A Consultant Paediatrician Led and Public Health Nurse (PHN) Provided Community Enuresis Clinic as a Model of Care

Abstract:
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Abstract
A dedicated Community Enuresis Clinic was established in 2004 in Cavan and Monaghan. The service was audited using ERIC (Education and Resources for Improving Childhood Continence) guidelines. There were 106 males and 47 females, giving an M:F ratio of 2.3:1. Monosymptomatic Nocturnal Enuresis (MNE) accounted for 127 (83%). A recent study from Melbourne looked at the outcome measures and success of the management of MNE in a private community practice. Using just the body-worn alarm and supportive programmes they were able to achieve an almost 80% initial success rate. Our aim was to promote our model of service provision in Ireland for children with predominantly MNE, by evaluating the effectiveness of the clinic and educate by sharing our methods and experience.

Introduction
Nocturnal enuresis (NE) is defined as the involuntary discharge of urine at night in a child aged 5 years or older in the absence of congenital or acquired defects of the central nervous system or urinary tract. Classification based on careful history helps to ensure appropriate treatment strategies. Non-monosymptomatic (NMNE) or monosymptomatic (MNE) by the International Children's Continence Society. MNE is defined as enuresis in children with no lower urinary tract symptoms and no daytime bladder dysfunction. Children who have lower urinary tract symptoms, are defined as having NMNE. Monosymptomatic Nocturnal Enuresis (MNE) accounted for 127 (83%). There is a significant inheritable pattern to NE with up to 50% having an affected first degree relative. NE can cause significant distress and embarrassment for children and frustration for their parents when not fully understood.

Methods
The Cavan/Monaghan Enuresis Clinic in its current format was established in 2004. The service structures are based on the experience gained at the Enuresis Clinic of Lifespan Health Care NHS Trust, Cambridge, UK and ERIC guidelines. There are two clinics held per month, one for each of the counties. Children are seen between the ages of 7 - 16 years. The Enuresis Team in the Cavan/Monaghan region consists of two paediatricians, five specialist Public Health Nurses (PHN), about thirty general PHNs and an equivalent number of GPs. Defined referral pathways exist and patients can come via PHNs, GPs or paediatricians.

All new referrals have a standard initial questionnaire completed and a careful clinical assessment undertaken by the Paediatrician. Detailed information and advice are provided and a decision is made regarding children suitability for referral to the Enuresis Nurse Specialist. When daytime symptoms are present appropriate investigations, which may include renal and bladder imaging are requested (NMNE group). The child and his/her parents are given an information booklet and are asked to complete some simple charts looking at fluid intake, voiding frequency and volumes prior to their second clinic visit the following month (Table 1). The purpose of these basic assessments is to classify the children as either MNE or Non MNE. If possible an estimation of volume voided during night and time of wetting episode are recorded as this can help decide on possible benefit from Desmopressin.

When the child returns to the clinic one month later, charts are reviewed by the PHN and explained to the child and parents. A treatment strategy is decided on and for most this initially includes the Enuresis Alarm. If the child or families are not keen to try the alarm, or if the child is not felt to be suitable for it, then star charts/reward charts or desmopressin are employed initially. Children are subsequently reviewed, either by home visits, clinic appointments or by telephone communication, at intervals of between 1-3 months to assess outcome measures and response to treatment. In 2008, an audit of the Enuresis service was undertaken in the form of a retrospective chart review of all children treated at the clinic since it began in 2004. The audit tool we used was based on the ERIC produced document entitled Setting up an Enuresis Audit and the Minimum Standards of Practice, as set out by ERIC. These guidelines provide Working Definitions, useful as Performance Indicators of a clinic (Table 2).
Results
A total of 153 patients were audited. Of these, 127 (83%) had a diagnosis of MNE and 26 (17%) had NMNE. There were 106 males and 47 females, giving an M: F ratio of 2.3:1. There was a positive family history (First degree relatives only) in 41%. Treatments already tried by these families included fluid restriction (81%) and lifting (50%).

Constipation requiring treatment was found in 17 patients (11%).

Outcome Data
Table 3 gives an overview of the initial treatments used in the first 16 weeks for MNE. At the end of this period initial success rates are recorded. Due to incomplete chart records only 108 of these could be included in the analysis (Figure 1). The Initial Success as defined above was 49% (53 patients dry out of 108). Although not an ERIC Performance Indicator, looking at those who completed the full 16 week program, 53 of 86 (62%) achieved dryness. Two thirds (35 of 53) of these achieved this standard with the alarm (Table 3).

Looking at the 65 children for whom there was data available at one year, 46 (71%) were dry. Complete success as defined by ERIC16 indicates those that are dry at 2 years. Owing to insufficient follow-up data to calculate these we therefore used those that were dry at one year as a surrogate marker of longer-term success. Twenty two children (20%) dropped out of the Enuresis clinic service in Cavan/Monaghan prior to completion of the 16 week programme (Figure 1). The mean age of those who dropped out was 10.2 – 2.5 years (mean – SD). The numbers were small in the NMNE group and therefore no meaningful conclusions could be made about this group other than the fact that their management is complex and they are best managed in a separate clinic.

Figure 1: Flow Diagram of Patients with MNE

Discussion
Several evidence based treatment modalities are available for NE management, but it remains a challenge for paediatricians and families. Good general advice in regard today time fluid intake, voiding routine and management of possible aggravating factors such as constipation is essential. Fluid restriction and lifting as a means to improve bladder control at night should be avoided and was not employed as a treatment strategy in our clinic. The most effective and well studied intervention is the enuresis alarm. It is safe, inexpensive as compared to medicines, and has been shown to help children achieve both initial and more sustained, long-term success and dryness. Its success is dependent on the age of the child, the family situation, and any stressors that may be present. It is important that the child is motivated and not just the parent(s). The alarm will only work when the child has reached a level of maturity and motivation to be able to alert and wake to an expected sound; i.e. they must anticipate that the alarm is going to go off. Otherwise the child sleeps sound and the rest of the family are wakened. We advise a trial of the alarm for up to one month and where the child is unable to wake, a retrial after three to four months. Persisting in the face of ongoing failure serves only to enhance anxiety for the child.

For families not keen to use the alarm, in children whom the alarm has failed or occasionally for short term use to cover holidays or sleepovers, we use desmopressin. Although sometimes useful in these situations it will not affect the natural history of NE and relapse on discontinuing it is common.
limiting adverse effect being headaches, which are infrequent at the recommended starting doses. Recommended courses of treatment would be 3-6 months for desmopressin. Where relapse occurs a re trial of the drug or a trial of the alarm may be appropriate. The most worrying side effect of desmopressin is hyponatraemia associated with inappropriate fluid intake. Education of parents and the child with regard to medication effects and side effects is important. In those NME who do not respond to the initial Basic Advice and an Alarm, combinations of treatment usually including desmopressin is used.

Our Initial Success (Calculated as per ERIC guidelines to include dropouts) was 49%, just short of the target of 50%. However we did not have sufficient data for 19 patients and if only 2 of these actually achieved dryness then we would have attained 50% Initial Success. For those who regularly attended the Cavan/Monaghan Enuresis clinic success rates were above the standards set by ERIC. We believe the structure of this community based clinic and its approach to NE management has been very successful. The dropout rate although better than the minimum standard, did not reach the target of 15%. A further study of reasons for non-attendance at clinic would provide useful feedback and assist us in reviewing our initial management protocol. Following this audit we have implemented a policy change whereby all patients are phoned by the PHN at two months from the initial visit. A further audit in a year time should help us to reduce non-attendance in those who would benefit from additional clinic support. We would also have more accurate follow up data on the success or otherwise of our intervention. As expected the audit process undertaken highlighted key areas for improvement and appropriate changes have been made. NE can become a real problem for many families if not understood and managed properly. We have shown that MNE can be managed effectively by a nurse provided dedicated clinic such as ours, and we hope we have provided a valuable educational resource for a common childhood condition.

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References