Costing statement: Nocturnal enuresis: the management of bedwetting in children and young people

Resource impact

The guideline on nocturnal enuresis (NICE clinical guideline 111) is unlikely to have a significant impact on the use of NHS resources at a national level. However, because of variation in practice across the country, organisations may incur costs or savings depending on their circumstances. Therefore, we encourage organisations to assess their costs locally. A costing template has been developed to enable local organisations to estimate the costs of using alarms and desmopressin in the treatment of bedwetting in children and young people.

Background

Bedwetting is a widespread and distressing condition that can have a deep impact on the child or young person’s behaviour and on their emotional and social life. It is also particularly stressful to the parents or carers. Bedwetting can affect normal daily routines and social activities, such as sleepovers or school trips. It can also generate more serious feelings and behaviours, such as a sense of helplessness and a lack of hope and optimism, feelings of being different from others, feelings of guilt and shame, humiliation, victimisation and loss of self-esteem.

The Guideline Development Group (GDG) considered that when children and families consult with healthcare professionals about bedwetting in children and young people they are seeking a ‘cure’ from bedwetting. Pharmacological agents may have an effect on bedwetting primarily while the child is taking them, but do not affect the underlying pathophysiology. In contrast, alarm treatment helps the child or young person to develop a conditioned response of waking to a full bladder, which is more likely to continue after alarm treatment is stopped.
Patient numbers affected

The epidemiology of bedwetting is complicated by the variety of definitions used. The prevalence of bedwetting decreases with age.

Table 1 below shows the total population of children and young people aged 5–18 years in England and the prevalence of bedwetting in that age group. It also shows figures per 100,000 population.

<table>
<thead>
<tr>
<th>Table 1 Prevalence of bedwetting in children and young people aged 5–18 years in England</th>
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<tbody>
<tr>
<td>Population in England</td>
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<tr>
<td>Total</td>
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<tr>
<td>All ages</td>
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<tr>
<td>5 years</td>
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<tr>
<td>6 years</td>
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<td>5–6 years</td>
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<td>7 years</td>
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<td>11–14 years</td>
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<td>15–18 years</td>
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<td>5–18 years</td>
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The guideline indicates that it has been common practice to consider children for treatment only when they reach 7 years. Recommendation 1.1.3 specifically states not to exclude younger children from treatment because of their age alone. This may increase the number of children who are offered alarms and/or desmopressin. However, feedback from the GDG suggested that the actual number of children aged 5–6 years who might be eligible for an alarm or desmopressin is likely to be low. Treating people when they are younger may also resolve issues earlier and remove the need for them to be treated when they reach 7 years.

**Cost implications at a local level**

NICE worked with the GDG and other professionals to explore recommendations that might have some resource impact at a local level. These are discussed below:

1. **Offering an alarm as the first-line treatment**
   * [Recommendation 1.8.1]*

   The use of alarms as first-line treatment (if there is no response to advice on fluids, toileting and appropriate rewards) reflects current practice. However, there is widespread variation on alarm use across the country. There might be additional costs for alarms as the guideline now recommends that alarms are considered for children under 7 years who may have previously not received treatment. The NICE guidance specifically states in recommendation 1.1.3 not to deny treatment because of age alone.

   As alarms are reusable, some organisations might purchase them as stock items for lending to children with bedwetting problems. There might be additional costs for replacing alarms borrowed that do not come back. Non-return rates in some areas are approximately 20% and this might go up following implementation of the guideline. A new sensor and/or batteries are required for each alarm that is returned and this will have cost implications.

   Table 2 below shows the unit costs for enuresis alarms, sensors and batteries based on different suppliers in England.
### Table 2 Unit cost of enuresis alarms and accessories

<table>
<thead>
<tr>
<th>Description</th>
<th>Unit cost range (£)</th>
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<tbody>
<tr>
<td>Alarm (body worn)</td>
<td>49.95–99.60</td>
</tr>
<tr>
<td>Sensor</td>
<td>18.95–24.95</td>
</tr>
<tr>
<td>Batteries (set of three)</td>
<td>1.95–2.25</td>
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</table>

The GDG felt that it would be a good use of NHS resources to encourage children and families to retain their alarm and reuse it before trying other options that have associated costs. The implication for this is that more alarms may be required if children use them for longer.

2 **No response to alarms [recommendation 1.9.1]**

The guideline recommends offering combination treatment with an alarm and desmopressin where there has been no response to initial treatment with alarm, and to offer desmopressin alone where continued use of alarm is no longer acceptable to the family and child.

Clinical opinion is that combination treatment with an alarm and desmopressin is not commonly used in practice. Therefore, if combination treatments are increasingly used they might have a cost implication locally. The cost of a three-month combination treatment of alarm and Desmotabs is approximately £177 at the lower dose of 0.2 mg daily and £278 at the higher dose of 0.4 mg daily.

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2 The unit prices were obtained from ERIC (Education and Resources for Improving Childhood Continence), available from [www.eric.org.uk/Professionals/EnuresisAlarms/tabid/115/Default.aspx](http://www.eric.org.uk/Professionals/EnuresisAlarms/tabid/115/Default.aspx)
3 Offering desmopressin [Recommendations 1.10.1 and 1.10.2]

The guideline recommends that desmopressin should be used for children and young people over 7 years and considered for children aged 5–7 years if:

- rapid onset and/or short-term improvement in bedwetting is the priority of treatment
- an alarm is inappropriate or undesirable.

However, the number of children and young people in whom an alarm is inappropriate or undesirable is likely to be small at a national level. Therefore, local organisations are encouraged to assess their own costs based on local circumstances and needs.

Where rapid-onset and/or short-term improvement in bedwetting is the priority of treatment the daily cost of Desmotabs is £1.13 for a lower dose of 0.2 mg daily and £2.26 for a higher dose of 0.4 mg daily. A 3-month treatment with Desmotabs costs approximately £102 at the lower dose of 0.2 mg daily and £204 at the higher dose of 0.4 mg daily.

The recommendation to consider using repeated courses of desmopressin in children and young people who respond to desmopressin and experience repeated recurrence of bedwetting [recommendation 1.11.3] might have some cost implication.

Based on clinical experience, a significant number of children using desmopressin will require the higher dose of desmopressin. Therefore, the cost implications might be higher in areas where more children use the treatment.

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3 Calculations for the cost of desmotabs (desmomelts are also available) are based on unit costs obtained from the NHS Electronic Drug Tariff, available from and accessed on the 05/10/2010. [http://www.ppa.org.uk/edt/October_2010/mindex.htm](http://www.ppa.org.uk/edt/October_2010/mindex.htm)

4 The dosages used are based on the British National Formulary (BNF) 60.
4 Training of healthcare professionals

Reducing the age at which children are considered for treatment may result in increased service use in some areas. There may be an increase in the number of staff required to administer and treat more patients including referrals to specialists. This will also increase the amount and level of training required. Local organisations should evaluate their services and assess any potential costs associated with increased service use.

Some primary care trust staff can provide in-house training. In such cases, the only costs would be for the backfill of staff delivering and attending training courses. The national charity ERIC (Education and Resources for Improving Childhood Continence) provides training in the assessment and treatment of nocturnal enuresis to healthcare professionals. It also runs bespoke training programmes and seminars for individual PCTs or GP consortia.

5 Consider imipramine if there is no response to any other treatments [recommendation 1.14.3]

Feedback from the GDG revealed that there is very little prescription of imipramine for bedwetting in children and young people in the NHS. Tricyclic treatment should be considered only if children and young people have not responded to any other treatments and they have been assessed by a healthcare professional with expertise in the management of bedwetting that has not responded to an alarm and/or desmopressin. Based on the level of current prescriptions, the number of patients involved is likely to be very small. Therefore, the cost would be insignificant at a national level. However, local organisations are encouraged to assess any potential savings associated.

Imipramine costs approximately £7.44\(^5\) for a 3-month treatment course at an average dose of 42 mg\(^6\) daily. Where imipramine oral solution is used, the average cost for a 3-month treatment duration at 42 mg daily would be £100.

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\(^5\) Calculations for the cost of imipramine are based on unit costs obtained from the NHS Electronic Drug Tariff, available from and accessed on the 05/10/2010: [http://www.ppa.org.uk/edt/October_2010/mindex.htm](http://www.ppa.org.uk/edt/October_2010/mindex.htm). The cost for the oral solution is based on the British National Formulary (BNF) 60.

\(^6\) The dosages used are based on the British National Formulary (BNF) 60.
Use of imipramine requires full physical examination before a further course of treatment is given and this could involve additional costs, to be assessed locally.

**Benefits and savings**

The inclusion of all age groups up to 19 years should ensure that treatment is available to all children and young people. There are cost benefits to the NHS that result from treating children at a young age. There are also benefits for the child or young person, such as an increase in self-esteem and a reduction in stress and worry for the family.

Appropriate referrals for further review and assessments for children not responding to repeated courses of treatment with alarm and desmopressin will enable identification of other associated factors leading to effective treatments and care for children with bedwetting problems.

**Conclusion**

The NICE guideline on nocturnal enuresis is unlikely to have a significant impact on NHS resources at a national level. However, organisations should evaluate their own practices against the recommendations in the NICE guideline and assess costs locally. We have produced a costing template to help assess local costs.

By implementing the guideline, there may be clinical benefits to the NHS, including any reductions in cost that may occur.

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