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Outpatient Evaluation and Management Visits for Urinary Incontinence in Older Women

Elisabeth Erikson, MD MPH^{1,2}, Kaitlin A Hagan, ScD MPH^{3,4}, Andrea Austin, PhD², Donald Carmichael, M.Div.², Vatche A Minassian, MD MPH⁵, Francine Grodstein, ScD^{3,4}, Julie PW Bynum, MD MPH^{2,6,7}

¹Department of Obstetrics and Gynecology at the Geisel School of Medicine at Dartmouth, Hanover, NH

²The Dartmouth Institute for Health Policy and Clinical Practice at the Geisel School of Medicine at Dartmouth, Hanover, NH

³Channing Division of Network Medicine, Brigham and Women's Hospital, Harvard Medical School, Boston, MA

⁴Department of Epidemiology, Harvard School of Public Health, Boston, MA

⁵Division of Urogynecology, Department of Obstetrics and Gynecology, Brigham and Women's Hospital, Boston, MA

⁶Department of Internal Medicine, University of Michigan Medical School, Ann Arbor, MI

⁷Institute for Health Policy and Innovation, University of Michigan, Ann Arbor MI

Abstract

Objective: The aim of this investigation was to examine how often outpatient visits addressing urinary incontinence among women with self-reported incontinence symptoms occur and to explore characteristics associated with having an outpatient visit for incontinence.

Methods: We studied 18,576 women from the Nurses' Health Study, ages 65 years and older, who reported prevalent incontinence symptoms in 2012 on a mailed questionnaire and were linked with Medicare utilization data. We compared women with and without claims for outpatient visits for urinary incontinence, including considering demographic, personal, and clinical characteristics. We controlled for potential confounding factors including age, race, parity, body mass index, medical co-morbidities, smoking status, health seeking behavior, disability, physical function, and geographic region, using logistic regression models.

Results: In this linkage between symptom report and insurance claims data, we found that only 16% of older women with current incontinence symptoms also had an outpatient visit addressing incontinence in the prior 2 years. In multivariable-adjusted models, incontinence severity (OR=3.75, 95% CI:3.10-4.53 comparing women with severe vs. slight) and type of incontinence

Corresponding Author: Elisabeth Erikson, MD MPH, 1 Medical Center Dr., Lebanon, NH 03756, (603) 653-9250, Elisabeth.D.Erikson@hitchcock.org.

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(OR=1.80, 95% CI:1.56-2.08 comparing women with urgency vs. stress) were the strongest predictors of having an outpatient evaluation.

Conclusion: Overall, only a small percentage of women who report urinary incontinence symptoms also have medical outpatient visits for incontinence, a marker of care-seeking. Our study highlights the discordance between the high prevalence of incontinence in older women and the lack of clinical assessment despite symptoms, even among nurses with high healthcare literacy.

Keywords

Urinary Incontinence; Outpatient Visits; Evaluation and Management; Care-Seeking

INTRODUCTION

Urinary incontinence (UI) is a common condition associated with many poor health and social outcomes in older women.¹⁻³ UI prevalence estimates range from 30 to 60%.^{4,5} Yet, prior work has indicated that only a minority of women, , report discussing UI with their healthcare provider.⁶⁻¹² Reasons for this reluctance to seek care include the belief that incontinence is a “normal” part of aging rather than a condition that can be treated and improved.^{13,14} Current data surrounding care-seeking behaviors have relied on women’s self-report. We sought to merge symptom report with a claims data base as an alternate approach to characterize factors associated with women obtaining medical evaluation for UI.

In this work, we leveraged data from the Nurses’ Health Study (NHS)¹⁵, a unique and well-characterized cohort of women in whom UI symptoms are reported as part of the parent study, and in whom we completed a linkage with Medicare claims data. The survey data from the NHS cohort provided information on UI symptoms by severity and type, and the Medicare claims provided information on whether outpatient visits for the evaluation and management UI occurred. We used these data to investigate which women with UI symptoms received an evaluation in the outpatient setting for their UI, as well as which personal and health factors were associated with having an evaluation among women who reported UI symptoms.

MATERIALS AND METHODS

Nurses’ Health Study

The Nurses’ Health Study (NHS) was initiated in 1976 when female registered nurses, age 30-55 years, responded to a mailed questionnaire about their medical history and lifestyle.¹⁵ Follow-up of the cohort is ongoing via biennial mailed questionnaires; follow-up remains approximately 90%.. The 2012 full-length questionnaire included questions regarding UI frequency, amount of leakage, and usual cause of leakage, completed by 68,587 women. The Institutional Review Board of Brigham and Women’s Hospital approved the Nurses’ Health Study.

Medicare Claims Data

Nurses’ Health Study data were linked to Medicare administrative data, which included all claims for Medicare Part A, and B among beneficiaries 65 years and older enrolled in the

fee-for-service program. Medicare is a federal health insurance program covering the large majority of adults in the United States age 65 or older. At the time of the 2012 questionnaire, NHS participants were between 65 and 91 years old, ensuring eligibility for Medicare by age criteria for all participants. We utilized Medicare fee-for-service claims data between 1/1/2011 and 12/31/2012, because the 2012 NHS questionnaires were mailed in June 2012 and asked about urinary symptoms in the preceding 12 months.

Population for Analysis

For the current analysis, we included women: with UI data from the 2012 NHS questionnaire; with report of urine leakage; enrolled in fee-for-service Medicare in 2011 and 2012; and with a successful linkage of NHS and Claims data. (Figure 1)

Urinary Incontinence Information

On the 2012 full-length questionnaire, women were asked, “During the past 12 months, how often have you leaked or lost control of your urine?” Response choices were never, <1/month, 1/month, 2-3/month, approximately 1/week, and almost every day. Women reporting any UI were then asked, “When you lose your urine, how much usually leaks?” Response options were a few drops, enough to wet your underwear, enough to wet your outer clothing, and enough to wet the floor. A reliability study among a subgroup of these nurses demonstrated high reproducibility of responses to these questions.¹⁶

UI severity was measured by the well-validated Sandvik severity index^{17,18}, using the two questions described above. Women with a total score of 1 to 2 were classified as having slight UI severity, those with a score of 3 to 4 were classified as having moderate UI severity, and those with a score of 6 or more were classified as having severe UI.

UI type was ascertained from a question regarding the usual cause of urine leakage.¹⁹ We defined ‘stress UI’ as leakage occurring with coughing or sneezing or activity. Urine loss with a sudden urgent need to go to the bathroom was considered ‘urgency UI’. UI classifications were based on the participants’ reports of their dominant symptoms. Women who reported that stress and urgency symptoms occurred equally were defined as having ‘mixed UI’. Some women reported incontinence but did not answer further questions to allow their severity or type to be classified. They are listed as “other” type or “unknown” severity.

Outpatient Visits for Urinary Incontinence

The main clinical measure was a visit recorded in the Medicare claims that specifically addressed UI symptoms. We identified the occurrence of an evaluation and management visit (which is a face-to-face visit with a provider) that occurred in the outpatient setting according to Current Procedural Terminology evaluation and management codes. In addition, the visit had to include an International Classification of Diseases, 9th edition, Clinical Modification (ICD-9-CM) diagnosis code for UI. Because outpatient claims diagnoses are not prioritized, we accepted any UI diagnosis code in any position on the claim. (Supplemental Table 1)

Covariates

Covariates were drawn from both the Medicare administrative files as well as the NHS 2012 questionnaire data. Demographic and clinical information available from the claims data included age, race, dual-eligibility status (Medicaid and Medicare), death in 2012, 9-digit zip code of residence used to identify median household income and Census region, and the Elixhauser comorbidity index. We used the Elixhauser comorbidity index as it is a validated comorbidity index for claims data analyses in the baseline year of 2011.^{20–22} Variables from the Nurses' Health Study data included body mass index (BMI) in kg/m², parity, smoking status, use of gynecologic care, the Medical Outcomes Short Form-36 (SF-36) physical function score, functional disability measured by instrumental activities of daily living (IADLs),²³ and reported preventative health screening in the last 2 years. Use of gynecologic care included women reporting having undergone a hysterectomy and those reporting hormone therapy use in any form over the last 2 years. IADLs included getting to places outside of walking distance, going shopping, preparing meals, doing housework, handling money and handling medications. Reported preventative health screenings in the last 2 years included physical exam, eye exam, mammography or colonoscopy. Women who reported 1 screening exam were considered as seeking preventative health screening. Covariates were categorized as shown in Table 1.

Statistical Analyses

To investigate demographic, health and care-seeking variables associated with an outpatient visit for UI among women reporting UI on the NHS questionnaire, we used comparative statistics including chi-squared, Fisher's exact and Student's t-test. We then used logistic regression models to explore associations with medical visits for UI including a variety of clinical and demographic characteristics selected based on current literature regarding risk-factors for UI and health-seeking behaviors. Statistical analyses were performed using SAS 9.4 (*SAS Institute, Inc., Cary, NC*).

RESULTS

Among the 61,837 nurses who completed the UI questions on the 2012 NHS questionnaire, 34,133 (55.2%) were linked to Medicare claims. Women were excluded ($n = 27,704$) who were not participating in Medicare fee-for-service (e.g. enrolled in a Medicare managed care plan) or who lived outside the United States between 1/1/2011 to 12/31/2012. We found no substantial differences between women who linked to Medicare data and those who did not (Supplemental Table 2). The distribution of UI severity and UI type was also very similar between the two groups. Finally, we further excluded from analysis women who reported no UI symptoms on the 2012 questionnaire ($n = 15,557$). Thus, the final analytic cohort included 18,576 women (Figure 1).

Among the 18,576 women with current UI symptoms, only 16% ($n=2,963$ of the 18,576) had an outpatient evaluation for UI during the two year study period (Table 1). Among these women, 39% had visits for UI exclusively with a primary-care provider while 47% of women had visits with only specialists (urology, gynecology or geriatrician) and 14% had visits with both primary-care providers and specialists. Women who had an outpatient visit

for UI were more likely to be in the oldest age category (> 85 years old) compared to women without a visit (15% vs. 13%; $p<0.001$) (Table 1), were more likely to report hormone therapy within the last 2 years (16% vs. 10%; $p<0.001$), and were more likely to have had a hysterectomy (55% vs. 47%; $p<0.001$). The largest differences were found between women with more versus less severe UI (62% vs. 42% with an outpatient visit; $p<0.001$) and those with either urgency or mixed UI versus stress UI (76% vs. 66% with an outpatient visit; $p<0.001$).

We conducted subgroup analyses based on UI severity and type (Table 2), to determine the the percentages of women with varying severity and type who had an outpatient visit for UI (ie, with UI symptoms/type as the denominator, rather than with UI outpatient visits as the denominator). These results also indicated the strong relationship between outpatient visits and worse UI severity (5%, 12% and 22% of those with mild, moderate, and severe respectively, had outpatient visits for UI, $p<0.001$).

In adjusted models, we found UI type (OR=1.75, 95% CI: 1.51-2.03 comparing women with mixed vs. stress UI and OR=1.80, 95% CI: 1.56-2.08 comparing women with urgency vs. stress UI) and UI severity (OR=3.75, 95% CI: 3.10-4.53 comparing women with severe vs slight UI severity) to be strongly associated with having an outpatient visit for UI (Table 3). We also found that women who reported post-menopausal hormone therapy in the past 2 years (OR=1.94, 95% CI: 1.71-2.20) and women with previous hysterectomy (OR=1.15, 95% CI: 1.05-1.26) had a greater odds of having an outpatient visit for UI. In addition, women with more medical comorbidities (OR=1.43, 95% CI: 1.24-1.65 comparing women with Elixhauser medical comorbidity score of 3 vs. 0) and IADLs (OR=1.12, 95% CI: 1.01-1.25 comparing women with 1 instrumental disability vs. 0) also had a greater odds of having an outpatient visit for UI.

DISCUSSION

In this novel linkage study between symptom report using a well-established longitudinal survey and Medicare insurance claims data, only 16% of women with current UI symptoms had indicators of any outpatient visits for this condition. We found that symptom severity was the most important factor associated with having an outpatient visit for UI. Despite this, among women with severe UI, only 22% had a visit in the last 2 years for UI.

The low prevalence of outpatient visits for UI evaluations could be due to a variety of reasons. The first hypothesis is that either the patient does not disclose symptoms or the provider does not inquire about them. As noted above, the literature supports that provider discussions about UI symptoms are low.^{7,10,13,23,25} A second reason specific to our study is that a discussion may have occurred, but the provider did not bill for this discussion. With competing conditions often requiring management in the same visit, UI may not be fully addressed at the time of initial symptom disclosure. Therefore, providers may not code for UI if they did not feel that this was the main reason for the visit, or if providers had a tendency not to bill for counseling on behavioral management. Thus, coded UI visits may underestimate discussions that do occur. Even with this underestimation, our findings are striking - even among women with severe UI, only 22% have a visit over a 2-year period that

risks to a level of importance adequate to trigger a clinician billing for UI services. Finally, it is possible that UI was previously discussed, however this evaluation happened outside of the 2 years of claims data inquiry we examined. We chose to examine 2 years of claims data to optimally identify current symptom evaluation..

The factors we found associated with whether an outpatient UI visit occurred were well aligned with prior studies of women's report of care seeking for these symptoms.⁷ In addition, we found that women who have undergone treatment for gynecologic conditions (e.g. hormone therapy or hysterectomy) were more likely to have outpatient visits for UI. In prior cross-sectional studies examining risk factors for UI, prior hysterectomy is associated with current incontinence symptoms.²⁶ While some postulate that this is due to the actual surgery causing an anatomic disruption leading to increased leakage, another, more likely, explanation is that women who undergo hysterectomy are more likely to seek care for other conditions (e.g. incontinence). . Finally, women with increased medical co-morbidities, measured by Elixhauser co-morbidity index, were also more likely to have outpatient visits for UI. It is possible that these women are in providers' offices on a more regular basis and therefore having more discussion for all conditions or conversely that their multi-morbidities have led them to have more severe leakage that prompts these evaluations.²⁷

Arguments to explain why women do not seek care for UI include low health care literacy and limited access to care or the expense of that care.¹⁴ Our study cohort was composed entirely of nurses, who all have higher healthcare literacy than the general population based in their work experience, and all were insured with Medicare. Despite these advantages, very few received care based on outpatient visits. It is possible that high health literacy among nurses would lead to more self-management of symptoms, or that those in a nurses' social network may give advice on UI treatment outside of a medical visit; however, we have previously shown that for preventive care nurses are more likely rather than less likely to receive some services than the general Medicare population.²⁸ We have also found that UI prevalence, incidence and the progression of UI symptoms is similar in these nurses and in the general population²⁹, suggesting that UI is not being addressed any differently in this population than in the general population of women.

Our study has limitations. One limitation is the inherent inaccuracies of coding in claims data, which relies on the provider coding accurately at the time the service is rendered. To address that, we included a large range of possible ICD-9-CM codes relating to urinary symptoms as well as a full range of Current Procedural Terminology evaluation and management codes for outpatient visits.. Another limitation may be that the results of this specific population of women may not be generalizable to women whose insurance coverage is outside of fee-for-service Medicare. To ensure there was not a significant difference between the nurses enrolled in traditional Medicare compared with the managed care products, we examined both demographics and UI symptoms in all nurses and found these were similar.

In conclusion, we found that only a small percentage of women in Medicare reporting UI symptoms had an outpatient evaluation of their incontinence. We found that characteristics associated with a visit included UI severity and type of leakage (urgency or mixed), prior

treatment for other gynecologic conditions (hormone therapy or hysterectomy), increasing age and medical comorbidities. Our study highlights the discordance between the high prevalence of UI and the lack of medical evaluation for current symptoms. Attention should be given to this condition both to increase public resources directed at patients for education, with strategies to destigmatize UI evaluations and provider empowerment to improve discussions on a topic often considered sensitive or difficult.

Supplementary Material

Refer to Web version on PubMed Central for supplementary material.

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REFERENCES

1. Yip SO, Dick MA, McPencow AM, et al. The association between urinary and fecal incontinence and social isolation in older women. *Am J Obstet Gynecol* 2013;208:146.e1–7. [PubMed: 23159696]
2. Melville JL, Fan MY, Rau H, et al. Major depression and urinary incontinence in women: temporal associations in an epidemiologic sample. *Am J Obstet Gynecol* 2009;201:490.e1–7. [PubMed: 19716547]
3. Minassian VA, Devore E, Hagan K, et al. Severity of urinary incontinence and effect on quality of life in women by incontinence type. *Obstet Gynecol* 2013;121:1083–90. [PubMed: 23635747]
4. Landefeld CS, Bowers BJ, Feld AD, et al. National Institutes of Health state-of-the-science conference statement: prevention of fecal and urinary incontinence in adults. *Ann Intern Med* 2008;148:449–58. [PubMed: 18268289]
5. Hannestad YS, Rortveit G, Sandvik H, et al. Epidemiology of Incontinence in the County of Nord-Trøndelag. A community-based epidemiological survey of female urinary incontinence: the Norwegian EPINCONT study. *Epidemiology of Incontinence in the County of Nord-Trøndelag. J Clin Epidemiol* 2000;53:1150–7. [PubMed: 11106889]
6. Diokno AC, Burgio K, Fultz NH, et al. Medical and self-care practices reported by women with urinary incontinence. *Am J Manag Care* 2004;10:69–78. [PubMed: 15011807]
7. Kinchen KS, Burgio K, Diokno AC, et al. Factors associated with women's decisions to seek treatment for urinary incontinence. *J Womens Health (Larchmt)* 2003;12:687–98. [PubMed: 14583109]
8. Townsend MK, Danforth KN, Lifford KL, et al. Incidence and remission of urinary incontinence in middle-aged women. *Am J Obstet Gynecol* 2007;197:167.e1–5. [PubMed: 17689637]
9. Lifford KL, Townsend MK, Curhan GC, et al. The epidemiology of urinary incontinence in older women: incidence, progression, and remission. *J Am Geriatr Soc* 2008;56:1191–8. [PubMed: 18492035]
10. Minassian VA, Yan X, Lichtenfeld MJ, et al. Predictors of care seeking in women with urinary incontinence. *Neurourol Urodyn* 2012;31:470–4. [PubMed: 22378605]
11. Minassian VA, Yan X, Lichtenfeld MJ, et al. The iceberg of health care utilization in women with urinary incontinence. *Int Urogynecol J* 2012;23:1087–93. [PubMed: 22527544]
12. Melville JL, Newton K, Fan MY, et al. Health care discussions and treatment for urinary incontinence in U.S. women. *Am J Obstet Gynecol* 2006;194:729–37. [PubMed: 16522405]

13. Huang AJ, Brown JS, Kanaya AM, et al. Quality-of-life impact and treatment of urinary incontinence in ethnically diverse older women. *Arch Intern Med* 2006;166:2000–6. [PubMed: 17030834]
14. Siddiqui NY, Ammarell N, Wu JM, et al. Urinary Incontinence and Health-Seeking Behavior Among White, Black, and Latina Women. *Female Pelvic Med Reconstr Surg* 2016;22:340–5. [PubMed: 27171320]
15. Bao Y, Bertola ML, Lenart EB, et al. Origin, Methods, and Evolution of the Three Nurses' Health Studies. *Am J Public Health*. 2016;106: 1573–1581 [PubMed: 27459450]
16. Grodstein F, Fretts R, Lifford K, et al. Association of age, race, and obstetric history with urinary symptoms among women in the Nurses' Health Study. *Am J Obstet Gynecol* 2003;189:428–34. [PubMed: 14520212]
17. Sandvik H, Hunskaar S, Seim A, et al. Validation of a severity index in female urinary incontinence and its implementation in an epidemiological survey. *J Epidemiol Community Health* 1993;47:497–9. [PubMed: 8120507]
18. Sandvik H, Seim A, Vanvik A, et al. A severity index for epidemiological surveys of female urinary incontinence: comparison with 48-hour pad-weighing tests. *Neurourol Urodyn* 2000;19:137–45. [PubMed: 10679830]
19. Abrams P, Andersson KE, Birder L, et al. Fourth International Consultation on Incontinence Recommendations of the International Scientific Committee: Evaluation and treatment of urinary incontinence, pelvic organ prolapse, and fecal incontinence. *Neurourol Urodyn* 2010;29:213–40. [PubMed: 20025020]
20. Menendez ME, Neuhaus V, van Dijk CN, et al. The Elixhauser comorbidity method outperforms the Charlson index in predicting inpatient death after orthopaedic surgery. *Clin Orthop Relat Res* 2014;472:2878–86. [PubMed: 24867450]
21. Sharabiani MT, Aylin P, Bottle A. Systematic review of comorbidity indices for administrative data. *Med Care* 2012;50:1109–18. [PubMed: 22929993]
22. Li B, Evans D, Faris P, et al. Risk adjustment performance of Charlson and Elixhauser comorbidities in ICD-9 and ICD-10 administrative databases. *BMC Health Serv Res* 2008;8:12. [PubMed: 18194561]
23. Katz S Assessing self-maintenance: activities of daily living, mobility, and instrumental activities of daily living. *J Am Geriatr Soc* 1983;31:721–7. [PubMed: 6418786]
24. Fritel X, Panjo H, Varnoux N, et al. The individual determinants of care-seeking among middle-aged women reporting urinary incontinence: analysis of a 2273-woman cohort. *Neurourol Urodyn* 2014;33:1116–22. [PubMed: 23818427]
25. Harris SS, Link CL, Tennstedt SL, et al. Care seeking and treatment for urinary incontinence in a diverse population. *J Urol* 2007;177:680–4. [PubMed: 17222656]
26. Hunskaar S, Arnold EP, Burgio K, et al. Epidemiology and natural history of urinary incontinence. *Int Urogynecol J Pelvic Floor Dysfunct* 2000;11:301–19. [PubMed: 11052566]
27. Heflin MT, Oddone EZ, Pieper CF, et al. The effect of comorbid illness on receipt of cancer screening by older people. *J Am Geriatr Soc* 2002;50:1651–8. [PubMed: 12366618]
28. Kapadia NS, Austin AM, Carmichael DQ, et al. Medicare Utilization and Spending Among Nurses Compared with the General United States Population. *J Womens Health* 2018
29. Hagan KA, Erekson E, Austin A, Minassian VA, Townsend MK, Bynum JPW, Grodstein F. A prospective study of the natural history of urinary incontinence in women. *American Journal of Obstetrics and Gynecology*. 2018; 218(5):502.e1–502.e.8 [PubMed: 29425839]
30. Martin JL, Williams KS, Abrams KR, et al. Systmatic review and evaluation of methods assessing urinary incontinence. *Health Technology Assess* 2006; 10(6): 1–132

Figure 1.

Flow chart of eligible participants for the current analysis. *Baseline population consisted of NHS participants who were alive and responded to the 2012 long-questionnaire. NHS: Nurses' Health Study, UI: urinary incontinence

Table 1.

Demographic information and clinical characteristics of Nurses' Health Study participants with urinary incontinence according to whether they had an outpatient visit for urinary incontinence in Medicare claims data from 2011-2012. (n= 18,576)

		Outpatient visits for UI (n = 2,963)	No outpatient visits for UI (n = 15,613)	p-value
Mean age $\pm$ SD, years		78.0 $\pm$ 6.3	77.2 $\pm$ 6.5	0.16
Age categories, %				<.01
	65-75 years	38	43	
	76-85 years	47	44	
	>85 years	15	13	
White race, %		99	98	0.09
Census Region, %				<.01
	Northeast	44	46	
	South	29	25	
	Midwest	13	16	
	West	14	13	
Mean Household Income* (SD)		\$67,837 $\pm$ 28,177	\$67,187 $\pm$ 28,263	0.25
Current smoker, %		3	4	<.01
BMI (kg/m ²), %				0.35
	< 25	38	38	
	25 to < 30	35	36	
	30 to <40	24	23	
	40	3	3	
Parity, %				0.49
	0	5	5	
	1	5	6	
	2	90	89	
Reported postmenopausal hormone therapy in past 2 years,%		16	9	<.01
Reported seeking preventative health screening in the last 2 years [†] , %		86	86	<.01
Prior Hysterectomy, %		55	47	<.01
Elixhauser comorbidity index count, %				<.01
	0	20	25	
	1-2	52	51	
	3	28	24	
Instrumental disability with 1 instrumental ADLs, %		39	33	<.01
Mean SF-36 Physical function score $\pm$ SD		55.3 $\pm$ 26.8	57.9 $\pm$ 26.9	<.01
UI Severity, %				<.01
	Mild UI	5	16	
	Moderate UI	25	35	

		Outpatient visits for UI (n = 2,963)	No outpatient visits for UI (n = 15,613)	p-value
	Severe UI	62	42	
	Not reported	8	7	
UI Type,%				<.01
	Stress	12	22	
	Urgency	39	35	
	Mixed	37	31	
	Other	12	12	
Type of Provider seen				
	PCP Only	39		
	PCP & specialist [^]	14		
	Specialist only [^]	47		

UI: urinary incontinence; SD: standard deviation; BMI: body mass index; kg: kilograms; m: meters; ADL: activities of daily living; SF-36: Medical Outcomes Short Form-36; PCP: primary-care provider;

* Census tract median household income

[†] Preventative health screenings include physical exam, eye exam, mammogram or colonoscopy.

[^] Specialist in urinary incontinence included urologist, gynecologist or geriatrician

Table 2.

Women with an outpatient visit for urinary incontinence in Medicare claims data from 2011-2012, subgroup analysis by severity and type of incontinence

	Percentage with an Outpatient visit for UI	p-value
Overall (N = 18,576)	2,963 (16%)	
UI Severity		<.001
Mild UI (N = 2,574)	150 (6%)	
Moderate UI (N = 6,204)	730 (12%)	
Severe UI (N = 8,461)	1,841 (22%)	
UI Type		<.001
Stress (N = 3,824)	352 (9%)	
Urgency (N = 6,647)	1,165 (18%)	
Mixed (N = 5,960)	1,096 (18%)	
Other (N = 1,489)	241 (16%)	

Values listed as n (%)

UI: urinary incontinence; p-value for difference in percentage across groups

Table 3.

Odds ratios* (95% confidence intervals) for having an outpatient visit for urinary incontinence,

		OR (95% CI)	P-value
UI Severity			
	Slight	1.00	Reference
	Moderate	1.99 (1.64-2.42)	<.001
	Severe	3.75 (3.10-4.53)	<.001
UI Type			
	Stress	1.00	Reference
	Urgency	1.80 (1.56-2.08)	<.001
	Mixed	1.75 (1.51-2.03)	<.001
	Other	1.56 (1.27-1.91)	<.001
Age Category			
	65-75	1.00	Reference
	76-85	1.03 (0.93-1.15)	0.48
	>85	1.01 (0.86-1.18)	0.77
White Race		0.93 (0.63-1.36)	0.74
BMI Category			
	< 25	1.00	Reference
	25 to < 30	0.98 (0.88-1.09)	0.73
	30 to <40	0.96 (0.85-1.09)	0.55
	40	0.76 (0.57-1.01)	0.07
Parity			
	0	1.00	Reference
	1	0.82 (0.61-1.09)	0.16
	2	1.00 (0.81-1.24)	0.97
Current Smoker		0.74 (0.57-0.96)	0.02
Post-menopausal hormone therapy in past 2 years		1.94 (1.71-2.20)	<.001
Report of seeking preventative health screening in the last 2 years [†]		1.60 (0.76-3.36)	0.22
Prior Hysterectomy		1.15 (1.05-1.26)	0.004
Elixhauser Medical Comorbidity			
	0	1.00	Reference
	1-2	1.31 (1.16-1.48)	<.001
	3	1.43 (1.24-1.65)	<.001
Instrumental disability with 1 instrumental ADLs		1.12 (1.01-1.25)	0.01
SF-36 Physical Function Score 80		0.98 (0.87-1.10)	0.73
Census Region			
	Northeast	1.00	Reference
	South	1.07 (0.96-1.20)	0.77

		OR (95% CI)	P-value
	Midwest	0.80 (0.69-0.92)	0.002
	West	1.04 (0.90-1.20)	0.21
Census Tract Median Income Level (\$)			
	Tertile 1	1.00	Reference
	Tertile 2	1.09 (0.97-1.22)	0.13
	Tertile 3	1.10 (0.98-1.23)	0.12

OR: odds ratio; CI: confidence interval; ADL: activities of daily living; SF-36: Medical Outcomes Short Form-36; UI: urinary incontinence

* Adjusted for all variables included in the table and whether the participant died during follow-up, UI severity (slight, moderate, severe), UI type (stress, urgency, mixed, other), age (65-75, 76-85, >85), White race, census region (Northeast, South, Midwest, West), Census tract median income level (tertiles), smoking status, BMI (<25, 25 to <30, 30 to <40, 40 kg/m²), parity (0, 1, 2), post-menopausal hormone therapy in past 2 years, report of seeking preventative health screening in the last 2 years (includes physical exam, eye exam, mammogram or colonoscopy), prior hysterectomy, Elixhauser medical comorbidity (0, 1-2, 3), instrumental disability with 1 instrumental ADLs, SF-36 physical function score (<80, 80),

[†] Preventative health screenings include physical exam, eye exam, mammogram or colonoscopy.