Conservatively, UI affects 13 million Americans.
Urinary Incontinence: Assessment and Management in Family Practice

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Learning Objectives

After completing this program, you should be able to:
1. Describe the common physiologic changes that result in each classification of urinary incontinence (UI).
2. Assess each patient to diagnose UI by classification.
3. Determine when UI is a symptom of a more significant medical problem.
4. Describe treatment options for UI and possible adverse effects.
5. Manage patients with UI.
6. Identify patients who should be referred to another specialist for assessment and/or management of UI.

Urinary Incontinence: Assessment and Management in Family Practice

“Urinary Incontinence: Assessment and Management in Family Practice” is designed to provide family physicians with current, evidence-based treatment and management options for urinary incontinence (UI). Information in this Video CME program can be applied to daily practice to create an environment in which patients are comfortable discussing loss of bladder control. Family physicians should obtain information from patients that may lead to the diagnosis of UI, present patients with the necessary tools to understand and participate in self-directed treatments, and recognize when certain patients may need to be referred to another specialist.

Prevalence and Incidence

Although urinary incontinence (UI), the involuntary loss of urine that results in physical, hygienic, and psychological distress, is one of the 10 most common chronic conditions in the United States—more common than diabetes mellitus and peptic ulcer disease—it is well documented that fewer than one half of persons affected seek medical attention. The prevalence of UI ranges from 13 to 60 million Americans, and the exact prevalence is unknown, estimates range from 13 to 60 million. Conservatively, UI affects the lives of about 13 million Americans, both men and women, with an especially high prevalence among elderly women.

Each year, approximately $16 billion in direct costs is spent on incontinence-related care: $11 billion for community-based patients and $5 billion in long-term care facilities. Disposable products for adults such as absorbent pads and pants, although still used in less than 10 percent of American households, account for more than $1.1 billion in spending each year. This estimated direct cost of UI increased more than 200 percent over 10 years. This increase may be due, in part, to the increase in the number of Americans older than 65 years. Estimates indicate that $8 billion could be saved each year if the onset of UI were delayed by just five years.

The National Institutes of Health recently published disease-specific estimates of costs of illness comparing different diseases in the United States. These estimates are a striking example of the large cost of illness of urinary incontinence (Figure 1).

Many persons affected by loss of bladder control gradually isolate themselves socially and lose self-esteem because of a fear of stigmatization. Results of a family-practice-based survey indicated that women with UI perceive their overall health as being poorer than that of their similar-age counterparts without UI and that they were significantly more likely to experience headaches, constipation, swollen ankles, and coughing. Further, a multinational review of the effect of UI on quality of life as measured by standardized psychological questionnaires yielded much lower scores in areas of self-perceived health, vitality, social functioning, and other aspects of well-being for respondents with UI than for the average population. This study also demonstrated that effective treatment can result in substantial improvement in these scores.

Despite these reports, many persons never complain of UI to their physician, primarily because of the misconception that it is a normal part of aging or a natural consequence of childbirth or menopause. Other documented reasons for not seeking medical treatment for UI include a lack of awareness of available treatment options, fear of surgery, embarrassment, and an ability to deal with UI by using over-the-counter absorbent products or avoiding certain activities altogether. Yet another roadblock to treatment is that many physicians, because of time constraints or lack of awareness about effective treatments, fail to ask patients the questions that would lead them to a diagnosis of UI.
**Function of the Urinary Anatomy**

Urine travels from the kidneys through the ureters to the bladder, where it is stored until it is excreted from the body through the urethra. The bladder serves two purposes: first, to store urine in a “watertight” manner and second, to empty efficiently and without obstruction. The urge to urinate normally occurs when the bladder reaches a capacity of 150 to 250 mL of urine, although most adult bladders can accommodate 300 to 650 mL. In its proximal portion, the urethra rests on the slinglike muscles of the pelvic floor that support the bladder neck and urethra and keep the bladder, uterus, and rectum in place. Figures 2 and 3 illustrate male and female pelvic anatomy.

The muscular layer of the bladder is innervated by the parasympathetic system by means of cholinergic receptors. The sympathetic system innervates the internal urinary sphincter by means of α-adrenergic receptors. The somatic nervous system innervates the external urinary sphincter. When there is enough pressure in the bladder, the bladder wall is stretched, triggering a central nervous system response. The parasympathetic nervous system causes the urge to void by contracting the detrusor muscle, while the pelvic floor and internal sphincter muscles relax, allowing for urination. A ny disruption in the integration of or damage to the musculoskeletal, neurologic, or physiologic functions can lead to loss of control of bladder function and UI.

Acetylcholine is released from postganglionic parasympathetic nerves and is the primary stimulus for bladder smooth muscle contraction. Cholinergic receptors (muscarinic and nicotinic) are mainly responsible for neurologically induced excitations of smooth-muscle cells; for many years, the management of muscular overactivity has been by the downregulation of cholinergic neurotransmission through pharmacology.

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**Classifications and Risk Factors**

UI is divided initially into two categories: transient (acute causes), and chronic (persistent causes). Transient causes of UI are primarily from external processes that act on the urinary tract to precipitate incontinence and can be remembered using the acronym “DIAPPERS,” developed by Neil Resnick, M.D. Delirium, infections of the urinary tract that are symptomatic, trophic urethritis or vaginitis, psychological conditions, especially depression, endocrine disorder/excessive urine production (hypercalcemia or hyperglycemia), restricted mobility, urinary retention, stool (fecal impaction), many conditions and disorders are associated with the development of chronic UI, including factors that weaken the pelvic floor, such as pregnancy or childbirth, vaginal delivery, episiotomy, and the depletion of estrogen that occurs after menopause. Pelvic surgery, immobility caused by certain chronic illnesses, neurological diseases, injury to the pelvic floor, and the urethra can lead to UI.

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**Figure 2.** Female Pelvic Muscles. (From National Kidney and Urologic Diseases Information Clearinghouse. Urinary Incontinence in Women. Washington, DC: NIDDK; 1997. NIH publication no. 97-4132.)

**Figure 3.** Male Pelvic Muscles. (Reprinted with permission from Taylor R. Health Awareness Connection (HAC) Web site. Available at: www.healthac.org. Accessed August, 2002.)
region or spinal cord, and degenerative changes associated with aging are also important factors in the development of UI. Chronic medical conditions such as diabetes, stroke, obesity, arthritis, Alzheimer's disease, and coronary artery disease also can interfere with normal voiding patterns.5,17

Chronic UI is classified into five groups based on underlying pathophysiology.

**Stress Incontinence.** Stress UI is defined as an involuntary loss of urine secondary to increased intra-abdominal pressure that occurs with physical stress such as coughing, laughing, sneezing, changing to an upright posture, climbing stairs, or exercise.13,15 This classification of incontinence is the most common form of UI in women younger than 60 years as the result of a weakened urethral sphincter or weakness of the muscles that support the urethra. Stress UI occurs rarely in men, usually after prostate surgery or urethral trauma when there is no longer adequate support given by the prostate to the bladder neck.2,13

**Urges Incontinence.** Also known as “overactive bladder” or “detrusor hyperactivity,” urge incontinence occurs in men and women, and its incidence increases with age, making it the most common cause of UI in people older than 60 years.11 When a neurologic etiology is identified, detrusor hyperactivity is called “hyperreflexia.” Urge incontinence is characterized by frequent involuntary loss of urine in the absence of physical stress usually accompanied by a strong desire to void.13 Most cases of urge UI are idiopathic in etiology, therefore attention has to be given to reversible causes, fluid intake, and comorbidities. In cases of new-onset urge incontinence, the family physician should consider transient causes such as urinary tract infections. In the minority of cases where a specific etiology of urge UI can be identified, the most common known cause is neuropathy, often presenting as impaired bladder contractility and/or involuntary sphincter relaxation.

**Overflow Incontinence.** There are two main precipitants of overflow incontinence: outlet obstruction, caused by conditions such as benign prostatic hypertrophy (BPH), genitourinary prolapse, tumors, neurologic dysfunction, or urethral stricture, and bladder contractile dysfunction, which can result from diabetic or alcoholic neuropathy, sacral spinal cord lesions, or the use of medications with anticholinergic properties.15,18 Overflow UI occurs less frequently than stress or urge UI and is more common in men than in women. Men with overflow incontinence may experience dribbling or urgency symptoms and may strain while urinating, only to void small amounts of urine from an overfilled bladder that cannot empty properly, accompanied by a sensation of incomplete voiding.15,18 Overflow UI caused by outlet obstruction is usually treated with surgery to remove an obstruction, such as transurethral resection of the prostate, a common procedure to treat BPH.19 Treatment options for bladder contractile dysfunction include medications or indwelling or intermittent catheterization to allow for normal bladder emptying.

**Functional Incontinence.** Generally, patients with functional UI have normally functioning urinary systems and the incontinence is a result of external factors. It is commonly associated with age and a decline in mental function. Functional UI is defined as urinary loss associated with the inability to use toileting facilities secondary to cognitive, physical, or emotional disorders and is not directly related to genitourinary pathology.15 This type of incontinence occurs equally in men and women and typically produces moderate- to large-volume urine loss.

**Mixed Incontinence.** When a combination of stress and urge UI is present, the diagnosis of mixed incontinence may be made. The most common form of mixed incontinence comprises symptoms of stress and urge incontinence simultaneously and occurs most frequently in older women. The combination of overflow and urge incontinence symptoms occurs more often in men and in frail nursing home patients.15

**Persons At Risk**

Although UI is one of the more prevalent conditions in the older population, it is not exclusive to age or gender and is treatable and often curable in all age groups and in both genders. In general, anatomical gender differences result in different pathophysiology of UI.18 Women predominantly suffer from stress and urge incontinence, whereas the prominent classifications of UI in men are overflow and urge. Women rarely present with overflow incontinence, barring a neurologic deficit or anti-incontinence surgery, and men rarely have stress incontinence without a history of pelvic or prostate surgery, or pelvic trauma. Among persons younger than 60 years, five times more women than men are likely to experience UI; among those older than 60 years, the female-to-male ratio is 2:1.1

Older women experience incontinence more often than younger women. At least 35 percent of persons older than 60 years and 50 percent of homebound elderly or those in long-term care facilities are affected by UI.12 Though age itself is not a cause of UI, some of the changes that take place during the aging process can predispose an individual to UI. For example, major organ systems decline gradually with advancing age. Detrusor contractility, bladder capacity, and the ability to stop urination appear to decline in both genders. Urethral closure pressure likely declines in women; detrusor overactivity increases in prevalence, and postvoid residual (PVR) urine volume probably increases. Several other factors may account for the increased prevalence of UI with age. Estrogen depletion after natural menopause, which can also lead to a reduction in collagen tissue integrity, and hysterectomy that damages pelvic nerves or pelvic sup-
portive structures are known risk factors of UI, although nei-
ther has been proven to be an independent cause.15,20

Although younger women do not experience UI as com-
only as do older women, several studies estimate that one
of every four women between the ages of 30 and 59 years
will have at least one lifetime episode.8 In a study of more
than 1,000 women between 40 and 60 years of age, the use
of diuretics (often taken by younger women in an effort to
lose weight), obesity, hysterectomy, and parity were associ-
ated with UI. A another study21 of almost 2,000 female UI
patients aged 45 to 55 years showed that these patients were
significantly more likely than those without UI to have
higher body mass index; have had gynecologic surgery; re-
port urinary tract infections, diarrhea, and constipation;
and have had multiple births.

Prevalence of transient stress incontinence is common
immediately postpartum; however, the prevalence of UI in
parous women has been shown to increase significantly 5 to
10 years after childbirth.20 One study22 indicated that first
birth seemed to be most harmful to the pelvic floor and that
subsequent births only moderately increased the risk of UI.

In a longitudinal cohort study, Viktrup and Lose (Am J
Obstet Gynecol. 2001;185:8-7) showed there is a
"dose-response-like" impact of first pregnancy and delivery
on long-term risk (at five years post-delivery) of stress in-
tinence. Overall, 30 percent of women developed stress
UI within five years after first vaginal delivery. The risk for
future stress UI was almost four times higher for patients
who became incontinent during pregnancy and puerperium
compared with those who maintained continence.

Lower urinary tract dysfunction in men is almost exclu-
sively related to pelvic trauma, pelvic surgery, or prostate
disease. Men most often experience UI in connection with
BPH, which causes obstruction of the bladder outlet, or
urethral stricture, leading to urge and/or overflow in-
tinence.1 The incidence of postprostatectomy incontinence
has an extremely broad range, from 2 to 88 percent, be-
cause of the variability of such factors as the type of surgical
procedure chosen, the skill of the surgeon, the applied definition of incontinence, and when and how it was
assessed.23,24 Many men regain continence, partially or
completely, within a few months or years of radical prostate
surgery, but some never regain complete bladder control.23

Beyond age and gender, other factors can precipitate UI.
For elderly patients with UI, the presence of various
diseases, such as venous insufficiency, heart failure, renal
disease, and prostatic enlargement, are also predisposing
factors.16 The reported incidence rate of UI after acute
stroke ranges between 37 and 79 percent. In a study25 of 143
first-time stroke patients, incontinence tended to be statis-
tically related to the presence of cognitive impairment.
Even so, study results showed a high rate of recovery of con-
tinence with time. This study made an association between
UI and discharge destination and UI and functional ability
on admission; the difference in discharge destination be-
tween incontinent and continent patients was statistically
significant, indicating that an association exists between UI
and nursing home admission.25

Role of the Family Physician

A nonsurgical methods have been shown to be increas-
ingly effective in treating UI, management of the condition
by the family physician has become more critical. Study re-
results26,27 have shown that 69 to 84 percent of female pa-
tients with UI were treated by their family physicians to
their satisfaction with fairly simple treatment options and
with minimal psychosocial distress.

Referral to a subspecialist should be reserved for occasions
when the family physician is uncertain about diagnosis or treatment (there is a discrepancy between symp-
toms and clinical findings). Referrals may also be made when
a malignancy is present or suspected or there is evidence of a
comorbidity, when the family physician suspects the UI is sec-
ondary to other disease, cannot satisfactorily classify the in-
continence, is disappointed with treatment after six months,
or is asked by the patient.15,26 Referrals should not be based on
a subspecialist's particular specialty, but on the individual sub-
specialist's interest in or focus on training for the specific con-
dition.28 Even when a referral of a patient to a subspecialist is
necessary, all members of the management team should coor-
dinate the patient's care and long-term follow-up through the
family physician.

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PATIENT EVALUATION

History. A preliminary diagnosis of UI can be made on the
basis of the patient history. Perhaps the single most import-
ant component of taking a history is asking direct questions
about the patient's bladder control and urinary habits. Be-
cause one of the major setbacks in the diagnosis and
management of UI is the fact that patients, for many
well-documented reasons, do not complain about their symp-
toms, it is crucial that the topic be introduced by the family
physician. Physicians suggest asking women about UI at the
postpartum examination, at a consultation for a urinary tract
infection, during a routine Papanicolaou smear, or at any
consultation if the patient is elderly.27 The history, in most
cases, lays the foundation to build a diagnosis.

Key questions asked when taking a patient history can
provide valuable information on the severity and/or the clas-
sification of the UI.15,28:
- Do you have problems holding or emptying your bladder?
- Do you leak urine when you cough, laugh, lift, or sneeze?
- Do you ever leak urine when you have a strong urge on the way to the bathroom?
- How frequently do you empty your bladder during the day? How many times do you go to the toilet?
- Do you ever leak urine during physical activities (e.g., sex, exercise)?
- Do you use absorbent pads to protect your undergarments from leaking urine? How often do you need to change them?
- Do you ever find urine on your pads or clothes and are unaware of when the leakage occurred (accidents)?

A affirmative response to any of these questions should prompt the family physician to explore the details of patient symptoms further:

- Bowel and voiding habits; frequency, timing, and continent and incontinent voids (including any recent changes)
- Other lower urinary tract symptoms (e.g., nocturia, dysuria, hesitancy, poor or interrupted stream, straining, hematuria, suprapubic or perineal pain)
- Fluid intake, including caffeine-containing or other diuretic fluids
- Any changes in bowel habits or sexual function
- Patient's most bothersome symptom(s)
- Precipitants (e.g., surgery, injury, pelvic radiation therapy, trauma, new onset of disease, new medications)
- Patient's expectations of treatment
- Environmental and functional assessment (bathroom accessibility, conditions, or hazards; ability to manage clothing successfully to make it to the bathroom)
- Mental status assessment when appropriate

**Physical Examination.** The physical examination can help rule out transient causes of UI and identify underlying causes. Physicians should perform a thorough physical examination, carefully assessing the following parameters:

1. Cardiopulmonary—edema of lower extremities (indicative of cardiovascular disease); diastolic murmur or carotid bruits; chronic obstructive lung disease, chronic bronchitis; pulmonary fibrosis; emphysema or asthma associated with chronic cough.
2. Endocrinologic—diabetic retinopathy, skin changes, and cataracts; hyperthyroid tremor, goiter, and hypothyroid skin changes and diminished reflexes; truncal obesity; oily skin and acne, easy bruising.
3. Neurologic—deep tendon reflexes or cranial nerves indicative of Parkinson's disease, multiple sclerosis, or other neurological diseases; cognitive function affect (delirium, dementia); mood; gross and fine motor skills; evidence of stroke; compression of spinal cord.
4. Abdominal—bowel distension; liver enlargement; masses; pregnant uterus; fecal impaction in women.
5. Rectal (men)—presence or absence of masses; fecal impaction; sphincter tone; perineal sensation; prostate size and consistency, contour, and tenderness.
6. Genital—mass of the penile urethra; skin condition; abnormalities of the foreskin, glans penis, and perineal skin.
7. Pelvic (women)—dry, thin, friable vaginal mucosa (can alter periurethral tissue); atrophic vaginitis; tenderness, friability; petechiae, telangiectasia; vaginal erosions; strength of pelvic muscles; inflammation; pelvic or rectal mass; pelvic organ prolapse (uterine prolapse, cystocele; cystourethrocele, rectocele, vaginal vault prolapse; enterocele).
8. Cough Stress Test—direct observation of urine loss; cough suppression can reduce intravesical pressure in stress UI.

**Voiding Diary.** The voiding diary, a 24-hour record of voiding patterns and incontinent episodes, is an extremely simple and underused method of gathering useful information. Patients who report voiding intervals of less than three hours or incontinence symptoms should be encouraged to keep a voiding diary for three complete days and return to the office for further evaluation. The diary (Appendix) also reveals the patient's voiding volume, as well as factors that might influence the UI, such as volume and type of fluid intake.

**Postvoid Residual Volume.** This measurement is a relatively simple way to determine contractile function of the bladder and should be performed as part of the UI diagnosis. An accurate postvoid residual (PVR) volume can be accomplished either by catheterization or by pelvic ultrasound. Family physicians should remember that PVR volume is highly variable and not reproducible and may be influenced by factors such as the volume voided before PVR measurement, the time of day, whether the patient is ready to void or strains, and the efforts made by the patient to void the bladder completely.

Before PVR is measured, the patient is asked to empty his or her bladder. The bladder is then catheterized or a pelvic ultrasound is performed and the amount of urine left in the bladder is measured. PVR of less than 50 to 100 mL is normal; more than 200 mL is abnormal and may be suggestive of impaired bladder contractility or a mechanical obstruction. In the older patient, a residual volume of 25 percent of the total bladder volume, or 100 mL, is within normal limits. Bladder ultrasonography provides a quick, noninvasive method of determining PVR with a low risk of urethral injury or infection but is more expensive and susceptible than catheterization to inaccuracy of ±30 to 50 mL, especially in obese patients.

**Urinalysis.** Potential underlying etiologies may be indicated by abnormal conditions such as hematuria (suggestive of infection, malignancy, or kidney stone), gluco-
suria, pyuria (urinary tract infection), and bacteriuria, as well as proteinuria (renal disease, diabetes mellitus) that are associated with or contribute to UI and can be detected using urinalysis testing. If catheterization is performed for PVR measurement, a sample of the residual urine can be used for urinalysis.

**Specialized Tests.** Other laboratory testing should be performed in the case of abnormal or inconclusive findings or treatment failure. Specialized urodynamic tests (Table 1) are available for patients requiring further evaluation. Figure 4 summarizes testing options for UI.

**Differential Diagnosis**

Consideration of health-related quality of life has a substantial impact on patients facing UI, and the potential adverse effects may have a substantial impact on their physical and psychological well being. Since UI is a symptom rather than a condition in itself, the primary diagnostic goals are to confirm the presence of UI and identify the condition(s) that may be contributing to the UI. There may be one underlying condition, but there may be other modifiable or reversible factors at work as well (eg, use of certain drugs that can contribute to the onset or progression of UI).

**Treatment Options**

**Nonpharmacologic**

Historically, physicians have relied on drugs and surgical treatments for patients with UI. Now evidence exists that conservative, less invasive behavioral interventions can be extremely effective in helping patients regain continence. Given the absence of harm and the potential for benefit, treatment strategies that involve bladder and pelvic floor muscle training education should generally be provided first.

**Lifestyle Considerations.** Urinary incontinence caused or exacerbated by physical immobility and mental limitations that prevent quick and easy access to a bathroom can result in suffering from urgency or becoming wet before reaching the toilet. If obstacles restrict a patient’s mobility, the patient’s living area should be rearranged and/or the patient provided with mobility aids (walkers, canes, etc.) to facilitate access to a bathroom.

Patients often reduce their fluid intake in an effort to control UI symptoms; however, too little fluid can be even more harmful than excess intake. Dehydration can cause electrolyte imbalance, constipation (which can itself aggravate UI), and concentrated urine, which can irritate the bladder. Patients should be encouraged to drink a reasonable amount of fluid (about 48 to 64 oz per 24-hour period, which should produce 40 to 50 oz of urine output after insensible losses).

Since constipation can cause pressure on the bladder and urethra and contribute to UI, patients should be instructed to maintain a high-fiber diet. The routine use of laxatives is not encouraged.

Caffeine and alcohol have been reported to irritate the bladder, and patients should be advised to limit intake of drinks that contain them. Recent study results show a relationship that approached significance between a decrease in the amount of dietary caffeine intake and fewer daytime episodes of involuntary urine loss.

Obesity may exacerbate UI by creating excessive intra-abdominal pressure. The efficacy of weight loss via diet and exercise in reducing UI has not been demonstrated in controlled trials, but a small trial showed benefit in UI after weight loss via gastric stapling.

Smoking, which should be discouraged in general, has also been shown to be a possible risk factor for UI. At the very least, the cough that smoking can cause can be an aggravating factor in stress incontinence.

Drugs that influence bladder function may need to be

<table>
<thead>
<tr>
<th>Specialized Tests</th>
<th>Test Options</th>
<th>Classification</th>
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<tr>
<td><strong>Urodynamics</strong></td>
<td>- Simple cystometry detects abnormalities of detrusor compliance and contractibility, measures PVR, and determines capacity; reported 75 to 100% sensitivity, 69 to 89% specificity.</td>
<td>Urge, Stress</td>
</tr>
<tr>
<td></td>
<td>- Multichannel or subtracted cystometrogram can differentiate involuntary detrusor contraction from an increase in intra-abdominal pressure; questionable accuracy.</td>
<td>Urge, Stress</td>
</tr>
<tr>
<td></td>
<td>- Voiding multichannel or subtracted cystometrogram or pressure flow study measures detrusor contractility and detects outlet obstruction.</td>
<td>Overflow</td>
</tr>
<tr>
<td></td>
<td>- Uroflowmetry measures the urine flow rate; is not helpful in diagnosing the classifications of incontinence found in women.</td>
<td>Overflow</td>
</tr>
<tr>
<td></td>
<td>- Leak-point pressures and urethral pressure profiles are used to diagnose intrinsic sphincter deficiency.</td>
<td>Urge, Stress</td>
</tr>
<tr>
<td></td>
<td>- Electromyography measures the integrity and function of urethral sphincter innervation.</td>
<td>Overflow</td>
</tr>
</tbody>
</table>

changed, or the time the drug is taken can be altered to avoid undesirable side effects.

**Bladder (Re)Training.** Patients with a history of UI may empty their bladders as frequently as possible in an attempt to minimize the amount of stored urine so that when an incontinent episode occurs, there will be less leakage. This practice can result in progressively diminished bladder capacity that can ultimately lead to the inability to store urine for longer than 60 to 90 minutes. Family physicians should provide patients with information about normal bladder function, use of a voiding schedule or diary, self-monitoring, and positive reinforcement.

Several evidence-based research articles recommend implementing a bladder-training program. In bladder training, patients are encouraged to adhere to the recommended schedule as closely as possible. Essentially, bladder training consists of advising the patient to control the urge to void and schedule urination at specific intervals, the length of which are to be increased over time, thus increasing the bladder’s capacity over time. The patient can use techniques such as tightening the pelvic floor muscles and distraction and/or relaxation to help diminish the urge to void until the interval has passed. The initial interval length should be determined by the patient’s current habits, and increments of 15 to 30 minutes should be added, with a goal of 3 to 4 hours between voids; the process can take anywhere from 1 week to several weeks.

Prompted voiding is an aspect of bladder training used to teach patients with or without cognitive impairment to ini-

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**Figure 4.** Management of Urinary Incontinence in Family Practice. Adapted from Clinical Practice Guideline Number 2: Urinary Incontinence in Adults: Acute and Chronic Management. Rockville, Md: Agency for Health Care Policy and Research, US Dept of Health and Human Services; 1996. AHCPR publication 96-0682.
tiate their own toileting, although it is primarily used in cognitively impaired patients, those with dementia, and elderly nursing home residents. It involves a caretaker who assists the patient to the toilet at fixed intervals (usually every two to four hours), whether the patient has the urge to void or not. No attempt is made to involve the patient in conscious retraining exercises. Habit training is a variation of prompted voiding that adjusts the toileting intervals to an individual patient’s established voiding patterns.

Pelvic Floor Muscle Training

Pelvic floor exercises...are based on the idea of strengthening the muscles involved in keeping the urethra closed and the pelvic structures supported, particularly during periods of increased intra-abdominal pressure.

Programs of pelvic muscle exercise have been shown to increase muscle strength and reduce incontinent urine loss. A study of 65 women aged 35 to 75 years showed significant improvements in force (25 percent) and duration (40 percent) of muscle contraction and significant reductions (62 percent) in the amount of urine leakage and reported episodes of incontinence after 16 weeks of pelvic muscle exercise. Pelvic floor exercises, also called pelvic muscle exercises and, more commonly, Kegel exercises (named after their originator), are based on the idea of strengthening the muscles involved in keeping the urethra closed and the pelvic structures supported (urinary sphincter and levator ani), particularly during periods of increased intra-abdominal pressure. When pelvic floor exercises are performed correctly and aggressively, women with stress UI have reported an improvement rate between 45 and 75 percent.

The number of daily repetitions of pelvic contractions required to achieve objective improvement ranges from 30 to 80 per day, sustained for at least 10 seconds followed by an equal period of relaxation, for at least 8 weeks; recent studies have demonstrated benefit from as few as 36 contractions per day. The basic concept of any pelvic floor exercise program is that the process must involve intensity, duration, and frequency to have a measurable effect. This means ensuring that the patient contracts the correct muscles and that the patient contracts the muscles harder, longer, and more often. In women this is best taught by the family physician inserting two fingers into the vagina to assess whether the patient is, in fact, contracting the proper muscles. Patients should be instructed that when they can stop or slow urine flow while sitting on the toilet without using their stomach, legs, or buttocks, they have located the correct muscles to contract in performing pelvic floor exercises. Patients can also be taught to tighten the pelvic floor just before coughing, lifting, or any activity likely to cause leakage.

Men who have undergone transurethral prostatectomy for BPH and who performed pelvic exercises for four weeks after surgery have exhibited better urinary control, voided less often, experienced less dribbling, and expressed increased satisfaction with quality of life. Recommendation: Pelvic floor exercises after radical prostatectomy quickly restores urinary continence (www.infoPOEMs.com/info-pointer/synopses/pointerfile.cfm?file=EB04200011.htm). Accessed August 2002.
**Intravaginal Devices.** The most commonly used intravaginal devices are tampons, contraceptive diaphragms, and pessaries. Studies have shown that intravaginal tampons and pessaries are more effective than no device in preventing exercise-induced stress UI.\(^46\) Among the most frequently prescribed pessaries are the Hodge with support, the incontinence dish, and the incontinence ring. Ring pessaries are sized similarly to diaphragms: the most commonly fitted sizes are equivalent to diaphragm sizes 70 to 80 mm (ring pessary size 3 to 5).\(^45\) Frequently, a woman will experience discomfort with one but not with another of these devices. Rather than assuming that a patient is not a candidate for device use, the family physician should offer trials with various types before moving on to more invasive options.\(^46\)

Although pessaries are reusable, they must be fitted and prescribed by a physician, whereas tampons can be purchased over the counter. However, despite the low individual price of the tampon and the expense of obtaining the pessary, the cost of using either method regularly would be similar after a few years. The willingness of a patient to use any intravaginal device depends on their comfort level with inserting and removing it.

**External Devices.** Condom catheters, known as external collection devices, can be used successfully in the management of UI in men because they confine urine to a central location and keep the skin dry. These types of devices are secured to the penis with tape or a strap and connected to collection bags by means of a tube, much like a catheter. Although associated with abrasion, maceration of the penis, dermatitis, ischemia, necrosis, and edema, external devices are preferable to indwelling catheters.\(^26\) In very old, frail patients, indwelling catheters are associated with substantial morbidity, expense, and even mortality.\(^48\) External collection devices for women are not widely available and have not been commonly used.

Absorbent products, such as pads, shields, underpants, adult diapers, and bed pads, are widely used for a variety of reasons, including avoidance of treatment and inadequate treatment. They are the most common method of managing UI in older patients in the United States.\(^44\) Although absorbent products can give an individual a temporary sense of security, they are expensive and are not covered by insurance, can cause superficial skin breakdown and cellulitis, and are not a solution to the problem of UI.\(^38,48\)

The use of absorbent products for urinary protection contributes to dermatitis and maceration of the skin. Skin care for patients with UI is not treatment, but a component of caring for patients. For the ambulatory adult with UI, skin care is similar to that for adults without UI: good personal hygiene, frequent changing of absorbent products, and adequate ventilation.\(^33\)

For elderly or bedridden patients, caretakers must ensure that bedridden patients do not develop skin ulcerations from prolonged contact with wet sheets or clothing.

**Biofeedback.** Biofeedback is a teaching technique used to detect information regarding a patient’s “normally unconscious physiologic processes” and conveying this information to the patient “as a visual, auditory, or tactile signal.”\(^41\) It can be used in conjunction with pelvic floor exercises to help patients become aware of the appropriate muscles to contract, to measure patients’ progress in controlling those muscles, and to motivate patients to gain further control of closing pressure. Vaginal or anal probes or surface electrodes are most commonly used. Biofeedback is usually offered by an incontinence specialist or a physical therapist.

Using pelvic floor exercises and biofeedback concurrently, results across six studies\(^37\) showed a 75.9 to 82 percent reduction in UI. Combining these two modalities has been used successfully in the treatment of UI in postprostatectomy patients also.

**Vaginal Weights.** Cone-shaped weights inserted in the vagina are intended to provide proprioceptive feedback to a female patient attempting to strengthen pelvic muscles. The patient receives a set of vaginal weights of the same shape and volume, but of increasing weight (20 to 100 g)\(^38,42\) and inserts one weight intravaginally twice a day. Women attempt to retain the weight intravaginally for up to 15 minutes\(^38\) by contracting the pelvic muscles when they feel they are ‘losing’ the weight; sensory feedback encourages patients to contract the pelvic floor muscles to retain the weight, thus promoting pelvic muscle strength. As muscles strengthen, heavier weights are used.

Vaginal weights have been shown to be superior to no therapy in achieving continence but have added only slight benefit when used concurrently with pelvic floor exercises. Vaginal cones are not suitable for every patient, particularly women with pelvic organ prolapse or other comorbidities.\(^35\)

**Electrical Stimulation.** The exact mechanism of action of electrical stimulation on UI is not proven, but it is theorized to affect the neural signaling that controls continence and inhibits detrusor activity.\(^43\) Implantable electrodes (implanted near the spinal cord) are rarely used because of their invasiveness.\(^44\) More popular are various forms of non-implanted stimulation, using anal, vaginal, or surface electrodes.\(^38\) Research indicates that electrical stimulation has shown significant efficacy in women with stress UI and some efficacy in men and women with mixed and urge UI.\(^38\)

Although absorbent products can give an individual a temporary sense of security, they are expensive and are not covered by insurance, can cause superficial skin breakdown and cellulitis, and are not a solution to the problem of UI.
Between the realm of medical and surgical treatments, the use of electrical stimulation for treating UI provides a useful alternative, with success rates reported between 52 and 72 percent for urge, stress, and mixed UI in various clinical studies. Several variations on the theme of electrical stimulation to control UI have been described in the medical literature. Like biofeedback, electrical stimulation is usually offered by an incontinence specialist.

**PHARMACOLOGIC**

Pharmacologic intervention for UI aims to inhibit bladder wall muscle overactivity and increase bladder capacity. Urinary incontinence is often treated with anticholinergics (urge UI), tricyclic antidepressants (mixed UI), α-adrenergics (stress UI), and estrogen replacement therapy (stress UI, urge UI, or mixed UI). A trichloroacetic is the most frequently prescribed class of drugs used in the treatment of UI. Table 2 provides an outline of the most commonly used pharmacologic treatments by drug category and classification of UI, including precautions and adverse effects associated with each.

**Table 2. Pharmacologic Treatment**

<table>
<thead>
<tr>
<th>Category</th>
<th>Therapy</th>
<th>Classification</th>
<th>Precautions</th>
<th>Adverse Effects</th>
<th>Contraindications</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anticholinergic agents</td>
<td>Tolterodine 2 to 4 mg qd</td>
<td>Urge</td>
<td>Use lower doses with reduced hepatic function; caution with renal impairment</td>
<td>Dry mouth, visual disturbances, dry skin</td>
<td>Documented hypersensitivity, urinary and/or gastric retention, uncontrolled narrow-angle glaucoma</td>
</tr>
<tr>
<td></td>
<td>Oxybutynin 2.5 to 5 mg bid to tid, not to exceed 5 mg qid</td>
<td>Urge</td>
<td>Caution in urinary tract obstruction, reflux esophagitis, heart disease</td>
<td>Dry mouth, blurry vision, urinary retention, headache</td>
<td>Documented hypersensitivity, glaucoma, partial or complete GI obstruction</td>
</tr>
<tr>
<td></td>
<td>Oxybutynin XL 5 to 15 mg/d</td>
<td>Urge</td>
<td>Caution in renal or hepatic disease</td>
<td>Dry mouth, visual disturbances, dry skin, constipation</td>
<td>Documented hypersensitivity, narrow-angle glaucoma, obstructive GI disorders, urinary tract diseases</td>
</tr>
<tr>
<td></td>
<td>Propantheline 15 to 30 mg tid</td>
<td>Urge</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tricyclic anti-depressants (TCAs)</td>
<td>Imipramine 10 to 25 mg/d/tid, titrate upward gradually, not to exceed 25 to 100 mg/d</td>
<td>Mixed, Stress</td>
<td>Caution in cardiovascular disease, seizure disorders, urinary retention, hyperthyroidism, thyroid replacement therapy; may worsen cardiac conduction abnormalities, postural hypotension, anticholinergic effects</td>
<td>Headache, tachycardia, increased blood pressure; confusion in the elderly</td>
<td>Documented hypersensitivity, narrow-angle glaucoma, obstructive GI disorders, urinary tract diseases</td>
</tr>
<tr>
<td>α-adrenergic agonists</td>
<td>Pseudoephedrine 15 to 60 mg tid</td>
<td>Stress</td>
<td>Cardiac dysrhythmia, hypertension, tremor</td>
<td>Anxiety, insomnia, agitation</td>
<td>Obstructive syndromes and/or hypertension</td>
</tr>
<tr>
<td>α-adrenergic blocking agents</td>
<td>Terazosin 1 mg initial dose at bedtime, increase to 10 mg/d</td>
<td>Overflow: men after BPH</td>
<td>Prostate cancer or orthostatic hypotension</td>
<td>Postural hypotension dyspnea, dizziness, vertigo, somnolence</td>
<td>Patients with known sensitivity to quinazolines</td>
</tr>
<tr>
<td></td>
<td>Doxazosin 1 mg initial dose in the AM or PM, increase 5 to 8 mg/d maximum dose</td>
<td>Overflow: men after BPH</td>
<td>Prostate cancer or orthostatic hypotension</td>
<td>Dizziness, vertigo, dyspnea, edema, headache</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Tamsulosin 0.4 mg/d, 30 minutes following the same meal each day as initial dose; can increase to 0.8 mg/d if needed</td>
<td>Overflow: men after BPH</td>
<td>Prostate cancer</td>
<td>Abnormal ejaculation, back or chest pain, cough, diarrhea, dizziness, headache, sleepiness</td>
<td>Cimetidine, warfarin; should not be used with other α-adrenergic blocking agents</td>
</tr>
</tbody>
</table>

*bid = two times daily; BPH = benign prostatic hypertrophy; GI = gastrointestinal; qd = every day; qid = four times daily; tid = three times daily; UI = urinary incontinence; XL = extended length.*

Adapted from References 5, 13, 15, and 50.
Although absorbent products can give an individual a temporary sense of security, they are expensive and are not covered by insurance, can cause superficial skin breakdown and cellulitis, and are not a solution to the problem of UI.

Most efficacious drug with the fewest side effects. Two anticholinergic agents that have been extensively studied and are most commonly prescribed for urge UI. Oxybutynin is a tertiary amine that has a direct spasmolytic and anticholinergic effect on the detrusor smooth-muscle fibers, leading to a reduction in involuntary contractions. Studies have shown oxybutynin to be effective for treating female patients 46 to 63 years of age and functional, community-dwelling elderly patients, but less effective in elderly institutionalized patients.

Tolterodine, a muscarinic receptor antagonist, also provides effective treatment for urge UI but with a lower incidence of adverse side effects. In a meta-analysis of four published trials, both oxybutynin and tolterodine decreased the number of incontinent episodes. Oxybutynin was reported to be more effective, with patients recording 0.5 fewer episodes per day. Study patients taking tolterodine reported significantly less dry mouth overall (roughly half of patients taking oxybutynin), with about 67 percent less likely to experience moderate to severe dry mouth, and were less likely to withdraw from the study because of side effects (37 percent).

Stress. Compared with urge UI, there are relatively few pharmacologic options for treating stress UI. Alpha-adrenergic agonists increase sympathetic urethral tone; however, only pseudoephedrine is commercially available. Pharmacologic therapy of stress UI using pseudoephedrine may cause subjective improvement in 20 to 60 percent of patients. Imipramine appears to enhance normal storage function of the bladder mediated through inhibition of serotonin. Estrogens have been used to stimulate the proliferation of the urethral mucosa, counteract a loss of urethral collagen after menopause, and maintain smooth-muscle tone. Estrogen therapy, however, is very controversial and some studies have shown that an estrogen approach is more effective in the care of urge UI associated with stress UI.

Early safety and efficacy data are strong for duloxetine, a new balanced selective serotonin and norepinephrine reuptake inhibitor for treating stress UI. At press time, this agent is in Phase III trials and has not been approved by the Food & Drug Administration (FDA).

Overflow. Before beginning pharmacologic therapy for overflow UI, the possibility of an obstruction must be excluded or treated with surgery or catheterization. Peripheral α-adrenergic receptor agonists such as prazosin, terazosin, and doxa-}

zine can be used in cases of urinary retention due to BPH to relax the smooth-muscle cells of the bladder neck and prostate and facilitate bladder emptying. A peripheral parasympathomimetic, such as bethanechol, which stimulates the smooth-muscle cells of the bladder, may be used in cases of decreased bladder contractility. The effectiveness of this parasympathomimetic agent has not been demonstrated.

**ALTERNATIVE**

**Surgery.** Although surgery aimed to correct pressure transmission deficit can be successful in treating stress and overflow UI, it is uncommon in the treatment of urge incontinence. The patient and physician should make a final decision about surgical intervention only after considering factors such as the rate of short- and long-term success, the postsurgery impact on quality of life, and, most importantly, the potential risks.

There has been a recent shift from vaginal surgery, such as Kelly plication, anterior colporrhaphy, or needle urethropexy (Stamey, Raz, or modification of the Pereyra procedure), to suprapubic surgery (Burch colposuspension, Marshall-Marchetti-Krantz, or sling), especially using small incisions; randomized trials, prospective cohort studies, and retrospective studies provide evidence to support this change in management. The National Institutes of Health is currently sponsoring a multicenter, randomized trial comparing the two most common surgical interventions for stress UI, the Burch colposuspension and the pubovaginal sling. Table 3 highlights the most common surgical interventions currently in use. **Recommendation:** Surgical treatment of female stress urinary incontinence is effective, offering a long-term cure in a significant percentage of women. The evidence supports surgery as an initial therapy for many patients and as a secondary form of therapy after failure of other treatments for stress urinary incontinence.

**Injectables.** For patients who prefer a nonsurgical, cost-effective approach to treating stress UI, injectable bulking agents have been used to increase closing pressure and improve urethral resistance. The presence of intrinsic sphincter deficiency is the main indication for the use of these agents. It is generally agreed that with proper placement these agents improve intrinsic sphincter deficiency. Currently available bulking agents in the United States are cross-linked collagen, autologous fat, and carbon bead technology.

Many agents have been studied with varying degrees of success. They are usually administered under local anesthesia, and patients are given antibiotics before and after the procedure.

**Catheterization.** For a limited patient population, catheterization is the only treatment option that is effective.
Catheterization can cause significant discomfort and morbidity, including infection, trauma to the urethra and bladder, pain from bladder spasms, stones, and, possibly, renal damage.\textsuperscript{15,35} Catheterization, especially chronic catheterization, should be considered a last resort in managing UI.

Studies indicate that 50 percent of nursing home patients are incontinent and that chronic catheterization is used in approximately 6 to 28 percent; the actual requirement for chronic catheterization may be as low as 2 to 4 percent.\textsuperscript{15,38} There is a tendency for expediency’s sake to place a catheter and assume that care is complete, but the high risk of morbidity makes this an undesirable option. Chronic catheterization is sometimes used temporarily to assist in skin care management and should be considered for longer-term use only for UI patients whose incontinence is caused by urinary tract obstruction; in patients with indications such as irreversible, significant urinary retention; inadequate caregiver support; terminal illness; or when all other methods of management have been exhausted.

The risks of long-term chronic catheterization are significant: bacteriuria is present in 100 percent of patients within two weeks of catheter placement. Despite the risk of infection, prophylactic antibiotics are not effective or appropriate in this situation. If chronic catheterization is used, the catheter should be changed at least every 30 days to avoid infection.

Although not entirely without risk, intermittent self-catheterization is characterized by decreased morbidity and incidence of urinary infection by using a clean, non-sterile technique or a sterile technique in immunocompromised patients. Candidates for intermittent self-catheterization are patients with spinal cord injuries and those with chronic urinary retention due to an atonic bladder or those with overflow incontinence. A gain, prophylactic antibiotics are not recommended, since resistant bacterial strains can emerge as a result.\textsuperscript{38}

Suprapubic catheters are introduced into the bladder through the anterior abdominal wall. This technique is proposed for short-term use after gynecologic, urologic, and other surgery, or as an alternative to long-term catheter use. Management presents such potential problems as hematoma, urine leakage, skin erosions, and catheter reinsertion. Long-term complications of suprapubic catheterization use are similar to those associated with intermittent self-catheterization, including a higher risk of infection.\textsuperscript{38}

**Conclusion**

Demand for the treatment of UI is growing, in part because the aging population is growing, but also because the population of nonelderly adults, a group that tends not to accept such conditions passively but to seek the best solutions possible, is growing as well.\textsuperscript{34} As described in this Video CME program, careful diagnostic methods allow for the implementation of effective treatment options.

The family physician is in an ideal position to diagnose and manage UI in his or her patients, as well as to coordinate the care of subspecialists if necessary. By taking the time to become more familiar with available treatment options, making sure to initiate open dialogue with patients regarding UI, and following through with treatment, the family physician can play a pivotal role in improving quality of life and ending needless suffering and embarrassment for many individuals.

### Table 3. Surgical Treatment

<table>
<thead>
<tr>
<th>Classification</th>
<th>Surgical Technique</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stress</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Urethral hypermobility</td>
<td>Retropubic suspension—elevation of the lower urinary tract (including Marshall-Marchetti-Krantz procedure, Burch colposuspension, sling procedures)</td>
<td>High success rate, but risk of development of enterocele, detrusor instability, voiding dysfunction</td>
</tr>
<tr>
<td>Intrinsic sphincter deficiency</td>
<td>Sling procedures—placement of a sling (autologous, graft, or synthetic, tension-free vaginal tape) to support bladder and urethra</td>
<td>For women; risk of voiding dysfunction</td>
</tr>
<tr>
<td></td>
<td>Artificial sphincter placement (cuff implanted around urethra that can be inflated and deflated by patient to occlude urethra and allow for urination, respectively)</td>
<td>Vaginal tape is less invasive, closer to natural functioning (86% success rate)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>For men with postprostatectomy UI; high complication rate in women; 60 to 90% success rate</td>
</tr>
<tr>
<td>Urge</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Detrusor instability</td>
<td>Augmentation cystoplasty (to increase bladder capacity, decrease detrusor contractility)</td>
<td>Not used commonly—can cause voiding difficulty, stone formation</td>
</tr>
<tr>
<td>Overflow</td>
<td>Surgery to remove obstruction</td>
<td>Used often in men with benign prostatic hypertrophy</td>
</tr>
</tbody>
</table>

Adapted from References 1 and 13.
References

Your Daily Voiding Diary

This diary will help you and your family physician understand and diagnose your incontinence. The “sample” line below will show you how to use the diary.

<table>
<thead>
<tr>
<th>Time</th>
<th>Fluids</th>
<th>Urination</th>
<th>Accidental leaks</th>
<th>Did you feel a strong urge to urinate?</th>
<th>What were you doing at the time?</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Sneeze, exercising, having sex, lifting, etc.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>min</td>
<td>mod</td>
<td>lg</td>
</tr>
<tr>
<td>Sample</td>
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<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>6-7 AM</td>
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<tr>
<td>7-8 AM</td>
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<tr>
<td>8-9 AM</td>
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<td></td>
</tr>
<tr>
<td>9-10 AM</td>
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</tr>
<tr>
<td>10-11 AM</td>
<td></td>
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<td></td>
<td></td>
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</tr>
<tr>
<td>11-12 noon</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>12-1 PM</td>
<td></td>
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<tr>
<td>1-2 PM</td>
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<tr>
<td>2-3 PM</td>
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<tr>
<td>3-4 PM</td>
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<tr>
<td>4-5 PM</td>
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<tr>
<td>5-6 PM</td>
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<td>6-7 PM</td>
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<td>7-8 PM</td>
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<td>8-9 PM</td>
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<td>9-10 PM</td>
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<tr>
<td>10-11 PM</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>11-12 midnight</td>
<td></td>
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<tr>
<td>12-1 AM</td>
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<td>1-2 AM</td>
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<td>2-3 AM</td>
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<td>3-4 AM</td>
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<td>4-5 AM</td>
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<tr>
<td>5-6 AM</td>
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</tbody>
</table>

min = minimal; mod = moderate; lg = large.

What is urinary incontinence?
When you eat and drink, your body takes in fluids and your kidneys make urine from the fluids. The urine is stored in your bladder and you get rid of urine through a tube called the urethra (you-REE-thra) by loosening muscles in your pelvis. These same muscles tighten to hold urine in. Urinary incontinence (UI) is when you lose urine when you don't want to or before you can get to a bathroom. UI is a common problem that many people are too embarrassed to talk about with their doctor.

What causes urinary incontinence?
There are many physical conditions or changes in your body that can cause UI. Temporary causes, such as urinary tract or vaginal infections, constipation (trouble having a bowel movement), or kidney, bladder, or sometimes prostate infections, can be treated by your doctor using simple methods.

Urinary incontinence can also be caused by conditions that are long lasting, such as weak pelvic muscles (the muscles that hold your bladder in place), bladder muscles that are too active, menopause (the time after a woman stops having a period), or an enlarged prostate gland or prostate surgery in men. Your doctor can also treat problems like these. The type of treatment you get depends on what type of incontinence you have.

What are the types of urinary incontinence?
There are 5 types of UI. People with urge UI lose urine as soon as they get the feeling they have to go to the bathroom. Urge UI is often found in people who have medical problems like diabetes, stroke, and dementia. You may have urge incontinence if you can't make it to the bathroom before you lose urine, leak urine when you hear water running or drink even a small amount of fluid, or go to the bathroom more than every 2 hours.

Stress UI is caused by pressure you put on your stomach muscles. This type of UI is more common in women. If you have stress incontinence, you may lose urine when you sneeze, laugh, cough, walk, jog, or do other types of exercise.

Overflow UI occurs more often in men and is caused by something blocking the flow of urine. After you go to the bathroom, you may feel like you have more urine in your bladder, or you may leak urine all the time. If you have overflow incontinence, you may leak small amounts of urine any time during the day or night, or feel like you have to go to the bathroom, but can't.

Some people have symptoms of stress and urge incontinence. This is called mixed incontinence.

Functional UI is common in people who have normal control of their urine, but who are not able to get to a bathroom by themselves.

How will my doctor treat my urinary incontinence?
Your doctor may ask you questions about your medical history and give you a physical examination. Your doctor will help decide what treatment is best for you.

Common ways to treat urinary incontinence include:

- Exercises that can make your pelvic muscles stronger*
- Changes in your diet
- Bladder training
- Biofeedback (a way to help control your bladder)
- Medicines
- Surgery

* For more information on these types of exercises, go to www.aafp.org/afp/20001201/2452ph.html.

This patient education handout provides an overview of this topic and does not apply to all patients. It is not a substitute for medical advice. Your family doctor can provide further information on this topic. Copyright © 2002 American Academy of Family Physicians.