampling available?*

TERMS TO KNOW

- **Cystoscopy:** During a cystoscopy, a thin flexible or rigid, lighted instrument called a cystoscope is inserted into the urethra and bladder.
- **Cytology:** The study of the microscopic appearance of cells.
- **Hematuria:** Blood in the urine.
- **Tumor marker:** Most tumor markers are proteins made by both normal cells and cancer cells, but they are made in higher amounts by cancer cells. Genetic changes in tumor tissue, such as gene mutations, patterns of gene expression, and other changes in tumor DNA, are also being used as tumor markers.

NEXT STEPS:

- Your doctor may suggest imaging and cystoscopy to help detect or rule out bladder cancer after urine testing.

If urine testing indicates bladder cancer is present, your doctor will likely recommend a Transurethral Resection of the Bladder Tumor (TURBT). With a TURBT, the tumor can be removed while you are under anesthesia. It is sent to a pathologist for examination.

Visit BCAN.org/bladder-cancer-TURBT for more information.

The Bladder Cancer Advocacy Network (BCAN)

BCAN's mission is to increase public awareness about bladder cancer, advance bladder cancer research, and provide educational and support services for the bladder cancer community.

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