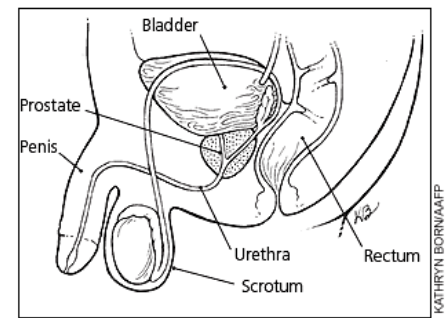


# Go with the Flow: An Overview of Benign Prostatic Hyperplasia

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## GENERAL

- Definition: Benign Prostatic Hyperplasia = **histologic** Dx referring to proliferation of smooth muscle and epithelial cells within prostatic transition zone
  - Versus Benign Prostatic Enlargement = presumptive Dx based on prostate size
    - Normal prostate size/volume = 20-30 mL
  - Clinical syndrome associated with BPH = lower urinary tract symptoms (LUTS)
    - Obstruction of bladder outlet (static)
    - Increased smooth muscle tone and resistance (dynamic)

## EPIDEMIOLOGY

- Prevalence: 20% in 40-year-olds, 90% in 70-year-olds
  - ~50% have moderate to severe LUTS by their 80's

## SYMPTOMS

- hesitancy
- weak stream
- nocturia
- incontinence

American Urological Association Symptom Index						
Over the past month or so:	Not at all	Less than one in five times	Less than one half of the time	About one half of the time	More than one half of the time	Almost always
How often have you had the sensation of not completely emptying your bladder after you finished urinating?	0	1	2	3	4	5
How often have you had to urinate again less than two hours after you finished urinating?	0	1	2	3	4	5
How often have you found that you stopped and started again when urinating?	0	1	2	3	4	5
How often have you found it difficult to postpone urination?	0	1	2	3	4	5
How often have you had a weak urinary stream?	0	1	2	3	4	5
How often have you had to push or strain to begin urination?	0	1	2	3	4	5
	None	1 time	2 times	3 times	4 times	5 or more times
How many times do you typically get up to urinate from the time you go to bed at night until the time you get up in the morning?	0	1	2	3	4	5
Total score: _____						

**Figure 1.** American Urological Association Symptom Index to assess severity of benign prostatic hyperplasia (BPH). A score of 7 or less indicates mild BPH; a score of 8 to 19 indicates moderate BPH; a score of 20 to 35 indicates severe BPH.

## COMPLICATIONS

- Acute urinary retention → urgent bladder cath (annual risk < 1%)

## DIAGNOSIS/WORK-UP

- DRE = non-tender, non-nodular

**Table 1. Differential Diagnosis of Lower Urinary Tract Symptoms in Men**

Clinical finding	Possible diagnosis
Abnormal sphincter tone	Neurogenic bladder
Fever	Prostatitis
Hematuria	Bladder cancer
Prostate nodule or induration	Prostate cancer
Prostate tenderness	Prostatitis

- UA → if normal, rules out non-BPH causes of LUTS (i.e. bladder cancer, bladder stones, UTI, urethral strictures)
- PSA – if  $\geq 10$  yr life expectancy AND candidate for prostate cancer Tx
- Urine cytology – if risk of bladder cancer (i.e. tobacco use, hematuria)
- Routine creatinine NOT recommended
- U/S (post void residual)

## TREATMENT

- Watchful waiting = mild Sx (AUA-SI score of  $\leq 7$ ) → monitor annually
  - Modify current medications, regulate fluid intake in the PM, increase physical activity, avoid excessive alcohol intake and irritative foods)
- $\alpha$ -Blockers (1<sup>st</sup> line)
  - Mechanism: Relaxes prostatic smooth muscle
  - Non-selective: **doxazosin 1 mg daily (Cardura) \$45/mo, terazosin 1 mg (Hytrin) \$68/mo**, and prazosin 0.5 mg (Minipress) \$39/mo
    - Side effect: will also lower BP, take QHS
  - Selective: **tamsulosin 0.4 mg daily (Flomax) \$77/mo**, alfuzosin 10 mg daily (Uroxatral) \$77/mo, silodosin 8 mg (Rapaflo)
    - Advantage: will NOT affect BP, safer for the elderly
  - Faster acting compared to 5 $\alpha$ -reductase inhibitors
  - Avoid until cataract surgery is completed (Itraoperative Floppy Iris Syndrome)
  - Does NOT suppress prostate growth
- 5 $\alpha$ -reductase inhibitors
  - Mechanism: inhibits conversion of testosterone to dihydrotestosterone → shrinks prostate
  - **Finasteride 5 mg daily (Flomax) \$100/mo** and dutasteride 0.5 mg (Avodart) \$96/mo
    - Side effects = ↓libido, ejaculatory dysfunction, erectile dysfunction
  - Most effective when prostate is large ( $> 40$  mL)
  - ↑ PSA = ↑ response to finasteride; Finasteride decreases PSA levels → need to double PSA when screening for prostate cancer
  - Takes 6 months to achieve benefit
- Anticholinergic (i.e. tolteridine) – get baseline PVR, do NOT use if PVR  $> 250$ -300 mL
- Combination therapy =  $\alpha$ -Blocker + 5 $\alpha$ -reductase inhibitor; OR  $\alpha$ -Blocker + anticholinergic
- CAM
  - Saw palmetto extract – mild to mod improvement compared to finasteride (Cochrane review 2002) vs **no benefit** (AUA 2010, Bent 2006)
- Surgical Tx
  - TURP, laser prostatectomy, transurethral incision of prostate, transurethral microwave therapy, transurethral needle ablation

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\*\*\*Patient information: <http://www.aafp.org/afp/2008/0515/p1413.html>