Code of Practice:

Sedation for dental procedures

8 March 2020

The New Zealand Dental Association has developed this Code of Practice, Sedation for dental procedures, based on available evidence and expert advice. This Code of Practice provides guidance to members regarding standards and expectations when providing sedation in the dental practice setting. The Code of Practice Sedation for dental procedures is also intended as a practical resource for members of the New Zealand Dental Association. Members providing sedation should also familiarise themselves with the Code of Practice, Medical emergencies in dental practice.

This Code of Practice supersedes the NZDA Code of Practice - Sedation for dental procedures (28 July 2019)

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Introduction

The provision of dental care can at times be unpleasant for the patient receiving it. In addition to local anaesthesia, sedation techniques are available to make treatment more comfortable and readily accepted by the patient. Sedation for dental procedures includes the administration of a drug(s), by any route or technique, which results in depression of the central nervous system with the intent of reducing anxiety and improving patient tolerance of dental treatment. Sedation techniques are available to assist the provision of dental care. In some circumstances general anaesthesia can be used.

It is difficult to predict how an individual will respond to a sedative drug and at times to determine the endpoint of the continuum of sedation. The drugs and techniques used must provide a margin of safety which is wide enough to render loss of consciousness unlikely. In dental practice the common routes of administration of sedative drugs are inhalation, oral, intravenous and transmucosal. The time to peak effect of the sedative drug varies, depending on the route of administration and pharmacokinetics of the drug chosen. The risks associated with the use of sedation are significant, therefore safe practice and attention to ethical principles are of heightened importance. Practitioners must have the necessary formal education, training and competence to safely provide sedation.

This Code of Practice (CoP) represents the minimum expected standard for practitioners providing sedation, noting that compliance with these standards cannot guarantee a specific patient outcome.

This CoP should be read and used in conjunction with the NZDA Code of Practice – Medical emergencies in dental practice.[1]

Definitions

For the purposes of this CoP the following definitions apply:

Minimal sedation is defined as the administration of a single low dose oral[1] or inhalation drug to assist with the treatment of anxious patients during which patients are awake and calm, respond normally to verbal commands, and airway reflexes, ventilatory and cardiovascular functions are unaffected. Cognitive function and physical coordination may be impaired.

Moderate sedation is defined as the depression of consciousness following the administration of any drug, by any route, during which patients are able to and respond purposefully[2] to verbal commands, or verbal commands with light tactile stimulation. No interventions are required to maintain a patent airway, spontaneous ventilation is adequate and cardiovascular function is maintained. Moderate sedation techniques must provide a margin of safety that is wide enough to render loss of consciousness unlikely. Moderate sedation for dental procedures is always provided with the intention that the patient will recover and be fit for discharge into the care of a responsible adult from the facility, on the day the care is delivered.

Sedation – general principles

Unless stated otherwise, the following information applies to all situations where a drug(s) is administered with the intent of achieving any level of sedation in a patient. This includes a drug prescribed or recommended that the patient self-administers, and when a practitioner knows at the time of the appointment that the patient has self-

[1] As a guide, low dose refers to doses of a single sedative drug (excludes polypharmacy) which is within the standard dosage recommendations contained in the NZ Data Sheet for that drug, noting that prescribing must take into account the full recommendations of the Data Sheet. NZ Data Sheets are available from MedSafe New Zealand. **Note that some individuals can experience deeper sedation at relatively low doses of sedative drugs** and extra caution is required in children.

[2] Reflex withdrawal from a painful stimulus is NOT considered a purposeful response.

administered a sedative drug(s) that the practitioner has not prescribed or recommended. If the treatment cannot proceed, the patient must be assisted to make suitable arrangements for their safe transport home.

The transition from complete consciousness through the various levels of sedation to general anaesthesia is a continuum, not a discrete set of well-defined stages. It is accompanied by increasing depression of the central nervous system and other physiological systems which, if not effectively monitored and managed, may progress to poor outcomes. Oral medication must not be administered with the intent of achieving moderate sedation and prescribing must take into account the full recommendations of the NZ Data Sheet. The ease of administration of sedative does not necessarily reflect the degree of safety associated with it. Techniques that are intended to induce deep sedation or loss of consciousness (general anaesthesia) require a specialist anaesthetist to administer the sedation or general anaesthesia and continuously monitor the patient until recovery.

Training in sedation techniques

The practitioner administering the sedation and the person monitoring the sedated patient must have the formal education and training to carry out the sedation. The sedationist must understand the pharmacokinetics and pharmacodynamics of the drugs they use, the physiological effects of the drug or drugs being administered and be aware of potential adverse effects and drug interaction with prescribed and non-prescribed medications.

The BDS qualification is considered sufficient education and training for a practitioner to provide minimal sedation only (see definitions) for patients over 6 years of age, subject to the practitioner maintaining competence and continuing professional development in these areas. Additional formal education and training is required to provide moderate sedation, IV sedation, and sedation for patients 6 years of age and younger.

Practitioners who have completed alternative formal education and training or who have developed and maintained their competence through a combination of training, instruction, experience and continuing professional development, must determine whether they have met and maintained the required competencies detailed in Appendices 2 and 3 to provide sedation, or to monitor-only sedated patients. The dental practitioner in the sedation team must ensure non-registered team members performing the monitoring role have completed a formal education and training programme that enables them to meet the competencies defined in Appendix 3, and that these are maintained.

For moderate sedation in addition to didactic instruction, training must include demonstration and supervised clinical practice and in particular, practical experience in managing the airway and managing life-threatening emergencies (simulated). Course material and demonstration must be consolidated by clinical experience and completed in a defined timeframe from the training to develop further competence in the techniques.

Practitioners who have received this training must maintain their ongoing competence and continuing professional development. Re-training will be necessary if the practitioner fails to maintain competence and continuing professional development for any reason, including time away from practice, or upon taking up a different pattern of practice.

Sedation in children

Oral sedation can be unpredictable in children and they are at increased risk of airway complications. Practitioners who provide sedative medications to children must have the appropriate training and should familiarise themselves with the resources listed in Appendix 6.

Patient assessment

All relevant anxiety and pain management techniques must be explored with the patient before selecting the most suitable. The patient assessment for any form of sedation must include a written medical history of sufficient complexity to identify patients at an increased risk of adverse sedation related events. The patient's medical status must be reviewed for any change at the sedation appointment. Patient assessment for moderate sedation should include, but not be limited to; previous anaesthesia/sedation history, allergies and drug sensitivities, aspiration risk assessment including expected fasting status, general health including exercise tolerance, cardiorespiratory status and current medications. Physical examination must include an evaluation of the airway to determine if there is an increased risk of airway obstruction, recording of blood pressure and other investigations as necessary. Use assessment tools to outline 'red flags' in the assessment process which alert staff to patients at risk including, but not limited to; prior anaesthesia/sedation related adverse events/complications, obstructive sleep apnoea, morbid obesity, patients with limited functional reserve, frailty and age.

The American Society of Anesthesiologist's classification system is convenient for classifying the medical status of patients (See Appendix 1).[2] Depending on the experience of the general dental practitioner it is recommended that sedation be limited to ASA class 1 or 2 status patients. If the patient has a serious medical condition (and all patients with an ASA Physical status of 3 and 4) or is 'medically unstable' (some ASA Physical status 2 patients), consult with the appropriate treating general medical practitioner and/or their specialist prior to any planned sedation. If the patient is deemed to be seriously medically compromised, or at increased risk for other reasons, then an anaesthetist should be present to administer sedation and to monitor the patient during the procedure, or the patient should be referred to an appropriate provider.

Informed consent

A patient under treatment with sedation will have diminished capacity to consent to any unexpected changes in treatment that may be necessary. It is imperative that prior to the commencement of treatment under sedation that the patient is informed of possible changes in the treatment plan and consent gained for these potential changes, prior to sedation commencement. If no such contingency was in place to cover changes in the planned treatment, then it would necessitate recovering the patient on that occasion and rescheduling treatment with the correct consent in place.

A separate consent is required for the sedation and the planned treatment, and both must be obtained in writing. The risks and benefits of the proposed method of sedation, as well as all alternatives, must be clearly communicated to the patient. See also the NZDA Code of Practice: Informed consent.[3] If a patient presents who has self-medicated or taken medication on advice of their general medical practitioner, treatment cannot proceed as there has been no consent process for the sedation or the treatment.

Consent to treatment given by a person with legal authority (for example a parent or carer) does not necessarily imply consent by a child or an adult with diminished competence. Care must be exercised in proceeding should there be doubts about consent. Any patient over 16 years of age has the right to consent, or refuse to give consent, as if they were of full age; even if they are not paying for their treatment. Make every effort to encourage and enable patients of any age with diminished competence to be involved in the informed consent process; they retain the right to make informed choices and give informed consent to the extent appropriate to their level of competence.

Comprehensive verbal and written pre-operative instructions must be provided to the patient prior to the sedation appointment. It is necessary to provide the patient with the opportunity to ask any questions, so that their full understanding of the instructions can be confirmed. The instructions must include the pre-sedation fasting protocol, what the patient might expect during the recovery period, instructions to the responsible adult accompanying the patient home and providing care (as specified by the practitioner who administers the sedation), the need to avoid

any activities that would place them at risk of injury or disadvantage, after-hours contact details for emergency advice and services, and care advice.

The patient's compliance with the pre-operative instructions and recovery arrangements must be confirmed prior to commencing sedation.

Intravenous access

All practitioners providing any form of sedation, other than nitrous oxide inhalational sedation, must be familiar with venous access techniques and hold the necessary equipment to be able to gain venous access should the need arise.

Supplemental oxygen

There must be a positive-pressure oxygen delivery system immediately available[3] for use for the purposes of supplemental oxygen and correction of hypoxaemia during the periods of sedation and recovery, for all patients receiving sedation by intravenous, oral, or transmucosal routes. A backup supply of oxygen must also be immediately available.

The routine use of supplemental oxygen should be considered from a few minutes prior to the commencement of sedation through to readiness for discharge, particularly for patients with relevant medical conditions, when multiple drug techniques are used and when moderate sedation is intended.

Records

In addition to the usual clinical procedural records required (see NZDA Code of Practice - Patient information and records),[4] accurate and contemporaneous sedation records must be kept when sedation is provided, or considered and must include, as appropriate to the method of sedation:

- initial assessment findings,
- the patient's (and any other legally appropriate person's) written informed consent and sedation consent,
- the names of the sedation team,
- the drug(s) used with the batch number,
- the total dosage of drug(s) used (and the amount discarded),
- the method of administration,
- monitoring records including, timing of drug administration, time(s) at which further doses of the drug(s) were administered, time of cessation and duration of recovery period,
- regular written record of pulse rate, oxygen saturation, end tidal CO_2, respiratory rate and blood pressure, spanning the operative and recovery phases,
- details of effectiveness of sedation, including patient tolerance and/or distress,
- details of any complications including resuscitation, or rescue interventions, and
- discharge details.

Staffing

A minimum of two staff are required when administering any form of sedation, one of whom is primarily responsible for monitoring of the patient during the procedure. The staff member monitoring the patient must be immediately available to manage the patient, should this be required. When providing moderate sedation at least one further

[3] Immediately available means in the facility and available for immediate use.

staff member must be immediately available to provide additional assistance, as necessary. In situations where there is an increase in the complexity of either the sedation technique, patient management or the procedure, it is advisable to engage a second assistant to assist with monitoring the patient.

During recovery a high standard of monitoring is required (see 'Monitoring' below).

Facilities

Treatment area

Equipment requirements for the delivery of nitrous oxide/oxygen sedation are at Appendix 4.

Sedation must be performed in an appropriately equipped location which is adequate in size and configuration to accommodate a minimum of two staff involved with the administration and monitoring of the sedation and to deal with a cardiopulmonary emergency. This area must include:

- an operating table, trolley, or chair which can be readily tilted into a horizontal, or head-down position,
- adequate floor space to perform resuscitation,
- adequate suction and room lighting, including alternative means of providing suction and light in the event of a power failure, and
- a supply of oxygen and suitable devices for the administration of high flow oxygen.

There must be adequate access throughout the facility to allow the patient to be moved easily and safely from the treatment area to the recovery area, if these are different locations.

Monitoring

The transition from full consciousness through the various depths of sedation is not a set of discrete, well-defined stages. It is therefore essential that the patient is continuously monitored during the procedure and the recovery period, prior to discharge and that adequate time is allowed for this to occur. Monitoring of the patient must be performed by a member of the sedation team who has received formal training and education in monitoring the sedated patient.

Monitoring for nitrous oxide/oxygen only sedation must include:

- observation of the patient's level of consciousness and rate and depth of breathing, directly and continuously; and
- regular communication with the patient during the period of sedation and recovery to confirm the patient's ability to respond to verbal commands – as an indicator of a state of minimal or moderate sedation.

For all other techniques and drugs administered for an intended level of minimal and moderate sedation, monitoring must include:

- observation of the patient's level of consciousness and rate and depth of breathing, directly and continuously,
- regular communication with the patient during the period of sedation and recovery to confirm the patient's ability to respond to verbal commands - as an indicator of a state of minimal or moderate sedation,
- measurement of the blood pressure and heart rate by automated means, at the appropriate intervals,
- continuous measurement of oxygen saturation of the blood using a pulse oximeter, which alarms when certain set limits are exceeded, and

- continuous measurement of the amount of carbon dioxide in exhaled air (end tidal CO_2) and respiratory rate using a capnograph.

Capnography is not required when nitrous oxide/oxygen is used in isolation of other drugs, but otherwise must be used to monitor the patient when providing an intended level of minimal and moderate sedation. When administering drugs that may depress ventilation the use of capnography in addition to pulse oximetry provides significant benefit with respect to reducing patient experience of hypoxic episodes. According to the clinical status of the patient, other monitors such as an ECG may be required.

Correct monitoring of the patient will ensure that sedation-related complications are identified. The practitioner must ensure that other team members undertaking monitoring can identify sedation-related complications including but not limited to depression of consciousness beyond the intended level of sedation, airway impairment, hypoventilation, hypoxia and hypotension.

Emergency procedures

Sedation is not without inherent risk, as it may result in depression of cardiac and respiratory function with potentially serious medical implications for the patient. Each member of the sedation team must be able to identify and manage sedation-related complications, as befitting their role.

Individual patient responses to sedative medications can vary markedly. Patients can suddenly and unpredictably experience depressed levels of consciousness with the concomitant risk of loss of protective reflexes. Care must be taken to avoid deeper levels of sedation through repeated dosing of a sedative drug before the effects of previous dosing have been assessed. The practitioner administering the sedation must be able to recognise and manage sedation-related complications.

In the event of a sedation-related complication, dental treatment must cease and all members of the sedation team must direct their attention to the medical care of the patient. Emergency medical services must be contacted as soon as possible and/or when the patient is unresponsive to early management strategies. Continued monitoring of the patient and appropriate management is required, (including the use of reversal drugs and resuscitation, as necessary) until the patient returns safely to the intended level of sedation, or emergency services arrive.

The prescribing of pre-operative sedative drugs prior to arrival at the dental surgery should be avoided to prevent the risk that unexpected sedation-related complications will go unrecognised. Do not use more than one sedative drug unless trained and competent in that combination, due to the risk of synergistic effects.

To manage the risks associated with sedation, practitioners must have a pre-prepared medical emergency response plan.

Medical emergency response plan

Written procedures must be in place for managing medical emergency situations with the role of each sedation team member clearly defined. All staff must understand their role in managing medical emergency situations and this must be practiced as a team within the dental practice setting, on a regular basis. Training and practice must include instruction in the recognition of medical problems, planning for summoning medical assistance (including phone numbers), practice (simulated) in delivering CPR and oxygen, practice using an AED, and simulated practice in the delivery of emergency drugs. This training should form part of 'induction' training for new staff and be provided twice annually for existing staff. (See also NZDA CoP Medical emergencies in dental practice).[1]

Plans should include provision for the evacuation of patients from treatment and recovery areas in the event of an emergency, such as a fire.

Resuscitation training

Practitioners administering sedative drugs must have completed New Zealand Resuscitation Council CORE Advanced training that includes scenario training relevant to the management of sedation-related complications, which is revalidated every two years. The practitioner performing the dental treatment must ensure the person monitoring the patient (including during recovery) and the clinician's assistant have completed New Zealand Resuscitation Council CORE Immediate rescuer training, or equivalent, which is revalidated every two years.

Emergency equipment and drugs

The equipment requirements for the delivery of nitrous oxide sedation are at Appendix 4.

Equipment and drugs as detailed in Appendix 5, must be immediately available[4] in practices where sedation procedures are performed.

Recovery

At the conclusion of the procedure the patient should recover under observation in the procedure room, or in an adjacent area. Sedated patients are vulnerable, their personal boundaries must be protected and respected at all times.

Observations should include regular routine assessment of the patient's response to verbal commands and/or stimulation and the use of pulse oximetry. The practitioner performing the dental treatment must ensure that throughout the recovery period a practitioner with formal education and training in providing sedation remains on the premises and that the person monitoring the patient has, at minimum, New Zealand Resuscitation Council CORE Immediate rescuer training or equivalent.

The recovery area must be appropriately equipped and staffed, and include access to oxygen. Resuscitation equipment must be immediately available.

Adequate staffing and facilities must be available in the recovery area for managing patients who have become unconscious, or who have suffered some medical mishap. Should the need arise; the patient must be transferred to appropriate medical care.

Discharge

The patient should be discharged only after an appropriate period of recovery, at which time the practitioner who performed the dental treatment must ensure the sedationist assesses the patient's suitability for discharge. At minimum the patient must be able to recognise time, place and person, their blood pressure and heart rate must be within normal limits for that patient, their respiratory status must not be compromised and they must able to walk with minimal assistance, or independently. Pain and surgical bleeding should be minimal and the patient must be discharged into the care of a suitable escort, usually a responsible adult, to accompany the patient home and care for them in the manner and for the period of time specified by the sedationist.

Verbal and written instructions for the care and safety of the sedated patient, including emergency contact information, must be provided to the patient and escort. The escort's understanding, agreement and capability to care for the patient as instructed must be confirmed. Transport should normally be by car. In the event of an escort not presenting, alternative arrangements must be made to ensure the safety of the patient in the post sedation period.

[4] Immediately available means in the facility and available for immediate use.

Sedation in dental practice
Code of Practice Advisory Group

The Code of Practice: Sedation in dental practice aims to combine the best available evidence in a clinical practice context and is the result of an extended period of development by the Code of Practice Advisory Group (Sedation in dental practice) who donated their time, technical and professional knowledge and expertise in the provision of advice that informs this Code of Practice.

The NZDA wishes to acknowledge and thank the members of the Code of Practice Advisory Group for their significant contribution to the development of this Code of Practice.

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Disclaimer

Practitioners are individually responsible for matters pertaining to sedation in their practice and must exercise professional judgment when using the information contained in this Code of Practice.

This document's sole aim is to summarise the available evidence in the context of current clinical practice to assist members of the NZDA in matters relating to sedation in dental practice.

The members of the Code of Practice Advisory Group and the NZDA shall not be liable for any actions arising from the use of, or reliance on, this document.

Code of Practice Approved by NZDA Board	**April 2020**
Next expert panel review / NZDA Board approval by	**March 2022**

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APPENDIX 1: The ASA classification of physical status

Class I	A normal healthy patient.
Class II	A patient with mild systemic disease.
Class III	A patient with a severe systemic disease.
Class IV	A patient with severe systemic disease that is a constant threat to life.
Class V	A moribund patient not expected to survive without the operation.

From: **American Society of Anesthesiologists ASA physical status classification system**[2]

APPENDIX 2: Core competencies to provide sedation[5]

The administration of oral or intravenous drugs for moderate sedation requires formal education and training additional to that received as part of the undergraduate BDS programme. The competencies must be maintained and must at a minimum, include:

Understand:

- The definitions of minimal, moderate, and deep sedation; and general anaesthesia.
- That the transition from complete consciousness through the various stages of sedation to general anaesthesia is a continuum, and not a set of discrete well-defined stages.
- The risks associated with sedation.
- The need to use drugs for minimal and moderate sedation with a margin of safety wide enough to make loss of consciousness, or impairment of ventilatory or cardiovascular function unlikely.
- The benefits of using a sedation technique that allows the drug(s) to be titrated to effect; and the risks associated with using a technique that doesn't allow this.

Know:

- Anatomy and physiology of the respiratory, cardiovascular and central nervous systems in relation to sedation.
- How to perform a patient assessment, focussing on medical and physical assessment, to identify risk factors for sedation and determine the most suitable form of anxiety and/or pain management for the patient's circumstance.
- The special considerations associated with providing sedation for young children and the elderly.
- When to refer, based on consideration of assessment findings and a recognition of their capability to provide safe sedation.
- To gain written informed consent for sedation and the planned dental treatment before the sedation appointment.
- To provide the patient with relevant pre- and post-operative instructions; including those for fasting, if needed, and management of the patient's own medication prior to sedation.
- The pharmacology of the drugs they use (including reversal drugs for the sedatives being taught):
    - Basis for selection, dosing and techniques for administration.
    - Time of onset, peak effect and duration; as related to the administration technique(s).
    - Potential adverse effects and drug interactions.
    - Therapeutic index.
- The potential for synergistic effects of drugs when used in combination.
- How to titrate drugs to effect, or administer drugs as bolus doses (if suitable for the technique being used).
- The environment needed, including equipment and services, to safely provide sedation; for the sedation technique(s) being used.

- How to monitor the sedated patient - physical and physiological monitoring including central nervous system, respiratory and cardiovascular systems, and necessary equipment – appropriate for the technique(s) and drugs being used, and the intended level of sedation.
- How to prevent, identify and manage sedation-related complications, including when and how to use oxygen.
- When and how to use reversal drugs in the emergency management of sedation-related complications.
- How to assess a patient's suitability for discharge following sedation.

Be competent in:

- The technique(s) they use and drug(s) they administer to provide sedation.
- Monitoring the sedated patient.
- Preventing, identifying and managing sedation-related complications.

APPENDIX 3: Core competencies to monitor-only sedated patients[5]

A sedation-team member who is competent to monitor-only sedated patients will:

Understand:

- The definitions of minimal, moderate, and deep sedation; and general anaesthesia.
- That the transition from complete consciousness through the various stages of sedation to general anaesthesia is a continuum, and not a set of discrete well-defined stages.
- The risks associated with sedation.

Know:

- Anatomy and physiology of the respiratory, cardiovascular and central nervous systems in relation to sedation.
- How to monitor the sedated patient - physical and physiological monitoring including central nervous system, respiratory and cardiovascular systems, and necessary equipment – appropriate for the technique(s) and drugs being used, and the intended level of sedation.
- How to identify sedation-related complications; and when to advise the 'sedationist' or 'operator-sedationist' of any abnormalities or concerns, and initiate or assist in the management of a medical emergency.

Be competent in:

- Monitoring the sedated patient.

APPENDIX 4: Specialist equipment required for nitrous oxide sedation

When nitrous oxide is being used to provide sedation, the following equipment requirements must be satisfied:

- A minimum oxygen flow of 2.5 litres/minute with a maximum flow of 10 litres/minute of nitrous oxide, or in machines so calibrated, a minimum of 30% oxygen.
- The capacity for the administration of 100% oxygen.
- An anti-hypoxic device included in the circuit which cuts off nitrous oxide flow in the event of an oxygen supply failure and opens the system to allow the patient to breathe room air.
- A non-return valve to prevent re-breathing, and a reservoir bag.
- A patient breathing circuit of lightweight construction and low resistance to normal gas flows.
- An appropriate method of scavenging of expired gases must be in use.
- There must be a low gas-flow alarm, or equivalent safety mechanism(s).
- A reserve supply of oxygen readily available, with associated equipment for its use.
- Installation, maintenance and servicing of any piped gas system according to appropriate standards at least annually.
- Servicing of equipment according to manufacturer's recommendations at least annually.
- Check the equipment and the associated system for gas delivery is working properly before administering sedation.
- Risks of chronic exposure to nitrous oxide should be considered.

APPENDIX 5: Emergency drugs and equipment*

The following equipment **must** be immediately available[5] in practices where sedation procedures are performed:

- Bag-valve-mask device (selection of appropriate sizes)
- Oxygen supply, regulator and tubing suitable for delivering high-flow oxygen
- Supraglottic airway devices - oro-pharyngeal airways and laryngeal mask airways (or equivalent), selection of appropriate sizes of both
- Nebulizer face mask and attachments to oxygen supply
- Spacer device
- Syringes (20ml and 1ml)
- 16G needles for drawing up and administering drugs
- IV cannula (14G, 16G, 22G)
- An automated device for measuring blood pressure
- Tourniquet
- Equipment to prepare and carry out venepuncture and to stabilize an in-dwelling cannula
- Pulse oximeter (not mandatory for nitrous oxide/oxygen only sedation, but should be considered)
- Capnograph (not mandatory for nitrous oxide/oxygen only sedation, but should be considered)
- Automatic external defibrillator (not mandatory for nitrous oxide/oxygen only sedation, but strongly recommended)

The following drugs **must** be immediately available in all practices where sedation procedures are performed:

- Oxygen
- Adrenaline (1:1000)
- Adrenaline (1:10,000)
- Amiodarone HCL (300mg) for IV administration
- *Glyceryl trinitrate* spray or tablets (400 micrograms / dose)
- Aspirin (chewable) tablets (300mg)
- Salbutamol aerosol inhaler (100 micrograms / actuation)
- Salbutamol for nebulizer
- Hydrocortisone injection
- Oral dextrose gel, or equivalent
- Dextrose 10%
- 5% glucose solution IV (500ml)
- Glucagon
- Reversal agents for the drugs of sedation being used
- Normal saline (minimum 2000ml)

[5] Immediately available means in the facility and available for immediate use.
* Not required for practices providing Nitrous oxide sedation only

APPENDIX 6: Sedation in children

The following resources may be useful for practitioners providing sedative medications to children with the intent of achieving minimal sedation.

American Academy of Pediatric Dentistry, Oral Health Policies and Recommendations (The Reference Manual of Pediatric Dentistry), https://www.aapd.org/research/oral-health-policies--recommendations/use-of-nitrous-oxide-for-pediatric-dental-patients/, https://www.aapd.org/research/oral-health-policies--recommendations/monitoring-and-management-of-pediatric-patients-before-during-and-after-sedation-for-diagnostic-and-therapeutic-procedures/

Coté CJ, Wilson S. Guidelines for monitoring and management of pediatric patients before, during and after sedation for diagnostic and therapeutic procedures: Update. Pediatrics 2019, 143 (6) e20191000

Recommendations: Best Practices - Use of Nitrous Oxide for Pediatric Dental Patients Sedation in children and young people. National Institute for Health and Care Excellence NICE clinical guideline 112 2010, last update Dec 2018. Available at https://www.nice.org.uk/guidance/cg112

Sedation in children and young people. NCGC 2010, https://www.nice.org.uk/guidance/cg112/evidence/full-guideline-136287325