Published in final edited form as:

Am J Infect Control. 2017 August 01; 45(8): 905–910. doi:10.1016/j.ajic.2017.02.025.

Treated-and-released urinary catheterization in the emergency department by gender

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Abstract

Background—The prevalence and difference in likely indications of urinary catheterization (UC) in treated-and-released emergency department (ED) visits between men and women is currently unknown.

Methods—This was a cross-sectional analysis using the 2013 National Emergency Department Sample for all treated-and-released visits in persons aged 18 and older. The prevalence of conditions associated with of UC visits in men and women were identified. A hierarchical ranking was used to categorize diagnosis codes identified during ED visits into clinically meaningful categories to assess conditions for UC.

Results—In 2013, there were 87,797,062 treated-and-released ED visits in adults. The rate of UC in treated-and-released ED visits in adults was 4.3/1000 visits, with 6.5/1000 visits in men and 2.7/1000 visits in women. Using the hierarchal ranking, a higher proportion of UC visits in men were coded for acute urinary retention, and a higher proportion of UC visits in women were coded for neurological, cognitive, and psychiatric conditions.

Conclusions—The rate of UC in treated-and-released ED visits was higher in men compared to women and UC rate increased with age. The heterogeneity of conditions coded in UC visits in women compared to men may suggest more potentially avoidable UC in women in the treated-and-

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Potential conflicts of interest

All authors report no conflicts of interest relevant to this article.

released ED population. If confirmed this would suggest opportunities for quality improvement in the ED to prevent over-utilization of urinary catheters.

Keywords

Urinary catheterization; Gender; Treated-and-Released Emergency Department Visits; Nationwide Emergency Department Sample

INTRODUCTION

Urinary catheterization (UC) is a common intervention performed in the emergency department (ED) to drain the urinary bladder.¹ Due to the risk for catheter-associated urinary tract infections (CAUTI), there are conditions considered appropriate for UC¹⁻⁹ and other conditions when UC is not necessary or even inappropriate.^{1,3,5-9} The literature regarding UC in the ED focuses on patients who are subsequently admitted to the hospital which is likely due to the financial incentive aimed to reduce hospital-acquired infections, such as CAUTI, by ceasing Medicare reimbursement for potentially preventable infections acquired during a hospitalization.¹⁰ Multiple studies show higher rates of catheterization, and potentially inappropriate catheterization in women compared to men in ED patients subsequently admitted to the hospital.¹¹⁻¹³ UC utilization has also been noted to vary by region with significantly higher use in the Western United States.¹⁴ Interventions have been developed to reduce potentially avoidable urinary catheterization, and thus reduce subsequent CAUTI among hospitalized patients.^{7,8,11,15} However, use of UC in treated-and-released ED visits remains unexplored.

Urinary catheter use among patients who are treated-and-released from the ED is a potential quality concern. As with hospitalized patients, these patients are at risk of CAUTI while the burden of their catheter management is placed on outpatient providers. We sought to assess the prevalence of UC in these patients, determine if men and women received UC at different rates, and assess for potentially avoidable UC comparing men and women using a national sample of treated-and-released ED visits.

MATERIALS AND METHODS

Study Design and Setting

We performed a cross-sectional analysis of treated-and-released ED visits in 2013 using the National Emergency Department Sample (NEDS) database. The NEDS database is made available to researchers by the Healthcare Cost and Utilization Project (HCUP) and provides billing information on ED encounters. The 2013 database contains data from 30 different states, 950 hospital-based EDs, and nearly 30 million ED visits on approximately 22% of the 135 million visits to acute care hospital emergency departments.¹⁶ Hospitals were sampled for inclusion in the NEDS based on five strata, including geographic region, trauma center designation, urban-rural location, teaching status, and hospital ownership.

De-identified patient-level data in the NEDS include International Classification of Diseases, Ninth Revision, Clinical Modification (ICD-9-CM) diagnosis codes, Current Procedural

Terminology, Fourth Edition (CPT-4) codes, admission and discharge status, patient demographic information, expected payment source, and hospital characteristics.

Selection of Participants

Treat-and-released visits in men and women aged 18 and older were included, based on the EDEVENT variable. Visits with missing age or sex, duplicate encounters, visits that resulted in hospital admission, transfer to a short-term hospital, or death were excluded.

The prevalence of UC was identified using CPT-4 codes, 51702 (Foley catheter insertion of temporary indwelling catheter simple) and 51703 (complicated catheter insertion). Visits coded with either of these CPT-4 codes were classified as a UC visit.

Study Covariates

Patient-level covariates, including age, primary payer, quartiles of median income by zip code, and disposition at discharge along with hospital-level covariates, such as hospital region, teaching status, trauma status, and hospital location were evaluated to compare characteristics of UC visits in men and women.¹⁷

To identify conditions potentially associated with UC, all ICD-9-CM diagnosis codes in UC visits were categorized using the HCUP Clinical Classification Software. Conditions coded in >1% of UC visits were identified along with conditions potentially associated with UC based on clinical knowledge (available upon request). Conditions were further classified into clinically meaningful categories including acute urinary retention (AUR), lower urinary tract symptoms (LUTS) without AUR, surgical, neurological, cognitive, psychiatric, kidney, and other medical conditions. The proportion of visits coded for individual conditions potentially associated with UC, along with the proportions of UC in clinically meaningful categories, were assessed. Clinically meaningful categories were ranked in a hierarchical fashion to identify the proportion of visits coded for each condition category in the following order: 1) AUR, 2) LUTS without AUR, 3) surgical, 4) neurological, 5) cognitive, 6) psychiatric, 7) kidney, 8) other medical conditions, and 9) visits not categorized into any of the above conditions. Visits were only counted once, because when a UC visit was coded in multiple categories, the higher hierarchical category was the condition most likely associated with UC.

Statistical Analysis

Differences in patient-level covariates, hospital-level covariates, and conditions associated with UC were assessed in UC visits between men and women using standardized differences (SD) as they are independent of sample size.^{18,19} SDs >|0.10| were considered meaningfully different.²⁰ All data were weighted to calculate national estimates. Statistical analyses were performed using SAS version 9.3 (SAS Institute, Inc., Cary, NC). The [Redacted] University Human Research Protection Office granted exempt status to this project.

RESULTS

In the 2013 NEDS, after applying the sample weights to obtain national estimates, there were 87,797,062 treated-and-released ED visits in men and women aged 18 or older, with

36,487,337 ED visits in men and 51,309,725 visits in women. The overall rate of UC among treated-and-released ED visits was 4.3/1000 visits. The rate of UC in treated-and-released ED visits was higher in men (6.5/1000 visits) compared to women (2.7/1000 visits) and increased with age in both men and women (Table 1). The rate of UC was highest in the West Region at 6.5/1000 visits compared to the Northeast (3.6/1000 visits), Midwest (3.0/1000 visits), and South (4.4/1000 visits). Of the UC visits in men, the CPT-4 codes used were 51702 (97.5%) and 51703 (2.5%). In UC visits for women, the CPT-4 codes that were used were 51702 (99.0%), and 51703 (1.0%).

Patient-level and Hospital-level Covariates

The hospitals in a similar proportion of ED UC visits between men and women were classified as teaching and trauma centers (Table 2). There were differences in patient demographics and hospital location covariates in UC visits in men compared with women (Table 2). The mean age at the time of UC visit was higher in men compared to women. Higher proportions of UC visits in men resided in the highest income quartile zip codes, had a routine discharge, and utilized hospitals located in a metropolitan area compared to UC visits in women. Higher portions of UC visits occurred in women who were uninsured or insured by Medicaid, resided in the lowest income quartile zip codes, and transferred to another type of facility (e.g., skilled nursing) or discharged to home with home health care.

Medical Conditions associated with Urinary Catheterization

Underlying medical conditions associated with UC in treated-and-released ED visits in men and women are described in Table 3. Compared to women, a higher proportion of UC visits in men were coded for AUR and conditions that comprised LUTS. Higher proportions of UC visits in men were coded for surgical conditions compared to women, while higher proportions of UC visits in women were coded for cognitive, psychiatric, and medical conditions compared to UC visits in men (Table 3).

Hierarchical Ranking of Conditions Associated with Urinary Catheterization in Men and Women

As ED visits can have multiple coded conditions that may be associated with UC, the code categories were ranked in hierarchal fashion to determine the relationship between the most likely conditions associated with UC in men and women (Table 4). Compared to UC visits in women, a much higher proportion of UC visits in men were coded for AUR. Compared to UC visits in men, there were higher proportions of LUTS without AUR, neurological, cognitive, psychiatric, kidney and medical conditions in visits in women coded as the most likely indication for UC. Nearly 1 in 5 UC visits in women were not categorized into any of the conditions included in the hierarchical ranking compared to 5.1% of UC visits in men (Table 4).

UC visits in men and women were also stratified by age and further assessed for the hierarchical ranking of conditions likely associated with UC (Table 4). The proportion of UC visits coded for AUR increased with increasing age in men until age 60–79, with a smaller percentage coded for AUR in the age category 80. The proportions of UC visits coded for cognitive conditions increased with increasing age in women and increased to age 65 then

flattened out in neurological and medical conditions. The highest proportion of UC visits coded for cognitive conditions was in visits in younger men aged 18 to 39 years, whereas in women the proportion increased progressively with increasing age.

Non Acute Urinary Retention Urinary Catheterization Visits between Men and Women

Since UC for AUR was much more common among men than women, we compared the other reasons for UC between men (n=96,409) and women (n=107,354) after exclusion of visits coded for AUR. The proportions of UC visits coded for LUTS without AUR (49.8% vs. 30.0%) and surgical conditions (11.2% vs. 6.2%) were higher in men, whereas, cognitive (12.1% vs. 7.4%), medical (10.3% vs 4.7%), and other uncategorized conditions were higher in women.

DISCUSSION

Treated-and released ED visits with UC in men were more often coded for AUR and LUTS, whereas such visits among women were more often coded for cognitive, psychiatric, and medical conditions. Additionally, a higher proportion of UC visits in women were not categorized into any of the conditions included in the hierarchical ranking compared to men. After removal of visits coded for AUR, the proportion of UC visits associated with cognitive, psychiatric, and medical conditions among women did not change.

The overall UC rate of 4.3/1000 visits translates to over 450,000 UC placed in treated-and-released ED visits in 2013. This rate of catheterization is lower than prior estimates.¹² Using the National Hospital Ambulatory Medical Care Survey (NHAMCS) data from 1995 to 2010 to assess the prevalence of UC visits as determined by the survey question “mark all procedures provided at this visit” with a choice of bladder catheter, Schuur and colleagues found that 1.6% of all discharged ED visits were associated with UC.¹² The higher rate of UC using the NHAMCS data may be due to possible inclusion of straight catheters for urine specimen collection to identify UC, which was not done in our study as we did not incorporate CPT code 51701 (insertion of non-dwelling bladder catheter [e.g., straight catheterization]).

Older age and Medicare health insurance (another marker of older age) were associated with higher rates of UC visits in men compared to women, likely due to the higher prevalence of AUR and LUTS without AUR in men. Older men requiring a UC are more likely to be coded for AUR and LUTS without AUR than older women due to the increasing prevalence of benign prostatic hyperplasia in men. In women, UC appears to be due to more varied causes beyond AUR and LUTS, which may not be specific to older age. Fakih and colleagues reported a higher number of reasons for utilization of UC in women compared to men in the ED subsequently admitted to the hospital as only women received UC for sacral ulcer with incontinence, palliative care, emergency and non-emergency ultrasound of the pelvis, patients’ request, and urinary specimen collection within this population.¹³ Moreover, a larger percentage of women compared to men (19% vs. 13%) were identified as having an unknown reason for UC. Prior to our study, variability in apparent UC between men and women in a treated-and-released ED population had not been explored.

The differential use of UC in men and women may suggest that not all UC are being used appropriately. We found that a higher proportion of UC visits were coded in men compared to women aged 18 or older. In contrast, previous studies evaluating ED visits resulting in hospital admission found a higher utilization of UC in women.^{12,13} In the study by Schuur and colleagues using the NHAMCS, women admitted to the hospital were 29% more likely to have UC in the ED compared to men, after adjusting for patient and hospital characteristics.¹² Fakih and colleagues evaluated all patients in the ED subsequently admitted to the hospital during a 4-week period in tertiary care teaching hospital in the Midwest.¹³ In that study women were significantly more likely to be catheterized in the ED than men (13.7% vs. 9.5%, respectively). The higher proportion of UC visits we found in men compared to women is likely due to a higher proportion of uncomplicated AUR attributed to benign prostatic hyperplasia in men which may not routinely require hospitalization.

We explored conditions associated with UC to assess appropriate and potentially avoidable indications for UC. In the treated-and-released ED population, there should be relatively few indications for placement of a UC, with AUR being the most prominent condition. This is consistent with our results as 60% of visits with UC in men were for AUR, and an additional 20% were for LUTS when AUR was not coded. In contrast, AUR or LUTS were present in less than half of the visits for women, while the proportion of visits coded for cognitive conditions and not categorized into any of the conditions included in the hierarchical ranking was higher than in UC visits in men (37% vs. 8%). These differences in the conditions considered potential indications for UC visits in men and women may suggest that a higher proportion of UC may have been potentially avoidable in women than men.

Although appropriate use of UC has not been explored in a treated-and-released ED population, previous analyses in patients subsequently admitted to the hospital suggest that women are more likely to have a potentially avoidable placement of a UC in the ED compared to men.^{11,13} In a Midwestern community teaching hospital, 100 consecutive patients who had UC placed in the ED and were subsequently admitted to the hospital were assessed for appropriate use of UC. In this analysis 68% of the women were catheterized for a potentially avoidable indication compared to 38% of men.¹¹ In the study by Fakih and colleagues, women admitted to the hospital were significantly more likely to receive UC in the ED for a potentially avoidable indication compared to men (35.8% vs. 20.8%, respectively).¹³ In that study women 80 years and older were also significantly more likely to have a potentially avoidable indication for UC compared to younger women (48.3% vs. 29.8%), but there was no difference in potentially avoidable use in older versus younger men. We found similar results examining the treated-and released ED-population.

In our study using the hierarchical ranking to assess likely indications for UC, the difference in UC visits for cognitive conditions was more pronounced in men compared to women aged 18–39 and in women compared to men aged 80 or older. In both visits for men and women, there were lower proportions of AUR and higher proportions of neurological and cognitive conditions in treated-and-released ED visits that resulted in transfer to another type of facility compared to routine discharge. Based on these results, a larger proportion of potentially avoidable indications for UC may exist in visits discharged to locations other

than home. This may lead to an increased risk for CAUTI in these patients, resulting in subsequent return visits to the ED and potentially hospitalization.

Our study had some limitations due to the observational nature of the data that were collected for the purpose of reimbursement. ICD-9-CM diagnosis codes were used to assess potentially avoidable use of catheterization; however, we could not discern the true reason(s) for UC without access to medical records. ICD-10 codes may allow for better elucidation of appropriate and inappropriate indications of UC in future studies using administrative data. The NEDS database consists of encounter-level rather than patient-level data, and thus it was not possible to identify multiple encounters for individual patients. In addition, we could not determine if patients had a UC in-place prior to arrival in the ED (i.e., underwent UC exchange) or if they were discharged with the UC in place. The rate of UC visits for patients in the Western U.S. was the highest among all, suggesting possible regional differences in practice patterns.¹⁶ A cross-sectional study using the Comprehensive Unit-based Safety Program (CUSP): Stop CAUTI initiative assessed appropriate use of urinary catheterization in patients hospitalized in 726 hospitals across the country.¹⁴ In that study, patients in the West were less likely to be catheterized for an appropriate indication compared to other U.S. regions. Our finding of higher rates of UC in patients in the Western U.S. in a treated-and-released ED population suggests that UC practice patterns are not isolated to only one area of the hospital.

CONCLUSIONS

Overall, the prevalence of UC in treated-and-released ED visits was higher in men with many differences between men and women in the likely indications for UC. More than three-quarters of visits with UC in men were coded for AUR or LUTS compared to 45% of visits in women. In the hierarchical ranking, the heterogeneity of likely indications in treated-and-released UC visits in women compared to men suggests that a higher proportion of UC in women were potentially avoidable. Our analysis of likely indications also suggests a higher proportion of potentially avoidable UC in visits in patients transferred to a non-hospital facility. Our results suggest that quality improvement projects may be needed to reduce potentially avoidable UC in the ED, particularly in women and patients transferred to another type of facility.

Acknowledgments

Financial Support

SMV reports funding by the Washington University Institute of Clinical and Translational Sciences grant UL1TR000448, sub-award KL2TR000450, from the National Center for Advancing Translational Sciences (NCATS) of the National Institutes of Health (NIH).

Additional funding for the study was supplied in part by Washington University Institute of Clinical and Translational Sciences grant UL1 TR000448 from the National Center for Advancing Translational Sciences (NIH) and by Grant Number R24 HS19455 (PI: V. Fraser) from the Agency for Healthcare Research and Quality (AHRQ).

SAS reports funding from Grant Number 1K08DK097302-101A1 from the National Institute of Diabetes and Digestive and Kidney Disease.

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Highlights

- Urinary catheterization was assessed in emergency department visits
- Prevalence of urinary catheterization was 4.3/1000 treated-and-released visits
- Differences in appropriate urinary catheters use were found between genders
- Further quality improvement projects in treated-and-released visits are needed

Table 1

Rate of Urinary Catheterization in Treated-and-Released Emergency Department Visits in Men and Women

	Treated-and-Released ED Visits in Men (N=36,487,337)		Treated-and-Released ED Visits in Women (N=51,309,725)	
	Urinary Catheterization (N)	Urinary Catheterization (per 1000 visits)	Urinary Catheterization (N)	Urinary Catheterization (per 1000 visits)
All Ages	238,317	6.5	137,139	2.7
18–39	16,897	1.1	30,990	1.2
40–59	38,459	3.1	30,532	2.0
60–79	115,985	19.0	37,105	4.8
≥80	66,977	35.7	38,512	11.4

Table 2

Patient-level and Hospital-level Variables in ED Visits Coded for Urinary Catheterization in Men and Women

	UC Visits in Men (N=238,317)	UC Visits in Women (N=137,139)	SD
Patient Level Variables – N(%)			
Age – mean (SD)	68.5 (34.3)	60.8 (46.9)	0.19
Primary Payer*			
Medicare	152,965 (64.2)	75,523 (55.1)	0.19
Private	44,483 (18.7)	25,516 (18.6)	<0.01
Medicaid/Self-Pay	32,378 (13.6)	32,377 (23.6)	–0.26
Other	8,492 (3.6)	3,722 (2.7)	0.05
Median Income			
<\$37,999	65,728 (27.6)	46,701 (34.1)	–0.14
\$38,000–\$47,999	62,734 (26.3)	37,696 (27.5)	–0.03
\$48,000–\$63,999	57,284 (24.02)	29,392 (21.4)	0.06
\$64,000	46,534 (19.5)	20,569 (15.0)	0.12
Missing	6,036 (2.5)	2,781 (2.0)	0.04
Disposition at Discharge			
Routine Discharge	222,536 (93.4)	117,312 (85.5)	0.26
Transfer to Another Type of Facility	12,771 (5.4)	15,767 (11.5)	–0.22
Home Health Care	1,511 (0.6)	2,643 (1.9)	–0.12
Against Medical Advice	1,499 (0.6)	1,416 (1.0)	–0.04
Hospital Level Variables – N (%)			
Hospital Region			
Northeast	43,831 (18.4)	17,545 (12.8)	0.15
Midwest	35,935 (15.1)	22,701 (16.6)	–0.04
South	93,024 (39.0)	62,378 (45.5)	–0.13
West	65,528 (27.5)	34,516 (25.2)	0.05
Hospital Location§			
Metropolitan	183,929 (77.2)	99,517 (72.6)	0.11
Non-Metropolitan	54,388 (22.8)	37,622 (27.4)	

CI = confidence interval; NEDS = Nationwide Emergency Department Sample; OR = odds ratio; SD = Standardized Difference; UC = Urinary Catheterization

Hospital Teaching status, Hospital Trauma status had SD <|0.1| and are not included in the table.

Table 3

Conditions Associated with Urinary Catheterization in Men and Women

	UC Visits in Men (N=238,317)	UC Visits in Women (N=137,139)	SD
CONDITIONS n – (%) ^{*,†}			
AUR	141,908 (59.6)	29,785 (21.7)	0.83
LUTS [‡]	114,531 (48.1)	41,059 (30.9)	0.38
Hyperplasia of prostate	43,620 (18.3)	N/A	N/A
Prostatitis	2,744 (1.2)	N/A	N/A
Cancer of bladder	3,884 (1.6)	442 (0.3)	0.13
Cancer of prostate	15,760 (6.6)	N/A	N/A
Hematuria	23,994 (10.1)	3,286 (2.4)	0.32
Mechanical complication due to urethral catheter	13,124 (5.5)	3,003 (2.2)	0.17
SURGICAL	46,651 (19.6)	14,439 (10.5)	0.26
Complication of device; implant or graft	23,983 (10.1)	5,972 (4.4)	0.22
Other post-procedural status	21,456 (9.0)	7,150 (5.2)	0.15
NEUROLOGICAL	10,193 (4.3)	7,982 (5.8)	–0.07
Multiple sclerosis	1,106 (0.5)	1,905 (1.4)	–0.10
Cerebrovascular disease	1,864 (0.8)	2,871 (2.1)	–0.11
COGNITIVE	16,409 (6.9)	22,011 (16.1)	–0.29
Altered mental status	7,079 (3.0)	10,892 (7.9)	–0.22
Delirium, dementia, and other cognitive disorders	10,457 (4.4)	13,543 (9.9)	–0.21
PSYCHIATRIC	22,368 (9.4)	26,262 (19.2)	–0.28
Mood disorders	7,675 (3.2)	12,945 (9.4)	–0.26
Anxiety disorder	5,223 (2.2)	9,066 (6.6)	–0.22
KIDNEY	20,968 (8.8)	12,319 (9.0)	–0.01
MEDICAL	50,297 (21.1)	41,890 (30.6)	–0.22
Congestive heart failure	9,105 (3.8)	10,500 (7.7)	–0.17
Epilepsy; convulsions	4,638 (2.0)	5,465 (4.0)	–0.12
Edema	1,923 (0.8)	2,652 (1.9)	–0.10
Syncope	1,323 (0.6)	2,691 (2.0)	–0.13
Malaise and fatigue	4,167 (1.8)	7,530 (5.5)	–0.20

AUR = Acute Urinary Retention; LUTS = Lower Urinary Tract Symptoms; SD = standardized differences; N/A = not applicable

* Individuals can be coded for greater than one condition

[†] = Based on International Classification of Diseases, Ninth Revision, Clinical Modification Codes (available upon request)[‡] = without AUR

Variables within each condition with SD <|0.1| not shown in the table, include: LUTS without AUR (Dysuria, Urinary incontinence, Irritative symptoms, Obstructive symptoms, Urinary tract infections, Calculus of bladder, Bladder/Urethral injury, Other diseases of bladder and urethra), SURGICAL (Complications of surgical procedures or medical care), NEUROLOGICAL (Parkinson's disease, Paralysis), PSYCHIATRIC (Schizophrenia and other psychotic disorders, Alcohol-related disorders, Substance-related disorders), KIDNEY (Acute and unspecified renal

failure, Chronic kidney disease, Calculus of urinary tract, Nephritis; nephrosis; renal sclerosis, Cancer of kidney and renal pelvis, Other diseases of kidney and ureters), MEDICAL (Diabetes)

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Table 4
Hierarchical Ranking of Conditions Associated with Urinary Catheterization in Men and Women

	Men (Aged)					Women (Aged)				
	Total (N=238,317)	18-39 (N=16,897)	40-59 (N=38,459)	60-79 (N=115,985)	80 (N=66,977)	Total (N=137,139)	18-39 (N=30,990)	40-59 (N=30,532)	60-79 (N=37,105)	80 (N=38,512)
Conditions n - (%) [*]										
AUR	141,908 (59.6)	4,980 (29.5)	20,280 (52.7)	78,353 (67.6)	38295 (57.2)	29,785 (21.7)	6,930 (22.4)	8,575 (28.1)	8,204 (22.1)	6,076 (15.8)
LUTS [†]	47,977 (20.1)	2,478 (14.7)	7,218 (18.8)	21,538 (18.6)	16743 (25.0)	32,262 (23.5)	4,911 (15.6)	6,192 (20.3)	9,513 (25.6)	11,646 (30.2)
Surgical	10,748 (4.5)	560 (3.3)	1,612 (4.2)	4,494 (3.9)	4083 (6.1)	6,685 (4.9)	672 (2.2)	1,724 (5.7)	2,361 (6.4)	1,928 (5.0)
Neurologic al	2,344 (1.0)	308 (1.8)	619 (1.6)	889 (0.8)	528 (0.8)	3,845 (2.8)	281 (0.9)	754 (2.5)	1,360 (3.7)	1,449 (3.8)
Cognitive	7,137 (3.0)	1,730 (10.2)	1,512 (3.9)	1,904 (1.6)	1992 (3.0)	13,019 (9.5)	1,458 (4.7)	1,932 (6.3)	3,168 (8.5)	6,461 (16.8)
Psychiatric	8,297 (3.5)	3,991 (23.6)	2,927 (7.6)	1,092 (1.0)	286 (0.4)	11,731 (8.6)	4,202 (13.6)	3,890 (12.7)	2,453 (6.6)	1,186 (3.1)
Kidney	3,171 (1.3)	458 (2.7)	754 (2.0)	1,218 (1.1)	741 (1.1)	3,602 (2.6)	437 (1.4)	646 (2.1)	1,344 (3.6)	1,175 (3.1)
Medical	4,569 (1.9)	467 (2.8)	1,008 (2.6)	1,898 (1.6)	1196 (1.8)	11,104 (8.1)	1,136 (3.7)	2,202 (7.2)	3,977 (10.7)	3,789 (9.4)
Not Coded [‡]	12,168 (5.1)	1,926 (11.4)	2,530 (6.6)	4,599 (4.0)	3113 (4.7)	25,106 (18.3)	10,963 (35.4)	4,617 (15.1)	4,725 (12.7)	4,802 (12.5)

UC = Urinary Catheterization

^{*} = Individual visits were coded hierarchically (by condition in order), each encounter is only counted once

[†] = Without AUR

[‡] = Not Coded by an above Condition