# ESPU-N & ICCS Abstracts Book


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# SN01: LUTD 1

*Moderators: Sigrid van de Borne (BE), Bieke Samijn (BE)*

**ICCS & ESPU-Nurses Meeting on Wednesday 3, September 2025, 14:30 - 15:00**

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*14:30 - 14:36*
**SN01-1** (OP)

## DO SEX DIFFERENCES INFLUENCE LOWER URINARY TRACY SYMPTOMS (LUTS) AT PRESENTATION AND PRE-TREATMENT LUTS SEVERITY IN CHILDREN UNDERGOING BIOFEEDBACK?

Antonio MARTINELLI BRAGA, Jason VAN BATAVIA, Shailee SHROFF, Stephen ZDERIC, Monica MORAN, Marianne NAZAREWYCZ, Joy KERR, Laurabeth MCALLISTER and Katherine FISCHER
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**PURPOSE**

Sex differences in lower urinary tract physiology and pelvic muscle control are documented in the literature. These distinctions raise questions about their influence on the manifestation and severity of urinary symptoms. Therefore, the aim of this study is to analyze possible differences between pediatric males and females in Lower Urinary Tract Symptoms (LUTS) at baseline and LUTS intensity prior to biofeedback therapy.

**MATERIAL AND METHODS**

This is a retrospective cohort study involving children with Lower Urinary Tract Disfunction (LUTD) that were treated with biofeedback between 2013 and 2024. Patients with incomplete data were excluded. The questionnaire used was the Dysfunctional Voiding and Incontinence Scoring System (DVISS) to assess LUTS intensity. Pre-treatment symptoms and pre-treatment DVISS scores were compared between sexes.

**RESULTS**

We included 575 patients in the study, 391 (68.0%) females, with a mean age of 8.62 ± 3.20. In the analysis of the association between sex and pre-treatment symptoms, males were more likely to have developmental or neurological diagnosis prior to treatment (M=23; F=19; p<0.001) and hematuria (M=10; F=6; p=0.014). In contrast, females were more prone to have frequency (F=85; M=58; p=0.041); Stress incontinence (F=13; M=1; p=0.034); Constipation (F=188; M=76; p=0.033); Urinary tract infections (UTIs) (F=230; M=20; p<0.001) and use of antibiotic prophylaxis (F=120; M=7; p<0.001). The initial DVISS score (Female = 12.79 ± 6.55; Male = 12.49 ± 6.91; p=0.618) did not differ between sexes.

**CONCLUSIONS**

Females are more likely to have specific LUT symptoms such as, frequency, stress incontinence, constipation, UTIs. In comparison, males are associated with developmental or neurological diagnosis and hematuria. LUTS intensity prior to biofeedback did not differ between groups.

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*14:36 - 14:42*
**SN01-2** (OP)

# SYMPTOMATIC EFFICACY OF BIOFEEDBACK TRAINING FOR DYSFUNCTIONAL VOIDING IN CHILDREN: A LARGE RETROSPECTIVE SINGLE CENTRE REVIEW.

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**PURPOSE**

Dysfunctional voiding (DV) is associated with symptoms of urinary incontinence (UI) and urinary tract infection (UTI). Pelvic floor biofeedback training is used as a treatment for DV in children, however outcome data is limited. We reviewed the long-term efficacy of biofeedback for DV in a large cohort of children.

**MATERIAL AND METHODS**

Retrospective single centre review of patients with DV (defined by voiding staccato flow with pelvic EMG activity) who received biofeedback training with pelvic floor EMG (Urostym, Laborie) between 2017-2022. Patients with structural abnormality and neurogenic bladder were excluded. Primary outcome measures were the presence of UI and UTI, assessed prior to treatment (Pre), at end of treatment (EoT) and at follow-up closest to 1 year after completing treatment (1YFU). Data given as median (IQR). Statistical methods: Wilcoxson test for numerical and McNemar's for categorical data.

**RESULTS**

Of the 238 patients that completed biofeedback, 84.5% were female, with a mean age 11 (9.35-13.18) years, Data for 1YFU was available for 185.
Treatment was across median 4 sessions, delivered over 84 (63-149.25) days with follow-up over 13 (10.72-18.84) months. UI was present at Pre in 192 (80.7%) and was significantly (P <.001) reduced by EoT in 153 (64.3%) and at 1YFU 83 (44.8%). UTI was present at Pre in 125 (52.5%) and significantly (P <.001) reduced by EoT in 33 (13.9%) and at 1YFU in 29 (15.7).

**CONCLUSIONS**

In this large cohort with DV, pelvic floor biofeedback training results in significant and sustained improvement in UI and UTI.

*14:42 - 14:48*
**SN01-3** (OP)

# DOES MULTIMODAL PELVIC FLOOR MUSCLE TRAINING AFFECT THE SENSORY PROFILE AND CORE MUSCLES? A PILOT STUDY

Damla KORKMAZ DAYICAN [1], Büşra PALAZ [2], Ali TEKİN [3], Sibel TİRYAKİ [3], İbrahim ULMAN [3], Ezgi ALTUN TANIL [3] and Özge ÇELİKER TOSUN [4]
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**PURPOSE**

Sensory profile differences and sensory processing dysfunction can be observed in children with urinary incontinence. The effect of pelvic floor muscle training (PFMT) on pelvic floor muscles is known; however, its impact on sensory profile remains unclear. This study aimed to investigate the effects of a multimodal PFMT on sensory profile, sensory processing skills, and core muscle functions in children with urinary incontinence.

**MATERIAL AND METHODS**

Twenty children with urinary incontinence were randomized into a multimodal PFMT plus routine treatment group and a routine treatment only group. The multimodal PFMT was performed for 60 minutes per week for 10 weeks. The children's sensory profile [Adolescent/Adult Sensory Profile (AASP) and the Interoception Sensory Questionnaire (ISQ)], sensory processing skills [Sensory Processing Scale (SPS)], lower urinary tract symptoms [Dysfunctional Voiding and Incontinence Scoring System (DVISS), Bladder and Bowel Dysfunction Questionnaire (BBDQ), Childhood Bladder and Bowel Dysfunction Questionnaire (CBBDQ)], and core muscle functions (ultrasound imaging) were evaluated.

**RESULTS**

A significant reduction was observed in AASP total score (p=0.047) and all sub-dimensions, ISQ total score and SPS all sub-dimensions. The DVISS, BBDQ, and CBBDQ scores significantly decreased (p=0.005), most in daytime urinary frequency symptoms (80.0%). Additionally, 70% of the children showed a decrease in pelvic floor muscle tone. There was also an increase in thickness of the transversus abdominis (p=0.005), internal and external oblique abdominal muscles (p=0.007), and diaphragm displacement (p=0.021).

**CONCLUSIONS**

Multimodal PFMT may affect the sensory profile, sensory processing skills, and core muscles in children with urinary incontinence, particularly in terms of sensory sensitivity.

*14:48 - 14:54*
**SN01-4** (OP)

# THE VALUE OF A VIRTUAL GROUP SEMINAR FOR VOIDING DYSFUNCTION

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**PURPOSE**

This study aims to evaluate the efficacy of a pilot virtual group seminar regarding dysfunctional voiding. This is offered for families of children 5-8 years of age with symptoms including dysuria, frequency, urgency and incontinence. This is provided at no cost, and families are encouraged to schedule an in-person appointment if symptoms persist after implementing modifications, or if their child has urinary tract infections.

**MATERIAL AND METHODS**

A forty-five minute telehealth seminar takes place bi-monthly. Dysfunctional voiding basics are reviewed and families are provided non-pharmacologic management centered around changing behaviors. The intention is to provide practical first steps to improve symptoms and identify high risk patients needing in-person evaluation. Surveys are administered online immediately after session completion. Attendees who scheduled an appointment after the session were monitored and seen in clinic by one of three seasoned nurse practitioners, all of whom were interviewed after the visits.

**RESULTS**

Over nine group sessions, 44 families attended the seminar and 48% completed the evaluation survey. Eighty-one percent of families strongly agreed that the session provided helpful information.

Sixty-four percent of attendees scheduled in person appointments. Patients were seen by one of three seasoned nurse practitioners, all of whom reported families were better prepared for their first visit (specifically, families utilized voiding diaries and worked to improve constipation prior to visit).

**CONCLUSIONS**

A virtual group seminar can be a useful tool in empowering caregivers to take first steps in management of voiding dysfunction. Families find it helpful and healthcare providers report families are better prepared for their first visit.

*14:54 - 15:00*
**SN01-5** (OP)

# DO SENSORY PROFILES AND SENSORY PROCESSING SKILLS VARY BASED ON THE ETIOLOGY OF URINARY INCONTINENCE IN CHILDREN?

Büşra PALAZ [1], Damla KORKMAZ DAYICA [2], Ali TEKİN [3], Sibel TİRYAKİ [3], İbrahim ULMAN [3], Ezgi ALTUN TANIL [3] and Özge ÇELİKER TOSUN [4]
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**PURPOSE**

It has been reported that children with urinary incontinence may experience impairments in certain sensory feedback mechanisms (such as auditory, tactile, and vestibular processing). Therefore, this study aimed to investigate whether sensory profiles and sensory processing skills differ according to the type of urinary incontinence in children.

**MATERIAL AND METHODS**

This prospective study included 20 children with urinary incontinence. Of these, 13 (65%) were female, and 7 (35%) were male, with a mean age of 8.84±2.67 years. Fourteen had bladder bowel dysfunction (BBD) (65%), six had monosymptomatic enuresis (Group 1). Patients with BBD were further divided into two groups as with (group 2, 7 patients) and without enuresis (group 3, 7 patients). The children's sensory profiles were assessed using the Interoception Sensory Scale (ISS), the Dunn Sensory Profile (DSP) for children under 10 years old, and the Adolescent/Adult Sensory Profile (AASP) for those over 10 years old. Sensory processing skills were evaluated with the Sensory Processing Scale (SPS).

**RESULTS**

Children in group 1 had significantly lower total and subscale scores on the ISS, AASP, DSP, and SPS compared to those in other two groups (p=0.04). When evaluating all sensory profiles and sensory processing skills, children in group 2 had the highest scores (p=0.02).

**CONCLUSIONS**

Differences in sensory profiles and sensory processing were observed among children with different types of urinary incontinence. Notably, children with BBD having both daytime and nighttime incontinence appeared to be the most affected by sensory dysfunction.

# SN02: LUTD 2

*Moderators: Jens Larsson (SE), Cheryl Rowe (UK), Ubirajara Barroso (BR)*

**ICCS & ESPU-Nurses Meeting on Wednesday 3, September 2025, 15:30 - 16:18**

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*15:30 - 15:36*
**SN02-1** (OP)

## ASSOCIATION OF LOWER URINARY TRACT SYMPTOMS WITH SENSORY FUNCTION AND CORE MUSCLE FUNCTION

Büşra PALAZ [1], Damla KORKMAZ DAYICAN [2], Ali TEKİN [3], Sibel TİRYAKİ [3], İbrahim ULMAN [3], Ezgi ALTUN TANIL [3] and Özge ÇELİKER TOSUN [4]
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**PURPOSE**

Sensory function impairment and core muscle dysfunction can be observed in children with lower urinary tract symptoms (LUTS). The purpose of this study was to explore the connections between sensory profiles, sensory processing, and core muscle function in children with LUTS.

**MATERIAL AND METHODS**

This prospective study included 20 children with LUTS, with a mean age of 8.84±2.67 years. Sensory profiles were assessed using the Interoception Sensory Scale (ISS), Dunn Sensory Profile (DSP), and the Adolescent/Adult Sensory Profile (AASP). Sensory processing skills were evaluated using the Sensory Processing Scale (SPS). Core muscle activity was assessed with ultrasonography and electromyography (EMG).

**RESULTS**

A positive correlation was found between the balance and movement scores and core muscle thickness. A negative correlation was noted between pelvic floor displacement and two DSP sub-profiles. Additionally, the planning and ideation had a positive correlation with pelvic floor muscle EMG activity. A positive correlation was observed between the sensory sensitivity and core muscle EMG parameters. A positive correlation also emerged between BBDQ scores and the auditory processing subscale of the SPS.

| | Balance and Movement[r(p)] |
|---|---|
| TA–RMT | 0.54(0.02) |
| TA–CMT | 0.51(0.03) |
| RA–RMT | 0.47(0.05) |
| EO–RMT | 0.77(0.001) |
| EO–CMT | 0.68(0.002) |
| | Pelvic Floor Displacement[r(p)] |
| Tactile Processing | -0.63(0.04) |
| Multisensory processing | -0.75(0.01) |

| | Adolescent/Adult Sensory Profile-Sensory Sensitivity[r(p)] |
|---|---|
| PFM – Rest Deviation | 0.74(0.01) |
| TA–Rest Maximum Voluntary Contraction | 0.63(0.03) |
| DF–Rest Average | 0.70(0.01) |
| MM–Rest Average | 0.64(0.04) |
| TA:transversus abdominis, RMT:Resting muscle thickness, CMT:Contraction muscle thickness, EO:external obliques, PFM:pelvic floor muscles. | |

**CONCLUSIONS**

LUTS in children appear to be associated with sensory function and core muscle activity. Further research is needed to fully understand this relationship.

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*15:36 - 15:42*
**SN02-2** (OP)

## REFRACTORY OVERACTIVE BLADDER: WHAT IS THE NATURAL HISTORY?

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**PURPOSE**

Overactive bladder (OAB) refractory to anti-cholinergics is a challenging condition and requires paediatric urology services and specialist nursing support for years. After transition to adult services, progression remains unclear. This study evaluated long-term outcomes.

**MATERIAL AND METHODS**

48 patients/parents who had participated in a RCT 10 years earlier and had urodynamically proven refractory OAB with day time wetting were invited to complete a questionnaire.

**RESULTS**

Median age at presentation with OAB was 7.0 years(range:3.0–15.0). All were refractory to anti-cholinergics and underwent urodynamic study (UDS) a median of 2.0 years later. After confirmation of bladder overactivity, interventions included anti-cholinergics only(5), Botulinum toxin(32), or Mirabegron(11) as a single or combined therapy.
The telephone questionnaire was completed by participants at a current median age of 18.0 years(range:15.0–23.0).
20 patients (41.7%) were symptom-free, and 14 patients (29.2%) had some urgency with no significant impact on quality of life. Another 3(6%) had mild OAB symptoms.
11 had moderate-to-severe OAB symptoms but only 6 were taking medication (4 under adult services). 42 patients (87.5%) were off medication. 39 patients (81.3%) expressed great satisfaction with paediatric urology/nursing services.

**CONCLUSIONS**

Despite an often long and frustrating journey in refractory OAB, long term outcome is encouraging with 77% patients having complete or near complete symptom resolution. 23% have persistent significant symptoms but half do not seek appropriate help, highlighting the need for a robust transition pathway. Moreover, the high satisfaction rate with our paediatric urology services demonstrates the importance of a patient-centred, multidisciplinary approach.

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*15:42 - 15:48*
**SN02-3** (OP)

## SENSORY PROCESSING IN CHILDREN WITH FUNCTIONAL DAYTIME URINARY INCONTINENCE: A COMPARATIVE STUDY WITH AUTISM SPECTRUM DISORDER

Anka J. NIEUWHOF-LEPPINK [1], Eline H.M. VAN DE WETERING [2], André B. RIETMAN [3], Anita REINDERS-VAN ZWAM [4] and Renske SCHAPPIN [5]
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**PURPOSE**

Functional daytime urinary incontinence (DUI) is a frequently occurring condition among children, with a multifactorial etiology. Autism Spectrum Disorder (ASD) seems related to DUI, as children with ASD have a higher risk of developing DUI. Sensory processing issues are prevalent in children with ASD and may contribute to DUI. This study aims to elucidate the role of sensory processing in children with DUI, in relation to ASD.

**MATERIAL AND METHODS**

A cross-sectional study was conducted, including parents of children aged 6-12 years old, categorized into four groups: healthy children, children with DUI-only, children with ASD-only, and children with both DUI and ASD. Parents completed the Dutch version of the Short Sensory Profile (SSP-NL) to compare sensory processing between groups.

**RESULTS**

A total of 225 eligible children participated in this study, with 75 healthy children, 58 children with DUI-only, 49 with ASD-only, and 43 children with DUI and ASD. Children with DUI-only scored significantly lower compared to their healthy peers in the SSP-NL domain ‘Low energy/weak’ and the quadrant ‘Low registration’, indicating sensory under-responsivity and potential limitations in multisensory processing. Children with ASD had the most sensory processing issues, independent of their DUI-status.

**CONCLUSIONS**

Our study found that children with DUI may have impairments in multisensory processing and sensory under-responsivity, compared to their healthy peers. These findings suggest that some children may have an impaired

perception of bladder signals, potentially contributing to the development of DUI. A more comprehensive understanding of the associated issues with incontinence may improve urotherapy considering children's potential sensory challenges and teaching them adaptive behavior.

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*15:48 - 15:54*
**SN02-4** (OP)

## PELVIC FLOOR MUSCLE FUNCTIONALITY AND THERAPY PARAMETERS IN CHILDREN WITH VARIED FREQUENCIES OF NOCTURNAL ENURESIS

Melis ÜNAL [1], Ece Zeynep SAATÇI [1], Tuğçe OSKAY [1], Dilara Damla KALIN [1], Tuğba KURT [1] and Halil TUĞTEPE [2]
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**PURPOSE**

Bladder control during sleep involves pelvic floor muscle (PFM) activation, which inhibits the detrusor muscle. In nocturnal enuresis (NE), this reflex arc may be disrupted, causing insufficient detrusor inhibition and PFM activation.This retrospective study aimed to compare PFM functional status, activation, rehabilitation session numbers, and alarm response weeks in children experiencing different frequencies of NE within a single night.

**MATERIAL AND METHODS**

The study included 82 children:38 in Group-A (NE once per night) and 44 in Group-B (NE twice or more per night). PFM rehabilitation sessions were terminated upon a complete response per ICCS criteria. PFM activation was assessed via surface electrodes with a NeuroTrac-MyoPlusPro device, and function was evaluated through external palpation of the external anal sphincter by a physiotherapist. Rehabilitation session numbers and alarm response weeks were also compared between the groups.

**RESULTS**

Physical and demographic characteristics were similar between groups (p>0.05). In Group-A, PFM function was overactive in 21,underactive in 10, functional in 7. In Group-B, it was overactive in 17,underactive in 13,functional in 10, and non-functional in 1. No significant differences were observed between groups in PFM activation parameters,alarm response weeks, or rehabilitation session numbers (p>0.05)(Table 1).

| Parameters | Group-A | Group-B | p |
|---|---|---|---|
| PFM Work Average(μV) | 6.96±3.64 | 7.38±4.16 | 0.752 |
| PFM Work Average Deviation(%) | 32.99±9.65 | 36.64±10.92 | 0.088 |
| PFM Work Maximum Voluntary Contraction | 35.41±11.03 | 35.08±8.45 | 0.734 |
| Alarm response weeks(n) | 2.13±2.58 | 2.27±2.04 | 0.398 |
| Rehabilitation session(n) | 9.47±3.47 | 10.14±3.93 | 0.438 |

*Daha expressed Mean ± Standard Deviation, Mann Whitney-U Test *p<0.05

**CONCLUSIONS**

PFM functionality may not directly affect NE frequency,nor does NE frequency influence alarm response weeks or PFM rehabilitation sessions. These findings highlight the importance of individualized treatment approaches that address broader physiological and behavioral factors beyond PFM functionality to achieve optimal outcomes in children with NE.

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*15:54 - 16:00*
**SN02-5** (OP)

## EVALUATION OF PELVIC FLOOR MUSCLE FUNCTION IN CHILDREN WITH MONOSYMPTOMATIC AND NON-MONOSYMPTOMATIC NOCTURNAL ENURESIS: IMPACT OF TREATMENT DURATION, SESSION FREQUENCY, AND CLINICAL PARAMETERS

Ece Zeynep SAATÇI [1], Tuğçe OSKAY [1], Melis ÜNAL [1], Tuğba KURT [1], Dilara Damla KALIN [1] and Halil TUGTEPE [2]
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**PURPOSE**

This study assesses the differences in pelvic floor muscle (PFM) function before and after treatment in children with MNE and NMNE. It also evaluates the impact of treatment duration, session frequency, and clinical parameters on treatment outcomes.

**MATERIAL AND METHODS**

A total of 24 children with MNE and 58 with NMNE participated. PFM strength was evaluated using the Modified Oxford Scale, and muscle activation was measured via EMG biofeedback. Treatment session count, muscle strength, activation, and clinical data (such as enuresis frequency, alarm reactions) were assessed pre- and post-treatment.

**RESULTS**

•Treatment Duration and Session Frequency: The MNE group received fewer sessions (mean:8.38) compared to the NMNE group (mean: 10.43), with a significant difference (p=0.012), indicating faster treatment completion in the MNE group.
•Pelvic Floor Muscle Function: Both groups showed improvement, with MNE showing 100% and NMNE 98.3% improvement. However, the differences between the groups were not statistically significant (MNE: p=0.26, NMNE: p=0.096).
•Clinical Parameters: Although the MNE group had a lower baseline enuresis frequency(p=0.001), both groups showed similar improvements in clinical outcomes. No significant differences in post-treatment clinical outcomes were observed between the groups (p>0.05).

**CONCLUSIONS**

PFM rehabilitation proved to be similarly effective for both MNE and NMNE. The MNE group required fewer treatment sessions and completed treatment more rapidly, likely due to the absence of associated LUTD. Notably, the lack of significant baseline differences between the groups further highlights the effectiveness of

PFM rehabilitation in improving muscle function. PFM rehabilitation is a valuable and effective therapeutic approach for managing NE in children, irrespective of the presence of coexisting urinary symptoms.

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*16:00 - 16:06*
**SN02-6** (OP)

## IMPAIRED TOILET TRAINING, LUTS AND FUNCTIONAL BOWEL PROBLEMS IN CHILDREN WITH DEVELOPMENTAL COORDINATION DISORDER: A MATCHED CASE-CONTROL STUDY

Bieke SAMIJN [1], Amy DE ROUBAIX [2], Mathilde JOOS [2], Lynn BAR-ON [2], Christine VAN DEN BROECK [2], Luna VANSTECHELMAN [2], Lore VERHULST [2], Astrid MUSSCHOOT [2] and Ellen VANDAMME [3]
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**INTRODUCTION**

Children with Developmental Coordination Disorder (DCD) often present with impaired toilet training, LUTS and functional bowel problems, but research examining a possible association is scarce.

**MATERIAL AND METHODS**

A cross-sectional case-control study was conducted in 2023-2024. Parents of 5-to-8-year-old children with clinically diagnosed DCD completed an online survey including two standardized and validated questionnaires e.g. the Vancouver Symptom Score for Dysfunctional Elimination Syndrome (VSSDES) and the DCD-Questionnaire (DCDQ), and a non-validated questionnaire on toilet training. The control group consisted of parents of typically developing children (TDC) matched for sex and school grade.

**RESULTS**

Analysis included 42 children with DCD and 42 matched TDC. Children with DCD faced significantly more toilet training difficulties ($p < 0.001$). Difficulties with dressing and undressing were only present in the DCD group. Children with DCD demonstrated significantly more fecal incontinence at the age of four (24 % vs. 2.5 %; $p = 0.004$), more daytime urinary incontinence at the age of five (26 % vs. 7 %; $p = 0.02$) and more enuresis at the age of five (50 % vs. 26 %; $p = 0.02$). Children with DCD scored significantly worse on the VSSDES (Mean total score 11 vs. 7; $p < 0.001$). Lower scores on the DCD-Q were associated with worse VSSDES ($r= -0.474$, $p<0.001$).

**CONCLUSION**

Children with DCD face more challenges with toilet training, LUTS and functional bowel problems than TDC. Increased awareness with clinicians and within future research is necessary.

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*16:06 - 16:12*
**SN02-7** (OP)

# EXPLORING STIGMA REDUCTION INTERVENTIONS FOR ADOLESCENTS WITH URINARY INCONTINENCE: A QUALITATIVE STUDY

Anka NIEUWHOF-LEPPINK [1], Emma WIERTZ [2], Silje VAN DEN BERG [2], Su VAN DER HEIDEN [2] and Keetje DE MOOIJ [3]
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**PURPOSE**

Urinary incontinence (UI) affects 3–4% of adolescents, negatively impacting mental health and quality of life. The stigma surrounding UI often leads to social isolation and concealment. This study aims to explore strategies to reduce stigma, promote mental well-being, and enhance social inclusion for adolescents with UI.

**MATERIAL AND METHODS**

A semi-structured interview guide was developed to facilitate in-depth discussions with professionals and adolescents recruited from a urotherapy patient group. The guide ensured comprehensive exploration of key issues. Data were analysed using narrative synthesis and open coding, with particular attention to ethical considerations and respect for participants' privacy, including obtaining informed consent.

**RESULTS**

Eleven semi-structured interviews were conducted with 5 professionals and 6 adolescents (4 girls and 2 boys) aged 14-17 years (M = 15.3). The findings highlighted the significant stigma associated with UI, resulting in secrecy, social isolation and emotional distress. As one participant noted, "I always say it's a bladder problem so it sounds less embarrassing", while another shared, "I call it leaking or dripping; it sounds less stupid". These quotes illustrate the complex interplay of visible and hidden stigma in their lives.
Interestingly, the findings on reducing stigma show a difference between professionals and adolescents. Both groups recognised the importance of awareness and understanding. However, professionals emphasised systemic changes, whereas adolescents emphasised personal trust and privacy as key factors.

**CONCLUSIONS**

The study highlights the complex relationship between UI, stigma, and adolescent mental health. Effective interventions for UI should raise awareness, promote openness, and involve key stakeholders.
One potential solution is the development of an anonymous online platform to support adolescents, reduce stigma, and enhance mental well-being by facilitating shared experiences and access to resources.

*16:12 - 16:18*
**SN02-8** (OP)

# A TRIADIC PERSPECTIVE ON LUTS AND SCHOOL FUNCTIONING IN REGULAR ELEMENTARY SCHOOL

Bieke SAMIJN [1], Mathilde JOOS [2], Christine VAN DEN BROECK [2], Hanna DE VIS [2], Loïc D'HAENE [2], Marieke CROONENBERGHS [2] and Ellen VANDAMME [3]
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**PURPOSE**

Schools and teachers play a significant role in the lives of children and can have a substantial impact on their lower urinary tract (LUT) health. This study investigates the impact of lower urinary tract symptoms (LUTS) on school functioning and scholastic factors and perceptions associated with LUTS.

**MATERIAL AND METHODS**

A cross-sectional cohort study with triadic evaluation was conducted in twelve regular elementary schools in 2022-2024. Children completed the validated Dutch School-wellbeing questionnaire, parents the validated Dutch Vancouver Symptom Score for Dysfunctional Elimination Syndrome concerning their child and teachers a non-validated questionnaire based on the LUT health criteria from Ko et al. (2016)

**RESULTS**

171 children, 365 parents and 75 teachers filled in the questionnaires. Prevalence of LUTS was 21.8 %. No significant association was found between LUTS and general school functioning. However, a trend value (p= 0.09) suggested lower social relationships scores in the LUTS group indicating more bullying and loneliness. Schools with minimal vandalism, bullying and other negative behaviour in toilets showed low prevalence rates for daytime urinary incontinence. Unfortunately, most schools did not meet good LUT health criteria. Over half of the teachers (64%) were never informed about LUTS although 58.7% wanted to be informed. Parents' expectations differed from those of teachers concerning the teacher's role in LUTS treatment and drinking policy at school.

**CONCLUSIONS**

Creating awareness among parents and teachers can help prevent, identify and treat LUTS, making education protocols on LUT health essential.

# SN03: LUTD 3

*Moderators: Ananda Nacif (QA), Anka Nieuwhof-Leppink (NL)*

**ICCS & ESPU-Nurses Meeting on Wednesday 3, September 2025, 16:30 - 17:06**

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*16:30 - 16:36*
**SN03-1** (OP)

## CHATGPT AS AN EDUCATIONAL RESOURCE FOR UROTHERAPY IN CHILDREN WITH LOWER URINARY TRACT DYSFUNCTION

Aygul KOSEOGLU KURT [1], Abdullah Harun KINIK [2] and Mesrur Selcuk SILAY [3]
*1) Pelvic Urology Center, Pelvic Floor Rehabilitation, Istanbul, TÜRKIYE - 2) Gaziosmanpasa Research and Training Hospital, Urology Department, Istanbul, TÜRKIYE - 3) Medipol University, Pediatric Urology Department, Istanbul, TÜRKIYE*

**PURPOSE**

ChatGPT is an AI and natural language processing technology that supports health decision-making, enhances healthcare quality, and expands accessibility. It also optimizes health system efficiency while offering significant opportunities for clinical decision support and patient education. Our study aims to evaluate the usability of ChatGPT in urotherapy for children with lower urinary tract dysfunction (LUTD) by assessing its recommendations' quality and alignment with EAU/ESPU and ICCS guidelines.

**MATERIAL AND METHODS**

A total of 28 core items on urotherapy education for children with LUTD were presented to ChatGPT in question format and evaluated independently by a pediatric urologist (5 years of experiences) and a pelvic floor physiotherapist (8 years of experiences) using the Global Quality Score (GQS) system. Blinding was applied, and discrepancies in scores were resolved through re-evaluation and consensus; if consensus was not reached, a third pediatric urologist (21 years of experiences and guideline panel member) made the final decision.

**RESULTS**

According to the GQS scale, scores of 1-2 indicate "poor quality," 3 indicate "average quality," and 4-5 indicate "high-quality responses." No responses received a score of 1 or 2, so only 3, 4, and 5 scores were included in the analysis. Among the responses, 64.29% (n=18) received a score of 5, 25.00% (n=7) received a score of 4, and 10.71% (n=3) received a score of 3. Responses classified as having average quality comprised 10.71% of the total, while high-quality responses accounted for 89.29%. The mean score for all responses was 4.54.

**CONCLUSIONS**

These results suggest that ChatGPT has significant potential as a tool for supporting urotherapy for children with LUTD.

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*16:36 - 16:42*
**SN03-2** (OP)

# OVERACTIVE BLADDER INDEX AND FLOW INDEX IN THE EVALUATION OF TREATMENT SUCCESS IN CHILDREN WITH OVERACTIVE BLADDER

Rabia AŞIK [1], Canan SEYHAN [1], Cem IRKILATA [2], Asli ÖZTÜRK [1], Burak KÖPRÜ [3] and Musa Murat DAYANÇ [1]
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**PURPOSE**

Overactive bladder(OAB) is the most common subtype of lower urinary tract dysfunction(LUTD) in children.The OAB Index(OABI) is calculated using uroflowmetry parameters and provides diagnosis with 97% accuracy.Flow index(FI) is an index that objectively provides the distinction of continuous voiding patterns.We examined the changes in OABI and FI after treatment in children with OAB.

**MATERIAL AND METHODS**

Sixty-six patients diagnosed as OAB after non-invasive evaluation were included the study.Patients were treated in an individualized manner with standard urotherapy, antimuscarinics, and pelvic floor muscle rehabilitation.To calculate OABI, three uroflowmetry parameters were used:Uroflowmetry index(UI=Qave/Qmax), voided volume rate(VVR=voided volume/expected bladder capacity) and time to Qmax(TQmax).

OABI=8(UI)+9(VVR)+0,5(TQmax) calculated with this formula.In calculating the FI,firstly the expected Qmax value(Qmax-est) according to the total bladder capacity(TBC) was calculated with the formula:“Qmax-est=11.26+0.0701*TBC-0.0000513*TBC*TBC”.Then the FI was calculated by dividing the actual Qmax value by Qmax-est.

**RESULTS**

The mean±sd values of OABI and FI before and after treatment shown in the table. The mean±sd value of OABI of all patients increased from 8.66±1.48 to 10.74±2.71(p=0,0001). FI values decreased in the tower pattern and increased in the plateau pattern, and the other word normalized both(p=0,0001 and p=0,028, respectively).

| Voiding Pattern | OABI | | | FI | | |
|---|---|---|---|---|---|---|
| | Before Treatment | After Treatment | P value | Before Treatment | After Treatment | P value |
| Tower,(n=25) | 7,79 ± 1,21 | 10,13±2,59 | 0,0001 | 1,495 ± 0,35 | 1,136 ±0,25 | 0,0001 |
| Bell,(n=34) | 9,12 ± 1,34 | 11,39 ±2,82 | 0,0001 | 0,920 ± 0,13 | 0,864 ±0,14 | 0,149 |
| Plateau,(n=7) | 9,49 ± 1,63 | 9,75 ±1,89 | 0,028 | 0,601 ± 0,08 | 0,819 ± 0,18 | 0,028 |

Table 1: Changes of overactive bladder index(OABI) and flow index(FI) according to voiding patterns in children with overactive bladder after treatment

**CONCLUSIONS**

The OABI increases and the FI normalizes in children with OAB, after treatment. Treatment success can be evaluated with symptom scores and indexes based on uroflowmetry.

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*16:42 - 16:48*
**SN03-3** (OP)

## SEROTONERGIC MODULATION IN CONSTIPATION-INDUCED DETRUSOR OVERACTIVITY AS A POTENTIAL TARGET FOR BBD IN CHILDREN

Nao IGUCHI [1], Anna MALYKHINA [1] and Duncan WILCOX [2]
*1) University of Colorado School of Medicine, Surgery, Aurora, USA - 2) Children's Hospital Colorado, Pediatric Urology, Aurora, USA*

**PURPOSE**

This study aimed to investigate the pathological mechanisms behind bladder and bowel dysfunction (BBD), a common yet often underdiagnosed pediatric condition marked by lower urinary tract symptoms (LUTS) and abnormal bowel habits like constipation and/or encopresis. BBD is known to cause long-term complications such as recurrent UTIs, vesicoureteral reflux, and renal scarring, but the mechanisms behind these links remain unclear. We hypothesize that bowel dysfunction induces bladder-bowel cross-organ sensitization via overlapping neural pathways and tissue changes, including inflammation, fibrosis, and alterations in cellular signaling and connectivity.

**MATERIAL AND METHODS**

With IACUC approval, functional constipation was induced in juvenile male mice by surgically narrowing the external anal sphincter. Sham-operated mice served as controls. Four days post-surgery, the effects of constipation were evaluated using in vivo urodynamic studies and in vitro physiological assessments of bladder strips. Additionally, quantitative RT-PCR was used to analyze gene expression patterns in the bladder and lumbosacral dorsal root ganglia (LsDRG).

**RESULTS**

Constipation caused detrusor overactivity, shown by increased urinary frequency and spontaneous contractions. Gene expression analysis revealed a 1.5-fold upregulation of excitatory serotonin receptors (Htr2a, Htr2c) in the bladder ($p<0.05$). Serotonin enhanced spontaneous activity in bladder strips from constipated mice, increasing frequency and force by 1.6- and 2.4-fold, respectively ($p<0.0001$). These effects were reversed by ketanserin, an Htr2 antagonist. Additionally, the LsDRG in constipated mice showed a 1.6- to 1.8-fold increase in genes modulating sensory activation, including serotonin receptors (Htr1a, Htr3) and Mrgprb2 ($p<0.05$).

**CONCLUSIONS**

The findings highlight how constipation alters sensory pathways, contributing to detrusor overactivity and increased bladder activity. Upregulation of serotonin receptors and sensory modulators plays a key role in bladder dysfunction, suggesting these receptors as potential therapeutic targets for children with BBD.

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*16:48 - 16:54*
**SN03-4** (OP)

# COMPARISON OF A PAPER AND AUTOMATED BLADDER DIARY IN PEDIATRIC PATIENTS: A CROSSOVER STUDY

Lola BLADT [1], An BAEL [2], Nathalie SEGERS [2], Karolien DE MOERLOOSE [3], Katrien KLOCKAERTS [4], Hendrik-Jan FLORIN [5], Lukas VAN CAMPENHOUT [1], Alexandra VERMANDEL [6], Karen DE BAETS [6] and Gunter DE WIN [6]
*1) University of Antwerp, Product Development, Antwerp, BELGIUM - 2) ZAS Queen Paola Children Hospital, Pediatrics, Antwerp, BELGIUM - 3) General Hospital Voorkempen, Pediatrics, Malle, BELGIUM - 4) Private Practice, Urology, Aalst, BELGIUM - 5) Imelda Hospital, Urology, Bonheiden, BELGIUM - 6) University Hospital Antwerp, Urology, Edegem, BELGIUM*

**PURPOSE**

Bladder diaries are essential for diagnosing pediatric urinary incontinence, but compliance with paper diaries is low. Electronic alternatives eliminate paper but still depend on manual measurement and entry of voided volumes. This study validates an automated diary using the Minze Diary Pod, which automatically records and sends voided volumes to a smartphone app.

**MATERIAL AND METHODS**

This multi-center randomized crossover study compared automated and paper bladder diaries in terms of agreement, compliance, and patient satisfaction. Patients completed both formats in a random order, each for at least two consecutive days, with a washout period of 2 to 6 days. The comparison was based on Bland-Altman analysis, patient surveys, and clinicians' evaluations.

**RESULTS**

The study included 63 patients (M:39, F:24; mean age 7.2y, SD 1.9y, range 3–13y). The Bland-Altman analysis revealed no systematic bias between the methods. However, it showed moderate to wide limits of agreement, reflecting variability likely due to natural fluctuations and differences in measurement methods, including the high variety of measuring jugs observed with the paper diary. Clinically, the relevance of this variability was mixed. When clinicians were asked to choose a preferred diary for diagnostic purposes among patients completing both (n=39), 36% chose automated, 28% paper, and 36% had no preference. Patients strongly favored the automated diary: 78% of children and 89% of parents preferred it (n=37). 74% found it pleasant to use (vs. 28% for paper), all parents reported child participation (vs. 78% for paper), and only 10% found it prone to mistakes (vs. 20% for paper).

**CONCLUSIONS**

Both methods are clinically useful, but the automated diary's higher user preference may better support compliance. While differences may not be clinically significant for one-time assessments, a standardized approach may be crucial for tracking progress and ensuring reliable comparisons.

*16:54 - 17:00*
**SN03-5** (OP)

# MANAGEMENT OF CHILDHOOD EXTRAORDINARY DAYTIME ONLY URINARY FREQUENCY (EDOUF) AND GIGGLE INCONTINENCE (GI) WITH STANDARD UROTHERAPY AND PELVIC FLOOR MUSCLE REHABILITATION (PFMR): A PRELIMINARY CASE SERIES

Canan SEYHAN [1], Rabia AŞIK [1], Aslı ÖZTÜRK [1], Hasan Cem IRKILATA [2] and Murat DAYANÇ [1]
*1) Private Dayanc Pediatric Urology Center, Ankara, TÜRKIYE - 2) Lokman Hekim İstanbul Hospital, Istanbul, TÜRKIYE*

**PURPOSE**

This study presents an initial case series on the use of standard urotherapy and PFMR to manage EDOUF and GI in children.

**MATERIAL AND METHODS**

Six children with EDOUF and six with GI participated in the study.Children were evaluated with the Dysfunctional Voiding and Incontinence Symptom Score (DVISS).Each child attended a 75-minutes standard urotherapy education session and followed by individualized PFMR sessions. The rehabilitation program included manual therapy, diaphragmatic breathing, core exercises, PFM training with surface EMG biofeedback.

**RESULTS**

The work average increased from 5.8 µV to 14 µV, while relaxation decreased from 2.6 µV to 1.8 µV for GI. Symptom scores improved, dropping from 11.5 to 1.1. For EDOUF, the work average increased from 2.4 µV to 7.8 µV, while the rest average decreased from 2.1 µV to 1.3 µV. Additionally, daytime toilet visits decreased from 26.1 to 8, and symptom scores dropped from 9.8 to 0.8.

| | | DVISS-BT | Rest Average-BT | Work Average-BT | Session | DVISS-AT | Rest Average-AT | Work Average-AT |
|---|---|---|---|---|---|---|---|---|
| GI,n=6 | 1 | 10 | 5 | 8 | 8 | 0 | 2,8 | 12 |
| | 2 | 9 | 1,5 | 7 | 8 | 1 | 0,5 | 11 |
| | 3 | 13 | 2,6 | 6,8 | 9 | 1 | 1,5 | 9 |
| | 4 | 18 | 3,5 | 3,5 | 18 | 1 | 2 | 13 |
| | 5 | 15 | 1,5 | 6 | 12 | 2 | 2,7 | 36 |
| | 6 | 13 | 2 | 4 | 15 | 2 | 1,5 | 7 |
| EDOUF,n=6 | 1 | 8 | 1,5 | 1,5 | 5 | 1 | 1,5 | 5 |
| | 2 | 10 | 1,6 | 1,6 | 4 | 0 | 1,2 | 10 |
| | 3 | 8 | 1,7 | 1,7 | 5 | 1 | 1,1 | 8 |
| | 4 | 8 | 3,5 | 3,5 | 3 | 1 | 1,5 | 6 |
| | 5 | 12 | 1,1 | 1,1 | 8 | 2 | 1 | 8 |
| | 6 | 13 | 3,6 | 5 | 12 | 0 | 1,5 | 10 |

**CONCLUSIONS**

This study suggests that a nonpharmacological approach, combining standard urotherapy and PFMR is an effective treatment modality for managing EDOUF and GI in children.

*17:00 - 17:06*
**SN03-6** (OP)

# THE GOOD AND THE BAD OF PORTABLE EMG-FEEDBACK IN NON-NEUROGENIC VOIDING DYSFUNCTION: EXPERIENCE OF A SINGLE CENTRE

Markie CROFT, Sarah BOULBY, Louise KELLY, Cheryl ROWE, Hannah COMMANDER and Simona RUSU
*Sheffield Children's Hospital NHS Foundation Trust, Pediatric Surgery Unit, Sheffield, UNITED KINGDOM*

**PURPOSE**

The management of non-neuropathic voiding dysfunction still represents a challenge, with a vast number of children's lives impacted by this condition. Aiming to improve their life, we introduced the use of portable EMG-biofeedback machine.

**MATERIAL AND METHODS**

We prospectively kept a record of patients who used portable EMG-biofeedback between February 2023 and February 2024. Data collection included demographics, review of investigations and management, uroflowmetry pre-post usage of the machine at home, and documented symptomatology. All patients had teaching/demonstration sessions in the hospital and had the machine for 6 weeks at home. Full compliance was defined by daily usage.

**RESULTS**

We had recruited 45 patients who completed the 6-week course of portable EMG-feedback and had clinic follow-up afterwards (17 boys, 28 girls, median age 13 years, 7-18 years). The symptomatology was in 34/45 wetting accidents, 5/45 urinary tract infection symptoms like, 13/45 urgency and frequency. Six have a neurodiversity diagnosis. Compliance was maximum in 33/45 (73%) (all 6 neurodiverse children used it daily), 6/45 used it intermittently, and 6/45 did not use it. Complete improvement of symptoms was noted in 9/45 (20%) children, partially in 14/45 (31%) (having now a second course of treatment), and none in 22/45 (49%). The uroflowmetry parameters were improved in 26/45 (58%) children. Despite excellent compliance, none of the children with neurodiversity showed any improvement.

**CONCLUSIONS**

Portable EMG-feedback could be used as an alternative to the hospital/ outpatient method. While our initial results do not show a massive positive outcome, studies on a larger number of patients would be desirable. Targeted selection of the children should be considered, considering the negative results in the neurodiversity group despite adequate compliance.

# SN04: MISCELLANEOUS 1

*Moderators: Babett Jatzkowski (SE), Jason van Batavia (US)*

**ICCS & ESPU-Nurses Meeting on Thursday 4, September 2025, 08:20 - 09:08**

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*08:20 - 08:26*
**SN04-1** (OP)

## PEDIATRIC UROLOGY NURSES AND SPECIALISTS (PUNS) ORGANIZATION CENSUS

Maryellen KELLY [1], Mandy RICKARD [2] and Azadeh WICKHAM [3]
*1) Duke University, Urology, Durham, USA - 2) The Hospital for Sick Kids, Urology, Toronto, CANADA - 3) Mercy Children's, Urology, Kansas City, USA*

**PURPOSE**

The burden of pediatric urologic disease has been increasing, and the current and projected supply of urologists will unlikely be able to meet the needs of patient access. Advanced practice providers (APPs) have become increasingly common in surgical practices, such as urology, to help fill this growing gap. The Pediatric Urology Nurses and Specialists (PUNS) organization represents many APPs in pediatric urology in the US. This study aimed to conduct a census survey of PUNS members to understand better the training and roles of APPs in pediatric urology.

**MATERIAL AND METHODS**

This descriptive survey, developed by the research special interest group of PUNS was conducted among PUNS fall meeting attendees in 2023. The electronic survey collected information on demographics, professional settings, the degree of independence in practice versus physician-supervised roles, procedures and diagnoses managed, and engagement in research.

**RESULTS**

There were 112 respondents, predominantly female (97.9%). 46.3% were between 31-40 years, followed by the 41-50 years group (27.4%), those aged 51 years and older (15.8%), and the 20-30 years (10.5%). 90% of the respondents work in urban centers, with 98.7% based in university settings or academic institutions. Respondents were highly educated, with many having advanced degrees such as MSN (71.4%), DNP (9.8%), and PhDs (1.8%). Most respondents see patients independently of physicians (94.7%). 58% are involved with research with their roles, 24.1% assisted with patient recruitment and consenting, another 24.1% were co-investigators, and 8.9% were primary investigators, 8.9% of respondents had published in peer-reviewed journals over the past two years.

**CONCLUSIONS**

This survey revealed a well-educated, predominantly female membership primarily working in urban academic environments and exhibiting high clinical independence. Less than half of the membership participates in research, those who do are significantly involved across various capacities.

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*08:26 - 08:32*
**SN04-2** (OP)

# MANAGEMENT AND OUTCOMES OF OCHOA SYNDROME: OUR CLINICAL EXPERIENCE

Fatih OZKAYA, Aykut AKINCI, Bahri Efe TURGUT, Aylin DOĞAN, Sercan SAĞLIK, Berk BURGU and Tarkan SOYGUR
*Ankara University Faculty of Medicine, Paediatric Urology, Ankara, TÜRKIYE*

**PURPOSE**

Ochoa syndrome is a rare autosomal recessive disorder characterized by abnormal facial expressions and severe urinary dysfunction. Patients often present with vesicoureteral reflux (VUR), hydronephrosis, and recurrent urinary tract infections (UTIs), leading to renal impairment if untreated. This study evaluates the clinical course, treatment strategies, and long-term outcomes of 28 patients diagnosed with Ochoa syndrome over a 62-month follow-up period

**MATERIAL AND METHODS**

A total of 28 patients (16 males, 12 females; mean age 9.6 years) were included. Genetic analysis identified HPSE2 mutations in 19 patients and LRIG2 mutations in 9. All patients underwent intermittent catheterization (CIC), pharmacologic therapy (anticholinergics, alpha-blockers, desmopressin), and surgical intervention where necessary. Clinical data, renal function, and ocular findings were monitored throughout follow-up.

**RESULTS**

CIC was initiated in 20 patients (71%), with 15 (75%) maintaining adherence by 62 months. Anticholinergic therapy was used in 21 (75%), and 10 (36%) underwent endoscopic ureteral injection for VUR. Urinary incontinence, present in 24 patients (86%), improved in 14 (50%). UTIs decreased from 78% to 43%, but three (11%) developed end-stage renal disease. Ocular findings included optic atrophy in 6 (21%) and retinal changes in 4 patients.

**CONCLUSIONS**

Regular CIC use and pharmacologic therapy improved bladder function, reducing hydronephrosis and UTI incidence. Surgical intervention contributed to better renal outcomes. However, three patients progressed to renal failure, emphasizing the need for early intervention and lifelong follow-up in Ochoa syndrome.

*08:32 - 08:38*
**SN04-3** (OP)

# IMPROVING OPERATING ROOM NURSES' CONFIDENCE AND KNOWLEDGE IN PEDIATRIC CATHETERIZATION

Shelly KING
*Riley Childrens's Hospital/ Indiana University, Pediatric urology, Fishers, USA*

**PURPOSE**

Ensuring that nurses are well-educated in catheterization techniques, risks, and complications is crucial for patient safety and high-quality care. This study aims to evaluate nursing knowledge and confidence in pediatric urinary catheterization before and after a comprehensive presentation by an experienced pediatric urology nurse practitioner with the goal to improve patient care.

**MATERIAL AND METHODS**

A comprehensive presentation on safe catheterization was delivered to 39 operating room (OR) nurses by an experienced pediatric urology nurse practitioner following routine hospital catheterization education. The session covered principles of safe catheterization, proper procedures, equipment, and identifying potential complications. Pre- and post-education surveys assessed the nurses' comfort level in performing pediatric catheterization, requesting urology assistance and their opinions on including this training in orientation.

**RESULTS**

Pre-education surveys showed 43% of nurses were very comfortable and 17% were comfortable with pediatric catheterization, 43% felt inadequately trained during nursing school. Fifty percent were comfortable asking urology for help if needed.
Post-presentation, 46% felt very comfortable and 44% felt comfortable with pediatric catheterization. All participants agreed the presentation should be part of their orientation. Additionally, 62% reported feeling more confident in reaching out to the urology team for assistance.

**CONCLUSIONS**

The study underscores gaps in nursing training, with many nurses desiring more hands-on education in urinary catheterization. Following the presentation, nurses reported greater confidence in catheterization and a stronger willingness to seek urology support, highlighting the need for additional training and resources in catheterization techniques.

*08:38 - 08:44*
**SN04-4** (OP)

# DECREASING PREVENTABLE POSTOPERATIVE PHONE CALLS AND RETURN VISITS AFTER AMBULATORY PEDIATRIC UROLOGIC SURGERY: A QUALITY IMPROVEMENT INITIATIVE

Ruthie YOUSSEFI, Brittany SWIGER, Eric MASSANYI, Daniel MCMAHON, Curtis CLARK and Hannah BACHTEL
*Akron Children's Hospital, Pediatric and Adolescent Urology, Akron, USA*

**PURPOSE**

Parental concern about their child after surgery often results in unnecessary utilization of health care resources. The aim of this quality improvement initiative was to decrease preventable postoperative phone calls and return visits after ambulatory pediatric urologic surgery by 30% in six months.

**MATERIAL AND METHODS**

Project scope focused on the most common ambulatory procedures: inguinal/scrotal, laparoscopic, and non-hypospadias penile surgery. Standardized postoperative instructions were developed and implemented for all surgeons across multiple various locations. Telephone encounters, MyChart messages, clinic, and ER visits within 2 weeks of surgery were classified as preventable if no immediate action was required apart from caregiver education and reassurance. Primary outcome was proportion of preventable phone calls and return visits within 2 weeks of surgery. Impact was measured using a statistical process control P-chart. In addition to run chart rules, a two-sample t-test was used to compare the proportion of preventable calls and visits from the preintervention period to the postintervention period.

**RESULTS**

564 patients underwent ambulatory urologic surgery performed over 42 weeks from December 2023 to September 2024. In our preintervention phase (weeks 1-11), the median proportion of preventable postoperative calls and return visits was 16%. Following implementation of standardized discharge instructions, preventable postoperative phone calls and return visits decreased to 10%, representing a 37% decrease from baseline ($p < 0.05$). The center-line shift occurred at week 26 and was sustained for 17 weeks.

**CONCLUSIONS**

Parent and caregiver anxiety can be decreased significantly by having standardized postoperative instructions, therefore decreasing preventable phone calls and visits. Future directions include the use of preoperative videos to enhance caregiver education and continued standardization of discharge instructions for commonly performed urologic procedures (i.e., endoscopy, hypospadias repair).

*08:44 - 08:50*
**SN04-5** (OP)

# ASSESSING STABILITY OF MICROBIAL COMMUNITY IN VOIDED PEDIATRIC URINE

Maryellen KELLY [1], Tatyana SYSOEVA [2] and Lisa KARSTENS [3]
*1) Duke University, Urology, Durham, USA - 2) University of Alabama, Huntsville, Microbiology, Huntsville, USA - 3) Oregon Health and Science University, Portland, USA*

**PURPOSE**

Urinary tract infections (UTIs) are the most common outpatient infections in the US and Europe and pose a serious risk to children, with a recurrence rate of up to 50% and potential life-long health consequences. The presence of specific microbes in the adult urobiome suggest UTI development. Initial studies suggest UTI history affects pediatric urobiome development. This pilot study aimed to evaluate the temporal stability of the urobiome in children and assess the feasibility of longitudinal urine sampling in the pediatric population.

**MATERIAL AND METHODS**

Fourteen children were provided voided urine samples on days 1-5, 14, 21, 28, and 60. Seven delivered their urine samples daily for same-day processing, while the other seven stored their samples in their home freezers for later batch processing. Urine specimens were filtered through a 0.22μm membrane to collect biomass, and total DNA was extracted and sequenced using a short-16S-rRNA gene V4 amplicon via IlluminaMiSeq protocols.

**RESULTS**

Daily drop-off samples resulted in adequate data for all but four samples. The at-home storage resulted in the poor recovery of amplified 16S RNA gene fragments, which did not produce sufficient quality sequencing data in the majority of the samples, with only four samples producing >10,000 reads. The daily drop-off samples were further analyzed to assess the stability of the pediatric urobiome.

**CONCLUSIONS**

This data revealed a relatively stable microbial composition of voided urine in children for up to two months. At-home collection with conventional home freezer storage was unsuccessful without chemical preservatives, calling for further research to develop better at-home sampling methods.

*08:50 - 08:56*
**SN04-6** (OP)

# HORDEUM MURINUM AS A RARE CAUSE OF REFRACTORY PEDIATRIC URINARY TRACT INFECTION

Mehmet Ugur YILMAZ
*Bursa City Hospital, Paediatric Urology, Bursa, TÜRKIYE*

**PURPOSE**

Urethral foreign bodies, while uncommon, are a serious concern that can cause complications such as UTI(urinary tract infection)s. Causes include insertion due to mental disorders, broken catheter pieces, and iatrogenic reasons. This report describes successful management of a child with a UTI caused by a Hordeum Murinum (false barley) plant pushed into the urethra, likely by the child himself.

**MATERIAL AND METHODS**

A 3-year-7-month-old male child presented with recurrent urinary tract infection symptoms (dysuria, hematuria, purulent discharge) resistant to 2 months of various antibiotic treatments and hospitalizations. Urine tests showed sterile pyuria. Ultrasound revealed normal kidneys and a small mucosal protrusion near the bladder neck. Voiding cystourethrography was normal. Given the lack of definitive findings on conventional imaging, urethrocystoscopy was planned. Urethrocystoscopy revealed a splinter-like, yellowish foreign body (approximately 10x2mm) embedded in the posterior urethra near the verumontanum, surrounded by a polyp-like tissue reaction. The foreign body was removed with a basket catheter, the surrounding polyp resected, and both sent for pathological examination.

**RESULTS**

Initially, the object appeared to be a fragment of urethral stone during cystoscopy. However, upon extraction, it was identified as a piece of false barley plant.The procedure was documented with video of urethroscopy and photographs of the extracted plant material and resected tissue. Pathology reported the foreign body as organic material and the polyp as inflammatory granulation tissue. Post-operative recovery was uneventful, and the patient remained symptom-free after 6 months of follow-up.

**CONCLUSIONS**

The case highlights the importance of considering foreign bodies in the differential diagnosis of UTIs, especially when unresponsive to standard treatments. It should be kept in mind that preschool children may not be able to give a clear anamnesis. Cystoscopy is crucial for diagnosis and removal in such cases.

*08:56 - 09:02*
**SN04-7** (OP)

# THE IMPACT OF DISPOSABLE DIAPERS ON URINATION ELIMINATION SIGNALS IN NON-TOILET-TRAINED CHILDREN

Lola BLADT [1], Tinne VAN AGGELPOEL [2], Gunter DE WIN [2], Stefan DE WACHTER [2], Lukas VAN CAMPENHOUT [1] and Alexandra VERMANDEL [2]
*1) University of Antwerp, Product Development, Antwerp, BELGIUM - 2) University Hospital Antwerp, Urology, Edegem, BELGIUM*

**PURPOSE**

Elimination signals–cues a child displays before, during and after urination or defecation–are key in toilet training. In recent decades, there has been a trend of postponed toilet training in Western countries, often linked to the widespread use of highly absorbent disposable diapers. This is the first prospective study to evaluate their impact on urination elimination signals in normally developing children aged 18 to 36 months who are not yet toilet trained.

**MATERIAL AND METHODS**

A prospective observational study with a crossover design was conducted in non-toilet-trained children under two conditions, presented in a fixed order: first without a diaper, then with a diaper. Trained researchers conducted unblinded observations at daycare centers or private homes, observing children individually or in small groups in real-time and through video recordings. A predefined checklist based on the latest systematic review was used to record the presence of urination elimination signals. Differences between the conditions were analyzed using the McNemar test for paired data.

**RESULTS**

Out of 40 recruited children, 23 were analyzed (10 boys, 13 girls, mean age 24 months, SD 3.1 months, range 19-30 months). Across all ten predefined urination elimination signals, more children displayed these signals without a diaper, with statistically significant differences in five signals. Before urination, (i) lower limb movement and (ii) looking at or touching the genital area were only observed without diaper in 52% and 44% of children. Additionally, (iii) ceasing current activity, (iv) looking at or touching the genital area during urination, and (v) interest in the void were only observed without a diaper in 52%, 64% and 44% of children, respectively.

**CONCLUSIONS**

Disposable diapers reduce the display of urination elimination signals, which are essential for assessing a child's readiness for toilet training. This suggests that prolonged diaper use may delay the natural maturation of bladder control.

*09:02 - 09:08*
**SN04-8** (OP)

# REFLECTING ON ORGANISING AND RUNNING A CATHETERISATION FAMILY SUPPORT DAY

Ellie ADAMS [1], Claire FOSTER [2] and Tammy HUNG [3]
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## PURPOSE

Clean Intermittent Catheterisation is a skill regularly taught to patients in our department. Learning and performing catheterisation can have a big impact on a patient and their family. This was recognised by the multidisciplinary team and we decided to organise a support day for patients and their families. This was organised and run by a team of urology clinical nurse specialists, psychologists, a play specialist and bladder consultant. The aim was to create a space for patients and their families to connect with others who catheterise and to learn from each other and clinicians in an informal environment.

## MATERIAL AND METHODS

We organised a support day and invited patients who catheterise and their parents. All patients had already completed catheterisation training. The patient cohort included those who are highly compliant with catheterisation and those who experience difficulties. Activity sessions were offered, alongside question and answer sessions with the clinical team. Feedback was collected through a questionnaire given to participants at the end of the day.

## RESULTS

8 female patients aged between 9-13 years attended along with 9 parents/guardians. The feedback was overwhelmingly positive, with all attendees expressing enjoyment of the event. Nearly all reported finding it either very helpful or somewhat helpful in managing catheterisation. All parents indicated that they learned new strategies to support their child with catheterisation and all but one patient reported learning new coping mechanisms.

## CONCLUSIONS

This support day provided a valuable opportunity for participants to share experiences, enhance understanding and gain emotional and practical support in managing catheterisation.

# SN05: NEUROPATHIC BLADDER

*Moderators: Louiza Dale (UK), Maryellen Kelly (US)*

**ICCS & ESPU-Nurses Meeting on Thursday 4, September 2025, 09:14 - 09:50**

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*09:14 - 09:20*
**SN05-1** (OP)

## THE EFFICACY OF ANTIBIOTICS PROPHYLAXIS IN PREVENTING URINARY TRACT INFECTION IN PEDIATRIC PATIETNS UNDERGOING URODYNAMIC STUDIES

Tariq BURKI, Iivy BITERANTA, Amr HODHOD, Yasser JAMALALAIL, Fayez AL-MODHEN, Ahlam SHAHRANI and Ahmed ALSHAMMARI
*King Abdullah Specialized Children Hospital, NGHA, Riyadh, KSA, Department of pediatric urology, Riyadh, SAUDI ARABIA*

**PURPOSE**

Urodynamic studies (UDS) are one of the important tools in pediatric urology. It is mostly done as an outpatient procedure. The administration of antibiotics prior to/during UDS is debatable and is typically given according to physician preference or institutional protocols. In this study, we evaluated the occurrence of Urinary tract infection in patients who underwent UDS comparing those who received antibiotic prophylaxis (AP)and those who did not.

**MATERIAL AND METHODS**

We retrospectively reviewed charts of patients who underwent UDS from 2017 to 2023. Patients' demographics were collected. We recorded the bladder status (neurogenic or non-neurogenic) and the presence of vesicoureteral reflux (VUR). Moreover, the presence of constipation and being on clean intermittent catheterization were documented. UTI was identified as fever >39 c with pyuria and the isolation of a single pathogen at a concentration > 50,000 CFU/ mL in a urine culture.

**RESULTS**

We collected 55 patients; 16 received AP, and 39 did not. Regarding the AP group, 11 patients (68.8%) were on sulfamethoxazole-trimethoprim, and the remaining were on nitrofurantoin. There was no significant difference between both groups in terms of gender, bladder status, being on CIC and presence of constipation. Three-fourths of AP patients had VUR compared to the other group (p=<0.001). UTI was diagnosed in one patient in each group (p=o.51). UTI was caused by non-E.coli organisms. Both patients had neurogenic bladder and were on CIC; however, neither had VUR. The one in the AP group was on nitrofurantoin prophylaxis.

**CONCLUSIONS**

The incidence of UTI following UDS is relatively low. The role of AP is limited in preventing procedure-related UTI if a strict aseptic technique is adopted. Despite the higher number of VUR patients in AP group, both patients with UTI were not refluxing.

*09:20 - 09:26*
**SN05-2** (OP)

# DOES INCONTINENCE AMONG CHILDREN WITH CEREBRAL PALSY RELATE TO THEIR PARENTS' WELLBEING

Bieke SAMIJN [1], Eline DESIMPELAERE [2], Peter PRINZIE [3], Els ORTIBUS [4], Bart SOENENS [3] and Sarah DE PAUW [2]
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**PURPOSE**

Addressing parental stress is important to improve long-term outcomes for parents and children. The current research evaluates the influence of continence on parental wellbeing in parents of children with cerebral palsy (CP).

**MATERIAL AND METHODS**

Results are part of a larger study investigating the impact of CP on parental stress. Parents of children with CP completed a survey based on validated questionnaires, including the basic psychological need satisfaction and frustration scale, the parental stress scale and parental burnout assessment. Continence for stool and urine was evaluated by means of diaper use and accidents without the need for diaper use. Data was collected from 111 parents/guardians of children with CP.

**RESULTS**

When comparing groups, parents of children that were completely continent for stool demonstrated lower parental stress ($p = 0.02$) and felt more autonomous ($p = 0.01$) and more connected to significant others ($p < 0.001$). Despite lower parental stress in the presence of complete urinary continence, no statistically significant differences were seen ($p > 0.1$). Having accidents without the need for diaper use already demonstrated statistically significant lower scores on basic parental needs and higher parental stress, but low number of children with small accidents prohibit generalization of these findings.
Regression analysis demonstrated stool continence as a significant predictor of lower parental stress ($p = 0.02$) and higher satisfaction of parental needs ($p = 0.002$).

**CONCLUSIONS**

Incontinence can increase perceived stress in parents of children with CP. Specifically the presence of stool continence has an impact on parental wellbeing.

*09:26 - 09:32*
**SN05-3** (OP)

# USING A BEDWETTING ALARM TO ASSESS LOWER URINARY TRACT FUNCTION IN NON-TOILET-TRAINED CHILDREN AND IN CHILDREN WITH SPINAL DYSRAPHISM

Michael FRUMER, Tal MAY, Roy MORAG, Yulia TAL, Anna BABAOFF, Dmitry KHUNOVICH and David BEN-MEIR
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**PURPOSE**

To describe a user-friendly voiding monitoring method based on a bedwetting alarm and evaluate its clinical significance in assessing lower urinary tract function.

**MATERIAL AND METHODS**

Data were collected from children with outpatient bedwetting alarm assessments at our institution (2021-2025). Assessments involved placing an alarm on a new diaper. Upon alarm activation, the diaper was weighed, and a post-void ultrasound residual was checked. The diaper was then replaced with a new alarm.

The number and volume of voids, time intervals between voids, leaks, and post-void residuals were recorded.

**RESULTS**

35 children with a median age of 2 years (IQR 1, 3.4) were included. 15 were girls (43%), 26 (74%) had neurogenic bladders, 3 (9%) had undergone bladder surgery, 3 had only reflux, and 2 (6%) had non-neurogenic functional disorders.

Reasons for the assessment included: Decision-making regarding clean intermittent catheterization (CIC) in 22 children (63%) who had undergone unsatisfactory urodynamic study, assessment of emptying after bladder\reflux surgery in 5 (14%) children, evaluation of the necessary frequency of CIC in 4 (11%) children, and suspicion of bowel-bladder dysfunction in 4 children.

The median test duration was 4.5 hours (IQR 4, 5). Based on the findings, CIC was initiated in 11 children (31%) [all with neurogenic bladders] and discontinued in 3 children (9%) [all non-neurogenic]. In 12 children (34%), normal findings ruled out the need for further investigation. Focusing on the subgroup of 20 children with neurogenic bladders who underwent a complementary bedwetting alarm test after urodynamic, CIC was initiated in 11 (55%).

**CONCLUSIONS**

Outpatient bedwetting alarm assessment is a complementary test that can aid in making treatment decisions in non-toilet-trained children, and in children with neurogenic bladder. Based on these findings, this test has been incorporated into the practice of our unit.

*09:32 - 09:38*
**SN05-4** (OP)

# MINI-INVASIVE APPROACH FOR BLADDER DERIVATION : LONG-TERM RESULTS OF PERCUTANEOUS BUTTON CISTOSTOMY

Michela GALATI [1], Ida BARRETTA [2], Claudio PARATORE [2], Noemi DEANESI [2], Chiara PELLEGRINO [2], Antonio ZACCARA [2], Marialuisa CAPITANUCCI [2], Rebecca PULVIRENTI [2], Martina PENNESE [2], Gaia BRUNETTI [2], Tiziana SERANI [2], Giada GERVASI [2], Tiziana LORETI [2] and Giovanni MOSIELLO [3]
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**PURPOSE**

Clean intermittent catheterization (CIC) is a mainstay in the management of neurogenic bladder-sphincter dysfunction (NBSD). CIC may not always be tolerated or feasible and in these cases urinary derivation may be required. We implemented percutaneous button cystostomy (PBC) technique, previously described, to maximize applicability and minimize conversion rate. Aim of this study is to evaluate its feasibility and effectiveness in the pediatric population.

**MATERIAL AND METHODS**

All patients treated with PBC between 2020-2024 were retrospectively evaluated. Outcomes were evaluated considering conversion and complication rate, patient-reported tolerance to the device, and effectiveness in bladder management. statistical analysis with SPSS Microsoft.

**RESULTS**

50 patients (32 males) with a median age of 7.9(4.6-13.3) years were included. 5/50 were <1year-of-age. Indications for PBC placement were spinal dysraphism (N=36), central neurological impairment (N=7), posterior urethral valves (PUV, N=4), severe bilateral reflux (VUR, N=2) and epispadias (N=1). No conversion to open surgery nor intraoperative complications were reported. Mean operative time was 45(4.3) minutes. During a mean follow-up period of 22.9(17) months, 9 complications were reported, including device dislocation(1), non-febrile UTI(6), and peristomal leakage(2). No complications occurred in all patients ≤1year-of-age. 46/50 patients reported optimal device tolerance and clinical effectiveness, while 4 non-responders required a different bladder drainage (Mitrofanoff).

**CONCLUSIONS**

Based on these results, our modified PBC technique seems to be feasible and effective throughout all ages and conditions, minimizing the conversion rate. Our PBC technique seems applicable and promising also in newborns and infants with PUV and severe VUR. Further comparative studies are needed to confirm this approach in these patients.

*09:38 - 09:44*
**SN05-5** (OP)

# TRANSITION READINESS AND QUALITY OF LIFE OF CHILDREN WITH SPINA BIFIDA: EFFECTS BY CLINICAL CHARACTERISTICS

Seung Hyeon YANG [1], Eun Kyung CHOI [2], Hyeseon YUN [2], Hooyun LEE [2] and Kyua KIM [2]
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**PURPOSE**

Spina bifida (SB) is a chronic condition requiring lifelong management (Iskandar & Finnell. NEJM 2022; 387: 444–50). Clinical characteristics such as urinary or fecal incontinence, and transition readiness impact the quality of life (QOL) of children with SB (Sawin et al., DHJ 2021; 14: 100940). Parents of children with SB report elevated levels of parenting stress, which is associated with reduced QOL (Sadighian et al., Urology 2021; 153: 339–44). However, the relationship between these factors remains unclear, hindering the development of effective interventions to enhance the QOL of children with SB. This study aims to provide a comprehensive examination of the impact on QOL of children with SB and their parents from a family and clinical characteristics perspective.

**MATERIAL AND METHODS**

This study was conducted in South Korea with 141 child-parent pairs. The children, aged 7–13, all had a diagnosis of spina bifida, including meningomyelocele, lipomeningomyelocele (LMMC), or tethered cord syndrome. Data were collected between October 2022 and July 2024 and analyzed using the Actor-Partner Interdependence Mediation Model.

**RESULTS**

Children with SB had a mean age of 9.33 years; 51.8% were boys, and 54.6% were diagnosed with LMMC. For children with SB-related clinical characteristics, child transition readiness was identified as a significant mediator between parenting stress and child QOL (estimate=-0.084). Additionally, family resilience was identified as a significant mediator between parenting stress and parental QOL (estimate=-0.131). No significant mediators were identified in the group without clinical characteristics.

**CONCLUSIONS**

This study found that transition readiness enhances the QOL for children with SB who have clinical characteristics, suggesting that existing transition guidelines should prioritize this group (Fremion et al., JPRM 2023; 16: 583–93). Additionally, the findings from children aged 7–13 provide strong evidence that transition education should begin earlier, as most previous studies have focused on adolescents.

*09:44 - 09:50*
**SN05-6** (OP)

# INTERMITTENT CATHETERIZATION IN CHILDREN: ARE NURSES UP TO IT?

Yaser EL HOUT [1], Ananda NACIF NUNES [1], Jessica ARAG [1], Omar ALJARALLAH [2] and Santiago VALLASCIANI [1]
*1) Sidra Medicine, Surgery, Urology, Doha, QATAR - 2) Sidra Medicine, Surgery,Urology, Doha, QATAR*

**PURPOSE**

CIC is a mainstay management in children with neurogenic bladder. Being at the forefront of healthcare, nurses are entrusted to perform and teach CIC. Nurses experience with CIC is not clear. We sought to explore nurses' knowledge, skills and involvement with CIC in a pediatrics tertiary care center.

**MATERIAL AND METHODS**

A 20-question survey was devised to include demographics, educational background, training experience including use of models, confidence in performing and teaching CIC and actual clinical performance of CIC in the previous year. The survey was administered to nurses attending the World Nurses Day social event in a pediatric tertiary care center.

**RESULTS**

37 nurses completed the questionnaire, 32 (86%) were females. Mean age was 37 yrs. (23-60 yrs.) with a mean of 14.5 yrs. (1-43 yrs.) of experience, coming from multinational background (8 countries of education). 84% had formal teaching about catheterization but 35% never practiced on a model. Knowledge rating about urological conditions when CIC is required was 16% very well, 57% somewhat and 27% very little. While 92% have ever inserted a catheter, only 5% did the insertion within 1 month or less and 81% have not inserted a catheter in 1 year or more. Only 11% considered the skill set needed to perform catheterization to be easy, 70% moderate and 19% difficult. 48% felt confident to perform CIC, 38% would do it with help and 14% were not confident. Only 32%felt confident to teach CIC to a child, 41% to a parent and 49% to a nurse. When asked if they needed more model-based training opportunity, 85% said yes.

**CONCLUSIONS**

This study demonstrates an alarming unmet gap in nurses' knowledge, skills and practice of CIC and calls for revisiting and improving currently available methods and approaches in acquiring and transmitting CIC skills among nurses.

# SN06: POSTER SESSION

*Moderators: Babett Jatzkowski (SE), Valre Welch (US)*

**ICCS & ESPU-Nurses Meeting on Thursday 4, September 2025, 09:55 - 10:16**

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*09:55 - 09:58*
**SN06-1** (PP)

## NURSE, PARENT, AND SURGEON ASSESSMENT OF HYPOSPADIAS OUTCOMES

Molly PETRI, Courtney WINN, Christine DO, Jonathan OLAIS, Helal SYED, Callum LAVOIE, Brian CHUN, Edward DIAZ, Andy CHANG, Joan KO, Roger DE FILIPPO, Evalynn VASQUEZ and S. Scott SPARKS
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**PURPOSE**

Hypospadias is a congenital birth defect affecting approximately 1 in 200 boys. Post-operative complications after hypospadias repair are common, and surgeons, nurses, and parents may interpret post-operative success differently. We aim to assess parental expectations and to compare clinician versus parental satisfaction related to hypospadias repair.

**MATERIAL AND METHODS**

We recruited 40 patients undergoing distal, one-stage hypospadias repair at our institution and their caregivers. Photographs were captured preoperatively, at the 1-3 month post-operative visit, and at the 1+ year follow-up visit. Nurse Assessments were conducted 7-14 days and 1-3 months post-operatively. Parents completed surveys before surgery, 1-3 months post-op, and 1+ year post-op. Post-operative cosmesis was assessed by surgeons using the Hypospadias Objective Penile Evaluation (HOPE) score and by parents using the Pediatric Penile Perception Scale (PPPS).

**RESULTS**

Recruited parents expected a healing time of as little as 4 days. There was a 326.7% increase in parental satisfaction with general cosmesis of the penis from preop to 1-3 months post-op and another 11.6% increase at 1+ year post-op. Mean HOPE score increased from pre-op to 1-3 months post-op by 30.8%, but further increased by only 2.2% at 1+ year post-op. Meanwhile, the Nurse Assessment found 38.0% of children experienced discomfort voiding at 7-14 days post-op.

**CONCLUSIONS**

While both parents and surgeons may see improvements in cosmesis following hypospadias surgery, surgeons may have earlier perceptions of success compared to parents, who have high expectations regarding surgical outcomes. Care teams should consider ensuring that families understand potential complications after surgery.

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*09:58 - 10:01*
**SN06-2** (PP)

# SAVE TIME AND MONEY: A POST-OPERATIVE PHOTO CLINIC

Taylor WANG, Shelly KING, Rosalia MISSERI and Konrad SZYMANSKI
*Indiana University Health, Riley Pediatric Urology, Indianapolis, USA*

**PURPOSE**

After a circumcision or circumcision revision the patient will typically follow up in clinic four to six weeks after to assess healing and address any parental or patient concerns. A post-operative photo clinic was implemented to help improve access to care by saving families both time and money. Travel distance can be significant as the group provides care to the entire state. The post-operative photo clinic allows families to send in photos one month post-operatively to a secure email address. The photos are then reviewed, and a response is sent to both the family and the primary care clinician. If there are any concerns when the photos are reviewed the patient is called and a visit to the clinic is scheduled.

**MATERIAL AND METHODS**

Home addresses of a total of 35 patients who attended the post-operative photo clinic during the clinic pilot period were evaluated. Distance to the clinic and cost of travel was calculated using the internal revenue reimbursement estimate. Parking at the clinic costs $2.00.

**RESULTS**

The average total cost of travel to clinic and parking for the 35 patients evaluated was $118.90. The average daily wage in the state is $254.20 and could have also been potentially lost if the parent or guardian had to take the day off from work to attend an in-person visit.

**CONCLUSIONS**

In a previous pilot study 100% of the families surveyed felt the clinic saved them time and would recommend the clinic to other families. A post-operative photo clinic can save families both time and money.

*10:01 - 10:04*
**SN06-3** (PP)

# PEEZY: CONCEPT DESIGN OF AN INTERACTIVE WALL CLOCK FOR PERSONALIZED VOIDING AND DRINKING REMINDERS

Lola BLADT [1], Stine DEMUYS [1], Kaat VANDEPUT [1], Stien VANACKER [1], Alexandra VERMANDEL [2], Gunter DE WIN [2] and Lukas VAN CAMPENHOUT [1]
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**PURPOSE**

The recommended treatment for pediatric urinary incontinence is standard urotherapy, which provides children with age-appropriate information and instructions on drinking and toileting habits. Timer watches can support these routines by reminding children to drink and void at regular intervals. Yet, the repetitive nature of these reminders often leads to children ignoring them. Our goal was to design a more interactive and engaging tool to stimulate awareness of the drinking-voiding loop.

**MATERIAL AND METHODS**

Interaction Design principles were applied, with a focus on embodiment—designing physical interactions that transform abstract reminders into tangible, interactive experiences. The design process included both low- and high-fidelity prototyping. Feedback from a multidisciplinary panel of experts in Interaction Design and pediatric urology guided iterative refinements.

**RESULTS**

The final concept, "Peezy," is an interactive wall clock that combines fluid intake monitoring with voiding data to provide personalized reminders. Central to the design is a smart drinking glass mounted on the clock, which embodies the drinking-voiding cycle. The glass rises to prompt drinking times and lowers again when it is returned after drinking, triggering on-screen droplets that gradually fill a liquid mass in the clock’s center, symbolizing the bladder. Using fluid intake and bladder capacity data, the system suggests voiding times, indicated by an animation of a nearly overflowing liquid mass. After voiding, the child pulls a “flusher” cord resembling clock weights, activating animations of liquid flowing out, while voiding data is displayed on-screen in the clock’s center. The clock's outer rim serves as a visual bladder diary, logging drinks and voids as light dots aligned with the hour hand.

**CONCLUSIONS**

This concept may enhance awareness and engagement in urotherapy by personalizing reminders and physically embodying the drinking-voiding loop with interactive actions. Further research is required to explore its practical application.

*10:04 - 10:07*
**SN06-4** (PP)

# DESIGNING UROTHERAPY SUPERHEROES AS CONVERSATION STARTERS FOR ENGAGING CHILDREN

Lola BLADT [1], Anka NIEUWHOF-LEPPINK [2], Amélie WISSELS [1], Aube SCHUERMAN [1], Pepijn VISSER [1], Louis DENECKERE [1], Sander LOWETTE [1], Alexandra VERMANDEL [3], Gunter DE WIN [3] and Lukas VAN CAMPENHOUT [1]
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**PURPOSE**

This study builds on previous research involving focus groups and co-creation sessions with school-aged children undergoing urotherapy. During these sessions, children were asked to draw superheroes with bladder problems. Analysis of their drawings revealed motivations and needs, which informed the design of a urotherapy superhero family. The goal is to enhance child engagement during doctor visits by providing a child-friendly conversation starter.

**MATERIAL AND METHODS**

A Research through Design methodology was employed, incorporating iterative design and feedback cycles with both children and experts, including pediatric urotherapists, a pediatric urologist, and designers. Three superhero families—ranging from human-like characters to robots and abstract figures—were developed to evaluate preferences across genders and ages. Feedback was collected from 208 children (mean age: 7.0y; SD 2.3y; range: 2–13y; 110 boys, 98 girls) during a Belgian public science event.

**RESULTS**

Five superheroes were developed, each representing distinct motivations and needs, with magical accessories reflecting their superpowers to avoid superficial preferences based on appearance, such as hair or clothing. The heroes included Action Hero with a training weight (determination), Easy Peasy with pants that keep him dry (low motivation), Protector Hero with a shield (emotional regulation), Mighty Warrior with a sword (resilience building), and Master of Time with a Pee Clock (routine management). Feedback from children showed that the most abstract superhero family was their favorite, preferred by 47% of participants, with similar preferences observed across genders and age groups. Each hero was selected by at least 13% of participants, demonstrating that all were well-received with no single hero being disproportionately favored.

**CONCLUSIONS**

This study demonstrates how co-creation and creative approaches can contribute to child-centered healthcare. Feedback from children with urinary incontinence is being collected to refine the superhero’s relatability and clinical relevance.

*10:07 - 10:10*
**SN06-5** (PP)

# EARLY DISCHARGE FROM PAEDIATRIC DAY SURGERY UNIT

Elisabet HEINA
*Queen Silvia's Childrens hospital, Surgery divison, Operation 2 barn, Gothenburg, SWEDEN*

**PURPOSE**

Day surgery units are characterized by a rapid patient flow. In the pediatric setting there is often a delay in discharge due to micturition problem for the child postoperatively.
This might lead to a long day, waiting for the child to pee after minor surgery. Some children have difficulties urinating due to anaesthetic causes, others for surgical reasons. Furthermore, the environment at a hospital can be stressful for children and have a negative impact on the ability to urinate.

The aim for this study was to see if it’s safe for children to be discharged without having peed after day surgery procedures.

**MATERIAL AND METHODS**

A routine was developed for early discharge, which meant children were discharged prior to micturition if the child’s general condition was good. Excluded procedures were bilateral undescended testis, Fowler Stephens 2 and hypospadias. Thorough oral and written information was given regarding when/where to seek healthcare if the child didn´t urinate the same evening. Written consent was obtained by caregivers.

**RESULTS**

Out of 1000 children where 122* patients selected for early discharge, 119 of these were eligible for inclusion according to protocol. 2 out of 119 patients had to attend healthcare. 1 patient urinated upon arrival at the ward, 1 needed enema to urinate.

*The 3 excluded patients had hypospadia operation, all 3 needed to attend healthcare to urinate.

**CONCLUSIONS**

With appropriate information and instructions, discharge prior to urination is safe and can be offered to children after daycare surgery if the caregiver and patient prefer early discharge.

*10:10 - 10:13*
**SN06-6** (PP)

# THE EFFECTIVENESS OF A TAILORED TOILET TRAINING PROGRAM FOR CHILDREN AGED 1-4 YEARS

Karin VAN DALEN [1], Mi-Lan WOUDSTRA [2] and Merel VAN VLIET [2]
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**PURPOSE**

There is a lack of uniform, evidence-based information on toilet training (TT). Effective TT programs are needed in order to get children toilet trained earlier, hereby preventing bladder and bowel problems, and lowering social, environmental and financial costs. In the present study, a tailored TT program consisting of guidance through an app was tested on effectiveness

**MATERIAL AND METHODS**

The sample consisted of 171 Dutch 1-4-year-old children who were about to start TT. Children were randomized into either the experimental group, or the control group, in which parents were able to choose their own approach. Within the experimental group, parents could choose to follow an intensive TT program of one week, or a gradual program of ten weeks. Parents filled out questionnaires before the start of the training (T1), two weeks after the start (T2) and three months after the start (T3).

**RESULTS**

At T2, 30.9% was toilet trained in the experimental group, compared to 16.1% in the control group, $\chi 2=5.135$, $p=.023$. At T3, 68.1% was toilet trained in the experimental group, compared to 51.8% in the control group, $\chi 2=4.219$, $p=.040$. Compared to the control group, only the intensive program was more successful on both T2 (61.1% vs. 16.6% in control group, $p<.001$) and T3 (75.0% vs. 51.8%, $p=.024$). The gradual program showed no differences compared to the control group at both time points.

**CONCLUSIONS**

In conclusion, the intensive one-week program offered in the app was found to be more successful in fostering TT than when parents chose their own methods.

*10:13 - 10:16*
**SN06-7** (PP)

# ANIMAL ASSISTED THERAPY IN URODYNAMICS

Adam HOWE [1], David SIKULE [1] and Venessa KIRBY [2]
*1) Albany Medical College, Urology, Albany, USA - 2) The College of Saint Rose, Education, Albany, USA*

## PURPOSE

Patient experience during urodynamics (UDS) has been associated with high levels of pain, discomfort, anxiety, distress, and embarrassment, which leads to intolerance and noncompliance with UDS. This often leads to the need to undergo anesthesia to place UDS catheters. Animal-assisted therapy (AAT) has been previously shown to help patients to undergo various procedures in the medical setting. The aim of this study is to determine if therapy dogs can help patients with anxiety or inability to cooperate for UDS to avoid requiring sedation or anesthesia to undergo UDS testing.

## MATERIAL AND METHODS

Pediatric patients who were previously unable to tolerate UDS due to anxiety, prior trauma, or behavioral issues were included. Patients with allergy to dogs, fear or dogs, conduct disorder, or history of cruelty to animals were excluded. One certified therapy dog used for all patients. Patients spent 30 minutes prior to UDS with the therapy dog, and the dog was present with the patient during UDS. Primary outcomes were if the patient were able to successfully undergo a complete UDS without sedation or anesthesia. Secondary outcomes compared anxiety levels based on visual analog scale before and after dog therapy.

## RESULTS

Six pediatric patients previously unable to tolerate UDS underwent AAT, and five were able to successfully complete the UDS testing. Visual analog scales were not significantly different pre and post dog therapy.

## CONCLUSIONS

AAT can be a useful option in helping certain patients successfully complete UDS testing without the need for sedation or anesthesia.

# SN07: MISCELLANEOUS 2

*Moderators: Sigrid van de Borne (BE), Arash Taghizadeh (UK), Mandy Rickard (CA)*

**ICCS & ESPU-Nurses Meeting on Thursday 4, September 2025, 14:20 - 15:34**

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*14:26 - 14:32*
**SN07-1** (OP)

## THE ROLE OF VIDEO URODYNAMIC STUDY IN THE PRECISE DIAGNOSIS AND TREATMENT OF PEDIATRIC LOWER URINARY TRACT DYSFUNCTION

Ji JEONGEUN [1], Park JIEUN [2], Ji YOONHYE [2], Han SANG WON [3], Kim SANG WOON [4] and Lee YONG SEUNG [4]
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**PURPOSE**

To evaluate the clinical utility of urodynamic study (UDS) and video urodynamic study (VUDS) in pediatric patients with lower urinary tract symptoms (LUTS) and to determine cases where VUDS is essential and can be replaced only by UDS test.

**MATERIAL AND METHODS**

From 2014 to 2023, a retrospective analysis was conducted on 3,885 pediatric LUTS patients aged 5 to 18 years. Patients with confirmed anatomical abnormalities were excluded. VUDS was performed in 141 patients (3.6%), and UDS was performed in 19 patients (0.4%). Patients were classified into:

Group 1: Tests determined at the initial examination based on symptoms.
Group 2: Tests performed after abnormalities were found in basic urination tests.
Group 3: Tests conducted after standard voiding treatments (e.g., constipation management, urination training) and medications failed to improve symptoms.

**RESULTS**

UDS effectively evaluated functional abnormalities, with drug treatment in 4 cases, hydrodistension in 2 cases, and Botox treatment in 4 cases.

VUDSidentified additional abnormalities in 36 patients (25.5%), including VUR and urethral lesions.

Group 1: Among 16 patients with LUTS and urinary tract infections, 7 patients (43.7%) were diagnosed with VUR, 6 of whom were female.

Male patients with mild or no abnormalities in urination tests were diagnosed with urethral lesions via VUDS, and all showed symptom improvement after surgery.

**CONCLUSIONS**

VUDS is essential for diagnosing complex anatomical abnormalities, particularly in female patients with urinary tract infections and male patients with suspected urethral lesions. On the other hand, UDS is a safe and effective alternative for evaluating functional urination abnormalities or cases without anatomical concerns due to its lack of radiation exposure. The selective use of VUDS and UDS optimizes diagnostic accuracy and treatment outcomes. Further studies are recommended to evaluate the additional diagnostic value of VUDS.

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*14:32 - 14:38*
**SN07-2** (OP)

## A BLADDER SENSOR FOR ADULTS WITH URINARY INCONTINENCE

Filine VAN DEN BOSCH [1], Paul VAN LEUTEREN [1], Sandra TOBISCH [2] and Diederick DUIJVESZ [3]
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**PURPOSE**

The TENA SmartCare Bladder Sensor, a wearable device, supports children (≥ 6 years) and adults (BMI ≤ 25 kg/m²) by tracking bladder filling and notifying users when to go to the bathroom via vibration or in-app notifications. The primary objective of this study was to demonstrate the sensor's ability to detect the bladder before urination among adults. Secondary objectives included evaluating performance, safety, usability, user satisfaction, and impact on quality of life (QoL). The hypothesis was that the median bladder detection rate would exceed 85% (H0: ≤0.85, H1: >0.85, p-value <0.05).

**MATERIAL AND METHODS**

Adults (≥ 18 years) with urinary incontinence tested the sensor at home for one week. Performance, safety, usability, satisfaction, and QoL were assessed. Subjects documented urination and urine loss in a diary. Raw data was analysed to evaluate bladder detection and notification rates.

**RESULTS**

30 adults (67% female, 33% male; median age 53 years; median BMI 22.6 kg/m²) completed the study. The median bladder detection rate was 89.8% (IQR 82.6%-95.3%) in a sample without statistically and clinically identified outliers (n = 28), and the null hypothesis was rejected (z = 69, p<0.05). The median actual full bladder notification rate was 63.1% (IQR 50.0%-71.4%), and the median perceived rate was 94.4% (IQR 87.0%-105.6%). The device reduced unwanted leakages by 67% and improved QoL.

**CONCLUSIONS**

The Bladder Sensor effectively detects the bladder in real-life conditions and supports urinary incontinence prevention. Its effectiveness seemed to depend on anatomical factors, bladder volume, and/or proper fixation. The device had a positive effect on the subject's urinary incontinence, their QoL and overall well-being while testing it for one week. Long-term benefits of the Bladder Sensor as an adjunct tool in continence care management needs to be investigated.

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*14:38 - 14:44*
**SN07-3** (OP)

## WITHDRAWN: PATIENT EXPERIENCE OF YOUNG ONSET UROLOGY (YOU) CLINIC

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*14:44 - 14:50*
**SN07-4** (OP)

## HOW TO DEVELOP A CONDITION-SPECIFIC HEALTH-RELATED QUALITY OF LIFE QUESTIONNAIRE IN CHILDREN WITH BLADDER EXSTROPHY-EPISPADIAS COMPLEX?

Ulrika SVENNINGHED [1], Elin ÖST [2], Gundela HOLMDHAL [2], Lisa ÖRTQVIST [2], Magdalena BOIJE [2], Sofia SJÖSTRÖM [1], Cecilia LINDSTRÖM GRUBER [2] and Michaela DELLENMARK BLOM [1]
*1) THE QUEEN SILVIA CHILDREN'S HOSPITAL, SAHLGRENSKA UNIVERSITY HOSPITAL, DEPARTMENT OF PEDIATRIC SURGERY, Gothenburg, SWEDEN - 2) ASTRID LINDGRENS CHILDREN'S HOSPITAL, KAROLINSKA UNIVERSITY HOSPITAL, DEPARTMENT OF PEDIATRIC SURGERY, Stockholm, SWEDEN*

**PURPOSE**

Items of a condition-specific health-related quality of life (HRQoL) questionnaire should be generated from affected children's/parents' experiences to ensure important content for them is measured. Such a questionnaire has not existed for children with bladder exstrophy-epispadias-complex (BEEC). We hypothesized that children with BEEC experience specific impact due to their condition. The study aim was to describe those experiences to develop of a condition-specific questionnaire.

**MATERIAL AND METHODS**

Prospectively, ten focus groups with 37 participants (14 children aged 8-18 matched for different severity of BEEC; 23 parents of children with BEEC aged 0-18) were held at two tertiary pediatric urology departments in Sweden, led by a moderator, audio-recorded and transcribed. Reports of children's BEEC-related HRQoL were extracted from transcripts, content analyzed, categorized into HRQoL domains to aid item generation. According to well-established principles of qualitative research, no controls or hypothesis testing were used.

**RESULTS**

1730 experiences were identified and allocated into seven HRQoL domains, several sub-domains each, aiding item generation for a condition-specific HRQoL questionnaire:

- Living with the choice of openness' about BEEC e.g.
    - To tell or not to tell
    - Showing or hiding parts of your body
- Social relationships/interactions due to BEEC e.g.
    - Others' questions
    - Social vulnerability
- Functioning in environments outside home
    - Public bathrooms
    - School
    - Leisure activities

- Adaptions due to bladder (dys)function, in relation to
    - Nighttime
    - Time schedules for bladder emptying
    - Clothes
- Psychological impact due to BEEC e.g.
    - Different appearance
    - Need to feel secure
- Growing up with BEEC e.g.
    - Sexuality/Sex
    - Independence/Responsibility
    - Thoughts about the future
- Physical consequences due to BEEC e.g.
    - Micturation, sensation, urinary urgency
    - Pain

**CONCLUSIONS**

This is the first reported focus group study in BEEC children and reveals their possible physical, psychological and social impact in life. This information enables the development of a condition-specific HRQoL questionnaire for children with BEEC. This is needed to improve patient-centered care and research.

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*14:50 - 14:56*
**SN07-5** (OP)

## INTERPROFESSIONAL CLINIC FOR CHILDREN WITH VARIATIONS OF SEX CHARACTERISTICS (VSC): A QUALITATIVE DESCRIPTIVE STUDY

Anna CRASTAN [1], Christina SCHULER [2], Norma RUPPEN [3], Maya HORST [4] and Uchenna KENNEDY [4]
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**PURPOSE**

Variations of Sex Characteristics (VSC) are rare conditions that require an interprofessional approach. To address the known challenges faced by VSC-individuals and their parents, we established a standardized interprofessional setting for consultation and long-term accompaniment. A detailed understanding of the needs of affected children and their parents is lacking.
This study aimed to explore the experiences and needs of children with VSC and their parents regarding the interprofessional care setting and their perception of the "three-pillar concept": Family Support - Milestone concept - Flowchart for decision making.

**MATERIAL AND METHODS**

We used a qualitative, descriptive study design to conduct exploratory, semi-structured interviews from August-November 2024. The audio-recorded interviews were transcribed verbatim and analyzed in three coding cycles according to Saldaña's methodology.

**RESULTS**

The 15 interviews with five affected children and 12 parents highlighted the need for understandable information and revealed participants concerns about future fertility and sexuality. Peer exchange and trusting relationships with professionals were mentioned as central elements. The interprofessional setting and the three-pillar concept were rated positively by children and parents; but lack of knowledge of medical professionals outside the field was noted.

**CONCLUSIONS**

This is the first study to identify the needs of children with VSC alongside those of parents. Children with VSC and their parents need an empathic and long-term interprofessional care. The planned three-pillar concept provides better standardization, can reduce uncertainty, stress, and aids in preparing for consultations. Peer exchange should be enabled and implemented in the clinical setting in a more standardized manner.

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*14:56 - 15:02*
**SN07-6** (OP)

## IMPACT OF CATHETER DIAMETER ON COMPLICATIONS AND REOPERATIONS IN HYPOSPADIAS SURGERY

Suzanne OOSTLAND [1], Floor ROZEMEIJER [1], Fred VAN DER TOORN [2] and Rogier SCHROEDER [3]
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**PURPOSE**

In pediatric distal hypospadias repair, varying catheter diameters are employed for neourethral reconstruction. The longterm impact of the intra-operative catheter diameter on postoperative outcomes are not well studied. This study aims to investigate the correlation between intraoperative catheter diameter and the incidence of complications and reoperations at the age of five.

**MATERIAL AND METHODS**

This study is part of the prospective multi-centered observational cohort study, the Dutch Hypospadias Study. 728 pediatric patients were included. Inclusion criteria were restricted to patients requiring neo-urethral construction during the hypospadias surgery. Subjects were stratified by urethral catheter diameter used in urethroplasty into two cohorts: smaller-caliber catheters (Ch 6, Ch 8) and larger-caliber catheters (Ch 10, Ch 12). Outcome measures were assessed at six months and five years postoperatively (mean follow up 3.8 years). The primary outcome measures included the incidence of postoperative complications; wound dehiscence, meatal stenosis and fistula formation. The need for surgical revision was evaluated as the secondary outcome.

**RESULTS**

No significant differences were observed in the incidence of intracutaneous fistula formation or meatal stenosis between the two groups. Significantly more patients had a wound dehiscence in the larger-caliber cohort (15.2% vs. 7.0% in the smaller-caliber cohort). Also the larger-caliber cohort showed significantly more reoperations (21.0% vs. 8.7% in the smaller-caliber cohort).

**CONCLUSIONS**

The intraoperative catheter size in hypospadias surgery significantly affects the postoperative outcomes wound dehiscence and leads to a higher reoperation rate. Careful preoperative planning and consideration of catheter size appears of the essence. However, additional studies are required to evaluate its correlation with long-term functional outcomes.

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*15:02 - 15:08*
**SN07-7** (OP)

## NO EFFECT OF CATHETER DIAMETER DURING HYPOSPADIAS SURGERY ON FUNCTIONAL SYMPTOMS AFTER NINE YEARS OF FOLLOW UP

Floor ROZEMEIJER [1], Fred VAN DER TOORN [2], Suzanne OOSTLAND [1] and Rogier SCHROEDER [3]
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**PURPOSE**

Following urethroplasty for hypospadias a reduced Qmax can be observed. Whether this translates into functional symptoms is, however, unknown. During urethroplasty various catheter sizes can be used to form the neo-urethra. We hypothesize that larger catheters might result in better functional outcomes during follow-up. In this study we analyzed the effect of catheter sized used during urethroplasty on functional outcomes.

**MATERIAL AND METHODS**

All patients were included in the Dutch Hypospadias Study (DHS) a prospective multi-centered observational cohort study. All included patients underwent urethroplasty for midshaft and distal hypospadias. Patients with post-operative complications were excluded. The following outcomes were evaluated at five- and ten-years of age: Qmax using flowmetry, bladder diary assessing voiding frequency, maximum voided volume and incontinence along with patient reported evaluation of micturition stream and their through questionnaire assessed toilet training status (initiation of day and night continence). Patients were divided in two groups based on catheter diameter used intraoperatively: large catheter group (Ch 10 & Ch 12) vs small catheter group (Ch 6 & Ch 8).

**RESULTS**

304 patients were evaluated at age five and 142 at age ten. Qmax was statistically significantly higher for patients in the large-caliber catheter group compared to the small-caliber catheter group at both five and ten years. At age five, 28.1% of the smaller catheter group had a Qmax below 10ml/s compared to 13.9% of the larger catheter group (p=0.007). No differences in other functional outcomes were observed between both groups at age five and ten.

**CONCLUSIONS**

There are statistically significant differences in Qmax between the two catheter size groups at the age of five and ten years in favor of larger size catheters. These differences do not translate into variations in functional outcomes between the groups.

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*15:08 - 15:14*
**SN07-8** (OP)

# THE NATURAL HISTORY OF BLADDER FUNCTION DURING THE FIRST YEAR OF LIFE AFTER POSTERIOR URETHRAL VALVES(PUV) RESECTION

Michail AFTZOGLOU [1], Catrin GRIFFITH [2], Eskinder SOLOMON [3], Massimo GARRIBOLI [1] and Pankaj MISHRA [1]
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**PURPOSE**

To evaluate changes in bladder capacity and voiding efficiency during the first 12 months of life in boys with PUV after valve resection

**MATERIAL AND METHODS**

Infants with PUV underwent 4-hours observational study, measuring voided volumes and post-void residuals (PVR) twice during the first year of life after PUV ablation. The first assessment was performed immediately after valve resection (BFA1) and the second approximately 6 months later (BFA2). The mean difference in the measured bladder capacity (MBC)/ expected bladder capacity (EBC) ratio and PVR were calculated and statistically significant difference assessed using a one sample t-test. The bladder was categorized ‘Small’(<65%EBC) and ‘large’(>150%EBC) as defined by the ICCS (Austin et al. J Urol 2014;191(6)(1863):e5-13)

**RESULTS**

33 male infants from 2015 to 2024 had bladder function assessed at a median age of 1 month(BFA1, range 0-8) and 6 months(BFA2:2-12). The mean difference between the MBC/EBC ratioand PVR at first and second assessment was 0.11(+\- 0.95) and 1.4ml(+/-18.6mls), respectively. This mean difference was not statistically significant (MBC/EBC:0.937,p-value:0.356 and PVR: -0.22(p-value:0.832). Normal bladder capacity was found in 72.7% at the 1st assessment (BFA1:24/33) compared to 69.7% at the second(BFA2:23/33). At BFA1 6.1%(2/33) and at BFA2 12,1%(4/33) had small capacity bladder, whereas a‘large bladder’was found in 21.2%(BFA1:7/33) and 18.2%(BFA2:6/33).

**CONCLUSIONS**

MBC/EBC ratio and PVR appears to remain unchanged during the initial months after PUV resection. The proportion of boys with “small”, “normal” and “large” capacity also remains unchanged during this period.

*15:14 - 15:20*
**SN07-9** (OP)

# COMPARATIVE ANALYSIS BETWEEN MINI-PERCUTANEOUS NEPHROLITHOTOMY (MINI-PERC) VERSUS RETROGRADE INTRARRENAL SURGERY (RIRS) FOR TREATMENT OF RENAL STONES IN CHILDREN

Alba Maria HERNÁNDEZ PÉREZ, Natalia GALLEGO MELLADO, Oscar SANCHEZ PARIS, C. ABRIL SANCHEZ, V. DIAZ DIAZ, J. ADATTY MOLINA, N. ALBERTOS MIRA-MARCELI, M.E. MARTIN HORTIGUELA, J.A. GALAN LLOPIS, A. ENCINAS GOENECHEA and Jeronimo GONZALVEZ PIÑERA
*Hospital General Universitario Dr. Balmis, Cirugía Pediátrica, Alicante, SPAIN*

**PURPOSE**

Pediatric kidney stones often require multiple interventions. There are many options, including less invasive procedures, with different benefits. This study aims to compare the efficacy and complications between mini-PERC and RIRS.

**MATERIAL AND METHODS**

This retrospective observational study included patients 0-14 years old who underwent mini-PERC and RIRS at our institution between 2009-2024. Patient demographics, medical conditions, stone characteristics (location, size, composition), stone-free rate, surgical time, hospital stay and early complications (using Clavien-Dindo scale, CD) were analyzed.

**RESULTS**

A total of 20 participants were included: 9 RIRS, 11 mini-PERC. The mean age was 8 years(1-14) with 57.9% males. Lithogenic factors were present in 42% (3 cystinuria, 2 hypercalciuria). There were no significant differences in age (p=0.82), sex (p=0.68), location (p=0.18), size (p=0.087), medical conditions (p=0.47), composition (p=0.92), operative time (mini-PERC: 150(80-240) vs RIRS: 120(60-395) min, p=0.5), hospital stay (1 (1-12) vs 1(1-3) days, p=0.64) or double J placement (p=0.9). The stone-free rate was significantly higher (p=0.042) for mini-PERC (81%) compared to RIRS (44%). RIRS had a higher complication rate (66%) than mini-PERC (18%) (p=0.02, RR=1,14). RIRS complications included 3 cases of stone migration, whereas mini-PERC included 1 (CDIIIb).

**CONCLUSIONS**

Mini-PERC technique is an effective and safe treatment option for renal stones in pediatric population, offering a higher stone-free rate and fewer complications compared to RIRS.

*15:20 - 15:26*
**SN07-10** (OP)

# THE IMPLEMENTATION OF A CNS LED CLINIC FOR RENAL STONES PATIENTS

Katie READ [1], Karen RYAN [2], Alexander CHO [3] and Naima SMEULDERS [3]
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**PURPOSE**

A clinical nurse specialist led renal stones clinic was implemented in October 2020 as a direct response to an increasing number of renal stones patients being seen at GOSH and the subsequent impact on clinical availability, cost and patient care.

The aim of the new clinic was to improve patient care and reduce demand on other clinic services.

**MATERIAL AND METHODS**

After a period of observing the Urolithasis MDT clinic, a new CNS-led clinic was started. There were 4-5 slots of 30 minutes duration. The CNS-clinic integrated: same-day US-scan, lifestyle dietary advice, fluid-intake recommendations and urinary metabolic-screens.

Patients requiring MDT-clinical input were presented in the monthly virtual meeting. The clinical team were available for urgent same-day advice if needed.

12-CNS clinics over six months were reviewed and compared with a 3-month audit of the Urolithiasis MDT-clinic. Data was collected retrospectively. Statistical test:Chi-squared.

**RESULTS**

Since the onset of the clinic 688 patients have been seen over 4 years

In the 12 CNS-clinics reviewed, 26/30, (80%) had completed full urinary metabolic screens (2 of those who hadn’t patients had global development delay and 1 patient was non-compliant over several appointments with providing urine samples) which is statistically higher than 44% from the MDT-Clinic (<0.00002).

**CONCLUSIONS**

A CNS-led Urolithiasis clinic can be succesfully implented and is a beneficial expansion of the Stones-service. More clinic spaces are made available and patients receive a dedicated thorough work-up and consult.

*15:26 - 15:32*
**SN07-11** (OP)

# SURGICALLY TREATED URETEROVESICAL JUNCTION OBSTRUCTION IN INFANTS: A SINGLE SURGEON EXPERIENCE

Abdurrahman ONEN
*Dicle University Medical Faculty, Pediatric Urology, Sur, TÜRKIYE*

**PURPOSE**

We aimed to determine pre and postoperative behaviour and risk of severe UVJO, clarify surgical indications and long-term results in such infants.

**MATERIAL AND METHODS**

66 infants who underwent surgery due to severe UVJO in 2012-2023 were prospectively evaluated. Diameter of distal ureter, thickness of parenchyma, degree of hydronephrosis and renal function were evaluated. Surgical indications were symptom, ureter(>15mm), parenchyma(≤3mm), echogenecity, function(<40%). Postoperative complications, reoperation and long-term results were evaluated.

**RESULTS**

There were 66 infants who had long-term follow-up. 57(86,4%) infants were boys. 42(63,6%) had left UVJO. 27 infants developed UTI before surgery. The mean diagnosis age was 3,3 months. The mean diameter of ureter was 19mm, while mean parenchymal thicness 3,2mm. The mean preoperative renal function was 37,8%. The mean age at operation was 4,1months. Surgical indication was symptom in 30 infants, diameter of ureter(>15mm) in 48, thickness of parenchyma(≤3mm) in 39, echogenecity in 27, decreased function(<40%) in 33, and severe problem in contralateral kidney in 18 infants. Primary operation was JJ-stent placement in 63 infants while ureteral reimplantation in three. The median postoperative followup period was 7(1-12)years. Postoperative complication was reccurent UVJO after endoscopic treatment in 36infants, UTI in 30 and JJ-stent migration in 6. Reoperation required in 39(59%)infants. 42(63,6%) infants recovered well, while 24 persisted low renal function(<40%) with significant decrease in hydronephrosis.

**CONCLUSIONS**

The rate of preoperative symptom (mostly UTI) and renal deterioration, and postoperative complication and reoperation are significantly high in such infants. Therefore, close pre and postoperative followup are crucial in preserving these kidneys. Presence of symptom, diameter of ureter(>15mm), parenchyma(≤3mm), echogenecity and function(<40%) should be surgical indications in infants with severe UVJO. After endoscopic catheter removal close followup particularly for presence of UTI and increase in hydronephrosis is important.

# SN08: MISCELLANEOUS 3

*Moderators: Jens Larsson (SE), Jo Clothier (UK)*

**ICCS & ESPU-Nurses Meeting on Thursday 4, September 2025, 16:50 - 17:20**

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*16:50 - 16:56*
**SN08-1** (OP)

## MAKING NUMBER 2 OUR NUMBER ONE PRIORITY: EVALUATING PEDIATRIC PATIENTS WITH SPINA BIFIDA AND NEUROGENIC BOWEL DYSFUNCTION USING THE NEUROGENIC BOWEL DYSFUNCTION SCORE (NBODS) EMBEDDED IN THE ELECTRONIC MEDICAL RECORD

Joy KERR, Neal JACOBSMA and Jason VAN BATAVIA
*Children's Hospital of Philadelphia, Urology, Philadelphia, USA*

**PURPOSE**

Children with Spina Bifida (SB) who experience neurogenic bowel dysfunction (NBoD) require a bowel management program and may still have issues with fecal incontinence (FI) impacting their quality of life. Our goal was to describe NBoD in a large cohort of pediatric patients using self-reported Neurogenic Bowel Dysfunction Score (NBoDS) questionnaire embedded into the electronic medical record (EMR).

**MATERIAL AND METHODS**

We performed a cross-sectional, retrospective study including patients aged 2-18 years in our pediatric SB Multidisciplinary Clinic who first completed the NBoDS from 1/1/2018-31/12/2024 and who had at least one of the following diagnoses: myelomeningocele, spina bifida, tethered cord, lipomeningocele, neurogenic bowel, or neurogenic bladder. We summarized overall NBoDS scores and stratified by age and diagnosis.

**RESULTS**

970 patients completed 5028 surveys, 30.7% were 2-5 yo, 41.6% were 6-11 yo, and 27.7% were 12-18 yo; 50.8% male and 49.2% female. Patients identified as Asian (5%), Hispanic or Latino (17%), non-Hispanic Black (9%), non-Hispanic White (57%), and Other (12%). The mean NBoDS score was 13.76. Most patients reported an average score ≥8.5, demonstrating NBoD. Average score for Question 3 regarding independence (0-2 scale) was 1.1, for Question 8 (0-3 scale) regarding frequency of fecal soiling was 0.9 and Question 12 (0-4 scale) regarding interference of lifestyle with bowel management was 1.4.

**CONCLUSIONS**

In our cohort, mean NBoDS scores were in line with NBoDS validation study results. The NBoDS, which can be easily accessed within the EMR, is useful in assessing symptoms and informing clinicians' evaluation of patients' bowel management programs and recommendations for improved bowel function.

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*16:56 - 17:02*
**SN08-2** (OP)

# SFU PRENATAL HYDRONEPHROSIS REGISTRY-20 YEARS IN THE MAKING

Valre WELCH
*Children's Hospital of Richmond at VCU, Pediatric Urology, Spring Grove, USA*

**PURPOSE**

This abstract is to review some of the benefits of the prenatal hydronephrosis reigstry related to improving the care of these patients and encourage greater participation in the registry.

**MATERIAL AND METHODS**

The prenatal hydronephrosis registry, active in 13 sites in N.America, has 3000 patients, started in 2015.

**RESULTS**

Renal US from DOL-0-2 can often look benign.US from DOL - 30 can demonstrate significantly increased dilation which justifies follow up.

Patients with renal pelvis dilation are often started on CAP due to risk of UTI. UTI rate was analyzes for those with SFU Gr II-IV without ureteral dilation. Those on CAP had a UTI rate of 4 % vs without CAP 4.4%. Groups at higher risk of UTI - females, uncircumcised males and higher grade of hydronephrosis the CAP did not make a significant difference in UTI rate, therefore CAP is not uniformly necessary.
Ureteral dilation of 7 mm or greater did increase risk of UTI and CAP was protective..

Prenatal hydronephrosis can be associated with VUR. Infants without infection, surgery or other renal anomalies, screened for VUR tended to be positive if ureteral dilation, increased renal echogenicity or bladder wall thickening were present.These were more reliable predictors of VUR than sex, degree of hydronephrosis or bilateral hydronephrosis.

**CONCLUSIONS**

Analysis of accumulated data improved the evaluation of patients while decreasing use of antibiotics and imaging studies.
We invite others to join us in sharing their date to continue to improve the care of these patients.

*17:02 - 17:08*
**SN08-3** (OP)

# THE LESSER OF TWO EVILS: TRANSDISCIPLINARY PROGRAM FOR NEUROGENIC BLADDER AND BOWEL LEADS TO FEWER ANNUAL PATIENT VISITS AND MORE PHONE CALLS

Lisa JANG [1], Stephanie COLLINS [1], Carolyn FAZZINI [1], Myron ALLUKIAN [1], Prasanna KAPAVARAPU [2], Joy KERR [3], Keely MCCLATCHY [3], Kirsten WALASKI [2] and Jason VAN BATAVIA [3]
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**PURPOSE**

Successful management of children suffering from both bladder and bowel dysfunction (BBD) improves overall quality of life. Effective BBD management requires coordinated care across several service lines including colorectal surgery, urology, and GI motility teams. Siloed care models result in conflicts with scheduling several appointments and care coordination amongst these teams. We hypothesized that a trans-disciplinary clinic for children with BBD would streamline care and lead to fewer office visits (OV) and ED visits per year.

**MATERIAL AND METHODS**

Data from a single center monthly trans-disciplinary clinic was reviewed retrospectively over the first year of the program. Office visits (OV), ED visits, phone calls and electronic message were counted both in the year prior and following establishment of the clinic. Values were analyzed using Wilcoxon signed-rank test to detect significant differences.

**RESULTS**

Thirty patients were seen in NEBULA. The median number of OVs per year prior to NEBULA was 3 and decreased significantly to 1.7 while in the NEBULA program ($p<0.001$). The mean number of ED visits pre-NEBULA was 1 which significantly decreased to 0.4 ($p=0.03$). The median of calls/messages was 7.5 per year pre-NEBULA and this significantly increased to 31 ($p<0.001$).

**CONCLUSIONS**

With a dedicated team, coordinated care and resources, the number of patient visits can be decreased. With proper triaging and communication, the frequency of yearly ED visits was decreased. Balancing metrics comparing the increased burden of phone calls require further investigation.

*17:08 - 17:14*
**SN08-4** (OP)

# HEALTH-RELATED QUALITY OF LIFE IN CHILDREN WITH SPINA BIFIDA - A SYSTEMATIC REVIEW OF THE LITERATURE

Charlotta LEVÉN ANDRÉASSON [1], Michaela DELLENMARK-BLOM [1], Marie ANDERSSON [1], Sofia SJÖSTRÖM [1], Giovanni MOSIELLO [2], Sylvia ROOZEN [3], Christian RADMAYR [4], Rien NIJMAN [5], Jean-Marie JOUANNIC [6] and Kate ABRAHAMSSON [7]
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**PURPOSE**

This study aimed to systematically review the literature on health-related quality of life (HRQoL) studies in children with spina bifida (SB) to help enhance clinical management.

**MATERIAL AND METHODS**

A guideline working group across eUrogen, ITHACA and EAU used a PRISMA compliant protocol with a literature search in five databases (Embase/Pubmed/PsycInfo/CINAHL/Cochrane Library) to identify HRQoL studies in children with SB from 2016 to March 2023.

**RESULTS**

Out of 1089 screened articles, 22 articles were identified, total number 1895 children with SB (mean sample-size 87/study range 22-298). The studies covered multiple continents including Europe (n=7), North America (n=7), South America (n=2), Asia (n=4), and Africa (n=2) e.g Lithuania, Poland, Turkey, Belgium, Canada, Brazil, India, Japan, Palestine and Uganda. Assessments were conducted using self-reports (n=10), parent-reports (n=5), or a combination of both (n=7).

Twenty studies used generic HRQoL questionnaires.Six studies described the development and psychometric application of a SB-specific HRQoL-questionnaire, where generic HRQoL-questionnaire was used only to confirm its validity. In 15 studies, generic HRQoL was only descriptively analyzed. Six studies compared HRQoL with healthy norms, all (100%) demonstrated reduced HRQoL in children with SB. In the SB-specific questionnaire, “Bladder and Bowel” was a consistent valid domain across child ages/countries (five studies).

Factors associated with HRQoL were differently investigated. Most prominently, seven studies observed HRQoL was negatively influenced by urinary or fecal incontinence, one intervention study that HRQoL increased after bladder/bowel management in children with SB. In eight studies, worse HRQoL was associated with limited social or family support.

**CONCLUSIONS**

Generic HRQoL seems impaired in children with SB, primarily due to bladder/bowel dysfunction and low family/social support. Recent studies include the development of a SB-specific HRQoL-questionnaire that can help standardize outcome measurement, improve clinical follow-up care and optimize management of children with SB.

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*17:14 - 17:20*
**SN08-5** (OP)

## UNDERSTANDING THE CURRENT STATE OF EVIDENCE TO INFORM A PATIENT CENTERED PERIOPERATIVE EDUCATION PROGRAM FOR PEDIATRIC PATIENTS WITH HYPOSPADIAS

Rosemary GRANT and Debra LAJOIE
*Boston Children's Hospital, Urology, Boston, USA*

**PURPOSE**

Hypospadias is a congenital anomaly of the male urethra due to abnormal placement of the meatus anywhere along the urethral groove. Families need comprehensive perioperative education to provide postoperative care including wound and graft care, urinary drainage tube management, pain control as well as emotional support.

**MATERIAL AND METHODS**

This evidence-based practice project was guided by the development of a PICO question: For male infants diagnosed with hypospadias, what are the best perioperative education practices to prepare parents for surgery and postoperative care?
An electronic literature search of the PubMed and CINAHL database along with cited references was done. Articles published in English within the previous 5 (2019-2025) years were included. The search yielded 40 pediatric specific articles. Preliminary abstract review identified 19 articles for appraisal. Twelve were appraised using the John Hopkins Evidence Based Practice Model for Nursing. Themes included parental distress, decision making, expectations and experiences. No evidence was found to best support parent preoperative preparation for ambulatory urology nurses closely aligned with patients throughout the initial postoperative period through telehealth and in person visits.

**RESULTS**

No evidence was found that identified best practices for perioperative preparedness for hypospadias surgery. There is a paucity of nursing developed education in the literature. Further research is needed to understand the development of a patient-centered education program to best support parental expectations.

# SN09: LUTD 4

*Moderators: Sarah Boulby (UK), Michal Maternik (PL)*

**ICCS & ESPU-Nurses Meeting on Thursday 4, September 2025, 17:25 - 17:55**

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*17:25 - 17:31*
**SN09-1** (OP)

## PELVIC FLOOR REHABILITATION OUTCOMES IN CHILDREN WITH FIRST-TIME ENURESIS THERAPY VS. THERAPY-RESISTANT CASES

Melis ÜNAL, Ece Zeynep SAATÇI, Tuğçe OSKAY, Tuğba KURT and Dilara Damla KALIN
*Uropelvic Solutions Pelvic Floor Rehabilitation Center, Pediatric Urology, İstanbul, TÜRKIYE*

**PURPOSE**

Various treatments, such as enuresis alarms,desmopressin,and anticholinergic drugs, exist,but some children may be resistant to therapy.This retrospective study aimed to compare pelvic floor muscle rehabilitation(PFMR) outcomes between children receiving enuresis treatment for the first time and those previously unresponsive to treatments, classified as treatment-resistant.

**MATERIAL AND METHODS**

The study included 82 children: 42 in the control-group(first enuresis treatment) and 40 in the resistant-group(previously treated with desmopressing, anticholinergic or enuresis alarms but unresponsive).PFMR involved urotherapy,biofeedback,breathing and core exercises, enuresis alarm,and manual therapy, and was terminated upon complete response per ICCS criteria.Enuresis frequency was tracked using a diary, and symptoms were evaluated with the Dysfunctional Voiding and Incontinence Scoring System(DVISS).Pre- and post-PFMR comparisons were made between groups.Additionally, the number of PFMR sessions and the response week to the alarm were compared.

**RESULTS**

Enuresis frequencies and DVISS were similar before PFMR but significantly higher in the resistant-group after PFMR.The resistant-group also had more PFMR sessions,with no significant difference in alarm response weeks(Table 1).

| Parameters | Control-Group | Resistant-Group | p |
|---|---|---|---|
| Enuresis Frequency Pre-PFMR(day/weeks) | 6.33±1.22 | 6.63±0.95 | 0.166 |
| Enuresis Frequency Post-PFMR(day/weeks) | 0.14±0.42 | 1.13±2.14 | 0.014* |
| DVISS Pre-PFMR | 13.36±4.36 | 13.58±5.68 | 0.741 |
| DVISS Post-PFMR | 0.21±0.68 | 1.03±1.98 | 0.016* |
| PFMR sessions(n) | 8.93±3.72 | 10.78±3.51 | 0.023* |
| Alarm response weeks (n) | 1.62±1.04 | 2.83±3 | 0.116 |

Daha expressed Mean ± Standard Deviation,Mann Whitney U Test,*p<0.05

**CONCLUSIONS**

PFMR improved enuresis frequency and DVISS in both groups.However, the treatment-resistant group demonstrated higher post-treatment DVISS and required a greater number of PFMR sessions.No significant difference was found in alarm response weeks.These findings suggest that while PFMR may be an effective approach for both children receiving enuresis treatment for the first time and those who are treatment-resistant,the resistant group may require a longer treatment duration to achieve optimal outcomes.

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*17:31 - 17:37*
**SN09-2** (OP)

## CULTURAL ADAPTATION, VALIDITY, AND RELIABILITY OF THE PEDIATRIC INCONTINENCE QUESTIONNAIRE (PINQ) TURKISH VERSION IN CHILDREN WITH LOWER URINARY TRACT DYSFUNCTION

Ece Zeynep SAATÇI [1], Halil TUGTEPE [2], Elif Elçin DERELI [3], Wendy BOWER [4] and Tuğba KURU ÇOLAK [5]
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**PURPOSE**

The aim of this study is to culturally adapt the Turkish version of the Pin-Q, a quality of life scale specific to urinary incontinence in children with LUTD, and to evaluate its validity and reliability. Additionally, the study examines the relationships between the Pin-Q and other validated scales, such as the Pediatric Quality of Life Inventory (PedsQL) and the Dysfunctional Voiding and Incontinence Scoring System (DVISS).

**MATERIAL AND METHODS**

Between December 2023 and March 2024, 120 children aged 5-12 years diagnosed with LUTD were included. The translation and cultural adaptation of the Pin-Q scale followed Beaton's (2000) methodology. The scale was translated by two independent translators, synthesized, and back-translated. A final Turkish version was developed after expert committee review and a pretest with 5 pediatric patients. The Pin-Q, PedsQL, and DVISS scales were applied, and internal consistency was assessed using Cronbach's alpha, while test-retest reliability was evaluated using the Intraclass Correlation Coefficient (ICC). Spearman correlation analyses were performed using the Spearman correlation coefficient, and all analyses were conducted using IBM SPSS version 23.

**RESULTS**

The mean age of the participants was 8.87 years, with a BMI of 16.67 kg/m². The Turkish version of the Pin-Q showed high internal consistency (Cronbach's alpha = 0.959). ICC values for test-retest reliability ranged from 0.787 to 0.983. Spearman correlation analyses revealed a significant relationship between the Pin-Q scores and both the PedsQL and DVISS ($r=0.512$, $p<0.001$ and $r=0.466$, $p<0.001$).

**CONCLUSIONS**

The Turkish version of the Pin-Q was found to be a valid and reliable tool, demonstrating high internal consistency and moderate correlation with other validated scales (PedsQL and DVISS). These findings support the use of the Pin-Q scale in the Turkish pediatric population.

*17:37 - 17:43*
**SN09-3** (OP)

# CAN PELVIC FLOOR MUSCLE REHABILITATION IMPROVE SYMPTOMS IN PEDIATRIC PATIENTS WITH HINMAN SYNDROME?

Yagmur TURHAN [1], Ece Zeynep SAATCI [2], Melis UNAL [2], Yasar ISSI [1], Halil TUGTEPE [2] and Ali AVANOGLU [1]
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**PURPOSE**

Hinman Syndrome (HS) is a rare condition involving dysfunctional voiding and renal injury, mimicking neuropathic bladder dysfunction. Symptoms often include daytime urinary incontinence (DUI), nocturnal incontinence (NI), constipation, fecal incontinence (FI) and post-voiding residue (PVR), as part of the lower urinary tract symptomatology.

This study aimed to evaluate the efficacy of pelvic floor muscle rehabilitation (PFMR) on these symptoms in pediatric patients with HS.

**MATERIAL AND METHODS**

This study evaluated the efficacy of pelvic floor muscle rehabilitation (PFMR) in six pediatric patients (4 girls, 2 boys) with HS, aged 6 to 14 years (mean: 12.3 years).

Physiotherapists administered weekly 75-minute PFMR sessions, averaging 15 per patient, supplemented with home exercises. The PFMR protocol included urotherapy, diaphragmatic breathing, core stabilization exercises, manual therapy and biofeedback. Pre- and post-treatment assessments involved pelvic floor muscle evaluation using the Modified Oxford scale, uroflowmetry and EMG-based activation assessment. Symptoms were monitored using the Dysfunctional Voiding and Incontinence Symptom Score (DVISS), PVR volume measurements and the frequency of FI, DUI, and NI episodes documented in 7-day bowel and 2-day bladder diaries.

**RESULTS**

Pre- and post-treatment data are provided below.

| | Pre-Treatment | Post-Treatment |
|---|---|---|
| Symptoms | | |
| Constipation,(n) | 6 (100%) | 0 (0%) |
| FI,(n) | 3 (50%) | 0 (0%) |
| DUI,(n) | 5 (83,3%) | 0 (0%) |
| NI,(n) | 4 (66,6%) | 2 (33,3%) |
| DVISS,points | 16.5 | 3.6 |
| Uroflowmeter Parameters | | |
| Voiding Volume(ml) | 234.65 | 301.58 |
| Maximum Flow Rate(Qmax, ml/s) | 27.93 | 25.35 |
| Micturition Time(sec) | 74.16 | 24.16 |
| PVR(ml) | 115.3 | 17 |

**CONCLUSIONS**

The results demonstrated significant symptom reduction and improved quality of life in children with HS. Further studies with larger sample sizes are necessary to confirm these findings and explore the long-term efficacy of PFMR in managing HS.

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*17:43 - 17:49*
**SN09-4** (OP)

## NOCTURNAL BLADDER CAPACITY INDEX (NBCI) IN TREATMENT FOLLOW-UP OF CHILDREN WITH NOCTURNAL ENURESIS

Rabia AŞIK [1], Asli ÖZTÜRK [2], Cem IRKILATA [3], Canan SEYHAN [2], Giray ERGİN [4] and Musa Murat DAYANÇ [2]
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**PURPOSE**

Nocturnal detrusor overactivity(NDO) is one of the factors playing a role in the pathophysiology of monosymptomatic nocturnal enuresis(MNE).The Nocturnal Bladder Capacity Index (NBCi) evaluates nocturnal bladder capacity and the number of episodes together and predicts NDO.We aimed to use NBCi to adjust treatment accordingly in children with MNE and to determine the outcomes of follow-up treatment.

**MATERIAL AND METHODS**

A total of 41 children with MNE, mean age of 8,4±2,73, were included in the study.Before treatment, patients' voiding diary (maximum volume voided, frequency of urination), nocturnal bladder capacity, and number of enuretic episodes were determined.The NBCi was calculated using the formula: NBCi = Fn-(Vn/Vmax-1).

Patients were treated individually with standard urotherapy, alarm treatment, and pelvic floor muscle rehabilitation.Antimuscarinic therapy was added to the treatment of patients who did not respond to combined treatment and had a high NCBI score.Changes in alarm frequency and NBCi were followed up by taking weekly average values.

**RESULTS**

After 1 month treatment, alarm frequency decreased from 5,82±0,57 to 2,06±0,28, NCBi decreased from 0,843±0,37 to 0,468±0,17(p =0,0001 and 0,0001, respectively) (Table).

Of the 4 children who did not respond to classical treatment, 3 with high NCBi values (mean 1,17) responded to antimucarinic treatment, while 1 with low NCBi value (0,57) did not respond.

Table: Weekly alarm frequency and NCBi value with classical combined treatment of children with MNE

| | Week 1 | Week 2 | Week 3 | Week 4 | P value |
|---|---|---|---|---|---|
| Alarm Frequency | 5,82±0,57 | 4,18±,0,46 | 3,09±0,4 | 2,06±0,28 | 0,0001 |
| NBCi | 0,843±0,37 | 0,679±0,34 | 0,567±0,22 | 0,468±0,17 | 0,0001 |

**CONCLUSIONS**

During MNE treatment, it is observed that the NBCi value decreases as the number of alarms ringing decreases. In the success of MNE treatment, improvement of nocturnal bladder dynamics is important in addition to dryness.In children who do not respond to conventional treatment, high NCBi levels should suggest initiating antimuscarinic therapy.

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*17:49 - 17:55*
**SN09-5** (OP)

## ANALYSIS OF NOCTURNAL BLADDER DYNAMICS AND TREATMENT OUTCOMES OF CHILDREN WITH MONOSYMPTOMATIC NOCTURNAL ENURESIS: A COMBINED APPROACH OF STANDARD UROTHERAPY, ENURESIS ALARM THERAPY AND PELVIC FLOOR MUSCLE REHABILITATION FOR MANAGEMENT

Canan SEYHAN [1], Asli OZTURK [1], Rabia AŞIK [1], Hasan Cem IRKILATA [2] and Murat DAYANÇ [1]
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**PURPOSE**

This study aimed to evaluate the effectiveness of combined standard urotherapy, alarm therapy and pelvic floor muscle rehabilitation(PFMR) in children with monosymptomatic nocturnal enuresis(MNE).

**MATERIAL AND METHODS**

A total of 65 children(17 girls/48 boys), mean age 9,2 (Range 5 to 18), diagnosed as MNE participated in this study.Children were evaluated noninvasively to distinc from other conditions and the pelvic floor muscle(PFM) assessment measured before and after treatment.All children managed by combined therapy and PFMR for 3 months.Each time the alarm activated, the following data were recorded by the parents:the number of alarm activations during night(NAADN),the amount of urine absorbed by the diaper(AUAD),and the amount of urine voided into the measuring cup immidiately after bedwetting(AUVCAB).

**RESULTS**

The average number of sessions was 9,3(range 3 to 25).A total of 49(75,4%) of children were completely dry and 16(24,6%) were improved at the end of the management.NAADN was reduced significantly in time(Table).AUAD reduced and AUVCAB increased significantly in time(Table).The relaxation, contraction, and functional contraction amplitudes(FCA) of the PFM showed significant improvement after treatment(for all p=0,0001)(Table).

| Mean±SD | 1st month,weekly | | | | 1st month,total (n=61) | 2nd month,total (n=32) | 3rd month,total (n=16) | p values |
|---|---|---|---|---|---|---|---|---|
| | 1st week | 2nd week | 3rd week | 4th week | | | | |
| NAADN,number | 3,8±3,2 | 2,3±2,5 | 1,8±2,2 | 1,0±1,2 | 9,0±7,8 | 1,9±2,9 | 0,5±1,2 | 0,0001 |
| AUAD,gr | | | | | 65,7±6,8 | 20,9±5,4 | 3,7±1,4 | 0,0001 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| AUVCAB,ml | | | | 135,3±72,6 | 138,1±46,2 | 163,5±54,38 | 0,0001 |
| PFMA,µV | Before treatment | | | After treatment | | | 0,0001 |
| | Contraction | Relaxation | FCA | Contraction | Relaxation | FCA | |
| | 4,14±2,38 | 2,53±1,04 | 1,60±2,04 | 8,5±2,9 | 1,36±0,38 | 7,07±3,03 | 0,0001<br>0,0001 |

**CONCLUSIONS**

The study demonstrates that a combined approach significantly improves nocturnal enuresis and pelvic floor muscle function in children with MNE.

# ICCS-S01: LUTD

*Moderators: Jason van Batavia (USA), Arash Taghizadeh (UK), Bieke Samijn (BEL)*

**ICCS & ESPU-Nurses Meeting on Friday 5, September 2025, 08:25 - 09:07**

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*08:25 - 08:31*
**ICCS-S01-1** (OP)

## UNDERSTANDING BLADDER CLINIC NON-ATTENDANCE AS A STEP TOWARDS ADDRESSING HEALTH INEQUALITY IN THE UNITED KINGDOM NATIONAL HEALTH SERVICE (NHS)

Katie CLEARY and Joanna CLOTHIER
*Evelina London Children's Hospital, Bladder, London, UNITED KINGDOM*

### INTRODUCTION

Taking action to reduce health inequalities is a key aim of the NHS (NHS Long Term Plan 2019). We sought to evaluate attendance of patients at our paediatric bladder service and explore factors which may contribute to clinic non-attendance (DNA).

### PATIENTS AND METHODS

Retrospective, single-centre study of clinic appointments at a tertiary bladder referral centre from October 2023 – October 2024. 5030 appointments were reviewed, including virtual and face-to-face, new and follow-up appointments. Data collected included: Patient demographics and DNA rate. Secondarily, the DNA rate was explored examining the contribution of clinic- and patient-specific factors.

### RESULTS

Out of 5030 total appointments, DNA rate was 9.8% (493), ranking the bladder service 8th out of 14 medical directorate subspecialties. Table 1. Demographics of population.

New patient virtual appointments had the lowest DNA (4.4%), compared to face-to-face follow-up (10.1%). DNA on Fridays and Saturdays were 1.75% higher than Monday-Thursday. DNA at 9am appointments was 9.9% compared to 6% at 4pm.

Highest rates of DNA were seen in: those travelling from within London (13.9%) versus elsewhere in UK (7%), those with the highest levels of income deprivation (IDACI decile 1+2 (13.2-13.9%) vs 9+10 decile (5.9-3.4%)) and teenagers >14 years (12%). No difference was seen between sexes.

| Parameter | Result |
|---|---|
| Sex | 52% female, 48% male |
| Age | 32% |
| Distance travelled to hospital | 9% surrounding London Boroughs, 20% southeast London, 71% elsewhere in UK |
| IDACI (Income deprivation affecting children index) | Equal distribution |

Table 1. Demographics of population

**CONCLUSION**

Our study highlights non-attendance is a common problem and can be due to clinic-specific and patient factors.

Further focus is needed to explore reasons for non-attendance amongst older teenagers and children living with income deprivation. Targeted intervention is needed to reduce health inequality and improve clinical outcomes.

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*08:31 - 08:37*
**ICCS-S01-2** (OP)

## BULBOSPONGIOSUS MUSCLE SQUEEZE CAUSING BULBAR URETHRAL COMPRESSION AND OBSTRUCTION: DECODING BLADDER BOWEL DYSFUNCTION

M S ANSARI and Dr Priyank YADAV
*Sanjay Gandhi Postgraduate Institute of Medical Sciences, Pediatric Urology, Department of Urology and renal transplantation, Lucknow, INDIA*

**PURPOSE**

In bladder bowel dysfunction (BBD) the external urinary sphincter (EUS) fails to relax at the time of voiding. The author hypothesizes that the non-relaxation of EUS alone may not be the cause of urethral abstraction. The authors here in describe that the non- relaxing-bulbospongiosus muscle may substantially contribute to LUTD.

**MATERIAL AND METHODS**

Study includes all children presented with LUTD and bowel symptoms (constipation / incontinence). After ruling out of any other causes of symptoms like neurogenic or structural abnormality, bladder and bowel diaries with uroflowmetry and pelvic floor EMGs were assessed. The children who continued to have persistent LUTS even after 3 months of urotherapy were further subjected to pelvic floor functional MRI (Fr MRI) and high-resolution anorectal manometry (HRAM) to study the anatomy and physiology of pelvic floor muscular components with special reference to bulbospongiosus muscle. Dysfunctional voiding score system (DVSS) was obtained at start of treatment which was also used for the monitoring of symptoms.

**RESULTS**

Between January 2010 and December 2024, a total of 130 children with median age of 7.5 yrs (range 3.5-12) diagnosed with BBD were included in the study. Of these 25 (19.2%) children who failed to show improvement after urotherapy were counselled for Fr MRI and high-resolution anorectal manometry. Fifteen of them accepted. The Fr MRI during voiding showed occlusive contraction of bulbospongiosus in these children. HRAM also recorded high anal pressure while making attempt at evacuation.

**CONCLUSIONS**

In children with LUTD one need to look beyond the abnormality of EUS. Non- relaxing-bulbospongiosus muscle may substantially contribute to the voiding disorder in children. When suspected these children should undergo more elaborate work up to achieve the best therapeutic goals.

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*08:37 - 08:43*
**ICCS-S01-3** (OP)

# PEDIATRIC HEALTH INFORMATION SYSTEM AND ARTIFICIAL INTELLIGENCE-ASSISTED ANALYSIS OF URINARY INCONTINENCE PREVALENCE AND ASSOCIATED FACTORS OF CHILDREN IN THE US

Alberto OCAMPO [1], Beverly SPRAY [1], Nora BROADWELL [2], Sally PUCKETT [1], Sammie T JAMES [1], Sowmya N PATIL [1] and Stephen J CANON [2]
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**PURPOSE**

The objective of this study was to establish the prevalence of urinary incontinence (UI) in children and to delineate associated factors using national and local databases.

**MATERIAL AND METHODS**

This retrospective study utilized the Pediatric Health Information System (PHIS) database and a local cohort of children treated at our institution. PHIS was queried for all codes for UI from 2008 through 2018 in ages 5-17 years. Records in our institutional general pediatric clinic (GPC) were queried during a four-month period. Children with developmental delay and neurologic disease were excluded.

**RESULTS**

PHIS analysis identified 40,864 encounters for UI from 1,857,464 total patients treated yielding a prevalence of 2.2% (2.0% males and 2.5% females). Patients with UI were more likely to be female (n=22,843; 55.9%). Mean age was 9.5 (SD=3.2). Prevalence of associated factors were constipation (n=7560; 18.5%), bowel incontinence (n=695; 1.7%), urinary tract infection (n=2983; 7.3%), and bladder dysfunction (n=2820; 6.9%).

GPC analysis identified 67 encounters from 3393 total patients, yielding a prevalence of 2.0%. Patient demographics mirrored PHIS (female, n=36; 54.4%; mean age 9.2 (SD = 2.7)). Prevalence of associated comorbidities were constipation (n=21; 31.3%), bowel incontinence (n=2; 3.0%), and urinary tract infection (n=1; 1.5%).

**CONCLUSIONS**

Analysis of the PHIS database and local cohort identified prevalence of UI in children was approximately 2.2%, more common in females, and was associated with constipation, UTI, and bladder dysfunction.

*08:43 - 08:49*
**ICCS-S01-4** (OP)

# RESTROOM USAGE AND ACCESS AMONG STUDENTS (R.U.A.S.): A POPULATION-BASED STUDY

Anderson LUIZ PIMENTEL FERREIRA [1], Viviane VELOSO [2], Juliana COSTA [2], Felipe SANTOS MARIMPIETRI [2], Manuela FERREIRA GUIMARÃES [2], Liz RIBEIRO FARIA [2], Taynna COSTA [2], José MURILLO B. NETTO [2], Herbert LEÃO DA SILVA SANTOS [2], Maria LUIZA VEIGA [1], Ana Aparecida NASCIMENTO MARTINELLI BRAGA [1], Glicia ESTEVAM DE ABREU [1] and Ubirajara BARROSO [3]
*1) Escola Bahiana de Medicina e Saúde Pública, Salvador, BRAZIL - 2) Salvador, BRAZIL - 3) Escola Bahiana de Medicina e Saúde Pública and Hospital Universitário Professor Edgar Santos, Salvador, BRAZIL*

**PURPOSE**

A study conducted in Aarhus showed that BBD symptoms are related to toilet dissatisfaction and postponement of restroom use(Jørgensen et al.,2021). To our knowledge there is no information regarding this issue in developing countries. By knowing information concerning facilities that could help children void properly, could be a starting point for the implementation of public health policies. Therefore, we evaluated the voiding behavior of children and adolescents in public and school environments.

**MATERIAL AND METHODS**

This population-based study was conducted in two Brazilian cities. Urinary symptoms were evaluated by the DVSS, constipation by Rome IV Criteria. Participants were asked about the frequency they avoid going to the bathroom out of home and at school and the reasons for this avoidance behavior. Children with neurological, chronic, or anatomical conditions were excluded.

**RESULTS**

The sample comprised 402 children and adolescents, with median age 8 years, IQR;6-10), 208(51.7%) were female. Among them, 45(11.2%) had constipation, 49(12.2%) LUTS, and 34(8.5%) BBD. In schools, 303(75.4%) reported bathrooms located inside the classroom or on the same floor, while 99(24.6%) indicated they were on another floor. A total of 161(40%) avoided using the bathroom. In these 161 participants, the reasons to do so included the teacher prohibition(136;84,5%), unpleasant odor(26;16.2%), shame(19;11.8%) and facility occupancy(12;7.4%). We found association between urgency and prohibiting going (p=0.002) and unpleasant odor (p=0.005). 298(74.1%) participants avoided using public restrooms, the majority due to poor hygiene(175;58.7%). Avoiding using public restrooms was associated with holding maneuvers(p=0.001) and urgency(p=0.0001).

**CONCLUSIONS**

Environmental and social factors influence voiding behavior in children and adolescents.

*08:49 - 08:55*
**ICCS-S01-5** (OP)

# COMPARISON OF THE RESULTS OF 4 MONTHS OF PTENS TREATMENT OF OVERACTIVE BLADDER IN CHILDREN WITH AND WITHOUT CONSTIPATION.

Agata LAKOMY-GAWRYSZEWSKA [1], Katarzyna JÓZEFOWICZ [2], Ilona CHUDZIK [1], Andrzej GOŁĘBIEWSKI [3], Aleksandra ŻUROWSKA [1] and Michal MATERNIK [4]
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**PURPOSE**

Among the conditions underlying childhood daytime incontinence, the most frequent is overactive bladder (OAB). Parasacral transcutaneous electrical nerve stimulation (pTENS) is a well-established therapy for OAB treatment in children; however, confounding factors, such as constipation, may influence the treatment effect.

**MATERIAL AND METHODS**

A total of 57 patients (43 girls and 14 boys) with OAB, with a mean age of 10.8 years were enrolled in this study. Nineteen participants fulfilled the criteria for constipation (Group A), and 38 were free from this symptom (Group B). Both groups were similar regarding age and severity of symptoms.
The pTENS treatment lasted for 4 months, twice daily, with 1-hour sessions. Results were evaluated using a 14-day bladder diary (episodes of daytime incontinence, enuresis, and urgency) at two time points: at 4 months (end of active therapy) and at 10 months (6 months after cessation of therapy).

**RESULTS**

Before treatment, in Group A, daytime incontinence occurred 7.27/14 days, enuresis 7,67/14d, and urgency episodes 6.22/14d. After 4 months of treatment, the occurrence of symptoms decreased significantly ($p < 0.05$) to 4,44/14d, 4.61/14d, and 3.28/14d, respectively. Six months after treatment cessation, the effect remained stable at 4,28/14d, 3,94/14d, and 1,56/14d.
Before treatment, in Group B, respective symptoms occured 6.9/14d, 5,38/14d, and 7.69/14d. After 4 months of treatment, symptoms decreased significantly ($p < 0.05$) to 3,41/14d, 2,95/14d, and 3.28/14d. Six months after treatment cessation, the effect remained stable at 2,82/14d, 2,44/14d, and 2,38/14d.
Comparing the treatment effect of pTENS after 4 months of active treatment and 6 months after treatment cessation, there were no statistical differences between Group A and Group B.

**CONCLUSIONS**

Four months of pTENS treatment for OAB is effective in reducing symptoms and does not differ between children with and without constipation, both immediately after therapy and 6 months after treatment cessation.

*08:55 - 09:01*
**ICCS-S01-6** (OP)

# THE USE OF MACHINE LEARNING IN THE AUTOMATED CLASSIFICATION OF UROFLOWMETRY CURVES IN CHILDREN

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**PURPOSE**

Uroflowmetry interpretation in children is often inconsistent with a high variability among and within observers. Automated assessment will result in a consistent classification, which is helpful in clinical practice, as well as for research purposes. In this study, a machine learning algorithm was developed to distinguish normal from abnormal uroflowmetry patterns, as a first step in full automated uroflowmetry curve assessment.

**MATERIAL AND METHODS**

Uroflowmetry measurements from children who completed a 10-day inpatient urotherapy program were retrospectively analyzed. Excluded were voided volumes < 100ml. The curves were classified as either normal (bell or tower shaped) or abnormal (all others). A random forest classifier algorithm was used as machine learning model, while applying a 5-fold cross-validation. The result of the machine learning was reviewed by two independent experts.

**RESULTS**

After balancing of the dataset, resulting in an equal number of normal and abnormal uroflowmetry curves, 470 curves were finally included. The mean accuracy of the machine learning model on the test dataset was 0.89. The experts agreed in 86.0-87.9% with the machine learning classification. The agreement between the experts was good, with an intraclass correlation coefficient of 0.829. Curves with minor fluctuations or a high maximum flowrate were most prone for misclassification by the machine learning algorithm.

**CONCLUSIONS**

This study demonstrates the potential of a machine learning model in the automated classification of uroflowmetry curves. The same method can be used to extend towards other curve shape descriptors.

*09:01 - 09:07*
**ICCS-S01-7** (OP)

# THE ROLE OF URINARY ATP IN THE DIAGNOSIS, TREATMENT, AND FOLLOW-UP OF CHILDREN WITH OVERACTIVE BLADDER

Turker ALTUNTAS [1], Cagri Akin SEKERCI [2], Banu ISBILEN BASOK [3], Mesut FIDAN [3], Onur Can OZKAN [1], Selcuk YUCEL [4], Kamil CAM [1] and Tufan TARCAN [1]
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**PURPOSE**

Overactive bladder (OAB) and its relationship with biomarkers have been increasingly studied. Bladders with detrusor overactivity are known to secrete higher levels of Adenosine Triphosphate (ATP) from their urothelium and cholinergic nerve endings. This prospective study aimed to investigate the diagnostic, treatment, and follow-up value of urinary ATP in children with OAB, a topic previously explored only in adults and neurogenic cases.

**MATERIAL AND METHODS**

58 children with OAB and 28 healthy controls were included. In the OAB group, midstream urine samples were collected before and one month after anticholinergic treatment. Samples were centrifuged, stored at -80°C, and analyzed using an ELISA kit. ATP levels were compared between the OAB and control groups, as well as pre- and post-treatment levels in the OAB group. Correlations between urinary ATP levels and lower urinary system parameters were also evaluated.

**RESULTS**

The OAB group included 29 males and 29 females, with a median age of 7 years. The control group's median age was 10 years. Urinary ATP levels were significantly higher in the OAB group (12.15 ng/mg creatinine) compared to controls (9.92 ng/mg, p=0.04). However, no significant change was observed in ATP levels after treatment (p=0.84), nor was there a correlation between ATP levels and LUS parameters.

Comparison of Urinary ATP in Control and OAB Groups

| | OAB Group (n=58) | Control Group (n=28) | P value |
|---|---|---|---|
| ATP (ng/mg cre) Median (min-max) | 12,15 (2,48-170,62) | 9,92 (3,09-29,95) | 0,04 |

Comparison of Urinary ATP at Baseline and Post-Treatment in the OAB Group

| | Baseline (n=30) | Post-Treatment (n=30) | P value |
|---|---|---|---|
| ATP (ng/mg cre) Median (min-max) | 25,44 (2,48-170,62) | 18,05 (3,51-96,28) | 0,84 |

**CONCLUSIONS**

Urinary ATP appears to be a potential biomarker for diagnosing OAB in children. However, its role in treatment and follow-up requires further investigation with larger and more diverse patient groups.

# ICCS-S02: NEUROGENIC BLADDER

*Moderators: Stacy Tanaka (USA), Jo Clothier (UK)*

**ICCS & ESPU-Nurses Meeting on Friday 5, September 2025, 09:25 - 10:13**

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*09:25 - 09:31*
**ICCS-S02-1** (OP)

## PROACTIVE UROLOGICAL PROTOCOL IN THE MANAGEMENT OF PATIENTS WITH MMC AT A PUBLIC UNIVERSITY HOSPITAL

Renan Timóteo De OLIVEIRA, Alissa Fernanda De Souza BRITTO, Mateus Batista PEREIRA, Iara Regina Siqueira LUCENA, Fernanda Beretta REIS, Antônio Euclides Pereira De SOUZA JUNIOR, Antônio Rebello Horta GÖRGEN, Patric Machado TAVARES and Tiago ROSITO
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**PURPOSE**

In 2006, a study published by the Medical University of Innsbruck, Austria, indicated a reduction in renal damage and the number of surgeries in patients with myelomeningocele (MMC) undergoing an early-onset proactive protocol. That same year, we initiated our protocol at the Hospital de Clínicas de Porto Alegre, a public university hospital in southern Brazil. Now, after nearly 20 years, we present our results.

**MATERIAL AND METHODS**

Retrospective cohort study since 2000. From 2006 onwards, all patients were submitted to the institutional protocol for paediatric neurogenic bladder. Urodynamic studies were performed on all patients at admission. Ultrasound scans were performed annually and DMSA scans every 5 years. Relative risk for bladder augmentation and DMSA alteration was calculated in a subgroup analysis including patients between 8-20 years old to pair for age. All patients included under 2 years of age were considered exposed to the protocol and the control group was considered those included over 5 years of age.

**RESULTS**

To date, 190 patients have been included. The current median follow-up time is 10.10 (0-24.72) years. 16.9% underwent intrauterine correction in the historical series, however, the rate is 49.12% in the last 5 years. Urodynamics demonstrated 62.2% with overactivity/low compliance, 28.4% with sphincter incompetence and 33.3% of patients classified as high risk. In the subgroup analysis, there was a 70% reduction in the risk of bladder augmentation (RR 0.300, 95% CI 0.089 - 1.000, p = 0.050) and a 72% reduction in the risk of DMSA alteration (RR 0.288, 95% CI 0.099 - 0.841, p = 0.022).

**CONCLUSIONS**

A proactive approach to paediatric neurogenic bladder was able to reduce renal damage and the need for bladder augmentation when initiated in MMC patients under 2 years of age. Thus, we reinforce the idea of early intervention for these patients, ideally from birth, to prevent poor outcomes.

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*09:31 - 09:37*
**ICCS-S02-2** (OP)

# IMPACT OF ANTENATAL REPAIR ON BOWEL FUNCTION IN MYELOMENINGOCELE PATIENTS

Fernanda Bereta REIS, Renan Timóteo De OLIVEIRA, Patric Machado TAVARES, Antônio Rebello Horta GÖRGEN, Maria Eduarda LIMA, Leonardo FRAGA and Tiago Elias ROSITO
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**PURPOSE**

Neurogenic bowel is a condition resulting from malformations in nervous system pathways, commonly associated with myelomeningocele. This condition often manifests symptoms such as constipation and fecal incontinence. Myelomeningocele presents significant neurological challenges, and antenatal surgery has been proposed to improve outcomes, particularly in the orthopedic and neurological domains. While some studies report some improvements in bladder function, evidence regarding its impact on bowel function remains limited.

**MATERIAL AND METHODS**

This prospective cohort study evaluates bowel symptoms in patients aged 4 to 18 years, with a focus on assessing fecal continence in the pediatric population. We included 75 patients, 16 of whom had undergone antenatal surgery.

**RESULTS**

The majority of patients had lumbar and sacral lesions. In the postnatal surgery group, 92.8% of patients experienced either constipation or fecal incontinence, with 7.2% remaining asymptomatic. In contrast, 18.2% of patients in the fetal surgery group were asymptomatic, indicating that the likelihood of being asymptomatic more than doubled in the antenatal group. Additionally, urinary tract infections (UTIs) were more common in patients with bowel symptoms in both groups. In the antenatal surgery group, 31% of patients were non-ambulatory, compared to 47% in the post-natal surgery group, where mobility impairments may further exacerbate bowel symptoms.

**CONCLUSIONS**

This study represents an initial analysis within a larger cohort of myelomeningocele patients treated at our institution in Brazil. Neurogenic bowel dysfunction remains underrecognized and undertreated worldwide in this patient population, despite its significant impact on both quality of life and bladder function. The initial findings give us some hope regarding bowel function improvement in antenatal repair to be confirmed in the future.

*09:37 - 09:43*
**ICCS-S02-3** (OP)

# ADDRESSING BOWEL HEALTH IN MYELOMENINGOCELE: A CRITICAL PERSPECTIVE

Fernanda Bereta Dos REIS, Patric Machado TAVARES, Alissa Fernanda De Souza BRITTO, Antônio Rebello Horta GÖRGEN, Renan Timóteo De OLIVEIRA, Maria Eduarda LIMA, Leonardo Vaccaro DE FRAGA and Tiago Elias ROSITO
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**PURPOSE**

Neurogenic bowel and bladder dysfunction are prevalent among patients with myelomeningocele. Existing literature supports the notion that comprehensive bowel management can alleviate urinary incontinence and improve bladder function.

**MATERIAL AND METHODS**

At our institution, a high-volume referral center in Brazil, we surveyed the families of 75 pediatric patients aged 4 to 18 years regarding neurogenic bowel symptoms, including continence, incontinence, Bristol stool scale classification, and independence in bowel care during their first evaluation by the multidisciplinary team.

**RESULTS**

Our results reveal that nearly 30% of patients had never been screened for bowel symptoms, resulting in a lack of therapeutic intervention. Among these, 76% reported experiencing bowel-related symptoms, including Bristol stool scale 1, which could potentially be alleviated with basic therapeutic interventions

**CONCLUSIONS**

Our findings highlight that even within specialized centers, patients with myelomeningocele remain underdiagnosed and undertreated with respect to bowel care. Current evidence suggests that structured bowel management not only improves quality of life but also optimizes bladder dynamics and reduces urinary incontinence when integrated with multimodal treatment strategies. We advocate for systematic screening for bowel symptoms by urologists and recommend the establishment of a multidisciplinary care team, including a bowel care specialist, as the standard of care for these individuals.

*09:43 - 09:49*
**ICCS-S02-4** (OP)

# DOES INTRAUTERINE CORRECTION OF MMC IMPROVE NEONATAL URODYNAMIC FINDINGS?

Matheus Batista PEREIRA, Alissa Fernanda De Souza BRITTO, Fernanda Beretta REIS, Antônio Euclides De Souza JUNIOR, Antônio Rebello Horta GOERGEN, Iara Regina Siqueira LUCENA, Patric Machado TAVARES, Renan Timóteo De OLIVEIRA and Tiago ROSITO
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**PURPOSE**

Since the 2011 MOMS trial, we have questioned whether intrauterine closure alters urological outcomes. Since 2017, we have initiated a prospective cohort of patients born with myelomeningocele (MMC) at our institution. In this analysis, we compare neonatal urodynamic results in patients with intrauterine versus postnatal closure, all born and evaluated at the same institution.

**MATERIAL AND METHODS**

Prospective study of patients with MMC initiated in 2017. For this analysis, we selected patients with at least 1 year of follow-up. All patients underwent urodynamic studies and voiding cystourethrograms by 6 months of age. The examinations were performed by the same professionals at the same institution. Urodynamic risk stratification was based on the CDC's Urologic Management to Preserve Initial Renal Function Protocol for Young Children with Spina Bifida (UMPIRE). The urodynamic study followed the guidelines and nomenclature recommended by the ICCS. For comparison, patients were divided into two groups: intrauterine closure and postnatal closure. For statistical analysis, we performed Chi-square and Fisher's exact tests.

**RESULTS**

This analysis included 53 patients 27 postnatal group / 26 intrauterine group. Urodynamic studies identified detrusor abnormality in 46.1% of the postnatal group versus 61.5% in the intrauterine group (p=0.20). Low/moderate/high urodynamic risk was 29.6%, 44.4% and 26.0% in the postnatal group and 34.6%, 23.0% and 42.4% in the intrauterine group, respectively (p=0.24). There was 77.2% (27/35) agreement between urodynamic studies and voiding cystourethrograms regarding the degree of urodynamic risk and imaging abnormality (p=0.02). The presence of VUR and DMSA alterations was similar between the groups.

**CONCLUSIONS**

There was no significant difference in urodynamic risk between the two groups. The moderate risk grading proposed by UMPIRE may be a confounding factor in this analysis. There was good agreement between urodynamic studies and voiding cystourethrograms, reinforcing the value of video-urodynamics.

*09:49 - 09:55*
**ICCS-S02-5** (OP)

# THE EFFECT OF KINESIOTAPE APPLICATION AND PELVIC FLOOR REHABILITATION IN CHILDREN WITH NEUROGENIC BLADDER DYSFUNCTION

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**PURPOSE**

Aim of the study was to delineate the clinical effects of kinesiotape application during pelvic floor rehabilitation (PFR) in children with neurogenic bladder dysfunction (NBD) due to spina bifida.

**MATERIAL AND METHODS**

Children with the diagnosis of NBD due to spina bifida were studied. Patients received behavioral therapy, diaphragmatic breathing, core stabilization exercises, and perineal sensory training in PFR. Two groups were formed; patients who received kinesiotape application with PFR or only PFR. Age, gender, patient satisfaction scores, no of diaper change, maximum voluntary voided volume, voluntary defecation, urinary tract infection (UTI) episodes, constipation status, dry periods after catheterization and pelvic floor EMG activities were noted. Results were analyzed statistically.

**RESULTS**

There was a total of 36 children (9,8±4,3 years) with NBD due to spina bifida. 11 patients (5 boys, 6 girls) received kinesiotape application added to standard PFR and 25 patients (13 boys, 12 girls) received only PFR. There was no difference in terms of age, gender, diaper change, maximum voluntary voided volume, voluntary defecation, UTI episodes, constipation, dry periods between groups. Patient satisfaction scores of those who received kinesiotape was significantly higher than standard PFR (7,63±0,8 vs 5,84±1,86, p=0,006). Pelvic floor EMG activity was significantly higher after kinesiotape application (5,47±1 mV vs 4,89±2,73 mV, p=0,011).

**CONCLUSIONS**

Standard pelvic floor rehabilitation with kinesiotape application may help to improve patient satisfaction and pelvic floor EMG activity during pelvic physiotherapy in children with neurogenic bladder dysfunction due to spina bifida. Studies with larger cohorts are necessary to evaluate the clinical outcome in these patients.

*09:55 - 10:01*
**ICCS-S02-6** (OP)

# EVALUATION AND FOLLOW-UP OF CONGENITAL NEUROGENIC LOWER URINARY TRACT DYSFUNCTION (NLUTD). IS A PROACTIVE APPROACH ENOUGH?

Cristian SAGER, Yesica GOMEZ, Carol BUREK, Javier RUIZ, Felicitas LOPEZ IMIZCOZ, Nicolas ROSIER, Otilia BLAIN, Danel ALBERTI, Leandro ASEN, Ignacio ARENAS and Santiago WELLER
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**PURPOSE**

Congenital neurogenic lower urinary tract dysfunction (NLUTD) carries high uronephrological morbidity with the time, so early evaluation and close follow up is essential. The objective is to present outcomes of NLUTD and determine risk factors.

**PATIENTS AND METHODS**

This retrospective cohorte included newborns with bifida spina, specifically myelomeningocele with postnatal closure. A proactive approach was implemented in the first days of life: early initiation of CIC in neonatology, videourodynamic evaluation since 3th month, anticholinergics drugs according the urodynamic data and renal function monitoring. Follow up to 5 years. Non-parametric tests and categorical variables were analyzed using the Chi-square test or Fisher's test. Stata.18 was used.

**RESULTS**

128 children with spina bifida were studied, 50% boys, with a mean follow-up of 5.5 years. Initially, 44%, 4% and 20% of them had UTI, hydronephrosis and VUR respectively. Hyperactivity and pdetmax >20 cm of H2O were: 65 and 36%. Abnormal DMSA scintigraphy was 24%. With a proactive approach, UTI, VUR and hiperactivity decreased in: 12%, 10% and 46% respectively. On the contrary, hydronephrosis, cystometric capacity and pdetmax >20 cm of H2O increased to 25%, 35% and 43% respectively. There were no significant differences with other urodynamic variables. The resolution rate of VUR was 58.3% in 1.8 years (range: 7- 49 months). Premature and neurosurgical closure beyond 24 hours were identified as predisposing factors for VUR ($p < 0.001$). At the end of follow-up, DMSA scintigraphy was associated with RVU in 23% (p: 0.03). With abnormal Microalbuminuria/Creatinine in 27%, we identified CKD: Chronic kidney disease in 39%.

**CONCLUSIONS**

Although the proactive approach reduces UTI, vesicoureteral reflux and detrusor hyperreflexia, other variables have not improved, such as endovesical pressures and the progression of chronic kidney disease. This opens a more complex scenario for improving the management strategies.

*10:01 - 10:07*
**ICCS-S02-7** (OP)

# CLEAN INTERMITTENT CATHETERIZATION TEACHING REIMAGINED: DEVELOPING A FRAMEWORK TO ENHANCE PATIENT EDUCATION AND SUPPORT

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**PURPOSE**

Clean Intermittent Catheterization (CIC) is essential for managing urinary retention and lower urinary tract dysfunction, reducing infection risks, preventing incontinence, and preserving kidney health. Despite its benefits, no standardized CIC teaching framework exists, leading to variability in education and support that affects adherence and outcomes. This quality improvement (QI) initiative at a high-volume pediatric medical center aims to identify facilitators and barriers to effective CIC education, evaluate workflows, and propose strategies to improve patient and caregiver experiences.

**MATERIAL AND METHODS**

Using a QI approach grounded in interpretive description methodology, we engaged 14 healthcare providers from our Pediatric Urology clinics through three one-on-one interviews and three focus groups. Discussions explored CIC educational processes, clinician and nursing workflows, barriers, and improvement opportunities. Data were transcribed, thematically analyzed, and summarized in workflow diagrams.

**RESULTS**

Patients initiating CIC had variable diagnoses and prognoses. CIC educators reported improved outcomes when clinicians pre-communicated rationale for CIC, expected duration, and recovery potential to patients, caregivers, and educators. Facilitators included pre-reading educational materials, involvement of an additional caregiversduring teaching, and early follow-ups for reassurance. Barriers included limited health literacy, supply challenges, teaching non-English-speaking families, and workflow inconsistencies. Gaps in caregiver engagement and lack of standardized protocols were also identified. Proposed solutions included integrating health literacy tools, expanded interpreter services, and patient-centered materials. Workflow mapping revealed opportunities to enhance communication and coordination.

**CONCLUSIONS**

This initiative highlights key areas for improvement in CIC education and support. Standardized workflows, pre-education materials, and patient-centered protocols will be implemented to improve adherence, outcomes and satisfaction.

*10:07 - 10:13*
**ICCS-S02-8** (OP)

# CORRELATION OF LOWER URINARY TRACT SYMPTOMS WITH VIDEOURODYNAMICS IN CHILDREN WITH SEVERE CEREBRAL PALSY, GROSS MOTOR FUNCTION CLASSIFICATION SCORE 4 AND 5.

Anna PAGE [1], Jo CLOTHIER [1], Riccardo MANUELE [1], Arash TAGHIZADEH [2] and Anne WRIGHT [1]
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**PURPOSE**

It is known that children with cerebral palsy (CP) suffer from bladder dysfunction and abnormal UD findings. CP presents with a spectrum of severity classified by GMFCS. For the first time, we address LUTS solely in severe CP (class 4/5) where children rely on carer observation.

**MATERIAL AND METHODS**

Single institution retrospective review (2006-2024) of all patients with CP GMFCS 4/5 with carer-reported LUTS correlated with VUD investigation. All parameters quoted as percentages, medians (with range). ICCS/ICS definitions/standards used.

**RESULTS**

41 patients (GMFCS 4=16, male=20, age at VUD 12.3y(2.92-21y) had presenting features (PF) of: discomfort/pain related to bladder function(34%), incontinence(19.5%), UTIs(14.6%), retentive episodes(14.6%), abnormal urinary stream(9.75%) other(7.3%). Fluid intake and constipation were adequately addressed in 71%(gastrostomy) and 90% respectively. All were in diapers. Bladder capacity, PF and UD parameters are detailed in Table 1. Only one child had normal UD storage and voiding. Small BC and all LUTS are associated with high rates of abnormal UD storage and voiding. 64% of children complaining of discomfort had associated abnormal UD events. 54% had UTIs. 22% had abnormal upper tracts on US.

| Presenting feature | CC %* | Abnormal storage % | DO % | Low compliance % | Abnormal voiding % | DSD % | >PVR % | VUR % | Normal upper tracts % |
|---|---|---|---|---|---|---|---|---|---|
| Discomfort<br><br>n=14/34% | Small42.9<br><br>Normal50<br><br>Large7.1 | 57.1 | 35.7 | 7.1 | 83.3 | 50 | 66.6 | 25 | 92.9 |
| Incontinence<br><br>n=8/19.5% | Small62.5<br><br>Normal25<br><br>Large12.5 | 75 | 25 | 12.5 | 100 | 50 | 100 | 0 | 100 |
| UTIs<br><br>n=6/14.6% | Small0<br><br>Normal66.6<br><br>Large33.3 | 50 | 50 | 0 | 80 | 40 | 60 | 0 | 80 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Retention<br><br>n=6/14.6% | Small16.6<br><br>Normal66.6<br><br>Large16.6 | 66.6 | 16.6 | 33.3 | 66.6 | 50 | 66.6 | 33.3 | 66.6 |
| Abnormal stream<br><br>n=4/9.75% | Small25<br><br>Normal75<br><br>Large0 | 50 | 25 | 25 | 100 | 66.6 | 100 | 25 | 75 |
| Miscn=3/3.1% | Small100 | 100 | 33.3 | 66.6 | 100 | 100 | 100 | 33.3 | 66.6 |

Table 1.

Small<65% Normal65-150% Large>150%

**CONCLUSIONS**

Bladder dysfunction is a significant source of comorbidity in severe cerebral palsy, including a cause of unexplained discomfort and pain. Education will enable improved quality of life in these highly vulnerable children.

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*10:13 - 10:19*
**ICCS-S02-9** (OP)

## TOILET TRAINING AND CONTINENCE OUTCOMES IN PATIENTS WITH CLOSED SPINAL DYSRAPHISM: FACTORS AFFECTING CONTINENCE OUTCOMES IN MULTICENTER KOREAN COHORT

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**PURPOSE**

This multicenter study tried to show time course of toilet training (TT), urinary/ fecal control of patients with closed spinal dysaraphism (SD) who received untethering at their infancy.

**MATERIAL AND METHODS**

Data were gathered from 6 tertiary care centers in Korea. Those who completed follow-up at least 10 years of follow-up were eligible for study. Patients who presented tight filum terminale and whose level of conus higher than L2 were excluded from analysis. Baseline demographics, SD related features, age of completing TT, urinary and fecal continence at the age of 5, 7 and 10 years were included in the analysis. Difference in time courses between those doing CIC and spontaneous voiding and factors affecting continence outcome were assessed.

**RESULTS**

Data of 217 patients were eligible for review. Median follow-up period was 12 (10-22) years and lipomeningomyelocele accounted for 155 (71%) of pathology. CIC was required in 86 (40%) patients. Median age of TT in those with spontaneous voiding and CIC were 8.5 and 12 years, respectively. While the analysis was limited to spontaneous voiders, urinary/fecal incontinence and the lack of TT was not infrequent and this slowly improved from 5 to 10 years of age. Presence of urinary incontinence and/or fecal incontinence were significantly associated with this delayed TT.

Followup results among spontaneouls voiders (N=131)

| | 5 years | 7 years | 10 years |
|---|---|---|---|
| Urinary incontinence | 31 (23%) | 20 (15%) | 13 (10%) |
| Fecal incontinence | 16 (12%) | 10 (8%) | 9 (7%) |
| Toilet training | 109 (83%) | 115 (88%) | 119 (91%) |

**CONCLUSIONS**

Substantial number of SD patients showed delayed TT even for the spontaneous voider. This did not promptly improved in early elementary school years. Active control of fecal and urinary problem, though prompt response may not be achieved, may be beneficial to achieve timely TT which facilitates early adaptation to school life.

# ICCS-S03: OTHER

*Moderators: Michal Maternik (PL), Jose Murillo (BRA)*

**ICCS & ESPU-Nurses Meeting on Friday 5, September 2025, 10:25 - 10:43**

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*10:25 - 10:31*
**ICCS-S03-1** (OP)

## COST EFFECTIVE SUPRAPUBIC LINES FOR URODYNAMIC STUDIES

Sharon MOHAN KUNNATH, Sara LOBO, Anu PAUL, Massimo GARRIBOLI, Arash TAGHIZADEH and Pankaj MISHRA
*Evelina London Children's Hospital, Paediatric Urology, London, UNITED KINGDOM*

**PURPOSE**

Supply issues with commercially available SPL that we use for urodynamics prompted us to seek alternatives. We evaluated an alternative device.
Suprapubic lines (SPL) for urodynamics have been used routinely in our unit. The aim was to evaluate the use of an improvised suprapubic line for video urodynamics (VUD) at a tertiary Paediatric urology unit.

**MATERIAL AND METHODS**

Retrospective case review.
Under general anaesthesia, 14 G Abbocath® cannula (Hospira Inc,USA) was used to introduce 4 Fr feeding tube (Vygon®,UK) which was then secured with Silk. Urodynamics was performed the same day.
Outcome measures were surgical time and complications. Data quoted as median (IQR).

**RESULTS**

25 patients had this improvised SPL. Patient age at procedure was 111 months (42-152 months). The surgical time was 18 minutes (15-20 minutes). Extravasation occurred during VUD in one patient. Two patients with known voiding problems were unable to void for the VUD study and were admitted for observation overnight with one needing urethral catheter insertion This complication rate of 3/25 compares is similar to historical series.
Of note the described technique represents a considerable cost saving of 42.16 pounds/49.84 Euros over the previously used commercial alternative.

**CONCLUSIONS**

The described technique has an acceptable clinical outcome and is economically favourable. It is a safe method that is cost saving but needs further evaluation.

References:
[1] Bhandarkar K, Giannettoni A, Mishra P, Paul A, Clothier J, Manuele R, et al. Morbidity following suprapubic line insertion for videourodynamics in children. Journal of Pediatric Urology 2023;19:247.e1-247.e6. https://doi.org/10.1016/j.jpurol.2023.01.007.

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*10:31 - 10:37*
**ICCS-S03-2** (OP)

# INDEPENEMA: DEVELOPMENT OF A NOVEL CONE ENEMA ASSIST DEVICE

Michelle HSIA, Jason VAN BATAVIA and Joy KERR
*Children's Hospital of Philadelphia, Urology, Philadelphia, USA*

**PURPOSE**

Patients with Spina Bifida (SB) experience Neurogenic Bowel Dysfunction (NBD) and require a daily enema program to become socially continent of feces. The cone ostomy irrigator is typically the first enema device introduced at typical time of potty training, administered by the caregiver daily. The transition to independence with bowel management using this device is difficult for SB patients who may have problems with manual dexterity and balance while sitting on the toilet. Our goal was to develop an assistive device that could allow patients with SB to become independent in administering the cone enema, which allows patients to become autonomous, therefore improving quality of life.

**MATERIAL AND METHODS**

Our team consists of an Occupational Therapist, Nurse Practitioner and a Urologist. We submitted our idea for an assistive device to the Sprint program through an internal funding mechanism for medical device innovation and were awarded a grant to bring our device to fruition. We partnered with an outside engineering firm to bring the concept to prototype. With the first prototype, we performed am IRB approved pilot study including 10 patients with NBD who came to our office for an evaluation of manual dexterity, upper body range of motion, core strength and executive function. We taught patients and their families how to use the assistive device with their existing cone enema system and sent them home for a one week trial of the device with planned video visit for feedback.

**RESULTS**

While use of the device was feasible, patient and family feedback highlighted areas of improvement which we are incorporating into the next iteration of the device.

**CONCLUSIONS**

Patients and families reported that use of the assist device increase independence in bowel management was life changing.

*10:37 - 10:43*
**ICCS-S03-3** (OP)

# IMPACT OF CLEAN INTERMITTENT CATHETERIZATION ON INTIMACY & SEXUALITY

Lillian HAYES, Mélise KEAYS, Regina THAM, Rachel SAUNDERS and Stuart BAUER
*Boston Children's Hospital, Urology, Boston, USA*

**PURPOSE**

Clean Intermittent Catheterization (CIC) is a mainstay for managing bladder dysfunction in individuals with lower urinary tract dysfunction. Little information exists regarding how it affects intimacy & sexuality. We aimed to enhance our understanding of how patients and caregivers perceived and navigated these sensitive issues.

**MATERIAL AND METHODS**

Semi-structured interviews were conducted, evaluating various aspects of how CIC has impacted the lives of patients and their caregivers. Purposeful sampling methods identified eligible families. Between 8/2018-10/2019, 52 interviews were conducted with patients and caregivers. Questions about intimacy and sexuality were asked of all caregivers and of patients >18 years. Interview transcripts were de-identified, coded, and analyzed.

**RESULTS**

Patients >18 years old (n = 19) expressed (1) fear of rejection on disclosure of CIC [37%]; (2) increased confidence with advancing maturity [37%] (3); CIC affected spontaneity & increased anxiety around intimacy [11%]; (4) frustration with inadequate sexual health information [21%]. Caregivers (n = 26) expressed (1) concerns about how CIC would affect intimacy & sexuality [23%]; (2) lack of direction regarding how to approach discussions with their children [50%].

**CONCLUSIONS**

CIC presents unique challenges in intimate partner relationships. While these challenges could be alleviated with appropriate guidance and dialogue from caregivers and healthcare providers, patients and caregivers voiced receiving inadequate counseling from them in these areas. Appropriate sexual health information and guidance around approaching these conversations early would empower patients and families to have more open discussions about sexual health and improve how patients adapt to this important aspect of their lives.

# ICCS-S04: BOWEL MANAGEMENT

*Moderators: Larisa Kovacevic (USA), Luise Borch (DEN)*

**ICCS & ESPU-Nurses Meeting on Friday 5, September 2025, 12:50 - 13:15**

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*12:50 - 12:56*
**ICCS-S04-1** (OP)

## CONSTIPATION TREATMENT IMPROVES DAYTIME URINARY INCONTINENCE IN CHILDREN WITH BLADDER AND BOWEL DYSFUNCTION

Sofie AXELGAARD [1], Konstantinos KAMPERIS [2], Søren HAGSTRØM [3] and Luise BORCH [1]
*1) Gødstrup Hospital, Department of Pediatrics and Adolescent Medicine, Herning, DENMARK - 2) Aarhus University Hospital, Department of Pediatrics and Adolescent Medicine, Aarhus N, DENMARK - 3) Aalborg University Hospital, Department of Pediatrics and Adolescent Medicine, Aalborg, DENMARK*

**PURPOSE**

Bladder and bowel dysfunction (BBD) affects up to 20% of children. Current guidelines recommend treating constipation before urinary incontinence, based on limited evidence.
This study aims to assess the effectiveness of constipation treatment in reducing daytime urinary incontinence, and to compare the outcomes of combining constipation treatment with urotherapy versus constipation treatment alone.

**MATERIAL AND METHODS**

Children aged 5-14 years (n=100) with treatment-naive BBD were randomized to receive either constipation treatment (n=50), or combination treatment with urotherapy (n=50) for 12 weeks. The primary outcome was reduction in the number of wet days per week.

**RESULTS**

To date, 54 children have completed the study. The median age in the constipation group was 7.0 years (IQR 6.0-8.0), and 6.6 years (IQR 5.0-9.0) in the combination group. Both groups consisted of 63% male participants. Median wet days per week decreased from 6.0 (IQR 4.0-7.0) to 3.5 (IQR 2.0-5.0) in the constipation group, and from 6.0 (IQR 3.0-7.0) to 3.0 (IQR 2.0-6.0) in the combination group. At follow-up, 15.4% in both groups had complete resolution (100% reduction) of urinary incontinence. Additionally, 48.2% in the constipation group, and 42.3% in the combination group had at least a 50% reduction in symptoms. No significant difference was observed between the groups (p = 0.170).

**CONCLUSIONS**

Constipation treatment alone effectively reduces daytime urinary incontinence in children with BBD. Both treatment strategies showed similar reductions in wet days per week, suggesting constipation treatment alone may be a sufficient first-line approach.

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*12:56 - 13:02*
**ICCS-S04-2** (OP)

# ACCURACY OF THE BRISTOL STOOL FORM SCALE IN THE DIAGNOSIS OF CONSTIPATION

Anderson LUIZ PIMENTEL FERREIRA [1], Felipe SANTOS MARIMPIETRI [2], Antonio Vitor NASCIMENTO MARTINELLI BRAGA [2], Taynna COSTA [2], Maria LUIZA VEIGA [1], Ana Aparecida NASCIMENTO MARTINELLI BRAGA [1], Glicia ESTEVAM DE ABREU [1] and Ubirajara BARROSO [3]
*1) Escola Bahiana de Medicina e Saúde Pública, Salvador, BRAZIL - 2) Salvador, BRAZIL - 3) Escola Bahiana de Medicina e Saúde Pública and Hospital Universitário Professor Edgar Santos, Salvador, BRAZIL*

**PURPOSE**

Constipation accounts for 30% of gastro referrals, with 95% being functional constipation (FC). The bristol stool form scale (BSFS) classifies stools into seven types, associating types 1-2 with FC and 5-7 with FI. Its pediatric reliability, however, requires further validation. Therefore, we evaluated the accuracy of the BSFS in the diagnostic evaluation of FC.

**MATERIAL AND METHODS**

A retrospective cohort study (July 2021–December 2023) included first consultations of children with LUTS. Patients were divided into two BSFS-based groups using two criteria: Criterion 1, Group 1 (types 1, 2, 5, 6, 7), Group 2 (types 3, 4); Criterion 2, Group 1 (types 1, 2), Group 2 (types 3–7). Patients with incomplete data were excluded. FC diagnosis was defined by ≥2 positive Rome IV criteria. Statistical analysis included Chi-square tests for BSFS-FC associations and ROC curve (AUC) analysis for discriminatory/predictive capacity.

**RESULTS**

The sample included 244 children (median age 9 years; IQR 7–11), 124 (50.8%) were male. FC was diagnosed in 187 (76.7%) by Rome IV criteria, while 57 did not meet criteria. No significant heterogeneity was found in baseline characteristics between criteria. No association was observed between bristol stool form scale groups and FC diagnosis (p=0.460; p=0.260). BSFS discriminatory capacity, evaluated by AUC, was 0.542 (p=0.243), showing poor discrimination. Mean constipation scoring system scores were similar between groups: 10.45 (Group 1) vs. 10.41 (Group 2) in the second criterion.

**CONCLUSIONS**

The bristol stool form scale demonstrates low reliability in supporting the clinical diagnosis of functional constipation.

*13:02 - 13:08*
**ICCS-S04-3** (OP)

# CHILDREN WITH ENURESIS - ARE THEY MORE CONSTIPATED THAN OTHERS?

Malin BORGSTRÖM [1], Barbro H SKOGMAN [2] and Tryggve NEVÉUS [1]
*1) Uppsala University, Department of Women's and Children's Health, Uppsala, SWEDEN - 2) Faculty of Medicine and Health, Örebro University, Örebro, SWEDEN*

**PURPOSE**

The bowel's influence on enuresis is probably important even though debulking treatment by itself will not make the child dry. Parents and patients may be unaware of the child's constipation until the enuresis is evaluated. A crucial question is how common constipation is among children without bladder problems.

**MATERIAL AND METHODS**

In this prospective study we compared bladder and bowel function in children with enuresis and controls without any bladder-related problems. The former group was recruited from a pediatric clinic and the latter from the general public. All children registered bowel movements during two weeks and bladder function during two days.

**RESULTS**

We recruited 66 children with enuresis and 58 controls. The ages ranged from 6 to 11 (mean 7.3 ± 1.3) years and 50 of them were girls. The groups had similar risk to be constipated according to the Rome IV criteria. The patients had slightly fewer bowel movements per two weeks (11.4 ± 4.0 vs 14.4 ± 5.8, P=0.001) but otherwise no more signs of constipation than the controls. But the bladder diaries showed that the enuretic children had smaller voided volumes (87.1 ± 31.8 vs 122.7 ± 37.7 % of expected bladder capacity; p <0.001).

**CONCLUSIONS**

We did not find support for constipation being more common among children with enuresis. But we did find indirect support for detrusor overactivity.

*13:08 - 13:14*
**ICCS-S04-4** (OP)

# CONSTIPATED OR NOT - DOES IT MATTER FOR THE BLADDER?

Malin BORGSTRÖM [1], Barbro H SKOGMAN [2] and Tryggve NEVÉUS [3]
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**PURPOSE**

There is a well-known link between constipation and bladder dysfunction, especially in children with voiding dysfunction, daytime incontinence or recurrent urinary tract infections. The link is less clear for enuresis, as are the urodynamic consequences of constipation. We wanted to test, whether constipation influenced bladder function.

**MATERIAL AND METHODS**

In this prospective study we compared bladder and bowel function in children with enuresis and controls. We have previously reported that constipation was equally common in both groups. All children registered bowel movements during two weeks, bladder function during two days and underwent uroflow measurements. Data were compared between subjects with and without constipation according to Rome IV criteria.

**RESULTS**

We recruited 124 children, aged 6-11 years (50 girls), 43 of whom were found to be constipated. Their voiding chart data were similar; i e. average and maximal voided volumes (expressed as percentages of expected bladder capacity) did not differ (average 52.7 ± 18.7 vs 51.2 ± 21.8, p = 0.704; maximum 88.2 ± 35.0 vs 84.8 ± 32.6, p = 0.608). No child had a pathological uroflow or residual urine.

**CONCLUSIONS**

Even though we already know that constipation and bladder dysfunction are related, we failed to find this reflected in noninvasive urodynamic parameters. This lack of urodynamic abnormalities may be an indicator that the link between the bowel and the bladder is more about central nervous mechanisms than anatomy or peripheral bladder function.

# ICCS-S05: ENURESIS

*Moderators: Tryggve Neveus (SWE), Paul Austin (USA)*

**ICCS & ESPU-Nurses Meeting on Friday 5, September 2025, 16:00 - 16:30**

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*16:00 - 16:06*
**ICCS-S05-1** (OP)

## ASSOCIATION FACTORS FOR ENURESIS IN CHILDREN AND ADOLESCENTS WITH LOWER URINARY TRACT SYMPTOMS

Ana Luisa AMARAL ALVES [1], Felipe SANTOS MARIMPIETRI [1], Ana Cecília B. CASTRO [1], Ubirajara BARROSO JR [2], Glicia ESTEVAM DE ABREU [1], Ana Aparecida MARTINELLI BRAGA [1], Maria Luiza VEIGA [1] and Taynna COSTA [1]
*1) Escola Bahiana de Medicina e Saúde Pública, Salvador, BRAZIL - 2) Escola Bahiana de Medicina e Saúde Pública and Hospital Universitário Professor Edgar Santos, Salvador, BRAZIL*

**PURPOSE**

Enuresis is a common symptom in children and adolescents, often associated with lower urinary tract symptoms (LUTS). Although this relationship is well documented, few studies investigate the factors associated with the occurrence of enuresis in children and adolescents with urinary symptoms. Objective: To analyze the presence of associated factors for enuresis in children and adolescents with LUTS.

**MATERIAL AND METHODS**

This is a retrospective cross-sectional study that included children and adolescents with LUTS. To assess the presence and intensity of urinary symptoms, a structured questionnaire, the Dysfunctional Voiding Scoring Symptom (DVSS), was used, while the Rome IV Criteria for constipation were employed to evaluate intestinal symptoms.

**RESULTS**

342 patients were included in the study, of which 195 (57%) were female, with a median age of 9 (IQR 7-11). Enuresis occurred in 237 (69.3%) children, x 175 (51.2%) were constipated. The DVSS scores for patients with LUTS associated with enuresis and those without enuresis were 10 (IQR 6.5-14) and 9 (IQR 7-13), respectively. Univariate analysis identified factors associated with enuresis, including urgency ($p<0.01$), urge incontinence ($p<0.01$), giggle incontinence ($p=0.01$), stress incontinence ($p=0.038$), holding maneuvers ($p=0.002$), DVSS score ($p=0.017$) and fecal incontinence ($p<0.01$). The multivariate binary logistic regression maintained associations of enuresis with giggle incontinence (OR 2.405, 95% CI [1.286-4.498], $p=0.006$) and fecal incontinence (OR 3.533, 95% CI [1.733-7.201], $p=0.001$).

**CONCLUSIONS**

Giggle incontinence and fecal incontinence are associated with enuresis in children and adolescents with LUTS.

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*16:06 - 16:12*
**ICCS-S05-2** (OP)

# TREATMENT OF SEVERELY THERAPY-RESISTANT ENURESIS - THE ROLE OF POLYPHARMACY

Tryggve NEVEUS
*Uppsala University, Uppsala University Children's Hospital, Uppsala, SWEDEN*

**PURPOSE**

Some children with enuresis will not respond to any recognized first-, second-, or third-hand therapy. Their treatment will have to be based on experience and expert opinion. Our strategy has been to combine the recommended drugs and including mirabegron into the therapeutic arsenale. The aim of this report is to communicate our experiences with this very challenging group.

**MATERIAL AND METHODS**

This a retrospective evaluation. We report results for all our patients who have been followed for at least three months given combinations of 3-4 of the following: desmopressin, anticholinergics, mirabegron and amitriptylin. All had previously unsuccessfully tried the following: the enuresis alarm, desmopressin, anticholinergics + desmopressin, and amitriptylin + desmopressin.

**RESULTS**

So far 48 subjects (5 girls) aged 7-40 years (median 12, two adults) are included. They have been given three (n=41) or four (n=7) drugs, including anticholinergics (n=45), antidepressants (n=15) and/or mirabegron (n=41). 28 are full, 13 partial, and 7 nonresponders. The current situation for the 32 subjects who have been followed for at least 6 months is that 23 are dry and 9 still suffer occasional wet nights. Of the 23 dry subjects 6 need no drugs, 7 need one, 3 need two and 7 need the full combination. There have been no severe side effects. The adults are dry.

**CONCLUSIONS**

Most children with severely therapy-resistant enuresis become dry using combination therapy addressing several pathogenetic mechanisms simultaneously, and most of them can then reduce the number of drugs given while staying dry at night.

*16:12 - 16:18*
**ICCS-S05-3** (OP)

# SYSTEMATIC REVIEW ON TIBIAL NERVE STIMULATION FOR MONOSYMPTOMATIC NOCTURNAL ENURESIS IN CHILDREN

Suhaib ABDULFATTAH [1], Zoe S. GAN [1], Jennifer LEGE-MATSUURA [2], Katherine M. FISCHER [1] and Jason P. VAN BATAVIA [1]
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**PURPOSE**

Tibial nerve stimulation (TNS) is used to treat monosymptomatic nocturnal enuresis (NE) in children, but its efficacy is not well-defined. Therefore, we systematically reviewed the literature to evaluate the efficacy of TNS for NE in children.

**MATERIAL AND METHODS**

A comprehensive search of PubMed, EMBASE, CENTRAL, and Scopus was conducted for studies published up to 11/5/2023. Studies with pediatric patients treated with TNS percutaneously (PTNS) or transcutaneous (TTNS) for NE were included. Data on treatment protocols, outcomes, and quality of evidence (using the Mixed Methods Appraisal Tool) were synthesized.

**RESULTS**

Eight studies including 311 children with mean age 8-12 years met inclusion criteria, including 4 randomized controlled trials (RCTs). Compared to sham treatment, PTNS led to more overall symptom improvement (80% vs. 3.7%), greater reduction in wet nights (4.7 to 2.6, vs. 5.1 to 4.7 for sham), and increased bladder capacity, although improvements were similar to desmopressin. TTNS led to greater improvements in quality of life and the frequency of wet nights than a bedwetting alarm in one trial. However, TTNS efficacy was not statistically different from that of parasacral transcutaneous nerve stimulation or sham treatment in another trial. Quality of evidence ranged from low to moderate.

**CONCLUSIONS**

TNS reduces wet nights and improves quality of life and bladder capacity in children with NE, although there is limited data on the efficacy of TNS compared to other treatments. While PTNS may be more efficacious compared to TTNS, larger, high-quality randomized trials are necessary to establish the role of TNS for pediatric NE.

*16:18 - 16:24*
**ICCS-S05-4** (OP)

# BODY AWARENESS THERAPY DURING PELVIC FLOOR REHABILITATION IN CHILDREN WITH NOCTURNAL ENURESIS

Tuğçe ATALAY [1] and S. Kerem OZEL [2]
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**PURPOSE**

Aim of the study was to delineate the clinical effects of body awareness therapy (BAT) during pelvic floor rehabilitation (PFR) in children with nocturnal enuresis.

**MATERIAL AND METHODS**

Children with the diagnosis of nocturnal enuresis were studied. Patients received behavioral therapy, diaphragmatic breathing, core stabilization exercises, and perineal sensory training in PFR. Two groups were formed; patients who received BAT with PFR or only PFR. Age, gender, body awareness status, weekly enuresis episodes per day, pelvic floor EMG activity at rest and work, and no of sessions to reach partial clinical response were noted together with DVSS scores before and after treatment. Results were analyzed statistically.

**RESULTS**

There was a total of 32 patients (19 boys, 13 girls, 8.34±2,7 years) with nocturnal enuresis. 18 patients received BAT and PFR, 14 patients received only PFR. There was no difference in age, gender, body awareness status, and pelvic floor EMG activity between groups. DVSS score after BAT+PFR was lower than only PFR patients (0,27±0,7 vs. 2,5±1,65, p<0,001). Weekly enuresis episodes per day was lower after BAT (0,17±0,51 vs. 0,78±0,8, p=0,03). No of sessions to reach partial clinical response was lower after BAT when compared to only PFR (3,28±0,75 vs. 5,21±0,58, p<0,001).

**CONCLUSIONS**

BAT added to the standard PFR seems to achieve better and relatively earlier clinical response in children with nocturnal enuresis.

*16:24 - 16:30*
**ICCS-S05-5** (OP)

# NOCTURNAL ENURESIS IN CHILDREN AND ADOLESCENTS WITH CONGENITAL ADRENAL HYPERPLASIA (CAH)

Jason VAN BATAVIA, Marissa KILBERG, Maria VOGIATZI, Connie TAN, Thomas KOLON and Katherine FISCHER
*Children's Hospital of Philadelphia, Urology, Philadelphia, USA*

**PURPOSE**

Children with congenital adrenal hyperplasia (CAH) have an altered hypothalamic-pituitary-adrenal axis that can lead to alterations in hormones including ACTH and CRH. CRH may be elevated in CAH because of the lack of ability to synthesize cortisol and lack of negative feedback. Recent studies have found lower CRH levels in bedwetting children compared to controls; suggesting that CRH levels may play a role in nocturnal enuresis (NE). We hypothesized that CAH children would have lower rates of NE than historical controls.

**MATERIAL AND METHODS**

We retrospectively reviewed our EMR for children with CAH and recorded secondary diagnoses including NE. The charts of each CAH patient with NE were reviewed. Prevalence rates in CAH children were determined and compared to historical controls (Byrd et al. Pediatrics 1996;98:414-4019).

**RESULTS**

128 CAH patients (80F, 48M) were included. NE prevalence rates in CAH children were 6% (8/128; 5F, 3M) at age 5-8 years (vs. 25% for historical controls), 6% (5/88; 4F, 1M) at age 9-12 years (vs. 10% for historical controls), 7.7% (5/65; 4F, 1M) at age 13-17 years (vs. 2% for historical controls), and 6.7% (2/30; 2F) at age 18+years. For three patients with regularly obtained hormone levels, ACTH levels did seem to fluctuate inversely with NE symptoms.

**CONCLUSIONS**

CAH children have an overall lower prevalence of NE earlier in life (<12 years old) when compared to historical controls. Those CAH children with NE, however, seem to have a more persistent and difficult to treat NE as most did not have resolution of NE until teenage years.