

Assessment and Management of Older Adults with Urinary Incontinence

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Background

Traditional nursing care for incontinent patients focuses on containment strategies by use of receptacles (e.g., bedpan, urinal, commode, urinary catheters) and/or by various absorbent products (e.g., sanitary napkin, adult brief, incontinent pad) with little attention to continence management through strategies such as pelvic floor muscle exercises (PFME) or prompted voiding (Harmer & Henderson, 1955 [Level VI]; Henderson & Nite, 1978 [Level VI]; Taylor, Lillis, & LeMone, 2005 [Level VI]). Despite evidence to the contrary, (Fantl et al., 1996 [Level I]; International Consultation on Incontinence (ICI), 2000 [Level VI]) incontinent individuals and healthcare providers may erroneously believe that or behave like urinary incontinence (UI) is a normal consequence of aging, when in fact it is not (Bush, Castellucci, & Phillips, 2001 [Level IV]; Diokno et al., 2004 [Level IV]; Dowd, 1991 [Level IV]; Kinchen et al., 2003 [Level IV]; Milne, 2000 [Level IV]; Mitteness, 1987a, 1987b [Level IV]; Mitteness & Baker, 1995 [Level IV]; Skelly & Boblin-Cummings, 1999 ([Level IV]). Urinary incontinence is not normal, at any age. UI is most often defined as the involuntary loss of urine sufficient to be a problem or bother (Fantl et al., 1996 [Level VI]; Resnick & Ouslander, 1990 [Level VI]; Shumaker, Wyman, Uebersax, McClish, & Fantl, 1994 [Level IV]).

Physiologically, continence occurs when urethral pressure is equal to or greater than bladder pressure (Hodgkinson, 1965 [Level VI]), mindful that angulation of the urethra and pelvic muscle support play a role as well (DeLancy, 1994 [Level IV]). Continence requires intact lower urinary tract function, cognitive ability to recognize voiding signals and functional ability to use a toilet or commode in a timely manner, as well as motivation to maintain continence. In the healthcare setting an equally important component of continence care is a supportive environment facilitating these processes (Jirovec, Brink, & Wells, 1988 [Level VI]). Continence also requires the ability to suppress autocontractility of the detrusor muscle (Hodgkinson, 1965 [Level VI]).

Micturition (urination) involves both voluntary and involuntary control of the bladder, urethra, detrusor muscle and urethral sphincter. When bladder volume reaches about four hundred milliliters, stretch receptors of the bladder wall relay a message to the brain, which returns an impulse message for voiding back to the bladder. In response, the detrusor muscle contracts and the urethral sphincter relaxes to allow micturition (Gray, Rayome, & Moore, 1995 [Level VI]). Normally, the micturition reflex can be voluntarily inhibited (at least for a time) until an individual desires to void or finds an appropriate place for voiding. Urinary incontinence occurs as the result of a disruption at any point during this process. For further information, Gray (2000 [Level VI]) provides an excellent review of voiding physiology. Physiologic age changes that increase an individual's risk of developing UI include a decrease in bladder capacity, benign prostatic hyperplasia (BPH) and menopausal loss of estrogen (Bradway & Yetman, 2002 [Level VI]). However, despite these changes UI is never a normal consequence of aging.

Demographics of UI

Incidence and prevalence rates of UI should be viewed cautiously due to inconsistencies with definitions and measurement limitations (Abrams et al., 2002 [Level VI]; National Institutes of Health [NIH], 2008 [Level VI]; Palmer, 1988 [Level VI]) as well as underreporting and underassessment of UI (Schultz, Dickey, & Skoner, 1997 [Level IV]). For individuals with dementia, UI prevalence rates range from 11 percent to

90 percent; higher prevalence rates reflect institutionalized cognitively impaired older adults (Brandeis, Baumann, Hossain, Morris, & Resnick, 1997 [Level IV]; Skelly & Flint, 1995 [Level VI]). Prevalence of UI in community-dwelling elderly ranges from 8 percent to 38 percent (Anger, Saigal, Litwin, et al., 2006 [Level IV]; Diokno, Brock, Brown, & Herzog, 1986 [Level IV]; Herzog & Fultz, 1990 [Level IV]; Johnson et al., 1998 [Level IV]; NIH, 2008 [Level VI]). Among homebound elderly the incidence of UI is 15 to 33 percent (McDowell et al., 1999: [Level II]). In a random sample of hospitalized patients, 10.5 percent reported established UI (Palmer, Bone, Fahey, Mamom, & Steinwachs, 1992 [Level IV]). A 19 to 32 percent incidence of transient UI has been reported for older adults post-hip surgery (Palmer, Baumgarten, Langenber, & Carson, 2002 [Level IV]; Halm et al., 2003 [Level IV]; Palmer, Myers, & Fedenko, 1997 [Level IV]). Kresevic (1997 [Level IV]) found that 36 percent of older adults admitted to a hospital and were continent at time of admission developed new-onset UI. Additional studies of hospitalized elderly report prevalence rates of 13 to 42 percent (Dowd, & Campbell, 1995 [Level IV]; Schultz, et al., 1997 [Level IV]).

Risk Factors for Developing UI and Associated Risks from UI

Numerous risk factors are associated with UI. The nursing history should note individual risk factors, particularly those that are modifiable and may be incorporated into the management plan. Age is a risk factor for UI, and in particular, for urge UI (Holroyd-Leduc & Straus, 2004 [Level IV]; NIH, 2008 [Level VI]). The dietary history should note caffeine intake due to its diuretic and irritable effects on the bladder muscle; low fluid intake also contributes to bladder irritability (Fantl, et al., 1996 [Level I]; Holroyd-Leduc & Straus, 2004: [Level IV]). Immobility and cognitive limitations also increase the risk of developing UI (Fantl, et al., 1996 [Level V]; Holroyd-Leduc & Straus, 2004: [Level IV]). Medical conditions and comorbidities have also been identified as risk factors for UI and include type 2 diabetes mellitus (DM), delirium, dementia, depression, Parkinson's disease, chronic obstructive or inflammatory pulmonary conditions, fecal impaction, obesity, stroke, heart failure, arthritis and back problems and hearing or visual impairment (Dowling-Castronovo, 2004 [Level VI]; Holroyd-Leduc & Straus, 2000 [Level IV]; Meijer et. al, 2003 [Level I]; NIH, 2008 {Level VI}; Thomas et al., 2006 [Level I]). Medications are often used to treat UI; however, medications may also contribute to UI (for more information visit www.ConsultGeriRN.org and select Geriatric Topics: Medication or Try This Series: Beers Criteria for Potentially Inappropriate Medication Use in the Elderly). In a large Canadian national survey, diuretics and narcotics were found strongly associated with UI (Finkelstein, 2002 [Level IV]). Diuretics often cause polyuria, urinary frequency, and urinary urgency. Calcium channel blockers and anticholinergics may cause urinary retention with or without overflow incontinence. In addition, anticholinergics may cause mental-status changes, and stool impaction, which in turn, may result in UI. Alpha-adrenergic blockers may cause urethral relaxation. Conversely, alpha-adrenergic agonists may cause urinary retention. Psychoactive drugs such as antidepressants, antipsychotics, and sedative-hypnotics have anticholinergic effects and may lead to sedation and delirium, as well as interfering with mobility and bladder control (Kane, Ouslander, & Abrass, 2004 [Level VI]). In fact, Finkelstein (2002 [Level IV]) found that in men antidepressants were associated with UI, while in women antipsychotics were associated with UI. Additional risk factors include smoking, environmental barriers, high-impact physical activities and

childhood nocturnal enuresis (Fantl et al., 1996 [Level I]). Pregnancy, vaginal delivery, episiotomy, hysterectomy, pelvic muscle weakness, estrogen depletion and prostate surgery have also been identified as risk factors (Brown, Sawaya, Thom, & Grady, 2000 [Level I]; Fantl et al., 1996 [Level I]; Holroyd-Leduc & Straus, 2004 [Level IV]; Hunter et al., 2004 [Level I]). Race may play a role in female UI; however, further research is necessary to fully understand the relationship between race and UI. For example, some reports suggest that European American women have higher rates of moderate and severe UI when compared with African American women (Fantl et al., 1996 [Level I]; Holroyd-Leduc & Straus, 2004 [Level IV]) while others (Duong & Korn, 2001 [Level IV]) report similar rates of stress UI for Hispanic, white and Asian women and increased rates of detrusor (bladder) over activity, urgency with or without UI and stress UI for African American women.

Impact of Comorbidities for the Older Adult with UI

The consequences of UI may affect individuals physically, psychosocially and economically. In general, UI is associated with depression, poor self-rated health (Fantl et al., 1996 [Level I]; Johnson et al., 1998 [Level IV]), and poor health related quality of life (HRQoL; Shumaker et al., 1994 [Level IV]). Urge UI is associated with falls and fractures (Brown, Vittinghoff, Wyman, Stone, Nevitt, Ensrud, et al., 2000 [Level IV]), skin irritation and infections, urinary tract infections (UTIs), pressure ulcers and limitations of functional status (Fantl et al., 1996 [Level I]; Johnson et al., 1998 [Level IV]). In addition to the negative psychosocial impact of UI for the UI patient, family caregivers may suffer as well (Cassells & Watt, 2003 [Level IV]). Conflicting evidence negates using UI as a predictor for nursing home placement; however, UI has been identified as a marker of frailty in community-dwelling older adults (Holroyd-Leduc, Mehta, & Covinsky, 2004 [Level I]). Economically, the total direct cost of UI in the United States is estimated to be over sixteen billion annually (Wilson, Brown, Shin, Luc, & Subak, 2001 [Level IV]; Wyman, 1997 [Level VI]). An Australian study found that hospital staff spent over 13% of the day performing incontinence care (Morris et al., 2005 [Level IV]).

Health Promotion and Risk Reduction Related to UI

Continence experts recommend prevention of UI in adults using population-based strategies. However, there is little evidence pertaining to the benefits of primary prevention of UI for older women and for preventing childbirth related UI. Classifying populations according to risk factors is a recommendation for future population-based research (Hay-Smith, Herbison, Morkved, 2002 [Level I]; NIH, 2008 [Level VI]; Sampsel, Palmer, Boyington, O'Dell, & Wooldridge, 2004 [Level VI]).

Expert Consensus Opinion on Defining UI

The Agency for Healthcare Research and Quality (AHRQ) (Fantl, et al., 1996 [Level I]) identified the following types of UI: transient (acute) and established (chronic) UI. Transient UI usually has a duration less than six months and typically is of sudden onset (Ermer-Seltun, 2006 [Level VI] & Specht, 2005 [Level VI]). Causes of transient UI are often due to comorbidities and other geriatric syndromes such as delirium, infections (e.g., untreated UTI), atrophic vaginitis or urethritis, pharmaceuticals, depression or other psychological disorders that affect motivation or function, excessive urine production, restricted mobility, and stool impaction or constipation (e.g., that creates additional pressure on the bladder and can cause urinary urgency and frequency; Resnick & Yalla,

1985 [Level VI]). Hospitalized older adults are at risk of developing transient UI and, with shorter hospital stays, are also at risk of being discharged without resolution of the UI. Failure to recognize or address a new onset of UI acquired in the hospital setting sets the stage for mismanagement of this important condition and for additional, secondary problems to develop following discharge to home or skilled nursing settings. Transient UI is most always preventable, or at least reversible, once underlying causes of UI are identified and treated (Fantl et al., 1996 [Level I]; Resnick & Yalla, 1985 [Level VI]).

Established UI, on the other hand, has either a sudden or gradual onset. Healthcare providers or family caregivers may discover established UI during the course of an acute illness, hospitalization or abrupt change in environment or daily routine (Palmer, 1996 [Level VI]). Types of established UI are based on symptoms and physical findings and include stress, urge, mixed (defined as a combination of stress and urge UI), overflow and functional UI. The most common types of established UI include the following:

Stress UI is defined as an involuntary loss of urine associated with activities that increase intra-abdominal pressure. Symptomatically, individuals with stress UI usually present with complaints of small amounts of daytime urine loss that occurs during physical activity or with increased intra-abdominal pressure (e.g., coughing, sneezing). Stress UI is more common in women; however, after prostatectomy men may also experience stress UI (Abrams et al., 2003 [Level VI]; Fantl et al., 1996 [Level I]; Hunter et al., 2005 [Level I]; NIH, 2008 [Level VI]).

Urge UI is characterized by an involuntary urine loss associated with a preceding strong desire to void (urgency). In addition to urgency, signs and symptoms of urge UI most often include urinary frequency, nocturia and enuresis and UI of moderate to large amounts. Physiologic changes associated with aging make older adults particularly prone to this type of UI. An individual with an overactive bladder (OAB) may complain of urgency, with or without UI. Individuals with an OAB also may complain of frequency and nocturia. An assessment for those with an OAB should focus on pathologic or metabolic conditions that might explain these symptoms (Abrams et al., 2003 [Level VI]; Fantl et al., 1996 [Level I]; NIH, 2008 [Level VI]).

Overflow UI is an involuntary loss of urine associated with over distention of the bladder and may be caused by an under active detrusor muscle or bladder outlet obstruction leading to over distention and urine overflow. Individuals with overflow UI often describe urine dribbling, feel unable to empty the bladder completely (urinary retention), urinary hesitancy, urine loss without a recognizable urge or an uncomfortable sensation of fullness or pressure in the lower abdomen. A common condition associated with this type of UI is BPH; DM and neurological conditions (e.g., multiple sclerosis, spinal cord injuries) that result in bladder muscle denervation may also contribute to overflow UI (Doughty, 2000 [Level VI]; Fantl et al., 1996 [Level I]).

Functional UI is caused by non-genitourinary factors, such as cognitive or physical impairments that result in an inability for the individual to be independent in voiding. For example, acutely ill hospitalized individuals may be challenged by a combination of an acute illness and environmental changes, culminating in difficulty recognizing or perceiving urinary urges as well as inability to access appropriate receptacles in a timely manner. A cognitively impaired individual may fail to recognize environmental cues or reminders to call for assistance with toileting. This, in turn, makes

the voiding process overly complex resulting in a functional type of UI (Fantl et al., 1996 [Level I]).

In any given setting, the older adult patient may present with one or more (a combination) of the various types of UI. This in itself is challenging to the nurse generalist, but not impossible to solve. A clear health history, observations of important facts and focused physical examinations streamline the assessment and facilitate identification of the various types of UI in order that management is targeted to the correct underlying cause.

Nursing Assessment of UI

The ICI (2000) [Level VI] does not recommend urodynamic testing in the initial assessment and management of UI, and nurse continence experts have recommended educational continence care competencies suggesting that entry level nurses demonstrate the ability to collect and organize data surrounding urine control and implement nursing interventions that promote continence (Jirovec, Wyman, & Wells, 1998 [Level VI]). Nurses have long been the providers of personal hygiene information for those entrusted to their care. Therefore, it is essential that nurses play a leading role in assessing and managing UI especially because they are often the front line of healthcare providers entrusted with personal hygiene care.

Urine control is influenced by a myriad of anatomical, physiological, psychological and cultural factors (Gray, 2000 [Level VI]). The complexity of UI requires cognitive, affective, functional, physical, environmental and motivational assessments. Despite advances in evaluation and management, UI continues to be a “don’t ask, don’t tell” health problem (Cochran, 2000 [Level VI]). Thus, the first step in assessment centers on asking if the problem exists or not. This begins during the review of systems in the health history. Note that many intake assessment forms used in the acute or long-term care setting may be based on standard medical problems such as heart failure or DM and thus fail to appropriately assess UI.

To begin, the nurse asks screening questions such as, “Have you ever leaked urine? If yes, how much does it bother you?” Further questioning addresses the duration and characteristics of the urine leakage. The Urinary Distress Inventory-6 (UDI-6) is a six-item self-report symptom inventory for UI that is reliable and valid for identifying the type of established UI (Lemack & Zimmern, 1999 [Level IV]; Uebersax, Wyman, Shumaker, McClish, & Fantl, 1995 [Level IV]) in community dwelling females. The Male Urinary Distress Inventory (MUDI) is a valid and reliable measure of urinary symptoms in the male population (Robinson & Shea, 2002 [Level IV]; van der Vaart, de leeuw, Roovers, Heintz, 2003 [Level III]).

Differentiating between transient and established UI is essential because without identification and treatment, transient UI may convert to established UI (Palmer, 1988 [Level VI]). Although the seven-day bladder diary or record is the most evaluated and recommended tool used to quantify UI and identify activities associated with unwanted urine loss (Jeyaseelan, Roe, & Oldham, 2000 [Level I]), a three-day evaluation has found to have good reliability (Yap, Cromwell, & Emberton, 2006 [Level I]) and may be more feasible in the clinical setting (Fantl et al., 1996 [Level VI]; ICI, 2000 [Level VI]). For examples of available bladder diaries visit <http://kidney.niddk.nih.gov> and search for “bladder diary.” Determining the degree of “bother” and the effect on HRQoL is important and should include the perspective of the patient, and caregiver or significant

other. Various instruments for quantifying bother and HRQoL exist; none have been tested in the hospital setting (Abrams et al., 2003 [Level VI]; Bradway, 2003 [Level VI]; Robinson & Shea, 2002 [Level IV]; Shumaker et al., 1994 [Level IV]).

A detailed history, coupled with a focused physical examination may accurately diagnose the type of established UI. In the hospital setting, depression, malnourishment and dependent ambulation have been identified as risk factors (Kresvic, 1997 [Level IV]); therefore, the nurse should screen for depression (see Module 8 and/or visit www.ConsultGeriRN.org and select Try This Series” The Geriatric Depression Scale or Geriatric Topics: Depression/suicide), determine body mass index (BMI) and consult with a dietitian as needed. The nurse should observe individuals during toileting activities to assess the level of assistance required to maintain or enhance continence. Medications should be reviewed to determine if UI is a result of a medication.

To rule out UTI as a cause of transient UI, the nurse should anticipate the need for obtaining a urine sample for a urinalysis and/or urine culture and sensitivity. If the patient cannot provide a sterile urine specimen (e.g., from a cognitively impaired older adult), the nurse may consider the urine dipstick pad method (Midthun, Paur, Lindseth, & VonDuvillard, 2003 [Level IV]). To perform this method the nurse cleanses the perianal area, secures a urine incontinence pad, and monitors hourly until the pad wet with urine (no feces), and then applies a urine dipstick to the wet pad. Additional diagnostic tests such as a post void residual urine or simple bedside urodynamics may be performed (Burns, 2000 [Level VI]; Weiss, 1998 [Level VI]). An increased PVR, over 100 cc, may indicate incomplete bladder emptying. Bladder sonography or catheter insertion after the patient has voided are two ways to measure PVR. A simple bedside urodynamic test, which provides information regarding detrusor activity, may be warranted in some cases (Shinopulos, 2000 [Level VI]; Weiss, 1998 [Level VI]).

During the abdominal assessment particular attention is directed toward the suprapubic area to determine the presence of bladder distention and the left quadrant to determine the possibility of stool impaction. Gentle palpation and percussion can detect these problems during a focused physical examination. Inspection of male and female genitalia is completed during bathing or as part of the skin assessment; the nurse observes the patient for signs of perineal irritation, lesions or discharge. Perineal irritation or longstanding pigmentation change is often indicative of urinary leakage. In women, a Valsalva maneuver (if not medically contraindicated) may identify pelvic prolapse (e.g., cystocele, rectocele, uterine prolapse) or urine leakage (suggestive of stress UI) as a result of increased intra-abdominal pressure with bearing down. Asking the older adult to cough while observing for urinary leakage can also detect problems, especially if performing a Valsalva maneuver. During the genitalia examination, assessment for urine leakage is important as it may be attributed to stress UI (Burns, 2000 [Level VI]).

Post-menopausal women are especially prone to atrophic vaginitis. Significant physical findings for atrophic vaginitis include perineal inflammation, tenderness (and on occasion, trauma as a result of touch) and thin, pale genital tissues which are often friable and prone to bleeding. A digital rectal examination is essential in identifying contributing causes for UI such as constipation or fecal impaction. The “anal wink” (contraction of the external anal sphincter) indicates intact sacral nerve routes and is assessed by lightly stroking the circumanal skin. Absence of the “anal wink” may suggest sphincter denervation (Burns, 2000 [Level VI]). In men, the prostate gland should be palpated

during the rectal examination as BPH contributes to and/or causes urge or overflow UI. Typically an enlarged prostate is readily detected and correlated to symptoms of urinary urgency, incomplete bladder emptying, decreased urinary stream or nocturia. If the UI is too complex for basic assessment and management, it is recommended that the nurse to refer the patient to a specialist, such as a nurse continence expert, urologist or gynecologist (Jirovec, Wyman, & Wells, 1998 [Level VI]).

Appropriate Use of Indwelling Urinary Catheter

In any healthcare setting the use of indwelling urinary catheters may be encountered, either for diagnostic reasons or, often in some cases, inappropriately for containment of UI. Despite the promise of antiseptic urinary catheters (Brosnahan & Kent, 2004 [Level I]), indwelling urinary catheters should be avoided as a treatment for UI, as they are associated with UTIs. Dowd and Campbell (1995 [Level IV]) found a UTI incidence of 10 percent associated with indwelling catheter use, which, in turn, resulted in an increased length of hospital stay and decreased opportunities for nursing staff to identify continence as a problem. Moreover, a European study of 141 hospitals demonstrated that catheter-associated UTI was present in over 60 percent of nosocomial UTI cases (Bouza, Munoz, Voss, Kluytmans, 2001: [Level IV]). More recently, Apisarntharnerak and colleagues (2007 [Level IV]) prospectively studied over 9000 hospitalized patients and found that indwelling urinary catheters were used inappropriately (e.g. for incontinence) in 15% of patients and were associated with catheter acquired UTI. Appropriate indications for indwelling catheter use include severe acute illness, urinary retention uncontrollable by other interventions (including medication management and sterile intermittent catheterization) and UI management for patients with Stage III-IV pressure ulcers of the trunk (Wound Ostomy Continence Nursing Society, 1996 [Level VI]). Sterile intermittent catheterization may result in a lower incidence of infection (Terpenning, Allada, & Kauffaman, 1989; [Level IV]; Warren, 1997 [Level VI]) and may be a viable alternative to placement of an indwelling urinary catheter. Decisions regarding catheterization require careful consideration of the benefits and burdens associated with their use. Efforts to reduce indwelling urinary catheter use in healthcare settings include nurse-led urinary catheter discontinuation protocols (See <http://www.hartfordign.org/programs/niche/Bladder%20Protocol%20draft.doc>). When an indwelling urinary catheter is indicated it is recommended that the smallest lumen size catheter is used; sterile water is used to inflate the catheter balloon with balloon volume assessment every two weeks or as clinically indicated; and that the catheter be secured to the patient's thigh. There is no evidence supporting routine collection of urine, nor for routine timing of catheter changes (The Society of Urologic Nurses and Associates, 2005 [Level VI]).

Setting Specific Issues

Acute care research of UI has predominantly focused on incidence, prevalence and risk factors of UI, while research of UI assessment and treatment has been conducted primarily in long-term and community care settings. Regardless of setting, an assessment of UI should be led by the nurse in collaboration with the interdisciplinary healthcare team to identify the type of UI. Treatment and management decisions for transient UI depend on identification of the underlying cause(s).

Regardless of the type of established UI, nurses should be aware of healthy bladder behavior skills (HBBS), as presented below; pharmacotherapy and surgical intervention are not discussed in detail. Prior to instituting HBBS the nurse needs to assess the motivation of the patient, informal caregiver and/or nursing staff since behavior management is a premise of HBBS (Palmer, 2004 [Level VI]). The nurse instructs patients with UI to avoid the use of certain foods and beverages known to be bladder irritants such as caffeine and NutraSweet®. In addition, incontinent older adults should avoid or limit alcohol consumption due to its diuretic effects that may influence bladder control. Other bladder irritants may have individual effects (e.g., acidic foods or fluids, aka acid-ash), making the bladder diary a helpful tool to identify other potential bladder irritants that may be avoided. Because an increased BMI (over 27 kg/m²) may contribute to increased intra-abdominal pressure and, in turn, UI, older women may benefit from a modest weight reduction program (Brown, Seeley, Fong, Black, Ensrud, Grady et al., 1996 [Level IV]). If not contraindicated, the nurse recommends adequate fluid intake, specifically water, and an increased intake of dietary fiber to maintain bowel regularity. It is important to work closely with older adults who fear that unwanted urine loss is a result of increased fluid intake. Education should focus on the adverse consequences of inadequate fluid intake such as volume depletion or potential for dehydration, and that insufficient fluid intake may cause urine to become concentrated which, in turn, may cause increased bladder contractions and increased feelings of urinary urgency. This is especially an issue for older adults with comorbidities such as hypertension or heart failure often managed on diuretics (for more information see Module 4: Assessment and Management of Older Adults with Heart Disease and Complex Illness). Medications contributing to UI should be carefully examined and discussed with the prescribing healthcare provider to determine the necessity of the medication or ideal scheduling to promote continence. Lastly, to manage and limit nocturia, patients should be advised to limit fluid intake a few hours before bedtime (Doughty, 2000, [Level IV]; Fantl et al., 1996 [Level I]; ICI, 2000 [Level VI]).

Stress UI management includes PFMEs, more commonly known as Kegel (Kegel, 1956 [Level VI]) exercises. PFMEs facilitate continence by increasing strength, endurance and contractibility of the pelvic muscles, which support the bladder neck, contribute to optimal anatomical positioning of the urethra and facilitate neuromuscular control necessary for continence (DeLancy, 1994 [Level IV]; Hodgkinson, 1965 [Level VI]; Kegel, 1956 [Level VI]). Ideally, female patients are taught PFMEs during the pelvic examination. The nurse should instruct the patient to squeeze (contract) her vaginal muscles around the examiner's gloved hand. During the rectal examination, male patients are instructed to squeeze the rectal muscles. The patient should be instructed to avoid contacting abdominal, buttocks or thigh muscles so as to not increase intra-abdominal pressure. Ideally, each PFME should consist of a contraction lasting for ten seconds, followed by a relaxation period of ten seconds. While there are variations (DuMoulin, Hammers, Paulus, Berendsen, & Halfens, 2005 [Level I]) on the number of PFME per day required, it is usual practice to recommend fifteen PFMEs three times per day. Important guiding principles for "prescribing" PFMEs are to mutually set the exercise goal with the patient and to realize that continence goals may be achieved without the patient performing the prescribed amount. Evidence suggests that accurate performance of PFMEs requires some degree of performance appraisal, which may be

performed with digital examination, biofeedback or vaginal cones/weights, to verify that the incontinent individual is correctly isolating and contracting the pelvic floor muscles (Hay-Smith, et al, 2002 [Level I]). In addition, the urine stream interruption test (UST) is a simple measure of pelvic floor muscle strength and provides a numerical value to supplement data collection (Sampselle, 1993 [Level IV]). For the UST, the patient is instructed to begin voiding and then, after five seconds, is instructed to stop. A stopwatch is activated at the “stop” instruction and deactivated when the urine stream is no longer heard by the clinician. The UST should be under two seconds in women reporting significantly fewer UI episodes (Sampselle, 1993 [Level IV]); the UST is currently being tested in a male sample (J. Robinson, personal communication, July 20, 2006 [Level VI]). Patients may need several weeks to note improvement in bladder control. Once patients are confident with performing PFMEs they may benefit from “The Knack”—performing a PFME prior to activities, such as lifting, that increase intra-abdominal pressure (Miller, Ashton-Miller, & DeLancey, 1998 [Level II]).

Other management strategies for stress UI such as pharmacotherapy, pelvic support devices and surgical procedures (Fantl et al., 1996 [Level I]) are beyond the scope of this module (Hay-Smith, et al, 2002 [Level I]); Holroyd-Leduc & Straus, 2004 [Level IV]; Hunter et al., 2005 [Level I]; Teunissen, de Jonge, van Weel, & Lagro-Janssen, 2004 [Level I]).

PFMEs are also recommended for management of urge UI. In addition to building muscle strength, PFMEs may cause neuromuscular changes that promote a decrease in the autocontractility of the bladder (Hodgkinson, 1965 [Level VI]), thereby inhibiting the urge to urinate. There is evidence that PFMEs decrease incontinent episodes related to urge UI (Burgio & Engel, 1990 [Level II]; Flynn, Cell, Luisi, 1994 [Level IV]).

Urge inhibition is based on behavioral theory and is another recommended HBBS for treatment of urge UI, although the mechanism of how urge inhibition works is not well understood (Gray, 2005 [Level VI]; Smith 2000 [Level VI]). Urge inhibition includes distraction techniques, relaxation techniques and pelvic muscle contractions with the goal being to suppress the urge to void, until desirable (Smith, 2000 [Level VI]). Bladder training (re-training) is another behavioral technique used to treat urge UI and OAB. Bladder training requires a baseline bladder diary to determine the timing of voids and UI episodes. If urinary frequency is present, the patient is instructed to lengthen the time between voids in an effort to retrain the bladder. When a strong urge to void occurs and, if the patient is not in a position to empty the bladder in a socially appropriate manner, the nurse instructs the patient to quickly squeeze and relax pelvic floor muscles several times to suppress the urge to void. This technique is sometimes referred to as “quick flicks” (Gray, 2005 [Level VI]). Relaxation and distraction techniques are also beneficial during bladder training.

Anticholinergic (antimuscarinic), antispasmodic medications are commonly prescribed for urge UI and OAB because they reduce detrusor overactivity and spasm and, in turn, decrease urinary urgency, frequency and urge UI. Many medications are available including oxybutynin (Ditropan®), tolterodine (Detrol®), darifenacin (Enablex®), trospium chloride (Sanctura ®) and solifenacin succinate (Vesicare ®). Long-acting formulations, transdermal patch preparations and lower doses of some are available. If prescribed, the nurse should assess the patient for common side effects including dry mouth, constipation and urinary retention. Older adults should also be

carefully monitored for mental status changes (Gray, 2005 [Level VI]; for more information visit www.ConsultGeriRN.org and select STAT Topics: Abrupt Changes in Mental Status; Katz et al., 1998 [Level II]).

In addition to the above HBBS, the environment plays a vital role in managing functional UI. Incontinent individuals are often dependent on adaptive devices (e.g., walker) or caregivers for assistance with voiding. Many of these individuals may also suffer from cognitive impairment, a significant comorbidity resulting in the inability to recall voiding times or recognize the need to void. In addition, a comorbidity such as Alzheimer's disease may, as it progresses, result in difficulty with ambulation and gait apraxia (e.g., the inability to execute a learned activity such as walking). In these patients, toileting programs (e.g., individualized, scheduled toileting programs; prompted voiding) have varied success rates (Colling, Ouslander, Hadley, Eisch, & Campbell, 1992 [Level II]; Eustice, Roe, & Paterson, 2005 [Level I]; Ostaszkiwicz, Johnston, & Roe, 2005 [Level I]).

A bladder diary is essential for developing an individualized scheduled toileting program, which mimics the patient's normal voiding patterns. Continual assessment and evaluation improves success. For example, if the initial scheduled toileting time is set for 7 A.M., yet at 6:30 A.M. the patient consistently attempts to independently void or is noted to be incontinent, then the toileting time should be adjusted to 6 A.M. Prompted voiding requires the caregiver to ask if the patient needs to void, offer assistance and then offer praise for successful voiding (Eustice et al., 2005 [Level I]; Jirovec, 2000 [Level VI]; Ostaszkiwicz et al., 2005 [Level I]).

Strategies specific to manage overflow UI include PFMEs if it is determined that bladder outlet obstruction is due to persistent contraction of the pelvic floor muscles (Doughty, 2000 [Level VI]). The Crede's maneuver, timed voiding, double voiding and intermittent urinary catheterization are other interventions to manage overflow UI. The Crede's maneuver is cautiously used—requiring manual compression over the suprapubic area during bladder emptying—and should be avoided if vesicoureteral reflux or overactive sphincter mechanisms are suspected as the Crede's maneuver would dangerously elevate pressure within the bladder (Doughty, 2000 [Level VI]). Patients are instructed to double void by repositioning to void again directly after the initial void (Dowling-Castronovo & Bradway, 2008 [Level IV]). For a patient with overflow UI the nurse should evaluate if medications may be causing urinary retention. Scheduled intermittent catheterization or, as a last resort, an indwelling urinary catheter may be needed until the underlying cause of overflow UI (e. g., BPH) is treated (Doughty, 2000 [Level VI]).

Note that the UI management presented here avoids a detailed discussion of containment products. This is intentional as this module focuses on evidenced-based management strategies beyond traditional containment. That said, it is also important to note that if absorbent products are used, studies emphasize individualization in choosing absorbent products (Dunn, Kowanko, Paterson, & Pretty, 2002 [Level I]). There is no clear evidence to suggest using one absorbent product over another. One recommendation is for institutions to pilot test absorbent products to determine which products best suit the individual needs of both the institution and patient population (Dunn et al., 2002 [Level I]).

Priority Setting to Avoid Complications Associated with Urinary Incontinence

In some cases, the goal of incontinence management may not be to have the patient totally dry, but to decrease the number of UI episodes. A realistic goal for UI evaluation and management includes interdisciplinary collaboration and the inclusion of the patient and, in many instances, the caregiver or significant other. In the acute care setting, new onset of UI needs to be closely assessed and appropriately managed. Failure to do so may result in complications associated with incontinence, including persistent UI, pressure ulcer formation, falls and psychological aftermaths such as embarrassment or psychological distress (Bogner et al., 2000 [Level IV]).

Appropriate assessment and management of UI may be overlooked in the hospital setting due to patients' acuity level or short length of stay. Instead, UI is often managed with the use of temporary indwelling urinary catheterization. Justification for this intervention revolves around the patient's inability to access toilet facilities independently, including use of a bedpan or urinal due to voicelessness from intubation or other mechanical, life-sustaining devices (see Module 7: Assessment and Management of the Older Adult with Complex Illness in Critical Care). More research needs to be done to determine how UI is assessed and managed in the acute care setting. Hospital discharge planning should include plans for assessing treatable etiologies of UI and determining a proper plan of care for managing UI.

Upon admission to a skilled nursing setting (e.g., an assisted living or a nursing home facility), the nurse should always perform an accurate assessment of UI. This includes a review of medical records, speaking to the hospital discharge primary nurse or physician and inquiring about the onset of UI from family members. Likewise, the presence of an indwelling urinary catheter needs to be addressed as previously discussed. Prochoda (2002 [Level VI]) provides a detailed presentation of how long-care care processes—Resident Assessment Instruments, the Minimum Data Set and resident care plans—are utilized in the provision of quality incontinence assessment and management, which are now a focus of state surveyors in response to Tags F315 and F316 (Centers for Medicare & Medicaid Services, 2005).

Use of Clinical Practice Guidelines in the Assessment of UI

In 1988 the National Institute for Health (NIH) led a multidisciplinary Consensus Panel to examine the state of knowledge regarding adult UI. This expert panel examined available research in a directed effort to answer specific trigger questions. This, in turn, set an agenda for future research and practice. The major outcome of those efforts was the Agency for Healthcare Research and Quality UI clinical practice guidelines (Fantl et al., 1996 [Level I]). These guidelines focused on community dwelling and long-term care (LTC) populations.

Clinical guidelines are one strategy for translating research findings (Roe et al., 2004 [Level VI]) into clinical practice. Evaluation of clinical guideline translation into practice is arduous. Few outcome studies have evaluated the AHRQ UI guidelines. Most have examined UI evaluation and management in the LTC setting and report that AHRQ guidelines have not produced positive outcomes in bladder health. Moreover, containment, rather than management of UI, remains the primary management strategy employed in LTC settings (Watson, Brink, Simmer, & Mayer, 2003 [Level IV]; Schnelle, et al., 2003 [Level IV]). In the LTC setting incontinent residents are not adequately assessed for UI with only 2 percent of women having a pelvic examination, less than 15

percent receiving a rectal examination and less than 1 percent being assessed for characteristics of established UI—stress, urge, mixed, overflow and functional (Watson et al., 2003 [Level IV]). Despite mass dissemination of the AHRQ guidelines, the evidence reports a “failing grade” in both LTC and community settings (Gnanadesigan et al., 2004 [Level IV]; Palmer & Johnson, 2003 [Level VI]). Little is known about UI guideline implementation in hospital settings.

In the United Kingdom (UK), continence policies and research add an important contribution in understanding what is known about translating continence guidelines into practice. Neal & Linnane (2002 [Level IV]) conducted a survey of healthcare providers and patients to learn the extent to which the UK continence policy was incorporated into practice. The majority of patients delayed seeking healthcare for UI because of inadequate knowledge, embarrassment, feelings that symptoms were “normal”, or advice-seeking from non-healthcare providers (Button, et al., 1998 [Level V]). While the majority (40 percent) of patients learned about continence services from their general practitioners, 28 percent learned about continence services from hospitals and only 8 percent learned about continence services from a nurse. Therefore, the need for nursing faculty to disseminate accurate knowledge of UI assessment and management to nursing students is essential. Future research to improve the understanding of barriers and facilitators to continence care is also needed.

Outcome Indicators

Research regarding UI outcome indicators has used the “If...then...” approach (Gnanadesigan et al., 2004 [Level IV]; Schnelle et al., 2003 [Level IV]). For example, IF an individual has involuntary urine loss, THEN a focused history is performed and documented. Nurses will find that the North American Nursing Diagnosis Association (NANDA), Nursing Interventions Classifications (NIC) and Nursing Outcomes Classification (NOC) provide structure for planning and evaluating UI assessment and management (Johnson, Bulechek, McCloskey-Dochterman, Maas, & Moorhead, 2001 [Level VI]).

In the community setting, performance quality indicators for continence management include, 1) evidence of screening all older adults for UI at initial health encounters and then yearly; 2) evidence of performing a focused health history, including characteristics of voiding, ability to toilet self, any previous treatment for UI, degree of bother and mental status assessment; 3) evidence of performing a focused physical examination that includes a genital and rectal examinations; 4) evidence of a urinalysis and post-void residual and 5) evidence that HBBS, as well as pharmacological and surgical options were appropriately reviewed with the incontinent individual (Gnanadesigan et al., 2004 [Level IV]; Schnelle & Smith, 2001 [Level VI]). Bladder diaries continue to be the predominant clinical outcome indicator measure to determine if continence management interventions are effective.

In the LTC setting, state surveyors audit for evidence of 1) an assessment for UI; 2) the presence and implementation of a continence management plan; and 3) the appropriate use of indwelling urinary catheters in response to the F315 Tag (Centers for Medicare & Medicaid Services 2005; Prochoda, 2002 [Level VI]). Directors of nursing should consider utilizing a standardized continuous quality improvement system to evaluate UI in the LTC setting developed by Schnelle and colleagues (2003 [Level IV]).

In the hospital setting, the primary outcome measure is the appropriate use of indwelling catheters.

Resources to Improve Caregiver Skill and Knowledge

Wound Ostomy Continence Nurses Society National Office
15000 Commerce Parkway, Suite C
Mt. Laurel, NJ 08054
(888) 224-WOCN (9626)

<http://www.wocn.org>

An international society providing a source of networking and research for nurses specializing in enterostomal and continence care

National Association for Continence (NAFC)

P.O. Box 1010

Charleston, S.C. 29402-1019

(800) BLADDER

<http://www.nafc.org/>

A not-for-profit organization dedicated to improving the lives of individuals with incontinence

The John A. Hartford Institute for Geriatric Nursing

<http://www.hartfordign.org/>

This Web site will bring the reader to the “Try This” series that includes a two-page UI information sheet to share with nursing students and nursing staff at affiliated clinical sites.

Society of Urologic Nurse and Associates (SUNA)

National Headquarters

East Holly Ave., Box 56

Pitman, NY 08071-0056

(888) TAP-SUNA

<http://www.suna.org/>

An international organization dedicated to nursing care of individuals with urologic disorders.

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Appendix A: Levels of Evidence Cited

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Appendix B Web-based resources

Visit www.ConsultGeriRN.org and select Geriatric Topics:

Medication
Atypical Presentations
Delirium
Depression
Urinary Incontinence

Visit www.ConstultGeriRN.org and select Try This Series:

Beers Criteria for Potentially Inappropriate Medication Use in the Elderly
Urinary Incontinence Assessment

AMDA Clinical Practice Guidelines for use in long-term care setting: visit <http://www.amda.com/> and select Urinary Incontinence

National Association for Continence (NAFC): <http://www.nafc.org/>

Society of Urologic Nurse and Associated (SUNA); <http://www.suna.org/>

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[also found at: New Guideline Synthesis (2006): Evaluation and Management of Urinary Incontinence (http://www.guideline.gov/summary/summary.aspx?doc_id=3507&nbr=002733&string=incontinence)

Appendix C Examples of Teaching Pedagogies for Urinary Incontinence in Older Adults

<u>Content Area: Topic</u>	<u>Recommended Teaching Pedagogy</u>
Recognition/Screening for UI	List & discuss 5 clinical problems that can lead to UI in an older adult. Review the medical record of an older adult with multiple comorbidities and identify potential medications that can have adverse side effects of urinary incontinence.
Assessment of Older Adults with UI	Describe the components of assessment of an older adult with new onset of UI.

Critically analyze “why” the older adult has a new onset of UI. What are important historical questions and physical examination techniques to be performed with a new onset of UI?

Describe the components of assessment of an older adult with chronic UI.
Review and respond to a case study on UI.

Management of Older Adults with UI

Review a clinical case whereby an indwelling urinary catheter is used for the chronic management of UI. Ask the student to select a patient from their caseload and to respond/determine on a case-by-case basis why an indwelling urinary catheter is used? How long has it been used? What were the presenting symptoms leading to use of the indwelling urinary catheter if any? What are the major risks associated with the use of a indwelling urinary catheter and what are realistic alternatives to management other than a indwelling urinary catheter?
Outline the basic components of a toileting program. What are some issues that impact on the success of a toileting program?