**BACKGROUND**
- Urinary incontinence (UI) affects 30% of community-dwelling older women, 15% of community-dwelling older men, and >50% of nursing-home residents.
- Although common, UI is not a normal part of aging and should be evaluated.

**SCREENING**
- All older adults should have documented initial screening for UI.
  - If screening is positive, then document targeted history and physical and offer treatment.
  - If screening is negative, then rescreen every year. Consider rescreening sooner if worsening functional decline or increase in risk factors.

**CLASSIFICATION OF UI**

<table>
<thead>
<tr>
<th>STRESS</th>
<th>URGE</th>
<th>BLADDER OUTLET OBSTRUCTION (OVERFLOW)</th>
<th>DETRUSOR UNDERACTIVITY (OVERFLOW)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>HISTORY</strong></td>
<td>Increased abdominal pressure (coughing, sneezing, lifting, exercising)</td>
<td>Urgency</td>
<td>High post-void residual (PVR)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Frequency</td>
<td>Frequency</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Nocturia</td>
<td>Nocturia</td>
</tr>
<tr>
<td><strong>ETIOLOGY</strong>*</td>
<td>Impaired pelvic support</td>
<td>Detrusor over activity: age related, idiopathic, upper motor neuron lesion, bladder irritation</td>
<td>Benign prostatic hyperplasia (BPH)</td>
</tr>
<tr>
<td></td>
<td>Failure of urethral closure (trauma, anti-incontinence surgery, urethral atrophy, prostate procedures, atrophic vaginitis)</td>
<td>Detrusor hyperactivity with impaired contractility (urge incontinence + detrusor underactivity)</td>
<td>Urinary stricture</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Anti-incontinence surgery</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Severe pelvic organ prolapse</td>
</tr>
</tbody>
</table>

*Overlapping etiologies are most common (mixed = stress + urge)*

**HISTORY OF PRESENT ILLNESS**

- Onset
- Frequency
- Volume
- Timing
- Precipitants (caffeine, diuretics, cough, etc)
- Sudden onset
- Pelvic pain
- Hematuria
- Dysuria
- Severe straining
- Inability to void
- Frequency
- Nocturia
- Slow stream
- Hesitancy
- Urgency
- Dribbling
- Interrupted voiding

**PAST MEDICAL HISTORY**
- Neurologic: cerebrovascular disease, delirium, dementia, multiple sclerosis, normal-pressure hydrocephalus, Parkinson disease, spinal stenosis
- Urologic/gynecologic: surgeries, trauma

**SOCIAL HISTORY**
- Caffeine intake, social support, home environment

**MEDICATIONS**
- Angiotensin-converting enzyme (ACE) inhibitors, anticholinergics, antidepressants, antipsychotics, NSAIDS, sedative hypnotics, thiazolidinediones, calcium channel blockers, loop diuretics, opioids, α-adrenergic agonists, α-adrenergic blockers, GABA-ergics

**PHYSICAL EXAMINATION**
- Functional status
- Cognitive evaluation (delirium screening if indicated)
- Abdominal exam (bladder distention)
- Cardiovascular (edema, heart failure)
- Neurologic (signs of Parkinson disease, neuropathy)
- Rectal exam (mass, tone, sensation, prostate nodules, fecal load)
- Vaginal exam (mucosa, prolapse, volitional squeeze)
- Musculoskeletal (mobility and dexterity)
**FOLLOW-UP**

- Response to treatment should be documented within 3 months. Behavioral treatments are followed up at least monthly for 2 or 3 visits.
- For patients who do not improve adequately, surgical management can be considered.

**LABORATORY TESTING**

- Urinalysis (at initial evaluation or if increased symptoms)
- Note any hematuria or glucosuria.
- Do not treat asymptomatic bacteriuria with antibiotics (particularly in established UI).
- Serum creatinine
  - Within 72 hours for PVR >300 mL
  - Within 3 months for PVR between 200 and 300 mL
- Urinary catheter at least 3–4 weeks for urinary retention; eliminate contributing factors, consider starting α-blocker, then
- Vaginal pessary can be useful for stress incontinence.

**NONPHARMACOLOGIC MANAGEMENT**

- Classification and documentation of type and likely etiology of UI before treatment
- Treatment options should be discussed with new or symptomatic UI within 3 months of diagnosis.
- Minimize contributing factors identified in history of present illness, physical exam, and laboratory testing.
- Behavioral therapy management in a stepped approach
  - Prompted voiding is primary approach for patients with cognitive impairment. Try for 3 days and continue only if improves quality of life for patient and caregiver. Also useful for cognitively intact patients with voiding frequency more than q2hr.
  - Taper caffeine intake. Increase fluids if inadequate; decrease if excessive.
  - Pelvic floor muscle exercises and bladder control strategies for stress, urge, and mixed UI.
  - Squeeze as you sneeze, cough, or lift.
  - Stay still and contract muscles to reduce urgency before going to the bathroom (“freeze and squeeze”).
  - Contract muscles as you stand up from bed or chair—prevents sudden urine loss.
  - Contract muscles after voiding to prevent post-void dribbling.
- Minimize contributing factors identified in history of present illness, physical exam, and laboratory testing.
- Pelvic floor muscle exercises and bladder control strategies for stress, urge, and mixed UI.
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- Contract muscles as you stand up from bed or chair—prevents sudden urine loss.
- Contract muscles after voiding to prevent post-void dribbling.

**PHARMACOLOGIC MANAGEMENT (FOR URGE OR MIXED UI)**

<table>
<thead>
<tr>
<th>MEDICATION</th>
<th>DOSAGE</th>
<th>ADVERSE EVENTS (METABOLISM)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alfuzosin</td>
<td>10 mg/d (SR formulation)</td>
<td>(K) CYP3A4</td>
</tr>
<tr>
<td>Darifenacin</td>
<td>7.5–15 mg/d</td>
<td>Gastric retention</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Not recommended in severe liver impairment (L, CYP3A4, CYP2D6)</td>
</tr>
<tr>
<td>Doxazosin</td>
<td>0.5–8 mg/d (at bedtime)</td>
<td>(L) CYP3A4, CYP2D6, CYP19</td>
</tr>
<tr>
<td>Fesoterodine</td>
<td>4–8 mg/d</td>
<td>Maximum dose 4 mg if CrCl &lt;30 mL/min (L, CYP3A4, CYP2D6)</td>
</tr>
<tr>
<td>Mirabegron</td>
<td>25–50 mg/d</td>
<td>Hypertension</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Not to be used in combination with antimuscarinics</td>
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<tr>
<td></td>
<td></td>
<td>Increases levels of digoxin and CYP2D6 substrates (eg, metoprolol)</td>
</tr>
<tr>
<td>Oxybutynin</td>
<td>2.5–5 mg q6–12h</td>
<td>Dry mouth and constipation less with XL formulation than immediate release</td>
</tr>
<tr>
<td></td>
<td>5–20 mg/d (XL formulation)</td>
<td></td>
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<tr>
<td></td>
<td>3% gel topically q24h</td>
<td>Gel: rotate sites to reduce skin irritation</td>
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<tr>
<td></td>
<td>3.9 mg/24h (apply patch 2x/wk)</td>
<td></td>
</tr>
<tr>
<td>Silodosin</td>
<td>8 mg/d at bedtime</td>
<td>CrCl 30–50 mL/min, give 4 mg/day; avoid if CrCl &lt;30 mL/min</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Retrograde ejaculation</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(L) CYP3A4</td>
</tr>
<tr>
<td>Solifenacin</td>
<td>10–20 mg/d</td>
<td>Same as darifenacin</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Maximum dose 5 mg if CrCl &lt;30 mL/min or moderate liver impairment (L, CYP3A4)</td>
</tr>
<tr>
<td>Tamsulosin</td>
<td>0.4–0.8 mg/d (at bedtime)</td>
<td>Give 30 minutes after same meal every day.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Less orthostasis</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(L) CYP3A4, CYP2D6</td>
</tr>
<tr>
<td>Terazosin</td>
<td>1–10 mg/d (at bedtime)</td>
<td>(L)</td>
</tr>
<tr>
<td>Tolterodine</td>
<td>1–2 mg q12h</td>
<td>Least constipating of oral agents</td>
</tr>
<tr>
<td></td>
<td>2–4 mg/d (LA formulation)</td>
<td>CYP450 interactions (L, CYP3A4, CYP2D6)</td>
</tr>
<tr>
<td>Tropium</td>
<td>20 mg q12–24h (on empty stomach)</td>
<td>Dyspepsia, headache</td>
</tr>
<tr>
<td></td>
<td>60 mg/d (XR formulation)</td>
<td>Caution in liver dysfunction</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Dose once daily at bedtime in patients ≥75 years old or with creatinine clearance (CrCl) &lt;30 mL/min</td>
</tr>
<tr>
<td></td>
<td></td>
<td>XR formulation not recommended if CrCl &lt;30 mL/min (L, K)</td>
</tr>
</tbody>
</table>


Muscarinic receptor antagonists: adverse events include dry mouth, eyes, and skin, GERD, and constipation. Confusion or worsened cognition may occur in patients with mild cognitive impairment or dementia.

Beta-3 agonist

Abbreviations: L = metabolized in liver; K = metabolized in kidney

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**FURTHER TESTING**

- Post-void residual (PVR) should be considered in all men and women using medications known to impair bladder emptying, with history of prior urinary retention, diabetes, recurrent UTIs, severe constipation, marked pelvic organ prolapse, or who have had prior surgery for UI.
- American Urological Association BPH Symptom index score
- Cystoscopy and urine cytology if there is pelvic pain or hematuria that does not clear after treatment of UTI
- Urodynamic testing
  - Unclear etiology of UI
  - When empiric treatment has failed and the patient would consider invasive or surgical therapy
- Depression screening

**CLASSIFICATION AND DOCUMENTATION**

- Try behavioral therapies first and add medications only if needed. Combination of behavioral therapy with medication is significantly better for improving quality of life.

**MEDICATION DOSAGE**

- **Alfuzosin**: 10 mg/d at bedtime
- **Darifenacin**: 7.5–15 mg/d
- **Doxazosin**: 0.5–8 mg/d (at bedtime)
- **Fesoterodine**: 4–8 mg/d
- **Mirabegron**: 25–50 mg/d
- **Oxybutynin**: 2.5–5 mg q6–12h
- **Silodosin**: 8 mg/d at bedtime
- **Solifenacin**: 10–20 mg/d
- **Tamsulosin**: 0.4–0.8 mg/d (at bedtime)
- **Terazosin**: 1–10 mg/d (at bedtime)
- **Tolterodine**: 1–2 mg q12h, 2–4 mg/d (LA formulation)
- **Tropium**: 20 mg q12–24h (on empty stomach), 60 mg/d (XR formulation)

**ADVERSE EVENTS (METABOLISM)**

- **Dyspepsia, headache**
- **Caution in liver dysfunction**
- **Dose once daily at bedtime in patients ≥75 years old or with creatinine clearance (CrCl) <30 mL/min**
- **XR formulation not recommended if CrCl <30 mL/min (L, K)**