



Medical Management of Dental Anxiety

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Learning Objectives

- To describe the current state of sedation practice.
- To discuss the recent publications and guidance in the United Kingdom.
- To describe the responsibility of the clinician in risk assessment and clinical decision-making rather than following prescriptive protocols.

Patients rightly expect that any pain and anxiety associated with their dental care is adequately managed. Undergraduate dental education recognises this expectation and practising clinicians are experienced in managing these aspects of care that are fundamental to the practice of dentistry. Sadly, the prevalence of dental anxiety has not reduced over recent decades and persists in developed societies. A recent telephone survey of 12,000 individuals in England found that 17% did not attend regular dental care and that the main reason for non-attendance was anxiety [1]. Medical management of dental anxiety is therefore important to facilitate access to dental care as well as in supporting high-quality care.

Empathy is an essential characteristic required of any dental practitioner and selection procedures for undergraduate dental and other healthcare programmes now attempt to identify a caring attitude. So is “medical management” of dental anxiety necessary? Patients present with a huge range of issues beyond their particular “dental” needs [2]. Whole patient care is normal and includes identifying not only the relevant general health history but also the individual psychosocial complexities including anxiety for dental care. The patient may volunteer their anxiety or may not. The role of the dental practitioner is to identify all issues, including anxiety, that may be relevant to how oral care is to be delivered and to plan treatment

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accordingly. The majority of patients need no special adjustment to their treatment delivery and dental team empathy is all that is required. For many patients, “tell, show and do” behavioural management is sufficient and effective in alleviating anxiety. Dentists and their team members become proficient in providing patients with a greater sense of control during treatment if required, as well as distraction, and use of non-threatening language as appropriate.

For some patients, empathy and behavioural management techniques are not sufficient to alleviate their anxiety, and medical or drug management is necessary to avoid distress. For some patients, cognitive behavioural therapy (CBT) may be appropriate. Fortunately, we have drugs available that are effective in reducing dental anxiety and that have demonstrated an excellent safety record over many decades. The definition of UK conscious sedation has not changed for many years and is useful in describing the purpose, patient benefit and safety: “A technique in which the use of a drug or drugs produces a state of depression of the central nervous system enabling treatment to be carried out, but during which verbal contact is maintained throughout the period of sedation. The drugs and techniques used to provide conscious sedation should carry a margin of safety wide enough to render loss of consciousness unlikely. The level of consciousness must be such that the patient remains conscious, retains protective reflexes, and is able to understand and respond to verbal commands” [3].

7.1 Risks and Benefits of Guidance and Regulations

An important duty for the dental practitioner is to make an appropriate assessment to determine whether a patient will be adequately managed for their dental treatment with empathy and behavioural management strategies alone or will require medical management with conscious sedation [4]. A patient experiencing distress will seek care with another dental practitioner or avoid future care completely and develop a phobia, that is, an exaggerated level of anxiety relating to future dental care.

The need for the management of dental anxiety with drugs is not new and numerous techniques have been developed over the past 100 years or more. This area of dental practice has been subject to a disproportionate number of guidelines and regulations. Conscious sedation practice within the NHS has also been significantly influenced by changes to payment systems over the years. Patients have not always been best served as a consequence and access to sedation services via the NHS has been more limited over the past decade.

The publication in 2015 of *Standards for Conscious Sedation in the Provision of Dental Care: Report of the Intercollegiate Advisory Committee for Sedation in Dentistry (IACSD)* [3] provided a much-needed update on clinical practice guidelines, but unfortunately resulted in the unintended consequence of reducing patient access to conscious sedation services, with some dentists abandoning their provision of sedation techniques, believing that they did not satisfy the new training requirements. In fact, the training requirements proposed were only for dentists

seeking to start offering sedation techniques and not for those already offering these techniques—but there was considerable misunderstanding and confusion.

A subsequent publication in 2017, *Conscious Sedation in Dentistry—Dental Clinical Guidance* by the Scottish Dental Clinical Effectiveness Programme (SDCEP) referenced the 2015 Standards publication and offered clarity to clinicians around practice [5]. The 2017 publication also emphasised the quality, good and poor, of the research evidence supporting recommended practice. SDCEP used rigorous methodology for the development of recommendations following the GRADE (grading of recommendations, assessment, development and evaluation) approach (www.gradeworkinggroup.org). Key recommendations were developed through considered judgments made by the working group based on previous guidelines but updated as appropriate in the light of the available evidence, whilst taking into account clinical experience, expert opinion and patient and practitioner perspectives. This 2017 guidance went some way to encourage a reversal in the decline in sedation services.

The 2015 *Standards* document offers detailed guidance of the appropriate levels of training required according to the technique and patient age (Sect. 5 and Appendix 1) [3]. Transitional arrangements were described for experienced dentists, sedationists and dental nurses for whom re-training and/or additional qualifications are not necessary. Clinicians are required to maintain a logbook of clinical cases; undertake validated relevant continuing professional development; audit; have skills to manage adverse events; meet the described requirements for the environment and ensure appropriate clinical governance is in place. The training recommendations apply to doctors, dental hygienists, dental therapists and dental nurses in addition to dentists.

For “new starters” in conscious sedation provision, training should be obtained through an accredited provider on a list held by the Sedation Training Accreditation Committee (STAC) of the Faculty of Dental Surgery of the Royal College of Surgeons of England [3].

7.2 Children and Young People

The vast majority of sedation for dental care is offered as nitrous oxide with oxygen by inhalation or with the benzodiazepine, midazolam, administered intravenously. Both techniques titrate the drug dose against the patient response and have been widely and safely used for many years [6]. Other drugs and techniques are also used and may be appropriate in special circumstances. Intranasal midazolam, for example, is used for patients with special needs. This more unusual route of administration has become acceptable because of its demonstrated effectiveness and safety. Increasing commitment to maintaining optimal patient safety on conscious sedation use in dentistry leads to the production of guidance with training recommendations for those using mainstay standard techniques and for those dentists or doctors using “advanced” or “alternative” sedation techniques. The most recent publication in England was published in 2017 and specifically described a “service standard” for conscious sedation in the primary care setting [7]. This had important implications

for practice in limiting sedation techniques for patients aged under 16 years. The “service standard” was written to support commissioners of services in England and reflected safety concerns about the use of multi-drug sedation techniques in the young patient population. It stated that for new service procurements multi-drug sedation would no longer be funded in the NHS for patients under 16 years of age.

7.3 Who Needs Medical Management of Anxiety and Who Doesn't?

Traditionally, dental and medical treatment options have been offered to patients according to the clinician's individual knowledge and experience, and any special interest or not, in a particular area of practice. This was the case for conscious sedation in dentistry. There was a wide range of recommended treatment options for care for patients according to the clinician seen. Whilst it is accepted that there is often more than one way to manage a patient's needs, it became clear that some patients were being denied access to conscious sedation services that they needed whilst others were receiving such management that they did not need. In the latter situation, it was thought that sedation services had become “demand-lead” rather than decision-making is based on actual patient “need” [8]. This was the same situation as had been observed in the past with general anaesthesia services in the United Kingdom. The particular concern was, however, that many patients may not have been offered sedation when they needed it because of restrictions as described above in addition to clinician decision-making bias. This might go some way to explaining why the prevalence of dental anxiety had not reduced in England over time.

The author, with others, set about developing a tool to challenge clinician decision-making in the hope of improving the quality of the decision for the patient. The indicator of sedation need (IOSN) tool was developed and first published in 2011 [9]. The tool simply described the well-accepted indications for sedation of a patient's anxiety, medical and behavioural status and treatment complexity, but provided more objectivity with numeric scoring. The “anxiety measure” part of the tool is to be completed by the patient and not the clinician, to add to the objectivity. The IOSN was intended to support and challenge individual clinical decision-making, with particular benefit in the training and education situation.

The NHS in the United Kingdom and other health care systems internationally were starting to expect more objective clinical decision-making, more equitable access to patient services, and greater consideration of cost-effectiveness. The development of the IOSN was timely. In addition to supporting individual patient decision-making, the tool could also be used to look at whole populations. It was found that 5.1% of patients regularly attending general dental practices in England had a high need for conscious sedation. When including those who don't attend regularly, then the likely conscious sedation need was found to be 6.7% of the population [10] This is very helpful for commissioners and service development to provide an idea of the likely requirements. For more invasive treatment than general dental care, such as oral surgery, the need will of course be much higher.

It should be noted that both the IOSN tool and the modified dental anxiety scale that is incorporated, have been tested on adult populations only and is currently only suitable for decision-making in patients aged 16 years or over [11].

7.4 Current Clinical Controversies

The practice of conscious sedation may appear to have changed little as described by the recent relevant publications, but actually, the way in which various issues are to be addressed has changed significantly. Rather than a textbook “cookbook” description detailing the methodology of the technique, the responsibility is for the clinician to risk assess and make informed clinical decisions about sedation methodology. This is a more appropriate way to manage individual patients and tailor the technique. This approach requires clinicians to use their knowledge and experience to determine the best management strategy for a particular patient rather than default to a prescribed protocol. This more flexible approach is new and supports intelligent freedom for clinicians making decisions.

Patients have traditionally not been required by UK dental practitioners to starve from food or fluids prior to dental sedation whilst the same patient would be required to starve as per general anaesthesia if the sedation has been provided by an anaesthetist. This area was therefore seen to be controversial. Current advice is to assess the risk for the individual patient when making a recommendation around this preoperative preparation. Typically, most patients will not be required by their dental practitioner to starve, but there may be an occasion when fasting is appropriate and a generic no-starvation policy is not in the safety interests of every patient. This more flexible and pragmatic approach reflects a new way of practising. In this era of evidence-based practice, it is good to recognise what is known and what is not and be honest about this. Airway reflexes are maintained during minimal and moderate sedation but lost during anaesthesia. The point at which the reflex is lost is clear. Deep sedation is expected to require the same level of care as general anaesthesia and is not practised by dentists in the United Kingdom as it is in some other parts of the world. If starvation is required then the 2-4-6 rule is appropriate (2 h for clear fluids, 4 h for breast milk and 6 h for solids) [3, 5].

Some were concerned that monitoring recommendations had changed unnecessarily with the *Standards* publication, and in particular the requirement to measure blood pressure during the sedation. It was clear that for inhalation sedation with nitrous oxide and oxygen, clinical monitoring would be adequate. However, there was now an expectation to measure blood pressure during intravenous sedation. Previously blood pressure had been measured at the assessment visit and would have only been measured during the sedation if the patient was noted to have an elevated or particularly low blood pressure. This was based on the reasoning that midazolam does not adversely affect the cardiovascular system when a patient has normal blood pressure. It is not however unreasonable to measure blood pressure in all patients “at appropriate intervals during the procedure and post-operatively” [3,

5]. The time points will depend on the patient's risk and be determined by the sedationist's clinical judgment as described above.

7.5 Sedation Techniques

There has been a developing view that the most “straightforward” conscious sedation technique likely to be effective in enabling good quality dental care provider is usually the best first choice. Complicated techniques may be no more effective and associated with an increased risk of harm. This view was clearly articulated in the 2017 publication, *Commissioning Dental Services—Conscious Sedation in a Primary Care Setting. NHS England*, and concluded that, for new procurements, the only sedation technique that would be funded for children in England would be inhalation sedation using nitrous oxide and oxygen [7]. Such a decision is likely to have had little impact on the majority of service provision in England as more advanced techniques in children and young people have been offered by only a few providers.

The same publication also made clear that when tendering for new sedation services, it will be incumbent on the commissioners to ensure that they have appropriate clinical advice and support to advise on the clinical aspects of any bid. A commitment to clinical involvement is valued and important.

Advanced sedation techniques are defined as those for a child, young person or adult, using multiple drugs and/or anaesthetic drugs (opioid plus midazolam, ketamine, propofol, midazolam plus propofol), sevoflurane, or sevoflurane plus nitrous oxide/oxygen inhalation. When midazolam alone is used for a child then this is also described as an advanced technique [3].

7.6 Patient Pathways and Commissioning

A further recent change in the provision of conscious sedation is the development of “patient pathways”. This is very much a UK innovation and has been driven by the requirement for NHS cost-effectiveness but also to develop consistent care across England with enhanced quality. The first “patient journey” was described in the *Guide for Commissioning Oral Surgery and Oral Medicine* published by NHS England in 2015. Some parts of England have moved towards incorporating electronic referral management systems to facilitate specialist referral from the general dental practitioner to dental specialist services such as oral surgery.

As this has happened some areas have also incorporated the IOSN into the referral system. This is not necessarily essential and can actually lead to a “tick-box” mentality rather than a more thoughtful use of the tool. However, it can encourage more equitable decision-making for patients and be a helpful justification for the need for conscious sedation for dental care.

Table 7.1 Minimum dataset recommended for recording the pre-sedation assessment

Scottish Dental Clinical Effectiveness Programme (SDCEP), Conscious Sedation in Dentistry—Dental Clinical Guidance Third Edition 2017
• A fully recorded medical history (including prescribed and non-prescribed drugs and any known allergies)
• ASA status
• A dental history
• A social history
• Any relevant conscious sedation and general anaesthetic history
• The dental treatment plan proposed
• Assessment of anxiety or sedation need and any tools used
• Any individual patient requirements
• Provider must not accept patients which have self-referred or who have been referred outside of the agreed local referral management processes

Referral systems can also be useful in encouraging the development of minimum datasets for information to make the best referral decisions for the patient and also to encourage dental clinicians who do not offer sedation techniques themselves to consider referral, and so not deny their patient this aspect of clinical care. A minimum dataset is likely to include some or all of the following items which are some of those recommended for recording the pre-sedation assessment by the SDCEP document as described in Table 7.1.

The document *Commissioning Dental Services: Service Standards for Conscious Sedation in a Primary Care Setting* explains that when tendering for new sedation services, it will be incumbent on the commissioners to ensure that they have appropriate clinical advice and support to advise on the clinical aspects of any bid. This advice should be from a clinical colleague who is an experienced sedationist. The document describes the minimum service specification that any new sedation provider must comply with and includes suggested patient-reported outcome measures (PROMs) and patient-reported experience measures (PREMs) as in Table 7.2. The publication like many contemporary service documents emphasises the importance of understanding the population need rather than demand and refers to the IOSN in providing evidence for this. The premise of the IOSN is that the patients' general health, behaviour and treatment complexity are taken into account alongside dental anxiety. This is the latest in a long list of conscious sedation publications and is a helpful service standard to support commissioners in the implementation and monitoring of contemporaneous conscious sedation practice in England but is likely to be looked at more widely.

It would be helpful if the use of conscious sedation was better understood but this is difficult as it is provided on a private basis as well as within NHS. There is also a current lack of consistency in the secondary care hospital system with the coding of procedures and use of conscious sedation, with different interpretations of outpatient attendance by some trusts and day-case procedures by others.

Table 7.2 Patient reported outcome measures (PROMs) and patient reported experience measures (PREMs)

Commissioning Dental Services: Service Standards for Conscious Sedation in a Primary Care Setting. NHS England. 2017

PROMs

- Was the sedation you received adequate for you to receive your dental treatment comfortably?

PREMs

- Thinking about the procedure you have had were you provided with sufficient information prior to the procedure that enabled you to understand what would happen?
- Were you and your escort provided with sufficient information to be confident in looking after you in the recovery period since your sedation?

7.7 Summary

Conscious sedation is an essential requirement for some patients to enable dental treatment to be undertaken. Selecting the appropriate patients is key to good clinical practice and dependant on clinical training and enhanced by experience. The IOSN is useful in training but also in population needs assessment to provide evidence of sedation service requirements. Clinical guidance has been recently updated with a number of publications providing detailed and helpful information on all aspects of conscious sedation practice. Clinical decision-making should be without bias and clinical practice should be evidence-based. This means that clinical judgment is required to risk assessment for individual patients to determine their best and safest care, such as the advice they are given as to whether or not they should be starved from food and fluids as part of their preoperative preparation for a sedation technique.

Paul Coulthard was Chair of the working group that published, NHS Commissioning Dental Services—Conscious Sedation in a Primary Care Setting for NHS England, and a member of the working group publishing Conscious Sedation in Dentistry—Dental Clinical Guidance, Third Edition for the Scottish Dental Clinical Effectiveness Programme (SDCEP).

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