

**Table 1. Questions to Assess Urinary Storage Symptoms and Smoking With Response Categorization\***

Symptom	Defining Question	Response Categorization	
		Normal	Abnormal
Frequency	What is the longest interval between each urination, from when you wake up until you go to bed?	> 3 hours or 2-3 hours	1-2 hours or <1 hour
Nocturia	How many times do you have to void per night? How many times did you most typically get up to urinate from the time you went to bed at night until you got up in the morning?	<2 voids per night	≥2 voids per night
Stress urinary incontinence	Do you experience leakage of urine when you physically exert yourself (e.g. coughing, sneezing, lifting)?	Never or Rarely	Often or Always
Urgency	Do you experience a sudden compulsion to pass urine?	Never or Rarely	Often or Always
Urgency urinary incontinence	Is the compulsion to pass urine so strong that urine starts to flow before you reach the toilet?	Never or Rarely	Often or Always

\* The Danish Prostatic Symptom Score (DAN-PSS) has four response options for nocturia (none, 1-2 times, 3-4 times and 5 times or more [per night]) (12) whereas the American Urological Association Symptom Index (AUA-SI) has six (never, 1, 2, 3, 4, and 5 times or more [per night]) (13). Patients who did not respond to the AUA-SI were not included in the analyses due to lack of precise information on the number of nocturnal voids. In case of conflict between the

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responses to the two questions, the DAN-PSS was regarded as the gold standard so that the DAN-PSS response nearer to the AUA-SI response was chosen (9, 16). The DAN-PSS were applied for the past 2 weeks, while the AUA-SI pertained to the past month.

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**Table 2. Self-Reported Regular Use of Prescribed Medications Classified by the Anatomical Therapeutic Chemical–Defined Daily Dose (ATC–DDD) Classification Regarded as Candidates for the Models of Confounder Scores**

<b>List of Medications Classified in Alphabetical Order of the ATC–DDD Code</b>			
<b>Groups of Medication</b>	<b>ATC–DDD</b>	<b>Groups of Medication</b>	<b>ATC–DDD</b>
Drugs for acid related disorders	A02	Alpha-adrenoreceptor antagonists <sup>†</sup>	G04CA
Insulins and analogues	A10A	NSAIDs <sup>¶</sup>	M01A, M01B
Oral blood glucose lowering drugs <sup>*</sup>	A10B/X	Muscle relaxants	M03
Cardiac glycosides	C01C	Antigout preparations	M04
Vasodilators used in cardiac diseases	C01D	Opioids	N02A
Diuretics (other than high-ceiling diuretics <sup>†</sup> )	C03A/B/D/E	Antiepileptics	N03
High-ceiling diuretics <sup>†</sup>	C03C	Anti-parkinson drugs	N04
Beta blocking agents	C07	Antipsychotics <sup>#</sup>	N05AA-AL, N05AX, N06C
Calcium channel blockers	C08	Lithium	N05AN
Agents acting on the renin-angiotensin system	C09	Anxiolytics <sup>#§</sup>	N05B, N06CA, A03CA
Lipid modifying agents	C10	Hypnotics and sedatives	N05C
Contraceptives <sup>‡</sup>	G02BB01, G03AA/AB/H	Antidepressants <sup>#</sup>	N06A, N06CA
Menopausal hormone therapy	G03CA03, G03F	Drugs for obstructive airway diseases	R03

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\* Including oral blood glucose lowering drugs (A10B) and other drugs used in diabetes (A10X) excluding insulins and analogues (A10A).

† High-ceiling diuretics and loop-diuretics are used synonymously, likewise alpha-adrenoreceptor antagonists and alpha blockers.

‡ Contraceptives included progestogens and estrogens, fixed combinations (G03AA); progestogens and estrogens, sequential preparations (G03AB); antiandrogens (G03H); and vaginal ring with progestogen and estrogen (G02BB01). We also performed analyses including women reported using progestin-only contraceptives (G03AC), but results did not change.

|| Urinary antispasmodics (synonymously antimuscarinics) were not included in the models of Confounder Scores due to strong overlapping of medication and symptoms.

¶ Including non-steroid anti-inflammatory and antirheumatic products (M01A) and anti-inflammatory and antirheumatic agents in combination (M01B).

# Partly including antidepressants in combination with psycholeptics (N06CA).

§ Partly including synthetic anticholinergic agents in combination with psycholeptics (A03CA).

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**Table 3. Physician-Diagnosed Diseases and Conditions and Regular Use of Prescribed Medications (With Anatomical Therapeutic Chemical–Defined Daily Dose [ATC–DDD] Code) Included\* in the Confounder Score Models of Smoking Status**

<b>Frequency Confounder Score</b>		<b>Nocturia Confounder Score</b>	
<b>Diseases and Conditions</b>	<b>Medications (ATC–DDD)</b>	<b>Diseases and Conditions</b>	<b>Medications (ATC–DDD)</b>
Anxiety disorders	Antidepressants (N06A) <sup>†</sup>	Anxiety disorders	Antipsychotics (N05A) <sup>‡</sup>
Fibromyalgia	Antiepileptics (N03A)	Coronary disease <sup>‡</sup>	Anxiolytics (N05B) <sup>†</sup>
Mood disorders		Diabetes mellitus	Calcium channel blockers (C08)
Multiple sclerosis		Gastroesophageal reflux	Opioids (N02A)
Psoriasis		Mood disorders	
Rheumatoid arthritis		Osteoarthritis	
		Restless legs syndrome	
<b>Stress Urinary Incontinence Confounder Score</b>		<b>Urgency Confounder Score</b>	
<b>Diseases and Conditions</b>	<b>Medications (ATC–DDD)</b>	<b>Diseases and Conditions</b>	<b>Medications (ATC–DDD)</b>
Gastroesophageal reflux	High-ceiling diuretics (C03C) <sup>#</sup>	Anxiety disorders	Antidepressants (N06A) <sup>†</sup>
Fibromyalgia	Diuretics (other than high-ceiling)	Arrhythmia	Antiepileptics (N03A)
Mood disorders	Menopausal hormone therapy	Back pain	Antipsychotics (N05A) <sup>‡</sup>
Multiple sclerosis		Breast neoplasms	High-ceiling diuretics (C03C) <sup>#</sup>
Osteoarthritis		Epilepsy	
Sleep apnea syndromes		Gastroesophageal reflux	
		Mood disorders	
		Multiple sclerosis	
		Restless legs syndrome	
		Sleep apnea syndromes	

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<b>Urgency Urinary Incontinence Confounder Score</b>	
<b>Diseases/conditions</b>	<b>Medications (ATC–DDD)</b>
Anxiety disorders	Antipsychotics (N05A) <sup>  </sup>
Migraine	
Mood disorders	
Multiple sclerosis	
Sleep apnea syndromes	

Data from WHO Collaborating Centre for Drug Statistics Methodology. ATC/DDD Index 2011. Available at: [http://www.whocc.no/atc\\_ddd\\_index](http://www.whocc.no/atc_ddd_index). Retrieved February 16, 2011. Available at: [http://www.whocc.no/atc\\_ddd\\_index](http://www.whocc.no/atc_ddd_index). Retrieved February 16, 2011.

\* All factors (of comorbidity and medications reported by at least 10 women) associated ( $p < 0.05$ ) with frequency, nocturia, stress urinary incontinence, urgency or urgency urinary incontinence (after adjustment for age) were included in the models of Frequency Confounder Score, Nocturia Confounder Score, Stress Urinary Incontinence Confounder Score, Urgency Confounder Score or Urgency Urinary Incontinence Confounder Score respectively. With a single indication for a drug, those reporting using it were also taken to have the indication (disease or condition). Furthermore, if both drug and indication were associated with a symptom, we only included the indication in the formula of Frequency, Nocturia, Stress Urinary Incontinence, Urgency or Urgency Urinary Incontinence Confounder Score.

† Antidepressants (N06A), and partly including antidepressants in combination with psycholeptics (N06CA).

‡ Including those with heart failure.

|| Antipsychotics (N05AA-AL, N05AX) excluding lithium (N05AN), and partly including antidepressants in combination with psycholeptics (N06CA).

¶ Anxiolytics (N05B), and partly including antidepressants in combination with psycholeptics (N06CA) and synthetic anticholinergic agents in combination with psycholeptics (A03CA).

# High-ceiling diuretics used as synonym for loop-diuretics (as in ATC–DDD classification [WHO Collaborating Centre for Drug Statistics Methodology. ATC/DDD Index 2011. Available at: [http://www.whocc.no/atc\\_ddd\\_index](http://www.whocc.no/atc_ddd_index). Retrieved February 16, 2011.]).

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**Table 4. Physician-Diagnosed Diseases and Conditions and Regular Use of Prescribed Medications (With Anatomical Therapeutic Chemical–Defined Daily Dose [ATC–DDD] Code) Included\* in the Confounder Score Models of Smoking Intensity**

<b>Frequency Confounder Score</b>		<b>Nocturia Confounder Score</b>	
<b>Diseases/conditions</b>	<b>Medications (ATC–DDD)</b>	<b>Diseases/conditions</b>	<b>Medications (ATC–DDD)</b>
Anxiety disorders	Antidepressants (N06A) <sup>‡</sup>	Anxiety disorders	Antipsychotics (N05A) <sup>  </sup>
Mood disorders	Antipsychotics (N05A) <sup>  </sup>	Mood disorders	
Obstructive lung diseases <sup>†</sup>		Obstructive lung diseases <sup>†</sup>	
		Osteoarthritis	
		Restless legs syndrome	
<b>Stress Urinary Incontinence Confounder Score</b>		<b>Urgency Confounder Score</b>	
<b>Diseases/conditions</b>	<b>Medications (ATC–DDD)</b>	<b>Diseases/conditions</b>	<b>Medications (ATC–DDD)</b>
Mood disorders		Anxiety disorders	Antipsychotics (N05A) <sup>  </sup>
Obstructive lung diseases <sup>†</sup>		Mood disorders	
		Obstructive lung diseases <sup>†</sup>	
		Restless legs syndrome	

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## Urgency Urinary Incontinence Confounder Score

### Diseases/conditions

### Medications (ATC–DDD)

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Anxiety disorders

Mood disorders

Obstructive lung diseases<sup>†</sup>

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\* All factors (of comorbidity and medications reported by at least 10 women) associated ( $P < 0.05$ ) with frequency, nocturia, stress urinary incontinence, urgency or urgency urinary incontinence (after adjustment for age) were included in the models of Frequency Confounder Score, Nocturia Confounder Score, Stress Urinary Incontinence Confounder Score, Urgency Confounder Score or Urgency Urinary Incontinence Confounder Score respectively. With a single indication for a drug, those reporting using it were also taken to have the indication (disease/condition). Furthermore, if both drug and indication were associated with a symptom, we only included the indication in the formula of Frequency, Nocturia, Stress Urinary Incontinence, Urgency or Urgency Urinary Incontinence Confounder Score.

<sup>†</sup> Including those with asthma and/or chronic obstructive pulmonary disease.

<sup>‡</sup> Antidepressants (N06A), and partly including antidepressants in combination with psycholeptics (N06CA).

<sup>||</sup> Antipsychotics (N05AA-AL, N05AX) excluding lithium (N05AN), and partly including antidepressants in combination with psycholeptics (N06CA).

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**Box 1. Physician-Diagnosed Diseases and Conditions Regarded as Candidates for the Models of Confounder Scores\***

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**List of Diseases and Conditions (in Alphabetical Order)**

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Anxiety disorders	Gastroesophageal reflux	Narcolepsy
Arrhythmia	Glaucoma	Obstructive lung diseases <sup>¶</sup>
Back pain	Gout	Osteoarthritis
Breast neoplasms	Hypersensitivity	Osteoporosis
Cerebrovascular accident	Hypertension	Psoriasis
Contracted bladder <sup>†</sup>	Hyperthyroidism	Parkinson disease
Coronary artery disease <sup>‡</sup>	Hypothyroidism	Restless legs syndrome
Diabetes mellitus	Inflammatory bowel diseases	Rheumatoid arthritis
Dyslipidemias <sup>  </sup>	Migraine disorders	Sleep apnea syndromes
Epilepsy	Mood disorders	Spinal cord injuries
Fibromyalgia	Multiple sclerosis	Urinary bladder neoplasms

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\* Diseases and conditions were collected from the responses to the question "Have you ever been diagnosed by a physician with any of the following diseases or conditions?"

† Due to e.g. painful bladder syndrome (interstitial cystitis) or radiation.

‡ Including those with heart failure.

|| Including users of lipid modifying agents (Anatomical Therapeutic Chemical–Defined Daily Dose [ATC–DDD] code [Data from WHO Collaborating Centre for Drug Statistics Methodology. ATC/DDD Index 2011. Available at: [http://www.whooc.no/atc\\_ddd\\_index](http://www.whooc.no/atc_ddd_index). Retrieved February 16, 2011. Available at: [http://www.whooc.no/atc\\_ddd\\_index](http://www.whooc.no/atc_ddd_index). Retrieved February 16, 2011]; C10).

¶ Including those with asthma, chronic obstructive pulmonary disease, or both asthma and chronic obstructive pulmonary disease.

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