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## The Impact of Provider Gender and Experience on the Quality Of Care Provided For Women With Urinary Incontinence

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### Abstract

**Background:** Although specialists are skilled in the management of urinary incontinence, primary care clinicians are integral in early diagnosis and initiation of management in order to decrease overuse of specialty care and improve the quality of specialist visits. We measured the quality of incontinence care provided by primary care clinicians before referral to a specialist and evaluated the impact of provider variables on quality of care.

**Methods:** We performed a retrospective review of 200 women referred for urinary incontinence to a Female Pelvic Medicine and Reconstructive Surgery specialist between March 2017-July 2018. We measured primary care adherence to twelve quality indicators in the twelve-months prior to specialist consultation. We stratified adherence to quality indicators by clinician gender and years of experience.

**Results:** Half of women with incontinence underwent a pelvic exam or had a urinalysis ordered. Few patients with urge urinary incontinence were recommended behavioral therapy (14%) or prescribed medication (8%). When total aggregate scores were compared, female clinicians

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performed the recommended care 47 +/- 25% of the time compared to 35 +/- 23% for male clinicians ( $p=0.003$ ). Increasing years of experience was associated with worse overall UI care ( $r = -0.157$ ,  $p=0.02$ ).

**Conclusions:** We found low rates of adherence to a set of quality indicators for women with urinary incontinence, with male clinicians performing significantly worse than female clinicians. Improvement of incontinence care in primary care could significantly reduce costs of care and preserve outcomes.

## Keywords

Urinary incontinence; primary care; quality of care

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## Introduction

Urinary incontinence is a prevalent condition, affecting up to 54% of women over 18, with a significant financial impact on the US healthcare system.<sup>1,2</sup> Urinary incontinence can be categorized as either stress urinary incontinence (involuntary leakage of urine with effort, physical exertion, sneezing, or coughing); or urgency urinary incontinence (involuntary leakage of urine associated with sensation of a sudden, compelling desire to void). Up to 35% of women with incontinence experience both types of symptoms, which is termed mixed incontinence.<sup>3</sup>

Many patients with urinary incontinence can be managed conservatively by their primary care clinician, as only 3–15% will undergo surgery and require management by a specialist.<sup>4–6</sup> For women with all types of urinary incontinence, pelvic floor exercises can improve quality of life in two thirds of women.<sup>7,8</sup> For women with urgency incontinence, first line therapy includes behavioral modifications with fluid restriction and bladder training. Should patients continue to have bothersome urgency incontinence, pharmacologic therapy is considered second line.<sup>9</sup>

Despite the high prevalence of urinary incontinence, the quality of the evaluation and management by primary care clinicians is unknown. Our previous evaluation of the quality of incontinence care among aging women identified deficits in assessment and management of urinary incontinence by both primary care clinicians and specialists, but did not specifically examine care provided by primary care clinicians.<sup>10,11</sup> The objective of this study was to characterize the quality of care that women with urinary incontinence receive from primary care clinicians prior to specialist referral. We used a set of process-oriented quality measures that we previously developed and validated.<sup>10,11</sup> Our secondary objective was to evaluate the impact of provider gender and experience on quality of care.

## Materials and Methods

### Population and Setting

We performed a retrospective review of 200 medical records from two academic institutions in Los Angeles. After obtaining IRB approval from each site, study personnel reviewed clinic schedules of Female Pelvic Medicine & Reconstructive Surgery (FPMRS) specialists

over a 16-month period (March 1, 2017 – July 31, 2018) to identify newly referred female patients age 18 years and above with a chief complaint of urinary incontinence. Sequential patient records were reviewed and were eligible for chart abstraction if their referring primary care clinician's notes were available. We obtained data from all encounters in the twelve months prior to their first visit with a FPMRS specialist. Patients were excluded if they had already seen another FPMRS specialist within those twelve months or if the specialist did not confirm urinary incontinence.

### Quality Indicators (QIs)

We used a set of QIs for urinary incontinence developed and validated as part of the Assessing Care of Vulnerable Elders (ACOVE) project at RAND.<sup>10</sup> These are applicable to younger and older adult populations and encompass both primary and specialty care.<sup>10,11</sup> Here we selected 12 QIs that were applicable to primary care practitioners (Table 1). Six indicators addressed general incontinence, three were specific to stress urinary incontinence, and three were specific to urgency urinary incontinence. Each patient could be eligible for a QI any time over the twelve-months prior to referral to FPMRS, but the clinician only needed to perform the QI once to meet criteria; no measures were scored more than once per patient. All patients were eligible for the general urinary incontinence QIs; they were eligible for stress or urgency incontinence QIs if the clinician documented stress or urge symptoms.

### Clinician Characteristics

We recorded primary care clinician gender, type of degree (MD/DO vs. NP/PA), specialty, and the year training completed. For physicians, completion of training was the year they completed residency or fellowship. For advanced practice providers (NP or PA), completion of training was the year they received their degree. These were obtained through an Internet search of publicly available information from the state medical board, institution websites, and [doximity.com](https://www.doximity.com). Years of experience was treated as a continuous variable.

### Data Collection

Medical records were reviewed by one of three trained research personnel to determine whether the care provided during the study period was eligible for and met each QI (Appendix I). We re-abstracted 10% of the medical records (n = 20) and determined inter-rater reliability to be 96%.

### Statistical Analysis

For each QI, the proportion of recommended care patients received in the 12 months prior to referral was calculated as the total number of times that care met the indicator, divided by the number of times patients were eligible for the indicator, reflected by a score from 0 to 100%. Aggregate scores were calculated by taking the number of times care was performed then dividing that by the number of times a patient was eligible for the care (depending on diagnosis and patient characteristics such as BMI).<sup>12</sup> These scores were calculated for general care (QI #1–6), stress incontinence-specific care (QI #7–9), and urge

incontinence-specific care (QI #10–12, Appendix 1). Aggregate scores were reported as a percentage of recommended care received.

The effect of clinician characteristics was tested with Student's T-test or Chi-Square test. Given the clustering of patient-level data by physician, analysis was performed using linear mixed model regression for continuous data, or multinomial mixed model regression for binary or categorical data. Data were considered different where two-tailed p-values were <0.05. Data are presented as counts and percentages, or means  $\pm$  standard deviations. Analysis was performed using SAS v9.4 software.

## Results

### Clinician Characteristics

The analysis included 125 primary care clinicians. Most were MD/DOs (97%) in the fields of internal medicine (41%), family medicine (15%), geriatrics (5%), or gynecology (24%); the remainder were nurse practitioners and physician assistants. At the time of our analysis, clinicians had been practicing for an average of  $18 \pm 14$  years and 66% were female. Female clinicians were more likely to have fewer years of experience ( $13 \pm 11$  vs  $30 \pm 15$  years,  $p < 0.01$ , Table 2).

### Patient Characteristics

Among the 200 patients, the mean age was  $57 \pm 16$  years; most were non-Hispanic (83%) and white (73%). Most patients had Preferred Provider Organization (private) health insurance plans (56%). Patient characteristics across the two sites were similar except that patients from site #1 were more likely to be African American (20% vs 4%,  $p = 0.02$ ) and to have documentation of incontinence more than 12 months prior to re-referral (63% vs 24%,  $p < 0.01$ ). Patients from site #1 were more likely to be overweight (41% vs 28%,  $p < 0.01$ ) and less likely to have recurrent (>3/year) urinary tract infections (0% vs 11%,  $p < 0.01$ ). Thirty three percent of women had a potentially complicating comorbidity such as hematuria (3%), recurrent UTI (6%), neurologic disorder such as diabetes or spinal stenosis (22%), vaginal prolapse (7%), or mild to moderate dementia (4%). In the 12–18 months after referral, 20% ( $n = 39$ ) underwent or were recommended to undergo further diagnostic testing and 28% ( $n = 56$ ) underwent a surgery or procedure related to their incontinence.

### General Care for Urinary Incontinence

Clinicians referred 15 patients (8%) to a specialist without any in-person or formal telehealth visit to evaluate the incontinence. This practice did not vary by clinician gender (9/127, 7% female vs. 6/73, 8% male,  $p = 0.77$ ).

Clinicians took a focused history to discern type of incontinence (QI #1) for 68% of patients (Figure 1), and this did not differ between female and male clinicians (67% vs 70%, respectively,  $p = 0.67$ , Table 3). Overall, referring clinicians elicited symptoms of stress incontinence in 31% of patients, urge incontinence in 19%, mixed incontinence in 18%, and an unspecified type in 32% (clinician did not differentiate symptoms or diagnosis beyond “urinary incontinence”).

Clinicians documented symptom severity (QI #2) in 33% of patients. Female primary care clinicians were twice as likely to do this compared to male clinicians (41% vs. 19%,  $p<0.01$ ). Clinicians seldom asked patients about prior pharmacologic treatment (QI#3, 36% of female vs. 26% of male clinicians,  $p=0.14$ ). Pelvic exam (QI #4) and urinalysis (QI #5) were performed in 50% and 51% of patients, respectively, and this did not differ by clinician gender. Female clinicians were more likely than their male counterparts to document that they offered pelvic floor exercises or a referral to pelvic floor physical therapy (29% vs 14%,  $p=0.02$ ).

### **Stress Urinary Incontinence Care**

Female and male clinicians documented counseling about weight loss to overweight patients at similarly low rates (QI #7, 15% vs. 17%,  $p=0.80$ ). Contrary to recommendations (QI #8), one male (1/35, 3%), and one female (1/63, 2%) clinician prescribed an anticholinergic for patients with only stress incontinence symptoms. Most women with stress incontinence were seen by either their primary care clinician or a FPMRS specialist within three months after their complaint of new or worsening urinary incontinence (QI #9, 75% of female vs. 80% of male clinicians,  $p=0.55$ ).

### **Urgency Urinary Incontinence Care**

Few clinicians documented fluid intake (QI #9, 7% of female vs. 10% of male clinicians,  $p=0.67$ ) or that they provided patients with information or education about behavioral management (QI #11, 17% female vs. 11% male,  $p=0.73$ ). Clinicians prescribed anticholinergics to 6 of 74 patients (8%) with urgency incontinence. Of those, only one patient was also counseled about the benefits of concomitant behavioral therapy (QI #12).

### **Aggregate Scores**

When all QIs were aggregated, only 40.4  $\pm$  23.0% of patients received the indicated care. Patients referred from female providers received on average 43.8 $\pm$ 23.0% of the recommended care while patients with male providers received on average 34.5  $\pm$  22.0% of the recommended care ( $p=0.01$ ). When QIs were divided into the three subcategories), patients with female clinicians were more likely to receive appropriate general incontinence care than those with male clinicians (46.7 $\pm$ 24.7% vs. 34.9 $\pm$ 23.4%,  $p<0.01$ ), but there was no difference by clinician gender for stress incontinence- (71.4  $\pm$  21.7 vs. 69.5  $\pm$  23.4,  $p=0.69$ ) or urge incontinence-specific care (10.0  $\pm$  20.6 vs. 9.5  $\pm$  21.2,  $p=0.95$ ).

### **Clinician gender and experience**

Since female clinicians were more likely to be younger and have less experience, the interaction between physician experience (years from completion of training) and QI Aggregate scores was analyzed separately. More years of experience was associated with lower General Care ( $r -0.170$ ,  $p=0.02$ ) and Total Scores ( $r -0.157$ ,  $p=0.03$ ), indicating worse overall incontinence care. After controlling for years of experience, there remained a significant difference by physician gender, with female clinicians scoring 7.9  $\pm$  3 points higher than male clinicians ( $p=0.05$ ) on the Total QI aggregate score, indicating that female physicians provided better incontinence care despite length of time in practice.

## Discussion

We observed that adherence to 12 QIs for urinary incontinence was low, with only 40% of recommended care delivered. Additionally, we found that care by female primary care clinicians adhered to these measures slightly more often than care by male clinicians, even when years of experience was taken into account. Female clinicians were more likely to assess the severity of the incontinence and recommending pelvic floor exercises, but were no more likely to perform a pelvic exam than male physicians.

Our study adds to previous literature by focusing on urinary incontinence for women of all ages, not just vulnerable older adults.<sup>10</sup> Our previous research used a larger set of measures to examine the quality of care for urinary incontinence in general, including community and multispecialty settings where total aggregate quality scores were higher, ranging from 50–72%.<sup>11</sup> These higher adherence rates may be due to the studies' use of larger sets of measures (adherence rates are not directly comparable between measures due to differences in the QIs that were included), settings where more resources may be available to provide recommended care (e.g., tables with stirrups and specula for pelvic exams), and inclusion of clinicians who had more specific training and skills in the care of urinary incontinence.

The low rates of adherence to the QIs signify missed opportunities for primary care clinicians to provide high value care to women with incontinence. The QIs assessed here are all within the purview of primary care and do not require substantial knowledge or investments of time. For example, a brief history can differentiate between stress and urgency incontinence in most cases, and a urinalysis is inexpensive and can identify other etiologies of incontinence, such as infection or malignancy. Pelvic floor exercises and behavioral modification for urgency incontinence were recommended less than 20% of the time, despite their proven efficacy.<sup>13,14</sup> These low rates of adherence may be due to clinicians' limited training in the evaluation and management of urinary incontinence as well as time constraints faced in primary care. At the same time, our study raises questions about what urinary incontinence care primary care clinicians see as within their scope of practice. This is reflected by the fact that 8% of women with incontinence were referred by clinicians without any attempt to provide evaluation or care.

Primary care clinicians can play an important role in establishing a diagnosis and implementing conservative measures for female urinary incontinence—potentially optimizing the use of specialty care. Many women are minimally bothered by their incontinence and may not wish to undergo surgical procedures. In such cases, primary care clinicians can reserve specialist consultation for patients with complicating comorbidities (33%) or refractory symptoms. By properly evaluating women with UI and initiating conservative measures, clinicians can improve the quality of the specialist visit or potentially obviate the need for referral entirely.

In addition to revealing that the quality of primary care is suboptimal for female urinary incontinence, our data indicate that the gender of the clinician may matter. We found that female clinicians were more likely to assess symptom severity and recommend pelvic floor exercises, which led to a significantly higher aggregate scores, though there was no

difference in the majority of the measures. These findings are also in line with previously reported differences of provider gender on patient care. In a population-based analysis of the quality of care provided by physicians in Ontario, Canada, female providers were more likely to perform appropriate cancer screening, recommend diabetes management, and have reduced emergency room visits among their patients.<sup>15</sup> Similarly, in a sample of hospitalized Medicare beneficiaries, patients of female internists had lower mortality and fewer readmissions when compared to patients of male internists.<sup>16</sup>

This raises the question of whether female physicians perform better for their patients overall, or if they are just better at managing patients with more gender-congruent problems such as urinary incontinence. Female providers have historically outperformed male providers on adhering to preventative care screening practices, and this is particularly true when it comes to female-specific screening such as Papanicolaou smears and breast examinations.<sup>17-19</sup> There may be other confounding factors that were not measured, such as panel size and the possibility that female physicians may have smaller panels and more time to devote to patient counseling.<sup>20,21</sup> This relationship may also be due to the fact that female primary care clinicians tend to see a higher proportion of female patients, often due to patient selection of a female physician.

We also found that recently trained clinicians had higher General care and Total care scores. Increasing physician age has been associated with worse outcomes for hospitalized patients, though this association was mitigated by those with high volume practices.<sup>22</sup> Our finding may also reflect the possibility that older physicians are less familiar with newer medications for urgency incontinence or that older physicians who reduce their panel size may see fewer patients with urinary incontinence.

This study has several limitations. First, the study may underestimate quality of care because adherence to QIs depends on documentation in the medical record which may be variable, particularly with history taking and counseling. Additionally, older physicians who trained prior to electronic medical records may have different documentation habits. Nonetheless, adherence rates were similarly low for QIs that involve objective measures, such as pelvic exams and urinalyses. Second, patients may have requested specialist referrals, knowing that in-network providers were easily accessible, which may limit generalizability to areas where clinicians do not have immediate access to a specialist. Third, while clinician gender and experience may play a role in adherence to QIs, our sample size of providers is likely too small to fully characterize this effect. Finally, we are also lacking information on other potentially confounding clinician factors, including patient volume and the proportion of female patients in a given clinician's panel.

## Conclusion

Overall there were low rates of adherence to QIs related to urinary incontinence by primary care clinicians. Even after controlling for years of experience, male providers had the lowest adherence. These findings serve as an updated assessment of the care currently provided for women with urinary incontinence in primary care and provide a foundation upon which to build an intervention to improve care. Interventions may include new models for delivery of



high quality urinary incontinence care, such as utilizing mid-level clinicians within specialty practices or incorporating work flows in the electronic medical record to promote adherence to QIs.

## Supplementary Material

Refer to Web version on PubMed Central for supplementary material.

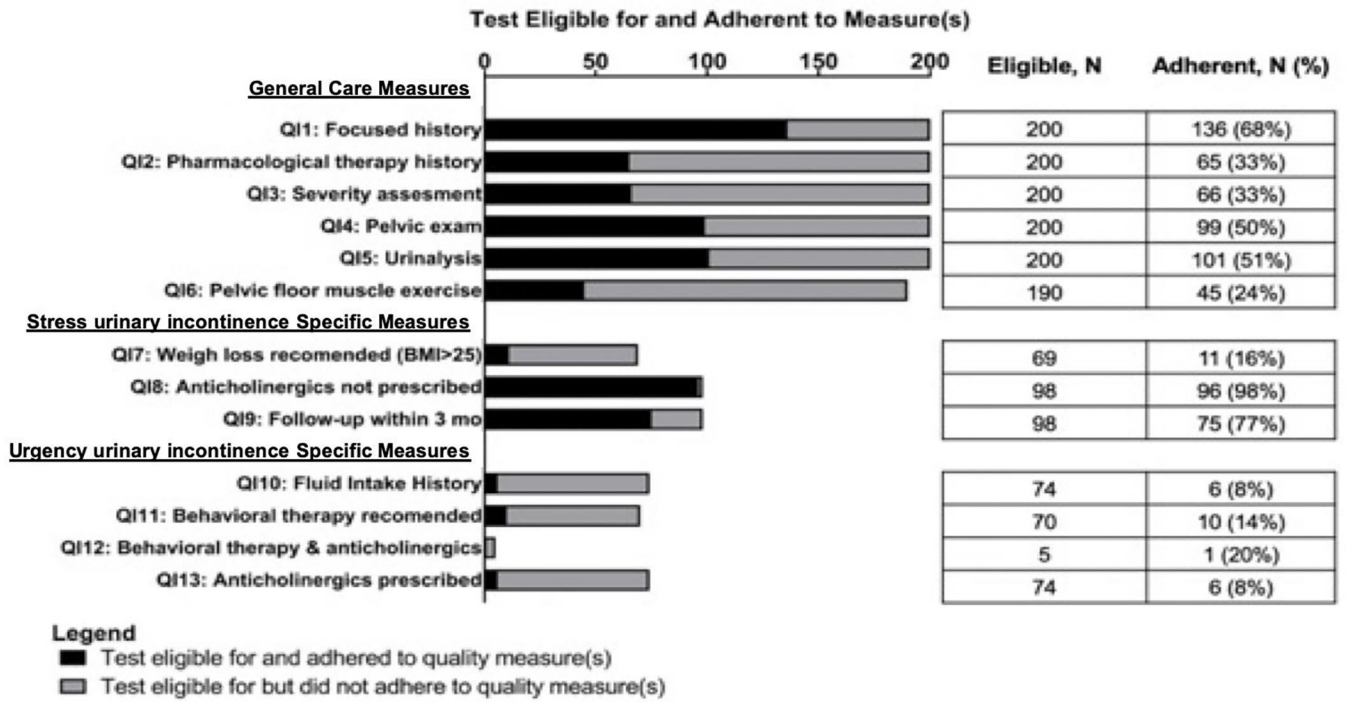
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**Figure 1:**  
 Overall Adherence to Quality Indicators

**Table 1:****Quality Care Indicators for Primary Care Practitioners****General Urinary Incontinence****History:**

A basic history should be obtained from a woman presenting with complaints of new or worsening bothersome UI including

1. Determining whether stress, urge, or both symptoms are present
2. Any previous pharmaceutical treatment
3. Severity assessment

**Targeted Physical Exam**

4. A physical exam should be performed on a woman presenting with complaints of new/worsening bothersome UI symptoms including assessment of recent pelvic exam

**Diagnostic Testing**

5. Urinalysis should be performed on a woman who presented with new/worsening bothersome stress urinary incontinence to screen for microhematuria or urinary tract infection

**Treatment / Management**

6. A woman who presents with new or worsening bothersome UI should initially be offered pelvic floor muscle training

**Stress Urinary Incontinence**

7. A woman who is overweight (BMI>25) with new or worsening symptoms should be advised to lose weight

8. Anticholinergic therapy should not be offered as a treatment to a woman who presents with new or worsening bothersome stress urinary incontinence without symptoms of overactive bladder

9. A woman who is treated for SUI should be re-evaluated within 3 months of initiation of intervention for the efficacy and/or complications of any intervention

**Urgency Urinary Incontinence**

10. A woman who presents with new or worsening bothersome urgency urinary incontinence should be asked about fluid intake

11. A woman presenting with new or worsening symptoms of urgency urinary incontinence or overactive bladder syndrome should initially be counseled about behavioral modification, including fluid restriction and bladder training

12. A woman with urgency urinary incontinence or overactive bladder syndrome who is prescribed anticholinergic medications should also be counseled about behavioral therapy

**Table 2:**

## Clinician Characteristics

	Female Clinician (n=83)		Male Clinician (n=42)		p-value
Type					0.30 <sup>1</sup>
MD/DO	79	95%	42	100%	
NP/PA	4	5%	0	0%	
Specialty					0.73 <sup>1</sup>
Internal Medicine	36	43%	15	36%	
Family	14	17%	5	12%	
Geriatrics	4	5%	2	5%	
Gynecology	18	22%	12	29%	
Other	11	13%	8	19%	
Years Experience	13.5 +/- 11.2		30.0 +/- 15.3		<0.01 <sup>2</sup>

Note: p-values computed by <sup>1</sup>Chi-Square Test or <sup>2</sup>Student's t-test.

**Table 3:**

## Quality Indicator Scoring of Cases by Provider Gender

	Female Provider (n=127 Cases)		Male Provider (n=73 Cases)		p-value
General Care Score (Mean +/- SD)	46.7 +/- 24.7		34.9 +/- 23.4		<0.01
QI 1: Focused History	85/127	67%	51/73	70%	0.67
QI 2: History of prior pharmacologic therapy	46/127	36%	19/73	26%	0.14
QI 3: Severity Assessment	52/127	41%	14/73	19%	<0.01
QI 4: Pelvic Exam	68/127	54%	31/73	42%	0.13
QI 5: Uroanalysis	70/127	55%	31/73	42%	0.08
QI 6: Pelvic Floor Muscle Exercises	35/120	29%	10/70	14%	0.02
Stress Incontinence Specific Score (Mean +/- SD)	71.4 +/- 21.7		69.5 +/- 23.4		0.69
QI 7: Weight loss recommended (BMI > 25)	6/40	15%	5/29	17%	0.80
QI 8: Pharmacologic not prescribed	62/63	98%	34/35	97%	0.99
QI 9: Follow-up within 3 months	47/63	75%	28/35	80%	0.55
Urgency Incontinence Specific Score (Mean +/- SD)	10.0 +/- 20.6		9.5 +/- 21.2		0.95
QI 10: Fluid Intake History	3/45	7%	3/29	10%	0.67
QI 11: Behavior Therapy Recommended	7/42	17%	3/28	11%	0.73
QI 12: Behavioral therapy recommended in combination with anticholinergics	1/2	50%	0/3	0%	0.40
QI 13: Anticholinergics prescribed	3/34	7%	3/29	10%	0.67
<b>Total Score (Mean +/- SD)</b>	<b>43.8 +/- 23.0</b>		<b>34.5 +/- 22.0</b>		<b>&lt;0.01</b>