GUIDELINES

Management of bedwetting in children and young people: summary of NICE guidance

Vanessa Delgado Nunes, Norma O'Flynn, Jonathan Evans, Laura Sawyer on behalf of the Guideline Development Group

National Clinical Guideline Centre, Royal College of Physicians of London, London NW1 4LE, UK

Correspondence to: V D Nunes
vanessa.nunes@rcplondon.ac.uk

Cite this as: *BMJ* 2010;341:c5399
doi: 10.1136/bmj.c5399

This is one of a series of *BMJ* summaries of new guidelines based on the best available evidence; they highlight important recommendations for clinical practice, especially where uncertainty or controversy exists. Further information about the guidance, a list of members of the guideline development group, and the supporting evidence statements are in the full version on bmj.com.

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.[1 2] It is also very stressful for the parents or carers, generating a sense of helplessness, lack of hope and optimism,[2] feelings of being different from others, feelings of guilt and shame, humiliation, victimisation, and loss of self esteem.[3 4] The prevalence of bedwetting decreases with age. The Avon longitudinal study found that bedwetting on more than two nights a week occurs in 8% of children aged about 4 years 6 months and in 1.5% of those aged 9 years 6 months.[5] This article summarises the recommendations from the most recent guidance from the National Institute for Health and Clinical Excellence (NICE) on the management of bedwetting in children and young people aged up to 19 years.[6]

Recommendations

NICE recommendations are based on systematic reviews of best available evidence and explicit consideration of cost effectiveness. When minimal evidence is available, recommendations are based on the Guideline Development Group's experience and opinion of what constitutes good practice. Evidence levels for the recommendations are in the full version of this article on bmj.com.

Information for children and families

- Bedwetting is not the fault of the child or the young person, and disciplining children and young people because they have wet the bed should not be done.
- Offer treatment that is appropriate for the needs and circumstances of the child or young person. Advice and treatment should be available for all children and young people, including those aged under 7 years.
- Provide children, young people, and parents and carers with details of support groups and practical advice about reducing the impact of bedwetting, such as using bed protection and washable or disposable nappies and bedclothes.

Assessment

- Ask if the child or young person has previously been dry at night. If bedwetting started in the past few days or weeks consider whether it is the presentation of an illness such as urinary tract infection or diabetes.
- If the child or young person has been dry for more than six months explore possible triggers such as emotional upset or recent illness. The management of bedwetting is not different for secondary bedwetting, but a trigger might need treatment in its own right.
- Ask how many nights a week bedwetting occurs, whether a large volume of urine is passed, and whether there is wetting more than once during the night. Bedwetting several nights a week is less likely to resolve without intervention. Wetting more than once during the night is the typical pattern of children who also have daytime urinary symptoms.
- Ask about daytime urinary symptoms such as frequency and urgency. If daytime symptoms predominate assess and treat these symptoms first before offering specific bedwetting treatments.
- Inquire about other problems, that may be related to bedwetting, in particular constipation and/or soiling; developmental, attention or learning difficulties; diabetes; behavioural or emotional problems; and family problems.
- Urine analysis testing or urine testing for microscopy and culture is not normally needed unless:
  - -Bedwetting started in the past few days or weeks
  - -There are daytime urinary problems or
  - -Another health problem is suspected (a urinary infection or diabetes in particular).
- Consider further assessment, tests, or referral for the following:
  - -Severe daytime urinary problems
  - -Previous history of urinary infections
  - -Known or suspected congenital physical abnormalities (posterior urethal valves or myelomeningocoele) or neurological problems (such as cerebral palsy)
  - -Development, attention, or learning difficulties
  - -Behavioural, emotional, or family problems.
- Discuss with parents and carers how they feel about the bedwetting, whether they are coping, and whether they need extra support.
- Consider maltreatment if parents or carers report that the child or young person is deliberately bedwetting, if they are punishing a child or young person for bedwetting despite advice that it is not the fault of the child or young person, or if secondary bedwetting

bmj.com archive

Previous articles in this series

- Transient loss of consciousness—initial assessment, diagnosis, and specialist referral (*BMJ* 2010;341:c4457)
- Management of hypertensive disorders during pregnancy (*BMJ* 2010;341:c2207)
- Diagnosis and management of adults with chronic heart failure (*BMJ* 2010;341:c4130)
- Diagnosis, prevention, and management of delirium (*BMJ* 2010;341:c3704)
- Management of bacterial meningitis and meningococcal septicaemia in children and young people (*BMJ* 2010;341:c3209)

persists without a clear physical or psychological reason.[7]

Advice

- Do not restrict fluids during the day as it is important that the child or young person has enough to drink. Advise on the right amount and explain that this will depend on the circumstances (such as temperature, diet, and activity).
- Before starting treatment for bedwetting, encourage the child or the young person to use the toilet at regular intervals during the day (around four to seven times a day, including just before going to bed).
- In older children and young people give positive rewards for agreed behaviour rather than for dry nights—for example, reward them for going to the toilet before bedtime, drinking recommended levels of fluid during the day, taking their medication, or helping to change the sheets.
- Consider whether it is appropriate to offer alarms or drug treatment (see next section); the decision will depend 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 the family.
- For children aged under 5 years, explain to parents or carers that about one in five children of 4 years 6 months wets the bed at least once a week. If the child has not started toilet training yet, advise them to start this process, and explain that their local health adviser will be happy to provide advice and support.
- Advise parents and carers that:
  - -Neither waking nor lifting a child or young person during the night to take them to the toilet will help to keep them dry in the long term
  - -Waking should be used only as a short term practical measure (for example, if on holiday or away from home).
- Young people with bedwetting that has not responded to treatment might find that waking themselves (using an alarm clock) to go to the toilet during the night is a useful strategy to prevent wetting the bed.
- Do not use training programmes that involve either "holding on" and waiting before urinating or stopping the flow of urine as these have not been shown to be effective.

Interventions

Alarms

An enuresis alarm is activated when urine makes contact with the device's sensor. Several types of alarm are available. "Pad and bell" alarms (whose sensor pad is positioned under a draw sheet beneath the child or young person in the bed) and body worn alarms (whose small sensor is attached to the underpants of the child or young person) alert the user by means of a noise (such as a bell placed beside the bed or a "noise" box attached to the neck of the pyjama top). Another type of alarm is similar to pad and bell and body worn alarms but alerts the user by means of a vibrating attachment (such as a pad to go under the pillow).

- Offer an alarm as initial treatment for children and young people whose bedwetting has not responded to advice on fluids, toileting, or an appropriate reward system unless:
  - -The child, young person, parents, or carers do not want to try it or
  - -The healthcare team think it is unsuitable for the child, young person, parents, or carers.

Alarms may not be suitable if the child or young person wets the bed infrequently (only once or twice a week), if the parents or carers are having emotional difficulty coping with the burden of bedwetting or are expressing anger, negativity, or blame towards the child or young person, or if the priority is for fast or short term improvement.

- Parents and carers may need a considerable amount of advice and support in learning how to use an alarm. They should agree with the healthcare team about how this advice and support should be obtained. Parents and carers may need to help children and young people to wake up and go to the toilet when the alarm goes off, and sleep may be disrupted for many weeks or months. They will also need to record progress—for example, noting if and when the child or young person wakes to the alarm and how wet the bed is.
- If alarm treatment is not successful, offer desmopressin (a synthetic analogue of antidiuretic hormone) as well as use of the alarm. Alternatively, if the parents, carers, child, or young person no longer want to use an alarm, offer desmopressin alone.

Desmopressin

- Offer desmopressin as initial treatment if:
  - -The child, young person, parents, or carers do not want to try an alarm
  - -The healthcare team decides that an alarm is not suitable
  - -Fast acting, short term improvement is the priority.

If bedwetting recurs or does not respond to initial treatment

- If the bedwetting stopped when using an alarm but has started again after treatment ended, offer an alarm again. If bedwetting then recurs, offer desmopressin as well as using the alarm.
- If alarm and/or treatment with desmopressin are not successful, refer for further review and assessment by a healthcare professional who specialises in the management of bedwetting that has not responded to initial treatment.
- After such assessment consider offering an anticholinergic drug such as tolterodine or oxybutynin to take with desmopressin.
- If no other treatment has been successful consider offering imipramine but only after assessment by a healthcare professional who specialises in the management of bedwetting that has not responded to treatment. Do not offer this in combination with an anticholinergic.

Overcoming barriers

Training, education, and awareness raising of teachers, teaching assistants, social care and healthcare professionals (general practitioners, specialist nurses, practice nurses), and those working in community centres are paramount for

this guideline to be implemented effectively. Advice about fluid intake and appropriate access to fluids is important for children with bedwetting. Until now, children have not been offered treatment until age 7 years. However, this guideline includes treatment options (such as advice, drugs, and alarms) for children aged 5-7 years, which will have implications for service organisation.

The provision of continence advice and services for children is currently patchy and mostly provided via school nursing services. Areas without services will need to consider the commissioning of services, and NICE is developing a commissioning tool to accompany this guideline.

Contributors: All authors contributed to a first draft, and all authors approved the final version.

Funding: The National Clinical Guideline Centre was commissioned and funded by the National Institute for Health and Clinical Excellence to write this summary.

Competing interests: All authors have completed the Unified Competing Interest form at www.icmje.org/coi_disclosure.pdf (available on request from the corresponding author) and declare: (1) VDN, NO'F, and LS have support from NICE for work on guideline development: VDN's, NO'F's, and LS's department is funded by NICE; (2) JE was a principal investigator in a trial comparing desmopressin and enuresis alarms (now completed and published in the *Journal of Pediatric Urology* in 2010) that was sponsored by Ferring Pharmaceuticals. The hospital received payments to cover costs of the trial. JE has also received travel expenses for attending investigator meetings; (3) no spouses, partners, or children have financial relationships that may be relevant to the submitted work; and (4) no non-financial interests that may be relevant to the submitted work.

Provenance and peer review: Commissioned; not externally peer reviewed.

1 Hagglof B, Andren O, Bergstrom E, Marklund L, Wendelius M. Self-esteem before and after treatment in children with nocturnal enuresis and urinary incontinence. *Scand J Urol Nephrol (Suppl)* 1997;183:79-82.
2 Morison MJ, Tappin D, Staines H. "You feel helpless, that's exactly it": parents' and young people's control beliefs about bed-wetting and the implications for practice. *J Adv Nurs* 2000;31:1216-27.
3 Butler RJ. *Nocturnal enuresis: the child's experience*. Butterworth Heinemann, 1994.
4 Butler RJ. Annotation: night wetting in children: psychological aspects. *J Child Psychol Psychiatry* 1998;39:453-63.
5 Butler R, Heron J. An exploration of children's views of bed-wetting at 9 years. *Child Care Health Dev* 2008;34(1):65-70.
6 National Institute for Health and Clinical Excellence. *Nocturnal enuresis: the management of bedwetting in children and young people*. (Clinical guideline 111.) 2010. http://guidance.nice.org.uk/CG111.
7 National Institute for Health and Clinical Excellence. When to suspect child maltreatment 2009. (Clinical guidline 89.) http://guidance.nice.org.uk/CG89.
8 Neveus T, von Gontard A, Hoebeke P, Hjalmas K, Bauer S, Bower W, et al. The standardization of terminology of lower urinary tract function in children and adolescents: report from the Standardisation Committee of the International Children's Continence Society. *J Urol* 2006;176:314-24.

A PATIENT'S JOURNEY

Vitiligo

Jennifer Viles,[1] Darryl Monte,[1] David J Gawkrodger[2]

[1]Vitiligo Society, London SE11 6SF
[2]Royal Hallamshire Hospital, University of Sheffield, Sheffield S10 2JF

Correspondence to: J Viles jennifer_viles@vitiligosociety.org.uk, D J Gawkrodger david.gawkrodger@sth.nhs.uk

Cite this as: *BMJ* 2010;341:c3780
doi: 10.1136/bmj.c3780

This is one of a series of occasional articles by patients about their experiences that offer lessons to doctors. The *BMJ* welcomes contributions to the series. Please contact Peter Lapsley (plapsley@bmj.com) for guidance.

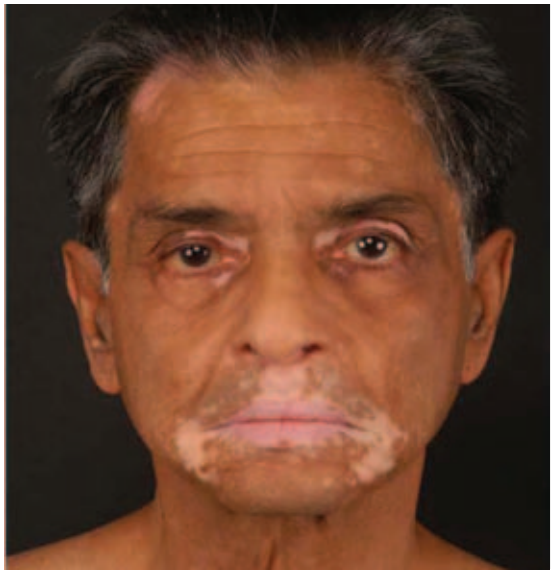
A wide range of treatments have provided varying and generally limited success in treating vitiligo; the onset of other autoimmune conditions brought other problems

My vitiligo started in 1978, when I was 40. It first appeared on my left hand as small white lines around my cuticles; I was diagnosed with "leucoderma" and told that "it would go away." However, more white patches appeared, and a friend told me that in America this is called vitiligo. Six months later, spots appeared on the right hand, and the loss of pigment spread rapidly over the next 12-18 months.

I went to my GP, who referred me to a specialist dermatologist, who in the first instance gave me steroid cream to use "lightly" for 12 months. About the same time the vitiligo started on my face, as a patch on the right side near my mouth, and subsequently spots occurred and replicated themselves on my hands and body. My GP decided on a different approach and referred me to the homoeopathic hospital for the vitiligo to be treated holistically, because at that time she had no other treatment to suggest. Over the years I had tried various homoeopathic treatments for vitiligo on visits to India with different dermatologists and homoeopaths; none of the treatments they had suggested had any success. I saw a psychologist because I

USEFUL RESOURCES

The Vitiligo Society (www.vitiligosociety.org.uk) is a charity offering support and reliable information to people with vitiligo and their families. It promotes and funds research to establish the causes of vitiligo and to find safe and effective treatments.



Vitiligo affects Darryl's face in a prominent symmetrical pattern (photo taken towards the end of treatment)

A DOCTOR'S PERSPECTIVE

Vitiligo causes a lot of psychological distress, but this is only one of many facets of the disease that are illustrated by Darryl's case. Darryl's vitiligo came on rather late in life, as the most common time of onset is the second or third decade. The onset on the hands is common in the symmetrical types of vitiligo that are usual in adults (as opposed to the segmental type found mostly in children, which is seen in a unilateral and dermatome-like pattern). Darryl's vitiligo spread rapidly. This would have been unpredictable to his doctors, as the rate of progress of vitiligo varies. Vitiligo is usually a progressive disease that shows periods of activity interspersed with times of inactivity. Spontaneous repigmentation can occur but is rare.

The initial treatment in Darryl's case was a topical steroid. This is a reasonable initial approach for limited area vitiligo (according to the published guidelines), and about a half of patients show some pigment gain with a highly potent topical steroid. Vitiligo on the face is currently treated with a topical calcineurin inhibitor (pimecrolimus or tacrolimus) because of the concern about steroid induced skin atrophy on the face. The reaction of Darryl's doctors in referring him for homoeopathic treatment illustrates the feeling of powerlessness that doctors may experience and the desperation of patients when faced with a disease like vitiligo, for which there is little effective treatment.

When Darryl's vitiligo became extensive he was correctly prescribed phototherapy. PUVA (psoralen and ultraviolet A) has mostly been superseded by narrow band ultraviolet B (NB-UVB), which is safer and more effective than PUVA. One study indicates that about 60% of patients achieve 50% or more repigmentation with NB-UVB, but a prolonged course (6-12 months) is often required. The number of treatments should be limited to 200 for patients with lighter skin colour but can be higher for those with a darker skin. Darryl lost pigment after the phototherapy: unfortunately this is not uncommon. Twelve months after completion of a course of PUVA, about a quarter of patients have less pigmentation than they did before starting the treatment (the proportion with pigment loss is less with NB-UVB).

The spread of vitiligo to the face produced psychological trauma in Darryl, underlining the extreme emotional effect vitiligo has. Darryl's experience as an expert patient, observing the level of knowledge of doctors and medical students, underlines inadequacies in the curriculum of some medical schools and GP courses. In many medical schools, only one or two weeks of dermatology is taught; in some it is absent altogether.

Vitiligo shows many characteristics of an autoimmune disease, and Darryl's experience bears this out. Up to 30% of vitiligo patients have autoimmune thyroid disease, and a personal or family history of thyroid problems, diabetes, or other endocrine disorder is common. Patients with vitiligo are shown to have circulating autoantibodies and T lymphocyte activity against melanocyte antigens, resulting in the loss of functioning melanocytes within the depigmented macules of vitiligo (the histological feature of the disease). Darryl developed rheumatoid arthritis, but this is not a common association with vitiligo.

Interestingly, the biological drug etanercept given for Darryl's rheumatoid arthritis did not improve his vitiligo. There is still no really effective treatment for vitiligo. Scientific studies that give a better understanding of the causative mechanisms and the genetics of vitiligo offer the hope of developing a properly effective treatment.

David J Gawkrodger

bmj.com archive

Previous articles in this series

- Duchenne muscular dystrophy (*BMJ* 2010;341:c4364)
- At sixes and sevens: prostate cancer (*BMJ* 2010;341:c3834)
- Through and beyond anaesthesia awareness (*BMJ* 2010;341:c3669)
- Joint hypermobility syndrome (*BMJ* 2010;341:c3044)
- Endometriosis (*BMJ* 2010;341:c2661)

had a very stressful job and she advised meditation as stress was believed to be a contributing factor. I didn't get any repigmentation, but the patches didn't get any worse for two years.

Then with a new job, with increased stress levels, the loss of pigment started to get much worse, and my GP referred me to a research programme at St Thomas' Hospital, London, during the late 1980s. By that time I had two large patches on my face, around the mouth and forehead and around my eyes, in addition to areas on the rest of my body. I was given psoralen and ultraviolet A (PUVA) twice a week, and the repigmentation was quite rapid and noticeable. Within one month I started to repigment on the face. It was a darker shade than my normal skin, and I was lucky because I didn't have any side effects. I continued the treatment for a year and repigmented on the legs and calves, but with a lighter shade than my normal pigment. About this time, narrowband ultraviolet B (UVB) was just becoming available. I noticed that the PUVA treatment seemed to be increasing my white patches, which was evident on my calves and shins. The consultant changed the treatment to narrow band UVB and there was a noticeable improvement with repigmentation (figure), but not on the hands or feet.

I felt that the visual effect my depigmented skin had on other people was the main effect of the disease. The psychological impact was quite painful, and took some time to overcome. In the early 1990s I became an advocate for younger people seeing GPs to get treatment, and I was selected to be a test case for skin diseases on various training seminars for GPs. It was during these sessions I discovered, to my surprise, how little dermatological training medical students and GPs were given. GPs' attitude and responses, and minimal patient support, must have been rather disconcerting to patients.

Vitiligo was my first autoimmune condition. In 1995 I was diagnosed with diabetes, almost by accident: I was waiting for an underground train and read an advertisement by the British Diabetic Association and realised I had all the symptoms. I went to a diabetes clinic and took tablets for a year with no control of the condition. I was then given insulin, which had an immediate response—I felt quite normal again and was able to continue to play sport. That was my second autoimmune condition. Then in the late 1990s I started to get pains in my left knee; this was initially diagnosed as osteoarthritis but later was rediagnosed as rheumatoid arthritis. This was my third autoimmune condition. The Vitiligo Society has asked if my thyroid has been tested. I have not had this done yet, but I suspect I should.

Throughout this time I continued to have narrowband UVB treatment and continued to repigment, but when I had completed 250 sessions it was decided that I should stop treatment (the maximum is 300 sessions, depending on other medical factors and the dermatologist's judgment). Repigmentation seemed to have stalled. The area of skin that had white patches is thinner, particularly on the hands, and I am careful to use a high sun protection factor. I have been given tacrolimus ointment to use on the remaining spots on my face, as anecdotal evidence on other patients has shown good results.

During this time my rheumatoid arthritis got much worse; when my condition reached an extremely debilitating level I was prescribed etanercept. I was fortunate that it had no side effects. I noticed a dramatic improvement within four hours of starting the treatment. That morning I had struggled to get out of a chair due to the high level of pain, which severely restricted my mobility and required me to walk with a walking stick; by teatime I was able to walk freely with a minimum of pain. I am now virtually pain-free.

Contributors: JV runs the Vitiligo Society and helped to pull this article together. DM wrote the main part of the article; JV helped with editing. DJG wrote the medical perspective.

Competing interests: All authors have completed the unified competing interest form at www.icmje.org/coi_disclosure.pdf (available on request from the corresponding author) and declare no support from any organisation for the submitted work; no financial relationships with any organisation that might have an interest in the submitted work in the previous three years; and no other relationships or activities that could appear to have influenced the submitted work.

Provenance and peer review: Not commissioned; externally peer reviewed.

Accepted: 9 June 2010