

**CORRESPONDENCE: TRANSURETHRAL CATHETER DRAINAGE IN
FEBRILE URINARY TRACT INFECTION: PRACTICE PATTERNS AMONG
SPECIALIZED CENTERS IN NORTH AMERICA AND EUROPE**

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Abbreviation:

ACGME, Accreditation Council for Graduate Medical Education; EBPU, European Board of Paediatric Urology; ESPU/EAU, European Society for Pediatric Urology / European Association of Urology; EU, Europe; fUTI(s), febrile urinary tract infection(s); NA, North America; PS,

pediatric surgeon; PU, pediatric urologist; UTI(s), urinary tract infection; VCUG, voiding cystourethrography.

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Febrile urinary tract infections (fUTIs) account for 0.7% of outpatient department visits and 5%–14% of emergency department visits by children annually [1]. UTI is the most common bacterial infection in childhood and up to 30% of infants and children experience recurrent infections during the first 6–12 months after initial UTI [2,3].

Management protocols of fUTIs in children showed variation among the commonly used guidelines published in North America (NA) and in Europe (EU) [4,5].

Transurethral bladder drainage by the use of a catheter during the management of a fUTI is a practice that is adopted in different centers across NA and EU despite the lack of solid clinical studies to support it. The rationale of this practice is largely based on the presumed pathophysiology of fUTIs, where on-going vesicoureteric reflux plays a major role in the febrile event and breaking that cycle with continuous drainage is key.

We decided to evaluate the prevalence of this practice among North American and European training centers, and to analyze the reasoning behind implementing or abandoning it. A link to an online survey was sent by email to 69 pediatric urologists and surgeons representing pediatric urologic centers across NA and EU. All participants were either affiliated with an ACGME pediatric urology fellowship

program or were members of the Young Pediatric Urologists Committee representing EBPU accredited training centers. Results were divided into two groups according to participants' answers to the stem questions. Group A included those who always or sometimes use a urethral catheter for drainage during the first episode of a fUTI and group B those who never use it. Further questions following on the rationale for or against catheter placement followed the initial stem question. Fisher's exact test was used for statistical analysis. A second analysis was then done based on the center location (NA versus EU) and the specialty of participants (pediatric urologist (PU) versus pediatric surgeon (PS)).

We received 60 responses with a response rate of 87%, representative of 47 different training programs. Seventeen (28.3%) participants were from NA and 43 (71.7%) from EU. Thirty-one (51.7%) were PS while 29 (48.3%) were PU (Table 1). Twenty-seven (45%) participants reported that it is a common practice at their center to always (n=4, 6.7%) or sometimes (n=23, 38.3%) insert a catheter for drainage in fUTI, while in 33 (55%) centers bladder drainage is not a part of fUTI management. PU were more inclined to insert a drainage catheter compared to PS (66.7% versus 33.3%, $p=0.02$), regardless of the geographic location. The assumption of a beneficial effect on convalescence was the most prevailing reason for placing a catheter, regardless of center location or specialty (Table 2). Conversely, the lack of solid evidence was the most common reason for not draining the bladder with a urethral catheter, regardless of the center location and the specialty. Surprisingly, the second reason not to insert a

catheter was because it was too invasive, regardless of the center location and the specialty

Inserting a transurethral catheter for drainage in fUTIs is thus a practice that is implemented in 45% of respondents across NA and EU despite the lack of consensus and evidence supporting it. Urologists are more likely to place catheters as compared to PS with the assumption of a beneficial effect on convalescence as their main reason. These results warrant further prospective multi-institutional international studies to assess the potential role of bladder drainage in managing fUTIs in order to provide an evidence-based practice.

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Ethics/IRB: This study did not need an institutional review board approval.

Abbreviation:

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REFERENCES.

- [1] Freedman AL, Urologic Diseases in America Project. Urologic diseases in North America Project: trends in resource utilization for urinary tract infections in children. *J Urol* 2005;173:949–54. doi:10.1097/01.ju.0000152092.03931.9a.
- [2] O'Brien K, Stanton N, Edwards A, Hood K, Butler CC. Prevalence of urinary tract infection (UTI) in sequential acutely unwell children presenting in primary care: exploratory study. *Scand J Prim Health Care* 2011;29:19–22. doi:10.3109/02813432.2011.554268.
- [3] Mangiarotti P, Pizzini C, Fanos V. Antibiotic prophylaxis in children with relapsing urinary tract infections: review. *J Chemother* 2000;12:115–23. doi:10.1179/joc.2000.12.2.115.
- [4] Urinary Tract Infection: Clinical Practice Guideline for the Diagnosis and Management of the Initial UTI in Febrile Infants and Children 2 to 24 Months. *Pediatrics* 2011. doi:10.1542/peds.2011-1330.
- [5] Stein R, Dogan HS, Hoebeke P, Kočvara R, Nijman RJM, Radmayr C, et al. Urinary tract infections in children: EAU/ESPU guidelines. *Eur Urol* 2015;67:546–58. doi:10.1016/j.eururo.2014.11.007.

TITLES AND LEGENDS TO TABLES.**Table 1. Demographics.**

Group A: catheter placed always or sometimes; Group B: catheter placed never.

Table 2. Analysis of participants reasoning of their answers.

Group A: catheter placed always or sometimes; Group B: catheter placed never. NA, North America; PS, pediatric surgeon; PU, pediatric urologist; VCUG, voiding cystourethrography.

Table 1. Demographics.

	Group A (N=27)	Group B (N=33)	Total (N=60)	p-value
Age				0.76
Under 40 years	22 (81.4%)	25 (75.8%)	47 (78.3%)	
Over 40 years	5 (18.5%)	8 (24.4%)	13 (21.7%)	
Gender				0.41
Female	9 (33.3%)	12 (36.4%)	21 (35.0%)	
Male	16 (59.3%)	21 (63.6%)	37 (61.7%)	
N/A	2 (28.6%)	0 (0.0%)	2 (3.3%)	
Center location				0.99
North America	8 (29.6%)	9 (27.3%)	17 (28.3%)	
Europe	19 (70.4%)	24 (72.7%)	43 (71.7%)	
Training				<u>0.02</u>
Pediatric urology	18 (66.7%)	11 (33.3%)	29 (48.3%)	
Pediatric surgery	9 (33.3%)	22 (66.7%)	31 (51.7%)	

Table 2. Analysis of participants reasoning of their answers.

	Group A (N=27)				Group B (N=33)			
	The reason we would place a catheter				The reason we would not place a catheter			
	Improve convalescence	To do a VCUG	Other reasons		No evidence	Too invasive	Lack of staff	Other
Location				Location				
NA (N=8)	6 (75.0%)	2 (25.0%)	1 (12.5%)	NA (N=9)	8 (88.8%)	3 (33.3%)	0 (0.0%)	0 (0.0%)
Europe (N=19)	13 (68.4%)	5 (26.3%)	5 (26.3%)	Europe (N=24)	15 (62.5%)	13 (54.2%)	0 (0.0%)	2 (8.3%)
	p=0.99	p=0.99	p=0.63		p=0.22	p=0.44	p=0.99	p=0.99
Training				Training				
PU (N=18)	15 (83.3%)	5 (27.8%)	3 (16.7%)	PU (N=11)	9 (81.8%)	4 (36.3%)	0 (0.0%)	0 (0.0%)
PS (N=9)	4 (44.4%)	2 (22.2%)	3 (33.3%)	PS (N=22)	14 (63.6%)	12 (54.5%)	0 (0.0%)	2 (9.1%)
	p=0.07	p=0.99	p=0.37		p=0.43	p=0.46	p=0.99	p=0.52
Total (N)	19	7	5	Total (N)	23	16	0	2