Non-surgical Treatment of Urinary Incontinence Guideline

These clinical guidelines are designed to assist clinicians by providing an analytical framework for the evaluation and treatment of patients. They are not intended to replace a clinician's judgment or to establish a protocol for all patients with a particular condition. A guideline will rarely establish the only approach to a problem.

GUIDELINE HISTORY and APPROVAL

ACTION	SEED GUIDELINE and/or MAIN INFORMATION & GROUP SOURCE(S)	DATE	ORGANIZATION
Guideline developed, reviewed and approved	1.American Medical Directors Association. Urinary Incontinence. Clinical Practice Guideline. 2005. 2. Agency for Healthcare Quality and Research (AHRQ). Overview: Urinary Incontinence in Adults: Clinical Practice Guideline Update. http://www.ahrq.gov/clinic/uiovervw.htm	Sept. – Oct. 2007	Geisinger Health Plan Clinical Guidelines Committee
Guideline reviewed and approved	Same as above	Dec. 17-21, 2007	Geisinger Health Plan/Medical Directors
Guideline reviewed and approved	Same as above	Jan. 7, 2008	Geisinger Health Plan/Medical Management Committee
Guideline reviewed and approved	Same as above	Jan. 23, 2008	Geisinger Health Plan Quality Improvement Committee
Guideline reviewed and approved	Same as above	Dec. 14-18, 2009	Geisinger Health Plan Clinical Guidelines Committee
Guideline reviewed and approved	Same as above	Jan 27, 2010	Geisinger Health Plan Quality Improvement Committee
Guideline reviewed and approved	Same as above	Oct. 10, 2011-Jan 25, 2012	Geisinger Health Plan Clinical Guidelines Committee
Guideline reviewed and approved	Same as above	Jan 25, 2012	Geisinger Health Plan Quality Improvement Committee

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OVERVIEW

Urinary incontinence (UI) is a common condition that may affect individuals of all ages, with a wide range of severity and nature. UI affects approximately 13 million Americans, with the highest prevalence in the elderly in both community and institutional settings. Although the prevalence of UI increases with age, UI should not be considered a normal part of the aging process. UI may seriously influence the physical, psychological and social wellbeing of affected individuals. The impact on the families and caregivers of individuals with UI may be profound, and the resource implications for the health service considerable. There are several types of UI, such as:

- Stress UI is involuntary urine leakage on effort or exertion or on sneezing or coughing.
- Urge UI is involuntary urine leakage accompanied or immediately preceded by urgency (a sudden compelling desire to urinate that is difficult to defer).
- Mixed UI is involuntary urine leakage associated with both urgency and exertion, effort, sneezing or coughing,
- Overactive bladder syndrome (OAB) is defined as urgency that occurs with or without urge UI and usually with frequency and nocturia.

UI can be caused by anatomic, physiologic, and pathologic (genitourinary) factors affecting the urinary tract, as well as external (nongenitourinary) factors. Multiple and interacting factors often contribute to UI development, especially in frail, older patients. Several conditions that cause or contribute to UI are potentially reversible. Management of one or more of these conditions can sometimes lead to the resolution of the UI. This potentially reversible type of UI has been referred to as transient incontinence. In other patients, treatment of these conditions will reduce the severity of UI but will not totally resolve it.

SEED GUIDELINE(S)

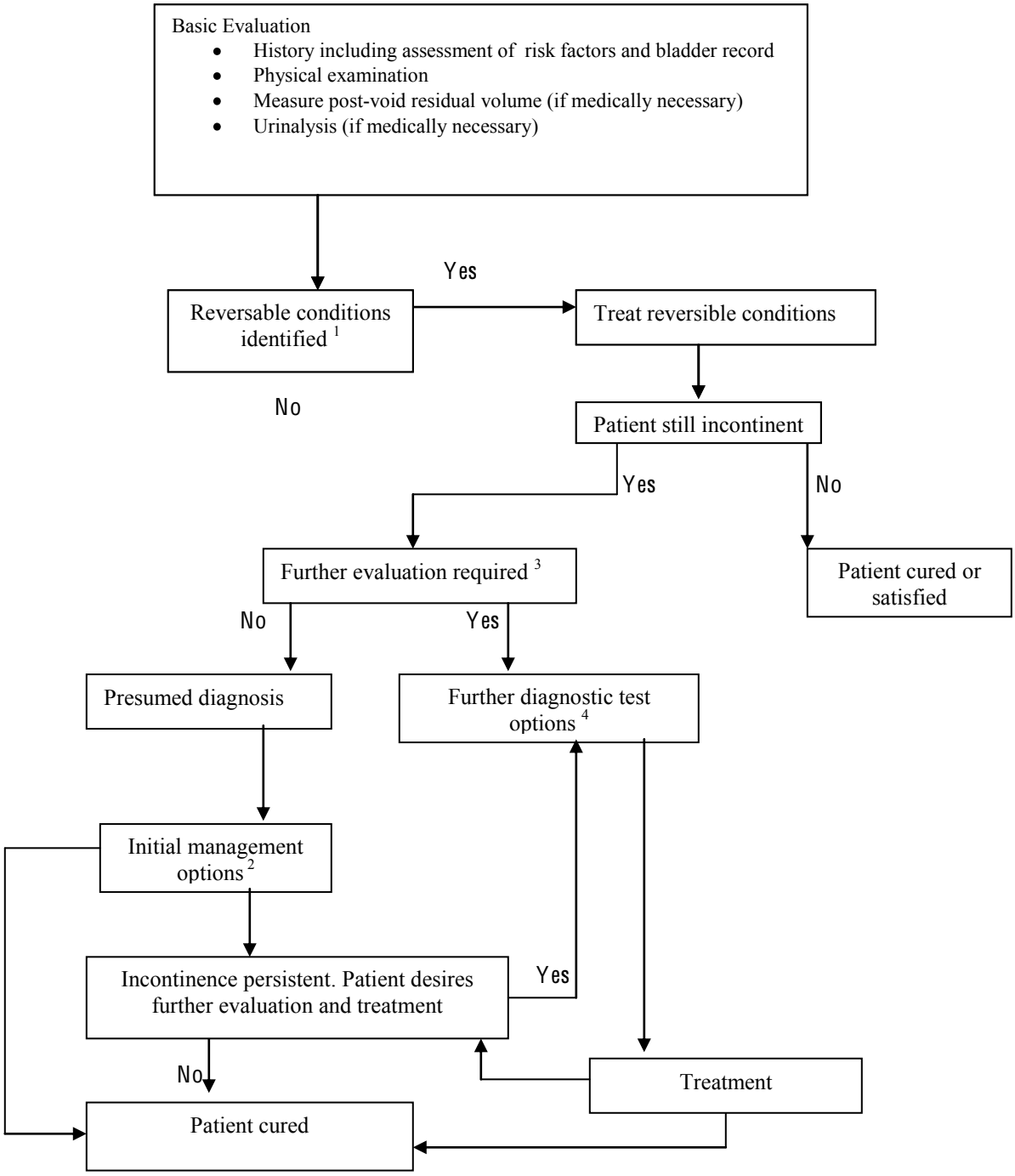
American Medical Directors Association. Urinary Incontinence. Clinical Practice Guideline. 2005.

Agency for Healthcare Quality and Research (AHRQ). Overview: Urinary Incontinence in Adults: Clinical Practice Guideline Update. http://www.ahrq.gov/clinic/uiovervw.htm

FAST FACTS

- 13 million Americans are incontinent; 11 million are women.
- 1 in 4 women ages 30-59 have experienced an episode of urinary incontinence.
- 50% or more of the elderly persons living at home or in long-term care facilities are incontinent.
- $16.4 billion is spent every year on incontinence-related care: $11.2 billion for community-based programs and at home, and $5.2 billion in long-term care facilities.
- $1.1 billion is spent every year on disposable products for adults.

ALGORITHM



1,2,3,4 See Annotations

ANNOTATIONS

Annotation 1.

Condition	Management
Conditions affecting the lower urinary tract	
Urinary tract infection (symptomatic with frequency, urgency,dysuria, etc.)	Antimicrobial therapy
Atrophic vaginitis/urethritis	Oral or topical estrogen
Pregnancy/vaginal delivery/episiotomy	Behavioral intervention. Avoid surgical therapy postpartum as condition may be self-limiting
Postprostatectomy	Behavioral intervention. Avoid surgical therapy until clear condition will not resolve.
Stool impaction	Disimpaction; appropriate use of stool softeners, bulk-forming agents, and laxatives if necessary; implement high fiber intake, adequate mobility and fluid intake
Drug side effects [a]	
Diuretics: causing polyuria, frequency, and urgency Caffeine: causing aggravation or precipitation of UI Anticholinergic agents: causing urinary retention, overflow incontinence, impaction Psychotropics: - Antidepressants: causing anticholinergic actions, sedation - Antipsychotics: causing anticholinergic actions, sedation, rigidity, and immobility - Sedatives/hypnotics/CNS depressants: causing sedation, delirium, immobility, muscle relaxation Narcotic analgesics: causing urinary retention, fecal impaction, sedation, delirium Alpha-adrenergic blockers: causing urethral relaxation Alpha-adrenergic agonists:	With all medications discontinue or change therapy, as clinically possible. Dosage reduction or modification (e.g., flexible scheduling of rapid-acting diuretics) may also help.

causing urinary retention (present in many cold and diet over-the-counter (OTC) preparations) Beta-adrenergic agonists: causing urinary retention Calcium channel blockers: causing urinary retention Alcohol: causing polyuria, frequency, urgency, sedation, delirium, immobility	
Increased urine production	
Metabolic (hyperglycemia, hypercalcemia)	Better control of diabetes mellitus. Therapy for hypercalcemia depends on underlying cause.
Excess fluid intake	Reduction in intake of diuretic fluids (e.g., caffeinated beverages)
Volume overload	
Venous insufficiency with edema	Support stocking Leg elevation Sodium restriction Diuretic therapy
Congestive heart failure	Medical therapy
Impaired ability or willingness to reach a toilet	
Delirium	Diagnosis and treatment of underlying cause(s) of acute confusional state
Chronic illness, injury, or restraint that interferes with mobility	Regular toileting Use of toilet substitutes Environmental alterations (e.g., bedside commode, urinal)
Psychological	Remove restraints if possible. Appropriate pharmacologic and/or nonpharmacologic treatment
[a] Many side effects are seen with over-the-counter (OTC) drugs, the use of which may not be reported by some patients.	

Annotation 2.

Type of UI	Characteristics	Management options
Urge	Detrusor instability With normal PVR, no complicating factors	Behavioral techniques: -Bladder training -Pelvic muscle rehabilitation -Other (e.g., fluid management) Pharmacologic interventions: -Anticholinergic medications, tricyclic antidepressants as alternative
Stress	With normal PVR, no complicating factors	Behavioral techniques: -Pelvic muscle rehabilitation -Bladder training Pharmacologic techniques: -Alpha-adrenergic medications or tricyclic antidepressants; estrogen; combination if needed Surgical techniques: -Uncomplicated, nonrecurrent SUI due to hypermobility
Mixed (Urge-Stress)	With normal PVR, no complicating factors	Combinations of above excluding surgical options in most cases

Annotation 3.

- Uncertain diagnosis and inability to develop a reasonable treatment plan based on the basic diagnostic evaluation. Uncertainty in diagnosis may occur when there is lack of correlation between symptoms and clinical findings.
- Failure to respond to the patient's satisfaction to an adequate therapeutic trial, and the patient is interested in pursuing further therapy.
- Consideration of surgical intervention, particularly if previous surgery failed or the patient is a high surgical risk. (Urology consult)
- Hematuria without infection.
- The presence of other comorbid conditions, such as:

  - incontinence associated with recurrent symptomatic UTI
  - persistent symptoms of difficult bladder emptying
  - history of previous anti-incontinence surgery or radical pelvic surgery
  - beyond hymen and symptomatic pelvic prolapse
  - prostate nodule, asymmetry, or other suspicion of prostate cancer
  - abnormal PVR urine
  - neurologic condition, such as multiple sclerosis and spinal cord lesions or injury.

Annotation 4.

Type of UI	Mechanism	Associated factors	Diagnostic test options (typically done via Urology consult)
Urge	Unstable bladder or detrusor instability (DI)	No neurologic deficit	Simple or multichannel CMG with or without EMG
	Detrusor hyperreflexia (DH), detrusor sphincter dyssynergia (DSD)	With neurologic lesion such as stroke, supraspinal cord lesions, multiple sclerosis	Simple cystometry or multichannel
	Detrusor hyperactivity with impaired contractility (DHIC)	Elderly, usually also associated with obstructive or stress symptoms	Multichannel CMG with or without EMG Videourodynamics
Stress	Hypermobility of bladder neck (female)	Detachment of bladder neck with concomitant hypermobility of the urethra.	Provocative stress test (direct visualization) Tests for bladder neck hypermobility Simple or multichannel CMG (to exlude DI) UPP or leak point pressure Videourodynamics
	Intrinsic sphincter deficiency (ISD)	Postoperative (after prostatectomy or anti-incontinence surgery), trauma, aging, radiation, congenital (epispadias)	Same as above
	Neurogenic sphincter deficiency	Neurogenic, sacral, or infrasacral lesion (e.g., myelomeningocele)	Same as above EMG
Overflow	Overflow from underactive or acontractile detrusor	Neurogenic (low spinal cord lesion, neuropathy, postradical pelvic surgery), idiopathic detrusor failure	Elevated PVR volume Uroflowmetry Voiding CMG (pressure flow) with EMG Cystourethroscopy
	Overflow from outlet obstruction	Male: prostate gland disease, urethral stricture Female: postoperative	Same as above Videourodynamics

[a] The urodynamic tests listed here are not recommended for routine use but are options for patients who require further evaluation (see text and Table 2). For details on various tests, see text.
CMG = cystometrogram, EMG = electromyogram, PVR = postvoid residual (if medically necessary), UPP = urethral pressure profilometry

RECOMMENDATIONS

Basic Evaluation

All patients with UI should undergo a basic evaluation that includes a history, physical examination, measurement of post-void residual volume (if medically necessary), and urinalysis.

Risk factors that are associated with UI should be identified and attempts made to modify them.

History

The history should include (1) a focused medical, neurologic, and genitourinary history that includes an assessment of risk factors and a review of medications (including nonprescription medications) and (2) a detailed exploration of the symptoms of the UI and associated symptoms and factors, including

- Duration and characteristics of UI (stress, urge, dribbling, others).
- Most bothersome symptom(s) to the patient (which may be especially important in guiding therapy and determining response).
- Frequency, timing, and amount of continent voids and incontinent episodes.
- Precipitants of incontinence (e.g., situational antecedents, cough, certain types of exercises, surgery, injury, previous pelvic radiation therapy, trauma, new onset of diseases, new medications).
- Other lower urinary tract symptoms (e.g., nocturia, dysuria, hesitancy, poor or interrupted stream, straining, hematuria, suprapubic or perineal pain).
- Fluid intake pattern, including caffeine-containing or other diuretic fluids.
- Alterations in bowel habits or sexual function.
- Previous treatments and their effects on UI.
- Amount and types of pads, briefs, and protective devices.
- Expectations for outcomes of treatment.
- A bladder record.
- A mental status evaluation and assessment of mobility, living environment, and social factors, especially in elderly patients.

Bladder records are helpful supplements to the history in many patients. These written records are used to determine the frequency, timing, and amount of voiding, as well as other factors associated with UI. Such a record can be kept by the patient or a caregiver for a few days before the basic evaluation. The record may provide clues about the underlying cause of UI, as well as information on fluid intake and voiding patterns that may be helpful for behavioral interventions, and can serve as a baseline to gauge severity and treatment efficacy.

A mental status examination should be performed when appropriate. Assessment of mobility and living environment is also especially important in certain individuals. Questions should be asked about access to toilets or toilet substitutes, and about social factors such as living arrangements, social contacts, or caregiver involvement.

Physical Exam

The physical examination should include the following:

- General examination if indicated to detect conditions such as edema that may contribute to nocturia and nocturnal UI; to detect neurologic abnormalities that may suggest multiple sclerosis, stroke, spinal cord compression, or other neurologic conditions; and to assess mobility, cognition, and manual dexterity related to toileting skills among frail and functionally impaired patients.
- Abdominal examination to check for diastasis rectii, organomegaly, masses, peritonitis, fluid collections, and so on. Abnormality of abdominal contents may influence intraabdominal pressure and detrusor physiology.
- Rectal examination to test for perineal sensation, sphincter tone (both resting and active), fecal impaction, or rectal mass, and to evaluate the consistency and contour of the prostate in men. The size of the prostate on digital examination does not exclude or imply obstruction and is usually helpful only for the surgeon in determining the surgical approach if an operation is contemplated.
- Genital examination in men to evaluate skin condition and detect abnormalities of the foreskin, glans penis, and perineal skin.
- Pelvic examination in women to assess perineal skin condition, genital atrophy, pelvic organ prolapse (cystocele, rectocele, uterine prolapse), pelvic mass, paravaginal muscle tone, or other abnormalities. Palpation of the anterior vaginal wall and urethra may elicit urethral discharge or tenderness that suggests a urethral diverticulum, carcinoma, or inflammatory condition of the urethra. Pelvic organ prolapse may not relate to urinary symptoms, especially in the elderly.
- Observation of urine loss using the cough stress test, or gathering information from the patient or patient's family. Observation of urine loss can be performed by having the individual cough vigorously while the examiner observes for urine loss from the urethra. Optimally, testing should be done when the patient's bladder is full but before the patient has a precipitant urge to void. In women who are being evaluated for specific treatments for stress incontinence, this test is important for objective demonstration of urine loss and identification of provoking factors. In other patients, particularly those with physical or cognitive impairment, direct observation may be difficult to carry out, and this documentation may not be critical in determining initial treatment of incontinence. If an instantaneous leakage occurs with cough, then SUI is likely; if leakage is delayed or persists after the cough, DI should be suspected. If the test is initially performed in the lithotomy position and no leakage is observed, the test should be repeated in the upright position. If bladder filling is needed to perform stress testing, it may be conveniently performed in conjunction with the catheterization method of measurement of PVR volume.

Estimation of PVR Volume

Accurate measurement of PVR (when medically necessary) can be accomplished either by catheterization or by pelvic ultrasound. Some health care providers may use abdominal palpation or bimanual pelvic examination to suspect elevated PVR; however, the exact amount of volume or confirmation usually requires other methods (catheterization, ultrasound).

Before PVR is measured, the patient should void in the most comfortable and private environment possible. Voiding can be observed at this time to detect signs of hesitancy, straining, or slow or interrupted stream, which may indicate urethral obstruction, a bladder contractility problem, or both.

Measurement of PVR volume is generally done within a few minutes after voiding by catheterizing the patient or by pelvic ultrasound. Review of the literature failed to indicate a specific maximum PVR volume considered normal, nor is there any documentation of the minimal PVR considered abnormal. In general, PVRs of less than 50 mL are considered adequate bladder emptying. Repetitive PVRs ranging from 100 to 200 or higher are considered inadequate emptying. Clinical judgment must be exercised and all other clinical information included in interpreting the significance of PVR volume, especially in the intermediate range of 50-199 mL.

The PVR urine may be influenced by such factors as the volume voided before PVR measurement, whether the patient is "ready" to void or strains to void, the efforts made to drain the bladder completely, and the environment or clinical setting. Because PVR volume may vary, one measurement of PVR may not be sufficient and repeated measurements may be of value in some patients.

Urethral catheterization in men with prostate obstruction may cause urinary tract infection. Therefore, catheterization in men should be performed only with clear indication and by a health care provider who is prepared to manage abnormal findings.

An alternative to catheterization is the use of pelvic ultrasound. Portable ultrasound devices that estimate PVR with reasonable accuracy are now available. (May require urology consult)

Urinalysis

When symptoms of UI exist, this test is used to detect conditions that are associated with or contributing to UI such as hematuria (suggestive of infection, cancer, or stone), glucosuria (which may cause polyuria and contribute to UI symptoms), pyuria, and bacteriuria, as well as glycosuria and proteinuria. If catheterization is performed for PVR measurement, a sample of the residual urine can be used for the urinalysis and microscopic examination. Careful cleaning of the glans penis in men and the periurethral area in women with an antiseptic solution allows collection of a spontaneously voided specimen that accurately reflects bladder urine.

Dipstick methods are available to detect bacteriuria and pyuria. The diagnostic accuracy of these methods varies considerably among methods and different patient populations. Therefore, urine cultures should be obtained in incontinent patients when dipstick tests indicate infection or when symptoms suggest infection.

Among chronically incontinent nursing home residents, eradication of bacteriuria (with or without pyuria) has no effect on morbidity, mortality, or the severity of UI. Thus, unless UI is of recent onset, has recently worsened, or is accompanied by other symptoms of infection (e.g., dysuria, hematuria,

fever, sudden decline in mental or physical functioning), bacteriuria (with or without pyuria) does not need to be treated in this patient population. Among noninstitutionalized patients, the relationship of bacteriuria (with or without pyuria) to UI is unclear. Further research is needed to clarify this relationship. Until such data are available, infection should be treated when the incontinent patient is initially evaluated and the effect observed before further diagnostic or therapeutic interventions are undertaken

Supplementary Testing

After the basic evaluation, all incontinent patients in whom transient (reversible) causes of UI have been detected should be treated appropriately. If UI persists after the transient causes are identified and treated, further evaluation may be helpful before therapy is initiated.

Patients requiring further evaluation include those who meet any of the following criteria.

- Uncertain diagnosis and inability to develop a reasonable treatment plan based on the basic diagnostic evaluation. Uncertainty in diagnosis may occur when there is lack of correlation between symptoms and clinical findings.
- Failure to respond to the patient's satisfaction to an adequate therapeutic trial, and the patient is interested in pursuing further therapy.
- Consideration of surgical intervention, particularly if previous surgery failed or the patient is a high surgical risk.
- Hematuria without infection.
- The presence of other comorbid conditions, such as:

  - incontinence associated with recurrent symptomatic UTI
  - persistent symptoms of difficult bladder emptying
  - history of previous anti-incontinence surgery or radical pelvic surgery
  - beyond hymen and symptomatic pelvic prolapse
  - prostate nodule, asymmetry, or other suspicion of prostate cancer
  - abnormal PVR urine
  - neurologic condition, such as multiple sclerosis and spinal cord lesions or injury.

Because of their general medical condition, some of these patients may not be appropriate for further evaluation, particularly if it is not desired by the patient/physician or not feasible.

Numerous specialized diagnostic tests are available, and the evaluation must be tailored to the question to be answered. Specialized tests (available through a Urology consult) include the following:

- Urodynamic tests.
- Endoscopic tests.
- Imaging tests.

Urodynamic Tests

These tests are designed to determine the anatomic and functional status of the urinary bladder and urethra. The tests are performed by qualified professionals trained in the specific definitions and procedures.

Cystometry is a test of detrusor function. Depending on the technique used, cystometry can be used to assess bladder sensation, capacity, and compliance, and to determine the presence and magnitude of both voluntary and involuntary detrusor contractions. The patient's symptoms should be reproduced at the time of cystometry, because involuntary DI may be observed in asymptomatic patients and symptomatic patients may show no evidence of involuntary ventrusial contractions. On the other hand, cystometry may be falsely negative in a patient with a genuinely overactive bladder. This is caused by heightened psychological inhibition of reflex activity or lack of measurable increase of detrusor pressure, urethral pressure, or electromyographic activity, which may be dissipated by poor urethral resistance and must therefore be examined closely.

Simple cystometry can be used to detect detrusor contractions and abnormalities of bladder compliance, and to measure PVR and determine bladder capacity. This procedure is performed by filling the bladder to capacity by means of a urethral catheter. Because a rectal or vaginal catheter is not used to monitor the abdominal pressure, results must be interpreted with caution, especially in uncooperative or demented patients. Compared with multichannel studies, simple cystometry has a reported 75-100 percent sensitivity, 69-89 percent specificity, and 74-91 percent positive predictive value for the diagnosis of DI.

A multichannel or subtracted cystometrogram (CMG) with simultaneous measurement of intra-abdominal, total bladder, and true detrusor pressures can differentiate an involuntary detrusor contraction or deversed bladder compliance from an increase in intra-abdominal pressure. However, few data are available comparing multichannel cystometrics with other measures of intravesical pressure, and it is suspected that false positives may be a problem, especially in elderly populations. Likewise, ambulatory continuous monitoring may reveal detrusor contractions missed during a provocative subtracted CMG.

A voiding CMG or pressure flow study can measure detrusor contractility and detect outlet obstruction if the patient is able to void. Simultaneous measurement of detrusor and urethral pressures during voiding is especially helpful in diagnosing urodynamic obstruction.

Uroflowmetry measures the urine flow rate visually, electronically, or with the use of a disposable unit. An electronically generated flow curve is considered helpful in identifying abnormal voiding patterns. Uroflowmetry is not helpful in diagnosing the types of incontinence found in women, but it may be helpful in patients who have difficulty with bladder emptying. However, this test cannot distinguish between obstruction and detrusor weakness without a simultaneous measurement of detrusor function.

Urethral pressure profilometry (UPP). The urethral function test measures resting and dynamic pressures in the urethra. Passive measurement of urethral pressures has been used by some investigators to help identify ISD, especially in women who have had previous operations. However, no specific measurement to date has been found to be discriminatory, especially in the elderly because of the normal decline of urethral pressures with age. Dynamic measurements of urethral and bladder pressures may be used to measure the effect of exertion on the urethral closure mechanism. Sphincter function can also be assessed by measuring the abdominal or vesical pressure needed to overcome the urethral resistance. The relative usefulness of the UPP versus that of Abdominal Leak Point Pressure (ALPP) has not been adequately studied.

Electromyography (EMG) of the striated urethral sphincter measures the integrity and function of its innervation. Both needle and surface EMG, in conjunction with CMG, may be helpful in diagnosing DSD. However, this condition should be diagnosed only after common artifacts such as volitional tightening of the sphincter during involuntary detrusor contraction are excluded.

Endoscopic Tests

Cystourethroscopy is a procedure that may help in identifying bladder lesions and foreign bodies, as well as urethral diverticula, fistula, strictures, or ISD. Most experts agree that cystoscopy is indicated for the evaluation of incontinent patients who have sterile hematuria or pyuria; recent (weeks to months) onset of irritative voiding symptoms such as frequency, urgency, and urge incontinence in the absence of any reversible causes (seeTable 2); bladder pain; recurrent cystitis; or suspected intravesical foreign body; and when urodynamics fail to duplicate symptoms of UI.

A literature search revealed that in studies involving more than 600 incontinent patients selectively cystoscoped, only 11 (less than 2 percent) metaplastic or neoplastic lesions were identified). Even in elderly, incontinent populations, the yield from selected cystoscopy is less than 1 percent). Therefore, cystoscopy should not be performed routinely in incontinent patients to exclude neoplasm.

The precise role of cystoscopy in the evaluation of incontinent patients is controversial. Data are scarce in the literature on this issue, and studies have a referral bias. Furthermore, urethroscopy is not as useful as urodynamic tests in diagnosing SUI. Because this test is not performed during voiding, its usefulness in corroborating or excluding outlet obstruction is limited. Given the large numbers of patients with UI, and given the fact that the majority of UI patients are currently not cystoscoped, cystoscopy cannot be recommended as part of the routine evaluation until data are available to support its performance.

Imaging Tests

Radiographic, ultrasonographic, and other imaging tests should be used for the evaluation of anatomic conditions associated with UI when clinically needed.

Upper tract imaging is not a routine test to evaluate UI. Ultrasound of the kidneys, bladder, or both can help identify dilation of the upper urinary tract and renal pathology, especially in patients with urinary retention, abnormal renal function, or poorly compliant bladders. Excretory urography (i.e., intravenous pyelography) or other imaging modalities are indicated for incontinent patients with sterile hematuria or for further evaluation of upper tract obstruction or other pathology identified by ultrasound.

Lower tract imaging with and without voiding is helpful in examining the anatomy of the urinary bladder and urethra. Nonvoiding lateral cystourethrography in the resting and straining view can identify mobility or fixation of the bladder neck, funneling of the bladder neck and proximal urethra, and degree of cystocele. The voiding component can identify a urethral diverticulum, obstruction, and vesicoureteral reflux. Ultrasonography for assessing the dynamics of the bladder neck and urethra is still under investigation, and its clinical utility remains to be confirmed.

Videourodynamics is a technique that combines the various urodynamic tests with simultaneous fluoroscopy. The technique is helpful in sorting out causes of complex incontinence problems

TREATMENT

The three major categories of treatment are

- Behavioral.
- Pharmacologic.
- Surgical.(Not discussed in the scope of this guideline)

Behavioral

Behavioral techniques decrease the frequency of UI in most individuals when provided by knowledgeable health care providers, have no reported side effects, and do not limit future treatment options. Behavioral therapies can be divided into (1) caregiver-dependent techniques for patients with cognitive and motor deficits and (2) those requiring active rehabilitation and education techniques.

Behavioral techniques are listed below in the order of those requiring passive involvement to those requiring active participation:

- Toileting assistance -- routine/scheduled toileting, habit training, and prompted voiding.
- Bladder retraining.
- Pelvic muscle rehabilitation -- PMEs, PMEs and bladder inhibition augmented by biofeedback therapy, PMEs augmented with vaginal weight training, and pelvic floor electrical stimulation.

All behavioral techniques involve educating the patient, the caregiver, or both, and provide positive reinforcement for effort and progress. Behavioral techniques should be offered to motivated individuals who wish to avoid more invasive procedures or dependence on protective garments, external devices, and medications. These techniques can improve control of detrusor and pelvic muscle function. They generally require patient or caregiver involvement and continued practice. If motivated, most people treated with behavioral techniques show improvement ranging from complete dryness to decreased incontinence episodes. Improved bladder control can occur even in the cognitively impaired individual. Behavioral techniques can also be used in combination with other therapies for UI.

Toileting Assistance

Toileting assistance interventions include routine or scheduled toileting, habit training, and prompted voiding. Routine or scheduled toileting is provided by the caregiver on a fixed schedule at regular intervals. The caregiver takes the patient to void every 2-4 hours including at night. This technique is recommended for patients who cannot participate in independent toileting.

Habit training is toileting scheduled to match the patient's voiding habits. Habit training is recommended for patients for whom a natural voiding pattern can be determined. Habit training is an excellent technique for patients in the home living with a caregiver.

Prompted voiding is recommended in patients who can learn to recognize some degree of bladder fullness or the need to void, or who can ask for assistance or respond when prompted to toilet. Patients who are appropriate for prompted voiding may not have sufficient cognitive ability to participate in other, more complex behavioral therapies. The three major elements of prompted voiding are as follows:

- Monitoring -- The patient is checked by caregivers on a regular basis and asked to report verbally if wet or dry.
- Prompting -- The patient is asked (prompted) to try to use the toilet.
- Praising -- The patient is praised for maintaining continence and for trying to toilet.

Bladder Retraining

Bladder retraining has many variations but generally consists of three primary components:

- Education - combining written, visual, and verbal instruction that addresses the physiology and pathophysiology of the lower urinary tract.
- Scheduled voiding with systematic delay of voiding - involving tactics that help distend the bladder, such as adjustment in fluid loads and delayed voiding to provide progressively larger voiding volumes and longer intervals between voids.
- Positive reinforcement

Pelvic Muscle Rehabilitation

Pelvic muscle exercises (PME) (also called Kegel exercises and pelvic floor exercises), are performed to strengthen the voluntary periurethral and perivaginal muscles that contribute to the closing force of the urethra and to the support of the pelvic visceral structures. PME may also be augmented with some type of biofeedback device to assist patients to gain function and pelvic muscle awareness, or vaginal weight training. Pelvic weight training is a structured progressive resistive exercise program in which women insert weights of identical shape and volume but of increasing weight (20-100 grams) intravaginally, with the tapered portion resting on the superior surface of the perineal muscle and attempt to retain it by contracting the pelvic muscles up to 15 minutes. The weight is worn while the patient is ambulatory, and the exercise is done twice daily.

Pelvic floor electrical stimulation (non-implantable) is another adjunctive modality used in combination with PME. Nonimplantable pelvic floor electrical stimulation uses vaginal or anal sensors or surface electrodes to produce a contraction of the levator ani, external urethral and anal sphincters, accompanied by a reflex inhibition of the detrusor.

Pharmaceutical

Note: Pharmaceutical coverage is dependent upon individual pharmacy benefit design and certain drugs may require prior authorization. Providers are encouraged to review the GHP formulary at http://www.thehealthplan.com, or contact the GHP Pharmacy Department at 1-800-988-4861.

Urge Incontinence: Detrusor Instability

- Anticholinergic agents are the first-line pharmacologic therapy for patients with DI. Anticholinergic agents are effective as treatment for UI because they block contraction of the normal bladder and probably the unstable bladder as well. All anticholinergic drugs are contraindicated in patients with documented narrow-angle, but not wide-angle, glaucoma. (Anticholinergic agents include: *Oxybutynin, Propantheline, Dicyclomine hydrochloride, Flavoxate, Hyoscyamine*)

- Calcium Channel - Blocking Agents - Although such agents are often advocated for bladder storage disorders, only a few small, but favorable, case series were identified in the literature. No controlled studies could be found for marketed agents (e.g., nifedipine, diltiazem, verapamil). At this time, these agents are not recommended for general use for the treatment of detrusor instability.

- Tricyclic Agents - The use of tricyclic agents (TCAs) should be reserved for carefully evaluated patients. The usual oral dosages are 10-25 mg initially administered one to three times per day, but less frequent administration is usually possible because of the long half-life of these drugs. The daily total dosage is usually 25-100 mg.

- Nonsteroidal Anti-Inflammatory Drugs - Nonsteroidal anti-inflammatory drugs (NSAIDs) are not recommended for the primary treatment of DI

Stress Incontinence: Urethral Sphincter Insufficiency

Alpha-Adrenergic Agonist Drugs - Phenylpropanolamine (PPA) or pseudoephedrine is the first-line pharmacologic therapy for women with SUI who have no contraindications for its use, particularly hypertension. The recommended dosage for PPA is 25-100 mg in sustained-release form, administered orally, twice daily. The usual dosage of pseudoephedrine is 15-30 mg, orally, three times daily.

Estrogen Therapy - Estrogen (oral or vaginal) may be considered as an adjunctive pharmacologic agent for postmenopausal women with SUI or mixed incontinence. Conjugated estrogen is usually administered either orally (0.3-1.25 mg/day) or vaginally (2 g or fraction/day). Progestin (e.g., medroxyprogesterone 2.5-10 mg/day) may be given continuously or intermittently.

Other Drugs of Possible Benefit
Imipramine is recommended as an alternative pharmacologic therapy for SUI when first-line agents have proven unsatisfactory. Imipramine is recommended as an alternative pharmacologic therapy for SUI when first-line agents have proven unsatisfactory.

Propranolol- The use of propranolol or other beta-blockers cannot be recommended for treatment of SUI because of lack of clinical experience and clinical studies.

Antidiuretic hormone. Desmopressin (desmopressin diacetate arginine vasopressin (DDAVP)) is used mainly in the treatment of nocturnal enuresis and night-time polyuria. Available research on this drug has been conducted mainly in children and in patients with neuropathic conditions.

Other Measures and Supportive Devices

Other measures and supportive devices used in the management of UI include the following:

- Intermittent catheterization. (only if medically necessary in a nursing home environment)
- Indwelling urethral catheterization. (only if medically necessary in a nursing home environment)
- Suprapubic catheters.
- External collection systems.
- Penile compression devices.

- Pelvic organ support devices. (Pessaries)
- Absorbent pads or garments.

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