

The Role of the Ob/Gyn in Evaluating and Managing Urinary Incontinence

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The Role of the Ob/Gyn in Evaluating and Managing Urinary Incontinence

By Mickey Karram, MD • Patrick Culligan, MD • Steven J. Fleischman, MD

With the aging of the female population and a new openness about urogynecologic health, Ob/Gyns are beginning to appreciate that urinary incontinence is a common problem in women. Here, 3 experts discuss the prevalence and economic impact of incontinence in America, as well as the basics of office and urodynamic assessment and therapeutic options. ■

Demographics and economic impact

Karram: As the National Institutes of Health (NIH) noted in its 1988 consensus statement, it is difficult to ascertain the true prevalence of urinary incontinence (UI) because it tends to vary with the study population and with the manner in which UI is defined.¹ Further, only about 50% of community-dwelling individuals with the disorder consult a physician.¹ Keeping this in mind, estimates of prevalence range from 8% to 51% for community-dwelling individuals, with as many as 25% of them suffering from severe UI.¹ In nursing homes, at least 50% of individuals have UI.¹ Other experts put the number of Americans with UI as high as 15 million.²

Culligan: As you would expect, the prevalence is greatest in older women. For example, a study by Brown et al involving more than 2,700 postmenopausal women found that 56% reported weekly incontinence.³ And Olsen and colleagues estimated that a woman in this country has an 11.1% lifetime risk of undergoing an operation for incontinence or prolapse.⁴

Fleischman: I've seen estimates that the prevalence of UI is 6 to 10 times greater in women than in men, although it is probably closer when you break it down by age. In both men and women, the prevalence of UI increases with age.

And as the population ages, the scope of the problem is likely to increase further. In 1994, roughly 13% of the female population was over 65. By 2040, that figure is expected to approach 22%.⁵ Women are living longer and are more active; they want to maintain a higher quality of life.

Karram: UI also can affect women at younger ages, whether it is caused by congenital abnormalities or extreme levels of exercise. However, the majority of problems occur after the childbearing years.

Unfortunately, women typically are reluctant to come "out of the closet" about pelvic-floor dysfunction unless they are specifically asked about it. Even then, some women are embarrassed to discuss it with their physician, or do not mention it because they think incontinence is a normal part of aging.

Fleischman: I recently joined a practice where no one previously had a specific interest in UI. Now that I am on the team, and willing to care for these patients, it is becoming a much more "common" complaint. That is, now that the other physicians are beginning to ask patients directly about it, more of them report symptoms of UI.

Karram: According to one study, the costs of diagnosing and managing UI exceed \$26 billion annually in the United States alone.⁶ And adult diaper sales total \$5 to \$6 billion a year.

UI tends to have a snowball effect. That is, as the patient leaks, she becomes depressed, stops exercising, gains weight, and so on. Obviously, it's very difficult to place a dollar value on the full effects of UI.

When UI goes untreated, the costs are even greater. One estimate of the annual costs of not treating UI was \$3,941 per person.⁷

Who women consult

Karram: When they do report UI symptoms, who do women consult? I think

Mickey Karram, MD



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Patrick Culligan, MD



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the answer depends largely on their age. During the reproductive years, women tend to consult their Ob/Gyn.

Fleischman: Yes. Most of us continue to monitor our patients from a gynecologic standpoint long after we deliver their infants. Thus, it is more logical for a woman to consult her Ob/Gyn about this problem rather than a family practitioner or urologist—at least initially.

Karram: Another reason is that UI is very commonly accompanied by pelvic-floor dysfunction in general—in the form of prolapse or defecatory dysfunction—so it makes sense for the Ob/Gyn to oversee the evaluation, including the relationship of UI to other potential problems. In these cases, the Ob/Gyn can do 1 of 2 things: evaluate and manage the patient or appropriately refer.

Culligan: When it comes to surgery, particularly for stress incontinence, the operation often is done in coordination with another gynecologic procedure. So, if one person—namely, the gynecologist—can handle the entire case, it typically leads to better care.

Karram: There are no clear-cut criteria barring primary-care physicians from identifying and nonsurgically treating women with incontinence. When it comes to the OBG generalist, the most important variable is his or her comfort level. Obviously, some Ob/Gyns are very comfortable handling all aspects of the evaluation and management of female incontinence, particularly those who were trained to do so during residency.

Fleischman: Many physicians have felt uncomfortable managing UI and thus avoid asking patients about it. But I wouldn't expect more patients to show up with this problem once we start asking about it. They are already coming—they just aren't talking about it.

Culligan: I think many Ob/Gyns see UI as a sort of Pandora's box, since proper evaluation takes a good 20 to 30 minutes. It is not possible to spend that amount of extra time evaluating women

for UI during their annual visit or a shorter, problem-oriented visit. Moreover, UI has many possible causes and a wide range of treatment options. But the evaluation and management of UI don't have to be overwhelming, as long as the physician has planned the time required.

Types of incontinence

Karram: When Walters et al studied the types of UI seen by nonreferral, general Ob/Gyns, they found that 90% to 95% of cases were secondary to stress incontinence, detrusor instability (urge incontinence or overactive bladder), or a combination of both (mixed incontinence).⁸ Although it is difficult to get a precise estimate of the prevalence of each of these types of UI, it probably breaks down as approximately 70% for stress incontinence or mixed incontinence and 30% for urge incontinence.

Fleischman: I've seen estimates in the neighborhood of 50% to 60% for genuine stress incontinence, with mixed incontinence coming in second. That's because some patients with genuine stress incontinence also have some degree of urge incontinence.⁹

Karram: While we can objectively diagnose stress incontinence at least 90% of the time, it is difficult to determine whether a patient has a compliance abnormality without a cystometrogram (CMG). Even with a sophisticated subtracted CMG, uninhibited bladder contractions are only demonstrated 20% to 30% of the time. That's because the urodynamic laboratory or office setting usually is unable to reproduce the conditions that provoke the patient's incontinence on a daily basis.

Culligan: The term "overactive bladder," coined by industry, is useful because it encompasses frequency, urgency, nocturia, and urge incontinence.

Karram: Stress incontinence can be caused by an anatomic abnormality, a problem with the urethra, or a combination of both. For example, let's say a 35-year-old woman has a small cystocele,

bladder-neck mobility, and urethral function tests not indicative of sphincter deficiency. She most likely has a fairly healthy urethra that is moving when her intra-abdominal pressure increases. If a surgical procedure can stabilize her urethra, her incontinence is likely to be corrected.

Another example would be a 60-year-old woman with intrinsic sphincteric deficiency (ISD) who presents with severe UI—her urethra is completely open. She has undergone a couple of operations and radiation therapy for cervical cancer. Her urethral function tests are highly indicative of a poorly functioning sphincter. Every time she takes a step, she leaks urine. You could tack that urethra to the patient's tonsils and the patient would still leak urine. To create continence, you'd have to obstruct or bulk up the urethra.

Those are the 2 extremes. What is difficult sometimes is assessing cases that fall in between these points.

Culligan: A few things that contribute to ISD are advanced age, inadequate estrogen, neurologic lesions, and previous vaginal surgery. It is diagnosed by noting the severity of symptoms and conducting specialized urodynamic testing, possibly including cystourethroscopy.

Karram: As for urge incontinence, it's important to remember that the bladder is nothing more than voluntary smooth muscle. Thus, it should have the inherent ability to maintain a very low pressure with filling. When that pressure-volume relationship gets out of balance, and the detrusor muscle contracts involuntarily, urgency and urge incontinence result. Most of the time, urge incontinence is an idiopathic condition. Since it is not easily diagnosed in the urodynamic laboratory, it is important to take the patient's symptoms into account.

Evaluation and diagnosis

Culligan: I usually begin by asking the patient: "Do you leak urine or have bladder problems that are bothersome?" One way to handle a positive response is for the Ob/Gyn to say: "It takes time to evaluate these kinds of problems. I'd like you

to fill out a history questionnaire and keep a voiding diary. Then we'll schedule a visit where all we do is focus on this issue."

Karram: The first thing you want to do is make sure you are dealing with a "run-of-the-mill" type of incontinence, rather than a fistula or other rare problem. The history, voiding diary, and a quality-of-life assessment should help the physician get a feel for the scope of the incontinence (*Tables 1 and 2*). For the voiding or "bladder" diary, the woman records the times and volumes of spontaneous voids over 1 to 3 days. In some instances, she also notes any precipitating factors or sense of urgency, as well as details on fluid intake. The diary corroborates the patient's history and helps assess the scope and severity of the patient's UI. It also is a good way of educating and involving the patient in the evaluation process.

What a particular patient is willing to do to correct her incontinence can vary considerably. One woman who leaks urine once a week when she does aerobic exercise may be willing to go to great lengths to get the problem fixed. The flip side is a woman who goes through 5 pads a day but doesn't think her leakage bothers her enough to undergo any therapy. So I think the physician needs to consider quality of life from the patient's point of view and determine how aggressive an intervention is warranted for a particular patient.

Culligan: It also is key to establish a baseline because, unfortunately, you're not going to be able to fix every patient on the first attempt, especially those with overactive bladder. If you have a firmly established baseline, you can refer back to it to demonstrate how much the

Types of urinary incontinence

Simply put, urinary incontinence (UI) is the involuntary loss of bladder control. As the National Association for Continence points out, UI is a symptom, not a disease, and can be caused by many conditions (*Table 2*).

Genuine stress incontinence. Stress incontinence can be a symptom (the patient reports that she loses urine with coughing, exercising, etc.), a sign (there is a visible loss of urine from the urethra when the patient coughs or strains), or a condition termed genuine stress incontinence (GSUI, an involuntary loss of urine simultaneous with a rise in intra-abdominal pressure in the absence of any rise in detrusor pressure). The most common therapy for GSUI is surgery, usually a retropubic urethropexy or some form of suburethral sling.

Urge incontinence. When a strong urge to void is accompanied by an uninhibited detrusor contraction, urge incontinence results. In some cases, i.e., when detrusor contractions continue until the bladder is empty, a substantial amount of urine is lost. Treatment generally is behavioral, e.g., bladder retraining and pelvic-floor rehabilitation, in conjunction with anticholinergic medications.

Mixed incontinence. As its name implies, mixed incontinence includes some degree of both stress and urge incontinence.

Overflow incontinence. When the bladder is overdistended with urine, overflow incontinence results—with or without a detrusor contraction.

Neurogenic bladder. This encompasses any bladder abnormality secondary to neurologic disease, i.e., spinal cord lesions, strokes, and multiple sclerosis.

Steven J. Fleischman, MD



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patient has improved—to show you're heading in the right direction.

The physical examination

Fleischman: In the general physical exam, I note the patient's age, estrogen status, and any risk factors. I also try to assess her nutritional status, since obese patients will have a significantly tougher time with some of the management options such as surgery. Mental or neurologic status also is important, including mobility and gait.

I do a basic evaluation of the patient's lower thoracic, lumbar, and sacral nerves to rule out sensory or motor dysfunction that may affect the bladder, urethra, and pelvic muscles. I evaluate motor function by asking the patient to flex and extend against resistance at the hip, knee, and ankle. I assess the sensory reflexes by examining the bulbocavernosus muscle and checking the anal-wink reflex. I evaluate the pelvic musculature by inserting my fingers in the vagina and asking the patient to squeeze, simulating a Kegel exercise.

When examining the vulva, I look for signs of atrophy, which can worsen the symptoms of UI. Similarly, vaginitis can lead to urgency or frequency symptoms that can mimic detrusor instability. When examining the urethra, I look for diverticula or tenderness suggestive of urethritis. I also look for evidence of urine in the vagina, which may indicate the presence of a genitourinary fistula.

In addition, I look for evidence of prolapse—a rectocele or cystocele, uterine prolapse, or vault prolapse if the patient has undergone hysterectomy. My primary aim in the initial exam is to get a sense of whether the vaginal wall defects are lateral or central, or whether there is any descent of the perineum or a combination of defects. Based on the findings of the physical, a Pap smear or fecal occult blood test may be necessary. All patients with urinary symp-

toms will have a basic urinalysis and urine culture.

Culligan: What about assessing urethral mobility?

Karram: A lot of people use an angle of 30 degrees as the cutoff for the cotton-swab test, but there really are no data indicating different surgical outcomes if the patient strains to 25 degrees versus 40 degrees. I do think it is important to assess urethral mobility, primarily to verify that the urethra is hypermobile if surgery is aimed at stabilizing the bladder neck. But the cotton swab isn't a diagnostic test. Nor does it necessarily predict outcome. Many women with urethral hypermobility are completely continent.

Culligan: I also do a stress test. That is, I ask the patient to cough several times in the lithotomy or standing position while her bladder is subjectively full (300 mL or so) to determine whether she leaks urine. In addition, I measure her post-void residual volume using a catheter.

Karram: A simple office evaluation—a “poor man” or “eyeball” CMG—to assess lower-urinary-tract function is within the capability of every Ob/Gyn. This study is done by asking the patient to come in with a full bladder. She goes into the bathroom to void into a Texas hat. When she comes out, a catheter is inserted to get a post-void residual. A normal woman should spontaneously void at least 80% of her total bladder volume. A sample of urine is checked for infection. Then, with the catheter in place, the bladder is filled retrograde by pouring water into an aseptically syringe. The column of water is observed as the bladder is filled by gravity, as any fluctuation in the column of water may be indicative of a bladder contraction. Once the bladder is subjectively full, the catheter is removed and the patient is asked to cough and strain.

It's also good to look for general conditions or circumstances that may be contributing to incontinence. For example, an elderly patient who has suddenly lost her mobility and ability to toilet on a regular basis will become incontinent secondary to detrusor instability.

TABLE 1

Differential diagnosis of urinary incontinence

Genitourinary etiology

- Genuine stress incontinence
 - Urethral hypermobility
 - Intrinsic sphincteric deficiency
- Detrusor instability (idiopathic)
- Detrusor hyperreflexia (neurogenic)
- Mixed incontinence
- Overflow incontinence
- Fistula (vesical, urethral, ureteral)
- Congenital

Non-genitourinary etiology

- Functional
- Neurologic
- Pathologic
- Cognitive
- Environmental
- Pharmacologic
- Metabolic

In addition, pelvic-organ prolapse, which is very common, can create anatomic distortion that obscures underlying incontinence. That is, as various segments of the vagina prolapse, they can compress or kink the urethra and mask some incontinence.

There is no clear correlation between UI and prolapse, but there is some overlap. Also, as the prolapse advances, patients tend to have more irritative symptoms such as frequency and urgency.

Urodynamic testing

Karram: How important is urodynamic assessment in the evaluation of incontinence? Let's define urodynamics as an electronic study—one that leaves you with a hard copy of a graph or other chart—above and beyond the eyeball CMG we mentioned.

Culligan: Recent data suggest that, compared with the eyeball exam, urodynamics is unlikely to change a physician's management plan. Nevertheless, I think both patient and doctor benefit from electronic studies. The patient benefits in terms of preoperative counseling, since urodynamics offers greater sensitivity in assessing detrusor stability and voiding function. This makes it possible to more precisely predict the degree to which a patient's problems will persist after surgery. That makes her a happier person and a more cooperative partner in her care. Medicolegally speaking, it makes sense to identify detrusor instability and voiding dysfunction preoperatively so that you can properly counsel the patient before her surgery.

In general, I consider urodynamics testing a preoperative evaluation, especially for general Ob/Gyns.

Karram: I agree. I feel comfortable treating patients nonsurgically based on the eyeball study. However, if surgery is planned, I like to have at least a subtracted CMG. In other words, I measure intra-abdominal pressure via a vaginal or rectal electrode, and the machine subtracts that figure from the intravesical pressure to determine the true detrusor pressure. There are numerous small machines that perform

this function. At a minimum, I want to objectively demonstrate that the patient has genuine stress incontinence and assess for any potential bladder-compliance abnormalities.

Fleischman: I do urodynamic testing in the office setting on about 90% of my surgical patients. Occasionally, if a young, healthy, multiparous patient comes in complaining primarily of stress incontinence, I operate without urodynamic evaluation, provided there is no significant prolapse. For initial medical and nonpharmacologic management, urodynamics aren't always necessary. But I wouldn't operate without doing at least the eyeball test.

Culligan: Some people say it boils down to a question of whether the physician would alter the intervention based on an electronic study. If the answer is no, what's the value of urodynamics? I believe it enhances patient satisfaction. If a patient knows what to expect ahead of time in terms of urge incontinence or voiding dysfunction—both devastating conditions to have after surgery—she will be a lot better off.

Fleischman: I find that urodynamic testing gives me more time with the patient and enables me to graphically demonstrate why she is leaking. For example, if a patient has no sensation during the filling of her bladder until it contains 350 cc of fluid, then has to void at 375 cc, I can talk to her about timed voiding.

Karram: In general, most would agree that electronic studies are warranted when a patient has failed previous therapy that was based on an eyeball study or has undergone a previous operation and is considering another.

TABLE 2

The history and laboratory studies

History

Underlying neuromuscular or systemic disorders:

- Diabetes mellitus
- Thyroid disease
- Multiple sclerosis
- Stroke
- Back pain or injuries
- Surgery

Medications

- Alpha methyl dopa*
- Prazosin*
- Phenothiazines*
- Diazepam*
- Diuretics
- Antihistamines
- Anticholinergic agents
- Dosage increases

Laboratory studies

- Urinalysis
- Urine culture
- Pap smear**
- Fecal occult blood test**

*May cause stress incontinence by decreasing urethral smooth or skeletal muscle tone
**Per general age-appropriate screening guidelines

SOURCE: American College of Obstetricians and Gynecologists. *Urinary incontinence*. ACOG Technical Bulletin #213. Washington, DC: ACOG; 1995.

Fleischman: They also are warranted in patients with advanced pelvic prolapse—whether or not they're incontinent—prior to operating.

Culligan: Or if something doesn't jibe. For example, if the bladder diary or history suggests urge-type symptoms.

Karram: What about the price of these machines? Is it cost-effective for an Ob/Gyn to go out and buy one? In my opinion, if the Ob/Gyn is taking the history, performing the exam, doing the eye-ball study, and performing the surgery, it makes sense to do urodynamic testing as well. There are many different machines to choose from, with a wide range of costs. And most of the necessary expertise can be taught fairly easily to a nurse, physician assistant, or nurse-practitioner.

Case study #1: How much evaluation is warranted?

A 55-year-old woman presents with straightforward stress incontinence and mild, asymptomatic pelvic organ prolapse. How much evaluation is necessary? If the stress incontinence is to be corrected surgically, should the asymptomatic prolapse be addressed?

Karram: If nonsurgical intervention is sought by this patient for her stress incontinence, only minimal evaluation is necessary. For surgical correction, in my opinion, the incontinence should be objectively proven with a preoperative urodynamic study. However, if the patient is only voiding 6 or 7 times a day; is free of urgency, frequency, and urge incontinence; has a normal post-void residual; and leaks urine when she coughs, a physician conceivably could operate without doing much more of an evaluation, as the chance of detrusor instability being the etiology of her incontinence is very slim.

What are your thoughts? Let's say this patient wants to have her incontinence surgically repaired, but also has a small, asymptomatic cystocele or rectocele, or limited uterine prolapse.

Fleischman: It depends on the patient's level of functioning, as well as the type of procedure performed. Let's say the patient is leaking urine every time she exercises. If I do a Burch procedure, I'm likely to worsen the prolapse, or the prolapse may become more symptomatic once the leaking is corrected.

Karram: That's a good point. If the surgical procedure is likely to anatomically distort the vagina—as the Burch procedure is—the opposite side of the vagina will be weakened. Thus, the prolapse may get worse.

Fleischman: We have a relatively inexpensive machine that is easy to use. Our practice previously referred patients for urodynamics testing to several urologists in town. The problem with that was threefold. First, our patients had a significant wait time until the studies could be performed. Second, they were forced to see a physician with whom they had no previously developed comfort level. Finally, we often lost surgical procedures to the consulting physician. Our unit cost roughly \$13,000 (Lumax Pro™; CooperSurgical, Trumbull, Conn), with disposable catheters going for approximately \$55 a study. I do the study myself. However, in some practices, a nurse or nurse-practitioner performs the studies. Each study takes about 30 minutes to perform.

We have chosen not to advertise for referrals and primarily use this as an added service available to the practice. As a result, our patients are happier, and my partners have an easier time getting a urodynamic evaluation scheduled. More important, it is inherently easier to discuss results and develop a plan. I think office urodynamic equipment is an all-win situation for a general OBG practice from patient-satisfaction, quality-of-care, and practice-management standpoints.

Karram: The machine is probably paid for within 2 years, even at the rate of 1 or 2 studies a month. Overall, prices can range from as low as \$8,000 to \$10,000 all the way up to \$100,000 or more for fluoroscopy-capable machines.

An overview of urodynamic evaluation

Culligan: I can boil down my approach to the following 4 questions: "Does the patient have stress incontinence?" "If so, how bad is it?" "Does she have involuntary bladder contractions?" "How well and by what mechanism does she void?" These questions are assessed using different studies (Table 3).

Karram: I think we all would agree that the mainstay of investigation is the CMG, which shows the pressure-volume relationship. To evaluate genuine stress incontinence, an electronic CMG is nec-

essary, since intravesical pressure cannot be measured with your eyeball.

Fleischman: I also do urethral-function tests—both Valsalva leak-point pressure and closure-pressure tests.

Culligan: Since we lack outcomes data, it is probably wise not to rely on any 1 or 2 values when doing these tests. Thus, consider the patient's symptoms along with her urodynamic findings.

Karram: How important is it to evaluate voiding in these patients? Again, I think we all would agree that a post-void residual is a minimum requirement to ensure that the patient empties efficiently. But how important is it to attempt to objectively demonstrate how a patient voids—either with a spontaneous uroflow or some form of pressure-flow study?

In my opinion, the clinical utility of a uroflow study is limited to the following scenarios:

- If a patient reports that she has voiding dysfunction, the uroflow is an objective way of corroborating or disputing her symptoms or perceptions.
- When surgery is planned, the uroflow may help determine whether the patient will have normal voiding function after the operation.

Culligan: I agree. As I mentioned earlier, I like to be able to advise patients when I think postoperative problems are likely. However, it is difficult to determine who those people are without a uroflow study, unless a patient voids almost exclusively by Valsalva maneuver. By testing, I am able to say, if necessary: "I think it might be wise to learn how to self-catheterize prior to your operation."

Therapeutic options

Karram: Dr. Culligan, do you think every patient should be offered nonsurgical therapy? If so, what is your approach?

Culligan: For stress incontinence, nonsurgical therapy entails the use of an occlusive device or strengthening the pelvic-floor musculature via Kegel exercises. If a patient with stress incontinence is

particularly interested in nonsurgical management, I usually encourage her to see a physical therapist for pelvic-floor rehabilitation.

As for occlusive devices, I show the patient the pessary or incontinence dish and tell her it is fairly easy to determine whether it would be beneficial. If the device is indicated, I let her know she

Case study #2: Predicting postoperative continence

A 75-year-old woman presents with complete vaginal prolapse but reports no incontinence. How should the Ob/Gyn evaluate her for occult incontinence?

Karram: It is important to try to predict whether this patient is going to become incontinent if surgical correction of the prolapse is successful. As previously mentioned, the aim is to reduce the prolapse. Thus, the clinician should attempt to simulate the effects of the surgery while the patient has a full bladder to determine whether any underlying stress incontinence exists. The reduction of the prolapse is best accomplished with either a Sims speculum or a pessary.

Fleischman: I am assuming that we have already offered and/or tried nonsurgical intervention. If so, I would recommend multichannel urodynamic evaluation prior to any surgical repair. Like you, I reduce the prolapse in order to simulate what the corrected bladder/urethra positions will be. I utilize a ring forceps to reduce the prolapse, taking care not to compress the urethra or urethrovesical junction. About 25% of such patients will be found to have occult urinary incontinence.

can take it home the same day. I then have her return in 1 to 2 weeks to find out whether it has helped or not.

Karram: I have not been tremendously impressed by these devices. And since

TABLE 3

Assessing urinary incontinence: 4 basic questions

Question	Test
Does the patient have stress incontinence?	Stress (cough) Valsalva leak-point pressure
If so, how severe is it? (Does the patient have ISD?)	Urethral-pressure profile Valsalva leak-point pressure
Does the patient have "overactive bladder"?*	Multichannel subtracted cystometry
How well and by what mechanism does the patient void?	Uroflow Pressure-flow study Electromyography**

ISD=Intrinsic sphincteric deficiency
*Overactive bladder is defined as a combination of frequency, urgency, nocturia, and urge incontinence
**Using perianal patch electrodes

*Urodynamics
gives physicians
more time with the
patient and enables
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she is leaking.*

■ An array of urodynamic tests

Although urodynamic evaluation aids in determining the type and severity of urinary incontinence (UI), the tests do not always yield definitive answers. For that reason, results should be considered in light of the patient's history, physical findings, and any "manual" tests. The range of urodynamic tests includes the following:

Cystometry. Filling cystometry is used to assess the bladder's pressure-volume relationship. It measures detrusor activity, compliance, sensation, and capacity. Normal parameters include the first desire to void (usually around 90 to 150 mL), normal desire to void (200 to 300 mL), and strong desire to void or maximum capacity (400 to 550 mL).

Multichannel cystometry uses 2 transducers: one in the bladder to record direct bladder pressure and the other in the rectum or vagina to measure intra-abdominal pressure. The machine then calculates "true" detrusor pressure (bladder pressure minus intra-abdominal pressure).

Valsalva leak-point pressure (VLPP). This test assesses the integrity of the urethral closure mechanism by measuring the amount of abdominal pressure required to force fluid across the urethral sphincter. It is used in the evaluation of genuine stress incontinence, to determine whether the dysfunction is caused by intrinsic sphincteric deficiency (ISD) or bladder-neck mobility.

The U.S. Food and Drug Administration (FDA) considers a leak-point pressure of less than 100 cm H₂O indicative of ISD. Other experts use a cutoff of 60 cm H₂O or less, with values between 60 and 100 cm H₂O warranting extra scrutiny.

Urethral-pressure profile. Another way of evaluating the urethral sphincter is with the urethral pressure profile, which usually is conducted with

the patient at rest and the bladder near maximum capacity following a filling cystometrogram (CMG). In the test, the catheter is pulled along the urethra to measure its pressure and length, and the machine calculates maximum urethral closure pressure (MUCP). Pressures over 30 cm H₂O typically are considered normal, while MUCPs under 20 cm H₂O indicate ISD or urethral dysfunction.

Uroflow. This simple, noninvasive screening test measures the patient's ability to void by determining the rate and pattern of her urine flow. Since results are affected by the volume of urine voided, the patient should begin with at least 200 mL in her bladder. The normal peak flow rate for women ranges from 20 to 30 mL per second, with a post-void residual of 25% or less of the functional bladder capacity.

Pressure-flow test. By recording bladder, abdominal, and true detrusor pressures during voiding, the pressure-flow study—along with uroflow data—yields details on a patient's voiding mechanism. The test is used to show the exact mechanism by which a patient voids. It is helpful in distinguishing voiding dysfunction due to obstruction from that due to a poorly contracting or areflexive detrusor. In women, normal detrusor pressure during voiding ranges from 10 to 30 cm H₂O.

Electromyography (EMG). This study allows the examiner to see the electrical activity of the pelvic-floor musculature. The electrical activity of these muscles will increase or decrease in proportion to the number of muscle fibers in use. EMG is a good test for assessing voiding function, since the timing and degree of muscle relaxation impacts the voiding mechanism. ■

SOURCE: *The Fundamentals of Female Urodynamic Study Interpretation*. Trumbull, Conn: CooperSurgical; 2001.

there is no pharmacologic agent that is consistently effective for stress incontinence, the primary nonsurgical therapy is pelvic-floor rehabilitation.

Thus, it is important that the Ob/Gyn assess the pelvic-floor musculature. In doing so, it is important to confirm that the patient knows how to contract her pelvic-floor muscles and perform a Kegel exercise. I insert a couple of fingers in the vagina and ask the patient to contract around them. Many times when I ask a woman to contract, she Valsalvas; and when I ask her to Valsalva, she contracts.

So, verbal instructions for Kegel exercises really are useless.

A patient who has an excellent contraction of her pelvic-floor muscles probably will not benefit greatly from physical therapy. On the other hand, if the patient appears to have no ability to contract at all, I would recommend biofeedback, possibly with electrical stimulation.

Fleischman: It's important for the generalist to build a network of physical therapists and other professionals in private practice who can help with this rehabil-

itation. Otherwise, there is too great a tendency to resort to surgery.

Karram: Estrogen is another option when a patient's pelvic floor shows signs of atrophy. Estrogen can make a patient feel better. Although it likely has little impact on stress incontinence, it probably improves irritative symptoms by thickening the urethral mucosa. Even patients who are taking systemic estrogen can show signs of atrophy. In general, I would suggest supplementing systemic estrogen with local estrogen in patients with pelvic-floor dysfunction who show signs of gross atrophy.

For urge incontinence or overactive bladder, anticholinergic therapy with one of many available drugs should be initiated. As the Ob/Gyn prescribes these therapies, however, he or she should be aware that their absorption may be altered by a number of other drugs or conditions, including OTC medications. Further, closed-angle glaucoma is an absolute contraindication to anticholinergic therapy.

Culligan: I try to advise patients undergoing pharmacologic management that different drugs and dosages may need to be tried over time.

Fleischman: I also let them know that it can take 4 to 6 weeks before a drug takes its full effect.

Karram: Finally, if the patient suffers from stress incontinence and is unsatisfied with nonsurgical modalities, surgery should be considered.

Reimbursement

Karram: Urodynamic testing is one of the few areas in which reimbursement rates have risen in each of the last years. Thus, I would have to agree, as Dr. Fleischman noted earlier, that adding urodynamic testing capability to an OBG practice is an all-win situation (*Table 4*).

Conclusion

UI is a common problem, particularly among postmenopausal women who

may not raise the subject themselves. By adding 1 or 2 simple questions to the basic history and urodynamic testing to the office armamentarium, the general Ob/Gyn can ensure that an important—but often overlooked—health complaint is suitably addressed. ■

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TABLE 4

Medicare "National Allowable Average" for Common Urodynamics Procedural Codes*			
CPT Code	Description	Total RVUs	National Allowable Average
51797	Intra-abdominal Voiding Pressure	6.61	\$239
51795	Bladder Voiding Pressure	6.55	\$237
51726	Complex Cystometrogram	6.51	\$235
51772	Urethral-pressure Profile	6.50	\$235
51741	Complex Uroflowmetry	3.16	\$114
51736	Simple Uroflowmetry	1.73	\$62.62

*The National Allowable Average (NAA) is the average Medicare payment. NAA=total RVUs for the specific procedure multiplied by the conversion factor. The 2002 conversion factor is \$36.1192.
SOURCE: Taken from Federal Register, Vol 66, No 212, "Medicare Program; Revisions to Payment Policies and the Physician Fee Schedule for Calendar Year 2002; Final Rule and Notice."

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