Enuresis: Evaluation

Enuresis = persistent nocturnal incontinence

>2 episodes/week | Occurs during **sleep** | Uncontrolled urinary voiding

- In children ≥**5** years old. Also known as "**bedwetting**"
- Occurs when child does not wake up from sleep to void
- Results from a combination of: **genetic factors, maturational delay, excessively deep sleep, reduced bladder capacity, nocturnal polyuria**

1° Primary Enuresis
Never previously achieved period of nighttime dryness. ~80% of nocturnal enuresis cases, high rate of spontaneous resolution

2° Secondary Enuresis
Enuresis developed after ≥**6 consecutive months** of nighttime continence. Often triggered by **stressors** (divorce, birth of sibling, school), sleep disordered breathing, constipation, suboptimal voiding habits.

***Goal:* rule out presence of underlying medical problem**

Such as urinary tract infection, constipation, obstructive sleep apnea, and diabetes insipidus.

PRESENTATION

HISTORY

- ? **Frequency** (# /night, # /week, timing of episodes)
- ? **Trend** (improving vs. worsening)
- ? **Daytime** symptoms and/or **LUTS***
- ? **Constipation** or fecal incontinence
- ? Previous period of dryness (>6mths?)
- ? **Volume** voided (large volumes are indicative of nocturnal polyuria)
- ? **Fluid intake** (majority in evening?)
- ? Previous interventions? Were they successful?
- ? **PMHx** (sleep apnea, diabetes, UTIs, sickle cell, neurologic abnormalities, ADHD, ASD)
- ? Neurodevelopmental delays? Behavioural or psychologic concerns?
- ? **FHx** of nocturnal enuresis (what age did parent resolve enuresis?
- ? **SHx** (recent stressors?)
- ? **Impact** on child and family
- ? Review voiding diary if available

PHYSICAL EXAM

- ○ **Genital exam usually normal** in primary enuresis
- ○ **Fever** may indicate UTI
- ○ Abdominal palpation for **stool**
- ○ **Lower back** for stigmata of spinal dysraphism (midline hair tufts, sacral dimple)
- ○ **Lower limb** strength, tone, reflexes, sensation for evidence of neurogenic bladder

INVESTIGATIONS

If **reassuring** presentation…	If **concerning** history and physical exam…	
No routine tests are required	**Urinalysis & Culture** To **rule out** UTI, DM, DKA, DI	**Renal/Bladder Ultrasound** **Only if** otherwise indicated

EPIDEMIOLOGY & NATURAL HISTORY

Daytime bladder control expected **~age 4**

Nighttime bladder control achieved **months-years** after daytime **~age 5 – 7**

Age	Prevalence
5	15%
6	13%
7	10%
8	7%
10	5%
12-14	2-3%
≥15	1-2%

- Common!
- Resolves spontaneously ~15%/year
- Longer persistence = lower probability of spontaneous resolution

2 : 1
Male : Female

20% also have **daytime** symptoms

15% also have **fecal incontinence**

*Lower Urinary Tract Symptoms (LUTS)

Voiding
- Hesitancy
- Weak stream
- Intermittent stream
- Straining
- Incomplete emptying
- Dribbling

Storage
- Urgency
- Frequency ≥8 or ≤3 times/day
- Genital or lower urinary tract pain
- Holding maneuvers

Presence of daytime symptoms and/or LUTS is suggestive of dysfunctional voiding or anatomical abnormalities, thus should be **referred to Urology**

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Enuresis: Counselling & Management

Initial Management

1. **Determine if…**
   - ❑ **Both** child and parent see enuresis as problematic, and are **motivated** to participate in treatment
   - ❑ The child is **mature** enough to engage in and assume responsibility for treatment
2. **Treat co-existing conditions:**
   - ❑ **Constipation**, sleep disordered breathing, ADHD, underlying stressors, poor self-concept, psychologic
3. **Educate, emphasizing…**
   - ❑ **High prevalence** and generally **self-resolving** natural history
   - ❑ Child should **NOT** be punished for bedwetting
   - ❑ Usefulness of bed protection, absorbent undergarments, room deodorizers
   - ❑ Avoiding sugary and caffeinated beverages
4. **Establish goals and expectations:**
   - ❑ Determine family **priorities** (Reassurance? Staying dry for sleepovers? Decreasing # wet nights?)
   - ❑ May involve several methods, be prolonged, fail in short term, often relapses
   - ❑ **Slow, steady improvement** is more realistic

Personalized Calendar

Record:
- Daytime incontinence
- Enuresis events
- Encopresis
- Frequency & timing of bowel movements

- Helps to follow progress
- Parents should be cautious of implementing a reward system
- **AVOID** punishment and humiliation

Voiding Diary

Should record:

- **Time** of void
- **Volume** voided
- **Relationship** to events (meals, school recess, play activities, stress)
- Episodes of **urgency** or **incontinence**

Behavioural Therapy

Goal: **achieve good bladder and bowel habits**

- ✓ Encourage **frequent voids**
  - Introduce timed voiding **every 2 hours**, regardless of if child feels the need to void
  - Avoid holding urine, urgency, and incontinence
  - Ensure easy access to toilets at school & home
  - Always have child void immediately before sleep
- ✓ Encourage **daily bowel movements**
  - Establish a schedule at specific time of day such as after breakfast before leaving for school
  - PEG 3350 for constipation
- ✓ Consume **majority of fluids in morning** and afternoon, minimize after dinner
- ✓ Encourage **physical activity** and discourage prolonged sitting
- ✓ Requires supportive environment, child motivation, patience, and time (average 6 months)

Active Therapy

Similar outcomes, choose based on patient preference and fit with family

Pharmacologic Therapy

- **Desmopressin:**

Goal: optimize oral medication to **reduce production of urine overnight** (ADH analogue).

- ➢ Take medication **60 minutes** before bedtime
- ➢ **No fluid intake** 1 hour prior to and 8 hours after taking medication
- ➢ WATCH FOR: signs of symptomatic hyponatremia with water intoxication: discontinue if developing headache, nausea, vomiting.

Can be used **intermittently**, thus a good option for **special occasions** such as sleepovers and camps.

- **Anticholinergics and tricyclic agents** (second and third line): may be considered if other therapeutic options have failed.

Bed Alarms

Goal: teach child to awaken from sensation of a full bladder.

Sensors attached to child's undergarments are connected to an **alarm** that **awakens the child at the moment of bed wetting**.

- ➢ Should be using **every night**
- ➢ Initially, child may not awaken from alarm, requiring parent to awaken child instead
- ➢ Child should then void in the **washroom**
- ➢ Return to sleep

- Most effective in children **>7 years old**
- Generally see **initial response in 1 – 2 months**
- **3 – 4 month** trial of continuous therapy is recommended
- Discontinue when dry for 14 consecutive nights, or if no improvement at one month
- Effective long term in **< 50%** of children
- **Recommend for older, motivated children from cooperative families**

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