



Overactive Bladder: An Integrated Needs Assessment

Presented by:



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Executive Summary

As a single diagnosis, Overactive Bladder does not lead to hospitalization. Neighbors don't provide meals to help a family adjust to this condition. Medical receptionists don't rush to find the next available slot in a physician's schedule. Not surprisingly, patients are reluctant to even mention leaking urine as the cause for an office visit. Yet the impact of OAB rivals that of more noteworthy chronic diseases. Direct costs for incontinence related care are range from \$16.4 to \$26 billion per year for all adults yet less than 10% of this money is spent directly on treatment^{1,2} Patients report waiting until symptoms become unmanageable before seeking medical care and leave appointments without having their symptoms addressed. Physicians acknowledge the impact to patients, but use their limited office visit time to address chronic concerns with more significant health impact.

Addressing gaps surrounding OAB requires a multifaceted evaluation of the forces that impact patient care so that appropriate educational strategies can be designed.³ The challenge and opportunity is identifying the variables that impact physician behavior. This needs assessment project integrates data from 6 sources to identify the physician learning opportunities surrounding OAB.

- Guideline analysis including evaluation of the opportunity to impact physician behavior
- Literature analysis including article topic and journal placement
- Interviews with stakeholders including physicians, licensed health care professionals and patients to identify issues surrounding care of OAB
- Analysis from the Change Readiness Inventory ® completed by practicing physicians. The CRI was developed based on guidelines, literature, interview findings and expert opinion to evaluate perceived needs, forces/images/attitudes of change, and barriers to change
- Analysis of a Knowledge Assessment Tool to assess physician knowledge of epidemiology, screening, diagnosis, treatment and management
- Analysis of a Practice Behavior Assessment Tool to assess physician behavior and measure of success surrounding OAB

Collectively these assessments can guide continuing medical education professionals as they design activities to address these gaps. In addition, the tools and methodology can be applied to "personalize" the education to the target learners.

Through this analysis 8 specific educational targets were identified:

- Incorporate tools and process changes that support proactive screening of male and female patients for OAB and urinary tract symptoms. Tools and processes should address the time concerns felt within primary care practice settings
- Address patient/physician communication issues so that symptoms of OAB are acknowledged as societal, quality of life and health concerns by physicians thereby encouraging patients to provide a timely and accurate representation of their symptoms
- Improve/refine physician evaluation skills to diagnose OAB through a thorough history, physical examination and appropriate testing
- Acknowledge, accommodate and address the pitfalls of diagnosing OAB through patient response to a trial dose of appropriate pharmacotherapy
- Address physicians' lack of knowledge and confidence around integrated pharmacologic and behavioral therapy
- Incorporate new data on effective treatment regimens and overall clinical management to accommodate high physician value placed on new data and opportunities to increase knowledge
- Provide a framework or tools for PCPs and Ob/Gyns to work with community urologists and develop criteria for appropriate referrals
- Perform appropriate testing in refractory cases to reduce inappropriate referrals and accelerate care for those in need of specialist care

The CRI, Knowledge Assessment Tool and Practice Behavior Assessment Tool focused on 3 distinct groups of physicians: urologists, obstetrician/gynecologists, and primary care physicians. On many discrete items these three groups showed significant similarities, but not surprisingly, differences offer the opportunity to focus educational design on the unique learner needs. The tools developed in this report can be utilized to compare learners to this survey response group.

Within this project the Knowledge and Practice Behavior Assessment Tools were designed from the guidelines, literature, and interview findings. These tools were validated and then analyzed for their findings. Most significantly, knowledge was found to positively correlate with both practice and perceived success: the more knowledgeable the physician, the more effective their practice, and the greater their measure of success. Conversely, strong negative relationships were found between knowledge and practice and barriers to success. These findings suggest that physicians can overcome barriers through increased knowledge in a particular disease state.

This project was completed using a collaborative process between the University of Cincinnati Center for Continuing Professional Development, Interstate Postgraduate Medical Association, and

Healthcare Performance Consulting. No one organization could have completed this rigorous analysis without the challenge and support of the others. This spirit of collaboration should continue with those continuing medical education professionals designing education interventions to improve the care of patients suffering from OAB.

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Introduction

Over 33 million people suffer from problems related to overactive bladder (OAB). Patients believe that leaking urine is just a normal part of aging. They are embarrassed to discuss what they perceive to be personal hygiene issues. They would rather live with the consequences and considerable expense than talk to their health care clinician. In turn, clinicians are reluctant to screen for OAB, as they believe treatment risks outweigh the benefits or are ineffective. In order to improve the care of patients with OAB, clinicians must understand the impact of OAB on patients, screen and diagnose for urinary disorders including OAB, and provide appropriate behavioral and pharmacologic treatment options. Continuing medical education can play a critical role in closing gaps of knowledge, competence, and practice in this area.

Current research focusing on how physicians change behavior to improve patient health highlights the complex interaction between the physician, their knowledge, attitude, skills and practice system. Addressing only one component of physician behavior compromises the potential impact of education and reduces the likelihood that changes in practice will occur. Yet understanding these complex and interrelated areas requires a thorough understanding of the needs and the gap between physician behavior and patient health. The development of a thorough needs assessment **prior to** educational design results in a data driven foundation for identifying and closing the gap.

According to the International Continence Society⁴ “OAB is a symptom syndrome that is defined as ‘urgency, with or without urinary incontinence, usually with frequency and nocturia (sleep-disturbing voiding)’– these symptoms are suggestive of bladder overactivity (urodynamically demonstrable involuntary bladder contractions) but can be due to other forms of voiding or urinary dysfunction – these terms can be used if there is no proven infection or other obvious pathology.” OAB is a syndrome that can be a part of the diagnosis of urge urinary incontinence (UUI) but is not to be confused with it. Only recently has research begun to lead to better classification, clear diagnosis and successful treatment.

Normal bladder function involves 2 discrete processes: bladder filling and storage and bladder emptying. Bladder filling and storage accommodates increasing fluid volume at low intravesicular pressures with adequate outlet resistance to prevent involuntary leakage or excess urgency. High intravesicular pressures result in the inability of the bladder to hold increasing volumes of urine often combined with an increased sensation causing symptoms of urgency or frequency. Bladder dysfunction involves abnormal function of one or more of these processes.

OAB is a common syndrome; in the USA alone, 33 million people of all ages are affected. Reports of prevalence vary but recent studies report the rates of OAB at 16.9% of US women and 16.0% of US men however more women experience incontinence than men (55% vs. 16%).⁵ OAB prevalence increases with age from 4.8% in women under 25 years to 30.9% in women over 65 years. Similar trends are seen for OAB in the men.⁶ Yet only 16% of patients with OAB will receive treatment.⁷ Further, a recent online survey of 1,228 women aged 40 to 65 years (898 of whom had symptoms of OAB) found that more than half of the women who discussed OAB with a health care provider (56%) waited longer than 1 year to seek treatment; many attempted self-management of their symptoms.⁸ Those same women reported wanting to talk to their primary care doctors, but hesitated to do so.

Multiple sources recommend primary care as the most appropriate setting for screening, diagnosis and treatment of OAB.^{5,8,9,10} Primary care physicians can engage patients in screening questions, assess their clinical history and administer appropriate voiding diaries and/or assessment tools. Once diagnosed, treatment can include non-invasive therapy such as bladder training, pelvic floor exercises, intake monitoring and avoidance of known diuretics such as alcohol, caffeine, and spicy foods. These can be combined with pharmacological agents thereby increasing efficacy for more difficult cases.^{5,11} If primary care initiated treatments are unsuccessful, then referral to a specialist in Urology is necessary for more thorough diagnostics and appropriate further treatment.^{11,12} Since primary care treatment is less costly, less time consuming and less invasive than other settings of treatment, patients, physicians, health care providers and health care management systems should find primary care treatment attractive. Newer treatment options that minimize side effects are available, but this knowledge has not necessarily spread out of the pharmacology and urology fields and has not reached the untreated population affected by OAB.

In developing a comprehensive needs assessment strategy for OAB several strategies were employed including:

- Research and report on the body of resources on overactive bladder including published literature
- Analyze the existing guidelines on overactive bladder
- Identify quality measures relating to OAB
- Identify and quantify educational and behavioral needs

This report integrates findings from 6 discrete needs assessment evaluation techniques:

- Analysis of guidelines
- Analysis of published literature
- In-depth interviews with patients, physicians and licensed health care professionals
- Completion of the Change Readiness Inventory® of primary care physicians, Ob/Gyns, and urologists
- Completion of a Knowledge Assessment Tool by primary care physicians, Ob/Gyns, and urologists
- Completion of a Practice Behavior Assessment Tool by primary care physicians, Ob/Gyns, and urologists

Each technique offers a unique view of the body of knowledge, behaviors and attitudes of both generalists and specialists. Collectively they describe the current health care status of overactive bladder and the need for education based initiatives to address gaps in practice. This report serves to provide the data collected and implications for education thereby allowing continuing medical educators to design and deliver optimal education to address the identified gaps.

This report references 3 discrete physician specialties: urologists, obstetricians/gynecologists, and primary care physicians. Urogynecologists were grouped with urologists. Family physicians, internal medicine physicians, and geriatricians were all grouped as primary care physicians. Ob/Gyns are frequently considered primary care physicians, but were identified separately from PCPs to evaluate any needs that may be perceived as unique to this learner group.

Guidelines and Literature

The current standard of practice is defined by practice guidelines created through consensus panels. Physicians design the care to emulate well written guidelines. The body of medical literature supports guidelines by providing timely reporting on new therapies. Therefore any needs assessment must begin with an assessment of the guidelines followed by the literature.

To accomplish this search and review, the “Google” Internet search engine, the US National Clearinghouse of Guidelines, and the guideline webpage of the Geneva Foundation for Medical Education and Research were used to identify out guidelines. For published literature the PubMed database and its associated MeSH (Medical Subject Heading) database were used. Papers and guidelines in languages other than English that were recovered were not used in the analysis. Since

the vast majority of US based physicians will not use non-English guidelines or literature, this body of knowledge is beyond the scope of this study.

QUALITY MEASURES: Quality measures were identified through AHRQ, PQRI and through the Google search engine. Four metrics were identified:

- Percentage of Medicare members 65 years of age and older who reported having a urine leakage problem in the past six months and who discussed their urinary leakage problem with their current practitioner. (HEDIS 2006 measure.)
- Percentage of female patients aged 65 years and older who were assessed for the presence or absence of urinary incontinence within 12 months. (PQRI 2008 measure.)
- Percentage of female patients aged 65 years and older with a diagnosis of urinary incontinence whose urinary incontinence was characterized at least once within 12 months (PQRI 2008 measure.)
- Percentage of female patients aged 65 years and older with a diagnosis of urinary incontinence with a documented plan of care for urinary incontinence at least once within 12 months (PQRI 2008 measure.)

Analysis of Guidelines and Literature

A grading scale was developed for use within this needs assessment. The scale included assessment of depth (or thoroughness) of guideline [A], clarity of recommended procedure [B], how current the information and terminology was [C], and whether or not the guideline mentioned OAB specifically [D]. Treatment recommendations were similar across all guidelines and therefore the quality of the recommendation was not specifically rated. The analysis yielded shows a highly unbalanced distribution of both guidelines and published literature. Only 35% of the guidelines reviewed were graded as I, which is the only grade considered “good enough” for clinical practice. The majority of guidelines were graded as II-fair (9/17 or 53%); and 12 % (2/17) were III (poor). The geographic distribution is even more skewed: of those that were graded as I, none were from the United States, and only one was from North America (Canadian Medical Association Journal). Guidelines developed through US government lead consortium were developed and released in 1996 through the clinical practice guideline update and are now considered obsolete. Such lack of quality guidelines in the US contributes to the confusion and under diagnosis of OAB. (See Table I below for illustration of the guidelines quality sorting results.) A summary of the guidelines is found on page 3 in Appendix I, Summary of Guidelines

Table I Graded Quality of Current Guidelines

Guideline Source	Date	A Depth	B Clarity	C Timeliness	D OAB	Average Score	Grading
Canadian Medical Association Journal	11/7/2006	2	1	1	1	1.25	I Good
European Association of Urology	2006	1	1	1	1	1	I Good
International Continence Society LUTS Factsheet	July 2005	2	1	1	1	1.25	I Good
International Continence Society OAB Factsheet	July 2005	1	1	1	1	1	I Good
National Institute for Health and Clinical Excellence (UK)	2006	1	1	1	1	1	I Good
Scottish Intercollegiate Guidelines Network	2004	1	1	1	1	1	I Good
Urologic Diseases in America	2007	2	2	2	1	1.75	I Good
AAFP website	12/1/2000	2	1	3	1	1.75	II Fair
American College of OB-Gyn	June 2005	2	2	3	1	2	II Fair
eMedicine	2/9/2007	1	2	2	3	2	II Fair
Finnish Medical Society Duodecim	8/31/2005	1	2	1	4	2	II Fair
Geriatric Nursing	2003	2	1	1	4	2	II Fair
Health Plan of Nevada	2005	1	1	3	2	1.75	II Fair
Klausner & Vapnek, Geriatrics	2003	1	2	4	1	2	II Fair
SOb-GynCanada	Dec 2006	2	2	4	1	2.25	II Fair
Madigan Army Medical Center	8/24/2006	4	2	3	4	3.25	III Poor
Singapore Ministry of Health	2003	2	3	4	4	3.25	III Poor

Grading criteria were as follows: A—depth (or thoroughness) of guideline, B—clarity of recommended procedure, C—how current the information and terminology were, D—mention of the term OAB.

The published literature was also quite skewed. Of the 271 papers that were included in the analysis, a large majority (55%) were from the field of Urology. In contrast, primary care papers made up only 13% of the literature, and were the second largest category, followed by Gynecology at 11% and Other Conditions at 10%. Papers in Geriatrics, Post Surgery, and Drugs/Pharmacology were all 5% or less of the literature studied. Thus, only a small amount of the available knowledge is being presented to primary care clinicians, and other medical disciplines are also lacking in a body of literature as a base for good diagnosis and treatment. (Table 2)

Table 2: Distribution of papers by medical field

Field	Number of Papers	Percentage
Urology	150	55%
Primary Care	36	13%
Other Conditions	28	10%
Gynecology	31	11%
Drugs / Pharmacology	13	5%
Post Surgery	6	2%
Geriatrics	7	3%
Total Papers	271	

The distribution of papers, search under both OAB and UUI key words, and sorted according the field they are written for. Shown are the raw numbers of papers, the ratio of field to total and the resulting percentages.

The published literature was also analyzed by the subject of the paper (Diagnosis, Classification, Therapy, or Prevalence). Of the 271 papers, 74% were on the subject of Therapy, while 19% discussed Diagnosis, leaving only 6% and 1% for Prevalence and Classification, respectively. (See table 3). Most papers categorized as therapy (64%) reported on drug trials and background research for

drug trials. 23% were similar trials and research for non-pharmacological therapies, while only 12% of papers discussing therapeutic options were specifically focused on knowledge targeted to primary care clinicians. (See table 4 for more information.)

Table 3 Distribution of Papers by General Paper Subject

Subject	Number of Papers	Percentage
Prevalence	17	6%
Classification	2	1%
Diagnosis	51	19%
Therapy	201	74%
Total	271	

The distribution of papers by general subject search criteria. Note the large number of papers devoted to Therapy for OAB, and the near complete lack of other papers. Of note is the lack of papers in the classification category, especially considering the controversy that has surrounded the definition of OAB and UUI for years.

Table 4 Distribution of Therapy Papers by Subject

Subject for Combined	Number of Papers	Percentage
Drug-Trial and Research	157	64%
Non-drug Efficacy& Research	57	23%
Practical Direction	30	12%
Not English	51	
Total	295	
Total English	244	

Table 4 shows the distribution of papers subcategorized from the general subject therapy grouping by specific paper subject. Note the majority of papers are aimed at pharmacological research. Percentage calculated using “Total English”.

A summary of relevant literature is included on Appendix I page 5.

Discussion of Guidelines and Literature

A lack of high quality guidelines exists in North America, and especially within the US. None of the US published guidelines earned a rating of I Good. The most robust guideline was published by Scottish Intercollegiate Guidelines Network in 2004. This guideline rated practice recommendations using evidence based criteria, discussed the risk associated with different treatment options, provided treatment algorithms for both men and women, included validated screening tools and bladder diaries and included a summary chart of practice recommendations with evidence level. Its most unique offering was a section linking the guideline recommendation with the likely resource implication within the Scottish health care system. However thorough the guideline, publication by a little known government entity compromises adoption in primary care practices. Without satisfactory guidelines published by trusted authorities, primary care clinicians in the US may well find themselves having to search through the literature to uncover the most current and effective treatments. Time and interest, then, become limiting factors to a clinician's mastery of OAB and UUI.

The published literature presents a bias towards the discipline of Urology (55% of published papers). Only 13% of the literature was contained within primary care resources. Primary care clinicians may be less likely to look for basic knowledge, diagnosis and treatment options in specialty journals. Other disciplines had an even smaller base of literature to draw from, for example, Geriatrics referred to only 3% of the literature studied yet the geriatric population is affected by OAB and urinary incontinence.

An imbalance of topics applies to current literature as well. Only one percent of papers included in the study explain the evolving classification of OAB or UUI¹³ Diagnosis is explored in 19% of the literature, treatment options for OAB and UUI are discussed in 74% of the papers. Of those papers on the subject of therapy and treatment most (64%) report on drug-trials and drug development research. These provide a clinician with specific information on one drug, but rarely offer a comparative analysis of all drugs available, and almost never offer comparative analysis between pharmacological and non-pharmacologic therapies.

Of the papers that refer to non-pharmacological options, most covered therapies that were aggressive and/or invasive (for example, surgery or electrical stimulation of nerves). Non-invasive, non-pharmacological therapies are elucidated in few papers found in published literature^{5,9,10} and several of the better guidelines^{11,12} but are under-represented in the body of literature. Such therapies discussed include, but are not limited to: timed voiding, bladder diaries, pelvic floor exercises and bladder training.

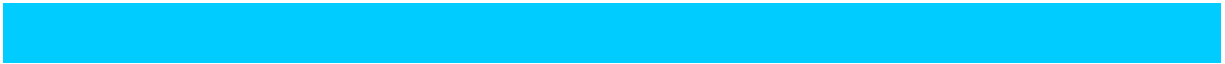
While quality measures focus on the Medicare population, the desired improvement is in assessing, characterizing and developing a treatment plan for patients. To effectively meet these quality measures practices must implement screening, utilize tools to characterize (measure) the impact of an individual's symptoms and lifestyle modification, and develop an appropriate treatment plan that addresses a patient's situation.

Little agreement is seen regarding the diagnosis of OAB across the literature and guidelines. Common elements include incorporating screening questions, a complete history, and urinalysis (to rule out other conditions). Secondary elements include use of a bladder diary, validated screening tools, pad tests, flow rates (men) and a physical exam. Tertiary diagnosis tests include ultrasound, post void residual, and urodynamic assessment. This literature analysis failed to find 2 resources that shared recommendations on diagnosis and screening tools that affected patient outcomes. The IMPACT (Improvement in Patients: Assessing Symptomatic Control with Tolterodine) tested the hypothesis that patients can be successfully screened and treated with minimal workup. While the study included only several hundred patients followed for 12 weeks in a primary care and Ob/Gyn office setting, it suggests that extensive and expensive testing is not required for diagnosis.¹⁴

A significant body of literature has been published in 2007 within the pharmacological field; anticholinergics and other drugs are now available in extended release formulas and through patches that reduce the side effects and patient adherence issues. However, the literature gap exists between researchers and primary care clinicians, who should be diagnosing and providing the first line of therapies to patients. Further, this research has been concentrated on the study of women. There is little published literature that includes the different diagnoses and treatments of OAB for men. Articles by Rosenberg et al, Sothers et al, and Morant et al provide the population data and clinical implications of screening for OAB in men.^{15 16 17}

Within the literature the use of validated tools is supported for symptom assessment and impact on quality of life and treatment efficacy but their use remains inconclusive in improving patient outcomes.¹⁸ The most reliable tools include the ICI-Q (symptom assessment and treatment

efficacy).¹⁹ and OAB-q (symptom assessment and impact of quality of life)²⁰ which assess both the symptoms and quality of life impact on patients. Tools may provide primary care offices with instruments that ease communication concerns between patient and clinician.²¹ When administered by non-physician staff these tools may represent a cost effective screening opportunity.



In-depth interviews

Interview Methodology

The guideline, literature and quality measures provided the foundation for the interview portion of the overactive bladder needs assessment. Seventy in-depth stakeholder interviews were conducted including:

- Urologists (10)
- Urogynecologists (7)
- Geriatricians (3)
- Primary care physicians (10)
- Nurse practitioners/ Physician assistants (10)
- Ob/Gyns (10)
- Nurses (10)
- OAB patients (10)

These interviews were conducted to gain insight into the problems caused by overactive bladder as well as the perceived needs of the learners. They provided perspective to other data sources including published guidelines, literature, and surveys. The interviews also highlighted clinical competencies needed for optimal management of overactive bladder, and barriers to best practice. Participants were identified randomly from the target populations by various methods with few criteria other than belonging to the groups identified above.

The interviews were conducted either in-person or by telephone, and lasted approximately 1 hour. Participants were compensated \$75- \$300 based on their stakeholder group. The interviews started with a general disclosure describing the project, and proceeded to identify the participant's responsibilities and collect thoughts and concerns about overactive bladder. Interviewees were asked to identify the most significant problems associated with OAB and describe the causes of those problems. During the overall interview process competency statements were derived from best practices, refined by specialists and discussed with physicians thereby validating them for use in the Change Readiness Inventory.

Interview Themes

Impact/importance of OAB

Patients and physicians both report that OAB significantly impacts on patients' lives. Lifestyles are drastically altered by OAB in a number of ways. As patients feel less confident about their ability to reach a toilet in time, they begin toilet mapping to know where the closest toilet is at all times. They may start to reduce travel, feeling that they may not make it if urgency strikes while far away from a toilet. With mixed incontinence, they may reduce exercise or avoid situations that might cause laughter. If one or more accidents occur, they may begin a process leading to social isolation.

There is an interesting paradox revealed by the interviews. While physicians acknowledge the impact of OAB in their patients, they do not attribute appropriate clinical importance. All physicians and patients interviewed reported that OAB has a "huge" impact on the patient. It can be "devastating". Unfortunately, this impact does not translate to more effective screening for OAB.

Lack of proper screening

Based on responses to questions surrounding screening, physicians are **not** adequately screening patients for OAB. This is particularly true of primary care physicians (FP/IM). Factors include the "lack of importance" described above. OAB does not rise to the level of perceived importance that will induce the average PCP to spend time asking specific questions that will reveal OAB. When asked about the importance of screening for OAB, many will say that it's not as important as chronic diseases such as diabetes, hypertension, etc. Patient attitudes support the physician beliefs. Many patients expressed that OAB is "just part of the aging process"- an opinion their physicians often share.

Most of the "screening" that does occur happens during routine review of systems at an annual exam or physical. Often, the question asked is "are you having any bladder problems?" or "do you have any trouble urinating?". And the answer is usually "no", because patients perceive increased frequency, in particular, to be a normal part of aging.

History and Physical

Primary care physicians and specialists are aware that a diagnosis of OAB may be made from a proper history and physical exam. Urologists point out, and PCPs (non Ob/Gyns) confirm, that the history and exam is rarely done at the primary care level. Some PCPs confessed that they are not

comfortable and did not know how to complete a pelvic exam on a female and therefore avoided them. For this reason, they tend utilize medication as a diagnostic tool, as discussed below.

Physician/patient communication

While physicians are not asking their patients screening questions, patients are not addressing their problem with their physicians either. Many patients reported a long delay between their first symptoms of OAB, and seeking help from their physician. In some symptoms gradually got worse until it reached the point of intolerability before bringing it up to their physician. Others described a triggering event such as childbirth or hysterectomy as forcing them to seek help. In either case, patients manage to cope using pads and mapping restrooms until symptoms force them to seek help.

Complexity of OAB

Physicians from all groups mentioned the “complexity” of OAB which often makes it problematic to diagnose. OAB may be mimicked by other conditions or drug interactions. Stress incontinence may be part of the problem. Primary care physicians, by their own admission, and in the opinion of specialists, are not capable of teasing out the nuances of OAB. They do not take sufficient time to:

- take a careful history
- utilize the appropriate tests
- perform a proper physical exam – in particular a pelvic exam

Some physicians use tools for assistance screening or diagnosing OAB. These include:

- OAB Screening Tool
- Voiding diary
- PUF questionnaire

Medications as diagnostic tool

Physicians of all specialties, but particularly primary care doctors, may use medications as a diagnostic tool. Using a medication, most often an anti-cholinergic, provides them an indication of symptoms caused by OAB or something more complicated. In most cases, if 1 or 2 trials of medication do not work, PCPs will refer to a specialist.

Testing differences

Most PCPs are not performing any significant testing for OAB. They will base a diagnosis on a brief history and results of a medication trial. Urologists, urogynecologists, and some Ob/Gyns are more likely to use diagnostic tests including:

- urodynamics
- post-void residual (PVR)
- ultrasound imaging
- cystometrics
- “Q-tip” test

Specialists rely on these tests to assist in a definitive diagnosis of OAB, urge incontinence, stress incontinence, or mixed incontinence. Results also detect anatomical abnormalities that may require surgical intervention.

Treatment

Each of the physician groups indicated a slightly different approach to treatment of OAB. Most physicians reported using both pharmacologic and non-pharmacologic therapy with patients. The pharmacologic therapy consists almost universally of anticholinergic medications. Specific medications mentioned include Detrol™, Ditropan™, Vesicare™, Enblex™, and available generic equivalents. The most commonly reported side effects with anticholinergic therapy centered on the side effects of dry mouth, blurred vision, constipation, and others associated with this class. Managed care formularies can restrict the available medications thereby limiting the medication options available to address side effects.

The PCPs reported starting patients with either non-pharmacologic treatment alone, or in combination with drug therapy. Non-pharmacologic strategies reported include pelvic floor exercises, timed voiding, diet changes, and bladder training, most PCPs report limited satisfaction with these strategies as they are time consuming to explain and patient compliance is low.

Primary care physicians rely heavily on pharmacologic therapy to manage OAB patients. Most have a preferred drug for initial therapy and will switch to a different treatment if patients experience intolerable side effects or lack of efficacy.

Referral

Many of the primary care physicians indicated that they would try 1 or 2 medications and refer patients who do not respond. They may refer immediately, without a trial of medication, if they suspect stress incontinence or anatomic problems that may require surgical intervention. PCPs referred to a variety of specialists including urologists (frequent response), Ob/Gyns and urogynecologists. They do not have the time, skill, or resources to do in-depth testing with refractory patients, so they are quick to refer.

Ob/Gyns exhibit the greatest variability in terms of referral. Some will manage incontinence and bladder problems comprehensively, and will refer only in the case of multiple or complicated surgical procedures. Others behave as PCPs do referring after failure on 1 or 2 medications. Referrals were to either urologists or urogynecologists.

Most specialists (urology & urogynecology) indicated that they would manage any OAB patients themselves and report that they are usually the ones to whom others refer.

Barriers

Time, or lack of it, was a recurring theme throughout the physician interviews. Time limitations impact every aspect of OAB, from screening and diagnosis through and referral. Primary care physicians often do not have sufficient time to routinely ask routine screening questions to patients at risk for OAB.

Often, a diagnostic workup of OAB is triggered by patient complaints after long periods of suffering with symptoms. Many times, the workup is only cursory, and physicians begin treatment with no real understanding of the underlying pathology. If treatments fail, PCPs are quick to refer to a specialist rather than doing additional testing or trying various treatments. Specialists may face the same time pressure, but in general they are more knowledgeable about OAB and able to select appropriate tests and treatments more quickly.

Change Readiness Inventory® (CRI)

The CRI was administered to the physician target audience to quantify the information gleaned from interviews. The CRI is an assessment survey that measures forces, images, attitudes, competencies and barriers that affect change in clinical practices. It is specific to physicians, and customized to the particular clinical area of overactive bladder.

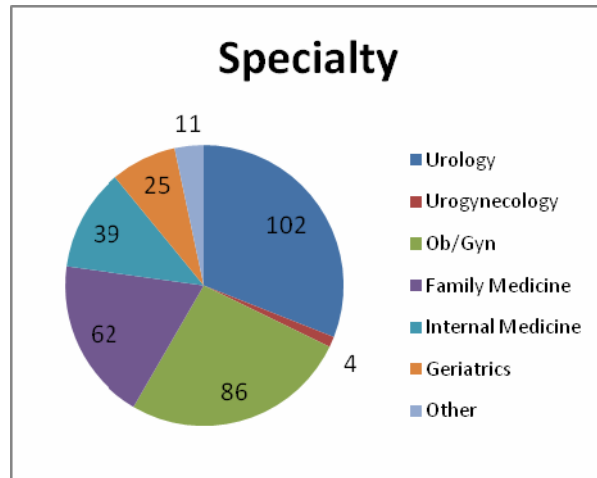
Clinical and educational experts developed a list of clinical competencies in OAB. These competencies are based on current guidelines, literature, and clinical expertise. The competencies were rated by the target audience physicians according to their “current” and “desired” abilities. The difference, or gap, between current and desired ability indicates the perceived need of the audience. Barriers included on the CRI were revealed during the interviews and adapted by both clinical & educational experts.

The CRI was posted online as an electronic survey. A blast e-mail consisting of a cover letter from the University of Cincinnati Center for Continuing Professional Development requesting assistance from physicians was sent to a purchased list of physicians. The quality of the e-mail list was unknown, but was purchased from a reputable source. One of the limitations of an electronic survey sent by e-mail is the spam interception that occurs. Therefore, we have calculated a response rate based only on the number of physicians for whom there is confirmation of receipt of the email. Physicians were identified from AMA records having the specialties of urology, obstetrics & gynecology, geriatrics or primary care (both family medicine & internal medicine). A \$25 donation to the Simon Foundation was made for each physician’s participation in the assessment. The sample of participants invited is believed to approximate the demographics of practicing physicians in the target specialties.

CRI Results

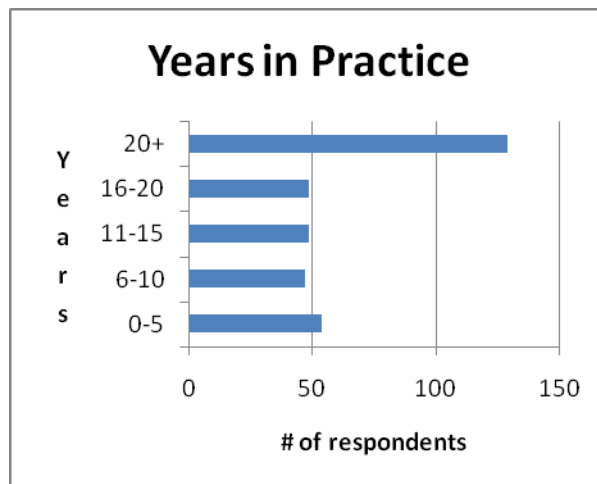
A total of 329 physicians of the 351 (88%) that started the Change Readiness Inventory completed the assessment. 631 physicians viewed the opening page of the survey yielding a 52% completion rate for those that viewed the assessment. Demographics of the respondents to the CRI are below.

Figure 1 Distribution of CRI responses by specialty



The largest group of respondents was from urology followed by obstetrics & gynecology, family medicine and internal medicine. 90 (27%) of the respondents were female and 239 were male. The percentage of females varied in each specialty group from a high of 44% in geriatric medicine to a low of 9% in urology.

Figure 2 Distribution of physician responses by years in practice



The 20+ years in practice category was the largest for each group except geriatrics where only 8% were in that category. The largest group of respondents from geriatrics were in the 16-20 years in practice category (48%).

Table 5 Physician responses by practice type

Practice Type	# of responses
Solo	86
Single Specialty	129
Multi-specialty	59
Hospital	38
Other	17

Single specialty group practices were identified by all groups as the most common practice type with the exception of internal medicine which reported multi-specialty practice highest.

Competency Assessment

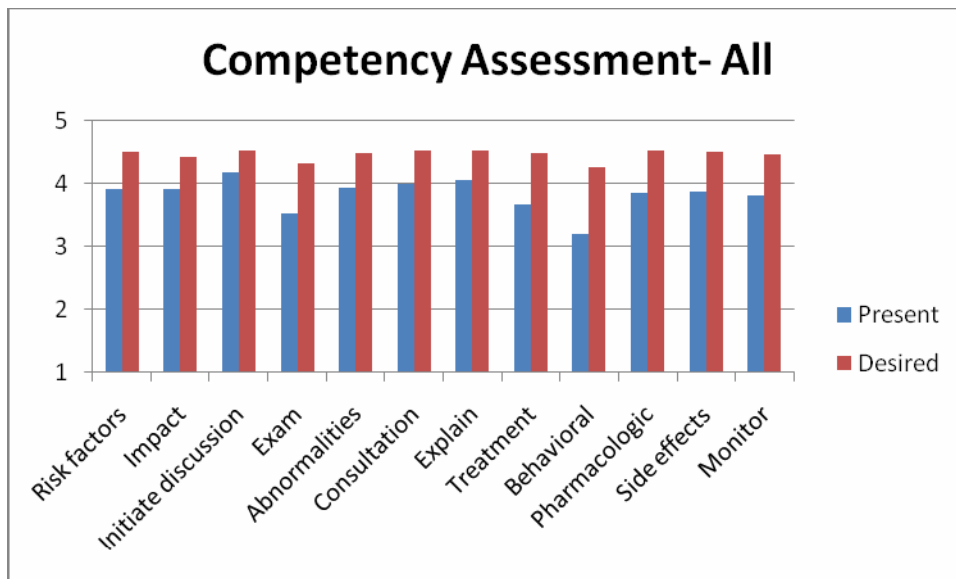
The respondents were asked to rate their present and desired level of ability on a 1-5 scale (1- low, 5- high) for the list of required competencies for best practices developed from the literature and experts. Due to the small number of urogynecologists that completed the survey and similarity of those responses to urology, results below show urogynecology combined with urology and identified as **urologists**. Family physicians, internal medicine and geriatrics have been combined and are referred to as PCP. The physicians rated themselves on the following competencies:

- **Ability to identify risk factors associated with OAB (age, sex, outlet obstruction/stress incontinence, etc.)**
- **Ability to determine the overall impact of OAB on the patient's well being (physical, psycho-social, quality of life).**
- **Ability to initiate a discussion of symptoms indicative of OAB with patients**
- **Ability to perform a complete urologic/gynecologic exam of a patient with OAB**
- **Ability to identify signs and symptoms of bladder abnormalities associated with OAB.**
- **Ability to detect signs and symptoms that might prompt a consultation for specialized diagnostic testing**
- **Ability to explain overactive bladder to the patient.**

- **Ability to describe multiple treatment options available for OAB, including dietary modification, behavioral and pharmacologic treatment.**
- **Ability to implement an appropriate behavioral treatment program.**
- **Ability to design an appropriate pharmacologic treatment program.**
- **Ability to recognize common side effects and potential drug interactions of each pharmacological therapy.**
- **Ability to monitor a patient’s progress with currently prescribed treatment program.**

Results show that urologists as well as the Ob/Gyn & PCP have a high desire for competence related to the abilities described. Present abilities are perceived differently by the groups with the specialists rating themselves much higher in current ability.

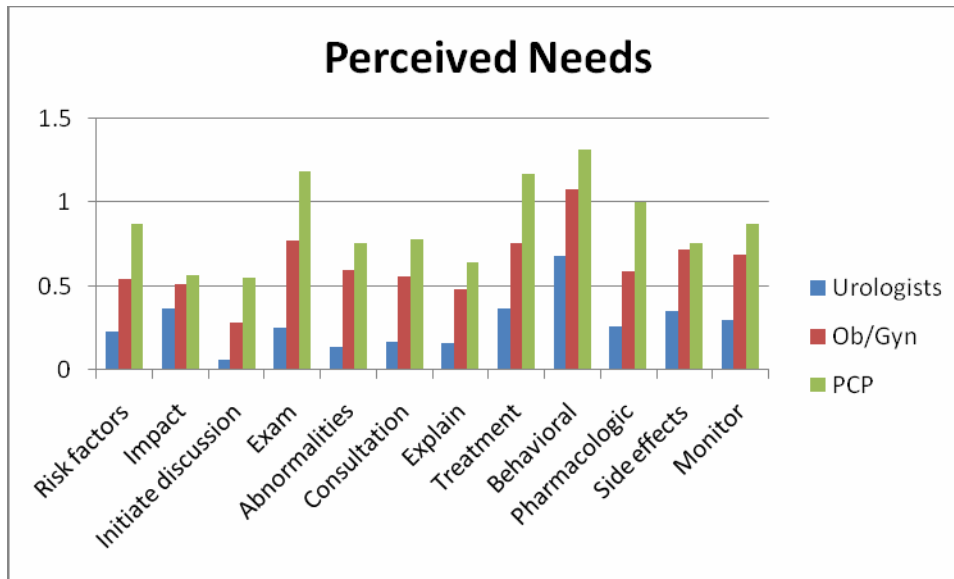
Figure 3 Aggregate competency assessment



Perceived Needs

The following sections integrate the qualitative information learned from the interviews and the competency “gap” between present and desired as the perceived needs of the audience from the survey. This gap between the perception of “what is” and “what ought to be” will indicate physician motivation to learn & change. A gap of .5 or higher is considered to be significant.

Figure 4: Perceived needs by specialty



Physicians' Perceived Needs on Screening

The CRI includes 3 competencies that are related to screening:

- **Ability to identify risk factors associated with OAB (age, sex, outlet obstruction/stress incontinence, etc.).**
- **Ability to determine the overall impact of OAB on the patient's well being (physical, psycho-social, quality of life).**
- **Ability to initiate a discussion of symptoms indicative of OAB with patients.**

Results of the CRI indicate that physicians **do** perceive that they have specific needs related to screening. Ob/Gyns and PCPs indicated a need for education on OAB risk factors, as indicated by a “gap” of greater than 0.5 between average present ability and desired ability. Both groups were near or above the 0.5 level for “impact”. And PCPs indicated a significant need for education around the ability to “initiate discussion” on OAB.

Physicians' Perceived Needs on Diagnosis

Results from the CRI reveal that the Ob/Gyn and PCP groups have **high perceived needs** around diagnosis. The two competencies related to diagnosis are:

- **Ability to perform a complete urologic/gynecologic exam of a patient with OAB.**
- **Ability to identify signs and symptoms of bladder abnormalities associated with OAB.**

While the PCP group indicated higher needs than the Ob/Gyn, both groups fell into the range of significance for perceived need. Especially high were the gaps of both PCP and Ob/Gyn in their ability to perform a complete exam of the patient. This is consistent with the interview findings, and was a common complaint about PCPs from urologists and Ob/Gyns.

Physicians' Perceived Needs on Treatment

Results from the CRI reveal that all the targeted physician groups have **high perceived needs** around treatment of OAB. The six competencies related to treatment are:

- **Ability to explain overactive bladder to the patient.**
- **Ability to describe multiple treatment options available for OAB, including dietary modification, behavioral and pharmacologic treatment.**
- **Ability to design an appropriate behavioral treatment program.**
- **Ability to design an appropriate pharmacologic treatment program.**
- **Ability to recognize common side effects and potential drug interactions of each pharmacological therapy.**
- **Ability to monitor a patient's progress with currently prescribed treatment program.**

Specialists do not perceive that they have any significant needs pertaining to diagnosis. The gaps for these 2 competencies were among the lowest of all the competencies. This is consistent with interviews in that the Ob/Gyns feel that they are competent in this area. Urologists and Ob/Gyns indicated lower needs in the other competencies as well, as compared with PCPs.

The largest difference in the needs between urologists and primary care can be seen in the competency to *describe multiple treatment options*. In the interviews, specialists and Ob/Gyns described using a more varied treatment approach than PCPs. While primary care physicians stick close to pharmacologic treatment, especially anticholinergics, specialists and Ob/Gyns describe a variety of approaches including local estrogen, neural modulation, interstimulation, biofeedback, and surgical procedures.

The highest perceived need among all groups is related to behavioral therapy. The most common behavioral modifications described by physicians were dietary changes (reduced caffeine, fluids, alcohol, acidic or spicy foods), timed voiding, bladder training, and pelvic floor exercise. Pelvic floor exercise was the most commonly mentioned non-pharmacologic therapy, while the others were variable. Most of the physicians interviewed described some frustration in patient compliance with

behavioral modification to mediate OAB symptoms. Additionally, training patients effectively to utilize these methods takes time and encouragement.

Physicians' Perceived Needs on Referral

Results from the CRI reveal that both Ob/Gyns & PCPs have a **perceived need** around referral of OAB patients. The competency related to referral is:

- **Ability to detect signs and symptoms that might prompt a consultation for specialized diagnostic testing.**

CRI responses on referral were consistent with interview findings, with PCPs showing a greater perceived need than specialists and Ob/Gyns. However, even these latter groups showed an average level of perceived need that reached 0.5, the benchmark for significance. Clearly there are segments within these target audiences that need help with this aspect of OAB.

Barriers

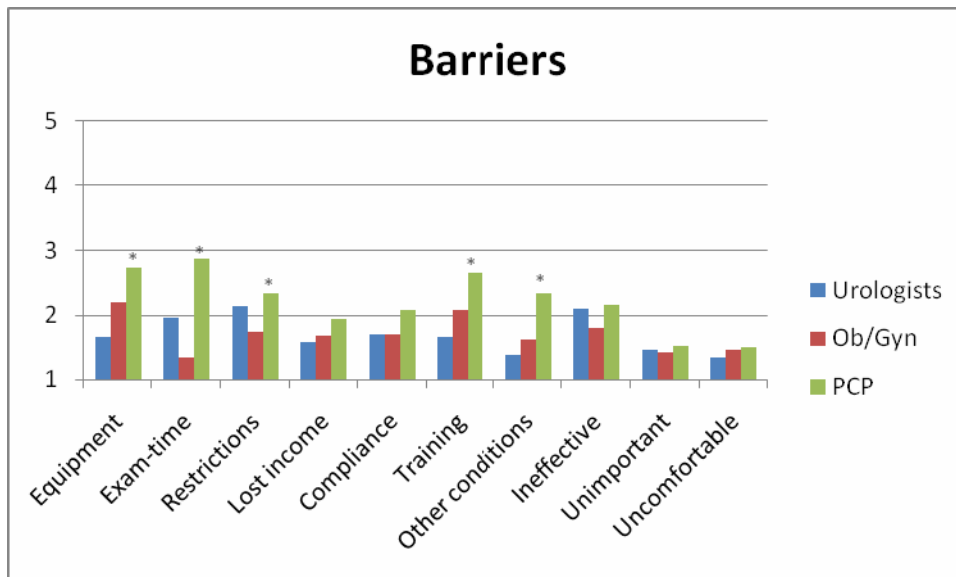
Barriers to change are real or perceived issues that may prevent physicians from utilizing best practices. A knowledge of the nature and magnitude of these barriers helps educational designers to address these barriers within the scope of the interventions, thereby allowing for changes in performance (Level 4) as compared to changes in knowledge (Level 3)²². These barriers were derived from the OAB interviews and from the literature on physician change.

Barriers were assessed through the Change Readiness Inventory. Respondents were asked to rate their agreement with the following barrier statements:

- I do not have the proper equipment or other material resources to change the way I practice related to OAB.
- The change I wish to make would take too much time and effort.
- I cannot find the right resources to learn about a change I wish to make in practice.
- The restrictions on what can be prescribed prevent me from changing my practice in this area.
- Doing things differently in this area will result in loss of personal income.
- I cannot change practices because of patient compliance issues.
- My training in this area is insufficient to do examinations necessary to diagnose OAB.
- Other responsibilities prevent me from learning what I need to know to change the way I practice.
- Treatment options are ineffective for this condition.
- This condition is unimportant to me.
- I am uncomfortable discussing overactive bladder with my patients.

Results show that none of the barriers are uniformly seen to impede best practices. However, 5 of the barriers are rated high (4 or 5) by over 20% of the PCP. These are indicated in the chart below by the *.

Figure 5 Barriers identified by specialty



None of the barriers were rated high by more than 15% of the urologists. Overall the barriers have limited effect on overactive bladder care but for some physicians, especially PCPs, these may be an issue.

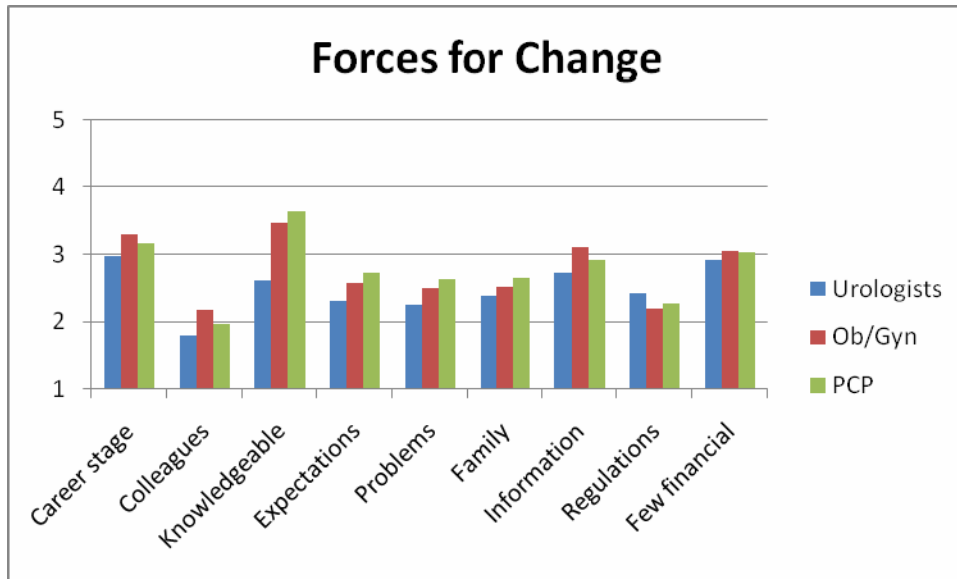
Forces for Change

Physicians are stimulated to change clinical behavior based on the presence or absence of various forces in their environment. These forces may be measured by asking physicians to rate their level of agreement with statements that are consistent the force. Respondents were asked to rate their agreement with these statements describing forces for change related to overactive bladder. Those statements were:

- **At this stage of my career, building special competence in this area of my practice is more important.**
- **I feel pressure from some colleagues to adopt new procedures in this clinical area.**
- **I wish I were more knowledgeable in this area.**
- **The expectations of the healthcare organizations in this community are a force for change in this area of my practice.**
- **Lately, my patients have had more problems in this area than I believe they should.**
- **My friends or family members have experienced a problem related to this area of clinical medicine.**
- **New information in the literature has increased my interest in adopting new procedures in this area.**
- **Recent regulations or policies require that I do things differently in this area of my clinical practice.**
- **There are few financial advantages to changing my approach in this area of practice.**

The responses to these items indicate low pressure professionally, personally and socially for change in this clinical area. The one exception is the desire for more knowledge in OAB for Ob/Gyns & PCPs. This is the strongest force identified for these groups. This force is often accompanied by interest in new information in the field as was found in these responses by agreement to statement 7 above. This professional force might be addressed through continuing medical education. The fact that overall these forces are low means that there is nothing driving physicians towards changing practices in OAB. Educational program marketing materials will have to show that there is a need for education in OAB in order to attract participation.

Figure 6 Forces for Change as identified by specialty



Attitude toward Change

Respondents were asked to rate their agreement with the following statements related to attitude toward change.

- **The way I practice in this clinical area is acceptable to me.**
- **I may need to change one or more of my clinical practices in this area.**
- **I plan to change the way I practice in this area in the near future.**

Ideally, in clinical areas where change in practice is needed, you would see low satisfaction with current practices and higher ratings on the need and plan to change statements. In this area, urologists are very happy with their current practices and overall do not see the need or plan to change practices. Ob/Gyns & PCPs however, are less satisfied with current practices and do see the need for change in practice related to OAB.

Figure 7 Attitude toward change as identified by specialty

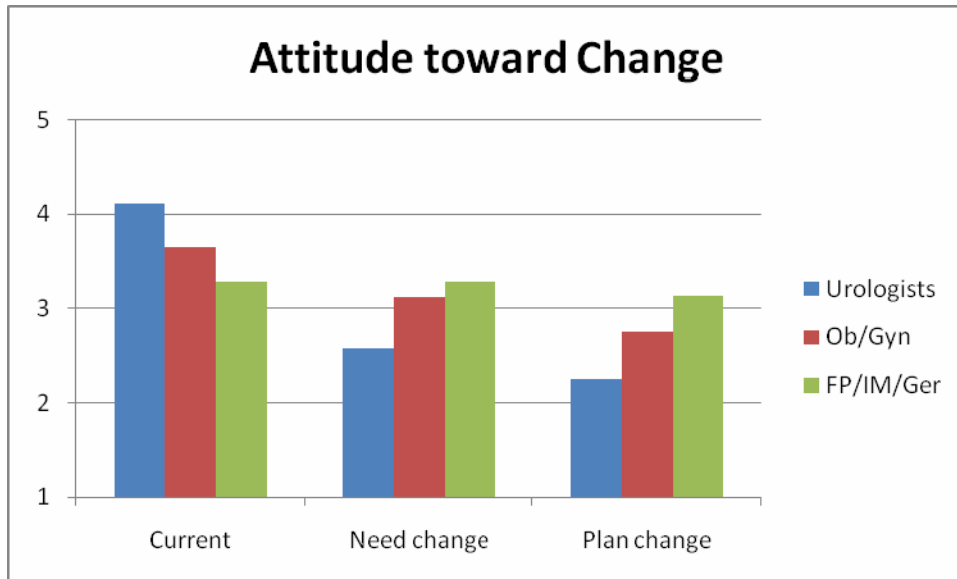


Image of Change

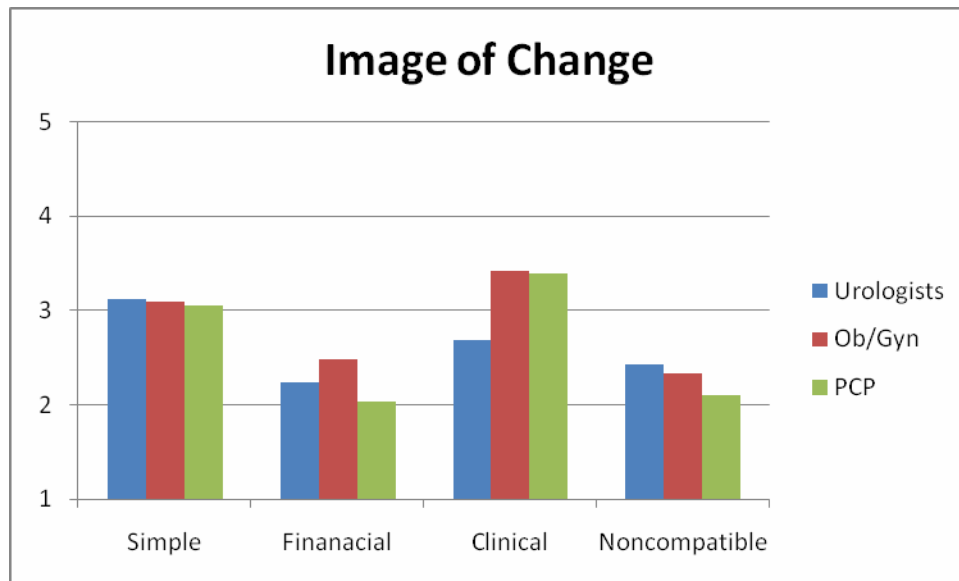
Physicians' *image of change* is closely related to attitude, and plays a role in whether they will initiate change in the clinical area or perceive it to be too complicated relative to the benefits of changing. Understanding the target audience's image of change helps to identify their perceptions about improving clinical practice, and allows CME planners build content into the activity that addresses those perceptions.

Respondents were asked to rate their agreement with statements on image of change related to overactive bladder. Those statements were:

- **Changing the way I practice in this area, seems relatively simple.**
- **Changing the way I practice in this area, seems to offer a significant financial advantage.**
- **Changing the way I practice in this area, seems to offer a significant clinical advantage.**
- **Changing the way I practice in this area does not seem compatible with overall approach to care.**

There is no apparent financial advantage for changing practices in this area but change is viewed as compatible with current practice. This image of change stresses the importance of emphasizing the clinical advantages of changing practice, especially for Ob/Gyns & PCPs.

Figure 8 Image of change as identified by specialty



CRI Response variations based on demographics

Several demographic differences were revealed in the statistical analysis. The following may be worth considering when planning educational activities.

- Solo practitioners have no perceived competency gap for designing a pharmacologic treatment program and monitoring a patient's progress.
- Physicians with 6-10 years in practice report more forces for change including career stage, desire for knowledge, expectations, new information and regulations. This is indicative of higher professional, personal and social forces.
- Female physicians rate their present ability lower on nearly all competencies than their male counterparts. This makes for higher perceived need for most competencies as well.
- Female physicians are less accepting of their current practices and rate the plan for change higher.
- Female physicians perceive barriers to be greater than males for equipment, time for pelvic examination, and patient compliance.

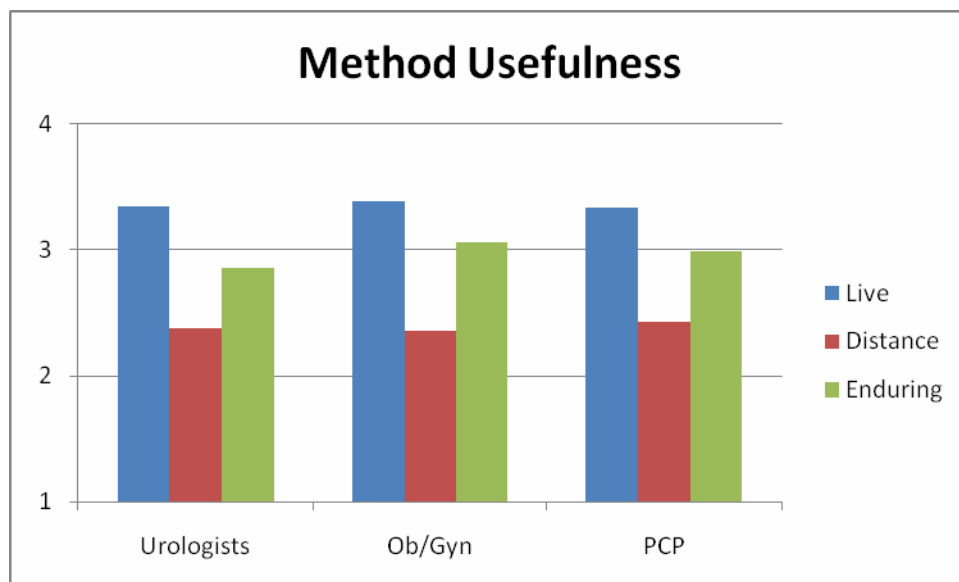
Methods and Formats

Physicians were asked to indicate the extent to which they find the following methods useful for obtaining Continuing Medical Education credit for OAB. (1-not useful, 4-useful)

- Live face-to-face (lectures, small-groups, seminars, etc.)
- Live distance learning (teleconference, webinar, etc.)
- Enduring (monographs, downloadable, on-line, etc.)

Live and enduring were viewed as useful while distance learning was neutral.

Figure 9 Preferred Educational Method

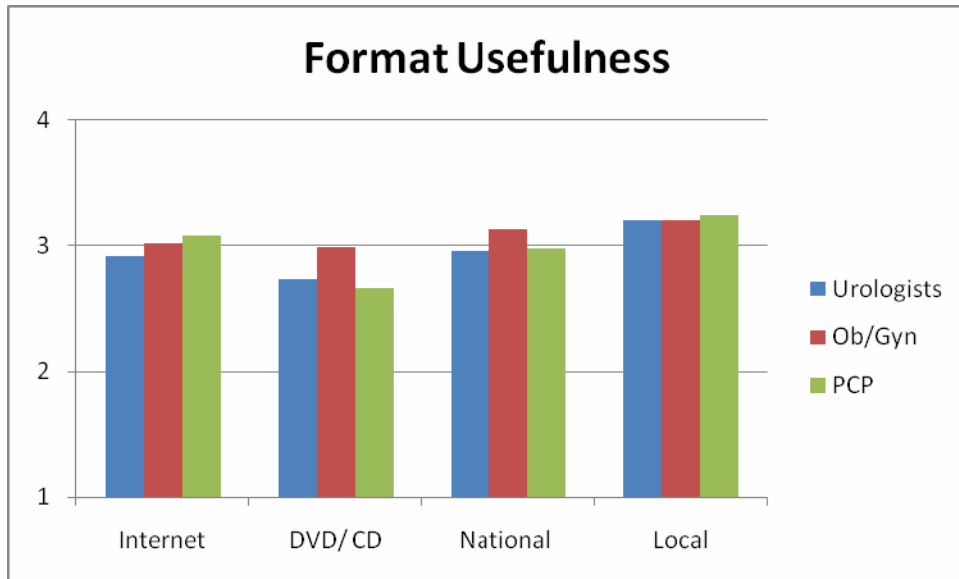


Physicians were asked to indicate the extent to which they find the following formats useful for obtaining Continuing Medical Education credit for OAB. (1-not useful, 4-useful)

- Internet-based
- DVD/CD-ROM
- National conferences
- Local meetings (case conferences, grand rounds)

All formats were viewed positively with local meetings rated most useful.

Figure 10 Usefulness of format by specialist



Physician Based Assessment Tools

Overview

Three physician-based assessment instruments were developed as part of this project: knowledge of OAB, competency to apply knowledge in practice regarding OAB, and practice behaviors for screening, treatment, and management of OAB. These assessment instruments are intended for use with primary care physicians, obstetricians/gynecologists, urologists, and urogynecologists. The knowledge and practice instruments were developed as stand-alone measures; however, the competency instrument is a derived instrument that examines the discrepancies between knowledge and practice. Questions for each instrument were developed from a comprehensive literature review and the data collected from 70 interviews with practitioners and patients. After draft questions were developed for the instruments, the construction of the questions was reviewed by psychometricians. The final draft assessment tools were completed by a sample of 151 physicians: 50 primary care providers and 51 urologists and 50 obstetrician/gynecologists. The instruments were completed over the internet following an e-mail solicitation. The Knowledge Assessment Tool included 20 items developed around three case vignettes. The Practice Behavior tool included 37 items developed around 10 questions divided into screening practices (6 questions) and diagnosis and treatment practices (4 questions). Additionally, there were eight items that gathered demographic information and practice characteristics. The data were analyzed using common statistical tests to examine inter-item correlations, item stability, and potential models. The ultimate maturity and validity of these instruments will need to be further examined with additional data that correlate scores on the existing tools with practice data related to educational interventions and their outcomes.

Demographic and Practice Description Information:

A number of demographic questions were added to the overall tool survey to provide valuable information about the physicians, their practice environments, and their likely exposure to patients with OAB. Respondents indicated their primary and secondary specialties, their gender, and their practice environment (solo, group, hospital). Additionally, they were asked to provide general information about their patient population (age breakdown, percent of females, and number of patients seen per week). Finally, they were asked to indicate the percent of patients with OAB in their practice and the number of OAB patients seen per week. These questions were added to the overall assessment tools after noting the importance of these variables in the professional interviews

that were conducted. As a practical matter, many of these demographic/practice variables help to identify likely target audiences for educational and systems interventions for improving patient care.

Study Sample

In order to allow reasonable psychometric analysis of the instruments and item analysis, it was determined that we needed approximately 150 physician participants to complete all tools. We made the decision to develop a sample population that roughly reflected the physician groups that were interviewed in the initial phase of this study. The three major interview groups were primary care physicians (general internists and family physicians), Ob/Gyns, and urologists. Urogynecologists were not included in the tool analysis because we felt that they did not constitute a unique group apart from urologists. A sample of 50 physicians in each of the three specialties was selected from a large database of physicians purchased from a database vendor Global Marketing Insite.

The tools were configured as a single survey that was made available to potential respondents via the Internet. Potential respondents were solicited via e-mail and provided a link to the survey. All responses were anonymous.

Knowledge Assessment Tool

The overall purpose of the Knowledge Assessment Tool is to quantify knowledge of current guidelines and evidence related to OAB epidemiology, screening, diagnosis, treatment and management. The tool is designed to be applicable to primary care physicians as well as specialists.

The first challenge in the development of the Knowledge Assessment Tool was to identify the currently accepted treatment guidelines for overactive bladder. An extensive literature search, and discussions with various experts, revealed that there are few published guidelines in this clinical area and the most current guidelines were developed outside of the United States and not generally known or accepted by American physicians. The research literature, describe elsewhere in this report, did represent some consensus in the areas of screening, diagnosis and treatment. Interviews with patients, specialists, and primary care physicians supported a number of key findings in the research literature. The majority of the current scientific literature on overactive bladder is focused in the areas of differential diagnosis and treatment. There is also a broad epidemiological literature indicating that OAB is significantly underdiagnosed and undertreated.

The knowledge assessment questions were developed around points of general consensus in the translational research literature. Areas of controversy or confusion were generally avoided. All questions have at least one authoritative reference. The focus areas of the tool are:

- Distinguishing different types of incontinence through patient history and exam.
- Factors important to selecting appropriate treatment options.
- Determination of appropriate consultation to rule-out other serious medical problems.
- Effects of various pharmacological treatments on bladder control.

The questions use several different formats. Most of the items are multiple choice questions with four possible answers: one correct answer plus three distracters. Several items offer the possibility of several correct answers in the form of “all of the above” and “none of the above.” There are also several dichotomous answer questions (e.g., True/False). The knowledge assessment instrument, as tested for this project, includes 20 items. A copy of the final Knowledge Assessment Tool is attached (Figure 11).

Figure 11: Knowledge Assessment Tool

Please read the case vignette, and then answer the questions that follow.

Case 1:

A 34 year old bank manager presents to your office with urge incontinence occurring at least once a week. She takes a thiazide for hypertension and has a past medical history significant only for a C-section 2 years ago.

1. When taking a history for urinary incontinence in women, which item is least likely to be a factor in assessing leakage?
 - a) Obstetric history
 - b) Pelvic surgery
 - c) Medications
 - d) Coital frequency

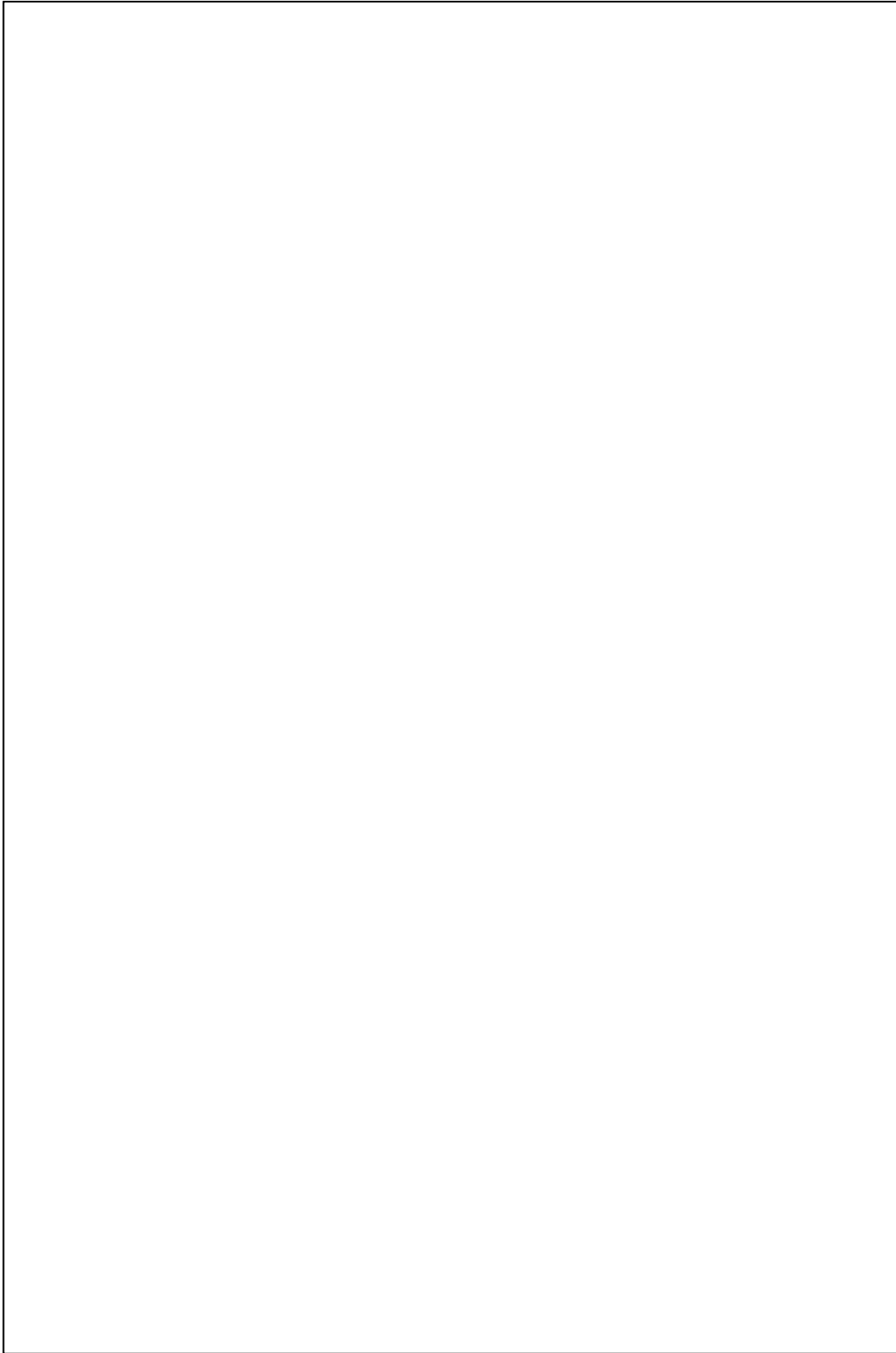
2. The prevalence of overactive bladder is approximately equal for males and females.
 - a) True
 - b) False

3. Which of the following classes of medicines is least likely to potentiate urinary incontinence?
 - a) Tricyclic antidepressants
 - b) Laxatives
 - c) Diuretics
 - d) Calcium channel blockers

4. Which of the following types of urinary incontinence has been shown to most greatly affect the quality of life in women?
 - a) Urge incontinence
 - b) Stress incontinence

5. There is no relationship between men with benign prostatic hyperplasia (BPH) and overactive bladder.
 - a) True
 - b) False

6. Which of the following is a characteristic of urge incontinence?
 - a) Involuntary loss of urine associated with a strong desire to void
 - b) Involuntary loss of urine during coughing, sneezing, laughing, or other physical activities
 - c) Frequent or constant dribbling of urine



Case 3:

A 28 year old paralegal reports an 8 month history of urgency and frequency. She has had two episodes of urinary incontinence in the past several weeks. She denies any dysuria, hematuria or suprapubic pain. She is not sexually active. A urinalysis and urine culture was previously checked at a walk-in clinic (both negative). Her symptoms still persist despite eliminating caffeine and sodas from her diet.

12. What factor would be an absolute contraindication to anticholinergic therapy?
- a) Paralytic ileus
 - b) Open angle glaucoma
 - c) Wolf Parkinson White syndrome
 - d) Atrial fibrillation
13. In women, which of the following treatments along with diet modification would you recommend if your patient's predominant symptom was urge incontinence?
- a) Bladder suspension surgery
 - b) Timed voiding and pelvic muscle exercises
 - c) Periurethral collagen injections
 - d) Alpha blockers
 - e) Calcium channel blockers
14. Which of the following behavioral techniques are **not** used for the treatment of urinary incontinence?
- a) Toileting assistance
 - b) Bladder retraining
 - c) Pelvic muscle rehabilitation
 - d) Relaxation therapy
15. What is the most effective pharmacological treatment for urge incontinence?
- a) Calcium channel blockers
 - b) Tricyclic antidepressants
 - c) Antimuscarinic agents
 - d) Non-steroidal anti-inflammatory agents
16. Anticholinergic medications are **not** used in urge incontinence to:
- a) Strengthen the detrusor muscle
 - b) Decrease urgency
 - c) Increase functional bladder capacity
 - d) Inhibit inappropriate detrusor contraction

In addition to counseling and reiterating the importance of dietary modification (i.e. elimination of caffeine, etc), you decide to treat the patient in **Case #3** with anticholinergic medication. She is seen for follow-up after a month of therapy. She reports that her symptoms of urgency, frequency and urge incontinence have resolved.

17. Which one of these side effects is **not due** to anticholinergic medications?
- a) Dry mouth
 - b) Constipation
 - c) Blurry vision
 - d) Weight gain
18. Which is an effect of anticholinergic agents in the treatment of urinary incontinence?
- a) Blocks contractions of the detrusor muscle
 - b) Lowers intravesical pressure
 - c) Increases voided volume
 - d) All of the above
19. In counseling patients with OAB, all of the following are acceptable explanations **except**:
- a) A common association with OAB is sudden urge to urinate or a strong desire to void
 - b) Some patients with OAB may experience frequent trips to the bathroom and/or getting up at nighttime to urinate
 - c) Unintentional loss of urine associated with urgency is seen with OAB
 - d) Incomplete bladder emptying and/or suprapubic pain are universal symptoms in patients with OAB
20. What are reasons to consider referral or consultation?
- a) Lack of improvement with adequate trial of therapy
 - b) New symptoms of dysuria with negative urine culture
 - c) Development of constipation while on an anticholinergic
 - d) All of the above
 - e) a and b only

The scores on the 20-item Knowledge Assessment Tool were standardized to a 0-100 point scale based on the 151 physician responses. The mean score on the Knowledge Assessment Tool was 65.44 (SD=8.63). The urologists, in general, scored significantly higher than either the primary care physicians or the obstetricians/gynecologists (Table 6).

Table 6 Scores on Knowledge Assessment Tool

Specialty	N	Mean	Standard Deviation
Primary Care Providers	50	63.04	7.19
Ob/Gyns	50	62.47	7.03
Urology	51	70.71	9.02
Total	151	65.44	8.63

Of the 20 questions in this tool, over a third (7 of 20) were found to have significant differences between the three specialties. Urologists scored higher than either of the other two specialties on 10 of 20 questions. Primary care physicians had the highest average score on five items and obstetrician/gynecologists scored highest on three items. The standardized scores ranged from 49 to 100. The standardized scores are roughly equivalent to percentages.

The data from the validation scores for the knowledge assessment instrument indicate that two general gaps exist in knowledge: a gap between urologists and the other two specialties; and a gap between optimal knowledge and current knowledge for all types of practitioners. It's not reasonable to assume that a 20-item Knowledge Assessment Tool can measure a comprehensive range of knowledge regarding OAB. Only one individual (a urologist) had a perfect score and two other (also urologists) scored 19 of 20.

The Knowledge Assessment Tool provides good insight into areas where knowledge is high (> 90% correctly answered the item), moderate (correct responses between 50% and 90%) and low (correct responses below 50%). There were only three questions where fewer than 50% of the respondents correctly answered the item (See Figure 13). However, almost half of the questions (9 of 20) were found to indicate moderate levels of knowledge across all three specialties. It is also possible to see the areas of knowledge discrepancy between the three specialties by examining individual items (Figure 13).

Figure 13 Knowledge assessment responses showing % correctly responding to question

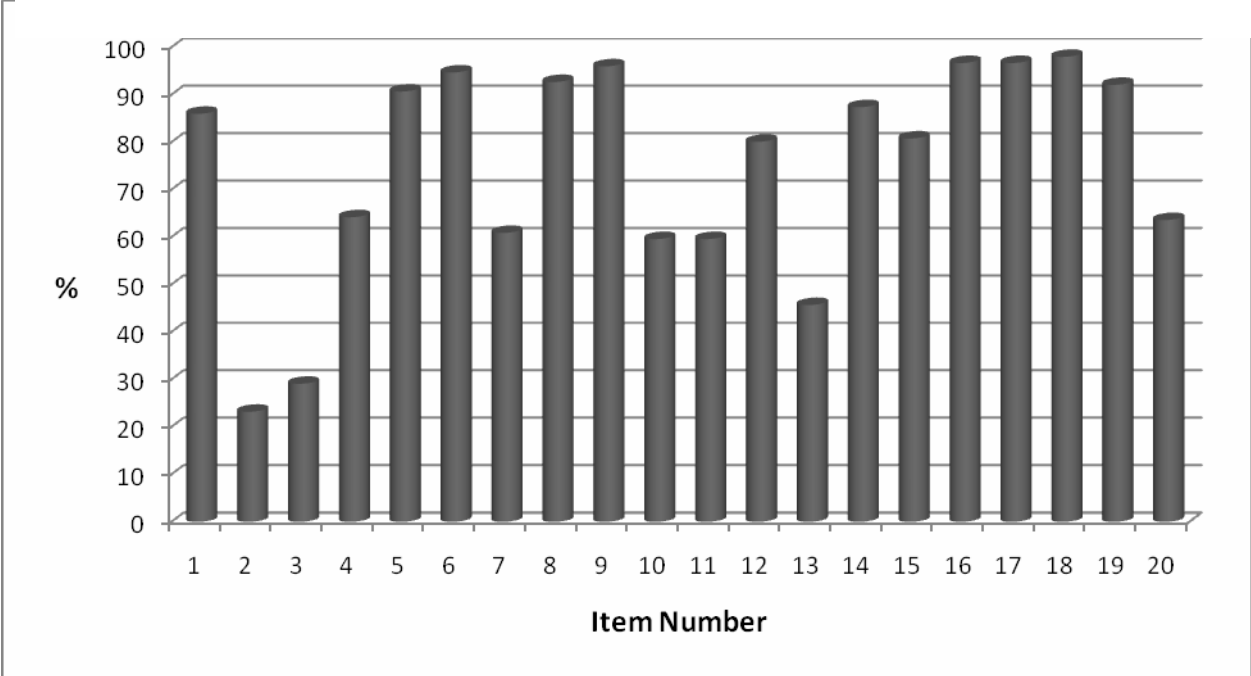
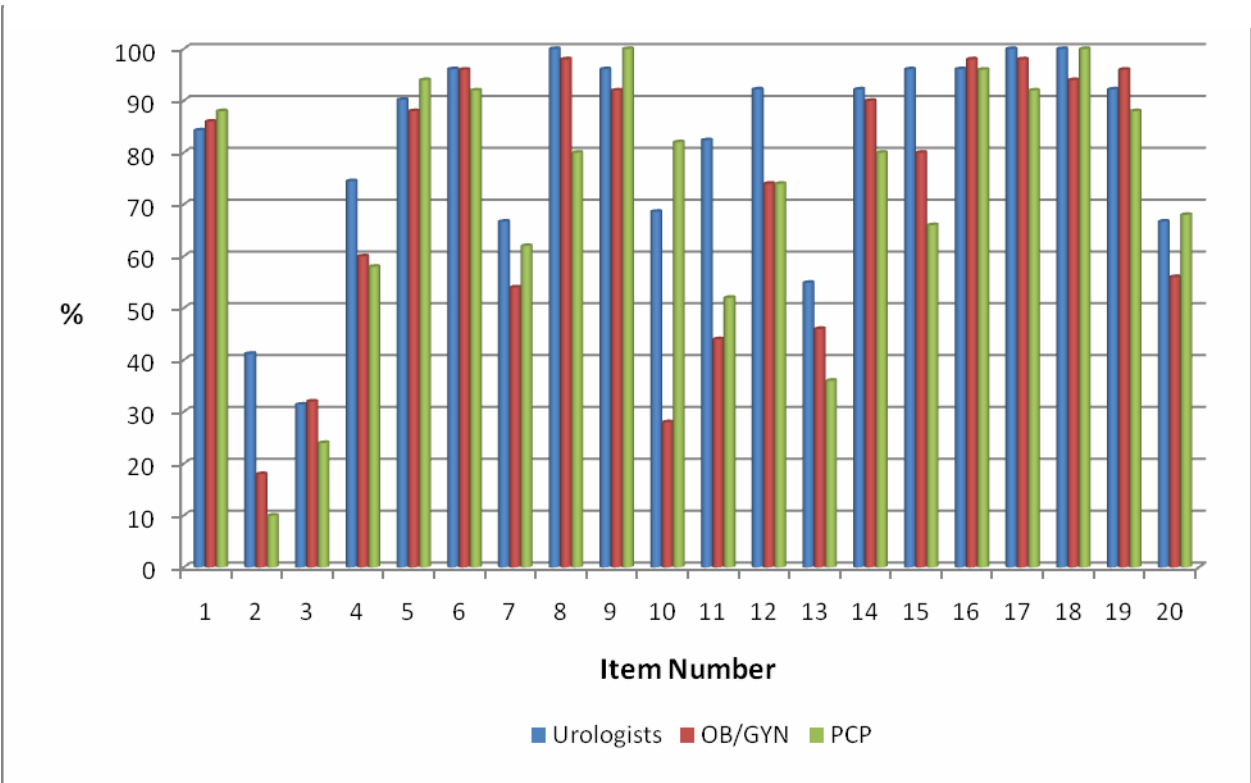


Figure 12 Knowledge Assessment responses by specialist



Practice Behavior Assessment Tool

The Practice Behavior Assessment Tool was designed to gather information related to how physicians screen, diagnose, and treat patients with OAB. The range of assessed behaviors was derived primarily from the data of interviews with patients, primary care physicians, urologists, obstetricians/gynecologists, and urogynecologists. The practice behaviors described in the interviews were compared with the consensus findings from the literature. Questions that allow direct comparisons between behaviors described by practitioners and best practices from the literature can be used to directly assess gaps in practice. The questions were also designed to allow comparisons between knowledge and practice.

Overall the Practice Behavior Assessment Tool is composed of 37 items that ask physicians to indicate how often they engage in different screening, diagnostic, and treatment behaviors and to reflect on their perceptions of various aspects of their practice related to OAB. The latter questions are meant to help distinguish issues of competence and barriers to optimal care. The 37 items embedded in 10 questions were divided into four “sets” that measure the following: 1) Common presentations of OAB in practice, 2) Screening, diagnosis, and treatment strategies, 3) Perceived barriers to care, and 4) Perceptions of success. Each set was examined psychometrically (see appendix 3 for details) and was found to be both valid and reliable.

Set 1: Common presentations of OAB in practice

This measure consists of six screening items presented to the survey respondents in which each item can be answered using a rating scale of “very common”, “somewhat common” and “rare” (Figure 14). The score for this set was standardized on a 0-100 scale in which high scores indicate that the physician finds the presentations to be more common. Of the four sets, this set presents the most challenges to developing a meaningful scoring interpretation and we are continuing to examine several psychometric models for this set. The interpretation of the current scoring schema is that physicians with high scores see OAB under a wider range of presentations and circumstances. The overall mean score on Set 1 was 57.82 on the standardized scale of 0-100 (Figure 14). Urologists had the highest mean scores on this scale (mean=61.44, SD=11.55). The primary care physicians and obstetricians/gynecologists had mean scores that were statistically lower than the urologists (54.64 and 56.71 respectively).

very common _____ somewhat common _____ rare

very common _____ somewhat common _____ rare

Table 7: Scores on Set I Practice Tool

Specialty	N	Mean	Standard Deviation
Primary Care Providers	50	54.64	7.94
Ob/Gyns	50	56.71	7.46
Urologists	51	61.44	11.55
Total	151	57.82	9.56

Set 2: Screening, Diagnosis, and Treatment Strategies

Set 2 consists of 11 items that assess how often a physician uses various strategies to screen, diagnose, and treat OAB. All of these items use a 5-point response scale: “Always,” “Often,” “Sometimes,” “Seldom,” and “Never” (Figure 15). The total score from the 11 items was standardized on a 1-100 scale in which the increased use of each of the screening, diagnostic, and treatment strategies received a higher score.

Figure 15: Set 2- Screening, Diagnosis, and Treatment Strategies

How often do you specifically screen for bladder-related problems with your patients?

Always	Often	Sometimes	Seldom	Never
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

How often do you use the following in screening and diagnosing OAB?

	<u>Always</u>	<u>Often</u>	<u>Sometimes</u>	<u>Seldom</u>	<u>Never</u>
A standard verbal screen tool	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Patient history	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Physician exam	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Patient voiding diary	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Laboratory tests	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Referral to a specialist	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Medication trial	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

How often do you use the following approaches to treating patients with OAB?

	<u>Always</u>	<u>Often</u>	<u>Sometimes</u>	<u>Seldom</u>	<u>Never</u>
Drug Therapy	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Behavior Therapy	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Combination Drug / Behavior therapy	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Like Set 1, there are several ways to weight the scores of individual items. In our current psychometric model, each item is given equal weight and the total score reflects a more frequent use

of all of the items. Other models that reflect a relative use of various strategies for screening, diagnosis and treatment could be developed around subsets of items or weighting of items that reflect treatment strategies for different specialties. This is particularly true of the three treatment strategy items.

The average standard score on Set 2 was 53.98 (SD=6.45). Urologists had the highest average score (55.55). Obstetrician/gynecologists had a slightly slower average score (54.03) and the difference between their average score and that of urologists was not statistically different (Table 8). Primary care physicians had an average standard score of 52.34, which was statistically lower than that of the urologists but not different from that of the obstetrician/gynecologists.

Table 8: Scores on Set 2 Practice Tool

Specialty	N	Mean	Standard Deviation
Primary Care Providers	50	52.34	7.66
Ob/Gyns	50	54.03	6.24
Urologists	51	55.55	4.88
Total	151	53.98	6.45

There were a number of items within Set 2 where there were significant differences in behavior among the three specialties. The overall score from Set 2 items can be very helpful in identifying an overall gap in practice, but the individual items can inform educators about the exact nature of the gap., for example, illustrates a statistically different pattern of screening for bladder-related problems. A very high percentage (98%) of urologists indicated that they screen their patients “often” or “always.” This may be considered the “gold standard” by which to compare screen rates among obstetrician/gynecologists (80%) and primary care physicians (66%).

Table 9: How often do you screen for bladder-related problems with your patients?

Specialty	Never %	Seldom %	Sometimes %	Often %	Always %
Primary Care Providers	2	4	28	60	6
Ob/Gyns	0	10	10	54	26
Urologists	0	0	2	45	53
Total	1	5	13	53	29

There were several areas of screening and diagnosis that significantly varied by specialty. Over 60% of urologists and Ob/Gyns use a standardized screening tool (often or always), compared to only 30% of primary care providers. Likewise, urologists use a patient voiding diary (often or always) 43% of the time compared with 34% for Ob/Gyns and 22% of PCPs. Primary care providers tended to refer more often than the other specialists but there were no significant differences between the three physician groups regarding their treatment preferences. Table 10 outlines the combined physician group responses to the seven screening and diagnosis items.

Table 10: Use of screening and diagnostic tools for combined physician group

Screening/diagnostic tool	Never %	Seldom %	Sometimes %	Often %	Always %
Verbal screening tool	12.6	12.6	23.8	29.1	29.9
Patient history	.7	6.6	0	29.8	62.9
Physical exam	.7	8.6	19.9	27.2	43.7
Patient voiding diary	10.6	17.2	39.1	27.8	5.3
Laboratory tests	9.3	17.2	35.1	27.8	10.6
Referral to a specialist	19.9	26.5	31.1	17.9	4.6
Medication trial	.7	4.6	22.5	62.9	9.3

There were no differences found among the three specialty groups for the three therapy items (Table 11). All three types of therapy are commonly used (often or always) but drug therapy alone is most likely to be used (90.1%). Conversely, behavior therapy alone is least likely to be used (often or always) (59.6%).

Table 11: Use of treatment strategies for combined physician group

Therapy	Never %	Seldom %	Sometimes %	Often %	Always %
Drug therapy	.7	11.3	0	63.6	24.5
Behavior therapy	.7	8.6	31.1	38.4	21.2
Combination therapy	1.3	5.3	19.9	56.3	17.2

Set 3: Perceived Barriers to Optimal Care

Figure 16: Set 3-Physician Perceived Barriers to Optimal Care

If you have been less successful than you would like to be with patients with overactive bladder, to what extent have the following factors been barriers to optimal care?

	Major Barrier	Moderate Barrier	Minimal Barrier	Not a Barrier
Cost/Reimbursement	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Time	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Availability of effective treatments	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Patient compliance	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Knowledge of OAB	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Priority (relative to other diagnoses)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

This set of items consists of six items designed to identify the degree to which common barriers to overall care were directly applicable to the care of patients with OAB (Figure 16). These items used a 4-point response scale that included: “Major Barrier,” “Moderate Barrier,” “Minimal Barrier,” and “Not a Barrier.” Scores on the six items were combined and standardized on a 0-100 scale in which high scores reflected “lower” perceived barriers. In other words, physicians who perceived that the six items were not barriers to care would receive a high score and those who perceived the items to be major barriers would receive a low score on this set.

The items in this set are relatively homogeneous and there is only a single logical psychometric model to apply to the items in the set. All of the barrier items have been identified in the medical literature as being common hurdles to optimal practice regardless of the condition. The overall mean for standard scores on this set is 46.68 (SD=11.45). On this set the obstetrician/gynecologists scored highest (fewer barriers) and urologists indicated that they perceived the greatest number of barriers (Table 12). Primary care providers had a mean score between the other two specialty groups. It should be noted that the standard deviations on this tool were much higher than on other tools. This indicates a much higher score variability within specialty groups.

Table 12: Scores on Set 3 Practice Tool

Specialty	N	Mean	Standard Deviation
Primary Care Providers	50	47.08	12.38
Ob/Gyns	50	49.00	9.24
Urologists	51	44.02	12.12
Total	151	46.68	11.45

Statistical differences were found among the three physician groups for four of the six items in the Set 3 index. There were no differences for “cost/reimbursement” and “availability of effective treatments.” Time and priority (relative to other patient problems) was perceived to be a much greater barrier for primary care physicians than the other specialties. However, primary care physicians saw patient compliance as a relatively minor barrier relative to obstetrician/gynecologists and urologists. Table 13 illustrates the responses of the combined physician groups to the individual barrier items.

Table 13: Perceived barriers to optimal care for combined physician group

Barrier	Not a barrier %	Minimal barrier %	Moderate barrier %	Major barrier %
Cost/Reimbursement	10.6	30.5	48.3	10.6
Time	12.6	40.4	41.1	6.0
Availability of effective treatment	8.6	35.8	49.0	6.6
Patient compliance	2.6	27.8	56.8	13.2
Knowledge of OAB	26.5	41.1	26.5	6.0
Priority (relative to other diagnoses)	14.6	46.4	35.1	4.0

Set 4: Perceptions of Success

A fourth set was designed to elicit physicians' opinions of how successful they have been in addressing OAB in their patient population. It consisted of four items (Figure 17) that rated success on a 4-point scale: "Very Successful," "Successful," "Somewhat Successful," and "Rarely Successful." The cumulated scores were standardized on a 0-100 scale in which high scores represented a greater perception of success.

The overall mean score (across all physician types) was 58.68 (SD=17.2). The different specialties were distinct in that each group's responses were found to be statistically different from the other two. As with Set 3, the underlying psychometric structure of this set lends itself to a single, homogeneous construct related to perceived success. Statistical differences among the physician groups were found for two of the four items: screening and diagnosis. Primary care providers perceived their success in both of these areas as much lower than the perceptions of both of the other physician groups.

Table 14 illustrates the distribution of responses for the combined groups of physicians. In general, physicians perceive that they are much more successful with screening and diagnosis than treatment and patient education.

Figure 17: Set 4-Perceptions of Success

Please rate your success with the following aspects of overactive bladder in your practice.

	Very Successful	Successful	Somewhat Successful	Rarely Successful
Screening	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Differential Diagnosis	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Effective Treatment	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Patient Education	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Table 14: Perceived success for combined physician group

Area of Success	Rarely successful %	Somewhat successful %	Successful %	Very successful %
Screening	6.0	24.5	48.3	21.2
Differential diagnosis	2.6	21.9	58.9	16.6
Effective treatment	2.0	41.7	46.4	9.9
Patient education	2.0	40.4	45.0	12.6

Interrelationships between Knowledge Assessment and Practice Behavior Assessment

The interrelationship between knowledge and practice is a critical consideration in understanding how to intervene to improve patient care. The creation of indices for knowledge and several compiled measures related to practice allows us to examine how levels of knowledge are related to behaviors as well as perceptions of barriers to care and perceptions of overall success. Table 15 depicts the raw correlation between the Knowledge Assessment Tool and each of the four sets that were developed around practice.

Table 15: Correlations between the Knowledge Assessment Tool and Practice Behavior Assessment Tools

	Set 1: OAB presentation in practice	Set 2: Screening, diagnosis, and treatment	Set 3: Barriers to Care	Set 4: Perceptions of Success	Knowledge Assessment
Set 1	1				
Set 2	.241**	1			
Set 3	-.132	.068	1		
Set 4	.328**	.500**	-.228**	1	
Knowledge Assessment	.182*	.157	-.225**	.126	1

* p<.05

** p<.01

Significant relationships were found in six of 10 correlations generated by the matrix of the knowledge assessment and four sets. Set 4 (Perceptions of success) was found to correlate with all other sets and the Knowledge Assessment Tool. All indicators statistically correlated with at least two other measures. In general, this strongly suggests a relationship between knowledge, behavior, and perceptions regarding practice. The correlations for Set 1 (OAB presentations in practice) indicate that when physicians see a lot of varying presentations of OAB in their patients they are also employing a wider range of screening and diagnostic tools and perceiving greater levels of success. Additionally, higher scores on the knowledge index is also related to seeing more, and a wider

variety of, OAB presentations in their offices. Set 2 (screening, diagnosis and treatment practices) had a remarkably high correlation with perceptions of success (Set 4). The high correlation reflects high perceptions of success in physicians that have higher rates of screening, use a variety of diagnostic tools more frequently, and use all three strategies of treatment often. Physicians who perceived that they face a number of barriers to optimal care also perceived lower rates of success and tended to score lower on the Knowledge Assessment Tool. This latter relationship raises the possibility that improving a doctor's knowledge about OAB might help overcome or avoid common barriers to caring for patients with OAB.

Implications for CME

Health care provider education alone is insufficient to improve detection and treatment. Successfully improving detection depends on key elements in the practice setting, specifically, that 1) care providers must value identifying the condition; 2) care teams must develop protocols that clarify who will ask, what questions will be asked, when in the care encounter the questions will be asked, how the answers will be gathered (written survey, direct query, computer assisted tools, conversation with caregiver or family, and which patients will be asked systematically, 3) practices must explicitly identify resources for patient education materials and referral; and 4) providers must have confidence in the ability of the treatments to work.

NIH conference on the prevention of fecal and urinary incontinence in adults²³

This needs analysis identified multiple gaps in knowledge and practice that ultimately impact patient health. The data gathered from 600 physicians, health care professionals, and patients who participated in this project helped to illuminate some complex relationships among the knowledge, practices, and practice characteristics that contribute to the level of care that is currently provided to patients. It should be noted that the ability to generalize these findings to other specific physician populations needs to recognize that each physician target audience is unique. However these trends and approximations can ground education on OAB through data driven analyses. Additionally, the tools that have been developed in this project can be easily applied to any health care provider group to customize a needs assessment for a particular constituency.

At the core of this needs assessment is the lack of US-based consensus guidelines. National standards of care are not widely implemented available within the medical community, and therefore comparison of current practices to evidence-based standards is not possible. The literature and expert opinion supports dividing OAB into 5 constituent areas of evaluation: screening, diagnosis, treatment and referral. The fifth area summarizes the desired attributes for OAB education.

A portion of the needs identified in this assessment, in particular those from the interviews and CRI, have been labeled “perceived needs”, because they are the perceptions of the target audiences themselves. This makes them no less important to medical educators than the “real needs” identified via current literature, knowledge, and practice assessments. However, the perceived needs should be dealt with differently in some cases than the real needs. For example, perceived needs may be emphasized more strongly in program marketing materials in order to attract the attention of the target audience. Of course the content of educational interventions should address **both** real and perceived needs.

Screening

- Incorporate tools and process changes that support proactive screening of male and female patients for OAB and urinary tract symptoms. Tools and processes should address the time concerns felt within primary care practice settings.
- Address patient/physician communication issues so that symptoms of OAB are acknowledged as societal, quality of life and health concerns by physicians thereby encouraging patients to provide a timely and accurate representation of their symptoms.

The interviews and practice behavior assessment data show that PCPs understand the significant impact OAB can have on a patient's quality of life, but they do not feel that OAB is clinically important when compared to chronic diseases such as CHD, hypertension, and diabetes. This prioritization translates to the stated concerns in the interviews about lack of time, and the lower frequency rates for screening shown by the Practice Behavior Assessment Tool. The interview data support the patient embarrassment and belief that OAB is part of aging, and therefore shouldn't be raised until symptoms impact quality of life. Physicians commonly discover that patients' symptoms have existed for six months or more before they are reported or discovered. Within the Practice Behavior Assessment Tool urologists and Ob/Gyns reported greater and more consistent use of tools than PCPs.

The knowledge assessment data, literature, and guidelines show that all physicians underestimate the prevalence of OAB in men, thereby leading to decreased screening and diagnosis.²⁴

Screening data from the Practice Behavior Assessment Tool suggests that the more a physician screens for and diagnoses OAB, the more they are able to identify varied presentation of symptoms as initially presented by patients.

Diagnosis

- Improve/refine physician evaluation skills to diagnose OAB through patient history, physical examination and appropriate testing.
- Acknowledge, accommodate and address the pitfalls of diagnosing OAB through patient response to a trial dose of appropriate pharmacotherapy.

Physicians consider OAB difficult to diagnose: the lack of practice guidelines adds to the difficulty. The Knowledge Assessment Tool found that the overall knowledge of OAB is moderate. Through interviews, the CRI and Practice Behavior Assessment, PCPs and Ob/Gyns identified a need to improve their ability to perform a complete urologic or gynecologic exam of patients with OAB symptoms. The practice assessment data indicate that physical exams are seldom performed by 25% of the respondents. Other than routine urinalysis, lab tests are not typically part of diagnostic

assessment, particularly within primary care. Interviews and practice assessment data found that lab tests are routinely performed by only a third of physicians. In the Knowledge Assessment Tool, all respondents performed poorly when asked to identify what other pharmacologic agents might impact incontinence reinforcing the need to identify risk factors for OAB.

Trial doses of anti-cholinergics are a common diagnostic technique for OAB. If these medications are found to be effective, it is considered confirmatory of OAB. Conversely, if this therapy fails, other diagnoses are considered. This methodology is supported through the literature, interviews and the practice assessment. This diagnostic strategy, however, creates several traps for physicians. PCPs report trying one or two different drugs before either altering their diagnosis or referring to a specialist. Other strategies, including testing, may be appropriate for patients initially refractory to therapy but with recurring incontinence. Physicians also reported a high need to integrate behavioral and drug therapy. The literature supports this strategy and physicians desire this approach, but if a patient is diagnosed using drug therapy alone, it may be challenging to integrate behavioral therapy once the patient's symptoms have subsided.

Somewhat paradoxically, all physicians rate their success with screening and diagnosis higher than their success with treatment, yet the individual components of screening and diagnosis generally rate lower than treatment in the knowledge and behavior assessment components.

Treatment

- Address physicians' lack of knowledge and confidence around integrated pharmacologic and behavioral therapy.
- Incorporate new data on effective treatment regimens and overall clinical management thereby accommodate high physician value placed on new data and opportunities to increase knowledge.

Through the Practice Behavior Assessment Tool, physicians report frequently using drug therapy alone, but do combine behavioral and drug therapy. While the literature on drug therapy dominates the primary research literature, guidelines support use of combined therapy. Responses on the knowledge assessment were significantly lower on questions related to behavioral therapy than on any other therapy-related question, and the CRI reports the highest gaps between present and desired skill on the ability to integrate multiple therapies (including behavioral). Additionally, the CRI and interviews support the perceived need for PCPs to learn more about treatment. Patient compliance issues were identified as barriers by urologists which may support comments from the interviews that behavioral therapy is too difficult to use because it takes too long to teach and

patients don't comply with the required changes. PCPs, however, reported relatively few problems with patient compliance as a barrier to care.

Referral

- Provide a framework or tools for PCPs and Ob/Gyns to work with community urologists and develop criteria for appropriate referrals.
- Perform appropriate testing in refractory cases to reduce inappropriate referrals and accelerate care for those in need of specialist care.

The literature recommends referral from primary care to urologists when patients are refractory to therapy or are diagnosed with other bladder functioning disease, but no clear recommendations exist as to what testing or evaluation should happen prior to referral. Urologists do not refer as they address all urinary dysfunction. PCP interviews indicate that most will refer after a treatment failure, with no other testing. The CRI and Practice Behavior Assessment Tool report high variability in the Ob/Gyn responses to items on referral. Some Ob/Gyns will treat most patients while others are more likely to refer to specialists.

Attributes of learning

Content should be customized for the local situation. Education should address specialty, practice setting, and local standards of practice.

Educational design should excite the learner and engage participation.

The discussion above summarizes implications for education focused on patient outcomes as this remains the focus for CME. This needs assessment also uncovered considerations of how CME should be delivered to optimize the impact.

In many areas, PCPs, Ob/Gyns and Urologists provided similar responses to the interview, CRI, knowledge assessment and practice assessment instruments. However, their responses did vary. Responses from Ob/Gyns frequently correlate with PCPs related to knowledge, but their attitudes and behaviors more closely track with Urologists. For example urologists and Ob/Gyns reported more consistent use of screening tools than did PCPs. PCPs rated time as a more significant barrier than the other specialties. While most PCPs rate barriers to optimal care as low, 20% of PCPs identify significant barriers related to the time required to make the desired change in their practice, restrictions in formulary, the training they have had in this area and other responsibilities that prevent them from making appropriate changes. A negative statistical relationship was found between perceived barriers to optimal care and overall knowledge of OAB. Physicians who scored higher on the Knowledge Assessment Tool tended to perceive lower barriers to care.

The tools validated and used within this needs assessment can be used by educators to assess the knowledge and practice of their learners. Any education should address practice setting, years in practice, knowledge and barriers identified in their practice.

Physicians perceive low forces for change. Other than quality measures for the Medicare population, no significant external forces are influencing change related to OAB. Knowledge and new clinical information rate as the greatest facilitators for change. However, the lack of knowledge is not viewed as a barrier to care. Therefore, educational activities should draw learners to participate and not rely solely on the topic to encourage participation. No significant preferences for educational format were uncovered.

An educational program designed around the ABMS/ACGME educational competencies might address gaps identified from this needs assessment as follows:

Patient care	Identify impact on patients through use of validated tools that integrate symptom and quality of life impact. Provide patient education tools that address barriers patients feel in discussing OAB with their physicians.
Medical knowledge	Explain bladder function and impact of therapy on bladder muscle function, address differences in bladder emptying between men and women, identify comorbidities that support diagnosis, evaluate therapy risk versus benefit, integrate behavioral and pharmacologic therapies.
Practice-based learning & improvement	Analyze current practice related to screening and implement new screening procedures. Address practice concerns identified in the Scottish treatment guidelines.
Interpersonal and communication skills	Address sensitive topics with patients through the use of screening tools.
Professionalism	Not specifically addressed
Systems-based practice	Identify and redesign practice to address OAB screening and treatment at appropriate opportunity in office visit; address follow-up opportunities

Any educational program designed from this needs assessment should incorporate the appropriate outcomes analysis to measure the change in practice gaps.

Conclusions

While most medical educators intuitively perceive a connection between knowledge and practice, tools have not existed to examine the nature of that relationship, the impact of other variables such as perceived barriers to care, and perceptions of success. The initial examination of these complex relationships were explored within this needs assessment. Knowledge was indeed found to correlate positively with both practice and perceived success- the more knowledgeable the physician, the more effective their practice and the greater their measure of success. Additionally, strong negative relationships were found between knowledge and practice, on the one hand, and perceptions of barriers on the other. Perceived barriers appear much greater for those who were identified as less knowledgeable.

The significant negative relationship between knowledge and perceived barriers is very interesting from the medical education perspective. It has been generally believed that barriers to care are independent factors unrelated to a physician's knowledge. However, the findings of this study suggest that physicians might be able to overcome barriers if they were more knowledgeable in a particular disease state.

Within this project are several "lessons learned" for future needs assessment projects. Guideline evaluation must be the initial step. If, as was the case in this and many therapy areas, the "gold standard" for care does not exist, it must be defined through consultations with experts, literature analysis or through other resources. Interviews are designed to validate translation of guidelines into practice and identify current forces that impact behavior. Together the guidelines and interviews provide the foundation for development of both qualitative and quantitative assessment tools.

Most CME providers do not have the resources to execute a comprehensive needs assessment, but by examining the components- target audience, guidelines, performance measures, knowledge, desire to change, forces for change, physician and patient attitudes, and practice behavior, a needs assessment can provide the foundation for appropriate educational design. Validated tools to conduct and interpret needs assessments can be especially valuable for developing effective educational interventions.

Appendix A Methodology for Guidelines and Literature

Guidelines

For the guidelines search using Google the search terms used were “urinary incontinence clinician guidelines,” “overactive bladder clinician guidelines,” and “urge urinary incontinence clinician guidelines.” In the National Guideline Clearinghouse, “overactive bladder syndrome,” “urinary incontinence” and “urge urinary incontinence” were used. The guidelines were noted by region, and given a quality grade and then sorted accordingly. The quality was determined by depth (or thoroughness) of guideline [A], clarity of recommended procedure [B]¹, how current the information and terminology was [C], and whether or not the guideline mentioned OAB specifically [D]. Each guideline was evaluated in each criterion [A-D] and each letter was assigned a score for quality. The scoring system was as follows: 1 = excellent, 2 = good, 3 = fair, 4 = poor. The numbers were then averaged and the guidelines appropriately grouped. Number scores less than 1.5 were graded as I- good, scores from 1.5—2.5 were graded as II- fair, and 2.5-4 were graded as III- poor. Only those guidelines rated of a high quality in all criteria received a good rating.

LITERATURE: The associated MeSH database was used to find appropriate search terms, which were applied to the PubMed database. The search criteria were for both OAB and urge urinary incontinence (UUI). Articles were searched in all areas applying to OAB—syndrome classification, diagnosis, therapy and prevalence. The same were applied to UUI. A list of search criteria follows:

1. "Urinary Bladder, Overactive"[Mesh] AND "Urinary Bladder, Overactive/classification"[Mesh]
2. "Urinary Bladder, Overactive"[Mesh] AND "Urinary Bladder, Overactive/diagnosis"[Mesh]
3. "Urinary Bladder, Overactive"[Mesh] AND "Urinary Bladder, Overactive/therapy"[Mesh]
4. "Urinary Bladder, Overactive"[Mesh] AND "Prevalence" [Mesh]
5. "Urinary Incontinence, Urge"[Mesh] AND "Urinary Incontinence, Urge/classification"[Mesh]
6. "Urinary Incontinence, Urge"[Mesh] AND "Urinary Incontinence, Urge/diagnosis"[Mesh]

¹ Treatment recommendations were similar across all guidelines and therefore the quality of the recommendation was not specifically rating could be added by appropriate clinicians as appropriate.

7. "Urinary Incontinence, Urge"[Mesh] AND "Urinary Incontinence, Urge/therapy"[Mesh]
8. "Urinary Incontinence, Urge"[Mesh] AND "prevalence" [Mesh]

After the searches in PubMed were completed, each criterion was totaled, and then sorted through to determine the distribution across specialties. The natural groupings became; "Urology," "Gynecology," "Primary Care," "Geriatrics," "Post Surgery," "Drug/Pharmacology (*only*)", and "Other Conditions." The "Drug/Pharmacology field is for those papers that are purely pharmacological and not linked with Urology or any other field. Percentages were calculated for each of the search criteria. The therapy search criteria (#3 and #7) were subcategorized to further map out the distribution of the papers within that group. Papers were grouped according to the general subject of the paper; drug therapy trials and research, non-drug therapies and research, and practical direction about therapies for clinicians.

Summary of Guidelines

Guideline	Year	Rating	Sources	Strength/Weakness	Diagnosis	Treatment
European Association of Urology	2006	I	Specialists	Update of 2001 guideline. Includes multiple algorithms including men, women, children, elderly, neurologic. Recommends standardized and validated tools. Supports early referral to specialist	<ul style="list-style-type: none"> ▪ History ▪ Urinary Diary and symptom score ▪ Assess desire for treatment ▪ Physical exam ▪ Urinalysis ▪ Post-void residual 	<p>For UI-</p> <p>Lifestyle interventions</p> <p>Bladder retraining</p> <p>Antimuscarinics</p>
Scottish Intercollegiate Guidelines Network	2004	I	Multi-disciplinary	Focused on primary care, evidence based, includes resources implications of recommendations, algorithm, practice "pearls", recognizes difficulty of topic. Includes advice for discussing with patients	<ul style="list-style-type: none"> ▪ Men- clinical history ▪ Questionnaires ▪ Bladder diary ▪ Pelvic floor assessment ▪ Urinalysis ▪ Estimation of post residual void ▪ Digital rectal exam <p>Women- clinical history</p> <ul style="list-style-type: none"> ▪ Questionnaires ▪ Bladder diary ▪ Pelvic floor assessment ▪ Urinalysis ▪ Estimation of post residual void 	<p>First non-pharmacologic</p> <p>Pelvic floor muscle exercises (recommend digital assessment prior to onset)</p> <p>Bladder retraining</p> <p>Lifestyle interventions (weight loss, caffeine,)</p> <p>Then pharmacology</p> <p>Follow up in 6 weeks recommended</p>
National Institute for Health and Clinical Excellence (UK)	2006	I	Multidisciplinary	Includes only women. OAB built into algorithm.	<ul style="list-style-type: none"> ▪ History ▪ Bladder Diary ▪ Urinalysis <ul style="list-style-type: none"> ▪ Post Residual Void only for symptoms of voiding disorder or recurrent UTI 	<p>Caffeine reduction</p> <p>Bladder treatment for 6 weeks, then generic oxybutynin (most cost effective)</p>

NOT TRUE GUIDELINES						
International Continence Society LUTS Factsheet	2005	I	Prepared by ICS	Not referenced. Provides good overview	<ul style="list-style-type: none"> ▪ History ▪ Bladder Diary ▪ Assessment with validated tools ▪ Urinalysis ▪ Physical exam including cardiac and respiratory function ▪ Abdominal exam/rectal exam ▪ Neurological examination ▪ Pelvic exam 	Factsheet focused on diagnosis
International Continence Society OAB Factsheet	2005	I	Prepared by ICS	Not referenced. Provides good overview. Excellent description of OAB	<ul style="list-style-type: none"> ▪ History ▪ Bladder diary ▪ (refer to LUTS factsheet) 	Behavioral, pharmacologic as first line
Canadian Medical Association Journal Review	2006	I	Prepared by urologists for CMAJ- focus on primary care	Review article on female incontinence. Includes list of meds and conditions that may affect LUTS. Diagnosis protocol not clearly presented	<ul style="list-style-type: none"> ▪ History ▪ Physical exam (includes description of what to look for in physical) 	Includes table on treatment options both effectiveness and cost
Urologic Diseases in America	2007	II	Prepared by NIDDKD, NIH, UCLA, DHHS and Rand Health	Includes 2 chapters on UI in women and men. Extensive discussion on prevalence in govt health care supported population, discussion of population data		

Resources for Further Study and Research †**

Guidelines:

Canadian Medical Association Journal—Smith PP et al.

European Association of Urology—Thüroff J et al.

Scottish Intercollegiate Guidelines Network— <http://www.sign.ac.uk>

Urologic Diseases in America. National Institute of Health—Nygaard I, et al. on incontinence in women, Stothers L et al on incontinence in men.

Classification:

Mukeriji G, et al.—of differentiating between bladder hypersensitivity and OAB

Löfgren OE—for interesting note on classification controversy

Diagnosis:

Rosenberg MT et al. —focused on OAB

2-Rosenberg MT et al.—focused on LUTS in men

Sussman DO—primary care treatment options

Guidelines listed above have good diagnosis criteria

Tools:

Avery et al.--Discussion of ICI-Q tool

Blaivas JG, et al.—evaluation of question and score system

Coyne et al—discussion of OAB-q tool

Kobayashi H, et al.—portable urgency measuring device

Martin JL, et al.—thorough evaluation of diagnosis and therapy methods including economic impact of diagnostic testing

Non-pharmacological Therapies:

Martin JL, et al.—thorough evaluation of diagnosis and therapy methods

Srikrishna S, et al.—management of OAB

Sussman DO—primary care treatment options

Pharmacological Therapies:

Abrams P and Andersson KE—review of the role of antimuscarinic agents & OAB

Duthie J, et al.—botulinum toxin study

Hicks A, et al.—new drug trial data

Hiragata S, et al.—new drug trial data

Jeffery S, et al.—more on botulinum toxin

Roxburg C, et al.—comparison of drugs in review

Salvatore S, et al.—rare cognitive side effects

Srikrishna S, et al.—management of OAB

Sussman DO—primary care treatment options

Prevention and Research Initiatives:

Landefeld CS et al.—scope of required research initiatives and focus on prevention of incontinence

**There are many other papers that hold pertinent and interesting information. However, this selection represents a cross-section including most of the recognized treatments, some of the best authorities in the study of OAB, some of the newest ideas in research, some of the only papers found on the classification of OAB and the most thorough guidelines from around the world. One

treatment that is not represented in these papers is that of sacral nerve stimulation, which is also sometimes used as a diagnostic.

Appendix B: Change Readiness Inventory®

Welcome to the University of Cincinnati Office of CME survey on overactive bladder (OAB). This information will be used to develop continuing medical education (CME) in OAB. It will take approximately 6 minutes to complete the questionnaire. Your survey responses will be strictly confidential and data from this research will be reported only in the aggregate. We will not ask for any information that can personally identify you. Upon completion of your survey, a donation of \$20 will be made to the Simon Foundation to support research, education and awareness in OAB. Please start with the survey now by clicking on the Continue button below.

Please select the answer that best describes your specialty:

- Urology
- Urogynecology
- OBGYN
- Family Medicine
- General Internal Medicine
- Geriatrics
- Other (please specify) _____

Please indicate how many years you have been in practice (since residency).

- 0-5
- 6-10
- 11-15
- 16-20
- 20+

Please indicate your gender:

- Male
- Female

Please indicate the type of practice you are in:

- Solo
- Single specialty
- Multi-specialty
- Hospital
- Other _____

Competencies

Please consider the following statements and indicate your PRESENT ability to perform each item and then below it, your DESIRED level of ability to perform that item. (1-Low, 5-High)

Your ability to:

- Identify risk factors associated with OAB (age, sex, outlet obstruction/stress incontinence, etc.)
- Determine the overall impact of OAB on the patient's well being (physical, psycho-social, quality of life).
- Initiate a discussion of symptoms indicative of OAB with patients.
- Perform a complete urologic/gynecologic exam of a patient with OAB.
- Identify signs and symptoms of bladder abnormalities associated with OAB.
- Detect signs and symptoms that might prompt a consultation for specialized diagnostic testing.
- Explain overactive bladder to the patient.
- Describe multiple treatment options available for OAB, including dietary modification, behavioral and pharmacologic treatment.
- Design an appropriate behavioral treatment program.
- Design an appropriate pharmacologic treatment program.
- Recognize common side effects and potential drug interactions of each pharmacological therapy.
- Monitor a patient's progress with currently prescribed treatment program.

Forces for Change

Please indicate the extent to which you agree with the following statements. (1-Low, 5-High)

- At this stage of my career, building special competence in this area of my practice is more important
- I feel pressure from some colleagues to adopt new procedures in this clinical area.
- I wish I were more knowledgeable in this area.
- The expectations of the healthcare organizations in this community are a force for change in this area of my practice.
- Lately, my patients have had more problems in this area than I believe they should.
- My friends or family members have experienced a problem related to this area of clinical medicine.
- New information in the literature has increased my interest in adopting new procedures in this area.
- Recent regulations or policies require that I do things differently in this area of my clinical practice.
- There are few financial advantages to changing my approach in this area of practice.

Attitude toward Change

With regards to managing overactive bladder... (1-Low, 5-High)

- The way I practice in this clinical area is acceptable to me.
- I may need to change one or more of my clinical practices in this area.
- I plan to change the way I practice in this area in the near future.

Image of Change

Please indicate the extent to which you agree with the following statements. Changing the way I practice in this area... (1-Low, 5-High)

- seems relatively simple.
- seems to offer a significant financial advantage.
- seems to offer a significant clinical advantage.
- does not seem compatible with overall approach to care.

Barriers to Best Practice

Reflecting on overactive bladder, please rate the following statements according to your extent of agreement with each. (1-Low, 5-High)

- I do not have the proper equipment or other material resources to change the way I practice related to OAB.
- Conducting a pelvic examination takes too much time during a routine visit
- The restrictions on what can be prescribed prevent me from changing my practice in this area.
- Doing things differently in this area will result in loss of personal income.
- I cannot change practices because of patient compliance issues.
- My training in this area is insufficient to do examinations necessary to diagnose OAB.
- I do not ask about OAB because my patients present with too many other medical conditions to consider.
- Treatment options are ineffective for this condition.
- This condition is unimportant to me.
- I am uncomfortable discussing overactive bladder with my patients.

Methods

Please indicate the extent to which you find each of the following methods useful in obtaining Continuing Medical Education (CME) credit for OAB: (1- Low, 4- High)

- Live face-to-face (lectures, small-groups, seminars, etc.)
- Live distance learning (teleconference, webinar, etc.)
- Enduring (monographs, downloadable, on-line, etc.)

Format

Please indicate the extent to which you find each of the following formats useful in obtaining Continuing Medical Education (CME) credit for OAB: (1- Low, 4- High)

- Internet-based
- DVD/CD-ROM
- National conferences
- Local meetings (case conferences, grand rounds)

Appendix C Methodology for Analyzing and Validating Knowledge and Practice Behavior Assessment Tool

Overview

There were three physician-based assessment instruments developed as part of this project: knowledge of OAB, competency to apply knowledge in practice regarding OAB, and practice behaviors for screening, treatment, and management of OAB. These assessment instruments are intended to be used with primary care physicians as well as specialists (urologists, gynecologists, and urogynecologists). The knowledge and practice instruments were developed as stand-alone measures; however, the competency instrument is a derived instrument that examines the discrepancies between knowledge and practice. Questions for each instrument were developed from a comprehensive literature review and the data collected from 70 interviews with practitioners and patients. After draft questions were developed for the instruments, the construction of the questions was reviewed by psychometricians. The final draft assessment tools were completed by a sample of 151 physicians: 50 primary care providers and 101 urologists and obstetrician/gynecologists. The instruments were completed over the internet after a solicitation via e-mail. The Knowledge Assessment Tool included 20 items developed around three case vignettes. The Practice Behavior Assessment Tool included 37 items developed around 10 questions divided into screening practices (6 questions) and diagnosis and treatment practices (4 questions). Additionally, there were eight items that gathered demographic information and practice characteristics. The data were analyzed using common statistical tests to examine inter-item correlations, item stability, and potential models. The ultimate maturity and validity of these instruments will need to be further examined with additional data that correlate scores on the existing tools with practice data related to educational interventions and their outcomes.

Tool Development

Knowledge Assessment Tool: The overall purpose of the Knowledge Assessment Tool is to quantify knowledge of current guidelines and evidence related to OAB epidemiology, screening, diagnosis, treatment and management. The tool is designed to be applicable to primary care physicians as well as specialists.

The first challenge in the development of the Knowledge Assessment Tool was to identify the currently accepted treatment guidelines for overactive bladder. An extensive literature search, and discussions with various experts, revealed that there are few published guidelines in this clinical area and the most current guidelines were developed outside of the United States and not generally known or accepted by American physicians. The research literature, describe elsewhere in this report, did represent some consensus in the areas of screening, diagnosis and treatment. Interviews with patients, specialists, and primary care physicians supported a number of key findings in the research literature. The majority of the current scientific literature on overactive bladder is focused in the areas of differential diagnosis and treatment. There is also a broad epidemiological literature indicating that OAB is significantly underdiagnosed and undertreated.

The knowledge assessment questions were developed around points of general consensus in the translational research literature. Areas of controversy or confusion have been avoided. All questions have at least one authoritative reference. The focus areas of the tool are:

- Distinguishing different types of incontinence through patient history and exam.
- Factors important to selecting appropriate treatment options.
- Determination of appropriate consultation to rule-out other serious medical problems.
- Effects of various pharmacological treatments on bladder control.

The questions use several different formats. Most of the items are multiple choice questions with four possible answers: one correct answer plus three distracters. Several items offer the possibility for several correct answers in the form of “all of the above” and “none of the above.” There are also several dichotomous answer questions (e.g., True/False). The knowledge assessment instrument, as tested for this project, includes 20 items.

Practice Behavior Assessment: The Practice Behavior Assessment Tool was designed to gather information related to how physicians are screening, diagnosing and treating patients with OAB. The range of assessed behaviors was derived primarily from the data of interviews with patients, primary care physicians, urologists, gynecologists, and urogynecologists. The practice behaviors described in the interviews were compared with the consensus findings from the literature. Questions that allow direct comparisons between behaviors described by practitioners and best practices from the literature can be used to directly assess gaps in practice. The questions were also designed to allow comparisons between knowledge and practice (competency gap).

The Practice Behavior Assessment Tool is used to serve two purposes. It directly assesses how physicians screen, diagnose and treat patients for OAB. It also is used in combination with the Knowledge Assessment Tool to measure competence by comparing level of knowledge with practice behavior. The principle behind this indirect measure of competence is a definition of competence as a state of adequate knowledge that is not translated into practice. Stated another way, it is the situation in which a physician knows what needs to be done but does not know how to do it.

The Practice Behavior Assessment Tool is composed of 37 items that ask physicians to indicate how often they engage in different screening, diagnostic, and treatment behaviors and to reflect on their perceptions of various aspects of their practice related to OAB. The latter questions are meant to help distinguish issues of competence and barriers to optimal care. The 37 items are embedded in 10 questions divided into two general sections: screening and diagnosis/treatment (Appendix B).

The screening items target strategies used by physicians to identify patients at risk for OAB in the absence of urinary symptoms or complaints by patients. Appropriate screening strategies, according to the literature, will decrease the risk of allowing OAB to go undetected and untreated. In order to better assess issues of underdiagnosis, two of the screening items ask physicians to indicate how long patients indicate that urinary symptoms existed prior to discovery. Two additional questions assess the importance of diagnosing and treating OAB from the perspectives of both the physician and the patient.

The diagnosis and treatment items focus primarily the use of different diagnostic tools, barriers to effective diagnosis and treatment, and their use of different treatment approaches. Additionally, physicians are asked to rate their overall success at screening, diagnosis, treatment, and patient education.

Most of the questions had 3-5 option Likert scale response sets. The number of items and the corresponding descriptors were determined in consultation with a psychometrician. Response sets were designed to provide optimal variability while matching physicians' ability to make reasonable discriminating determinations about their practices and behaviors.

Demographic and Practice Description Information: A number of demographic questions were added to the overall tool survey to provide valuable information about the physicians, their practice environments, and their likely exposure to patients with OAB. Respondents indicated their primary and secondary specialties, their gender, and their practice environment (solo, group, hospital). Additionally, they were asked to provide general information about their patient

population (age breakdown, percent of females, and number of patients seen per week). Finally, they were asked to indicate the percent of patients with OAB in their practice and the number of OAB patients seen per week. These questions were added to the overall assessment tools after noting the importance of these variables in the professional interviews that were conducted. As a practical matter, many of these demographic/practice variables help to identify likely target audiences for educational and systems interventions for improving patient care.

Study Sample

In order to allow reasonable psychometric analysis of the instruments and item analysis, it was determined that we needed approximately 150 physician participants to complete all tools. We made the decision to develop a sample population that roughly reflected the physician groups that were interviewed in the initial phase of this study. The three major interview groups were primary care physicians (general internists and family physicians), urologists, and gynecologists.

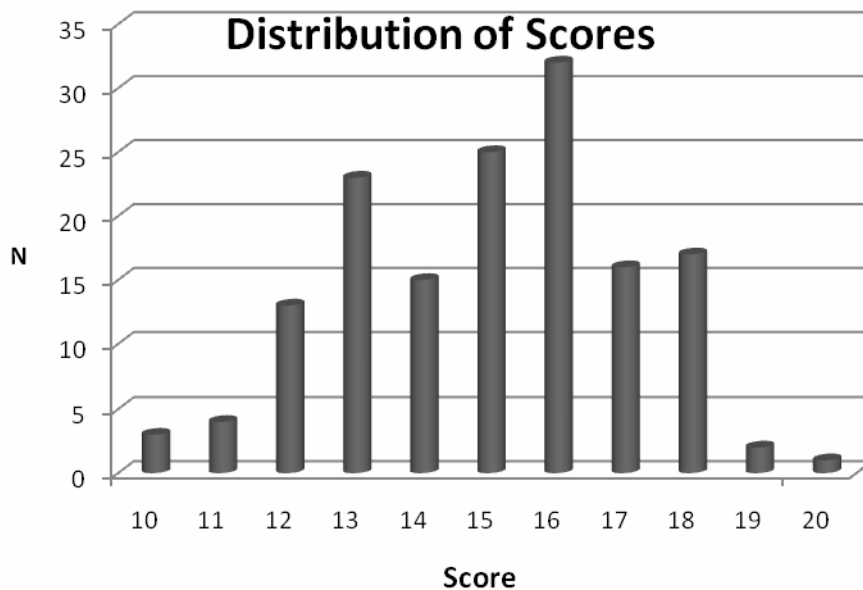
Urogynecologists were not included in the tool analysis because we felt that they did not constitute a unique group apart from the other two specialties. A sample of 50 physicians in each of the three specialties was selected from a large database of physicians purchased from a database vendor Global Marketing Insite.

The tools were configured as a single survey that was made available to potential respondents via the Internet. Potential respondents were solicited via e-mail and provided a link to the survey. All responses were anonymous.

Data Analysis

Knowledge Assessment Tool: The Knowledge Assessment Tool consisted of 20 items that were considered to be of approximately equal importance. The distribution of scores for the 151 respondents was relatively normally distributed with an average raw score (out of 20) of 14.98 (SD=2.79). The scores ranged from 10 to 20 (Figure 1).

Figure 1: Distribution of scores on Knowledge Assessment Tool



In addition to the analysis to evaluate the reliability and validity of the rating scales, an analysis was conducted to review the functioning of the test which was presented to respondents. The data from the 151 respondents were used to conduct basic psychometric analyses (Rasch analysis) on the Knowledge Assessment Tool. Specifically, tests were conducted to evaluate the reliability and validity of test instrument. A review of fit statistics for the 20 items suggested that there was an overall fit across the items. This means, from a measurement perspective, that the item set appears to define a single trait, and that these items function well. The Rasch analysis further suggests no confusion for respondents with respect to the wording of items and the wording of answer selections. A review of an item map constructed for this set of test items suggests that there is a very good spread of items along the latent trait, with only a few items overlapping. In layman's terms, there are a range of items in terms of difficulty for respondents. This pattern in item distribution is very good to observe when one wishes to distinguish individuals. The fit of respondents was also reviewed, and there is no indication of person misfit. This suggests that the patterns seen with respect to items are not being impacted by idiosyncratic responses of test takers.

The results of the psychometric analysis do not necessarily suggest that this tool is perfect and cannot be improved. Individual items probably need further analysis that can be conducted as the tool is used to gather data from other physician populations. For example, the Rasch analysis found that a few individuals unexpectedly missed item 18. Specialists in the field may want to consider why

some respondents unexpectedly missed this item when their responses to other test items predicted that they would correctly answer it. When additional data are collected, this item can be further evaluated. Doing so may inform researchers understanding of the knowledge level of practitioners with respect to the OAB issues presented in item 18. This analysis may also be used to suggest some targeted educational efforts with respect to knowledge issues measured by this item.

The psychometric properties of the Knowledge Assessment Tool were evaluated on the entire population of 151 respondents. This sample included primary care providers as well as specialists (urologists and gynecologists). The fact that the reliability and validity measures of the tool were robust with a diverse sample indicates that it can be broadly applied to different specialty populations. It is our intention to publish the results of the basic psychometric analysis of this tool and to make it widely available to medical educators. We also intend to continue analyzing the initial test data to further describe its properties and its value for conducting basic gap analyses related to OAB knowledge.

Practice Behavior Assessment: The Practice Behavior Assessment Tool included 33 separate items that were imbedded within 10 questions. Of the 37 items, 27 grouped in four basic sets of questions.

Set Descriptions

Set I: (6 items – screening questions 3 and 4)

How common certain patient presentations are seen in practice.

Set I consists of six screening items presented to the survey respondents in which each item can be answered using a rating scale of “very common”, “somewhat common” and “rare”.

How common are the following methods for identifying OAB in your patients?

- Patient presents with OAB as primary complaint
- OAB is add-on complaint
- Discovered by screening

For patients with newly diagnosed OAB, approximately how long do they report

having the symptoms prior to diagnosis?

- Symptoms less than 6 months
- Symptoms between 6-12 months
- Symptoms more than 1 year

Set 2: (11 items – screening question 1, diagnosis and treatment questions 2 and 4)

How often physicians engage in certain screening, diagnosis, and treatment behaviors/decisions.

Set 2 consists of one question from the screening item set, and 10 items from the Diagnosis and Treatment set of items. The same nomenclature is utilized for identification of items for Rasch coding. These items contained a 5-point response scale that included: “Always,” “Often,” “Sometimes,” “Seldom,” and “Never.” The following items were included in Set 2.

How often do you specifically screen for bladder-related problems with your patients?

How often do you use the following in screening and diagnosing OAB?

- A standard verbal screen tool
- Patient history
- Physical exam
- Patient voiding diary
- Laboratory tests
- Referral to a specialist
- Medication trial

How often do you use the following approaches to treating patients with OAB?

- Drug Therapy
- Behavior Therapy
- Combination Drug/Behavior Therapy

Set 3: (6 items – diagnosis and treatment question 3)

Barriers to optimal care.

This set of items consists of items which were rated using a barrier scale. These items used a 4-point response scale that included: “Major Barrier,” “Moderate Barrier,” “Minimal Barrier,” and “Not a Barrier.” The following items were included in Set 3.

If you have been less successful than you would like to be with patients with overactive bladder, to what extent have the following factors been barriers to optimal care?

- Cost/Reimbursement
- Time
- Availability of effective treatments
- Patient compliance
- Knowledge of OAB
- Priority (relative to other diagnoses)

Set 4: (4 items – diagnosis and treatment question 1)

Practitioner perceptions of success.

A fourth set of items was presented to respondents. These items rated success on a 4-point scale that included: “Very Successful,” “Successful,” “Somewhat Successful,” and “Rarely Successful.” This set of four items asked respondents to indicate their success with a variety of Diagnosis and Treatment techniques in their practice. The following questions make up the four items for Set 4.

Please rate your success with the following aspects of overactive bladder in your practice.

- Screening
- Differential Diagnosis
- Effective Treatment
- Patient Education

The remaining 10 items included four “other” options intended to identify characteristics that may have been missed by the stated items/categories, four patient characteristics that may have been used for screening decisions and a pair of questions assessing the overall importance of the problem to the physician and the patient. While these items contain important information, they did not cleaning fit into any of the other question sets.

Set Analysis

Conceptually, combining several items into conceptual sets allows us to have a more robust measure of different aspects of practice behaviors. The premise of the psychometric analysis of each set is that responses to set items would be additive and a “total score” for the conceptual set would be used as a measure of the concept. The set scores can be interpreted individually but can also be combined to examine practice behavior as a broader concept. The psychometric analysis only examined the reliability and validity of the individual conceptual sets.

Rasch analysis was conducted upon each of the four items sets listed immediately above in order to evaluate aspects of instrument validity and reliability. Also it is important to mention that steps were taken with the Rasch analysis to also evaluate the quality of the data collected, and an assessment was made of how data set quality might impact analysis. Finally preliminary work was conducted to generate item maps. Such item maps provide a technique of evaluating scale validity, but such item maps are very important in the interpretation of overall trends in the data.

Set 1: How common certain patient presentations are seen in practice.

One statistic that is commonly used in Rasch analysis are so-called fit statistics (also called misfit). This statistic can be used to flag items and/or respondents that need further investigation. There are many reasons for an item or person being flagged through a fit statistic. For example, an item is not part of a trait, there may be misleading wording presented in an item, data might have been entered incorrectly, and respondents may have acted in an idiosyncratic manner. Review of two types of item fit statistics for the items of Set 1 suggested no item misfit. This finding implies that there is a reasonable level of validity of the item set with regard to a single item trait. Based on the items included in this set, the general concept being measured is related to the relative frequency of particular patient presentations related to OAB.

In addition to a review of fit statistics, item maps were also generated and reviewed. These maps provide a way to gauge the manner in which each item of a set defines the trait. In a perfect test or survey there would be a distribution of items along a continuum or scale. For example, in the case of a test, a distribution of test items from easy to hard would be identified. In the case of a survey in which respondents can agree with a particular statement, one would observe a distribution of responses from easy to agree with, to harder to agree with. From a measurement perspective, the items in Set 1, it appears that there is a great deal of overlap in three of the six items. These three items tend to define a single portion of the underlying concept. With further analysis, it will be possible to eliminate two of these three items to shrink this measure from six to four items.

Just as fit statistics can be calculated for items, the same type of calculation can be carried out for persons responding to the items in a set. This type of evaluation allows one to identify respondents acting in an unpredictable manner. Often this technique can be used to identify specific persons for in-depth analysis. For this data set, no unusual responses were identified. This suggests that the data for this item set is of high quality and can be broadly applied to physicians in the specialties that were included in our sample.

Set 2: How often physicians engage in certain screening, diagnosis, and treatment behaviors/decisions.

Set 2 consists of a relatively large number of items: 11 items in three different questions. Many of the same very positive measurement characteristics observed for Set 1 were observed in the analysis of the items in Set 2. For the group of 11 items, no clear misfit items were observed. This suggests that this set of items appears to define a single underlying trait and concept. The general trait measured

by these items is the screening, diagnosis, and treatment behaviors of physicians with regard to OAB. Therefore, it is possible to compute a score to measure this behavior. Further analysis and experience with this measure will be needed to identify the meaning of different scores relative to the magnitude of practice gap.

Two types of item fit statistics were evaluated for items in Set 2. One of these statistics is named “infit”, and the other is named “outfit.” Both types of fit statistics for items in this item set suggest no clear misfit. As the number of items increases in any consolidated measure there is a corresponding potential that individual items do not “fit” into the underlying concept. When all items “fit” well together there is a corresponding increase in the validity of the measure computed through use of these 11 items.

Item maps were also created for this set of items. When a large number of items are used to measure a single concept, there is a greater likelihood of defining a larger portion of the latent trait. The 11 items presented in this instrument appear to define a wide range of the practice decisions made by physicians with regard to OAB. There is some overlap of items, but compared to similar instruments, the 11 items of this measure appear to define the latent trait very well. The relatively large number of items in this set will facilitate a greater differentiation of respondents’ practice behavior.

Person separation, person reliability, item separation, and item reliability were also calculated for this set of items. The results of these analyses did not reveal any problems with the measure. These findings again suggest strong validity and reliability of the scale.

Set 3: Barriers to optimal care.

A small set of items in Set 3 are used to define a single latent trait related to perceived barriers to optimal care for patients with OAB. For this reason some of the factors that impact the measurement properties of Set 1 (six items) are present in Set 3 (six items). This does not mean that this set of items cannot be used for the computation of an overall measure but, like Set 1, it is likely to have less measurement precision than the 11 item scale of Set 2. In fact, none of the six items in Set 3 were found to misfit. This means the items can be pooled for an overall measure. There is one item that might be monitored over time. The item related to the barrier of cost/reimbursement may, based on this analysis, need to be monitored over time. It stood apart from the other items and has a number of unique qualities in the clinical practice environment. This possible item misfit does not

impact the overall analysis of the data but it does highlight an item to monitor and can provide some insight into the impact of reimbursement relative to other types of barriers. There is still enough strength in the psychometric statistics for feel confident in the validity of this overall measure.

Item maps were created to investigate the distribution of items along the latent trait. The item maps suggested some overlap of items; however, generally, a wide range of the trait was defined by the 6 items of the scale.

Person fit statistics were also reviewed for this item set. For both person infit and person outfit, no respondents misfit. As has been mentioned earlier for other items sets, this lack of misfit suggests high data quality. The two separation indices (persons and items) as well as the two Rasch reliability indices were reviewed and found to indicate a reasonably robust measure.

Set 4: Practitioner perceptions of success.

Set 4 was the smallest of the scales with only 4 items used to define the latent trait: practitioner perceptions of success. As noted previously, measures with smaller numbers of items tend to be less robust than those with larger numbers of items. Item maps to investigate the distribution of items along the latent trait were constructed and reviewed for this scale. The item maps suggested some overlap of items; however, generally, a wide range of the trait was defined by the items of the Set 4 items.

Person fit statistics were also reviewed for this item set. For both person infit and person outfit, no respondents were found to be a misfit. As has been mentioned earlier for other items sets, this lack of misfit suggests high data quality for this portion of the data set. Additionally, the statistic “item fit,” presented for earlier sets of the data, revealed that no items or individuals appear to misfit. This suggests that individuals answered items in a predictable manner. The lack of item misfit suggests that even though this scale has a relatively small number of items, it can be used for the computation of a valid measure of practitioner perceptions of success.

The two separation indices (persons and items) as well as the two Rasch reliability indices were reviewed. Although only a small number of items are presented on this scale, the indices for this item set were within a predicable range.

Discussion of the overall measurement properties of Item Sets 1-4:

A wide variety of statistics were used to evaluate psychometric properties that examine the validity and reliability of the four scales. Validity and reliability can be impacted by many factors: complexity of items, visual format of survey items, choice of rating scale, time spent by respondents to answer items, data coding, how well items define a latent trait, understanding of the underlying variable by researchers, and the views of respondents toward the trait. The initial analyses of these scales were very encouraging and point to sufficient levels of validity and reliability that we can recommend the use of both the knowledge and practice tools in a practice/education environment. In the absence of educational interventions and analysis of outcomes and impact on practice, it is difficult to assess the ultimate practical utility of different aspects of these instruments. However, as a needs assessment and gap analysis device, these tools have been developed, and initially tested, in a population of physicians that are likely to be the primary target audience of CME providers.

Resources

Papers and Guidelines:

Avery K, Donovan J, Peters TJ, Shaw C, Gotoh M, Abrams P. ICIQ: a brief and robust measure for evaluating the symptoms and impact of urinary incontinence. *Neurourol Urodyn* 2004; 23:322.

American College of Obstetricians and Gynecologists (ACOG). Urinary incontinence in women. Washington (DC): American College of Obstetricians and Gynecologists. (ACOG); 2005 Jun. 13 p. (ACOG practice bulletin; no. 63).

Blaivas JG, Panagopoulos G, Weiss JP, Somaroo C. Validation of the Overactive Bladder Symptom Score. *Journal of Urology*. August 2007. 178:543-547.

Coyne K, Revicki D, Hunt T, Corey R, Steward W, Bentkover J et al: Psychometric validation of an overactive bladder symptom and health related quality of life questionnaire; the OAB-q. *Qual Life Res* 2002; 11:563.

Culligan PJ, Heit M. Urinary Incontinence in Women: Evaluation and Management. American Academy of Family Physicians. Updated December 1, 2000:
<http://www.aafp.org/afp/20001201/2433.html>

Dowling-Castronovo A, Bradway C. Urinary incontinence. In: Mezey M, Fulmer T, Abraham I, Zwicker DA, editor(s). *Geriatric nursing protocols for best practice*. 2nd ed. New York (NY): Springer Publishing Company, Inc.; 2003. p. 83-98.

Dmochowski RR, Newman DK. Impact of overactive bladder on women in the United States: results of a national survey. *Curr Med Res Opin* 2007; 23:65–76.

Finnish Medical Society Duodecim. Urinary incontinence in women. In: *EBM Guidelines. Evidence-Based Medicine* (Internet). Helsinki, Finland: Wiley Interscience. John Wiley & Sons; 2005 Aug 31.

Health Plan of Nevada, Inc. Health Plan of Nevada: Urinary Incontinence Guidelines. Last Revised October 2005: <http://www.healthplanofnevada.com/body.cfm?id=96>

International Continence Society. ICS Factsheet 1—Investigations of LUTS. (Internet)

www.icsoffice.org/ click “Documents” July 2005.

International Continence Society. ICS Factsheet 2—Overactive Bladder. (Internet)

www.icsoffice.org/ click “Documents” July 2005.

Klausner AP, Vapnek JM. Urinary Incontinence in the Geriatric Population. *The Mount Sinai Journal of Medicine*. 70(1):54-61.

Landerfeld CS, Bowers BJ, Feld AD, Hartmann KE et al. National Institutes of Health State-of-the-science statement: prevention of fecal and urinary incontinence in adults. *Ann Int Med* 2008. 148;6:1-6 accessed online 2/24/08 pre-publication

Madigan Army Medical Center. Urinary Incontinence (Female). Reviewed August 24 2006:

http://www.mamc.amedd.army.mil/Referral/guidelines/obgyn_ui.htm

Magali R, Ross S. Conservative Management of Urinary Incontinence. SOGC Clinical Practice guideline. No. 186, December 2006.

Martin JL, Williams KS, Abrams KR, Turner DA, Sutton AJ, Chapple C, Assassa RP, Shaw C and Cheater F. Systematic review and evaluation of methods of assessing urinary incontinence. *Health Technology Assessment* 2006; 10(6)

Melville JL, Miller EA, Fialkow MF, Lentz GM, Miller JL, Fenner DE. Relationship between patient report and physician assessment of urinary incontinence severity. *Am J Obstet Gynecol* 2003; 189:76–80.

Milsom I, Abrams P, Cardozo L, et al. How widespread are the symptoms of overactive bladder and how are they managed? A population-based prevalence study. *BJU Int* 2001;87:760-6.

Morant SV, Reilly, K, Gloomfield GA, and Chapple C. Diagnosis and treatment of lower urinary tract symptoms suggestive of overactive bladder and bladder outlet obstruction among men in general practice in the UK. *Int J Clin Pract*, May 2008; 62(5): 688-694.

Mukeriji G, Waters J, Chessel IP, Bountra C, Agarwal SK, Anad P. Pain during ice water test distinguishes clinical bladder hypersensitivity from overactivity disorders. *BioMed Central Urology* 2006; 6:31.

O’shaughnessy, M. Incontinence, Urinary: Comprehensive Review of Medical and Surgical Aspects.

eMedicine from WedMD. Last Updated February 9, 2007:

<http://www.emedicine.com/med/topic2781.htm>

Roberts R, Bavendam T, Glasser DB, Carlsson M, Eyland N, Elinoff V. Tolterodine extended release improves patient-reported outcomes in overactive bladder: results from the IMPACT trial. *Int J Clin Pract* 2006; 60-752-758.

Rosenberg MT, Newman DK, Tallman CT, Page SA. Overactive bladder: Recognition requires vigilance for symptoms. *Cleveland Clinic Journal of Medicine*. May 2007. 74(3):821-829.

Rosenberg MT, Staskin DR, Kaplan SA, MacDiarmid SA, Newman DK, Ohl DA. A practical guide to the evaluation and treatment of male lower urinary tract symptoms in the primary care setting. *Int. Journal of Clinical Practice*. September 2007; 61(9): 1535-1546.

Scottish Intercollegiate Guidelines Network. Management of urinary incontinence in primary care: A national clinical guideline. December 2004. Online at www.sign.ac.uk

Singapore Ministry of Health. Nursing management of patients with urinary incontinence. Singapore: Singapore Ministry of Health; 2003 Dec. 40.

Smith PP, McCrery RJ, Appell RA. Current trends in the evaluation and management of female urinary incontinence. *CMAJ*. Nov 7, 2006; 175(10):1233-1240.

Stothers, L., Thom D, Calhoun E, Urinary incontinence in men published within *Urologic Diseases in America*. 2007. accessed online

Srikrishna S, Robinson D, Cardozo L, Vella M. Management of overactive bladder syndrome. *Postgrad Med J* 2007; 83:481-486.

Sussman DO. Overactive bladder: Treatment Options in Primary Care Medicine. *JAOA*; 107(9):379-385.

Thüroff J, Abrams P, Andersson KE, Artibani W, Chartier-Kastler E, Hampel C, van Kerrebroeck. Guidelines on Urinary Incontinence. European Association of Urology. Update March 2005.

Wilson L, Brown JS, Shin GP, Luc KO, Subak LL. Annual direct cost of urinary incontinence. *Obstetrics& Gynecology* 2001; 98: 398-406.

Tyagi S, Thomas CA, Hayashi Y, Chancellor MB. The Overactive Bladder: Epidemiology and Morbidity. Urol Clin N Am 33 (2006) 433-438.

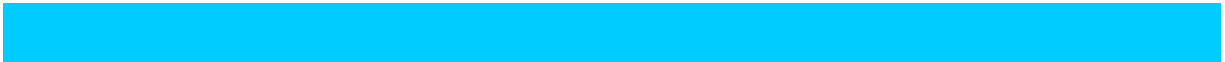
Other webpages used:

Geneva Foundation for Medical Education and Research:

http://www.gfmer.ch/Guidelines/Urogynecology_urinary_and_fecal_incontinence/Urinary_incontinence_treatment.htm

National Guideline Clearinghouse: <http://www.guideline.gov/>

Google Search Engine: <http://www.google.com>



References

- ¹ Wilson L, Brown JS, Shin GP, Luc KO, Subak LL. Annual direct cost of urinary incontinence. *Obstetrics & Gynecology* 2001; 98: 398-406.
- ² Tyagi S, Thomas CA, Hayashi Y, Chancellor MB. The Overactive Bladder: Epidemiology and Morbidity. *Urol Clin N Am* 33 (2006) 433-438.
- ³ Fox RD, Mazmanian PE, Putnam RW. *Changing and Learning in the Lives of Physicians*. New York, NY: Praeger Publishers; 1989.
- ⁴ International Continence Society. ICS Factsheet 2—Overactive Bladder. (Internet) www.icsoffice.org/ click “Documents” July 2005.
- ⁵ Rosenberg MT, Newman DK, Tallman CT, Page SA. Overactive bladder: Recognition requires vigilance for symptoms. *Cleveland Clinic Journal of Medicine*. May 2007. 74(3):821-829.
- ⁶ Milsom I, Abrams P, Cardozo L, et al. How widespread are the symptoms of overactive bladder and how are they managed? A population-based prevalence study. *BJU Int* 2001;87:760-6.
- ⁷ Melville JL, Miller EA, Fialkow MF, Lentz GM, Miller JL, Fenner DE. Relationship between patient report and physician assessment of urinary incontinence severity. *Am J Obstet Gynecol* 2003; 189:76–80.
- ⁸ Dmochowski RR, Newman DK. Impact of overactive bladder on women in the United States: results of a national survey. *Curr Med Res Opin* 2007; 23:65–76.
- ⁹ Sussman DO. Overactive bladder: Treatment Options in Primary Care Medicine. *JAOA*; 107(9):379-385.
- ¹⁰ Srikrishna S, Robinson D, Cardozo L, Vella M. Management of overactive bladder syndrome. *Postgrad Med J* 2007; 83:481-486.
- ¹¹ Scottish Intercollegiate Guidelines Network. Management of urinary incontinence in primary care: A national clinical guideline. December 2004. Online at www.sign.ac.uk

-
- ¹² Thüroff J, Abrams P, Andersson KE, Artibani W, Chartier-Kastler E, Hampel C, van Kerrebroeck. Guidelines on Urinary Incontinence. European Association of Urology. Update March 2005.
- ¹³ Mukeriji G, Waters J, Chessel IP, Bountra C, Agarwal SK, Anad P. Pain during ice water test distinguishes clinical bladder hypersensitivity from overactivity disorders. *BioMed Central Urology* 2006; 6:31.
- ¹⁴ Roberts R, Bavendam T, Glasser DB, Carlsson M, Eyland N, Elinoff V. Tolterodine extended release improves patient-reported outcomes in overactive bladder: results from the IMPACT trial. *Int J Clin Pract* 2006; 60-752-758.
- ¹⁵ Stothers, L., Thom D, Calhoun E, Urinary incontinence in men published within *Urologic Diseases in America*. 2007. accessed online
- ¹⁶ Rosenberg MT, Staskin DR, Kaplan SA, MacDiarmid SA, Newman DK, Ohl DA. A practical guide to the evaluation and treatment of male lower urinary tract symptoms in the primary care setting. *Int. Journal of Clinical Practice*. September 2007; 61(9): 1535-1546.
- ¹⁷ Morant SV, Reilly, K, Gloomfield GA, and Chapple C. Diagnosis and treatment of lower urinary tract symptoms suggestive of overactive bladder and bladder outlet obstruction among men in general practice in the UK. *Int J Clin Pract*, May 2008; 62(5): 688-694.
- ¹⁸ Martin JL, Williams KS, Abrams KR, Turner DA, Sutton AJ, Chapple C, Assassa RP, Shaw C and Cheater F. Systematic review and evaluation of methods of assessing urinary incontinence. *Health Technology Assessment* 2006; 10(6)
- ¹⁹ Avery K, Donovan J, Peters TJ, Shaw C, Gotoh M, Abrams P. ICIQ: a brief and robust measure for evaluating the symptoms and impact of urinary incontinence. *Neurourol Urodyn* 2004; 23:322.
- ²⁰ Coyne K, Revicki D, Hunt T, Corey R, Steward W, Bentkover J et al: Psychometric validation of an overactive bladder symptom and health related quality of life questionnaire; the OAB-q. *Qual Life Res* 2002; 11:563.

-
- ²¹ Blaivas JG, Panagopoulos G, Weiss JP, Somaroo C. Validation of the Overactive Bladder Symptom Score. *Journal of Urology*. August 2007. 178:543-547.
- ²² Davis D, Barnes B, Fox RE. The continuing professional development of physicians: from research to practice. Chicago: AMA Press. 2003. Chapter 13 by DE Moore.
- ²³ Landerfeld CS, Bowers BJ, Feld AD, Hartmann KE et al. National Institutes of Health State-of-the-science statement: prevention of fecal and urinary incontinence in adults. *Ann Int Med* 2008. 148;6:1-6 accessed online 2/24/08 pre-publication.
- ²⁴ Rosenberg MT. Master of nothing but knower of all. *Intl J Clin Pract*. May 2008; 62(5): 667-669.