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Adherence to professional society guidelines among women with stress or mixed urinary incontinence

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Abstract

Aims: The objective of this analysis was to describe longitudinal adherence with recommended urinary incontinence (UI) evaluation and treatment guidelines over a 2-year period in patients newly diagnosed with stress (SUI) or mixed UI (MUI), and average 2-year cost associated with initial treatment.

Methods: A retrospective claims analysis using the IBM MarketScan database was conducted. Women diagnosed with SUI/MUI between July 1, 2014 and June 30, 2016 were identified using the International Classification of Diseases (ICD) 9 and 10 codes for SUI or MUI. Newly diagnosed SUI/MUI patients who did not have a UI-related diagnosis for at least 1 year before their index date were assessed.

Results: 103 813 patients with newly diagnosed SUI or MUI were identified. Of those, 96.15% (99 821/103 813) received an initial evaluation in accordance with professional guidelines (e.g., patient history, physical examination, urinalysis). Only 6.8% (5086/74 925) and 7.7% (2229/28 888) of patients with SUI and MUI, respectively, received a first-line behavioral treatment (e.g., pelvic floor muscle exercises, bladder training), according to guidelines. The 2-year average UI-related medical costs associated with guideline adherence for SUI were $\$5770.93 \pm \$9454.81$ and for MUI, $\$4416.16 \pm \$7401.53$. Nonadherence was observed in 59.2% (44 382/74 925) of SUI and 64.1% (18 530/28 888) of MUI patients. Two-year average UI-related medical costs for the nonadherent group were $\$8568.00 \pm \$11\,275.52$ for SUI and $\$6986.66 \pm \$10\,765.55$ for MUI, significantly more than the adherent group ($p < 0.0001$).

Conclusion: The majority of SUI or MUI patients do not receive a documented behavioral intervention as their first-line treatment, which is a recommendation by professional society guidelines. This was found to affect the cost burden for payers; those that were nonadherent had significantly higher costs 2-year postindex.

KEYWORDS
claims analysis, clinical guidelines, patient management, patient outcome, urinary incontinence

1 | INTRODUCTION

Urinary incontinence (UI) is a highly prevalent health condition experienced by over 60% of the US adult female population.[1] Severity and prevalence increase with age and prevalence is projected to increase in part due to the large aging demographic and national obesity epidemic, as both are risk factors for UI.[1,2] UI is associated with economic, psychosocial, and physical burdens at the individual- and societal level.[3–5] All UI involves the involuntary loss of urine and the predominant subtypes among females are stress urinary incontinence (SUI), urgency urinary incontinence (UUI), and mixed urinary incontinence (MUI), involving involuntary loss of urine on effort, physical exertion, coughing or sneezing, involuntary loss of urine associated with urinary urgency, and involuntary loss of urine with urgency *and* physical exertion, effort, coughing or sneezing, respectively.[1,6]

Multiple professional societies have developed evidence-based guidelines for the evaluation and treatment of female UI.[7,8] These include the American Urological Association (AUA), the Society of Urodynamics, Female Pelvic Medicine and Urogenital Reconstruction (SUFU), the American College of Obstetricians and Gynecologists (ACOG), and the American Urogynecologic Society (AUGS), as well as international societies, such as the International Urogynecological Association (IUGA) and others.[9–13] Broad consensus exists for most components of the UI care pathway, and these are listed in Table 1.[7,8] Standard components of UI evaluation include patient

TABLE 1 Evaluation and treatment of female urinary incontinence: synthesis of professional society guidelines and associated procedural codes

Initial evaluation	
Standard components	**CPT codes**
Patient history	99221, 99222, 99223, 99251, 99252, 99253, 99254, 99255, 99234, 99235, 99236, 99241, 99242, 99243, 99244, 99245, 99201, 99202, 99203, 99204, 99205, 99211, 99212, 99213, 99214, 99215, G2010, G2012, 99446, 99447, 99448, 99449, 99451, 99452
Physical examination	99211, 99211, 99212, 99213, 99214, 99215, 2000F, 2001F, 2010F
Postvoid residual assessment	51701
Urinalysis	81005, 81007, 81015, 81020, 81009
Additional diagnostic testing	
Cystoscopy	52000, 52883
Urodynamic testing	51726, 51727, 51728, 51729, 51797, 51792, 57198
Diagnosis of stress, urgency or mixed urinary incontinence	
First-line treatment components for all three subtypes	**CPT codes**
Pelvic floor muscle training (may include biofeedback and/or electrical stimulation)	97014, 97032, E0740, 90901, 90911, 90912, 90913, 90875, 90876
Self-care/home management training (may include bladder training and/or home exercise counseling)	97535
Continence pessary (Stress UI only)	57160, A4561, A4562
Advanced treatment for stress UI	**CPT/HCPCS codes**
Periurethral bulking agents	51715, C9743, 11950, 11951, 11952, 11954, L8603, L8604, L8606, 0TUC8JZ, 0TUD8JZ, 3E0K3GC, 3E0K8GC
Surgical procedures (sling, Burch colposuspension, transvaginal hysterectomy, Kelly plication, needle suspension)	57288, 57287, 51990, 51992, 51840, 51841, 57220, 51845, 57289, 58293
Advanced treatment for urgency UI	**CPT/HCPCS codes**
Pharmacologic treatments (anticholinergics, beta-agonists)[a]	N/A
OnabotulinumtoxinA detrusor chemodenervation (Botox®)	52287
Sacral neuromodulation	64590

Abbreviations: CPT, current procedural terminology; HCPCS, Healthcare Common Procedure Coding System; UI, urinary incontinence.

[a]NDC codes for Pharmacologic Treatments identified from Redbook, a data set for drugs provided by IBM Marketscan. Too numerous for inclusion in this manuscript.

history, physical examination, urinalysis, and postvoid residual urine (PVR) assessment. Additional testing is recommended for special populations, such as cystoscopy for patients with lower urinary tract abnormalities (e.g., microscopic hematuria) or urodynamic testing (assessment of the bladder, urethra, and pelvic floor function during urine storage and micturition) for patients with high-grade prolapse and/or geriatric patients. After ruling out transient causes of UI and identifying complex cases that require further evaluation and/or specialist referral, a diagnosis of SUI, UUI, or MUI may be determined. Recommended treatment for all three UI subtypes follows a stepwise approach. First-line interventions for SUI, UUI, and MUI are nonsurgical, nonpharmacologic and include pelvic floor muscle training (PFMT) and other behavioral therapies (e.g., bladder training, weight loss, fluid titration, caffeine reduction).[9–12] Included in this guidance is the role of the physician to counsel about and offer these treatment options and an emphasis on the role of the physician or other clinician to supervise the implementation of PFMT.[9,11,12] Recommendations around supervision are consistent with the most recent Cochrane systematic review on the subject indicating that supervised PFMT consistently yields superior outcomes when compared to unsupervised PFMT.[14] Beyond first-line care, treatment recommendations diverge, according to UI subtype. Continence pessaries may be helpful for women with SUI. Advanced treatment for SUI may include periurethral bulking agents or surgical intervention. Pharmacologic agents, including anticholinergic agents and beta-agonists, may be prescribed for UUI or the urgency component of MUI. Advanced treatment for UUI may include onabotulinumtoxinA detrusor chemodenervation or peripheral or sacral neuromodulation.[7,8]

Adherence to UI evaluation and treatment guidelines aligns with evidence-based medical practice and can directly affect patient outcomes and healthcare costs. Wockel et al.[15] studied patients with breast cancer and reported a direct, significant positive association between guideline adherence and recurrence-free and overall survival ($p = 0.0001$). Similarly, in a sample of patients with type 2 diabetes, adherence to diagnostic and screening guidelines was associated with significantly reduced rates of hospitalizations for complications; vascular complications ($p = 0.007$), renal complications ($p = 0.002$), and other complications ($p = 0.005$).[16] Improvement in outcomes associated with guideline adherence can be expected to affect costs. For example, Childs et al.[17] reported that early referral to guideline-based physical therapy is associated with 60% reduced costs for low back pain.

Research assessing guideline adherence in the United States and its impact on patients with UI is limited, and most pre-date issuance of the professional society guidelines is outlined above. Lee and colleagues (2002) sought to assess guideline compliance through a literature search assessing the rate of compliance with the minimal standard recommendations of the Urodynamic Society (currently SUFU). This study found that the overall mean compliance rate reported in each study was 29% and concluded that low compliance rates, due to a lack of standardization, result in the inability to accurately evaluate treatment outcomes for patients with UI.[18] To further evaluate costs related to guideline adherence, Wilson and colleagues (2001) estimated the annual direct cost of UI using diagnostic and treatment algorithms from published practice guidelines. This study found that the annual direct cost of UI was estimated at $16.3 billion (in 1995 dollars), with the largest cost category for UI being routine care, followed by nursing home admissions, treatment, complications, and diagnostic testing and evaluations.[19] While the studies described above have evaluated adherence to recommended UI treatment standards and guidelines, these studies are dated and do not reflect the most recent practice guidelines.[7-13] Furthermore, these studies do not evaluate longitudinal adherence to guidelines and its direct association with costs.

The objective of this study was to evaluate documented adherence in a US-based cohort to contemporary professional guidelines for UI evaluation and treatment in a US-based cohort of female patients newly diagnosed with SUI or MUI and to compare payer costs among guideline adherent and nonadherent groups. Documented adherence is defined as a billable event (CPT code, HCPSC code) associated with an SUI or MUI diagnosis.

2 | MATERIALS AND METHODS

This was a retrospective cohort analysis using medical and pharmacy claims data from the IBM MarketScan Commercial and Encounters database (Commercial), and Medicare Supplemental and Coordination of Benefits database (Medicare) from July 2013 to June 2018. Medical and pharmacy claims for approximately 65 million individuals and dependents are included within the MarketScan Commercial database. The Medicare Supplemental database for retired employees and spouses older than 65 years who receive supplemental insurance paid by their former employer through Medicare is estimated to house records for approximately 5.3 million individuals. Both the MarketScan Commercial and Medicare Supplemental databases capture enrollee-specific data, including demographic data, clinical information, outpatient and inpatient utilization data, and expenditures for over 350 payers, including large employers, health plans, and government and public organizations. Records are deidentified and certified to be compliant with patient confidentiality requirements set forth

in the 1996 Health Insurance Portability and Accountability Act. Institutional Review Board approval was not required because this study leveraged only deidentified patient records and did not involve the collection, use, or transmission of individually identifiable data.

Women who had SUI or MUI were identified using the International Classification of Disease—Clinical Modification (ICD-9-CM) and ICD-10-CM codes for SUI and MUI (ICD-9-CM [SUI: 625.6; MUI: 788.33]; ICD-10-CM [SUI: N39.3; MUI: N39.46]) between July 1, 2014 and June 30, 2016 in any diagnosis field. Women were excluded from the study if they were younger than 18 years of age at the start of the study period (July 2013), had a record of pregnancy, or had less than 80% enrollment at any time from July 2013 to June 2018 (entire study period). The first date of their SUI or MUI diagnosis was identified as the index date and patients were followed for 2 years postindex date to evaluate guideline adherence. Patients who had a diagnosis of SUI or MUI accompanying any other urinary conditions including UUI, overactive bladder, postural incontinence, nocturnal incontinence, or other specific UI disorders for at least 1 year before the index date were excluded from the analysis (Figure 1).

Among patients who qualified for study inclusion, documented guideline adherence was assessed using CPT and HCPCS codes outlined in Table 1. The number and proportion of patients who underwent a UI evaluation in the 1-year pre-index period was identified. This included patient history, physical exam, PVR assessment, urinalysis test, cystoscopy, or urodynamic testing. Patients were categorized into those receiving behavioral, pharmacologic, or surgical treatment as the first-line treatment for SUI/MUI during the 2-year postindex period. Behavioral treatments included documented PFMT with or without biofeedback and/or electrical stimulation, bladder training, or continence pessary. Given the broad description for associated CPT and HCPCS codes, these procedures were tied to a primary or secondary diagnosis of SUI or MUI and could have been billed by a physician, physical therapist, or advanced practice provider. Pharmacologic treatments included anticholinergic agents and beta-agonists. Surgical interventions included periurethral injections of bulking agents, sling procedures, Burch colposuspension, Kelly plication, needle suspension, and transvaginal hysterectomy. Other procedures identified included detrusor chemodenervation and sacral neuromodulation.

To assess longitudinal adherence to treatment guidelines, the order of treatment in the 2-year postindex period was analyzed. For SUI treatment, guideline adherence was defined by a documented first-line behavioral intervention alone or followed by surgery, and for MUI treatment, it was defined by a documented first-line behavioral intervention alone or followed by surgical treatment or a pharmacologic agent. Nonadherence was defined by a pharmacologic agent or surgical intervention provided as a first-line treatment for SUI or MUI and for SUI cases where a pharmacologic agent was prescribed either first or second line. Total costs incurred by payers (plan paid amount) for adherent and nonadherent groups were calculated as the plan paid amount for the UI-related claims (claims that had a primary or secondary diagnosis of SUI or MUI) in the 2-year postindex period.

Although not outlined specifically in guidelines, several other indicators of patient management were assessed in the cohort of patients with SUI/MUI. Physician specialty at index date was derived from the MarketScan database wherein physicians with an internal medicine or family medicine specialty were categorized as Primary Care Physicians (PCPs) and specialists were defined as physicians with a specialty classification of urology or obstetrics & gynecology using provider type codes that are representative of the provider types based on the Watson Health standards (internal medicine: 204; family medicine: 240; urology: 210; obstetrics & gynecology: 320). Due to the reported association of anxiety and depression with UI, the use of antianxiety and antidepressant medications was assessed by using National Drug Codes (NDCs) in the 2-year postindex period.[1] Claims for complications after surgeries included in guidelines were identified in the 30 days following the date of surgery. Postsurgical complications including mesh erosion, repeat surgery, urinary tract infection,

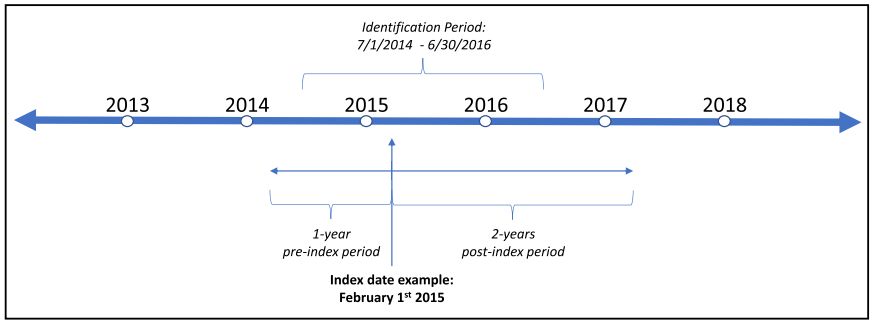

FIGURE 1 Study timeline for patients with SUI or MUI. MUI, mixed urinary incontinence; SUI, stress urinary incontinence.

urinary retention, deep-vein thrombosis, pneumonia, an overnight admission for a sling procedure, and cardiac issues were also identified for those that underwent surgery (codes in Supporting Information: Appendix 1). Additionally, sacral neuromodulation and/or detrusor chemodenervation for SUI/MUI patients who did not receive one of the three recommended treatment options were identified in the 2-year postindex period (Table 1).

Demographics of the study population were reported as *n* (%). Overall guideline adherence was reported as a proportion of the study population. The proportion of patients at each step in the care pathway including evaluation and diagnosis of SUI or MUI and treatment was reported. Medical and pharmaceutical cost for the treatment pathways involving behavioral, pharmacologic, and surgical treatments as first-line was reported descriptively and compared. All analyses were performed using SAS version 9.4 (SAS Institute Inc.).

3 | RESULTS

A total of 103 813 patients with incident SUI/MUI were identified who met all inclusion and exclusion criteria (study population). The demographic characteristics of this population are presented in Table 2. The mean age of the study population was 59.56 ± 13.83 years. The age category with the highest incidence of SUI/MUI was 45–54 years (29.75%, 30 883/103 813) while patients aged 18–34 had the lowest incidence rate (4.9%, 5087/103 813).

An evaluation was conducted in 96.15% (99 821/103 813) of cases in the 1-year period before their SUI/MUI diagnosis. Among those, 88.49% (88 334/99 821) received no subsequent cystoscopy or urodynamic testing, 3.75% (3743/99 821) received cystoscopy testing only, 6.60% (6592/99 821) received urodynamic testing only, and 1.15% (1152/99 821) received both cystoscopy and urodynamic testing (Figure 2). Only 0.60% (627/103 813) of incident SUI/MUI cases

TABLE 2 Demographic characteristics: incident patients

Baseline demographics	Incident (*n* = 103 813)
Age at index encounter, mean (SD)	59.56 (13.83)
Age categories, *n* (%)	
18–34	5087 (4.9%)
35–44	18 056 (17.39%)
45–54	30 883 (29.75%)
55–64	29 522 (28.44%)
65+	20 265 (19.52%)
Region, *n* (%)	
Northeast	17 675 (17.03%)
North central	24 217 (23.33%)
South	46 395 (44.69%)
West	15 395 (14.83%)
Unknown	131 (0.13%)
Employment status, *n* (%)	
Employed (full-time)	58 242 (56.1%)
Employed (part-time)	1153 (1.11%)
Other[a]	44 418 (42.79%)

[a]Other employment status's include retirees, patients with a long-term disability, patients dependent on spouse, and patients with an unknown employment status at time of data collection.

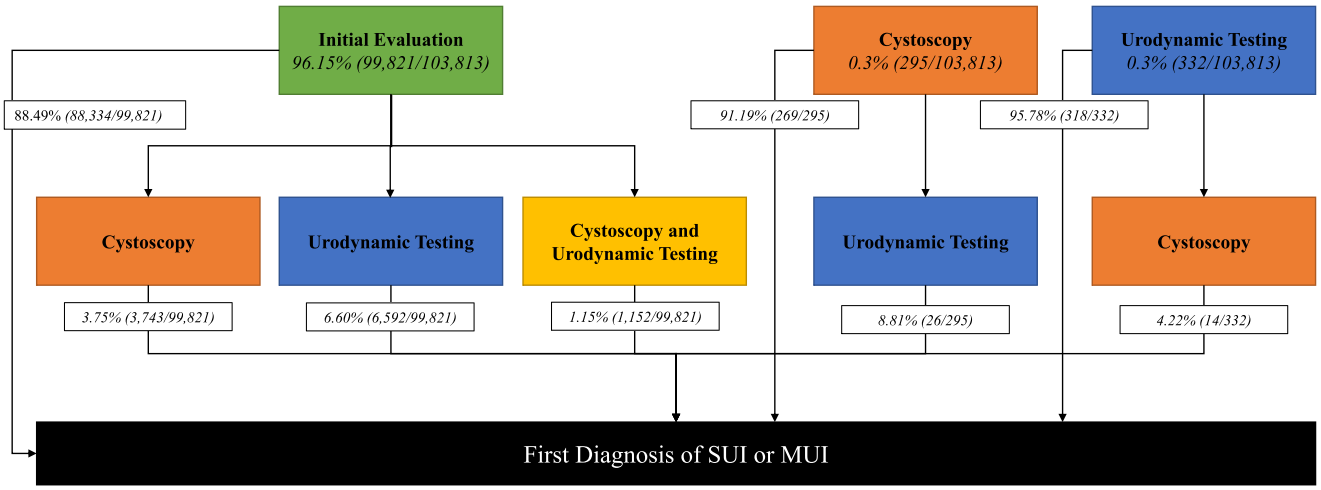

FIGURE 2 Patient journey—diagnostic evaluation 1 year before diagnosis. *3365 (3.24%) patients did not receive one of the three diagnostic evaluations (cystoscopy, initial evaluation, or urodynamic testing) before diagnosis of SUI/MUI. MUI, mixed urinary incontinence; SUI, stress urinary incontinence.

received cystoscopy or urodynamic testing without a documented initial evaluation in the 1 year preceding their index date, and 3.24% (3365/103 813) of patients had no documented evaluation in this timeframe.

Documented guideline adherence was low; only 6.8% (5086/74 925) and 7.7% (2229/28 888) of SUI and MUI cases, respectively, received a documented behavioral intervention, including PFMT, bladder training, or continence pessary. Of SUI cases that received documented first-line nonsurgical, nonpharmacologic intervention, 7.2% (365/5086) received a subsequent surgical intervention and 33.1% (1683/5086) received subsequent pharmacologic treatment. Of MUI cases that received documented first-line nonsurgical, nonpharmacologic intervention, 6.1% (137/2229) received a subsequent surgical intervention and 41.8% (931/2229) received a subsequent pharmacologic intervention.

In the incident SUI cohort, 59.2% (44 382/74 925) did not receive treatment in adherence to guidelines: 13.4% (10 057/74 925) underwent surgery and 43.6% (32 642/74 925) received medication as the first treatment at index or within the 2-year postindex period (index date greater than or equal to zero). In the incident MUI cohort, 64.1% (18 530/28 888) did not receive treatment in adherence to guidelines: 7.6% (2201/28 888) underwent surgery and 56.5% (16 329/28 888) received a pharmacologic treatment as their first treatment at index or within the 2-year postindex period (index date greater than or equal to zero). A diagrammatic representation of the treatments received by the SUI and MUI cohorts is presented in Figures 3 and 4.

The physician specialty associated with the index SUI or MUI visit was an obstetrics and gynecology (OB/GYN) physician in 40.37% (41 909/103 813) of SUI/MUI patients, followed by a urologist (23.43%; 24,327/103,813), primary care physician (17.73%; 18,411/103,813), and other specialties (18.46%; 19,166/103,813). Other specialties included nurse practitioners, physical therapists, and nonclassified surgeons and medical doctors.

Among all surgical cases (12 760/103 813), 567 postoperative complications were documented in the 30-day postsurgery period, including urinary retention (48.32%; 274/567), urinary tract infections (35.63%; 202/567), repeat surgeries (10.93%; 62/567), cardiac issues (3.88%; 22/567), and pneumonia-related complications (1.23%; 7/567). No patients had complications of mesh erosion, deep-vein thrombosis, or an overnight admission for a sling procedure.

During the 2-year postindex period, the average UI-related medical costs (per patient) for the adherent group were $5770.93 ± $9454.81 for patients with SUI and $4416.16 ± $7401.53 for patients with MUI. For the nonadherent group, these costs were $8568.00 ± $11 275.52 for patients with SUI and $6986.66 ± $10 765.55 for patients with MUI (Table 3).

Of the 103 813 incident patients, 47.3% (49 107/103 813) received antianxiety or antidepressant prescriptions during the 2 years postindex. Furthermore, 33.97% (35 269/103 813) of incident SUI and MUI cases received none of the recommended behavioral, pharmacologic, or surgical treatments. Of those, 0.7% (259/35 269), 0.3% (107/35 269), and 0.03% (10/35 269) received detrusor

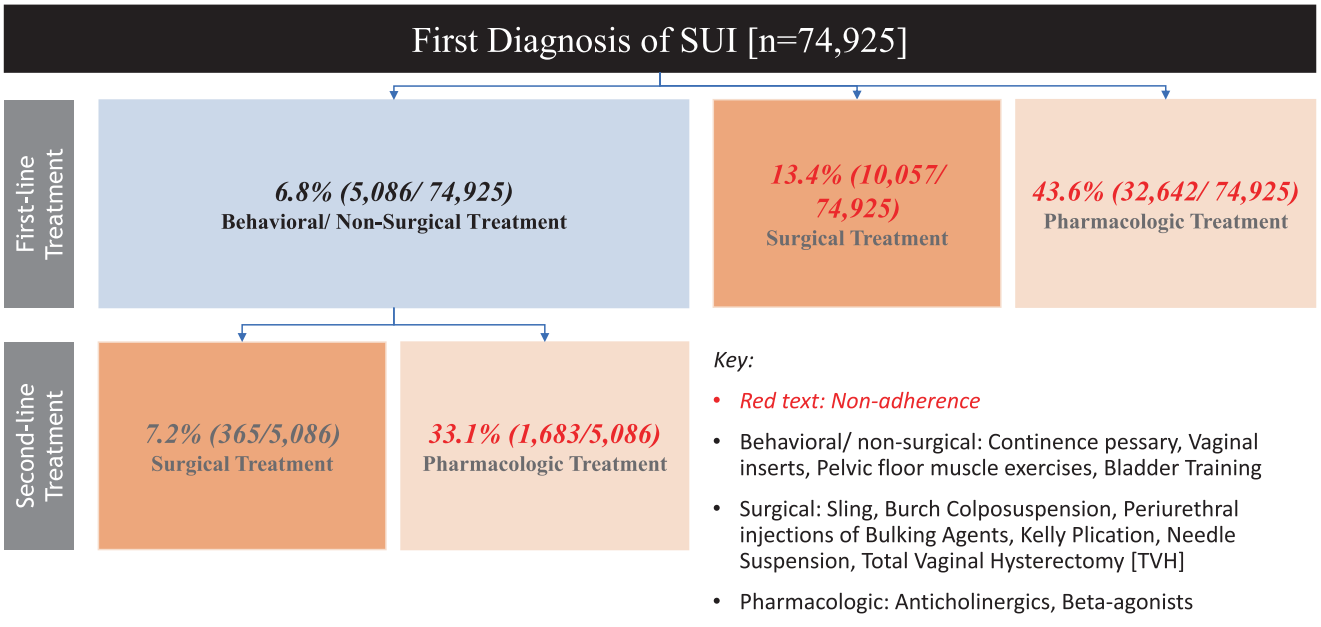

FIGURE 3 Initial and subsequent treatment received in the 2-year postindex period among the SUI population. Patient journey was based on the following guidelines for the management of SUI patients. SUI, stress urinary incontinence.

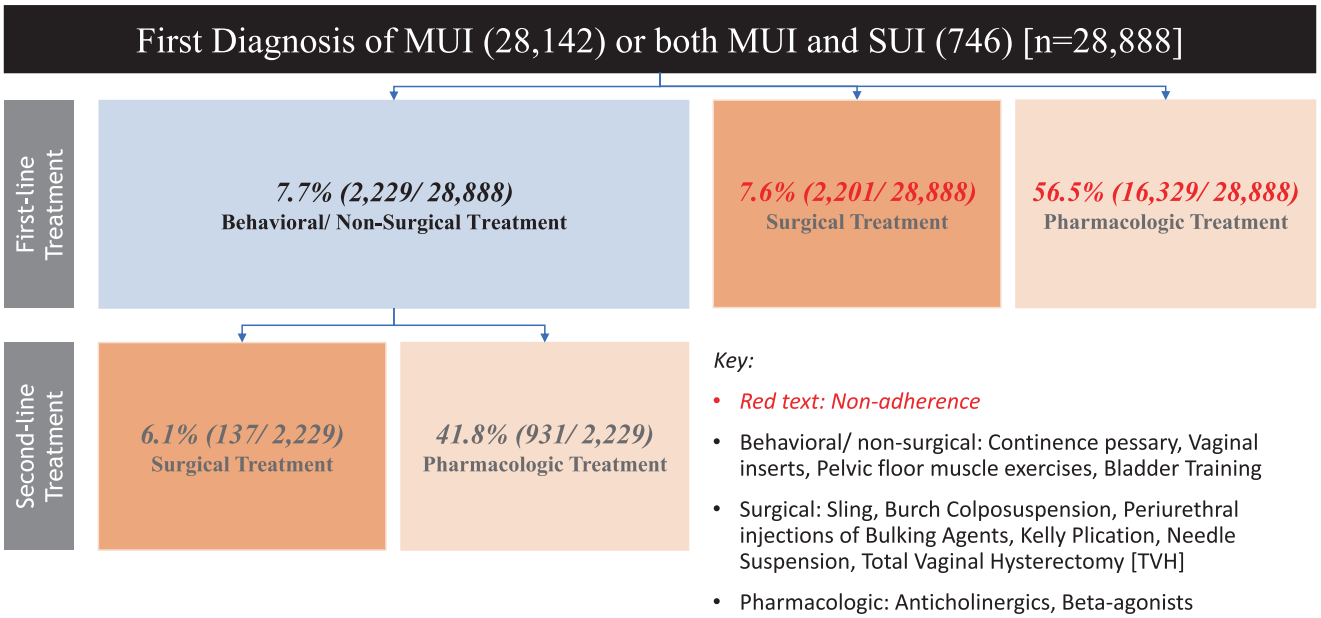

FIGURE 4 Initial and subsequent treatment received in the 2-year postindex period among the MUI population. Patient journey was based on the following guidelines for the management of MUI patients. MUI, mixed urinary incontinence.

TABLE 3 Average 2-year postindex medical costs associated with adherence to guideline recommendations among incident SUI and MUI patients

Average UI-related medical costs, 2-year postindex[a]	Adherent	Nonadherent	*p* Value
SUI cohort, mean, (SD)	$5770.93 ($9454.81)	$8568.00 ($11 275.52)	<0.0001
MUI cohort, mean, (SD)	$4416.16 ($7401.53)	$6986.66 ($10 765.55)	<0.0001

Abbreviations: MUI, mixed urinary incontinence; SUI, stress urinary incontinence.

[a]UI-related medical costs—cost of claims where the primary or secondary diagnosis for the claim is SUI or MUI.

chemodenervation, sacral neuromodulation, and both detrusor chemodenervation and sacral neuromodulation, respectively.

4 | DISCUSSION

Most patients received a guideline-adherent initial evaluation before an SUI or MUI diagnosis, with a smaller subset undergoing additional diagnostic procedures, such as cystoscopy or urodynamic testing. However, for both incident SUI and MUI cohorts, the majority received a surgical or pharmacologic intervention as documented first-line treatment. This represents nonadherence to contemporary professional guidelines and exposes patients to treatments (e.g., medications, surgery) with risks and side effects that exceed conservative, first-line care. Furthermore, UI-related medical costs associated with nonadherence were higher than in the adherent group. While these data do not provide information about the reasons for nonadherence to UI treatment guidelines, it estimates the magnitude of nonadherence and its economic impact on the healthcare system. In short, deviation from recommended treatment guidelines is common and costly. An interesting finding of this analysis is that approximately one-third of patients with incident SUI/MUI had no treatment discernible by billing codes in the 2 years following their index diagnosis. It is possible that patients in this group were counseled about first-line care, that this counseling was not documented, and they may have implemented it in an unsupervised capacity. It is also possible that treatment options were not presented, or that treatment was considered by the patient to be undesirable, inaccessible, or unwarranted given symptom severity and level of bother. The factors behind a lack of apparent treatment for UI among approximately a third of patients diagnosed are an opportunity for future research.

Prior studies of guideline adherence in the context of UI are less recent and conducted during a short time frame.[18,19] This longitudinal study provides an analysis of adherence to the most recent professional guidance for UI evaluation and treatment. Our findings demonstrate

that documented adherence to guidelines decreases overall UI-specific medical costs for the health plan. While it is reasonable to consider that guideline adherence may contribute to improved outcomes, further research is needed to understand (1) how to assure all care is documented, (2) how to implement guideline-based care to scale, and (3) the clinical impact of such scaled efforts. Future studies may examine clinical outcomes and healthcare resource utilization associated with guideline-based care for women with UI and consider measures of symptom severity and bother.

Strengths of this study include the large cohort of newly diagnosed patients and the longitudinal nature of the study. There are several limitations associated with using an administrative claims database. First, the database may not include complete patient history and clinical information, and it does not include information related to a patient's race, ethnicity, language, or socioeconomic status. Thus, our findings are most applicable at a population versus an individual level and do not permit evaluation of differences between women with UI according to background or other characteristics. Second, it is possible some diagnoses and/or procedure codes were miscoded or undocumented, particularly behavioral therapies, such as bladder training, fluid titration, or recommendations for unsupervised PFMT. Third, the index date was based on SUI/MUI diagnostic codes after an encounter with a healthcare provider. It is possible a patient's symptoms began before their initial visit; however, our cohort definition applies a minimum of 12-month continuous enrollment before diagnosis. Fourth, pharmacologic use was assessed based on filled prescriptions and may not reflect actual use. Fifth, adherence to guidelines was not assessed according to the specialty of the prescribing clinician (i.e., Ob/Gyn, Urology, PCP, other). Such analysis may have lent additional insights; however, adherence was broadly observed for diagnosis and evaluation and broadly not observed for treatment when the specialties were analyzed together. Sixth, the categorization of patients as SUI/MUI at index was applied throughout the 2-year period; an analysis of a change in diagnosis postindex date was not assessed. However, the study aimed to minimize potential misdiagnosis by excluding patients that had any other urinary diagnosis in the 1 year before their index date. Finally, this analysis reviews documented guideline adherence only and does not assess treatment efficacy. The addition of symptomatic baseline data and change in response to treatment would make a valuable contribution.

This longitudinal analysis provides an understanding of provider practice patterns related to documented UI evaluation and treatment. While most newly diagnosed patients with SUI or MUI received an initial evaluation in accordance with recommended guidelines, the recommended first-line treatment was not documented in most cases. Most patients received pharmacologic interventions first, including SUI cases—a diagnosis for which there are no US FDA-approved medications. Documented adherence to clinical practice guidelines that includes first-line provision of nonsurgical, nonpharmacologic interventions may reduce the overall cost burden. Efforts to support and scale evidence-based first-line care that include nonsurgical, nonpharmacologic interventions such as supervised and/or otherwise documented PFMT, along with other behavioral therapies including supervised PFMT for the treatment of SUI and MUI are much needed. Implementation of first-line conservative care to scale will require the collaborative engagement of key stakeholders, including providers and payors, to keep costs manageable and best meet the health needs of the significant and growing number of women with UI.

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CONFLICTS OF INTEREST

Manasi Datar, Li-Chen Pan, and Thomas F. Goss are employees of Boston Healthcare Associates, a Veranex company, which received consulting fees from Renovia Inc. Jessica L. McKinney, Laura E. Keyser, and Samantha J. Pulliam are employees of Renovia Inc.

DATA AVAILABILITY STATEMENT

Data was purchased from a commercially available database and can be obtained from IBM Marketscan.

ETHICS STATEMENT

All database records are statistically deidentified and certified by IBM/Marketscan to be fully compliant with US patient confidentiality requirements set forth in the Health Insurance Portability and Accountability Act of 1996. Because this study used only deidentified patient records and did not involve the collection, use, or transmittal of individually identifiable data, Institutional Review Board approval to conduct this study was not necessary.

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SUPPORTING INFORMATION

Additional supporting information can be found online in the Supporting Information section at the end of this article.

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