Urinary incontinence (UI) is more prevalent in women than men at any point in the life-span. Younger women who are affected include those who are postpartum; women who have undergone pelvic surgery such as hysterectomy, abdominal surgery, or pelvic radiation; and those with acute and chronic neurological or neuromuscular illnesses or congenital anatomic defects. Elite athletes or those who participate in high-impact or vigorous exercise regimens are also more likely to be affected. In older women, UI is less likely to be due to a single etiology or to be treated and cured. Multiple factors influence the development of bladder dysfunction and incontinence including medical and surgical conditions, lifestyle factors, and drug-therapy side effects. Many older women develop incontinence on a gradual basis over a long period of time, whereby infrequent amounts of leakage are considered more of a nuisance than a medical condition warranting evaluation and treatment. Some may spend more time and energy in protecting themselves from the adverse effects of incontinence than in seeking treatment (Robinson, 2000). As women age and become more medically and functionally frail, incontinence can worsen. This may be due to the myriad of contributing and causative factors that not only affect bladder function, but other domains of physiologic and behavioral requisites that contribute to continence (Lekan-Rutledge & Colling, 2003).

Urinary incontinence imposes incredible personal hardship in older women affecting social interactions, self-esteem, and life satisfaction. It increases risk for anxiety, depression, and self-imposed isolation. The impact of UI on health includes increased risk for skin rashes, dermatitis, secondary yeast infection, pressure ulcers, urinary tract infection, disrupted sleep patterns, falls, and fall-related injury. Urinary incontinence is the eighth most prevalent chronic medical condition among women in the United States (Fantl et al., 1996). The prevalence of UI in elderly women is estimated to range from 35% to 45% (Herzog, Diokno, Brown, Normolle, & Brock, 1990; Thom, 1998). In men, UI prevalence is nearly half of that. The higher rate of urinary incontinence in women in large part is attributed to the unique aspects of the female anatomy (a shorter urethra) and vaginal delivery, which weakens or injures the pelvic floor. Women who deliver vaginally are more than 2.5 times as likely to report incontinence than nulliparous women and the rate of incontinence increases with parity (Sampselle & DeLancey, 1998). However, one study in a primarily postmenopausal nulliparous group of nuns (n = 189, mean age 68 years) found a self-reported prevalence of UI of 50% (Buschsbaum, Chin, Glantz, & Guzick, 2002). The significance of parity is yet to be conclusive. As common as incontinence is, it is often overlooked and undertreated.

In long-term care, it has been estimated that approximately 50% of residents are incontinent of urine. Palmer, German, and Ouslander (1991) reported that among 430 new admissions to a nursing home, 22% of women who were initially continent became incontinent within 1 year. Given the increased age and frailty of the nursing home population, higher rates of incontinence are expected in compari-
Urinary incontinence is defined as the involuntary leakage of urine. The urinary system includes the upper urinary tract, encompassing the kidneys and ureters, and lower urinary tract which includes the bladder, urethra, urinary meatus, internal and external urinary sphincters, and pelvic floor muscles. Although the physiologic changes that accompany aging do not contribute directly to incontinence, there can be an increased risk for incontinence in the presence of certain co-morbidities, medications, or lifestyle issues. Table 1 provides a description of some of the normal aging changes in the urinary system, the impact of such changes on the older person, and the ways in which an older person may cope with these changes.

**Classification and Types Of Incontinence**

Urinary incontinence is classified into two categories: transient and established incontinence. *Transient incontinence*, sometimes called acute incontinence, occurs unexpectedly during an acute illness or exacerbation of a chronic medical problem or condition. When the causes of transient incontinence are treated, continence is restored. The most common causes of transient UI are listed in Table 2.

After the transient causes of UI have been addressed, and incontinence persists, it is referred to as *established urinary incontinence*. Established UI is due to the predisposing pathology of the lower urinary tract. It is then necessary to pursue further evaluation of bladder (detrusor) or bladder outlet (urinary sphincter) dysfunction. The bladder muscle can contract involuntarily and be overactive (urge incontinence or overactive bladder) or it can fail to contract effectively and be underactive (impaired contractility leading to retention). In dysfunction of the bladder outlet or urinary sphincter, urethral resistance can be too low (stress incontinence) or too high (bladder outlet or sphincter obstruction). These pathophysiologic conditions are associated with three distinct types of urinary incontinence: urge incontinence, stress incontinence, and overflow incontinence (Tannenbaum, Perrin, DuBeau, & Kuchel, 2001). A fourth type of incontinence, functional incontinence, is not characterized by bladder dysfunction, but rather by contributing factors located outside of the urinary tract. Functional incontinence is often a major contributing factor to UI in the frail elderly. The four types of urinary incontinence are described in Table 3.
Table 1.
Normal Aging Changes in the Urinary System and Significance in the Older Adult

<table>
<thead>
<tr>
<th>Aging Change</th>
<th>Significance</th>
<th>Impact on Older Adult</th>
</tr>
</thead>
<tbody>
<tr>
<td>Decreased renal filtration and concentration of urine.</td>
<td>• Specific gravity of urine may be low when not in a diuretic state.</td>
<td>• Inaccurate reflection of hydration/dehydration – a low urine specific gravity could occur in a state of under-hydration.</td>
</tr>
<tr>
<td>Deterioration of the sensory tracts between the bladder, spinal cord, and brain, leading to abnormal bladder sensations of the urge to void at small bladder volumes.</td>
<td>• Urinary urgency: The urge to void is felt and the strength of the urge compels the individual to void or risk leaking urine.</td>
<td>• Urinary urgency and frequency voiding pattern. • Voluntary urinary frequency, reduced fluid intake to minimize urine output – leads to increased risk for constipation, urinary tract infection. • The inability to postpone voiding can lead to social anxiety and restricted activity.</td>
</tr>
<tr>
<td>Detrusor (bladder) muscle becomes less contractile as muscle fibers stiffen and atrophy.</td>
<td>• Decreased bladder capacity, from 400 to 600 mL in the adult, to about 250 mL in the older adult.</td>
<td>• Urges to void at smaller bladder volumes; urinary urgency and frequency. • Increased risk for urinary retention and urinary tract infection.</td>
</tr>
<tr>
<td>Atrophy of pelvic floor muscles and external urinary sphincter in women.</td>
<td>• Pelvic floor relaxation and stress urinary incontinence.</td>
<td>• Avoidance of physical activities that precipitate urine leakage. • Frequent voiding to avoid a full bladder and greater risk for stress leakage.</td>
</tr>
<tr>
<td>Enlargement of the prostate gland in men.</td>
<td>• Obstructive voiding symptoms: weak urine stream, intermittency, straining to void, prolonged voiding, urine retention.</td>
<td>• Disturbed sleep patterns. • Bothersome voiding patterns that are disruptive to daily life. • Increased risk for urinary tract infection and traumatic overdistention of the bladder.</td>
</tr>
<tr>
<td>Alteration in diurnal and nocturnal production of urine.</td>
<td>• Urine production at night increases leading to nocturia. Greater than two episodes of nocturia is considered abnormal.</td>
<td>• Disrupted sleep patterns. • Increased risk for falls at night. • Risk for nighttime incontinence.</td>
</tr>
</tbody>
</table>

done in many years and may have been associated with unpleasant experiences.

Second, some procedures, such as a digital vaginal examination or urethral catheterization, without clear clinical justification, may impose an emotionally traumatic experience in this population. In the moderately or severely cognitively impaired, clinical judgments may need to be relied upon in lieu of objective data obtained from direct assessment. One must question the “nice to know” and “should know” information versus the “must know” information and determine how this information will dictate treatment in that individual. Frailty imposes some limitations on treatment options, and the delineation of a definitive continence diagnosis may not be as important as ruling out significant pathology, and on tailoring a behavioral treatment or management program based on empirical evidence. It is important to avoid missing clinically significant and potentially life-threatening conditions such as bladder tumors, stones, significant post-void residual urine, severe urethral outlet obstruction, or profound pelvic organ prolapse. More qualitative data collecting is justified if drug therapy or surgical procedures are being considered. Noninvasive methods for data gathering should be used when possible, such as portable ultrasound scanning of the bladder instead of continued on page 287
Table 2. Transient Causes of Urinary Incontinence: Reversible Causes and other Contributing Factors

<table>
<thead>
<tr>
<th>Possible Reversible Factors</th>
<th>Rationale</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Clinical Conditions</strong></td>
<td></td>
</tr>
</tbody>
</table>
| Fecal impaction            | • An overdistended rectum or anal canal impinges on the bladder neck and can lead to obstruction resulting in urine retention and overflow incontinence.  
  • Urge symptoms can also be provoked. |
| Delirium                   | • Acute confusion alters one’s ability to anticipate and meet own needs.  
  • Delirium may occur from drugs, surgery, or acute illness. |
| Symptomatic UTI            | • Symptomatic UTI is associated with urgency and frequency leading to urge incontinence. |
| Atrophy – urethritis, vaginitis, yeast infections | • Thin, dry, friable vaginal and urethral mucosa due to hypo-estrogenization in the woman is associated with irritative symptoms (burning on urination, urgency, frequency) and with urge incontinence. |
| **Medications**            |           |
| Adverse or unintended side effects that lead to bladder relaxation, polyuria, urinary sphincter obstruction or relaxation, or drugs that affect mental cognition and awareness of continence status | • Many drugs have an adverse effect on the bladder, especially diuretics, anticholinergics, narcotics, sedatives or hypnotics, antihistamines, antispasmodics, calcium channel blockers, and alpha adrenergic drugs, anti-Parkinson medications, and nonsteroidal anti-inflammatory agents. |
| Polypharmacy               | • Polypharmacy leads to increased risk for adverse drug effects and drug interactions that lead to alteration in urinary pattern and/or incontinence. |
| **Psychological Conditions** |           |
| Depression                 | • Depression impairs one’s motivation and desire to manage self-care or be concerned about incontinence. Cause and effect, however, is controversial.  
  • Fear of odor, embarrassment, obvious leakage, and unpredictable urine leakages can lead to marked alteration in social activities, relationships with others, and loss of social support. |
| Social anxiety and self-imposed isolation |           |
| **Chronic Illness Exacerbation** |           |
| Metabolic (hyperglycemia, hypercalcemia, diabetes insipidus, low albumin states) | • Conditions associated with polyuria increase the fluid load on the bladder and increase risk for urge and stress incontinence.  
  • Inadequately managed pain can cause excessive psychological distress and lack of attention to the bladder and toileting needs.  
  • Narcotic use can lead to severe constipation and fecal impaction that obstructs the bladder neck, leading to urine retention and/or overflow incontinence.  
  • Narcotics also decrease bladder contractility leading to incomplete bladder emptying, urine retention, risk for UTI, and overflow incontinence. |
| Fluid volume overload (heart failure, venous insufficiency with edema) |           |
| Acute or chronic pain, especially with arthritis or degenerative disc disease |           |
| **Gender Issues**          |           |
| Gynecological and prostate gland issues | • Women: History of vaginal delivery, multiparity, large baby, prolonged stage II delivery, significant tears.  
  • Men: Enlarged prostate contributes to retention of urine and obstructive voiding symptoms, prostate surgery can result in stress UI.  
  • Both men and women: Pelvic radiation, nonurologic pelvic surgery can result in development of adhesions that can affect bowel and bladder function. |
The comprehensive assessment may require multiple points of contact as well as the assistance of other caregivers such as nursing assistants to help with positioning, toileting, and obtaining specimens. Lastly, a positive approach with the patient should emphasize that the outcome of the assessment will be a better understanding of the reason for her incontinence. These outcomes identify potential medical issues that can be readily treated, and help determine simple ways to make her physical condition and quality of life more comfortable.

The purpose of the incontinence assessment is to:
- Confirm the pattern and severity of the incontinence.
- Identify causes and contributing factors.
- Detect problems that require further medical evaluation.
- Determine past and current methods for managing incontinence.
- Determine the psychosocial impact of the incontinence.
- Assimilate sufficient data to form a clinical impression and a baseline for initiating treatment.

History

The history involves asking the individual, family member, or caregiver about the onset and pattern of incontinence, characteristics of voiding, and the urine and bowel history. Some data may be available in the chart. Figure 1 describes components of the history that are useful in assessing the frail older woman.

Physical Examination

The physical examination will target important aspects of
### Table 3.

**Types of Urinary Incontinence**

<table>
<thead>
<tr>
<th>Type</th>
<th>Definition</th>
<th>Common Causes</th>
<th>Clinical Features</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Stress UI</strong></td>
<td>Involuntary loss of urine, usually in small amounts, that occurs simultaneously with abrupt increases in intra-abdominal pressure. Typical provoking events: coughing, sneezing, laughing, lifting, bending, changing position.</td>
<td>Weakened pelvic floor muscles and ligaments due to vaginal delivery, multiparity, obesity, chronic cough, straining at stool. Gynecologic disease (pelvic organ prolapse, urethritis). Previous bladder/vaginal surgery.</td>
<td>UI in frequent, small amounts. Occurs during physical activity. No irritative symptoms or nocturia. No post-void residual urine. Normal bladder capacity. Occurs in about 50% of women with UI.</td>
</tr>
<tr>
<td><strong>Urge UI</strong></td>
<td>Leakage of urine, usually larger amounts, due to inability to delay voiding after an abrupt and intense urge to void occurs.</td>
<td>Urinary tract infection Upper motor neuron lesions Suprapontine CVA Parkinson’s disease Normal pressure hydrocephalus Suprasacral (above conus medullaris) Spinal cord lesion (tumor) Multiple sclerosis Transverse myelitis Idiopathic in the majority of older adults</td>
<td>Irritative voiding symptoms: • Urgency, frequency, nocturia, urge UI. • Moderate to large volumes of UI. • Small bladder capacity, normal PVR. • “When you gotta go, you gotta go.” Often coexists with stress UI and is call mixed UI.</td>
</tr>
<tr>
<td><strong>Overflow UI</strong></td>
<td>Leakage of urine usually in small amounts resulting from mechanical forces on an overdistended bladder. Can mimic stress UI when there is leakage in small amounts with increased intra-abdominal pressure.</td>
<td>Medications that decrease bladder contractility. Lower motor neuron lesions Cystocele Urethral stricture Pelvic neoplasm Fecal impaction Infrasacral (at conus medullaris and peripherally) Peripheral neuropathies due to diabetes Pelvic surgery Disk compression Post-anesthesia, delayed clearing of general anesthesia</td>
<td>Obstructive voiding symptoms: • Hesitancy, straining to void. • Intermittent and reduced urine stream. • Prolonged voiding. • Post-void dribbling and sensation of bladder fullness. Characterized by distended bladder and elevated post-void residual urine. Can mimic stress UI when there is leakage in small amounts with increased intra-abdominal pressure.</td>
</tr>
<tr>
<td><strong>Functional UI</strong></td>
<td>Loss of urine related to the patient’s inability to get to the bathroom and remove clothing, or decreased awareness of the need to void.</td>
<td>Dementia and cognitive impairment Delirium Depression Debilitating diseases Immobility Medication that impairs sensoium Pain, in particular, as related to arthritis or disk compression</td>
<td>Continence improves when appropriate help is provided. Many frail elderly have some component of functional UI that can be alleviated with proper attention to environment, caregivers, and assistive devices.</td>
</tr>
</tbody>
</table>

Modified from Gallo, Fallon, & Staskin (2000).
# Figure 1.

## History

### Appearance
- Note hygiene, odor, obvious urine leakage, manual dexterity, level of concern about urinary incontinence.
- Elicit primary concern or complaint about urinary incontinence – what bothers the person the most?

### General Information
- Onset of urinary incontinence, age, and length of time the individual has had incontinence; the severity of incontinence; has incontinence worsened over time?
- Previous management or treatment of incontinence.
- Urinary symptoms: urgency, frequency, nocturia, straining to void, dysuria, number of episodes of leakage per day, volume of leakages, timing of leakages, associated activities when leakage occurs.
- History of urinary tract infection, urinary catheter usage of any type and why, urinary retention.
- Date of last urinary tract infection.

### Medical History
- Number of vaginal deliveries, Cesarean deliveries, weight of largest baby.
- Pelvic surgery: hysterectomy, bladder surgery, bowel surgery.
- Medications currently taking: • Currently using estrogen in any form?
- Any pelvic organ prolapse?
- Any neurological, endocrine, or musculoskeletal conditions?
- Any recent fractures?
- Any history of swelling in lower extremities?

### Any Bothersome Urogenital Symptoms?
- Urogenital itching, dysuria, skin rash, discharge, pressure from organ prolapse, pain?

### Awareness of the Need to Urinate
- Is person aware of the urge sensation and need to void?
- Holding time: when the bladder feels full, how long can the person hold urine and delay voiding before leakage becomes impossible to prevent.

### Urine Leakage
- When does incontinence occur? Changing position, coughing, sneezing, or laughing; on the way to the toilet; spontaneously without warning; spontaneously in association with a strong urge.
- How often does leakage occur?
- How heavy is the leakage? Are pads or briefs used? Are they adequate?

### Urine Stream
- Is there the need to strain to void?
- Is the stream weak or intermittent?
- Is there post-void dribbling?
- Does the person feel able to empty the bladder completely?

### Urine Character
- Ask about color, odor, sediment.
- Ask person to estimate the amount of a usual void (estimate using tablespoons and/or quarter cups, or small, medium, large volume to elicit person's perception of volume).

### Fluid Intake
- Describe types and amounts of fluids taken throughout the day.
- Does person consume caffeinated beverages such as coffee, tea, soft drinks?
- Does person voluntarily restrict fluid intake to control leakage?

### Lifestyle Issues Influencing Urinary Incontinence
- Has person smoked in the past, or is person a current smoker? Is there a smoker's cough? Is person obese?

### Cognitive Function
- Able to answer questions, adequate attention span, easily fatigued?
- Able to recognize bladder fullness?
- Motivated to use the toilet on a regular basis with assistance, if needed?
- Willing to pursue further assessment to determine potential causes and contributing factors to incontinence?

### Bowel Pattern
- Any problems with persistent constipation, fecal impaction, diarrhea, fecal incontinence?
- Describe strategies used to maintain bowel regularity.
- Regular use of laxatives or enemas for regularity?
- Chronic straining at stool? Painful defecation?
- Hemorrhoids?

### Functional Status
- What is the person's usual routine for toileting?
- Are assistive devices used: walker, cane, wheelchair, crutches, braces, special shoes?
- Are toileting assistive devices used: bedside commode, raised toilet seat, grab bar, elevated foot rest, urinal?
- What type and amount of caregiver assistance is needed for toileting?
- If person does not currently use toilet, what is the capacity and willingness to try? Is person a candidate for toileting? Or is the medical condition (severe cardiac disease, terminal illness), presence of contractures, difficult to manage pain, or mobility status so impaired that person is unable to transfer to a toilet?
Abdominal Examination
- Observe contour of abdomen at eye level from side of patient. Note any bulging masses, surgical scars (inferring type of surgery, potential for adhesions), obesity.
- Auscultate bowel sounds.
- Palpate for masses or distended bowel, especially the left-lower quadrant. Palpate for a full bladder at the symphysis pubis.
- Note any pain or tenderness reported during palpation.

Urogenital Examination
- Advise patient that you would like to check the tissues around the urinary area for rashes, infection, and urine leakage.
- Additional lighting is usually needed for examining the urogenital tissues (for example, gooseneck lamp).
- Note thinning or atrophy of the labia majora and minora, sparse hair distribution, flattening and displacement of clitoris, rashes, lesions, presence of urine, macerated or wet skin.
- Separate the labia and visualize the urinary meatus. Note if the mucosa are pale, thin, dry, shiny, friable indicating hypo-estrogenization and risk for irritative voiding symptoms. Note if there are any lesions. A urethral caruncle will present as a cherry-red bulge from the opening of the meatus. This is a benign finding but is contributory to irritative urinary symptoms. Urinary meatus may be difficult to visualize and may have receded posteriorly toward the vagina. If patient has a full bladder, perform the stress maneuver by having patient cough.
  a) Note urine leakage and amount. Have tissue on hand to catch urine leakage.
  b) Note if there is reflex contraction of the pelvic muscles, or if there is pelvic muscle descent.
  c) Note if cough produces visualization of pelvic organ prolapse.
- Assess vaginal tissues to get a visual. Palpate to observe the vaginal mucosa by retracting the anterior edge of the vagina with two fingers. Note any odor, discharge, organ prolapse.
- The stress maneuver is best performed in the standing position with a full bladder. In the frail elderly, this is best done in the bathroom above the toilet so the person can sit down on the toilet to void immediately afterward. At this point, a urine specimen can also be collected. A cleansing wipe should be used prior to obtaining a midstream urine specimen.

Pelvic Examination
- At this point, you must determine whether a digital vaginal examination is warranted.
  a) Is the person a candidate for learning pelvic muscle exercises or urge inhibition using the pelvic muscles to hold back urine? Is cognitive function adequate for new learning? Is person willing to learn new skill?
  b) Is person demonstrating discomfort or emotional distress at this point in the examination?
- To proceed with the digital vaginal examination, lubricate one or two gloved fingers and place in the vaginal vault. Ask person if she feels the sensation of the presence of your finger. A positive response infers good pelvic sensation and neurologic function. Ask her to tighten her vagina around your finger. You can also prompt her to tighten her rectum as this will also tighten these muscles. With further prompting to help her locate the muscles, assess the best contraction’s strength and duration using a scale of 0 to 5 (see Table 5). If she is able to contract the pelvic muscles, proceed to having her repeat contracting the muscles and holding the contraction for a count of 5. Be alert to the use of accessory muscles (tightening of abdominal, gluteal, or thigh adductor muscles, and to breath-holding). Instruct her to keep those muscles relaxed, to focus on tightening the inside vaginal muscles gently, to avoid using those other “accessory” muscles, and to continue to breathe normally. Gradually with practice, the person will be able to locate the muscles, recruit enough muscles to yield a strong contraction, and sustain a contraction for 5 to 10 seconds.
  c) If the person is not capable or willing to do a pelvic muscle exercise, then proceed to the rectal examination.

Rectal Examination
- Visualize the anal sphincter and note any lesions, external hemorrhoids, fecal smearing, or liquid stool seepage (may be significant for a fecal impaction even in the absence of palpation of hard stool in the rectum). Note rectal prolapse. Test for the anal wink by stroking the tissues lateral to the anus with a cotton-tipped swab and note reflex contraction of the anus. This finding suggests intact neurologic function of the lower urinary tract, but its absence is not conclusive for deficits in neurologic function.
- Using a gloved, lubricated finger, insert the finger into the rectum and assess tone, presence of soft stool, or hard fecal impaction.
- Prompt person to attempt to squeeze the anal sphincter around your gloved finger. If able, this suggests intact neuromuscular function; however, this relies on fairly intact cognitive function.
- Although uncomfortable, the rectal examination should be done to screen for fecal impaction, a clinically significant finding. The examination can be abbreviated to exclude the prompt to perform the rectal contraction if the person is uncomfortable or if the person is cognitively impaired and unlikely to perform this maneuver. However, if bowel regularity is concluded to be of normal amount and consistency, and constipation or fecal...
Special Testing

- **Urinalysis.** It is optimal to utilize an esterase dipstick to screen for nitrite, leukocytes, red blood cells, glucose, specific gravity, and pH. One study reported efficacy of the nitrite/leukocyte esterase dipstick when applied to a wet incontinent pad (Midthun, Paur, Lindseth, & Von Duvillard, 2003). This would be especially useful in the frail older person who is incontinent and unable to void to provide a specimen in acute care or the nursing home or home health setting. This could also prevent unnecessary urethral catheterization to obtain a specimen. If dipstick testing is not available, it is recommended that a urinalysis be sent to screen for bacteriuria, pyuria, and hematuria.

- **Urine culture and sensitivity.** Verifies bacteriuria in a person who is symptomatic for urinary tract infection.

- **Laboratory testing.** Glucose and calcium (to determine significance of polyuria if present, indicative of diabetes mellitus and hypercalcemia), vitamin B₁₂ (is associated with urinary retention).

- **Urine cytology.** Indicated if there is hematuria in the absence of urinary tract infection.

- **Post-void residual urine.** Perform within 15 minutes of a void. Use portable ultrasound if available. If not available, determine the risk and benefit to the individual. Post-void residual measurements >100 mL are abnormal in the elderly. High-risk conditions that warrant urethral catheterization for PVR include:
  a) Suprapubic distention or tenderness.
  b) Diabetes mellitus.
  c) Neurologic diseases, especially Parkinson’s disease, multiple sclerosis, CVA.
  d) Presence of severe pelvic organ prolapse.
  e) Degenerative disc disease or compression fractures of the lower back.
  f) Medications that interfere with bladder emptying by relaxing the smooth muscle of the detrusor: anticholinergics, antispasmodics, calcium channel blockers, post-anesthesia for surgery or procedures.
  g) Recent urine retention secondary to temporary indwelling catheterization.

Clinical Decision Making

At this point, a great deal of information has been collected about urinary and bowel status and overall function. A systematic approach to reviewing the assessment findings will facilitate the collating of information into a usable framework. First, consider the symptom profile. Urge incontinence is strongly suggestive if symptoms of urgency, frequency, and nocturia predominate as the chief concern, with precipitant incontinence in association with a strong bladder urge. In most cases, the urinary post-void residual measurement is normal (less than 100 ml); however, if the post-void residual urine is greater than 100 ml, then a condition called detrusor hyperactivity with impaired contractility may exist. The coexistence of urge incontinence and incomplete bladder emptying is a unique phenomenon in the elderly. Stress incontinence is likely if the person reports frequent small urine leakages associated with physical activity, coughing or sneezing, with a normal post-void residual urine measurement. Symptoms of urge and stress incontinence often coexist in older women. This is then referred to as mixed incontinence. If the person reports a lack of sensation of bladder urges or episodes of leakage, and the post-void residual urine is markedly elevated (>400 ml), overflow incontinence is suggested. This diagnosis is also associated with inability to start the urine stream or obstructive voiding symptoms. A large cystocele may be associated with urine retention.
and overflow incontinence. Functional incontinence may be a correlate to the above diagnoses in the frail elderly, but is unlikely to be the primary diagnosis. Importantly, the key issues that contribute to functional incontinence should be identified. Some conditions may require further planned medical evaluation. These include hematuria without bacteriuria or pyuria, dysuria, new or worsening pelvic organ prolapse, post-void residual urine greater than 100 ml, signs and symptoms of upper or lower urinary tract infection (fever, chills, pain in the lower back, abdomen, flank, or suprapubic region), and severe obstructive voiding symptoms associated with elevated post-void residual urine.

Preventing, Treating, And Managing UI

Intervention for urinary incontinence can be viewed as a two-level process (see Figure 4). Level 1 interventions promote adoption of healthy bowel and bladder habits and suggest employment of preventive measures. These avoid the development of transient causes of UI and promote a positive approach to continence. To this end, preventing UI focuses on supporting individual function in order to maintain and enhance independence in toileting and overall physical functioning. Level 2 interventions are targeted to the individual according to cognitive function and then by the type of incontinence. Goals for Level 2 interventions include promoting optimal levels of continence with...
as few incontinent episodes as possible, preventing adverse consequences of urine loss, and improving the person’s sense of well-being and quality of life. The interventions may be self-directed or caregiver directed. When cognitive function is relatively intact, save for mild memory loss, then age and physical mobility deficits are often not barriers to employing continence treatments that require active participation by the older person. The more cognitively impaired person would require caregiver-directed interventions and be unable to perform those therapies that depend upon reasonably good memory and information processing.

**Level 1 Interventions**
Prevention of UI may be attained through the development of healthy bowel and bladder habits and lifestyle patterns.

---

**Level 1: General Measures to PREVENT Urinary Incontinence**

**Enhance Function and Promote Health Bladder Habits**

*Dietary*
- Ensure adequate fluids.
- Avoid caffeinated beverages.
- Promote high-fiber diet for bowel regularity.
- Promote a regular voiding schedule, about every 2-3 hours.
- Monitor polypharmacy, drug interactions.
- Utilize OT, PT for gait or transfer training, assistive devices, develop toileting skills to promote independence.
- Utilize clothing that is easy to undo to promote independence in toileting.
- Monitor for signs/symptoms of transient causes of incontinence and treat quickly.
- Optimal treatment of chronic illnesses.
- Treat urogenital atrophy to prevent irritative symptoms.

**Environmental Modifications**

*Physical Environment*
- Ensure good lighting in halls, bathroom.
- Obtain bedside commode, urinals if needed to promote independence.
- Install good venting system for odors.
- Install raised toilet seats, grab bars if appropriate.
- Non-glare, non-skid floors to prevent slips and falls.
- Identify nearby bathroom in public areas.

*Social Environment*
- Promote a positive approach to continence.
- Promote socialization.
- Assist with toileting if needed and use absorbent products judiciously.
- Recognize urinary incontinence as a medical syndrome that is abnormal, promote the desire to maintain urinary continence.

---

**Level 2: Individual-Targeted Approaches for TREATMENT and MANAGEMENT of Urinary Incontinence**

**Cognitively Intact**
- Scheduled toileting
- Habit training
- Bladder training
- Urge inhibition
- Pelvic muscle exercises
- Pads and briefs (self-managed)
- Drug therapy
- Devices such as pessaries
- Equipment: urinal, bedpan, commode

**Mild-to-Moderate Cognitive Impairment**
- Prompted voiding
- Scheduled toileting
- Pad check/change procedure
- Drug therapy
- Skin care regimen
- Environmental modifications: raised toilet seats, grab bars, bright lighting, large graphic signs for toilet
- Equipment: urinal, bedpan, commode

**Severe Cognitive Impairment**
- Scheduled toileting
- Pad check/change procedure
- Skin-care regimen
- Drug therapy (very selective)
- Environmental modifications: cover mirrors, tint toilet bowel water, increased physical assistance to toilet, fall prevention, picture signs at eye level for bathroom
- Equipment: urinal, bedpan, commode

---

**Figure 4.**
Two-Level Approach for Prevention, Treatment, and Management of Urinary Incontinence in the Frail Older Woman
Factors associated with good bladder health are adequate hydration and avoiding bladder irritants, such as caffeinated or alcoholic beverages. Tending to bladder hygiene by avoiding frequent urination and wiping from front to back, and maintaining bowel regularity are important. Smoking cessation and controlling obesity are both effective strategies promoting bladder health. Smoking is often associated with chronic cough, which puts excessive pressure on the bladder neck and pelvic floor and can provoke stress incontinence. The carcinogens in cigarettes are associated with irritative voiding patterns and bladder cancer. Obesity is associated with stress UI due to increased pressure on the bladder and pelvic floor. In the frail older woman, treatment of vaginal atrophy and atrophic vaginitis will alleviate irritative voiding symptoms.

When medical conditions induce functional limitations, physical and occupational therapy can help maintain optimal fitness and strength, which is important for independence in toileting and continence. For significant manual dexterity problems due to deformity (contractures, arthritis, injury) or weakness (neuromuscular problems), clothing that is easy to get into and out of is helpful for toileting. When time is of the essence, dresses or athletic bottoms or skirts with a stretch waistband are easier to maneuver when getting onto the toilet, compared to managing buttons and zippers.

Optimal treatment of chronic medical problems to prevent exacerbations or adverse sequella leading to cough, polyuria, or physical deconditioning will prevent a degree of impairment and dependency that is greater than one would expect or is warranted (Lekan-Rutledge & Colling, 2003). Medical conditions that can affect continence when not well-controlled include diabetes mellitus, heart failure, Parkinson’s disease, asthma, respiratory conditions including COPD, and chronic constipation. Many drugs produce adverse side effects that can contribute to irritative bladder symptoms, incontinence, and urine retention. An important aspect of promoting bladder health is attending to early signs and symptoms of continence deterioration and timely pursuance in evaluating transient causes of incontinence.

Very importantly, in the frail older adult, the role of the environment is compensatory in many ways. Improving the physical environment by using better signs and locations for toilets, bright bathroom lighting, non-skid surfaces for safety, and raised toilet seats when appropriate can enable frail elders with sensory or mobility problems. The social environment creates an expectancy of continence, and the onset of incontinence is seen as an abnormal phenomenon, rather than a normal part of aging. Education of frail elders and their social network should focus on self-care or caregiver strategies that can promote bowel and bladder health. Breaking the silence about UI as the final indignity of aging will be accomplished when nurses, in particular, educate elders about simple strategies to promote bladder health. It is important to recognize when there is a problem (excessive urgency and frequency, urinary tract infection, and wetting) so elders do not ostracize themselves, but instead seek evaluation and treatment.

Level 2 Interventions

Interventions for treating urinary incontinence in the frail older woman include behavioral therapy, pharmacologic therapy, and devices such as pessaries. Management approaches include assistive toileting equipment, physical therapy, absorbent products, catheters, and skin care regimens. Surgical interventions will not be addressed. Management of incontinence is focused on preventing adverse sequella and includes skin care regimens, absorbent products, assistive devices, and toilet substitutes.

Behavioral Therapy

Behavioral therapy includes toileting regimens, pelvic muscle exercises, urge inhibition, and fluid management. **Toileting regimes** include scheduled toileting, habit training, prompted voiding, and bladder training. Table 4 differentiates the different types of toileting regimes. For the more cognitively intact, scheduled toileting, habit training, and bladder training are appropriate. The toileting regimes are appropriate for primary treatment of stress and urge incontinence.

Pelvic floor exercises, with or without biofeedback, and electrical stimulation are used to help strengthen the pelvic floor muscles. These provide support to the bladder neck, urethra, and external urinary sphincter. Pelvic muscle exercises are used for both stress and urge incontinence. In stress incontinence, pelvic muscle exercises improve perirethral support of the bladder neck and increase urethral resistance against intra-abdominal pressure, thus preventing urine leakage. The pelvic muscles can also be contracted volitionally to prevent urine leakage before a provocative physical activity such as a cough or sneeze (Miller, 2003). Medical conditions that can affect continence when not well-controlled include diabetes mellitus, heart failure, Parkinson’s disease, asthma, respiratory conditions including COPD, and chronic constipation. Many drugs produce adverse side effects that can contribute to irritative bladder symptoms, incontinence, and urine retention. An important aspect of promoting bladder health is attending to early signs and symptoms of continence deterioration and timely pursuance in evaluating transient causes of incontinence.

Very importantly, in the frail older adult, the role of the environment is compensatory in many ways.
In urge incontinence, the pelvic muscles are used to delay voiding and to reduce urinary urgency. While a number of options for drug therapy for urge incontinence exist, older women found a greater improvement in urinary symptoms and higher patient preference for the biofeedback-assisted pelvic muscle exercise intervention. This was shown in a randomized study comparing biofeedback-assisted pelvic muscle exercises with or without drug therapy for urge or mixed incontinence in older women by Burgio et al. (1998). Drug side effects and the lack of durability of drug effects (need to take the drug indefinitely) contributed to a higher dropout rate among those on drug therapy. Some subjects who concluded or dropped out of drug therapy then voluntarily enrolled in pelvic muscle exercise training.

Bladder urge inhibition is used to help delay voiding, resist the sudden need to void, and prevent incontinence. When the bladder urge occurs, the person volitionally focuses on managing the urge and waiting for the urge to pass before going to the bathroom. The procedure for urge inhibition begins with stopping all activity and standing still or sitting down. While breathing normally, the pelvic muscles are then contracted rapidly, five to six times, or until the urge subsides. While conducting these contractions, some form of distraction helps to alleviate the anxiety and discomfort associated with the urge (counting back from 100 by 3 or 5, humming a tune, etc.) After the urge finally subsides, it is safe to go to the bathroom without the risk for urine leakage. It is important for the person with urgency to resist going to the bathroom too frequently, or during a strong urge. The already irritated bladder will be further compromised if the person attempts to rush to the

### Table 4. Toileting Regimes

<table>
<thead>
<tr>
<th>Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Scheduled or Timed Toileting</td>
<td>The schedule to toilet is fixed, usually at every 2 hours, with the goal of avoiding an incontinent episode. The schedule avoids instances where the bladder becomes overfilled and is therefore subject to leakage.</td>
</tr>
<tr>
<td>Habit Training</td>
<td>The schedule is adapted to the voiding and incontinence pattern of the individual. The cognitively intact person can relay the timing of voids and leakages. Over a period of 3 to 7 days, a pattern is established. If the individual is cognitively impaired, it is not possible to identify the timing and volume of incontinent episodes without electronic equipment that is placed in the undergarment (currently not available).</td>
</tr>
<tr>
<td>Prompted Voiding</td>
<td>A communication protocol accompanies a scheduled toileting or habit-training regime. Positive verbal reinforcement and praise is provided to the person for identifying if she is wet or dry, for staying dry, for voiding, and for consuming liquids after the procedure.</td>
</tr>
<tr>
<td>Bladder Training</td>
<td>A short voiding interval is progressively lengthened as the person volitionally suppresses bladder urges and stays dry. As bladder capacity increases, voiding intervals increase and urgency decreases. Usually, bladder training starts at hourly intervals and gradually lengthens to every 2 to 3 hours in the elderly, longer in younger persons.</td>
</tr>
</tbody>
</table>

### Table 5. Rating Scale for a Pelvic Muscle Exercise

<table>
<thead>
<tr>
<th>Score</th>
<th>Rating Scale for Strength of PME</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>No palpable muscular contraction.</td>
</tr>
<tr>
<td>1</td>
<td>Very weak contraction barely felt.</td>
</tr>
<tr>
<td>2</td>
<td>Weak contraction that is clearly felt.</td>
</tr>
<tr>
<td>3</td>
<td>Palpable contraction can’t be maintained against resistance.</td>
</tr>
<tr>
<td>4</td>
<td>Contraction forceful but can’t resist opposition from examiner’s finger.</td>
</tr>
<tr>
<td>5</td>
<td>Maximum contraction strong resistance.</td>
</tr>
</tbody>
</table>
bathroom, and leakage is more likely to occur under circumstances that increase intra-abdominal pressure.

Fluid management may be necessary for the individual who has restricted fluid intake in order to reduce urine output and leakage. Adequate fluid intake is essential to normal bowel and bladder function. Concentrated urine is more irritating to the bladder and tends to worsen urgency and urge incontinence. More dilute urine permits increased bladder capacity, increased voiding intervals, and decreased urine leakage. Many frail older women keep themselves underhydrated for this reason, or because of physical or cognitive impairments that render them more dependent on others for assistance. They may not know how much fluid is actually needed per day. Setting a daily fluid goal can be helpful. One simple approach is to use this formula: 30 ml/kg body weight with 1,500 ml/day minimum (Mentes, 2001). In addition to increasing fluid intake during meals, it is also helpful for elders to consume small amounts of fluids between meals to meet the daily goal. To avoid provoking nocturia, most fluids should be consumed before dinner. Alcohol and caffeinated drinks are best avoided as these cause bladder urgency and polyuria.

Incontinence Devices

Incontinence devices used in the frail elderly include pessaries for various types and degrees of pelvic organ prolapse and stress incontinence (Lekan-Rutledge, Moore, Doughty, & Wooldridge, 2003; Newman, 2003a). These pessaries are designed to elevate the bladder neck to create moderate urethral occlusion while still allowing the person to void. In the frail older woman, the use of a pessary requires careful pelvic examination and fitting by an experienced continence nurse specialist or gynecologist with some degree of expertise. Several types of pessaries may need to be tried before the optimal choice is found. The vaginal mucosa of the older woman should be assessed for tissue turgor, thinning, friability, and lubrication. Signs of hypo-estrogenization should be treated locally with a course of topical estrogen cream or Estring® prior to placing the pessary. Local estrogen therapy will improve mucosal bulk and lubrication. Complications are rare, but mucosal erosion, ulcers, infection, bleeding, and bladder neck obstruction can still occur. Once the pessary is placed, the person should be monitored weekly, then monthly, then at 3 months, 6 months, and yearly thereafter (Lekan-Rutledge et al., 2003). Other urethral occlusion devices that have been developed for stress incontinence are generally not indicated in the frail elderly because of risks of infection and bleeding.

Pharmacologic Treatment

Drug therapy is most often directed for two types of incontinence: stress and urge. Local treatment with estrogen therapy can help alleviate irritative symptoms, improve the frail older woman’s urogenital comfort, and help prevent skin rashes and vaginal infection. Examples include topical estrogen creams (Premarin®, Estrace®, Ogen®), vaginal tablets (Vagifem®), or an elastomer ring (similar to a diaphragm but without the inner latex cup) containing a slow-release estrogen (Estring®). Estring has a 90-day duration and may increase urethral resistance, it is uncertain whether it has a clinically significant effect in preventing stress incontinence. Local treatment with estrogen therapy is generally not recommended (Urinary Incontinence Guideline Panel, 1996). Drug therapy for stress incontinence is limited. Drugs with alpha-adrenergic agonist actions are believed to increase the urethral sphincter smooth muscle tone leading to improved urethral closure and resistance, thus preventing urine leakage with increased intra-abdominal pressure. The most common drug used for this purpose is pseudoephedrine in its short or long-acting form. However, use of pseudoephedrine in the frail elderly is very limited because of adverse side effects including tachycardia, hypertension, dyspnea, dizziness, nervousness, and abdominal cramping. Duloxetine, a combined serotonin and noradrenaline reuptake inhibitor, is currently under review by the Food and Drug Administration as an agent for increasing external urethral sphincter tone and closure pressure in treating stress incontinence (Newman, 2003b).

The evidence to support estrogen therapy as primary treatment for stress incontinence is not conclusive (Fantl et al., 1996). Estrogen is beneficial for treating vaginal atrophy, urethritis, and atrophic vaginitis, all due to estrogen deficiency. These conditions are often associated with irritative symptoms. Although estrogen therapy increases stimulation of urogenital estrogen receptors and may increase urethral resistance, it is uncertain whether it has a clinically significant effect in preventing stress incontinence. Local treatment with estrogen therapy can help alleviate irritative symptoms, improve the frail older woman’s urogenital comfort, and help prevent skin rashes and vaginal infection. Examples include topical estrogen creams (Premarin®, Estrace®, Ogen®), vaginal tablets (Vagifem®), or an elastomer ring (similar to a diaphragm but without the inner latex cup) containing a slow-release estrogen (Estring®). Estring has a 90-day duration and may be more acceptable to the frail older woman over creams or tablets. Replacement of the ring must be done by an advanced practice nurse or physician. Local therapy can be used adjunctively with systemic estrogen therapy to improve local estrogenization.
Drug therapy for urge incontinence is also limited. The primary drugs in use are two antispasmodic/antimuscarinic agents: oxybutinin hydrochloride ( Ditropan® and Ditropan XL®, Oxytrol® transdermal patch), and tolterodine tartrate (Detroil® and Detrol LA®). These drugs increase residual urine volume, volume at which the first sensation of bladder filling is felt, volume at which the normal desire to void occurs, and maximum bladder pressure during voiding, thus decreasing contractility. Both drugs have an affect on the salivary glands leading to marked dry mouth; however, this effect may be less pronounced with tolterodine tartrate. Tolterodine tartrate has limited use in persons with liver or renal dysfunction. The tricyclic antidepressant imipramine (Tofranil®) is occasionally used in women who have mixed incontinence because it has both anticholinergic/antimuscarinic and alpha-adrenergic activity. Dosages for urge incontinence are lower than the therapeutic dose for treating clinical depression. Adverse side effects often limit the use of imipramine in the frail elderly, especially the cardiovascular side effects including postural hypotension, dizziness, bradycardia, and dysrhythmias, as well as weakness and fatigue. When used, administering this drug at bedtime may help reduce nocturia and urge incontinence during the night and its sedating effects may help with sleep and reduce daytime sedation. Some individuals experience insomnia or excessive stimulation from the drug, in which case, daytime administration is recommended. Since all of the aforementioned drugs can cause urinary retention, voiding patterns and urine output should be monitored. Anticholinergics/antimuscarinics are contraindicated in persons already diagnosed with urinary retention or narrow-angle glaucoma.

Managing UI

Management of urinary incontinence includes supportive interventions that enable independent or assisted toileting, absorbent products for urine containment, and skin care regimens to protect skin integrity. Supportive interventions include equipment to compensate for mobility impairments and physical therapies to aid in maintaining toileting skills and overall physical function. Elders with decreased joint flexibility could benefit from a raised toilet seat with adjoining arms for support while lowering themselves onto the seat. Elders of short stature can benefit from a footrest, to increase intra-abdominal pressure and promote bowel function. When balance is unsteady, grab bars affixed to the wall beside and in front of the toilet can assist in changing position while providing a stable handhold. Toilet substitutes such as a bedside commode or urinal (male and female versions are available) can be used continuously if the elder is bed-to-chair bound. They might be used only at night if the elder is unsafe to walk to the toilet or is unable to reach the toilet in time to prevent urine leakage.

Physical therapy for the frail elder includes gait training, mus-
Ms. B is a 92-year-old Caucasian female who lives in a garden apartment with a female companion. She is legally blind, but has low vision that is sufficient for her to function independently in her one-level apartment. She also has diverticulitis, arthritis, and osteoporosis. Other than discomfort from arthritis, she ambulates without assistance. She is nulliparous and never married. Ms. B’s chief complaint was that she leaks urine while she is outdoors gardening. She also is motivated to seek treatment because she is planning to go on a trip to Europe in 3 months and is apprehensive about managing her urine control while traveling. She is concerned that she would need to pack a large number of pads for the trip. She is most concerned about how she would manage her voiding pattern while touring by bus and sightseeing where there may not be toilets available. Ms. B saw her primary care doctor, a geriatrician, and he did the initial continence workup. She was then referred for behavioral treatment. Her physician prescribed Ditropan 5 mg bid.

Three days later, Ms. B sought behavioral treatment. During the initial nursing assessment, Ms. B reports abdominal pain, dry mouth, and constipation. The dry mouth is so debilitating that she had difficulty speaking. She had been on the Ditropan for 3 days. Ms. B had no abnormal findings on her physical examination. She indicates, however, that her fluid intake consisted exclusively of caffeinated coffee. She ingests seven cups or more of coffee each day.

The Ditropan was discontinued and behavioral treatment initiated. Ms. B was instructed in pelvic muscle exercises (without biofeedback) and urge inhibition. She was advised to use the toilet every 2 hours. She also was instructed on a caffeine elimination program that would titrate down her coffee intake over several weeks. She was taught about the importance of drinking water and other liquids that were caffeine-free, and the role that caffeine had in provoking urinary urgency, frequency, and incontinence — her chief problems.

After several weeks, Ms. B successfully adopted the PME, urge inhibition, caffeine titration, and fluid management program into her daily routine. She experienced a dramatic reduction in her irritative symptoms and her incontinence.

Later that summer, after returning from her European trip, Ms. B happily reported that she was completely dry, and that although she took some absorbent pads with her on her trip, she did not need to use them. Ms. B was spared the cost of the continuous use of pads, the anxiety of managing her urine control in light of a very active lifestyle, and the indignity of a condition that would only get worse without treatment.

Case Study #2

Ms. B was spared the cost of the continuous use of pads, the anxiety of managing her urine control in light of a very active lifestyle, and the indignity of a condition that would only get worse without treatment. These pads must be changed when wet or skin problems can occur, as they are not designed for urine containment or skin protection. Products specifically engineered for incontinence fit, and comfort are best, since they are designed for optimal urine containment. Some also are excellent at keeping the skin dry and preventing microbial growth and odor.

For small, moderate, and heavy wetting, a variety of pads, inserts, pull-ups, and less-bulky briefs are available. They have urine-containment properties superior to their counterparts manufactured some years ago. For heavy wetting at night but light daytime wetting, two different products can be used. During the day, a smaller pad or insert can be used, and at night, a larger more-absorbent brief. Even the pads and inserts have surprisingly large urine-containment capacities. If urine leakage is large and sudden, there is a risk for leakage along the sides of the pads. A trial of a variety of different types of pads for day and night use should be attempted to find the right combination at the right cost.

Underpads and bedpads can be helpful for those with heavy urine leakage in spite of using high-absorbency products. The larger wrap-around briefs can be found in super-absorbent styles. Because these products are more absorbent, they may be more difficult to put on in comparison to an insert that adheres to an undergarment or a pull-up. The tendency to keep them on for prolonged periods because of this difficulty should be discouraged. Any absorbent product must be changed often enough to minimize the time urine and stool are in contact with the skin. If the person is able to use the toilet, these products should not be used as a substitute.

Transitional guidelines may be a less costly alternative if skin integrity is good. These pads must be changed when wet or skin problems can occur, as they are not designed for urine containment or skin protection. Products specifically engineered for incontinence fit, and comfort are best, since they are designed for optimal urine containment.
Skin care is paramount in the frail older woman. Persistent wetness or episodes of heavy wetting will require more than drying the skin or using an incontinence wet wipe to preserve skin integrity. The goal of skin care is to preserve skin integrity and to prevent urine dermatitis and skin infections (especially yeast, fungal, and staphylococcus) by minimizing the skin to exposure to irritants and pathogens. Aging produces significant changes in the skin that renders the elderly more susceptible to skin damage. Avoiding repetitive, vigorous skin cleansing and the use of soap and wash clothes is vital, as these practices remove skin lipids and dry the skin, which can create friction damage and a route for infection. Incontinence skin cleansers should be pH balanced, no-rinse, fragrance-free, alcohol-free, and residue-free. It is important to avoid applying absorbent products too tightly. Even though this may be considered necessary to avoid leakage of urine outside of the pad, an occlusive environment traps heat and elevates skin temperature and moisture, which then produces friction and promotes microbial overgrowth. This can lead to skin breakdown and infection (Lekan-Rutledge et al., 2003).

In addition to the severity of the incontinence, the mobility and cognitive function of the individual will determine the type of skin care regimen. If the person is cognitively impaired and nonambulatory, then aggressive skin care with a cleansing agent designed for incontinence and moisture barrier application will be important to protecting the skin. A protective barrier ointment repels irritants and moisture by providing a water-repellant coating to the skin. Skin sealants, creams, and ointments (zinc oxide, petrolatum, dimethicone) are applied several times a day. They do not need to be removed when cleansing the skin after a urine leakage, but after a few cleansings, reapplication will be necessary. Complete cleansing of the skin is required for fecal incontinence episodes, and then reapplication of the ointment (Gray, Ratliff, & Donovan, 2002).

An elevated post-void residual urine measurement indicates some degree of urine retention. Urinary retention that is not resolved with a voiding schedule or double voiding may require management with intermittent or indwelling urethral catheters. Intermittent catheterization is the best management of urinary retention that does not resolve spontaneously after a single urethral catheterization. The treatment goals are to reduce the residual urine volume and to prevent the development of urine reflux to the kidneys and subsequent renal impairment (Tannenbaum et al., 2001). If the bladder was significantly overdistended, then short-term catheterization of 7 to 14 days, or longer, may be necessary for bladder muscle damage to be repaired and tone restored.

Any potential contributors to retention should be corrected. Acute urinary retention is associated with fecal impaction, post-indwelling urethral catheterization, calcium channel blockers, and medications with anticholinergic or antimuscarinic properties. If bladder tone and contractility are only partially restored,

---

Case Study #3

Mrs. C is a 90-year-old African-American female living in the assisted living unit of a long-term care facility. She was diagnosed with hypertension, CVA with right-sided hemiparesis, arthritis, and low hearing and vision. She was occasionally incontinent prior to her admission but soon after was reported to be incontinent. Her mental status indicated that she had moderate cognitive impairment. She was very distressed about the incontinence, and did not like being wet. She complained of chronic constipation. She was dependent upon staff for toileting assistance; however, staff assumed that she would call them when she “needed to go.” By the time she rang her bell, she would already be wet when the staff came to assist her.

Mrs. C’s physical examination was negative for abnormal urine, post-void residual urine, fecal impaction, or any urogenital problems. She was able to void voluntarily into the toilet and she could feel the urge to void when her bladder was full. She used a bedside commode at night.

Mrs. C was started on the Prompted Voiding Program. She was prompted to toilet about every 2 hours and offered fluids with each toileting encounter. Instead of relying on the call bell, she could rely on staff for regular assistance. Every 2 hours is often enough to prevent the older adult’s bladder from overfilling and causing a strong bladder urge and an urge incontinent leakage. After a week, Mrs. C’s wetness rate went from 50% wet to wetness only once a day. The volume of the wet episode was usually small. Her chronic constipation also required laxatives, which, after taking, prompted diarrhea, abdominal cramping, and poor appetite for several days. Mrs. C was started on a fiber-bulking agent (methycellulose) and her fluid intake was increased to promote the formation of more bulky stools. Bowel regularity soon ensued and Mrs. C no longer had to use laxatives.

Mrs. C continued on Prompted Voiding and the nursing staff understood that Mrs. C’s continence depended on their regular and consistent assistance to help her use the toilet, given her hemiparesis. Mrs. C felt respected and cared for since the regular staff assistance to use the bathroom helped her stay clean, dry, and odor-free. She also felt that it helped keep her from getting too stiff when sitting too long in the chair.
then voiding maneuvers such as double voiding, Credé maneuver, and Valsalva’s maneuver (bearing down when voiding) can be used to promote complete bladder emptying. This may avoid the ongoing use of a catheter. Any maneuvers that increase intra-abdominal pressure such as Credé’s and Valsalva should only be used during voiding, when the urethra is open. There is increased risk for reflux of urine into the ureters and upper tract damage if increased intra-abdominal pressure is exerted upon a closed urethra. The use of an indwelling urinary or suprapubic catheter should be reserved for those with an atonic bladder or significant urethral obstruction. In a woman this could be due to a large cystocele, or obstruction from a urethral stricture secondary to scar tissue from pelvic surgery or pelvic radiation.

**Conclusion**

The rapid growth of the U.S. population living to a very old age raises concerns about quality of life and increasing morbidity and dependency. Urinary incontinence is a primary condition that affects a majority of women as they age. In spite of years of neglect of the problem, it is possible for a frail older woman with UI to attain significant improvement, and or even resolution, of incontinence. Furthermore, there is no doubt that if incontinence is intractable, there are a myriad of interventions to promote comfort, reduce or prevent disability, and improve quality of life.

**References**


**Additional Reading**