Although a major cause of physical, functional and psychological morbidity, urinary incontinence remains undx’d in up to 55% of women/78% of men. Fewer than ½ of people with incontinence consult their physician. A good screening question is “Do you ever leak urine when you don’t want to?”

### Diagnostic Considerations

Be aware of risk factors to identify who should be screened (Figure 1). Elicit the patient’s co-morbid medical conditions, medication and surgical history. Consider acute causes using the DRIP mnemonic and treat accordingly (Figure 2). If chronic, take hx and perform focused px to classify incontinence subtype (Table 1). *Note: Patient should void before examination Post-void residual volume (PVR) measurement provides valuable information and can be done in the office via PVR ultrasound or bladder catheterization. Catheterization yields clean urine for analysis.

#### Type

<table>
<thead>
<tr>
<th>Stress</th>
<th>Urge</th>
<th>Overflow</th>
<th>Functional</th>
<th>Mixed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Etiology</td>
<td>Weakened pelvic floor muscles and/or impaired bladder neck sphincter tone due to: advancing age, multiple vaginal deliveries, inadequate estrogen levels, pelvic surgery, neurologic insult</td>
<td>Due to inappropriate bladder contractions from hyperactive detrusor muscle. 2° to stroke, spinal stenosis, bladder inflammation acutely (i.e. UTI, stone) or chronic (i.e. tumor)</td>
<td>Obstruction to urine outflow (i.e. tumor, pelvic organ prolapse, BPH, fecal impaction, scar tissue from past surgery)</td>
<td>Cognitive or physical impairment that keep patients from urinating normally Reduced mobility (i.e. Parkinson’s, severe arthritis) Cognitive decline (i.e. Alzheimer’s, severe depression)</td>
</tr>
</tbody>
</table>

| Clinical Presentation | Intermittent loss of small amounts of urine | Patients feel sudden need to urinate, Most common form in the elderly Also known as “Overactive Bladder Syndrome” (OAB) | Patients complain of overdistension, leaking small volumes, dribbling and hesitancy | Variable | Mixed features Most common form of incontinence in women |

| High Yield Question | Do you ever leak urine when you laugh, cough, sneeze or lift something? | Are you unable to hold urine after having the urge to urinate? | Are you unable to fully empty your bladder? Is the urine stream weaker than in the past? | Do you have trouble getting to the washroom? | What do you think is going on? |

| Associated physical exam findings | Presence of chronic cough Signs of fluid overload | Is the prostate large? Urge incontinence exam often non-specific | Check for bladder distension, abdominal masses, uterine prolapse or cystocele DRE to assess for fecal impaction Abnormal strength, sensation or reflexes of lower extremities may suggest neurologic insult | Can the patient understand the urge to void? Are they physically able to reach toilet? | Mixed findings |

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**Figure 1: Risk factors for urinary incontinence**

- Older age
- Female gender
- Multiple vaginal deliveries
- Prostatic hypertrophy
- Obesity
- Diabetes
- Neurologic disease (i.e. Stroke)
- Dementia or other functional impairment
- Restricted mobility
- Polypharmacy

**Figure 2: Causes of acute, reversible incontinence**

- D Delirium, drugs (e.g. caffeine, diuretics)
- R Restricted mobility, retention
- I Infection, inflammation (atrophic vaginitis/urethritis), impaction (fecal)
- P Polyuria (DM, CHF)

Consider referral to a urologist / urogynecologist for any of the following

- Suspected bladder neoplasm
- Unresolved hematuria
- Suspected recto-vesicular fistula
- Neurologic conditions (parkinson’s, spinal cord injury, possible normal pressure hydrocephalus)
- Organ prolapse beyond the hymen in women
- In men, abnormal prostate examination or elevated PSA
- Patient request for surgical management
- Elevated PVR that persists after treatment of possible causes (medications, stool impaction)
Management

Non-Pharmacologic Management

Encourage weight loss in obese patients with stress incontinence

Dietary changes: Eliminating alcoholic, caffeinated and carbonated beverages from the diet may be helpful

Pads and protective garments: Used as an adjunct to incontinence therapy. Choice of item depends on gender, incontinence subtype and volume of leaked urine. Information on pad varieties is available from the National Association for Continence (www.nafc.org)

Pelvic floor muscle exercise (Kegels): For stress incontinence. Although interruption of urination regularly is not recommended, patients may try this initially to help identify the pelvic floor muscles. The correct muscle contractions should generate a mild sense of pressure on a finger inserted in the vagina. The contraction should be held for about 10 seconds, and repeated up to 40 times per day. Kegel exercises are of particular benefit when done during a stimulus which would normally cause incontinence (coughing, sneezing, etc.).

Vaginal pessaries: For pelvic organ prolapse (POP) and stress incontinence in women. Useful in patients preferring non-surgical treatment and for patients who are poor surgical candidates.

Behaviour training: For urge incontinence. Scheduled voiding (q2h during the day, before bed, q4h when asleep if nocturnally incontinent). The goal of scheduled voiding is to keep total volumes low so bladder reflex not stimulated. Use techniques to minimize post-void residual (PVR), which include bending forward, applying suprapubic pressure, and voiding twice consecutively. If voiding too frequently (e.g. <q2h), patients feeling the urge to void should stand still or sit down, take a slow deep breath and picture the urge as a “Wave that peaks and falls”. Once control over the urge has been established, the patient should toilet normally.

Pharmacotherapy for Urinary Incontinence

<table>
<thead>
<tr>
<th>Drug</th>
<th>DosePTH</th>
<th>Type of Incontinence</th>
<th>Mechanism</th>
<th>Side Effects</th>
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<tbody>
<tr>
<td>Anticholinergics</td>
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<tr>
<td>Oxybutynin IR (Ditropan™, Ditropan XL™, Oxytrol Patch™)</td>
<td>IR: 2.5mg-5.0 bid-tid, up-titrate as needed, max 20mg/day in divided doses&lt;br&gt;XL: 5mg OD, up-titrate as needed, max 30mg&lt;br&gt;Patch: apply twice weekly topically (3.9 mg oxybutynin/day)</td>
<td>Urge, Stress with detrusor instability&lt;br&gt;IR useful if protection wanted at specific times</td>
<td>Antispasmodic effect on bladder smooth muscle. Increases bladder capacity</td>
<td>Dry mouth, blurry vision, raised intra-ocular pressure, constipation, QT prolongation, confusion, dizziness&lt;br&gt;Generally less side effects with XL preparations&lt;br&gt;Metabolized by P450 3A4. Interactions with inhibitors/inducers of 3A4.&lt;br&gt;Worsen dementia with cholinesterase inhibitors.</td>
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<tr>
<td>Tolterodine (Detrol IR™, Detrol LA™)</td>
<td>IR: 1-2mg bid&lt;br&gt;LA: 2-4mg OD</td>
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<tr>
<td>Darifenacin (Enablex™)</td>
<td>7.5-15.0 mg daily</td>
<td>Stress, Urge</td>
<td>Relax smooth muscle of urethra and prostate</td>
<td>Rule out prostate cancer prior to use&lt;br&gt;Dizziness, headache, orthostatic hypotension, floppy iris syndrome</td>
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<tr>
<td>Solifenacin (Vesicare™)</td>
<td>5-10 mg daily</td>
<td>Stress, Urge</td>
<td>Relax smooth muscle of urethra and prostate</td>
<td>Rule out prostate cancer prior to use&lt;br&gt;Erectile, ejaculatory dysfunction, gynecomastia</td>
</tr>
<tr>
<td>Tropium (Trosec™)</td>
<td>20 mg BID (dose reduced in renal failure)</td>
<td>Overflow or urge associated with BPH&lt;br&gt;Can be used in women with stress incontinence</td>
<td>Reduction of prostate volume over time (may take 6 months for effect)</td>
<td>Rule out prostate cancer prior to use&lt;br&gt;Erectile, ejaculatory dysfunction, gynecomastia</td>
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<tr>
<td>Alpha adrenergic antagonist</td>
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<tr>
<td>Tamsulosin (Flomax™, IR or CR formulations)</td>
<td>0.4mg OD, may increase to 0.8mg OD after 2-4 weeks&lt;br&gt;10mg OD&lt;br&gt;Taken qhs. 1mg, increase as needed weekly. Most require 10mg. Max 20mg.</td>
<td>Overflow or urge associated with BPH&lt;br&gt;Can be used in women with stress incontinence</td>
<td>Relax smooth muscle of urethra and prostate</td>
<td>Rule out prostate cancer prior to use&lt;br&gt;Dizziness, headache, orthostatic hypotension, floppy iris syndrome</td>
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<tr>
<td>Alfuzosin (Xatal™ ER)</td>
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<td>Terazosin (Hytrin™)</td>
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<tr>
<td>Finasteride (Proscar™)</td>
<td>5mg OD</td>
<td>Overflow or urge associated with BPH</td>
<td>Reduction of prostate volume over time (may take 6 months for effect)</td>
<td>Rule out prostate cancer prior to use&lt;br&gt;Erectile, ejaculatory dysfunction, gynecomastia</td>
</tr>
<tr>
<td>Dutasteride (Avodart™)</td>
<td>0.5mg OD</td>
<td>Overflow or urge associated with BPH</td>
<td>Reduction of prostate volume over time (may take 6 months for effect)</td>
<td>Rule out prostate cancer prior to use&lt;br&gt;Erectile, ejaculatory dysfunction, gynecomastia</td>
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<tr>
<td>Hormonal therapy:</td>
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<tr>
<td>Conjugated estrogen cream (Premarin™)</td>
<td>0.5-1.0mg intravaginally, daily for 3 weeks and then twice weekly&lt;br&gt;25mg intravaginally daily for 2 weeks and then twice weekly</td>
<td>Stress, Urge with atrophic vaginitis</td>
<td>Increases periurethral blood flow and strengthens tissues</td>
<td>With topical cream, no need for progesterone treatment for endometrial cancer prevention&lt;br&gt;**Studies have shown that this is not useful for incontinence that is not associated with atrophic vaginitis</td>
</tr>
<tr>
<td>Estradiol tablets (Vagifem™)</td>
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</table>

**Summary Management Algorithm of Urinary Incontinence**

**Screening question:**
“Do you ever leak urine when you don’t want to?”

- Yes, if acute, consider DRIP etiologies
  - Perform U/A plus culture
  - Abnormal U/A
    - + UTI
      - Treat UTI
    - + Hematuria
      - Treat as UTI, If persistent → Refer
    - +Glucose
      - Screen for diabetes
  - Normal
    - Measure PVR
      - Elevated PVR (>100cc)
        - Men: Consider BPH
        - Women: Perform urodynamic testing
      - Normal PVR
        - Stress Qualities
          - Pelvic (Kegel) muscle exercises
          - Vaginal estrogens
          - Vaginal pessary
        - Urge Qualities
          - Behavioral training
          - Pharmacotherapy
          - Bedpan or urinal
          - Not improved → Refer
        - Mixed Qualities
          - Combination therapy based on predominant qualities

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**Table 1: Key Features in Classifying Incontinence**

**Patient Resources**

- [uptodate.com/patients](http://uptodate.com/patients): Patient-level reading. Search: “Incontinence incontinence treatments” or “Pelvic muscle exercises”
- [familydoctor.org](http://familydoctor.org): A less detailed alternative
- [powderroom.ca](http://powderroom.ca): For short or long-distance travel, updated maps provide cross-Canada bathroom locations for patients to plan voiding

**References**

- Emedicine.com
- Uptodate.com
- Essentials of Clinical Geriatrics, 3rd ed. Kane, Ouslander, Abrass
- 5-Minute Clinical Consult, 2010