Screening for Urinary Incontinence in Women: A Recommendation From the Women's Preventive Services Initiative

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Description: Recommendation on screening for urinary incontinence in women by the Women’s Preventive Services Initiative (WPSI), a national coalition of women’s health professional organizations and patient representatives. The WPSI’s recommendations are intended to guide clinical practice and coverage of services for the Health Resources and Services Administration and other stakeholders. The target audience for this recommendation includes all clinicians providing preventive health care for women, particularly in primary care settings. This recommendation applies to women of all ages, as well as adolescents.

Methods: The WPSI developed this recommendation after evaluating evidence regarding the benefits and harms of screening for urinary incontinence in women. The evaluation included a systematic review of the accuracy of screening instruments and the benefits and harms of treatments. Indirect evidence was used to link screening and health outcomes in the chain of evidence that might support screening in the absence of direct evidence. The WPSI also considered the effect of screening on symptom progression and avoidance of costly and complex treatments, as well as implementation factors.

Recommendation: The WPSI recommends screening women for urinary incontinence annually. Screening ideally should assess whether women experience urinary incontinence and whether it affects their activities and quality of life. The WPSI recommends referring women for further evaluation and treatment if indicated.


to urinary incontinence adversely affects a woman’s physical, psychological, and social well-being by limiting participation in social gatherings and work activities, interfering with sexual function, and reducing independence (6). Associated medical conditions include urinary tract infections, skin ulceration, and fractures resulting from falls occurring at night or while rushing to avoid urge incontinence episodes.

Obesity (7–9) and a history of vaginal delivery (10) are important risk factors for urinary incontinence. Symptoms also are associated with potentially modifiable factors, such as smoking, caffeine consumption, diabetes, depression, vaginal atrophy, and constipation (11), as well as other factors, including menopausal status, hysterectomy, cognitive and functional impairment, and chronic medical conditions (12). In the United States, the direct cost of urinary incontinence care is approximately $19.5 billion (13), with direct medical and nonmedical costs of $51.4 billion (14). Approximately 6% of nursing home admissions of older women are attributed to urinary incontinence (15), costing $3 billion per year (15).

Despite its high rates and adverse effects on health, well-being, and function, urinary incontinence is underreported by women and therefore infrequently recognized by clinicians. In a survey, approximately 55% of women with urinary incontinence did not report symptoms to their health care providers (6) because of embarrassment, stigma, or acceptance as normal. However, symptoms may be treated by behavioral, nonpharmacologic (16), pharmacologic (16–18), and surgical interventions, depending on the type and severity of incontinence and patient preferences. Early intervention may reduce symptom progression, improve immediate and long-term quality of life, and limit the need for more complex and costly treatment (19).

**Women’s Preventive Services Initiative**

The Women’s Preventive Services Initiative (WPSI) is a national coalition of 21 health professional organizations and patient representatives that develops, reviews, updates, and disseminates evidence-based clinical recommendations for women’s preventive health care services in the United States (20).

The WPSI is supported by the U.S. Department of Health and Human Services, Health Resources and Services Administration (HRSA), and is led by the American College of Obstetricians and Gynecologists (ACOG). It was launched in 2016 to continue the work of the former...
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CLINICAL GUIDELINE

Figure. Organizational structure of the WPSI.

Advisory Panel
ACOG, ACP, AAFP, NPWH, previous IOM members, and Pacific Northwest EPC

Multidisciplinary Steering Committee
Coalition of national provider organizations, public health professionals, consumer organizations, patients, methodologists, content experts, and providers with expertise across a woman’s lifespan

Implementation Steering Committee
Coalition of national and local provider and consumer organizations and patient representatives that implements and disseminates preventive care recommendations from WPSI adopted by HRSA

American Academy of Family Physicians; ACOG = American College of Obstetricians and Gynecologists; ACP = American College of Physicians; EPC = Evidence-based Practice Center; HRSA = Health Resources and Services Administration; IOM = Institute of Medicine; NPWH = National Association of Nurse Practitioners in Women’s Health; WPSI = Women’s Preventive Services Initiative.

The WPSI based its rationale for urinary incontinence screening on several considerations. Screening has the potential to identify urinary incontinence in many women who silently experience its adverse effects but may benefit from appropriate evaluation and treatment. Effective screening may lead to earlier or more timely treatment, including behavioral, medical, and surgical interventions, depending on the patient’s age and the type and severity of symptoms.

RECOMMENDATION FOCUS AND TARGET POPULATION

This is a new recommendation based on evidence of the benefits and harms of screening for urinary incontinence in women, including a new systematic review of the accuracy of screening instruments (26) and recently published systematic reviews on the benefits and harms of treatments. The evidence on urinary incontinence screening was not evaluated previously in a scientific review, and no clinical practice guidelines exist for screening. Previous guidelines developed by different professional organizations (12, 16, 18, 27, 28) addressed women with symptoms who are referred for diagnostic evaluation and treatment, not screening. The target audience for this recommendation includes all clinicians providing preventive health care for women, particularly in primary care settings. This recommendation applies to women of all ages, as well as adolescents.

METHODS

WPSI Topic Selection and Recommendation Development

The Evidence-based Practice Center methods of evidence review (25) are adapted from the USPSTF (29) and the previous IOM Panel on Preventive Services for Women (21). Details on methods, processes, and funding are available on a public Web site (20).

The WPSI is overseen by an advisory panel of representatives from ACOG, the American Academy of Family Physicians, the American College of Physicians, and the National Association of Nurse Practitioners in Women’s Health.
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Women’s Health, representing most women’s health care providers in the United States (Figure). In addition, 3 experts in women’s preventive health care and evidence review serve on the advisory panel. Members of the Multidisciplinary Steering Committee are invited representatives of 21 women’s health professional organizations and patients who select topics and develop and vote on recommendations. A separate Implementation Steering Committee plans dissemination. Scientific review of evidence is conducted by the Pacific Northwest Evidence-based Practice Center Committee, and conflicts of interest are evaluated before appointment and annually by the advisory panel, which determines eligibility for participation after an ACOG process.

The WPSI selects topics that fill gaps in existing screening and prevention guidelines and that meet eligibility criteria. Criteria include conditions that affect a broad population of women; that are specific, more common, more serious, or differ in women; and for which prevention would have a large potential effect on women’s health and well-being. Additional criteria require that the health service be a primary or secondary prevention service feasible for practice in the United States, including screening, counseling, immunization, and preventive medication or therapy, and that the quality and strength of evidence directly or indirectly support its effectiveness.

The topic of urinary incontinence screening was selected by a vote of the Multidisciplinary Steering Committee members. The scope and key questions were developed by the advisory panel with additional input from subject experts. A systematic review addressing the key questions was conducted by the Pacific Northwest Evidence-based Practice Center Committee and presented to the WPSI Multidisciplinary Steering Committee at an in-person meeting (26, 29).

Members discussed the strengths and limitations of the evidence for urinary incontinence screening, including weighing the benefits and harms. The committee considered the quality and applicability of direct evidence indicating benefits and harms of screening on health outcomes, indirect evidence of the validity of screening instruments, and the effectiveness and adverse effects of treatments for urinary incontinence. Health outcomes included improved symptoms, function, and quality of life. Indirect evidence was used to link screening and health outcomes in the chain of evidence that might support screening in the absence of direct evidence. The committee also considered the effect of screening on symptom progression and avoidance of costly and complex treatments, as well as implementation factors.

The WPSI recommendations are based on reaching a threshold of supportive evidence, similar to the previous IOM panel (21). Once the draft recommendation was developed, it was made available online to the public for a 6-week comment period. The committee reviewed and considered all submitted comments before voting on the final recommendation. At least 75% agreement from all voting committee members was required for adoption. The recommendation for annual urinary incontinence screening in women was adopted by HRSA in December 2017 and will be incorporated into the summary of covered benefits for preventive services without cost sharing, as required by the Affordable Care Act. Covered benefits apply to non-grandfathered group health plans and issuers of non-grandfathered group and individual health insurance coverage.

Evidence Review

The systematic review focused on key questions about urinary incontinence screening in women not previously diagnosed and not currently pregnant. Key questions included the effectiveness of urinary incontinence screening in improving symptoms, quality of life, and function and the accuracy and adverse effects of screening methods, including differences across population subgroups. Two contextual questions regarding the effectiveness and adverse effects of urinary incontinence treatments were addressed by recently published systematic reviews (17, 30–39). Details of the systematic review and contextual questions are summarized in a technical report and accompanying article (26).

The systematic review identified no studies directly evaluating the effectiveness or adverse effects of screening. Consequently, the review focused on indirect evidence of the diagnostic accuracy of screening tests and the effectiveness and adverse effects of treatment.

Accuracy of Screening Methods

Seventeen studies evaluated the accuracy of 18 screening methods against a clinical diagnosis of incontinence or diagnostic test results (Table 1) (26, 40–56). Screening methods included brief clinician- or self-administered questionnaires describing symptoms. Responses typically were scored by using a Likert scale or other point system. Diagnostic cut points were de-

<table>
<thead>
<tr>
<th>Instrument</th>
<th>Reference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Actionable Bladder Symptom Screening Tool</td>
<td>45</td>
</tr>
<tr>
<td>Bladder Control Self-Assessment Questionnaire</td>
<td>40</td>
</tr>
<tr>
<td>Bristol Female Lower Urinary Tract Symptoms questionnaire</td>
<td>67</td>
</tr>
<tr>
<td>Detrusor instability score</td>
<td>68</td>
</tr>
<tr>
<td>Gaudenz-Incontinence-Questionnaire</td>
<td>48</td>
</tr>
<tr>
<td>Incontinence screening questionnaire</td>
<td>47</td>
</tr>
<tr>
<td>Michigan Incontinence Symptom Index</td>
<td>55</td>
</tr>
<tr>
<td>1 question</td>
<td>56</td>
</tr>
<tr>
<td>Overactive Bladder Awareness Tool</td>
<td>69</td>
</tr>
<tr>
<td>Questionnaire for Urinary Incontinence Diagnosis</td>
<td>43</td>
</tr>
<tr>
<td>Questionnaire</td>
<td>41</td>
</tr>
<tr>
<td>3 Incontinence Questions</td>
<td>44</td>
</tr>
<tr>
<td>Self-report</td>
<td>42, 46, 50</td>
</tr>
<tr>
<td>Symptoms</td>
<td>54</td>
</tr>
<tr>
<td>Urgency score</td>
<td>52</td>
</tr>
<tr>
<td>6-item Urogenital Distress Inventory</td>
<td>70, 71</td>
</tr>
</tbody>
</table>

* Boldface indicates studies that are most applicable to screening in primary care settings.

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### Table 2. Strength of Evidence

<table>
<thead>
<tr>
<th>Question</th>
<th>Number of Studies and Designs</th>
<th>Summary of Findings</th>
<th>Limitations</th>
<th>Strength of Evidence*</th>
<th>Overall Applicability†</th>
</tr>
</thead>
<tbody>
<tr>
<td>KQ 1. Effectiveness of screening for urinary incontinence in improving symptoms, quality of life, and function</td>
<td>No studies</td>
<td>Not applicable</td>
<td>Not applicable</td>
<td>Insufficient</td>
<td>Insufficient</td>
</tr>
<tr>
<td>KQ 2a. Accuracy of methods to screen for urinary incontinence; differences between subgroups</td>
<td>17 diagnostic accuracy studies of 18 different methods (n = 4542)</td>
<td>Accuracy measures varied across methods. Of studies most applicable to screening, AUROC estimates ranged from 0.68 to 0.88 (MISI, B-SAQ, and OAB-V8).</td>
<td>Narrow patient spectrum (symptomatic referral population), the reference standard was not credible or replicable, nonblinded outcome assessment was used, and each method was tested in only 1 small study</td>
<td>Low</td>
<td>Low</td>
</tr>
<tr>
<td>KQ 2b. Adverse effects of screening</td>
<td>No studies</td>
<td>Not applicable</td>
<td>Not applicable</td>
<td>Insufficient</td>
<td>Insufficient</td>
</tr>
<tr>
<td>KQ 3a. Accuracy of diagnostic methods in women with urinary incontinence detected by screening</td>
<td>No studies</td>
<td>Not applicable</td>
<td>Not applicable</td>
<td>Insufficient</td>
<td>Insufficient</td>
</tr>
<tr>
<td>KQ 3b. Adverse effects of diagnostic methods in women with urinary incontinence detected by screening</td>
<td>No studies</td>
<td>Not applicable</td>
<td>Not applicable</td>
<td>Insufficient</td>
<td>Insufficient</td>
</tr>
<tr>
<td>CQ 1. Effectiveness of treatments for urinary incontinence in improving symptoms, quality of life, and function</td>
<td>10 systematic reviews and 1 narrative review</td>
<td>Effective treatments include weight loss, pelvic floor muscle training, medications (duloxetine, tolterodine, darifenacin, solifenacin, and fosoterodine), and surgical interventions (synthetic midurethral mesh slings, urethral bulking agents, retropubic suspension, and fascial slings) for selected cases of stress incontinence. Ineffective treatments include fluid restriction, bladder training, and intravaginal or intraurethral devices.</td>
<td>Number and quality of trials vary by treatment; the magnitude of effect for medications is low (absolute risk difference &lt;20% for all drugs)</td>
<td>Low to moderate depending on treatment</td>
<td>Moderate</td>
</tr>
<tr>
<td>CQ 2. Adverse effects of treatments for urinary incontinence</td>
<td>10 systematic reviews and 1 narrative review</td>
<td>Discontinuation rates and adverse effects, including dry mouth, constipation, heatburn, and urinary retention, are more common with medications; information on long-term safety is unavailable. Adverse effects with nonpharmacologic/nonsurgical treatments are uncommon. Surgical complications include direct injury to the lower urinary tract and hemorrhage, infection, bowel injury, or wound complications.</td>
<td>Information on long-term medication safety is unavailable</td>
<td>Low to moderate depending on treatment</td>
<td>Moderate</td>
</tr>
</tbody>
</table>

AUROC = area under the receiver-operating characteristic curve; B-SAQ = Bladder Control Self-Assessment Questionnaire; CQ = clinical question; KQ = key question; MISI = Michigan Incontinence Symptom Index; OAB-V8 = Overactive Bladder Awareness Tool.

* “High” indicates high confidence that the evidence reflects the true effect; further research is very unlikely to change confidence in the estimate of effect. “Moderate” indicates moderate confidence that the evidence reflects the true effect; further research may change confidence in the estimate of effect and may change the estimate. “Low” indicates low confidence that the evidence reflects the true effect; further research is likely to change confidence in the estimate of effect and is likely to change the estimate. “Insufficient” indicates that evidence is either unavailable or does not permit a conclusion.

† Describes how well the overall body of evidence would apply to the U.S. population on the basis of settings, populations, and intervention characteristics (high, moderate, low, and insufficient).
Effectiveness of Treatment

The effectiveness of treatments for urinary incontinence has been evaluated in systematic reviews of surgical (30, 32, 33, 57) and nonsurgical (17, 34, 36, 37, 58, 59) interventions. In addition, a narrative review recently summarized some of the most commonly used treatments and highlighted an approach to initiate conservative and medical therapy while incorporating patient preference into evaluation and treatment (11).

Randomized trials and observational studies indicate that weight loss improves urinary incontinence symptoms in women who are obese, particularly those with stress versus urge incontinence (34, 58, 59). Women who received pelvic floor muscle training were more likely than control participants to report cure or symptom improvement and had better satisfaction and quality of life (36). In these studies, pelvic floor muscle training was defined as a program of repeated voluntary pelvic floor muscle contractions taught and supervised by a health care professional. Intravaginal or intrarethral devices for treating incontinence were not effective in trials, although studies enrolled few participants, had short follow-ups, and were otherwise methodologically limited (17, 39).

In randomized trials, medications were more effective than placebo in improving continence, but the magnitude of the effect was low (absolute risk difference, <20% for all medications) (17, 37). Two agents (solifenacin and fesoterodine) demonstrated dose-response effects on symptom improvement in treatment versus control groups (17).

Surgical interventions generally are reserved for women whose symptoms do not improve sufficiently with more conservative therapies but may be the first treatment choice depending on the severity and cause of symptoms (57). Synthetic midurethral mesh slings are the most common primary surgical treatment for stress incontinence (16). Other surgical options include urethral bulking agents, retropubic suspension, and fascial slings, although trials using these approaches were methodologically limited (60–62).

Assessment of Benefits and Harms

In the absence of direct evidence of the benefits and harms of screening, the WPSI based its recommendation on the high prevalence of urinary incontinence in women; its effect on health, quality of life, and function; and indirect evidence on the accuracy of tests that may be used for screening in primary care settings and the effectiveness and harms of treatment.

A summary of evidence is presented in Table 2. On the basis of 17 studies of 18 screening methods that might be used in clinical settings, the WPSI determined that the strength of evidence is low regarding the accuracy of brief clinician- or self-administered questionnaires in identifying women with urinary incontinence. Methods used in studies that did not recruit participants on the basis of incontinence symptoms are more applicable to population screening than those investigated in trials recruiting patients from specialty clinics.

The WPSI determined that the strength of evidence ranges from low to moderate for the effectiveness of treatment and low to moderate for adverse effects, depending on specific treatments. How participants in the treatment trials were identified and diagnosed with urinary incontinence is unclear, but the applicability of the studies is probably moderate overall. Although the magnitude of treatment effects was modest in the trials, any improvement in symptoms might have an important effect on a woman’s life. Adverse effects varied from none with behavioral interventions to serious complications from surgical interventions. The adverse effects of pharmaceutical treatments are common and...
RECOMMENDATION

The WPSI recommends screening women for urinary incontinence annually. Screening ideally should assess whether women experience urinary incontinence and whether it affects their activities and quality of life. The WPSI recommends referring women for further evaluation and treatment if indicated.

The WPSI provides additional guidance regarding the decision to implement screening. It recommends that although increasing parity, advancing age, and obesity are associated with an increased risk for urinary incontinence, these factors should not be used to limit screening. Screening tools demonstrate fair to high accuracy in identifying urinary incontinence in women. Although minimum screening intervals are unknown, given the prevalence of urinary incontinence, that many women do not volunteer symptoms, and the multiple, frequently changing risk factors associated with incontinence, annual testing is reasonable.

Screening should include the use of validated assessment instruments that include questions about whether a woman has symptoms of urinary incontinence; the type and degree of incontinence; and how symptoms affect her health, function, and quality of life. Several brief clinician- or self-administered questionnaires for primary care settings identify women with stress, urge, or mixed incontinence and may be used to guide diagnostic evaluations and management.

In a previous recommendation adopted by HRSA, the WPSI advised that women receive at least 1 preventive health care visit each year beginning in adolescence and continuing across the lifespan (65). The primary purpose of this visit is the delivery and coordination of recommended preventive services as determined by age and risk factors. The preventive health visit may be an opportunity to screen for urinary incontinence, potentially including the questions on an intake form or in a check-in process.

FUTURE RESEARCH

So far, no trials have been conducted on the effectiveness and harms of urinary incontinence screening to improve symptoms, quality of life, and function. Although screening recommendations for other conditions, such as osteoporosis (66), also lack screening effectiveness trials, this research would strengthen the evidence base. In addition, studies on the incidence and prevalence of urinary incontinence are needed to better identify risk factors over the life course, as well as factors related to progression, and to assess differences among women on the basis of sociodemographic and other characteristics. This information would help target screening efforts. Additional research on the feasibility, accuracy, and effectiveness of screening instruments in larger, more diverse screening populations is needed to establish a standardized screening method and reference standards that could be widely implemented in routine practice. More studies, including head-to-head trials comparing the effectiveness and adverse effects of various treatments, as well as combinations and sequences of treatments, are needed to improve patient and clinician decision making. Information on long-term drug safety is currently unavailable but necessary to more accurately weigh the benefits and harms of screening.

CONCLUSION

Urinary incontinence adversely affects health, quality of life, and function for most women at some point in their lives, yet it is underdiagnosed and undertreated in the United States. Standardized screening in routine clinical practice, particularly as part of a preventive health care visit, has the potential to identify affected women and initiate diagnostic evaluations and treatment. No clinical recommendations addressing routine screening for urinary incontinence have been issued from guideline groups, although recommendations for diagnostic evaluations and treatment are available and have generally been accepted as standards of care. The implementation of universal screening through the use of a brief questionnaire might identify symptoms of urinary incontinence before they further affect women’s lives.
CLINICAL GUIDELINE

From American College of Obstetricians and Gynecologists, Washington, DC (N.O., J.M.C., C.Z.); Oregon Health & Science University, Portland, Oregon (H.D.N.); American Academy of Family Physicians, Leawood, Kansas (J.F.); Cedars-Sinai Medical Center, Los Angeles, California (K.D.G.); National Association of Nurse Practitioners in Women’s Health, Washington, DC (S.M.K.); Women and Infants Hospital of Rhode Island, Providence, Rhode Island (M.P.); Kaiser Family Foundation, Menlo Park, California (A.S.); California Department of Public Health, Sacramento, California (D.R.); and American College of Physicians, Philadelphia, Pennslyvania (A.Q.).

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Current author addresses and author contributions are available at Annals.org.

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Clinical Guideline

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