Quality Indicators for the Management of Urinary Incontinence in Vulnerable Community-Dwelling Elders

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The prevalence of urinary incontinence in noninstitutionalized persons older than 60 years of age is 15% to 35%; of these, 25% to 30% have frequent episodes of urinary incontinence (1). The significance of urinary incontinence may vary from minimal to severe, with extreme activity limitation and social isolation. For example, several reports have linked urinary incontinence in community-dwelling elders with falls and depression (2, 3). Urinary incontinence also imposes significant psychosocial distress on family, friends, and caregivers (1).

Urinary incontinence is even more prevalent in the nursing home than in the community. In nursing homes, however, urinary incontinence is known to be very treatable with assisted toileting programs (4). Nursing home residents are older and frailer than community-dwelling elders and have caregivers available 24 hours per day. As a result, major differences exist in how incontinence can be assessed and treated in the nursing home compared with the community. This paper describes incontinence quality indicators that can be applied to vulnerable community-dwelling elders who may be treated across the spectrum of care, from primary care physicians to surgical specialists.

METHODS

The methods for developing these quality indicators, including literature review and expert panel consideration, are detailed in a preceding paper (5). For urinary incontinence, the structured literature review identified 4153 titles, from which abstracts and articles relevant to this report were identified. On the basis of the literature and the authors’ expertise, 16 potential quality indicators were proposed. The search terms and results of the literature review can be accessed at www.acponline.org/sci-policy/.

RESULTS

Of the 16 potential quality indicators, 9 were judged valid by the expert panel (see the quality indicators on pp 653-667), 2 were merged into other indicators, and 5 were not accepted (www.acponline.org/sci-policy/). The panel also suggested an additional indicator. The literature reviews that support each of the indicators judged to be valid by the expert panel process are summarized below.

Quality Indicators 1 and 2

Initial Evaluation: Detection of Incontinence

ALL vulnerable elders should have documentation of the presence or absence of urinary incontinence during the initial evaluation.

ALL vulnerable elders should have annual documentation of the presence or absence of urinary incontinence BECAUSE urinary incontinence is prevalent in older adults, has a high psychological impact, is often neglected, is associated with a large practice variation, has a high monetary cost, and is reasonably responsive to directed treatment.

Supporting Evidence. Despite the high prevalence of urinary incontinence and its influence on both mood and functional status, primary care providers do not consistently inquire about it and patients do not report it. Patients frequently are embarrassed, consider it to be an inevitable fact of aging, or have low expectations for treatment (1). Because providers often lack knowledge about the evaluation and management of urinary incontinence, they fail to elicit its presence (1). Older geriatric patients, and male patients in general, are even less likely to be screened for urinary incontinence than are younger geriatric patients and women (6). This discrepancy leads to substantial variation in the identification, assessment, and management of urinary incontinence. While no direct evidence shows that routine inquiry about urinary incontinence will lead to increased detection and treatment or improved outcomes, achieving these goals is likely to be more difficult without increased vigilance on the part of the health care provider. No data support or refute the interval at which inquiry should be performed.
Quality Indicators 3, 4, and 5: Targeted Evaluation

Targeted History

IF a vulnerable elder has new urinary incontinence that persists for more than 1 month or urinary incontinence at the time of a new evaluation, THEN a targeted history should be obtained that documents each of the following: 1) characteristics of voiding, 2) ability to get to the toilet, 3) previous treatment for urinary incontinence, 4) importance of the problem to the patient, and 5) mental status BECAUSE this information is necessary for the appropriate diagnosis and treatment of urinary incontinence.

Targeted Physical Examination

IF a vulnerable elder has new urinary incontinence that persists for more than 1 month or urinary incontinence at the time of a new evaluation, THEN a targeted physical examination should be performed that documents 1) a rectal examination and 2) a genital system examination (including a pelvic examination for women) BECAUSE information obtained from these examinations is necessary for the appropriate diagnosis and treatment of urinary incontinence.

Diagnostic Tests

IF a vulnerable elder has new urinary incontinence that persists for more than 1 month or urinary incontinence at the time of a new evaluation, THEN a dipstick urinalysis and post-void residual should be obtained BECAUSE information obtained from these studies is necessary for the appropriate diagnosis and treatment of urinary incontinence.

Supporting Evidence. These indicators are based on clinical practice algorithms that are advocated by the Agency for Health Care Policy and Research (AHCPR) (now the Agency for Healthcare Research and Quality) and others (1, 7, 8). They are the product of expert consensus but have not been tested prospectively. Few prospective studies of clinical algorithms for urinary incontinence in older adult patients have been conducted or published, and those that have been published focused on diagnostic accuracy rather than treatment outcomes.

With aging, the pathophysiology of urinary incontinence becomes more complex and often has more than one contributory cause (9). Urodynamic testing detects abnormalities even in healthy, asymptomatic older adults (10, 11). Therefore, a focused evaluation is necessary to determine the relevant diagnosis.

Although the clinical history of urinary incontinence may be nonspecific, it is often valuable. Most patients with stress incontinence symptoms have true stress urinary incontinence, and many persons with symptoms of urgency or urge urinary incontinence have detrusor instability (12–15). Likewise, the physical examination may help identify the cause of urinary incontinence. The goals of physical examination also include identifying other medical conditions, such as reversible factors that may trigger or contribute to urinary incontinence, and assessing pelvic floor deficits that may warrant surgical correction. No studies were identified that directly assessed the utility of physical examination in the evaluation of urinary incontinence. However, several studies have identified reversible causes of urinary incontinence as a result of evaluations that included a physical examination. In one study evaluating the cause of urinary incontinence in 100 women referred to an incontinence clinic (mean age, 74.6 years), 17 patients had a urinary tract infection and 8 patients had fecal impaction, both of which are easily treatable causes of urinary incontinence (16). The fact that infection was identified in so many residents supports the importance of screening for symptoms of infection, such as a burning sensation. In a study of institutionalized and noninstitutionalized persons (mean age, 80.2 years) referred to an incontinence clinic for persistent urinary incontinence, 7 of 264 (3%) had reversible causes identified and successfully treated after a history, physical examination, and limited laboratory testing (17). Evaluation of reversible causes should screen for medications that can affect urine production or bladder or sphincter function (for example, diuretics, anticholinergic medications, opiates, and α-adrenergic medications).

Despite the value of the history and the examination, signs and symptoms of urinary retention may be unreliable in elderly persons (17–19). Unsuspected obstruction or underactive detrusor are not uncommon, and the high prevalence of detrusor hyperactivity with impaired bladder contractility involving risk for retention with medication or impaction makes monitoring for urinary retention in these patients especially important (9, 20). An elevated amount of post-void residual urine is especially common in older patients. In one
study, post-void residual urine exceeding 100 mL was found in 28% of both men and women older than 65 years of age who had urinary incontinence and were referred to a urology clinic (21). Pelvic ultrasonography or straight catheterization may be used to measure the post-void residual urine content, but ultrasonography is safer in elderly men.

Quality Indicator 6
Discuss Treatment Options for Urinary Incontinence

IF a vulnerable elder has new urinary incontinence or urinary incontinence at the time of a new evaluation, THEN treatment options should be discussed BECAUSE urinary incontinence frequently remains untreated despite the availability of many effective treatment options.

Supporting Evidence. Absorbent pads and garments are too often used as a first-line treatment for urinary incontinence (1). The widespread use of these products is reflected in the growth of the market for disposable pads and adult diapers from $99 million in 1972 to $496 million in 1987 (1). One practice guideline recommends the use of such absorbent products only as an adjunct to other therapy during the evaluation period and for long-term care of patients with chronic intractable urinary incontinence (1). However, diapers should not be the first-line treatment for incontinence, and vulnerable elders with incontinence should be made aware of alternative treatments. The treatment options that might be discussed include pharmacologic treatments, electrical stimulation, and behavioral therapy. The effectiveness and relative lack of side effects of pharmacologic treatments have been documented for most types of incontinence (22–25). The evidence for efficacy of behavioral interventions is reviewed in quality indicator 7. These relatively noninvasive treatment options, along with surgical options, when appropriate, should be presented to patients to facilitate the incontinence treatment that is most effective and consistent with patient preferences.

Quality Indicator 7
Behavioral Therapy

IF a cognitively intact vulnerable elder who is capable of independent toileting has documented stress, urge, or mixed incontinence without evidence of hematuria or high post-void residual, THEN behavioral treatment should be offered BECAUSE such treatment has proven effective and is preferred by patients to both pharmacologic and surgical interventions.

Supporting Evidence. The AHCPR Incontinence Guidelines Update Panel (1) reviewed many studies that supported the use of the following behavioral therapies in ambulatory and cognitively intact community-dwelling older adults: 1) bladder drills; 2) pelvic floor–muscle exercise with or without biofeedback; and 3) other assistive devices, such as cone weights or electrical stimulation.

Because all of these behavioral therapies are relatively effective for all types of urinary incontinence, they will be reviewed together. However, it should be noted that bladder drills tend to be viewed as most specific to the physiologic dynamics that contribute to urge symptoms, whereas pelvic floor–muscle exercises improve the symptoms of stress incontinence.

Bladder drills have been assessed in two randomized clinical trials. In this behavioral therapy, a patient is taught to consciously delay voiding. With practice, the interval between voiding episodes is progressively increased to improve bladder capacity and control. Bladder drill training programs incorporate several techniques and have many variations. Fantl and colleagues (26) conducted a randomized, controlled study of 131 women with sphincteric incontinence, unstable detrusor function, or both. Of the 60 women in the treatment group, 12% experienced resolution of incontinence and 70% had at least a 50% reduction in the number of incontinence episodes. The effects of bladder training were maintained for 6 months, and controls showed no significant changes in incontinence episodes. In a more recent study, Wyman and coworkers (27) used a randomized trial to compare the efficacy of bladder training, pelvic muscle exercise with biofeedback-assisted instruction, and a combination of both methods. Women with a diagnosis of genuine stress incontinence (n = 145) or detrusor instability (n = 59) who received 12-week combination therapy had significantly fewer incontinence episodes and better quality-of-life outcomes than those who received only one type of therapy or no therapy.

Pelvic floor–muscle exercises have been evaluated alone or in combination with biofeedback or drug therapy in several randomized, controlled trials (28–31). A study by Burgio and associates (32) compared biofeed-
back-assisted pelvic floor–muscle exercise with drug treatment and placebo in women who had primary urge incontinence. The behavioral treatment yielded a significant decrease in incontinence episodes (81%) compared with the drug treatment (69%) \((P < 0.05)\), and both were more effective than placebo (39%) \((P < 0.05)\). Behavioral treatment also produced the greatest patient-perceived improvement and the highest ratings of patient comfort and satisfaction. A more recent study reported that a combination of behavioral and pharmacologic therapy was more effective than either procedure alone for the treatment of urge urinary incontinence (33).

Two studies demonstrated that brief training periods of pelvic muscle contraction or postural change can have a substantial effect on the volume of leakage in women with stress incontinence (34, 35). In one study, women with mild to moderate stress incontinence were taught how to contract the pelvic floor muscle before or during a cough (34). Pelvic floor–muscle exercises also seem to be effective in men who have recently had transurethral prostatectomy (36). Electrical stimulation, either alone or in combination with pelvic floor exercise, may also be an effective treatment for stress and urge incontinence. Three randomized, placebo-controlled studies reported positive results (37–39).

The use of behavioral therapies as first-line treatment for stress, urge, or mixed incontinence is reinforced by consumer preference data. When 150 incontinent women who had a basic incontinence evaluation were allowed to choose among behavioral treatment, pharmacologic treatment, or surgery, 61% chose behavior modification, 25% chose pharmacotherapy, and 14% chose surgery (40).

The AHCPR Guideline Update cautioned that all of the behavioral therapies described require patients’ active participation. Thus, these therapies may not be applicable to patients who are cognitively impaired and physically dependent (1, 41).

Quality Indicator 8

**Urodynamic Testing**

IF a vulnerable elder undergoes surgery or periurethral injections for urinary incontinence, THEN subtracted cystometry should be performed before the procedure BECAUSE this test is necessary to identify indications for these procedures and to define the correct surgical approach.

Supporting Evidence. Urodynamic testing is important in persons being considered for surgery or periurethral injections for stress urinary incontinence. First, given the inherent inaccuracy of the initial clinical assessment, testing is critical to confirm the diagnosis. Second, the test is necessary to determine whether detrusor instability is present, because this comorbid condition may impede the success of the procedure (42, 43). Subtracted cystometry measures detrusor pressure by simultaneously measuring total bladder and intra-abdominal pressure and subtracting the latter from the former.

Quality Indicator 9

**Surgery for Stress Incontinence**

IF a female vulnerable elder has documented stress urinary incontinence caused by isolated intrinsic sphincter deficiency or intrinsic sphincter deficiency with coexistent hypermobility, and she undergoes surgical correction, THEN a sling or artificial sphincter procedure should be used BECAUSE such procedures successfully treat both conditions simultaneously and most other surgical procedures have a high rate of failure when intrinsic sphincter deficiency is present.

Supporting Evidence. Most studies demonstrate higher surgical failure rates for retropubic and needle-suspension procedures, as compared with sling procedures, when a significant degree of intrinsic sphincter deficiency is present with or without coexisting hypermobility (42–50). Research on sling procedures, as on other surgical procedures for incontinence, is hampered by a lack of specificity of case definition. This issue is of particular relevance to the treatment of intrinsic sphincter deficiency. Although the terms low pressure urethra, type III incontinence, and intrinsic sphincter deficiency are usually used interchangeably, they are not strictly synonymous (51). The terms are defined by various diagnostic techniques and criteria, vary from study to study, and do not always strictly correlate with each other. In addition, the urodynamic measures do not always respond to successful surgery. Many studies did not investigate or state whether intrinsic sphincter deficiency was present.

The AHCPR Guideline Update (1) reviewed nine studies that included 434 patients with fascial slings and 298 patients with synthetic sling procedures used to treat intrinsic sphincter deficiency or intrinsic sphincter deficiency...
deficiency with hypermobility. Overall cure rates were 89% with fascial slings and 78% with synthetic slings. Since that report, additional studies evaluating surgical treatment of intrinsic sphincter deficiency and intrinsic sphincter deficiency with hypermobility have followed 1146 patients who had pubofascial slings (autograft, rectus fascia, or fascia lata [47, 52–54]; allograft, cadaveric [54], or synthetic polytetrafluoroethylene [55]) or vaginal-wall slings (53, 56–58). Success rates ranged from 46% to 95% and averaged approximately 80%. Success rates depended on length and method of follow-up and definition of success but did not depend greatly on type of sling procedure used. Paradoxically, procedures seemed to be more successful in patients with coexisting hypermobility (57, 59).

Major complications of sling procedures include irritable bladder symptoms, detrusor instability, urge incontinence (3% to 24%), prolonged urinary retention (up to 13%), or suture pull-through (a small percentage of cases). The major predictor of long-term failure seems to be preoperative presence of urge urinary incontinence (47, 58, 60, 61). Irritative bladder symptoms, detrusor instability, and urge urinary incontinence often resolve after surgery for stress urinary incontinence (sling or otherwise); however, in many women, these symptoms persist. Mixed urinary incontinence with predominant urge symptoms often does not improve after surgery.

While most studies of urinary incontinence surgery include patients of widely varying age, the mean patient age is typically 55 to 60 years. Several studies that primarily included older adults were small (14 to 42 patients), had short follow-up (mean, 8 to 31 months), and tested only vaginal-wall slings (59, 60). Success rates ranged from 55% to 94%, and frequency of new detrusor instability or urge urinary incontinence was 21% to 24% (when reported). A trend toward worse outcomes for patients older than 80 years of age compared with patients 80 years of age or younger was seen in one study (60).

**Quality Indicator 10**

**Catheter Use**

If a vulnerable elder has clinically significant newly discovered overflow urinary incontinence and indwelling urethral catheterization is used, THEN there should be documentation that the patient is not a candidate for alternative interventions as a result of severe physical or mental impairments or does not want alternative interventions BECAUSE alternatives to indwelling urethral catheterization are effective and have lower morbidity.

**Supporting Evidence.** No direct evidence shows that adherence to this indicator will result in improved patient outcomes. However, on the basis of the known risk for urinary tract infections and other complications associated with long-term indwelling catheters and the lower risk associated with alternative methods, such as intermittent catheterization, an indirect argument can be made that consideration of alternatives should improve patient outcome. The AHCPR Guideline Update recommends this approach (1).

Catheterization is generally used only for short periods or when no other option exists for long-term management of overflow incontinence or urinary retention. Intermittent catheterization seems to be associated with a lower frequency of infection and renal stone formation than long-term indwelling urethral catheterization, although this has not been definitively proven. Bacteriuria is usually present 2 to 4 weeks after indwelling catheterization; over time, the risk for symptomatic urinary tract infection, sepsis, and death is significant. Other complications include obstruction caused by encrustation, leakage, unprescribed removal, pain, fistula formation, bladder spasms, urethral erosion, stone formation, epididymitis, urethritis, periurethral abscess, and renal damage. Since long-term indwelling urethral catheterization is associated with greater morbidity than intermittent catheterization, necessity for the former should be well established.

Because suprapubic catheterization avoids urethral complications, it may be preferable to long-term indwelling urethral catheterization. However, many elderly patients have unstable bladders or intrinsic sphincter deficiency, which would be a contraindication to this alternative. Potential complications of suprapubic catheterization include uncontrolled urine leakage, skin erosion, hematoma formation, and problems with catheter reinsertion.

**DISCUSSION**

This paper presents 10 quality indicators for care of patients with urinary incontinence. These indicators broadly span urinary incontinence, from identification to assessment and therapy. They may provide a baseline
for measures that can discriminate between quality and substandard care.

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