Understanding and Managing Female Urinary Incontinence in a Primary Care Setting

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Goals

- Recognize and counsel female patients with Urinary Incontinence
- Describe the different types and presentations of female incontinence
- Institute an appropriate work-up
- Select and institute initial treatment
- Be aware of referral options for patients who require additional work-up or treatment

Epidemiology

- Very Common but underreported
- Current estimates:10-60% nonpregnant women greater than age 20
- US National Health and Nutrition and Examination Survey (NHANES)
  9.6 million women >50yrs, and women >60yrs 50-70%!
- Nurses Health Study data at least 1/3 have symptoms monthly

Quality of Life and Impact

- Depression and anxiety
- Work impairment, social isolation, and disability
- Sexual and relationship dysfunction
- Societal costs $26.3 billion (2005 data JAMA) $66 billion in (2007 NIH)
- 75% in routine care (absorbent pads/ diapers and laundry)
- Increased caregiver burden resulting at least 10% of all nursing home admissions
- Morbidity- increased infections (UTI, perineal) and fractures (falls)

Risk Factors

- Age
- Obesity
- Parity
- Mode of birth
- Family history (especially urgency incontinence)
- Medical comorbidities and medication
- Diet/smoking
- High impact exercise

Types of Urinary Incontinence

Stress Urinary Incontinence

- Involuntary loss of urine associated with increased abdominal pressure
- Activity related (cough/sneeze, laughing, exercise, trampolines)
- Related to a loss of mechanical support of the urethra
- “garden hose” analogy
- Urethral hypermobility
- May be related to chronic pressure (chronic cough, COPD, obesity) or trauma (vaginal childbirth and obstetrical injury)
- Intrinsic sphincteric deficiency (urodynamic diagnosis) Can occur with the presence or absence of urethral hypermobility. Typically severe and difficult to treat

Types of Urinary Incontinence

Urgency Urinary Incontinence

- Urge to void immediately preceding or concurrent with an involuntary loss of urine
- More common in older women
- “Overactive bladder” refers to urinary urgency with or without incontinence
- May have a component of nocturia (> 2 times/night)
- Thought to arise from detrusor overactivity that leads to uncontrolled detrusor spasms
- Can be associated with spinal cord injury, CNS disorders (stroke, dementia, Parkinson’s disease), and other bladder disorders

Types of Urinary Incontinence

Overflow Incontinence

- Continuous leaking or dribbling in the setting of incomplete bladder emptying
- Patients describe symptoms of intermittent stream, hesitancy, multiple voids, and frequency
- Bladder outlet obstruction (prolapse, pelvic masses, overcorrected incontinence surgery, urethral masses/stricture, and Fowler's syndrome)
- Detrusor underactivity

Evaluation

- Ask! Patients won't usually initiate the discussion
- History, Physical exam (pelvic), U/A and culture
- Classify the type of incontinence and most bothersome symptoms (helps direct treatment)
- Consider other systemic issues such as recurrent UTI, Hematuria without infection, mental status changes, gait changes/ lower extremity weakness, pelvic organ prolapse
- Voiding diaries and pad/garment counts
- Cough stress test
- Post void residual (< 100cc nml, >500cc place catheter and refer)

Evaluation — Additional Considerations

- Medications
- Previous treatment (medications, surgery, pelvic floor physical therapy)
- Urodynamic testing
- Cystoscopy
- Imaging

Effect of selected medicines and other agents on bladder function

	Medicines and other agents	Effect on bladder function
Allergy		
Antihistamines	First-generation H_1 receptor antagonists (eg, brompheniramine, chlorpheniramine, clemastine, cyproheptadine, dimenhydrinate, diphenhydramine, hydroxyzine, others)	Decreased contractility via anticholinergic effect
Decongestants	Pseudoephedrine, phenylephrine	Increased urethral sphincter tone
Analgesic and sedative		
Benzodiazepines	Chlordiazepoxide, clonazepam, temazepam, triazolam, others	Impaired micturition via muscle relaxant effect
Opioids	Codeine, meperidine, morphine, oxycodone, others	Decreased sensation of fullness and increased urethral sphincter tone
Anticholinergic*		
Antimuscarinics (overactive bladder medications)	Darifenacin, fesoterodine, oxybutynin, solifenacin, tolterodine, trospium	Decreased contractility via anticholinergic effect
Spasmolytic	Dicyclomine, hyoscyamine, glycopyrrolate, methscopolamine, propantheline, scopolamine (hyoscine)	Decreased contractility via anticholinergic effect
Anticholinergics (antiparkinson medicines)	Benztropine, trihexyphenidyl	Decreased contractility via anticholinergic effect
Cardiology¶		
ACE inhibitors	Enalapril, lisinopril, ramipril, others	Decreased contractility; chronic coughing
Alpha agonists	Midodrine, phenylephrine, vasopressors (various)	Increased urethral sphincter tone
Alpha$_1$-blockers	Alfuzosin, doxazosin, prazosin, silodosin, tamsulosin, terazosin	Decreased urethral sphincter tone
Antiarrhythmic	Disopyramide, flecainide	Decreased contractility via local anesthetic effect on bladder mucosa or anticholinergic effect
Diuretics	Various	Increased urine production, contractility, or rate of emptying
Psychotropic		
Antidepressants	SNRIs: duloxetine, reboxetine Δ	Increased urethral sphincter tone
	Tricyclic antidepressants (amitriptyline, clomipramine, desipramine, doxepin, imipramine, nortriptyline, others)	Decreased contractility via anticholinergic effect
Antipsychotics	First-generation (chlorpromazine, fluphenazine, methotrimeprazine); second-generation (clozapine, olanzapine, risperidone); others have lower effect	Mixed effects described; decreased contractility via anticholinergic effect, increased micturition and stress incontinence via stimulation of alpha$_1$ receptors and/or central dopaminergic receptors
Other		
Skeletal muscle relaxants	Orphenadrine, tizanidine (also cyclobenzaprine, baclofen, and methocarbamol, but effect is lower)	Decreased contractility via anticholinergic effect
Estrogens	Oral estrogens (hormone replacement therapy)	Increased urinary incontinence
Beta$_3$-agonist	Mirabegron	Decreased contractility via beta$_3$-adrenergic effect
Alcohol		Decreased contractility
Caffeine		Increased contractility or rate of emptying

ACE: angiotensin-converting enzyme; SNRIs: serotonin-norepinephrine reuptake inhibitors; BPH: benign prostatic hyperplasia.

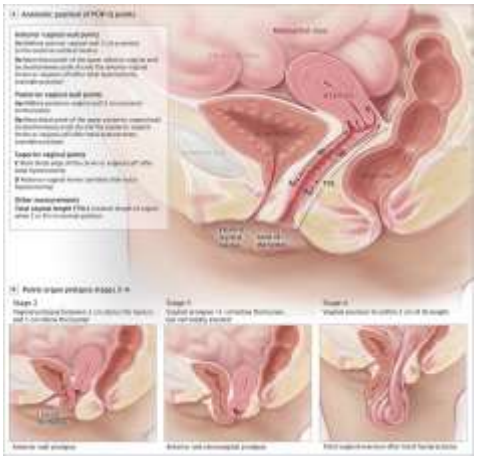
* Inhaled antimuscarinic bronchodilators (eg, ipratropium, tiotropium) and ophthalmic drugs (eg, atropine, cyclopentolate) can be absorbed systemically in varying degrees; urinary retention has been rarely associated with their use particularly among older adults, among men with BPH, and with administration of an inhaled anticholinergic drug by nebulizer.

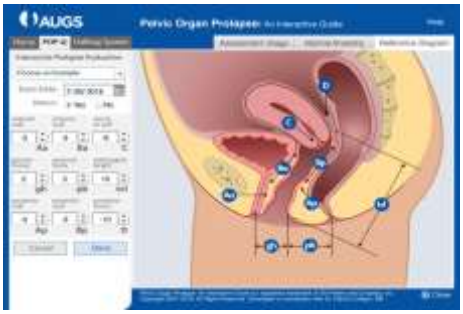
¶ Increased micturition reported by [illegible] of patients in clinical studies of calcium channel blockers; mixed effects have been described.

Δ Not available in the United States.

Prepared with data from:
1. [illegible]
2. [illegible]

Physical Exam — Prolapse

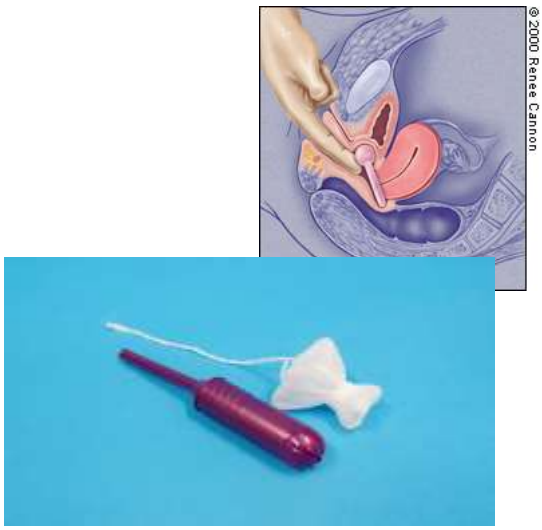




POP-Q Staging Criteria	
Stage 0	Aa, Ap, Ba, Bp = -3 cm and C or D ≤ – (tvl – 2) cm
Stage I	Stage 0 criteria not met and leading edge < -1 cm
Stage II	Leading edge ≥ -1 cm but ≤ +1 cm
Stage III	Leading edge > +1 cm but < + (tvl – 2) cm
Stage IV	Leading edge ≥ + (tvl – 2) cm

Treatment: Stress Incontinence (Non-Surgical)

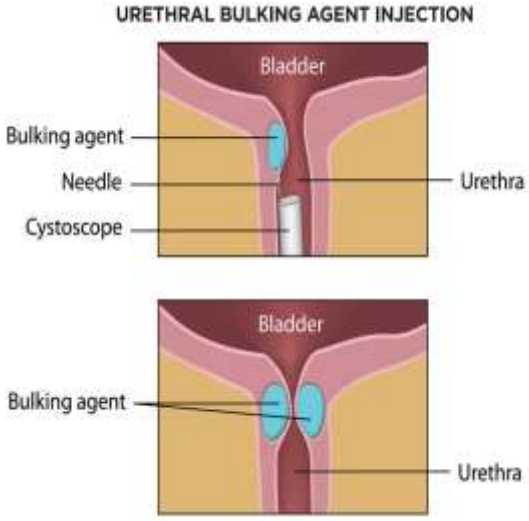
- Kegel Exercises
- Timed voiding to maintain empty bladder
- Weight reduction
- Active management of constipation
- Over-the-counter devices
- Pelvic floor physical therapy
- Pessaries

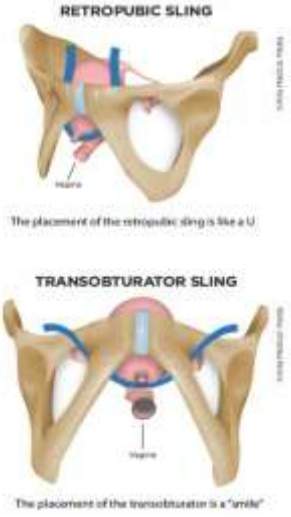


Treatment: Stress Incontinence (Surgical/Device-Driven Interventions)

- Periurethral bulking agents
- Mid urethral slings ***
- Autologous slings
- Retropubic suspensions (Burch, MMK)
- Intravesical balloon (long term data lacking)
- Pulsed magnetic stimulation of the pelvic floor (limited data/cost)
- Transurethral radiofrequency collagen denaturation (experimental)

Treatment: Stress Incontinence (Surgical/Device-Driven Interventions)





Treatment: Urgency Incontinence (1st Line Non-Surgical)

- Fluid restriction (65-100oz/ day)
- Timed voiding (every 2-3 hours on the clock)
- Treatment of vulvovaginal atrophy
- Avoidance of bladder irritants (caffeine, smoking, carbonated drinks)
- Pelvic floor exercises and physical therapy
- Consider pharmacologic therapy

Treatment: Urgency Incontinence (Pharmacologic Therapy)

- Anticholinergic/ antimuscarinic agents
- Largest and oldest drug class
- Block muscarinic receptor stimulation by acetylcholine decreasing smooth muscle contractility of the bladder
- Side effects generally the limiting factor with patient acceptance
- Dry mouth/eyes, constipation, and somnolence
- Benefits: cost, availability
- Increased risk of dementia and cognitive impairment

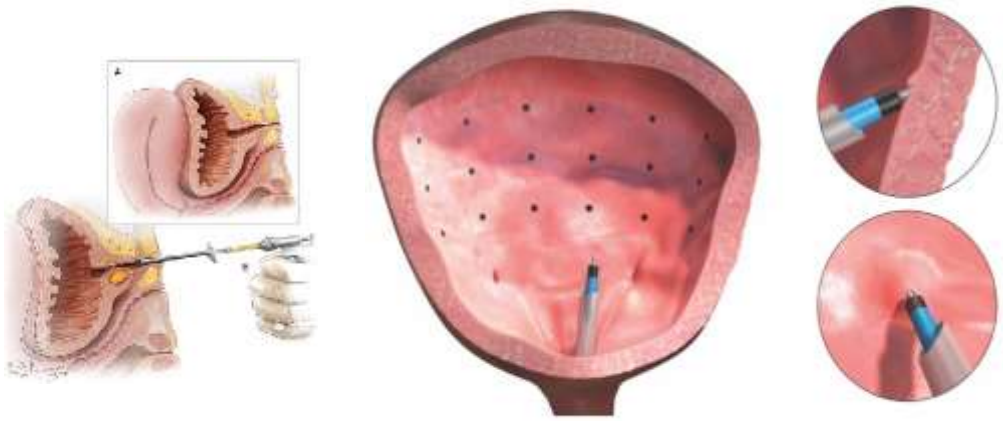
Treatment: Urgency Incontinence (Pharmacologic Therapy)

- Beta-3 agonists
- Newest drug class (mirabegron and vibegron)
- Stimulate the beta-3 receptor responsible for bladder relaxation
- Side effects headache, GI irritation, rhinorrhea (minimal compared to antimuscarinics)
- Hypertension a concern with mirabegron but not noted with vibegron
- Cost is the major limiting factor with patient acceptance
- Mirabegron slated to be available as a generic this year

Treatment: Urgency Incontinence (Advanced Therapies)

- Patients must qualify with failed conservative and pharmacologic therapy
- Botulinum injection into the detrusor muscle (cystoscopy)
  - Local anesthesia in office setting common
  - Onset of action about 2 weeks
  - Duration 3-12 months (most require reinjection every 8-12 months)
  - Can receive up to 400u/ year (100u standard each session)
  - Increased risk of urinary retention (intermittent self catheterization)
  - Increased risk of UTI

Treatment: Urgency Incontinence (Advanced Therapies)



Treatment: Urgency Incontinence (Advanced Therapies)

- Percutaneous stimulation of the tibial nerve
- Implantable tibial nerve stimulator
- Initial therapy is weekly for 3 months, then monthly
- Both more effective than behavioral modifications and medication with optimal duration of therapy undetermined at this time
- Efficacy of about 60%
- Combination therapy with anticholinergics adds no benefit

Treatment: Urgency Incontinence (Advanced Therapies)

- Sacral nerve neuromodulation
- Implanted wire lead in the S3 foramen
- Initial office based “percutaneous nerve evaluation” PNE
- Must demonstrate > 50% improvement to proceed with permanent implant placed in an out-patient setting
- Reported benefits: Improvement > 50% 80-90% at 2 years and cure rates of 60-90%
- Added benefit: most effective therapy of fecal incontinence
- Batteries lasting more than 15 years and now MRI compatible

Treatment: Urgency Incontinence (Advanced Therapies)

Treatment: Follow-Up

- Patients managed with behavioral / dietary/ fluid modification initially monthly until stable and satisfied, then every 6-12 months
- Patients managed with medications initially every 1-2 months until stable and satisfied, then every 3-6 months
- Patients managed with devices (pessaries and OTC devices) monthly until stable and satisfied, then every 1-3 months for the first year. Pelvic exams/ cleanings every 2-3 months
- Encourage patients to call for an appointment with any concerns or worsening/ return of symptoms

When to Refer to Urogynecology

- Recurrent or failed initial therapy, particularly mixed incontinence
- Prior pelvic surgery or radiation
- Presence of pelvic floor prolapse
- Recurrent UTIs or hematuria
- Obstructed voiding
- Bladder Pain Syndrome (Interstitial Cystitis)
- Any time you don’t feel comfortable or suspect a more complicated condition

Contact Information

OU Health Physicians — Women's Pelvic and Bladder Health Clinic
825 NE 10th Street, Suite 5D
Oklahoma City, OK 73104
Referral Line: 405-271-9493
Fax Line 405-271-2233

OU Health is on Epic!