



A precious tool

for children's dentistry



Nicole Sturzenbaum¹ extols the virtues of conscious sedation with nitrous oxide for children's dentistry.

Introduction

In the UK some 46,500 children were admitted to hospital for dental caries in 2013-14,¹ a process which can be distressing to the patient (and parents/carer) and is costly; the NHS spent £30 million on hospital based tooth extractions for children in 2012-13.²

It is unlikely that these figures are going to improve as the newest publication on the *Standards for conscious sedation in the provision of dental care* states that children

under the age of 12, who can't be treated with local anaesthesia alone or in combination with nitrous oxide, should be referred to a hospital for treatment by a consultant-led team (or equivalent facility with staff trained to an equivalent standard).³ At Toothbeary, a private practice dedicated to children in Richmond, London, the vast majority of patients referred to us after failed treatment are treated successfully with local anaesthesia alone or in combination with nitrous oxide.

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Fig. 1 Child wearing the nasal hood inhaling a nitrous oxide/oxygen mixture

In this article I would like to highlight how nitrous oxide can provide an alternative means to supporting treatment need in children's dentistry. My recommendations are based on our experience at Toothbeary and I hope readers will value the tips on how this technique can be implemented in your own practice.

Nitrous oxide

Nitrous oxide/oxygen inhalation is a safe and effective technique that reduces anxiety,

induces analgesia, and enhances the effective communication between a patient and dentist. Modern instruments facilitate the mixing of oxygen and nitrous oxide to a maximum ratio of 50/50. When inhaled, the gaseous mixture induces a rapid 'on/off' response, with relaxation and pain-killing properties developing within the first 2-3 minutes. This allows nitrous oxide/oxygen inhalation to be applied in a time-limited fashion (Fig. 1). It is non-addictive and exerts only minimal effects on cardiovascular and respiratory functions.

of the treatment: it is imperative to gain the trust of the child and obtain information concerning the child's medical, dental and social background, all of which can have an impact on the caries risk and possible anxiety levels of the child. As they say, patience is a virtue, so take your time and don't rush into the treatment. A very detailed assessment of the soft and hard tissue, and knowledge pertaining the developmental history and orthodontic situation are all essential.

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The patient remains fully conscious, responds normally to verbal commands and retains all natural reflexes. Contra-indications to inhalation sedation in the dental surgery are limited to airway problems, for example due to a cold, nasal blockage, obstructive airway or respiratory disease, or treatment with bleomycin sulphate chemotherapy.

Nitrous oxide in children's dentistry

Children observe and take in their surroundings very carefully, which starts as soon as they enter the practice. It is therefore helpful if every member of the practice team is trained in behaviour management and uses a universal child-friendly language. At Toothbeary, words such as injection or needle are never used and instruments which might be perceived as being scary are given child-friendly names, for example the suction hose is Mr Thirsty, the rubber dam is referred to as an umbrella and the injection is sleeping water. Likewise, we refrain from using anxiety inducing phrases such as 'don't worry it won't hurt'. Parents should also avoid terms which pre-condition children towards fear - therefore of the provision of a *do's and don'ts* leaflet can be a useful resource (Fig. 2).

The initial consultation

The initial consultation is a critical aspect

X-rays

The diagnostic benefits of X-rays need no justification, however the process is also a valuable indicator if treatment with nitrous oxide can be successful; if children struggle with X-rays, they will likely have difficulties with nitrous oxide treatment as well! The diagnosis, long-term plan and the expectations must be discussed in detail with the parents, as their relationship with us is interlocked with the child's behaviour; without the trust of the parents you cannot win over their child. A failed treatment is always a disappointment for everyone involved (and especially the child). On the flip side, a successful treatment will provide a measure of achievement and positive feelings towards the whole experience. If children have previously encountered a negative experience, it is important to start with a manageable task to foster the feeling of success. This can for example be a hygiene or positive reinforcement session or a simple fissure sealants treatment. Any time invested in meticulous planning will be paid back in the long run.

Treatment efficiency

Treatment efficiency is of paramount importance when using nitrous oxide, not only because children have a short attention span (typically around 20 minutes), but also

Do's and Don'ts – from Toothbeary www.toothbeary.co.uk

Our philosophy is about making each visit to the dentist child orientated, helping children to avoid the fears associated with dentistry.

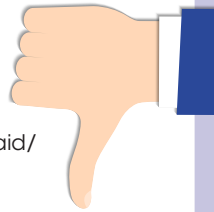
Please take a little time to read our suggestions of **Do's** and **Don'ts**.

Please Do...



- Tell your child they are going to the dentist
- Tell your child the dentist will count their teeth
- You could also say that the dentist will show them how to brush their teeth or take a picture of their teeth

Please Don't...



- Say 'there is nothing to worry about'
- Say 'don't be afraid/frightened'
- Say 'it won't hurt' as these type of statements imply that it might hurt
- Say 'the dentist will tell you off if you have not cleaned your teeth'
- Promise your child a reward as the feeling of 'must win the gift' is a great pressure on a child.

If you are nervous about visiting the dentist yourself, it is better to say as little as possible.

It is only with your support that we can achieve a positive first experience at Toothbeary.

time, but once you walk around for a while, they will start to feel really comfortable, like your tooth'. Furthermore, use voice control techniques, positive reinforcement or tell/show/do, distraction techniques, and basic hypnosis techniques (slow speech rhythm, visual imagery and pacing). Following the treatment, post-hypnotic suggestions should aim to prepare the child for the next visit, for example 'you did really well today, just imagine how much easier it will be next time, because now you know everything, you are already a professional'.

All dental nurses should be trained in all treatment steps and engage in four-handed dentistry; this will ensure that the procedure is focused on the child, and will allow the effective use of behaviour management techniques.

Unfortunately, nitrous oxide is not suitable for all children. For example, it is less effective if children struggle to breathe through their nose (eg due to enlarged tonsils or habitual mouth breathing). Likewise, very young or traumatised children may not accept the nasal hood or resist behaviour management techniques. Finally, the effectiveness of nitrous oxide might be reduced if multiple treatment sessions are needed.

In summary, if you take your time during the initial consultation, manage expectations of parents and patients, maximise efficiency during treatment and make full use of behavioural management techniques, you will find that nitrous oxide is a safe and effective tool in children's dentistry.

Fig. 2 The text from a leaflet handed to parents at the author's practice to avoid the pre-conditioning of their child towards fear

'THE USE OF CLEAR VISUAL/PICTORIAL LANGUAGE

WILL POSITIVELY INFLUENCE AND GUIDE

THE CHILD THROUGH THE TREATMENT.'

because sedation time should be kept to a minimum whilst maximising the amount of treatment performed. Central is also the use of a rubber dam, to prevent the child patient breathing through their mouth. Nitrous oxide only works in conjunction with behaviour management techniques; the use of clear

visual/pictorial language will positively influence and guide the child through the treatment. An example of visual/pictorial language when using the rubber dam might be 'I know this is difficult and the umbrella is holding your tooth very tightly, it feels like a new pair of shoes you wear for the first

1. Royal College of Surgeons of England. Faculty of Dental Surgery. The state of children's oral health in England. January 2015. Available at: <http://www.rcseng.ac.uk/fds/policy/documents/fds-report-on-the-state-of-childrens-oral-health> (accessed March 2016).
2. Department of Health. NHS reference costs 2012 to 2013. London: DH, 2013. Available at: <https://www.gov.uk/government/publications/nhs-reference-costs-2012-to-2013> (accessed March 2016).
3. Royal College of Surgeons. Standards for Conscious Sedation in the Provision of Dental Care. The Report of the Intercollegiate Advisory Committee on Sedation (April 2015). Available at: <https://www.rcseng.ac.uk/fds/publications-clinical-guidelines/standards-for-conscious-sedation-in-the-provision-of-dental-care-2015> (accessed March 2016).

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