



*National Institute for  
Health and Clinical Excellence*

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# **Nocturnal enuresis**

**The management of bedwetting in  
children and young people**

## **NICE clinical guideline 111**

### **Nocturnal enuresis: the management of bedwetting in children and young people**

#### **Ordering information**

You can download the following documents from [www.nice.org.uk/guidance/CG111](http://www.nice.org.uk/guidance/CG111)

- The NICE guideline (this document) – all the recommendations.
- A quick reference guide – a summary of the recommendations for healthcare professionals.
- ‘Understanding NICE guidance’ – a summary for patients and carers.
- The full guideline – all the recommendations, details of how they were developed, and reviews of the evidence they were based on.

For printed copies of the quick reference guide or ‘Understanding NICE guidance’, phone NICE publications on 0845 003 7783 or email [publications@nice.org.uk](mailto:publications@nice.org.uk) and quote:

- N2318 (quick reference guide)
- N2319 (‘Understanding NICE guidance’).

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This guidance represents the view of NICE, which was arrived at after careful consideration of the evidence available. Healthcare professionals are expected to take it fully into account when exercising their clinical judgement. However, the guidance does not override the individual responsibility of healthcare professionals to make decisions appropriate to the circumstances of the individual patient, in consultation with the patient and/or guardian or carer, and informed by the summary of product characteristics of any drugs they are considering.

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## Introduction

Bedwetting is a widespread and distressing condition that can have a deep impact on a child or young person's behaviour, emotional wellbeing and social life. It is also very stressful for the parents or carers. The prevalence of bedwetting decreases with age. Bedwetting less than 2 nights a week has a prevalence of 21% at about 4 and a half years and 8% at 9 and a half years. More frequent bedwetting is less common and has a prevalence of 8% at 4 and a half years and 1.5% at 9 and a half years<sup>1</sup>.

The causes of bedwetting are not fully understood. Bedwetting can be considered to be a symptom that may result from a combination of different predisposing factors. There are a number of different disturbances of physiology that may be associated with bedwetting. These disturbances may be categorised as sleep arousal difficulties, polyuria and bladder dysfunction. Bedwetting also often runs in families.

Experts and expert bodies differ in their definitions of 'nocturnal enuresis' (see the full guideline for a discussion). The term 'bedwetting' is used in this guideline to describe the symptom of involuntary wetting during sleep without any inherent suggestion of frequency of bedwetting or pathophysiology.

This guideline makes recommendations on the assessment and management of bedwetting in children and young people. The guidance applies to children and young people up to 19 years with the symptom of bedwetting. Children are generally expected to be dry by a developmental age of 5 years, and historically it has been common practice to consider children for treatment only when they reach 7 years. The guideline scope did not specify a minimum age limit to allow consideration of whether there are interventions of benefit to younger children previously excluded from advice and services due to their age. We have included specific advice for children under 5 years, and indicated treatment options for children between 5 and 7 years.

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<sup>1</sup> Butler RJ, Heron J (2008) The prevalence of infrequent bedwetting and nocturnal enuresis in childhood: A large British cohort. *Scandinavian Journal of Urology and Nephrology* 42: 257–64

Children and young people with bedwetting may also have symptoms related to the urinary tract during the day. A history of daytime urinary symptoms may be important in determining the approach to management of bedwetting and so the assessment sections include questions about daytime urinary symptoms and how the answers to these may influence the approach to managing bedwetting. However, the management of daytime urinary symptoms is outside the scope of this guideline.

The treatment of bedwetting has a positive effect on the self-esteem of children and young people. Healthcare professionals should persist in offering different treatments and treatment combinations if the first-choice treatment is not successful. Children and young people with bedwetting are cared for by a number of different healthcare professionals in a variety of settings. All healthcare professionals should be aware of and work within legal and professional codes and competency frameworks.

The guideline will assume that prescribers will use a drug's summary of product characteristics to inform decisions made with individual patients.

## Patient-centred care

This guideline offers best practice advice on the care of children and young people with bedwetting.

Treatment and care should take into account patients' needs and preferences. Children and young people with bedwetting and their parents and/or carers should have the opportunity to make informed decisions about their care and treatment, in partnership with their healthcare professionals. If a child or young person is not old enough or does not have the capacity to make decisions, healthcare professionals should follow the Department of Health's advice on consent (available from [www.dh.gov.uk/consent](http://www.dh.gov.uk/consent)) and the code of practice that accompanies the Mental Capacity Act (summary available from [www.publicguardian.gov.uk](http://www.publicguardian.gov.uk)). In Wales, healthcare professionals should follow advice on consent from the Welsh Assembly Government (available from [www.wales.nhs.uk/consent](http://www.wales.nhs.uk/consent)).

If the patient is under 16, healthcare professionals should follow the guidelines in 'Seeking consent: working with children' (available from [www.dh.gov.uk/consent](http://www.dh.gov.uk/consent)).

Good communication between healthcare professionals and patients is essential. It should be supported by evidence-based written information tailored to the patient's needs. Treatment and care, and the information patients are given about it, should be culturally appropriate. It should also be accessible to people with additional needs such as physical, sensory or learning disabilities, and to people who do not speak or read English.

Families and carers should have the opportunity to be involved in decisions about treatment and care. Where appropriate, for example for older children, this should be with the child's agreement.

Families and carers should also be given the information and support they need.

Care of young people in transition between paediatric and adult services should be planned and managed according to the best practice guidance described in 'Transition: getting it right for young people' (available from [www.dh.gov.uk](http://www.dh.gov.uk)).

Adult and paediatric healthcare teams should work jointly to provide assessment and services to young people with bedwetting. Diagnosis and management should be reviewed throughout the transition process, and there should be clarity about who is the lead clinician to ensure continuity of care.



## Key priorities for implementation

- Inform children and young people with bedwetting and their parents or carers that bedwetting is not the child or young person's fault and that punitive measures should not be used in the management of bedwetting.
- Offer support, assessment and treatment tailored to the circumstances and needs of the child or young person and parents or carers.
- Do not exclude younger children (for example, those under 7 years) from the management of bedwetting on the basis of age alone.
- Discuss with the parents or carers whether they need support, particularly if they are having difficulty coping with the burden of bedwetting, or if they are expressing anger, negativity or blame towards the child or young person.
- Consider whether or not it is appropriate to offer alarm or drug treatment, depending on the age of the child or young person, the frequency of bedwetting and the motivation and needs of the child or young person and their family.
- Address excessive or insufficient fluid intake or abnormal toileting patterns before starting other treatment for bedwetting in children and young people.
- Explain that reward systems with positive rewards for agreed behaviour rather than dry nights should be used either alone or in conjunction with other treatments for bedwetting. For example, rewards may be given for:
  - drinking recommended levels of fluid during the day
  - using the toilet to pass urine before sleep
  - engaging in management (for example, taking medication or helping to change sheets).

- Offer an alarm as the first-line treatment to children and young people whose bedwetting has not responded to advice on fluids, toileting or an appropriate reward system, unless:
  - an alarm is considered undesirable to the child or young person or their parents and carers **or**
  - an alarm is considered inappropriate, particularly if:
    - ◇ bedwetting is very infrequent (that is, less than 1–2 wet beds per week)
    - ◇ the parents or carers are having emotional difficulty coping with the burden of bedwetting
    - ◇ the parents or carers are expressing anger, negativity or blame towards the child or young person.
  
- Offer desmopressin to children and young people over 7 years, if:
  - rapid-onset and/or short-term improvement in bedwetting is the priority of treatment **or**
  - an alarm is inappropriate or undesirable (see recommendation 1.8.1).
  
- Refer children and young people with bedwetting that has not responded to courses of treatment with an alarm and/or desmopressin for further review and assessment of factors that may be associated with a poor response, such as an overactive bladder, an underlying disease or social and emotional factors.

# 1 Guidance

The following guidance is based on the best available evidence. The full guideline ([www.nice.org.uk/guidance/CG111](http://www.nice.org.uk/guidance/CG111)) gives details of the methods and the evidence used to develop the guidance.

These recommendations apply to all healthcare professionals who are involved in the management of bedwetting in children and young people. Healthcare professionals are reminded of their duty under the Disability Discrimination Act (2005) to make reasonable adjustments to ensure that all people have the same opportunity for health.

For the purposes of this guideline we have used the terms 'bedwetting' and 'daytime symptoms' to describe those symptoms that may be experienced by the population who present for treatment of 'bedwetting'.

The following definitions were used for this guideline:

- Bedwetting: involuntary wetting during sleep without any inherent suggestion of frequency of bedwetting or pathophysiology.
- Daytime symptoms: daytime urinary symptoms such as wetting, urinary frequency or urgency.
- Response to an intervention: the child has achieved 14 consecutive dry nights or a 90% improvement in the number of wet nights per week.
- Partial response: the child's bedwetting has improved but 14 consecutive dry nights or a 90% improvement in the number of wet nights per week has not been achieved.

## **1.1 Principles of care**

- 1.1.1 Inform children and young people with bedwetting and their parents or carers that bedwetting is not the child or young person's fault and that punitive measures should not be used in the management of bedwetting.
- 1.1.2 Offer support, assessment and treatment tailored to the circumstances and needs of the child or young person and parents or carers.
- 1.1.3 Do not exclude younger children (for example, those under 7 years) from the management of bedwetting on the basis of age alone.
- 1.1.4 Perform regular medication reviews for children and young people on repeated courses of drug treatment for bedwetting.

## **1.2 Information for the child or young person and family**

- 1.2.1 Offer information tailored to the needs of children and young people being treated for bedwetting and their parents and carers.
- 1.2.2 Offer information and details of support groups to children and young people being treated for bedwetting and their parents or carers.
- 1.2.3 Offer information about practical ways to reduce the impact of bedwetting before and during treatment (for example, using bed protection and washable and disposable products).

## **1.3 Assessment and investigation**

- 1.3.1 Ask whether the bedwetting started in the last few days or weeks. If so, consider whether this is a presentation of a systemic illness.
- 1.3.2 Ask if the child or young person had previously been dry at night without assistance for 6 months. If so, enquire about any possible

medical, emotional or physical triggers, and consider whether assessment and treatment is needed for any identified triggers.

1.3.3 Ask about the pattern of bedwetting, including questions such as:

- How many nights a week does bedwetting occur?
- How many times a night does bedwetting occur?
- Does there seem to be a large amount of urine?
- At what times of night does the bedwetting occur?
- Does the child or young person wake up after bedwetting?

1.3.4 Ask about the presence of daytime symptoms in a child or young person with bedwetting, including:

- daytime frequency (that is, passing urine more than seven times a day)
- daytime urgency
- daytime wetting
- passing urine infrequently (fewer than four times a day)
- abdominal straining or poor urinary stream
- pain passing urine.

1.3.5 Ask about daytime toileting patterns in a child or young person with bedwetting, including:

- whether daytime symptoms occur only in some situations
- avoidance of toilets at school or other settings
- whether the child or young person goes to the toilet more or less frequently than his or her peers.

1.3.6 Ask about the child or young person's fluid intake throughout the day. In particular, ask whether the child or young person, or the parents or carers are restricting fluids.

1.3.7 Consider whether a record of the child or young person's fluid intake, daytime symptoms, bedwetting and toileting patterns would

be useful in the assessment and management of bedwetting. If so, consider asking the child or young person and parents or carers to record this information.

1.3.8 Do not perform urinalysis routinely in children and young people with bedwetting, unless any of the following apply:

- bedwetting started in the last few days or weeks
- there are daytime symptoms
- there are any signs of ill health
- there is a history, symptoms or signs suggestive of urinary tract infection
- there is a history, symptoms or signs suggestive of diabetes mellitus.

1.3.9 Assess whether the child or young person has any comorbidities or there are other factors to consider, in particular:

- constipation and/or soiling
- developmental, attention or learning difficulties
- diabetes mellitus
- behavioural or emotional problems
- family problems or a vulnerable child or young person or family.

1.3.10 Consider assessment, investigation and/or referral when bedwetting is associated with:

- severe daytime symptoms
- a history of recurrent urinary infections
- known or suspected physical or neurological problems
- comorbidities or other factors (for example, those listed in recommendation 1.3.9).

1.3.11 Investigate and treat children and young people with suspected urinary tract infection in line with 'Urinary tract infection' (NICE clinical guideline 54).

- 1.3.12 Investigate and treat children and young people with soiling or constipation in line with 'Constipation in children and young people' (NICE clinical guideline 99).
- 1.3.13 Children and young people with suspected type 1 diabetes should be offered immediate (same day) referral to a multidisciplinary paediatric diabetes care team that has the competencies needed to confirm diagnosis and to provide immediate care.

[This recommendation is from 'Type 1 diabetes' (NICE clinical guideline 15).]

- 1.3.14 Consider investigating and treating daytime symptoms before bedwetting if daytime symptoms predominate.
- 1.3.15 Consider involving a professional with psychological expertise for children and young people with bedwetting and emotional or behavioural problems.
- 1.3.16 Discuss factors that might affect treatment and support needs, such as:
- sleeping arrangements (for example, does the child or young person have his or her own bed or bedroom)
  - the impact of bedwetting on the child or young person and family
  - whether the child or young person and parents or carers have the necessary level of commitment, including time available, to engage in a treatment programme.
- 1.3.17 Discuss with the parents or carers whether they need support, particularly if they are having difficulty coping with the burden of bedwetting, or if they are expressing anger, negativity or blame towards the child or young person.

1.3.18 Consider maltreatment<sup>2</sup> if:

- a child or young person is reported to be deliberately bedwetting
- parents or carers are seen or reported to punish a child or young person for bedwetting despite professional advice that the symptom is involuntary
- a child or young person has secondary daytime wetting or secondary bedwetting that persists despite adequate assessment and management unless there is a medical explanation (for example, urinary tract infection) or clearly identified stressful situation that is not part of maltreatment (for example, bereavement, parental separation).

[This recommendation is adapted from 'When to suspect child maltreatment' (NICE clinical guideline 89).]

1.3.19 Use the findings of the history to inform the diagnosis (according to table 1) and management of bedwetting.

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<sup>2</sup> For the purposes of the child mistreatment guideline, to consider maltreatment means that maltreatment is one possible explanation for the alerting feature or is included in the differential diagnosis.



**Table 1 Findings from the history and their possible interpretation**

<b>Findings from history</b>	<b>Possible interpretation</b>
Large volume of urine in the first few hours of night	Typical pattern for bedwetting only.
Variable volume of urine, often more than once a night	Typical pattern for children and young people who have bedwetting and daytime symptoms with possible underlying overactive bladder.
Bedwetting every night	Severe bedwetting, which is less likely to resolve spontaneously than infrequent bedwetting.
Previously dry for more than 6 months	Bedwetting is defined as secondary.
<ul style="list-style-type: none"><li>•Daytime frequency</li><li>•Daytime urgency</li><li>•Daytime wetting</li><li>•Abdominal straining or poor urinary stream</li><li>•Pain passing urine</li></ul>	Any of these may indicate the presence of a bladder disorder such as overactive bladder or more rarely (when symptoms are very severe and persistent) an underlying urological disease.
Constipation	A common comorbidity that can cause bedwetting and requires treatment (see 'Constipation in children and young people' [NICE clinical guideline 99]).
Soiling	Frequent soiling is usually secondary to underlying faecal impaction and constipation which may have been unrecognised.
Inadequate fluid intake	May mask an underlying bladder problem, such as overactive bladder disorder, and may impede the development of an adequate bladder capacity.
Behavioural and emotional problems	These may be a cause or a consequence of bedwetting. Treatment may need to be tailored to the specific requirements of each child or young person and family.
Family problems	A difficult or 'stressful' environment may be a trigger for bedwetting. These factors should be addressed alongside the management of bedwetting.
Practical issues	Easy access to a toilet at night, sharing a bedroom or bed and proximity of parents to provide support are all important issues to consider and address when considering treatment, especially with an alarm.

## **1.4 *Planning management***

- 1.4.1 Explain the condition, the effect and aims of treatment, and the advantages and disadvantages of the possible treatments to the child or young person and parents or carers (see recommendations 1.8.13 and 1.10.9).
- 1.4.2 Clarify what the child or young person and parents or carers hope the treatment will achieve. Ask whether short-term dryness is a priority for family or recreational reasons (for example, for a sleep-over).
- 1.4.3 Explore the child or young person's views about their bedwetting, including:
- what they think the main problem is
  - whether they think the problem needs treatment.
- 1.4.4 Explore and assess the ability of the family to cope with using an alarm for the treatment of bedwetting.
- 1.4.5 Consider whether or not it is appropriate to offer alarm or drug treatment, depending on the age of the child or young person, the frequency of bedwetting and the motivation and needs of the child or young person and their family.

## **1.5 *Advice on fluid intake, diet and toileting patterns***

- 1.5.1 Advise children and young people with bedwetting and their parents or carers that:
- adequate daily fluid intake is important in the management of bedwetting
  - daily fluid intake varies according to ambient temperature, dietary intake and physical activity. A suggested intake of drinks is given in table 2:

**Table 2 Suggested daily intake of drinks for children and young people**

<b>Age</b>	<b>Sex</b>	<b>Total drinks per day</b>
4–8 years	Female	1000–1400 ml
	Male	1000–1400 ml
9–13 years	Female	1200–2100 ml
	Male	1400–2300 ml
14–18 years	Female	1400–2500 ml
	Male	2100–3200 ml

- 1.5.2 Advise the child or young person and parents or carers that the consumption of caffeine-based drinks should be avoided in children and young people with bedwetting.
- 1.5.3 Advise the child or young person and parents or carers to eat a healthy diet and not to restrict diet as a form of treatment for bedwetting.
- 1.5.4 Advise the child or young person of the importance of using the toilet at regular intervals throughout the day.
- 1.5.5 Advise parents or carers to encourage the child or young person to use the toilet to pass urine at regular intervals during the day and before sleep (typically between four and seven times in total). This should be continued alongside the chosen treatment for bedwetting.
- 1.5.6 Address excessive or insufficient fluid intake or abnormal toileting patterns before starting other treatment for bedwetting in children and young people.
- 1.5.7 Suggest a trial without nappies or pull-ups for a child or young person with bedwetting who is toilet trained by day and is wearing nappies or pull-ups at night. Offer advice on alternative bed protection to parents and carers.

## **1.6 *Lifting and waking*<sup>3</sup>**

1.6.1 Offer advice on waking and lifting during the night as follows:

- Neither waking nor lifting children and young people with bedwetting, at regular times or randomly, will promote long-term dryness.
- Waking of children and young people by parents or carers, either at regular times or randomly, should be used only as a practical measure in the short-term management of bedwetting.
- Young people with bedwetting that has not responded to treatment may find self-instigated waking (for example, using a mobile phone alarm or alarm clock) a useful management strategy.

## **1.7 *Reward systems***

1.7.1 Explain that reward systems with positive rewards for agreed behaviour rather than dry nights should be used either alone or in conjunction with other treatments for bedwetting. For example, rewards may be given for:

- drinking recommended levels of fluid during the day
- using the toilet to pass urine before sleep
- engaging in management (for example, taking medication or helping to change sheets).

1.7.2 Inform parents or carers that they should not use systems that penalise or remove previously gained rewards.

1.7.3 Advise parents or carers to try a reward system alone (as described in recommendation 1.7.1) for the initial treatment of bedwetting in young children who have some dry nights.

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<sup>3</sup> Lifting is carrying or walking a child to toilet. Lifting without waking means that effort is not made to ensure the child is fully woken. Waking means waking a child from sleep to take them to the toilet.

## **1.8 Initial treatment – alarms**

- 1.8.1 Offer an alarm as the first-line treatment to children and young people whose bedwetting has not responded to advice on fluids, toileting or an appropriate reward system, unless:
- an alarm is considered undesirable to the child or young person or their parents or carers **or**
  - an alarm is considered inappropriate, particularly if:
    - bedwetting is very infrequent (that is, less than 1–2 wet beds per week)
    - the parents or carers are having emotional difficulty coping with the burden of bedwetting
    - the parents or carers are expressing anger, negativity or blame towards the child or young person.
- 1.8.2 Assess the response to an alarm by 4 weeks and continue with treatment if the child or young person is showing early signs of response<sup>4</sup>. Stop treatment only if there are no early signs of response.
- 1.8.3 Continue alarm treatment in children and young people with bedwetting who are showing signs of response until a minimum of 2 weeks' uninterrupted dry nights has been achieved.
- 1.8.4 Assess whether it is appropriate to continue with alarm treatment if complete dryness is not achieved after 3 months. Only continue with alarm treatment if the bedwetting is still improving and the child or young person and parents or carers are motivated to continue.
- 1.8.5 Do not exclude alarm treatment as an option for bedwetting in children and young people with:

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<sup>4</sup> Early signs of a response may include smaller wet patches, waking to the alarm, the alarm going off later and fewer times per night and fewer wet nights.

- daytime symptoms as well as bedwetting
  - secondary bedwetting.
- 1.8.6 Consider an alternative type of alarm (for example, a vibrating alarm) for the treatment of bedwetting in children and young people who have a hearing impairment.
- 1.8.7 Consider an alarm for the treatment of bedwetting in children and young people with learning difficulties and/or physical disabilities. Tailor the type of alarm to each individual's needs and abilities.
- 1.8.8 Consider an alarm for the treatment of bedwetting in children under 7 years, depending on their ability, maturity, motivation and understanding of the alarm.

### ***Using an alarm***

- 1.8.9 Inform children and young people and parents or carers about the benefits of alarms combined with reward systems. Advise on the use of positive rewards for desired behaviour, such as waking up when the alarm goes off, going to the toilet after the alarm has gone off, returning to bed and resetting the alarm.
- 1.8.10 Encourage children and young people with bedwetting and their parents or carers to discuss and agree on their roles and responsibilities for using the alarm and the use of rewards.
- 1.8.11 Ensure that advice and support are available to children and young people and their parents or carers who are given an alarm, and agree how these should be obtained. Be aware that they may need a considerable amount of help in learning how to use an alarm.

1.8.12 Inform the child or young person and their parents or carers that the aims of alarm treatment for bedwetting are to train the child or young person to:

- recognise the need to pass urine
- wake to go to the toilet or hold on
- learn over time to hold on or to wake spontaneously and stop wetting the bed.

1.8.13 Inform the child or young person and their parents or carers that:

- alarms have a high long-term success rate
- using an alarm can disrupt sleep
- that parents or carers may need to help the child or young person to wake to the alarm
- using an alarm requires sustained commitment, involvement and effort from the child or young person and their parents or carers
- they will need to record their progress (for example, if and when the child or young person wakes and how wet they and the bed are)
- alarms are not suitable for all children and young people and their families.

1.8.14 If offering an alarm for bedwetting, inform the child and young person and their parents or carers how to:

- set and use the alarm
- respond to the alarm when it goes off
- maintain the alarm
- deal with problems with the alarm, including who to contact when there is a problem
- return the alarm when they no longer need it.

1.8.15 Inform the child and young person and their parents or carers that it may take a few weeks for the early signs of a response to the alarm to occur and that these may include:

- smaller wet patches
- waking to the alarm
- the alarm going off later and fewer times per night
- fewer wet nights.

1.8.16 Inform the child or young person and their parents or carers that dry nights may be a late sign of response to the alarm and may take weeks to achieve.

1.8.17 Inform the parents or carers that they can restart using the alarm immediately, without consulting a healthcare professional, if the child or young person starts bedwetting again following a response to alarm treatment.

## **1.9 *Lack of response to alarm treatment***

1.9.1 If bedwetting does not respond to initial alarm treatment, offer:

- combination treatment with an alarm and desmopressin **or**
- desmopressin alone if continued use of an alarm is no longer acceptable to the child or young person or their parents and carers.

1.9.2 Offer desmopressin alone to children and young people with bedwetting if there has been a partial response to a combination of an alarm and desmopressin following initial treatment with an alarm.



## **1.10 Initial treatment – desmopressin**

1.10.1 Offer desmopressin to children and young people over 7 years, if:

- rapid-onset and/or short-term improvement in bedwetting is the priority of treatment **or**
- an alarm is inappropriate or undesirable (see recommendation 1.8.1).

1.10.2 Consider desmopressin for children aged 5–7 years if treatment is required and:

- rapid-onset and/or short-term improvement in bedwetting is the priority of treatment **or**
- an alarm is inappropriate or undesirable (see recommendation 1.8.1).

1.10.3 Do not exclude desmopressin as an option for the management of bedwetting in children and young people who also have daytime symptoms. However, do not use desmopressin in the treatment of children and young people who only have daytime wetting.

1.10.4 In children and young people who are not completely dry after 1 to 2 weeks of the initial dose of desmopressin (200 micrograms for Desmotabs or 120 micrograms for DesmoMelt), consider increasing the dose (to 400 micrograms for Desmotabs or 240 micrograms for DesmoMelt).

1.10.5 Assess the response to desmopressin at 4 weeks and continue treatment for 3 months if there are signs of a response. Consider stopping if there are no signs of response. Signs of response include:

- smaller wet patches
- fewer wetting episodes per night
- fewer wet nights.

- 1.10.6 Do not exclude desmopressin as an option for the treatment of bedwetting in children and young people with sickle cell disease if an alarm is inappropriate or undesirable and they can comply with night-time fluid restriction. Provide advice about withdrawal of desmopressin at times of sickle cell crisis.
- 1.10.7 Do not exclude desmopressin as an option for the treatment of bedwetting in children and young people with emotional, attention or behavioural problems or developmental and learning difficulties if an alarm is inappropriate or undesirable and they can comply with night-time fluid restriction.
- 1.10.8 Do not routinely measure weight, serum electrolytes, blood pressure and urine osmolality in children and young people being treated with desmopressin for bedwetting.
- 1.10.9 If offering desmopressin for bedwetting, inform the child or young person and their parents or carers:
- that many children and young people, but not all, will experience a reduction in wetness
  - that many children and young people, but not all, will relapse when treatment is withdrawn
  - how desmopressin works
  - of the importance of fluid restriction from 1 hour before until 8 hours after taking desmopressin
  - that it should be taken at bedtime
  - if appropriate, how to increase the dose if there is an inadequate response to the starting dose
  - to continue treatment with desmopressin for 3 months
  - that repeated courses of desmopressin can be used.
- 1.10.10 Consider advising that desmopressin should be taken 1–2 hours before bedtime in children and young people with bedwetting that has either partially responded or not responded to desmopressin

taken at bedtime. Ensure that the child or young person can comply with fluid restriction starting from 1 hour before the drug is taken.

- 1.10.11 Consider continuing treatment with desmopressin for children and young people with bedwetting that has partially responded, as bedwetting may improve for up to 6 months after starting treatment.

### **1.11 *Children and young people experiencing recurrence of bedwetting***

- 1.11.1 Consider alarm treatment again if a child or young person who was previously dry with an alarm has started regularly bedwetting again.

- 1.11.2 Offer combination treatment with an alarm and desmopressin to children and young people who have more than one recurrence of bedwetting following successful treatment with an alarm.

- 1.11.3 Consider using repeated courses of desmopressin for children and young people with bedwetting that has responded to desmopressin treatment but who experience repeated recurrences. Withdraw desmopressin treatment at regular intervals (for 1 week every 3 months) to check if dryness has been achieved when using it for the long-term treatment of bedwetting.

- 1.11.4 Gradually withdraw desmopressin rather than suddenly stopping it if a child or young person has had a recurrence of bedwetting following response to previous desmopressin treatment courses.

- 1.11.5 Consider alarm treatment as an alternative to continuing drug treatment for children and young people who have recurrences of bedwetting, if an alarm is now considered appropriate and desirable.

### **1.12 *Lack of response to initial treatment options***

- 1.12.1 Refer children and young people with bedwetting that has not responded to courses of treatment with an alarm and/or desmopressin for further review and assessment of factors that

may be associated with a poor response, such as an overactive bladder, an underlying disease or social and emotional factors.

### **1.13 Anticholinergics**

The use of anticholinergics for bedwetting in children and young people is discussed in the recommendations in this section. Not all anticholinergics have a UK marketing authorisation for treating bedwetting in children and young people. If a drug without a marketing authorisation for this indication is prescribed, informed consent should be obtained and documented.

- 1.13.1 Do not use an anticholinergic alone for the management of bedwetting in children and young people without daytime symptoms.
- 1.13.2 Consider an anticholinergic combined with desmopressin for bedwetting in children and young people who also have daytime symptoms and have been assessed by a healthcare professional with expertise in prescribing the combination of an anticholinergic and desmopressin.
- 1.13.3 Consider an anticholinergic combined with desmopressin for children and young people who have been assessed by a healthcare professional with expertise in the management of bedwetting that has not responded to an alarm and/or desmopressin and have any of the following:
  - bedwetting that has partially responded to desmopressin alone
  - bedwetting that has not responded to desmopressin alone
  - bedwetting that has not responded to a combination of alarm and desmopressin.
- 1.13.4 Consider continuing treatment for children and young people with bedwetting that has partially responded to desmopressin combined with an anticholinergic, as bedwetting may continue to improve for up to 6 months after starting treatment.

- 1.13.5 Consider using repeated courses of desmopressin combined with an anticholinergic in children and young people who have responded to this combination but experience repeated recurrences of bedwetting following previous response to treatment.
- 1.13.6 If offering an anticholinergic combined with desmopressin for bedwetting, inform the child or young person and their parents or carers:
- that success rates are difficult to predict, but more children and young people are drier with this combination than with desmopressin alone
  - that desmopressin and an anticholinergic can be taken together at bedtime
  - to continue treatment for 3 months
  - that repeated courses can be used.
- 1.13.7 Do not offer an anticholinergic combined with imipramine for the treatment of bedwetting in children and young people.

## **1.14 Tricyclics**

- 1.14.1 Do not use tricyclics as the first-line treatment for bedwetting in children and young people.
- 1.14.2 If offering a tricyclic, imipramine should be used for the treatment of bedwetting in children and young people.
- 1.14.3 Consider imipramine for children and young people with bedwetting who:
- have not responded to all other treatments **and**
  - have been assessed by a healthcare professional with expertise in the management of bedwetting that has not responded to an alarm and/or desmopressin.

- 1.14.4 If offering imipramine for bedwetting, inform the child or young person and their parents or carers:
- that many children and young people, but not all, will experience a reduction in wetness
  - how imipramine works
  - that it should be taken at bedtime
  - that the dose should be increased gradually
  - about relapse rates (for example, more than two out of three children and young people will relapse after a 3-month course of imipramine)
  - that the initial treatment course is for 3 months and further courses may be considered
  - about the particular dangers of imipramine overdose, and the importance of taking only the prescribed amount and storing it safely.
- 1.14.5 Perform a medical review every 3 months in children and young people who are using repeated courses of imipramine for the management of bedwetting.
- 1.14.6 Withdraw imipramine gradually when stopping treatment for bedwetting in children and young people.

## **1.15 *Training programmes for the management of bedwetting***

- 1.15.1 Do not use strategies that recommend the interruption of urinary stream or encourage infrequent passing of urine during the day.
- 1.15.2 Do not use dry-bed training<sup>5</sup> with or without an alarm for the treatment of bedwetting in children and young people.

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<sup>5</sup> Dry-bed training is a training programme that may include combinations of a number of different behavioural interventions, and that may include rewards, punishment, training routines and waking routines, and may be undertaken with or without an alarm.

## **1.16 Children under 5 years with bedwetting**

Children are generally expected to be dry at night by a developmental age of 5 years, and historically it has been common practice not to offer advice to families of children who are younger than 5 years and are bedwetting. This section provides recommendations specific to the under 5 age group indicating situations where healthcare professionals can offer useful advice and interventions.

- 1.16.1 Reassure parents or carers that many children under 5 years wet the bed, for example, approximately one in five children of 4 and a half years wets the bed at least once a week.
- 1.16.2 Ask whether toilet training has been attempted, and if not, ask about the reasons for this and offer support and advice. If there are no reasons why toilet training should not be attempted, advise parents or carers to toilet train their child.
- 1.16.3 Suggest a trial of at least 2 nights in a row without nappies or pull-ups for a child with bedwetting who is under 5 years and has been toilet trained by day for longer than 6 months. Offer advice on alternative bed protection to parents and carers. Consider a longer trial in children:
  - who are older
  - who achieve a reduction in wetness
  - whose family circumstances allow the trial to continue.
- 1.16.4 Advise the parents or carers of a child under 5 years with bedwetting that if the child wakes at night, they should take him or her to the toilet.
- 1.16.5 Consider further assessment and investigation to exclude a specific medical problem for children over 2 years who, despite awareness of toileting needs and showing appropriate toileting behaviour, are struggling to not wet themselves during the day as well as the night.

- 1.16.6 Assess children under 5 years with bedwetting for constipation, in line with 'Constipation in children and young people' (NICE clinical guideline 99), as undiagnosed chronic constipation is a common cause of wetting and soiling in younger children.



## 2 Notes on the scope of the guidance

NICE guidelines are developed in accordance with a scope that defines what the guideline will and will not cover. The scope of this guideline is available from [www.nice.org.uk/guidance/CG111](http://www.nice.org.uk/guidance/CG111) – click on ‘How this guidance was produced’.

### How this guideline was developed

NICE commissioned the National Collaborating Centre for Primary Care (now the National Clinical Guideline Centre) to develop this guideline. The Centre established a Guideline Development Group (see appendix A), which reviewed the evidence and developed the recommendations. An independent Guideline Review Panel oversaw the development of the guideline (see appendix B).

There is more information about how NICE clinical guidelines are developed on the NICE website ([www.nice.org.uk/HowWeWork](http://www.nice.org.uk/HowWeWork)). A booklet, ‘How NICE clinical guidelines are developed: an overview for stakeholders, the public and the NHS’ (fourth edition, published 2009), is available from NICE publications (phone 0845 003 7783 or email [publications@nice.org.uk](mailto:publications@nice.org.uk) and quote reference N1739).

## 3 Implementation

NICE has developed tools to help organisations implement this guidance (see [www.nice.org.uk/guidance/CG111](http://www.nice.org.uk/guidance/CG111)).

## 4 Research recommendations

The Guideline Development Group has made the following recommendations for research, based on its review of evidence, to improve NICE guidance and patient care in the future. The Guideline Development Group's full set of research recommendations is detailed in the full guideline (see section 5).

## **4.1      *Multicomponent treatments***

What elements of multicomponent treatments (for example dry-bed training and retention control training) are clinically effective and cost effective for treating bedwetting in children and young people under 19 years old?

### **Why this is important**

It is not known which of the elements of multicomponent treatments (for example dry-bed training and retention-control training) are clinically effective and cost effective for treating bedwetting in children and young people under 19 years old. Data from randomised controlled trials of dry-bed training and retention-control training suggest that the treatments may be clinically effective. However, certain elements of the multicomponent treatments studied are not acceptable as a form of treatment due to their punitive nature. Further research is needed to establish which elements could be used effectively to treat bedwetting.

Research should:

- Use randomised controlled trials to test the effect of the different elements of dry-bed training alone and in different combinations for the treatment of bedwetting.
- Use randomised controlled trials to test the effect of the different elements of retention control training alone and in different combinations for the treatment of bedwetting.
- Consider different age groups of children being treated, such as younger children (under 7 years) and older children (over 10 years), as the ability of children to take responsibility for their behaviour may be important.
- Clearly describe the techniques used, including who gave the instructions, the timing of the treatments and the setting.

Outcomes of interest include: the number of children who achieved 14 consecutive dry nights, the number of children who remain dry at 6 months and 2 years after treatment, the mean number of wet nights after treatment,

the change in the number of wet nights, the psychological effect of treatment, psychological effects (self-esteem, self-concept, PinQ<sup>6</sup>), quality of life measures and drop outs.

## **4.2 Standard interventions**

What is the clinical and cost effectiveness of standard interventions, for example alarm and desmopressin, for treating bedwetting in children and young people under 19 years old?

### **Why this is important**

The evidence base for management of bedwetting is poor. Studies are inadequately powered, symptoms are poorly defined and study populations are commonly children seen in secondary and tertiary centres. Follow-up periods are often inadequate.

Research should provide:

- More subgroup data (for example, young children, children with daytime symptoms as well as bedwetting, children who were previously successful with subsequent relapse, children with sickle cell disease, children with severe wetting and children with special needs).
- More robust statistical data in trials of standard interventions for treating bedwetting (for example, adequately powered to detect differences).
- Data on longer term follow-up.
- Data from populations at a primary care/community care level.

## **4.3 Psychological functioning and quality of life**

What is the impact of bedwetting upon the psychological functioning and quality of life of children and young people and their families? How do these change with treatment?

### **Why is this important?**

There are relatively few studies that focus upon the psychological impact and health-related quality of life of children who experience bedwetting. In

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<sup>6</sup> A continence-specific paediatric quality-of-life measurement tool.

addition, studies of effectiveness have focused on the achievement of dryness as the primary outcome rather than how treatment might affect social and psychological aspects as well as the quality of life of children and young people and their families.

Research should:

- Examine the psychological impact and quality of life of children and young people and their families as well as the effectiveness of treatment upon these aspects.
- Use standardised measures to assess the psychological impact of bedwetting on children and young people as well as the quality of life of the child or young person and family.
- Use standardised measures to assess change associated with treatment for bedwetting.

Quality-of-life research of children and young people with bedwetting pre- and post-treatment would also be very useful to inform further economic evaluation work.

#### **4.4 Complementary therapies**

What is the effectiveness of complementary therapies (acupuncture and hypnotherapy) for reducing the number of wet beds and improving self-esteem in children and young people who wet the bed, when they are used independently or in conjunction with conventional treatments?

##### **Why this is important**

Many families consider the use of complementary and/or alternative medicine (CAM) as a treatment option when conventional treatment 'fails' or in order to avoid drug or other treatments. There is very little evidence about the efficacy of many CAM treatments, but the use of CAM is widespread and increasing across the developed world. There is a clear need for more effective guidance for health professionals, so that they can give evidence-based advice to patients about what does and does not work and what is and is not safe, and for the public.

Research should:

- Use randomised controlled trials to test the effect of using CAM therapies in addition to or instead of other treatments for bedwetting.
- Clearly describe the CAM therapies tested, including the provision of the treatment for both the treatment and the control group.
- Priority should be given to research on acupuncture and hypnotherapy but other CAM therapies should not be excluded.
- If possible, the comparative effectiveness and cost effectiveness of different CAM therapies should be tested.

Outcomes of interest include: self-esteem, number of dry nights, permanent or temporary nature of increased number of dry nights, quality of life, costs and social engagement.

#### **4.5 *Bedwetting in adolescents***

What is the prevalence of wetting and/or soiling in adolescence and what are the long-term consequences for adolescents with these problems?

##### **Why this is important**

There is evidence that, for an important minority of children, wetting and soiling problems persist into late childhood and sometimes beyond puberty, but their prevalence is not clearly known. It has also recently been reported that in children who experience more frequent bedwetting (more than three times a week) it is more likely to persist into late childhood and adolescence. These studies suggest that, contrary to popular belief, wetting and soiling problems do not always resolve with increasing age. If wetting and soiling problems remain unresolved or untreated they can become socially and psychologically debilitating. There are no longitudinal cohort studies examining the impact of wetting and soiling on a wide range of outcomes in adolescence relating to mental health, education/school attainment, relationships with parents and peers, social activities and goals/aspirations for the future. Persistence of wetting and soiling problems into adolescence is likely to be accompanied by ridicule and bullying by peers and increasing intolerance from parents, especially if they believe that their child is to blame

for the problem. Such reactions can only serve to exacerbate the young person's distress and may lead to delays in seeking help. In particular, teenagers who are unsuccessfully treated in childhood are often reluctant to seek help for wetting or soiling due to the severe embarrassment associated with the problem, and others may simply believe that no help is available.

Research should:

- Use adolescents own self-reports of frequency of bedwetting, daytime wetting and soiling.
- Adapt existing trajectory models to incorporate information on the frequency of wetting and soiling to examine whether children with more frequent problems are more likely to experience continuing wetting and soiling into adolescence.

Outcomes of interest include: the examination of mental health, psychosocial and educational outcomes and whether adolescents who have combined wetting and soiling are at increased risk of negative outcomes compared to those with wetting or soiling alone.

## **5 Other versions of this guideline**

### **5.1 Full guideline**

The full guideline, 'Nocturnal enuresis: the management of bedwetting in children and young people' contains details of the methods and evidence used to develop the guideline. It is published by the National Clinical Guideline Centre, and is available from our website ([www.nice.org.uk/guidance/CG111](http://www.nice.org.uk/guidance/CG111)).

### **5.2 Quick reference guide**

A quick reference guide for healthcare professionals is available from [www.nice.org.uk/guidance/CG111/QuickRefGuide](http://www.nice.org.uk/guidance/CG111/QuickRefGuide)

For printed copies, phone NICE publications on 0845 003 7783 or email [publications@nice.org.uk](mailto:publications@nice.org.uk) (quote reference number N2318).

### **5.3 'Understanding NICE guidance'**

Information for patients and carers ('Understanding NICE guidance') is available from [www.nice.org.uk/guidance/CG111/PublicInfo](http://www.nice.org.uk/guidance/CG111/PublicInfo)

For printed copies, phone NICE publications on 0845 003 7783 or email [publications@nice.org.uk](mailto:publications@nice.org.uk) (quote reference number N2319).

We encourage NHS and voluntary sector organisations to use text from this booklet in their own information about bedwetting in children and young people.

## **6 Related NICE guidance**

### **Published**

- Constipation in children and young people. NICE clinical guideline 99 (2010). Available from [www.nice.org.uk/guidance/CG99](http://www.nice.org.uk/guidance/CG99)
- When to suspect child maltreatment. NICE clinical guideline 89 (2009). Available from [www.nice.org.uk/guidance/CG89](http://www.nice.org.uk/guidance/CG89)
- Medicines adherence. NICE clinical guideline 76 (2009). Available from [www.nice.org.uk/guidance/CG76](http://www.nice.org.uk/guidance/CG76)
- Urinary tract infection in children. NICE clinical guideline 54 (2007). Available from [www.nice.org.uk/guidance/CG54](http://www.nice.org.uk/guidance/CG54)
- Type 1 diabetes. NICE clinical guideline 15 (2004). Available from [www.nice.org.uk/guidance/CG15](http://www.nice.org.uk/guidance/CG15)

## **7 Updating the guideline**

NICE clinical guidelines are updated so that recommendations take into account important new information. New evidence is checked 3 years after publication, and healthcare professionals and patients are asked for their views; we use this information to decide whether all or part of a guideline needs updating. If important new evidence is published at other times, we may decide to do a more rapid update of some recommendations. Please see our website for information about updating the guideline.

## **Appendix A: Guideline Development Group, National Clinical Guideline Centre and NICE project team**

### ***Guideline Development Group***

#### **Jonathan Evans (Chair)**

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Patient and carer member, Company Director/Software Engineer

#### **Janet Wootton**

Specialist Enuresis Nurse and School Health Nurse, York Hospital NHS  
Foundation Trust

#### **Patricia Hall**

Chartered Clinical Psychologist, Sheffield Children's NHS Foundation Trust

#### **Penelope Dobson MBE**

Founder and former director of the children's charity ERIC (Education and  
Resources for Improving Childhood Continence) and currently chair of the  
Paediatric Continence Forum (PCF)

#### **Philippa Williams**

Patient and carer member, Project Worker

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Guideline Commissioning Manager

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Guideline Commissioning Manager

**Andrew Gyton**

Guideline Coordinator

**Judith Thornton**

Technical Lead

## **Appendix B: The Guideline Review Panel**

The Guideline Review Panel is an independent panel that oversees the development of the guideline and takes responsibility for monitoring adherence to NICE guideline development processes. In particular, the panel ensures that stakeholder comments have been adequately considered and responded to. The panel includes members from the following perspectives: primary care, lay, public health and industry.

### **Dr Robert Walker (Chair)**

General Practitioner, Workington

### **Dr Mark Hill**

Head of Medical Affairs, Novartis Pharmaceuticals UK Ltd

### **Dr John Harley**

Clinical Governance and Prescribing Lead and General Practitioner, North Tees PCT

### **Mrs Ailsa Donnelly**

Lay member

### **Mrs Sarah Fishburn**

Lay member

### **Mr Robin Beal**

Consultant in Accident and Emergency Medicine, Isle of Wight

## **Appendix C: The algorithms**

Care pathways can be found on pages 13, 14 and 16 of the quick reference guide, available from [www.nice.org.uk/guidance/CG111/QuickRefGuide](http://www.nice.org.uk/guidance/CG111/QuickRefGuide)