
IMPORTANT COPYRIGHT NOTICE: This electronic article is provided to you by courtesy of Ferring Pharmaceuticals. The document is provided for personal usage only. Further reproduction and/or distribution of the document is strictly prohibited.

Title:

Enuresis: practical guidelines for primary care

Authors:

J. Vande Walle, S. Rittig, S. Tekgül, P. Austin, S. Yang, P. Lopez and C. Van Herzeele

Journal:

British Journal of General Practice 2017

Enuresis:

practical guidelines for primary care



Although the evidence is relatively weak, expert opinion recommends accurate diagnosis of enuresis and the use of enuresis alarms and desmopressin, in addition to behavioural approaches

J Vande Walle, MD, PhD, professor, Pediatric Nephrology, University Hospital Ghent and SafePedrug, Ghent University, Ghent, Belgium. **S Rittig**, MD, PhD, professor, Pediatrics and Adolescent Medicine, Nephron-urologic Team, Aarhus University Hospital, Aarhus, Denmark. **S Tekgül**, MD, PhD, professor, Department of Urology, Hacettepe University, Ankara, Turkey. **P Austin**, MD, PhD, professor, Pediatric Urology, St Louis Children's Hospital, Washington University School of Medicine, St Louis, US. **S Shei-Dei Yang**, MD, PhD, professor, Taipei Tzu Chi Hospital, Buddhist Medical Foundation, Taiwan. School of Medicine, Buddhist Tzu Chi University, Hualien, Taiwan. **P-J Lopez**, MD, assistant professor, Hospital Exequiel González Cortés, Clínica Alemana, and Chile Sociedad Iberoamericana de Urología Pediátrica, Santiago, Chile. **C Van Herzele**, PhD, postdoctoral researcher, Pediatric Nephrology, University Hospital Ghent and Ghent University, Ghent, Belgium.

Address for correspondence

Charlotte Van Herzele, University Hospital, Ghent, De Pintelaan 185, 9000 Ghent, Belgium.

E-mail: charlotte.vanherzele@ugent.be

Submitted: 17 February 2017; **Editor's response:** 28 February 2017; **final acceptance:** 25 April 2017.

©British Journal of General Practice 2017; 67: 328–329.

DOI: <https://doi.org/10.3399/bjgp17X691337>

INTRODUCTION

Worldwide, around 10% of 6–7-year-olds suffer from enuresis. Enuresis is therefore highly prevalent, but its impact is often underestimated. Training for family doctors rarely includes specific guidance on enuresis, and the default approach is often to wait for spontaneous resolution. Despite comprehensive enuresis guidelines in specialist journals for secondary and tertiary care, versions for use in primary care are scarce (for example, <https://pathways.nice.org.uk/pathways/bedwetting-in-children-and-young-people>), and often confusing because of outdated terminology.

This article provides practical guidelines and tools to manage enuresis in primary care in children of ≥ 5 years based on the guidelines of the International Children's Continence Society (ICCS), following the new ICCS standardisation and subtyping of patients.^{1–3} The document was developed by the steering committee of World Bedwetting Day 2017 representing the American Academy of Pediatrics (AAP), the North American Paediatric Urology Societies, the European Society for Paediatric Nephrology (ESPN), the European Society for Paediatric Urology (ESPU), the Asia Pacific Association of Paediatric Urology (APAPU), the Sociedad Iberoamericana de Urología Paediatrica (SIUP), the International Pediatric Nephrology Association (IPNA), and the ICCS. It should be highlighted that this guideline differs to some extent from previous guidelines, based on historical studies, in which there was no differentiation between NMNE and MNE, contrary to current understanding.

BACKGROUND

Enuresis can be categorised into *monosymptomatic* (MNE) and *non-monosymptomatic enuresis* (NMNE) according to the absence or presence of daytime lower urinary tract symptoms (LUTS), respectively. The latter is more complex and involves an underlying bladder dysfunction (organic or functional) causing

daytime symptoms such as increased voiding frequency (>8 /day), urgency (sudden and urgent need to void), and daytime incontinence. The evidence supporting diagnostic and therapeutic approaches in NMNE is weak³ and is beyond the scope of this paper. Most experts agree that any underlying bladder dysfunction must be identified and treated before initiating specific treatment of bedwetting.

Monosymptomatic enuresis, generally considered more straightforward, is still complex, and multifactorial, but in most patients is attributable to:

- small maximum voided volumes (MVV; $<65\%$ of expected bladder capacity for age [EBC], calculated as $[(age+1)*30\text{ ml}]$;⁴ and/or
- high volume of urine produced at night (*nocturnal polyuria*; the amount of urine produced during the night exceeds 130% EBC); and
- failure to wake in response to a full bladder.

DIAGNOSIS

Step 1: Minimal guidelines (essential)

The first medical appointment for children with enuresis is usually with the GP when the child is aged ≥ 5 years. Treatment of enuresis below the age of 5 years is not recommended.

At this stage, it is essential to screen for patients with bladder dysfunction (for example, overactive bladder [OAB], daytime incontinence) using questions such as those proposed in Table 1.¹

Absence of bladder dysfunction indicates that the patient probably has MNE, and physicians should proceed to (optional) Step 2 of assessment, or treatment.

A positive answer to any questions in Table 1 suggests underlying bladder dysfunction and NMNE, and referral to a specialised treatment centre is necessary. However, OAB can be induced by constipation and, in these patients, advice regarding food and fluid intake is recommended. If this results

Box 1. Diagnostic questions to identify LUTS, suggestive of an underlying bladder dysfunction (including overactive bladder and dysfunctional voiding)^a

	Yes	No
Leakage of urine during the day:		
• Drops of urine in the underpants — before voiding — after voiding		
• Very wet underpants		
• Frequency of leakage (episodes/day)		
• Intermittent or continuous leakage every day		
• History of daytime incontinence over 3.5 years of age		
Urinary frequency (≥8 voids/day)	Yes	No
Infrequent voiding (<3 voids/day)	Yes	No
Sudden and urgent need to urinate	Yes	No
Holding manoeuvres (for example, leg crossing, pressing heel into perineum)	Yes	No
Needs to push in order to urinate (strained abdominal muscles to pass urine)	Yes	No
Interrupted urinary stream, or several voids one after the other	Yes	No
History of urinary tract infection ^b	Yes	No
Illness and/or malformation: ^b	Yes	No
• of kidneys and/or urinary tract		
• of spinal cord		
Constipation ^b	Yes	No

^aBased on the clinical management tool of the ICCS.¹ ^bAlthough history of urinary tract infections, constipation, and illness/malformation of kidneys and/or urinary tract are not LUTS, they coincide with a higher frequency of LUTS. ICCS = International Children's Continence Society. LUTS = lower urinary tract symptoms.

REFERENCES

- Vande Walle J, Rittig S, Bauer S, *et al*. Practical consensus guidelines for the management of enuresis. *Eur J Pediatr* 2012; **171**(6): 971–983.
- Neveus T, Eggert P, Evans J, *et al*. Evaluation of and treatment for monosymptomatic enuresis: a standardization document from the International Children's Continence Society. *J Urol* 2010; **183**(2): 441–447.
- Austin PF, Bauer SB, Bower W, *et al*. The standardization of terminology of lower urinary tract function in children and adolescents: update report from the standardization committee of the International Children's Continence Society. *Neurourol Urodyn* 2016; **35**(4): 471–481.
- Hjälmsås K. Urodynamics in normal infants and children. *Scand J Urol Nephrol Suppl* 1988; **114**: 20–27.
- Kamperis K, Van Herzele C, Rittig S, Vande Walle J. Optimizing response to desmopressin in patients with monosymptomatic nocturnal enuresis. *Pediatr Nephrol* 2017; **32**(2): 217–226.

Acknowledgements

Editorial assistance with this manuscript was provided by Caroline Loat, PhD, Articuloat.

Open access

This article is Open Access: CC BY-NC 4.0 licence (<http://creativecommons.org/licenses/by-nc/4.0/>).

Discuss this article

Contribute and read comments about this article: bjgp.org/letters

in resolution of the constipation and OAB but not enuresis, Step 2 in the assessment (or treatment) can be initiated.

Step 2: Extended assessment (recommended)

This second step is not essential but is advisable because the chance of identifying the true pathophysiology of enuresis, and thereby prescribing effective first-line treatment, increases. In this extended assessment procedure, the patient completes two diaries. Examples of the diaries can be found at <http://www.drydawn.ie>. The first is a 2-day daytime bladder diary to assess the bladder capacity of the child by measuring the MVV during daytime (excluding morning void). Drinking and voiding habits can also be recorded.

The second diary records the amount of urine produced during 7 consecutive nights to ascertain whether nocturnal polyuria is present. Urine volume can be calculated by the sum of the diaper weight (1 g = 1 mL), the morning void volume, and any nocturia void volumes.

TREATMENT

First-line treatment for monosymptomatic nocturnal enuresis

As mentioned, treatment of enuresis in primary care is only advisable if MNE is suspected (that is, no daytime bladder dysfunction is detected). Treatment selection

for MNE is individualised based on diary data from Step 2 of the diagnostic procedure, if performed, or on the general suitability for the family if not.

Depending on aetiology, different treatment options are available. Nocturnal polyuria can be treated using the vasopressin analogue *desmopressin*, which reduces the amount of urine during the night. In most countries the recommended starting dose for children is 120 µg/day (melt) or 200 mg/day (tablet). Desmopressin treatment can be optimised by following appropriate recommendations.⁵ If children with nocturnal polyuria are unresponsive to desmopressin despite good adherence, referral is advised. Increasing the dose is not recommended in primary care.

Small MVV and arousal problems in children with MNE are treated using a *bedwetting alarm*. Although this can be effective, the alarm should only be used in motivated, supportive families because of the likely burden caused by repeated triggering of a nocturnal alarm. Adherence should be monitored. Enuresis caused by nocturnal polyuria and small MVV can benefit from *combination treatment* with alarm and desmopressin.

Although only evidence based for the improvement of NMNE, basic urotherapy advice regarding drinking schedule and toilet posture is often recommended in MNE. Patients should drink sufficiently during the day (~1000 mL/day for child of 10 kg; 1500 mL/day for child of 20 kg), and achieve urinary output ~30–40 mL/kg, with fluid restriction before sleep. A trial of this advice can be recommended before the start of alarm/desmopressin.

Although both alarm and desmopressin treatment are successful in a large proportion of patients, some are therapy resistant. This should be mentioned at the first consultation to minimise frustration and drop-outs. Enuresis is a complex condition, and a more complex approach is sometimes necessary, for example, due to comorbidities including sleep and psychological problems. Specialist referral is then necessary.

Whatever the choice of treatment, family doctors should recognise that enuresis can be a heavy burden for families and offer basic advice on how to tackle the condition.

Funding

Funded by Ferring Pharmaceuticals.

Provenance

Freely submitted; externally peer reviewed.

Competing interests

The authors have declared no competing interests.