What is Enuresis?

Enuresis is the medical term for involuntary voiding of urine. In particular, this document will cover Nocturnal Enuresis, which is the accidental urination that occurs at night.

How common is Nocturnal Enuresis?

Night wetting may occur at any age:

- 25% of 3 ½ year olds
- 15% of 5-year olds
- 10% of 7-year olds
- 5% of 11-year olds
- 2% of 3-15 year olds

Night wetting is more common in boys than girls.

Nocturnal Enuresis can be divided into **Primary** and **Secondary**.

**Primary** refers to children who have never had a period of 6 months free of bedwetting beyond 5 years of age.

**Secondary** enuresis is the return of bedwetting after a period of dryness lasting at least 6 months (Butler and Swithinbank, 2007).

Causes of Primary Nocturnal Enuresis

- **Hormonal problems** – A hormone called arginine vasopressin (AVP) or antidiuretic hormone (ADH) normally controls urine production at night by removing water from the kidneys. If production or the body’s ability to use this hormone is affected then this will mean that the individual produces increased levels of urine at night. The sleep hormone, melatonin, can trigger release of AVP so an imbalance of this can affect AVP levels (Butler and Swithinbank, 2007).

- **Bladder muscle spasms** – This may prevent the bladder from holding the maximum amount of urine, meaning the person may need to urinate more often (Nemours Foundation, 1995-2005).

- **Bladder size** – Some people with a small bladder may need to urinate more frequently. This is most common between the ages of 5 and 10 because of slower physical development. If this is the case, the incontinence may fade as the bladder grows (National Institute of Diabetes and Digestive and Kidney Diseases, 2004).

- **Genetic** – Children whose parents wet the bed, are more likely to do so themselves. It is important to establish the family history to get an indication of if and at what age the child is likely to stop bedwetting (BUPA, 2005 and Nemours Foundation, 1995-2005).

- **Sleeping deeply** – Some children may sleep so deeply that the feeling of needing to urinate may not wake them up (Nemours Foundation, 1995-2005).

- **Medical conditions** – There is a range of medical conditions that may cause nocturnal enuresis, such as diabetes, obstructive sleep apnoea, constipation, urinary tract infections (Nemours Foundation, 1995 – 2005 and National Institute of Diabetes and Digestive and Kidney Diseases, 2004).
• **Neurological disorder** – such as cerebral palsy and spina bifida. Although in this case the wetting is usually also occurring during the day.

• **Developmental Delay** – Individuals with Global Developmental delay may experience enuresis (e.g. Down Syndrome). Also, children with delayed developmental milestones, such as premature birth or behavioural disorders e.g. ADHD.

• **Intake of Caffeine** – Foods and drinks that contain caffeine increase urine output and may also increase spasms of the bladder muscle (National Institute of Diabetes and Digestive and Kidney Diseases, 2004).

It may be a combination of these factors contributing to the enuresis.

**Causes of Secondary Enuresis**

Most older children who have nocturnal enuresis have secondary enuresis.

• **Stress** – When a child who has previously been dry at night suddenly starts bedwetting, a fairly common cause is a particular stressful event, such as moving house, divorce, or forms of abuse (American Academy of Paediatrics, 2000).

• **Urinary Tract Infection**

**Assessment and Investigations**

A full history of medical problems, trauma (physical and psychological), family history, and a bedwetting diary is needed to find out the possible causes.

Sometimes a doctor may include a physical assessment, including examination of the genitals, muscle tone and also may consider sleep apnoea (a breathing disorder). Investigations such as a urinalysis (testing a urine sample) to test for diabetes or infection may be appropriate. Very occasionally an ultrasound may be needed.

**Treatment**

Butler and Holland (2000) suggest using “The Three Systems Model” when treating nocturnal enuresis. This model suggests three main causes for enuresis:

1. Low release of AVP (see earlier notes)
2. Bladder overactivity
3. Lack of arousal from sleep (usually combined with one or both of the causes above)

The causes listed earlier are said to all lead to one or more of these three causes under The Three Systems Model.

This table shows signs and treatments for these three factors (Butler and Swithinbank, 2007).

<table>
<thead>
<tr>
<th>Cause</th>
<th>Signs and Symptoms</th>
<th>Common Treatments</th>
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<tr>
<td>Low release of AVP</td>
<td>Wetting soon after going to sleep and large wet patches</td>
<td>Enuresis alarm (see notes below)</td>
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<td></td>
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<td>Medication (Desmopressin)</td>
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<tr>
<td>Bladder overactivity</td>
<td>Frequent passing of urine, a sense of urgency, small amounts passed each time (during the day) and variable size of wet patch, and waking during or after wetting (at night)</td>
<td>Anticholinergic medication (relaxes bladder muscle) Bladder training (see notes below)</td>
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<tr>
<td>Lack of arousal from sleep</td>
<td>Wet patches but the child doesn’t always wake, combined with signs listed above</td>
<td>A full waking assessment is required. This may involve asking the child what factors normally wake them. Individuals usually waken by stimulus that is important to the individual, not necessarily by loud noise, so alarms won’t always work if the assessment shows that they are hard to wake. A</td>
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combination or the treatments above may work, along with addressing needs such as anxiety of going to toilet in dark or other factors preventing he child from getting out of bed at night.

Enuresis Alarms

These can be used with children usually from age 5 years, although must be used with care with younger children, especially when starting out. It should only be used in children who are likely to wake to the sound of the alarm and where the child is motivated and willing to use the alarm. They should not be used for bladder overactivity.

There are two main types: body-worn and bed alarm. The body-worn alarm can be worn inside an absorbent pad or between 2 pair of pants, while the bed alarm is usually a waterproof mat that can be placed on the bed under the sheet. Both alarms work by detecting moisture.

It works by converting the signal of urinating to one of waking and urinating. When the “buzzer” is sounded (or vibrator unit is triggered for deaf children) the muscles of the pelvic floor normally tense which stops the urine flow, and the child should wake up. It usually takes about 5-12 weeks before the child will wake up before they have begun to empty their bladder or they will sleep through without needing to pass urine. If used in the right situation, the success rate for using alarms is 60-80% (Butler and Swithinbank, 2007).

Bladder Training

This can be done by controlling when you drink and when you pass urine. The main features of this method are to have 6/7 drinks throughout the day and also go to the toilet the same amount of times (perhaps at the same time). If the person can’t wait this long before going to the toilet, then the person should wait 5 seconds when they feel the need to go, and see if it passes. If it doesn’t then they should go to the toilet. A couple of times a week the person should measure how much they wee at one time (excluding the morning as we wee more then) to see if the amount they can hold increases (Butler and Swithinbank, 2007).

Other techniques that might help

Reward systems should rarely be used for the fact that bedwetting is usually beyond the child’s control. They should only be used if the child currently achieves some nights where he/she does not wet the bed or it may be very hard for the child to receive awards and may demotivate the child rather than motivate. Punishments should never be used for the same reason.

Some other methods might be:
- Encouraging fluids during the day, but either having only a small amount before bed or avoiding fluids for a couple of hours before bed (only if the child does drink plenty during the day)
- Counselling or other support for children with emotional problems
- Waking the child to go to the toilet before the parent goes to bed (making sure that the child is awake or it will encourage the child to go to the toilet in their sleep. If the child has problems going off to sleep again then this method isn’t appropriate.
- Treatment of urine infections
- Avoiding foods that trigger bedwetting, caffeine (in tea, coffee, fizzy drinks, chocolate and some foods), citrus fruits and dairy products.

References


**Useful resources**

Enuresis Resource and Information Centre (ERIC)  
0117 960 3060  
http://www.enuresis.org.uk

The Continence Foundation  
0845 345 0165  
http://www.continence-foundation.org.uk

For more information please contact:  
Patricia Everitt, SLEEP NURSE  
Mobile – 07920106217  
E-mail – patriciae@cerebra.org.uk

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Cerebra, 2nd Floor, The Lyric Building, King Street, Carmarthen, SA31 1BD. Parent Support Help-line - FREEPHONE 0800 32 81 159