

NICOLA ROGERS

Basic Guide to
**DENTAL
SEDATION
NURSING**



Basic Guide to Dental Sedation Nursing

BASIC GUIDE TO DENTAL SEDATION NURSING

Nicola Rogers

RDN, NEBDN National Certificate in Dental Nursing, NEBDN Certificate in Dental Sedation Nursing, NEBDN Certificate in Dental Radiography, Tutor of the Year 2010 (DDU Educational Awards)

Dental Nurse Tutor

Pre and Post Registration Qualifications

Bristol Dental Hospital

Bristol

UK



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How to use this book

This book is a basic guide to dental sedation nursing, which has been written with dental nurses in mind. However, it could be used by other members of the dental team as it is a self-explanatory resource.

It has been compiled in order that any dental nurse, whether working within a dental practice that provides sedation or not, after reading would have a clear understanding of the roles and responsibilities of the dental nurse, enabling them to recognise good practice. It can also be used in conjunction with any course material that may be provided to dental nurses who are sitting the National Examining Board for Dental Nurses' National Certificate in Dental Sedation Nursing examination, as it has been written in a user-friendly manner covering all aspects relevant to the examination.

There is no intention of instructing/criticising clinicians, anaesthetists or any professionals on their role in the surgery, which have only been explained to further the knowledge of dental nurses. Any offence is entirely unintended and apologies are tendered for any perceived affront.

Dental nurses are subsequently reminded/warned that on no account should they undertake any duty that is solely the province of the clinician/anaesthetist or any other professional.

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Chapter 1

Introduction

LEARNING OUTCOMES

At the end of this chapter you should have a clear understanding of:

- Why dental sedation is used.

A small percentage of the population in any country actively avoids attending a dentist because of fear and those who do attend declare themselves anxious in a dental environment. The two main reasons for non-attendance are fear and associated costs. Patients who do not attend because of fear can be classified as being phobic, whereas others can be termed anxious. Other reasons for non-attendance can be attributed to lack of dentists in the area, difficulty in registering with a dentist or inability to access a dentist because of factors such as mobility problems. The provision of sedation in oral, intravenous, inhalation and transmucosal (off-licence) forms helps to overcome a patient's fears and anxieties, but not necessarily their phobia. However, by accepting sedation patients are able to undergo the dental care required to maintain a healthy mouth. These forms of sedation are explained in detail in Chapter 5 [1].

DEFINITION OF CONSCIOUS SEDATION

Conscious sedation is defined as '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 with the patient is maintained throughout the period of sedation. The drugs and techniques used to provide conscious sedation for dental treatment should carry a margin

of safety wide enough to render loss of consciousness unlikely'. This means that patients must remain conscious and are able to understand and respond to any requests, (i.e. if the patient is asked to take a few deep breaths, he or she is able to do so). There is no such thing as deep sedation as any loss of consciousness is classed as a general anaesthetic and compromises the patient's safety. This definition explains the state of conscious sedation but not how it should be achieved. However, it is widely recognised that clinicians use different techniques involving the administration of one or more drugs through different routes, all of which provide patients with safe sedation [2,3].

WHY DENTAL SEDATION IS USED

Humanitarian reasons

Sedation can help patients accept treatment who have treatment-related anxiety and phobia [1].

Anxiety and phobia

Anxiety is a state of unease that a person can often relate to because of the memories of whatever is causing them to feel anxious. This existing memory may be something that was experienced by the patient or it could be a translated experience from their family, friends or media. Very often the patient is able to explain and relate to the specific cause or occasion in their life that results in their anxiety when faced with a similar situation/experience. As anxiety is controllable to a degree, patients who are anxious will attend the dentist for treatment and with good patient management they undergo treatment, with or without the aid of sedation, depending upon their treatment plan. These patients are often found to have sweaty palms and an elevated heart rate, so monitoring their vital signs is very important to ensure their well-being. Most patients are worried or concerned when attending the dentist, while some are frightened. Feelings of fear are a major contributing factor to how elevated a person's anxiety level will be. Basic fears experienced by patients are based on the following factors:

- **Pain.** Nobody likes pain and patients can associate the dentist with it and think/feel that they will experience some pain during their treatment.
- **Fear of the unknown.** Not knowing what is going to happen allows a person's imagination to flourish. Patients who associate the dentist with discomfort may think that they will experience pain when receiving treatment.
- **Surrendering oneself into the total care of another.** This could possibly make a person feel helpless and dependent, making them feel trapped and not in control.

- **Bodily change and disfigurement.** Some dental treatments can lead to an irreversible change in the person's appearance. Patients may fear that it could alter their appearance drastically and they would not be happy with this.
- **Claustrophobia.** During treatment lots of instruments are used in the patient's mouth. Some patients find this intolerable and are concerned that an item could be lost in their airway or that their mouth may fill with debris, making it impossible for them to breathe.

Phobia is an abnormal, deep-rooted, long-lasting fear of something which rarely goes away, making it very difficult to manage and treat someone who experiences this in the surgery. It is very hard to overcome this condition or to alter the way the patient thinks and feels and in certain cases cognitive therapy may prove useful. The cause of phobia is usually deep rooted and is often initiated from a previous experience that the patient cannot recall, (i.e. something that happened at a very early age which is now embedded in their subconscious). The patient quite often cannot explain its origin or why they are phobic about a specific thing. They have no control over it. This category of patient may never visit the dentist or will only do so when they are in extreme pain. If they do, they very rarely return for follow-up treatment once they are pain free. It is only normal to feel anxious when attending the dentist and anxiety is a feeling which most people encounter. However, a small percentage of population is dental phobic, with the condition being more common amongst women. Dental phobia starts in childhood or during adolescence and can be associated with the fears felt by parents. The parents phobia/fears can be transferred to the child by observation and the way they respond and talk about the dentist. It may also be associated with the fear of blood, injury or hospitals, due to a personal experience. Some phobias can occur on their own without having a rational explanation for their presence. Patients who are classed as dental phobic particularly fear dental injections and the hand-piece. If treatment is possible, the patient reacts by tensing their muscles, expecting more pain than they actually experience during treatment. Research has shown that patients who are dental phobic may have the same level of pain tolerance as that of patients who are not dental phobic. However, if their pain threshold is lower, or even if their threshold is the same, they feel more pain. Naturally, patients' level of phobia can vary and affect them differently. Some dental phobics can cope with the unpleasant symptoms they feel at the thought of attending the dentist, whereas others would rather extract their own teeth and be in pain than visit a dentist. Unfortunately, some dental phobics also have a sensitive gag reflex. This action is normal and provides protection against swallowing objects or substances that may be dangerous. However, a hypersensitive gag reflex can be a problem, especially when it encompasses all sorts of other foreign objects, (i.e. aspirating tips and water from the hand-piece) in the mouth. This makes treatment difficult because of

constant retching which affects the patient's cooperation and concern that they may choke. Patients who have a dental phobia can benefit from treatment with conscious sedation, as any form will reduce their anxiety and relax them. In the case of intravenous sedation, which has an anterograde amnesic effect, most patients will not remember their treatment despite being aware of it at the time. However, excellent patient management is essential with lots of tender loving care being provided. It must be recognised that dental-phobic patients will be poor attendees, while some may never accept treatment, even with the aid of conscious sedation. If they do, they will be very difficult to manage [1].

Physiological reasons

When a person experiences pain or anxiety, it can lead to their sympathetic nervous system overreacting, possibly resulting in hypertension or tachycardia etc. This can have an adverse effect on their myocardium, especially in the middle aged and patients with pre-existing hypertension and coronary artery disease, as it places additional strain on their heart, which could lead to an emergency situation. By providing a form of conscious sedation to this category of patient, it allows them to receive treatment without unnecessary strain being placed on their myocardium. The reason this occurs is attributed to whichever method of conscious sedation is used, as their mode of action on the body will relax the patient and reduce their anxiety. This causes their sympathetic nervous system to work normally with little or no reaction [1].

Complex dental treatment

Most patients attending the dentist will happily receive routine treatment without the aid of conscious sedation. However, on rare occasions they may require an unusual procedure such as minor oral surgery. This can be more stressful, more complex and may take longer than routine treatment. A form of conscious sedation can be offered at the treatment-planning stage, or the patient may request it. This makes their treatment easier to cope with and less stressful for them and the team [1].

BIBLIOGRAPHY

1. Bristol Dental Hospital course notes.
2. Department of Health, Conscious sedation in the provision of dental care, www.dh.gov.uk.
3. Department of Health, Guidelines for Conscious Sedation in the Provision of Dental Care. A Consultation Paper from the Standing Dental Advisory Committee, December 2002.

Chapter 2

Medico-legal aspects of dental sedation

LEARNING OUTCOMES

At the end of this chapter you should have a clear understanding of:

- The legislation associated with the provision of dental sedation.
- The importance of the consent process.

INTRODUCTION

Law and ethics within dentistry are very interesting, but dry, subjects that quite naturally go hand in hand. However, this aspect must be taken seriously in order to provide safe, effective treatment and to avoid patient complaints. The General Dental Council (GDC) regulates the practice of dentistry to protect patients. They publish various booklets (Figures 2.1a–f), one of which gives guidance on the principles of good practice. These booklets address legal and ethical issues that the dental team may face on a day-to-day basis, providing an overview of what is expected to prevent such issues occurring. A couple of paragraphs within the Standards for Dental Professionals booklet deal with conscious sedation, where the GDC state they support letters of advice from Chief Dental Officers, guidance and recommendations of two publications for the practice of dental sedation and that they expect the dental team to implement these when treating patients with sedation. These documents are:

- A *Conscious Decision* published in July 2000 by the Department of Health (DH), known as a review of the use of general anaesthesia and conscious sedation in primary dental care.



Figure 2.1 (a) General Dental Council's (GDC's) Principles of Patient Consent. (b) GDC's Principles of Patient Confidentiality. (c) GDC's Principles of Complaints Handling. (d) GDC's Principles of Raising Concerns. (e) GDC's Principles of Dental Team Working. (f) GDC's Standards for Dental Professionals. (Reproduced with kind permission from the General Dental Council. Information correct at the time of going to press. Please visit the GDC website to check for any changes since publication: www.gdc-uk.org.)

- *Conscious Sedation in the Provision of Dental Care* published in November 2003 by the Standing Dental Advisory Committee who are recognised experts within the field of dental sedation. This document was requested by DH [1,2].

RECOMMENDATIONS CURRENTLY IN PLACE WHEN PROVIDING DENTAL SEDATION

As pain and anxiety control are integral parts of dentistry, guidelines are in place for clinicians practising dental sedation techniques. These guidelines highlight the appropriate use of techniques and best practice reflecting the current definition of conscious sedation [1–3]. They state:

- The provision of sedation avoids a general anaesthetic for treatment of patients who have anxiety and/or phobia and for patients who are happy to attend but require a more complex procedure. The clinician will justify each provision of sedation, ensuring that the technique employed is relevant for the patient's medical, dental and social history and that the dental procedure to be undertaken will reduce the patient's anxiety levels without being too invasive. This is established by a thorough patient assessment with consent taken from the patient for the intended treatment. Ideally, only those patients who come under the American Society of Anaesthetologists (ASA) I and II Medical Fitness Classification should be treated in the dental surgery (explained in Chapter 4). The clinician will, of course, know that the mainstay of pain and anxiety control is local anaesthesia and this must be the starting point before providing any sedation technique. They will also know that on occasions one sedation technique may not be successful and that they may have to adopt two techniques (i.e. a needle-phobic patient could be administered inhalation sedation to allow cannulation to take place). However, if the clinician chooses to adopt this approach, they would accordingly take into account the drug combination of the two [1–3].
- Most patients are suitable and conducive to intravenous, inhalation and oral sedation as adjuncts to aid them in the acceptance of treatment. The use of off-licence sedation in oral, intranasal and transmucosal forms is not recommended for routine use in the dental surgery. If practised, they will only be administered by a clinician in appropriate circumstances and setting [1–3].
- When a patient receives treatment with sedation, all members of the team must have undergone suitable practical and theoretical training, with every staff member in training being adequately supervised. Any training undertaken must encompass the drugs and equipment used, so that the team can recognise the difference between the normal and the abnormal. As a result

| | | | |
|--------------------|-------------------------------|------------------|----------------------|
| <u>Name:</u> | | | |
| <u>GDC Number:</u> | | | |
| Date Undertaken | Course or Activity Undertaken | Verifiable Hours | Non-Verifiable Hours |
| | | | |
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Figure 2.2 Continued professional development tracking document.

of training they will understand the action of each drug and also the use of the equipment. They will be able to clinically monitor patients, identify complications and know how to rectify them. The team must be capable of recognising and managing any emergency, so they must source training of this nature and undertake regular simulations. Training can be either through attendance at a formal course or in-house. Any person organising training for others must ensure that the training is delivered by appropriate instructors and in suitable settings. Continued professional development is vital to ensure that the practice of sedation is safe, relevant and up-to-date, with the frequency of any courses attended being variable, depending upon the area of work. All training received must be documented [1–3] (Figure 2.2).

- The surgery will, of course, be suitable for the provision of sedation, with both the treatment and recovery areas being spacious enough for the team to undertake treatment and manage an emergency should one occur with the chair’s equipment allowing the head down tilt position [1–3].
- Should any complications occur the team must be able to respond accordingly and be aware of the associated risks. The entire team must be familiar with emergency procedures, having received training and updates on a regular basis. Simulations should be held within the practice. All emergency drugs must be available, restocked and kept secure, coupled with a means of administering them to patients. They should be checked on a daily basis