

FEATURE

POSTVOID RESIDUAL

An anatomical illustration of the human urinary system, showing the kidneys, ureters, and bladder. The bladder is highlighted in a bright red color, while the rest of the system is rendered in a light blue, semi-transparent style. The background is a textured blue. The illustration is framed by a dark blue outline of the human torso.

Why and How
it's Measured

POSTVOID RESIDUAL

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The first and most essential step in assessing and treating incontinence is to attempt to determine the underlying problem. For patients with suspected urinary retention, postvoid residual measurement is an important part of evaluating bladder volume.

Postvoid residual (PVR) is the amount of urine remaining in the bladder after voiding. PVR volume is checked within 5 to 10 minutes after urination. The following methods can be used to determine if the bladder is completely empty:

- Physician examination
- Ultrasonography
- Catheterization

Examination of the suprapubic area (above the pelvic bone) using percussion and palpation is the least accurate method to determine urinary retention. The catheter method has a slight risk of causing infection or injury to the urethra; however, it is safe when done carefully and may be less expensive than ultrasound. The ultrasound method is noninvasive and can be done at the bedside.

Identifying postvoid residual volume is necessary in patients who are experiencing bladder retention or incomplete bladder emptying. High postvoid residual volume could increase the risk of acute urinary retention, urinary tract infection, pyelonephritis, hydronephrosis, or renal deficiency.

Urinary retention is defined as the inability or failure to empty the bladder completely with voiding. Common causes of urinary retention include the following:

- Multiple sclerosis
- Parkinson disease
- Spinal cord injury
- Benign prostatic hyperplasia
- Diabetes
- Overactive bladder
- Urinary incontinence
- Medications such as atropine, amitriptyline, bupropion, chlorpromazine, nifedipine, amantadine, and morphine.

Urinary retention can be identified by measuring the postvoid residual volume. Postvoid residual greater than 200 mL is generally considered the definition of urinary retention. However, PVR of between 50 and 200 mL warrants further investigation.

In an effort to promote normal bladder function, PVR testing is an appropriate screening method for identifying individuals who are at risk for urinary retention. Once the problem is identified, the appropriate treatment options can be explored.