

# Why Do People Void At Night?



## Abstract #113

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### Abstract

#### Hypothesis / Aims of study

Nocturia represents a significant source of bother to patients and can be detrimental to quality of life and sleep [2]. There are two possible reasons why patients have nocturia – they are awakened by an urge to void (primary nocturia voids or PNV) or they awaken for some other reason and then void before going back to sleep (secondary nocturia voids or SNV). Primary nocturia can be subdivided into urgency voids and non-urgency voids. The aim of this study is to determine the relative contribution of each type of night-time voids in a large cohort of patients.

#### Study Design, Materials and Methods

This is an IRB approved retrospective study of consecutive patients who completed a 24 hour paper bladder diary (24H BD). Clinical diagnoses were included as documented in the patient record. Day and night-time voids were distinguished by the bedtime and awake time as recorded on the diary. Each nocturnal void was designated as primary or secondary nocturia based on the following scheme derived from the Urge Perception Score (UPS). Primary nocturia was sub-divided into urgency voids (severe urge or desperate urge; UPS = 3 or 4) and non-urgency voids (mild urge or moderate urge; UPS = 1 or 2). Secondary nocturia was defined as void without urgency (no urge; UPS = 0).

#### Results

572 patients completed 1288 diaries included in the analysis, including 369 men and 203 women. Overall, 1586 bladder diaries were reviewed. 298 diaries were excluded because of inaccurate UPS scores or incompleteness. 338 patients completed 1 diary, 113 patients completed 2 diaries, 54 patients completed 3 diaries and 77 patients completed 3 or more diaries. 2,793 night-time voids were analyzed. 214 voids (7.7%) were designated as secondary nocturia. 1629 voids (58.3%) were designated as non-urgency voids and 950 voids (34.0%) were designated as urgency voids. Clinical diagnoses include Urethral Stricture, Unaware Incontinence, OAB, BPH, and Stress Incontinence. The most common diagnosis was overactive bladder (OAB) with 49 patients, followed by BPH with 38 patients. OAB patients were found to have majority urgency voids.

### Introduction

Nocturia is defined as “the complaint that the individual has to wake at night one or more times to void” [1]. There are two possible reasons why patients have nocturia – they are awakened by an urge to void (primary nocturia voids or PNV) or they awaken for some other reason and then void before going back to sleep (secondary nocturia voids or SNV). Primary nocturia voids can be subdivided into urgency voids and non-urgency voids. Nocturia has many potential contributing factors or causes. Causes of nocturia can be separated into categories including nocturnal polyuria, polyuria and storage issues or reduced bladder capacity. A useful tool in the clinical evaluation of nocturia is the frequency-volume chart (FVC) also known as 24 hour bladder diary (24H BD). In a bladder diary, patients record the timing and volume of both day-time and night-time voids for a period of 24 hours to 3 days. Combining this with analysis of urge perception creates a helpful method of analyzing why people void at night. We also sought to determine if any correlations exist between each diagnosis and primary vs. secondary nocturia.

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Diagnosis	Urgency Voids	Non-Urgency Voids	Non-Bladder Related Voids	Majority Nocturia Voids per Diagnosis
Stress Incontinence	4 (33.3%)	7 (58.3%)	1 (8.3%)	Non-Urgency
BPH	10 (31.3%)	17 (53.1%)	5 (15.6%)	Non-Urgency
OAB	24 (51.1%)	17 (36.2%)	6 (12.8%)	Urgency
Urethral Stricture	7 (50.0%)	6 (42.9%)	1 (7.1%)	Urgency
Unaware Incontinence	1 (20%)	4 (80%)	0	Non-Urgency
Nocturia	9 (50.0%)	8 (44.4%)	1 (5.6%)	Urgency

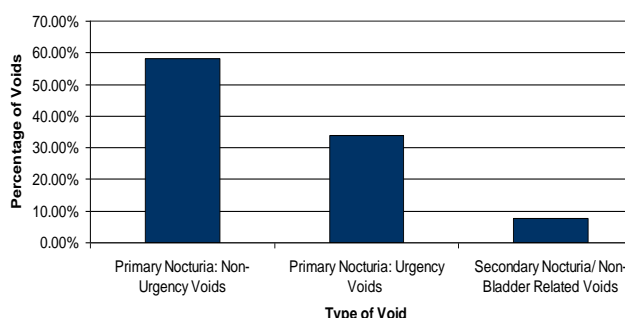
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2,793 night-time voids were analyzed. 214 voids (7.7%) were designated as secondary nocturia. 1629 voids (58.3%) were designated as non-urgency voids and 950 voids (34.0%) were designated as urgency voids. The age of patients ranged from 6 - 100 years. The average patient age was 62, with a standard deviation of 18.2. 169 patients had a clinical diagnosis documented. Clinical diagnoses include Urethral Stricture, Unaware Incontinence, OAB, BPH, and Stress Incontinence. The most common diagnosis was overactive bladder (OAB) with 49 patients, followed by BPH with 38 patients.

Analysis of urge perception scores and diagnoses yielded a characterization of nocturia voids in each diagnostic class. Patient with a diagnosis of stress incontinence most frequently had non-urgency voids and mirrored the overall distribution of voids. Those with BPH also had majority non-urgency voids with a slightly increased proportion of secondary nocturia or non-bladder related voids (15.6%). Patients with OAB had majority urgency voids. Those with unaware incontinence were found to have majority non-urgency voids. Patients with nocturia and urethral stricture listed as a diagnosis were found to have nearly equivalent percentages of urgency and non-urgency voids.

### Void Distribution



### Discussion

Overall, it appears that 7.7% percent of the time, patients may be voiding at night due to secondary nocturia. Because patients designated that these voids were not accompanied by any urge, we posit that at the time of these voids, patients awoke for a reason other than urination and voided out of habit before returning to sleep. Therefore, we conclude that secondary nocturia voids are unrelated to the bladder. We can therefore call these voids “non-bladder related voids.” Conversely, urgency voids during the night-time are, in fact, related to the bladder. We found that the prevalence of primary nocturia with urgency voids to be 34% overall. However, the great majority of nighttime voids (58.3%) were primary nocturia non-urgency voids. In addition to primary nocturia voids, secondary or non-bladder related voids, there is a third category – patients who wake and void but are unsure as to why they awoke. While we can conclude that patients awoke to urinate for the urgency voids, we cannot definitively attribute waking up at night to the bladder-related causes for these non-urgency voids.

Blaivas et al have described five phenotypes of nocturia, including polyuria, nocturnal polyuria, mismatch and sleep disorders. We sought to determine if any correlations exist between each diagnosis and primary nocturia vs. non-bladder related voids. On analysis of diagnoses and Urge Perception Scores, the percentage of different types of voids largely mirrored the overall void distribution with the notable exception of overactive bladder. Patients diagnosed with overactive bladder tended to have majority urgency voids. This agrees with expectations as overactive bladder is associated with daytime urgency. Patients with unaware incontinence tended to have non-urgency voids, which is consistent with the lack of urgency in patients who may not experience the sensation of leaking. Interestingly, patients with BPH also had a majority of non-urgency voids. A greater proportion of patients with BPH also reported non-bladder related voids, which is consistent with the spectrum of voiding symptoms seen in these patients.

### Conclusions

Although the vast majority of patients in this series with nocturia were awakened by the desire to void, a subset were not. Further, voiding at night did not appear to be related to the bladder at all in some patients. It is important to make these distinctions about why people void at night because the diagnostic evaluation and treatment options may be completely different depending upon these factors.

### Contact

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### References

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