

# GUIDELINES

January 2005\*

## Use of Sedation and General Anaesthesia in Dental Practice

(A revision to those originally issued in June 2001)

*This document is the standard of practice in relation to inducing general anaesthesia, deep sedation or conscious sedation with respect to dental services in Ontario. Since contravention of these Guidelines may be considered professional misconduct, dentists employing any modality of drug-induced sedation or general anaesthesia must be familiar with their content, be appropriately trained, and regulate their practices accordingly.*

### INTRODUCTION

The following guidelines are the **minimum** standards for the utilization of sedation and/or general anaesthesia in dentistry. For the purposes of this document, these Guidelines are divided into the following sections:

- General guidelines for all modalities of sedation or general anaesthesia
- Specific guidelines for the following particular modalities:
  - Oral administration of a single sedative drug for conscious sedation
  - Nitrous oxide and oxygen conscious sedation
  - Combination of oral sedative drugs or nitrous oxide with an oral sedative drug for conscious sedation
  - Parenteral administration of sedative drugs (intravenous, intramuscular, subcutaneous, submucosal or intranasal)
  - Deep Sedation
  - General Anaesthesia

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# General Guidelines For all Modalities of Sedation or General Anaesthesia

Sedation or general anaesthesia may be indicated to treat patient anxiety associated with dental treatment, to enable treatment for patients who have cognitive impairment or motor dysfunction which prevents adequate dental treatment, to treat patients below the age of reason, or for traumatic or extensive dental procedures. **These techniques are to be used only when indicated, as an adjunct to appropriate non-pharmacological means of patient management.**

## PROFESSIONAL RESPONSIBILITIES

The following Professional Responsibilities apply to all modalities of sedation or general anaesthesia.

1. Successful completion of a training program designed to produce competency in the specific modality of sedation or general anaesthesia utilized is mandatory.
2. The dental facility must be suitably staffed and equipped for the specific modality(ies) practised as prescribed in these Guidelines.
3. An adequate, clearly recorded current medical history, including present and past illnesses, hospital admissions, current medications and dose, allergies (in particular to drugs), and a functional inquiry, along with an appropriate physical examination must be completed for each patient prior to the administration of any form of sedation or general anaesthesia. This must form a permanent part of each patient's record, consistent in content with Appendix I.
4. A determination of the patient's American Society of Anesthesiologists (ASA) Physical Status Classification (see Appendix II), as well as careful evaluation of any other factors which may affect his/her suitability for sedation or general anaesthesia must be made prior to its administration. These findings will be used as a guide in determining the appropriate facility and technique used.
5. Only the following persons may administer any sedative or general anaesthetic agent in the dental setting:
  - A dentist currently registered in Ontario;
  - A physician currently registered in Ontario;
  - A nurse, currently registered with the College of Nurses of Ontario in the Registered Nurse Class acting under the required order and the direct control and supervision of a dentist or a physician, currently registered in Ontario;
  - A respiratory therapist currently registered in Ontario acting under the required order and the direct control and supervision of a dentist or a physician, currently registered in Ontario.
6. The dentist and staff must be prepared to recognize and treat adverse responses utilizing appropriate emergency equipment and drugs when necessary. Dentists and all clinical staff must have the training and ability to perform basic cardiac life support techniques. Dentists should establish protocols for emergency procedures and review them with their staff regularly.
7. Dentists using any of the sedation and/or general anaesthesia techniques described in these Guidelines for their patients, including oral sedation and/or nitrous oxide/oxygen conscious sedation, are expected to include courses and/or other educational programs related to these modalities in their personal continuing dental education planning.

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# Specific Guidelines For Particular Modalities

## Part I – Conscious Sedation

**Definition** Conscious sedation is a minimally depressed level of consciousness that retains the patient's ability to independently and continuously maintain an airway and respond appropriately to physical stimulation and verbal command.

It is produced by a pharmacological or non-pharmacological method or a combination thereof. In dentistry, it is used to reinforce positive suggestion and reassurance in a way which allows dental treatment to be performed with minimal physiological and psychological stress, and enhanced physical comfort.

The technique must carry a margin of safety wide enough to render loss of consciousness highly unlikely.

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Conscious sedation may be induced by any one of the following modalities:

1. oral administration of a single sedative drug
2. nitrous oxide and oxygen
3. combination of oral sedative drugs or nitrous oxide and oxygen with an oral sedative drug
4. parenteral administration of sedative drugs (intravenous, intramuscular, subcutaneous, submucosal or intranasal).

### PROFESSIONAL RESPONSIBILITIES FOR ALL MODALITIES OF CONSCIOUS SEDATION

In addition to the General Guidelines listed previously, the following professional responsibilities apply to all modalities of conscious sedation:

i) Successful completion of a training program designed to produce competency in the use of the specific modality of conscious sedation, including indications, contraindications, patient evaluation, patient selection, pharmacology or relevant drugs, and management of potential adverse reactions, is mandatory. The training program must be obtained from one or more of the following sources:

- Ontario Faculties of Dentistry undergraduate and postgraduate programs
- other Faculties of Dentistry undergraduate and postgraduate programs, approved by the Royal College of Dental Surgeons of Ontario (RCDSO)
- Ontario Faculties of Dentistry continuing education programs

- other continuing education courses approved by the RCDSO which follow the general principle that they shall be:

- Organized and taught by dentists certified to administer anaesthesia and sedation as they apply to dentistry, supplemented as necessary by persons experienced in the technique being taught.
- Held in a properly equipped dental environment which will permit the candidates to utilize the techniques being taught on patients during dental treatment.
- Followed by a recorded assessment of the competence of the candidates.

ii) Dentists whose training does not exceed that described as necessary for the administration of conscious sedation are cautioned not to exceed that level of depression defined above. Single drug choice in a carefully considered dose is a prudent approach to conscious sedation. Significant approved additional training, as outlined elsewhere

in these Guidelines, is required if more than one drug is to be used.

iii) Should the administration of any drug produce depression beyond that of conscious sedation, the dental procedures should be halted. Appropriate support procedures must be administered until the level of depression is no longer beyond that of conscious sedation, or until additional emergency assistance is effected.

iv) Conscious sedation techniques require the patient to be discharged to the care of a responsible adult. The only situation in which a dentist may exercise discretion as to whether a patient may be discharged unaccompanied is that in which nitrous oxide/oxygen sedation **alone** is the technique used. All patients must be specifically assessed for fitness for discharge as described elsewhere in these Guidelines.

## 1. ORAL ADMINISTRATION OF A SINGLE SEDATIVE DRUG

The General Guidelines and professional responsibilities listed previously apply to this route of administration, when used to induce conscious sedation. For the purposes of this document, these also apply to the sublingual route of administration.

i) A dose of an oral sedative used to induce conscious sedation should be administered to the patient in the dental office, taking into account the time required for drug absorption. Patients must be monitored by clinical observation of the level of consciousness and assessment of vital signs which may include heart rate, blood pressure, and respiration. Patients may be discharged to the care of a responsible adult when they are oriented i.e. to time, place and person relative to the pre-anaesthetic condition, ambulatory, with stable vital signs, and showing signs of increasing alertness. The patient must be instructed to not drive a vehicle, operate hazardous machinery or consume alcohol

for a minimum of 18 hours, or longer if drowsiness, or dizziness persists.

CHILDREN, THE ELDERLY, AND THE MEDICALLY COMPROMISED INCLUDING PATIENTS WHO ARE TAKING PRESCRIBED MEDICATION WITH SEDATIVE PROPERTIES REQUIRE APPROPRIATE ADJUSTMENT OF THE DOSE OF THE ORAL SEDATIVE AGENT TO ENSURE THAT THE INTENDED LEVEL OF CONSCIOUS SEDATION IS NOT EXCEEDED.

ii) There are two possible exceptions to the recommendation that the oral sedative be administered in the dental office. One indication is if the practitioner has determined that the patient requires an oral sedative to facilitate sleep the night prior to the dental procedure. The second indication is when the patient's anxiety is such that sedation is required to permit arrival to the dental office. In addition to the requirements in paragraph i) above, the following additional requirements apply in these two situations:

- Each patient must be screened by the dentist at a prior appointment, with an appropriate medical history, as described in the General Guidelines in this document.
- Only one sedative drug should be prescribed at any one time. **Neither chloral hydrate or an opioid should be used for sedation prior to presentation to the dental office.**
- The patient must be instructed not to drive a vehicle and must be accompanied to and from the dental office.
- In each case, clear written instructions must be given to the patient or guardian explaining how to take the medication, the need for accompaniment and listing the expected effects from this drug.

## 2. NITROUS OXIDE AND OXYGEN CONSCIOUS SEDATION

In addition to the General Guidelines and professional responsibilities listed at the beginning of this document, the following professional responsibilities apply when nitrous oxide and oxygen conscious sedation is being administered:

- i) Gas delivery systems used for the administration of nitrous oxide and oxygen:
  - a. Must have a fail-safe mechanism such that it will not deliver an oxygen concentration of less than 30% in the delivered gas mixture.
  - b. Must have pipeline inlet fittings, or pin-indexing, that do not permit interchange of connections with oxygen and nitrous oxide.
  - c. Must be checked regularly for functional integrity by appropriately trained personnel; must function reliably and accurately; and receive appropriate care and maintenance according to manufacturer's instructions or annually, whichever is more often. A written record of this service must be kept.
  - d. Must be equipped with a common gas outlet compatible with 15mm male and 22mm female conical connectors.
  - e. Must be equipped with connectors, tubing and reservoir bag which allow use of a full face mask for resuscitative ventilation with 100% oxygen.
  - f. Must have readily available a reserve supply of oxygen ready for immediate use. This should be portable, an "E" size cylinder as a minimum and attached with appropriate regulator, flowmeter and connectors as described in item (d) above.
  - g. Must be equipped with a scavenging system installed per manufacturer's specifications.
  
- ii) Nitrous oxide and oxygen conscious sedation must be administered by:
  - a. an appropriately trained dentist **OR**
  - b. an appropriately trained registered nurse or registered respiratory therapist, under the order of an appropriately trained dentist, provided that:
    - an appropriately trained dentist is present at all

times in the office suite and **immediately** available in the event of an emergency;

- nitrous oxide and oxygen conscious sedation has been previously administered for the patient by the dentist;
- appropriate dosage levels have been previously determined and recorded by the dentist in the patient record.

iii) Patients receiving nitrous oxide and oxygen conscious sedation must be supervised by an appropriately trained dentist or registered nurse or appropriately trained respiratory therapist and must never be left unattended during administration. During the treatment of female patients by a male dentist, the presence of a female staff member is required.

iv) Patients should be monitored by an appropriately trained dentist or registered nurse or registered respiratory therapist under the order of a dentist by direct and continuous clinical observation for level of consciousness and assessment of vital signs which may include heart rate, blood pressure, and respiration preoperatively, intraoperatively and post-operatively, as necessary.

v) Recovery status post-operatively must be specifically assessed and recorded by the dentist. Only fully recovered patients can be considered for discharge unaccompanied. If discharge occurs with any residual symptoms, the patient must be accompanied by a responsible adult.

### 3. COMBINATION OF ORAL SEDATIVE DRUGS OR NITROUS OXIDE/OXYGEN WITH AN ORAL SEDATIVE DRUG

Administration of combinations of oral sedative drugs or the combination of an oral sedative with nitrous oxide and oxygen should not be used unless the dentist has had the following additional training:

- dentists who qualify for the administration of deep sedation and general anaesthesia, as outlined in Part II of these Guidelines;
- dentists who qualify for the administration of parenteral conscious sedation, as outlined later in these Guidelines;
- dentists with training that has specifically incorporated the teaching of techniques utilizing more than one sedative agent, and has evaluated and attested to the competency of the candidate.

If an oral sedative has been administered, nitrous oxide/oxygen must be slowly titrated to achieve the signs and symptoms of conscious sedation, with vigilant assessment of the level of consciousness.

CHILDREN, THE ELDERLY, AND THE MEDICALLY COMPROMISED INCLUDING PATIENTS WHO ARE TAKING PRESCRIBED MEDICATION WITH SEDATIVE PROPERTIES REQUIRE APPROPRIATE ADJUSTMENT OF THE DOSE OF THE ORAL SEDATIVE AGENT TO ENSURE THAT THE INTENDED LEVEL OF CONSCIOUS SEDATION IS NOT EXCEEDED.

#### Sedation Protocol

1. The medical history must be reviewed for any changes, at each sedation appointment. Such a review must be documented in the permanent record.
2. The patient must have had nothing to eat or drink for a period consistent with the currently accepted standards. Possible exceptions to this are usual medications or preoperative medications which may be taken as deemed necessary by the dentist.

In cases where the dentist has determined that the use of a blood pressure cuff and/or pulse oximeter would be an impediment to the management of an individual patient, and the patient is clearly conscious throughout the procedure, a decision may be made not to use these monitors. In these isolated cases, a notation explaining the reason for not using these monitors must be recorded in the chart. Furthermore, these monitors (pulse oximeter, stethoscope and sphygmomanometer) must be present in the office and readily available for use.

3. Clinical observation must be supplemented by the following means of monitoring throughout the sedation administration:
  - continuous pulse oximeter monitoring of hemoglobin oxygen saturation, recorded at a minimum 15 minute intervals;
  - blood pressure and pulse must be taken and recorded preoperatively and throughout the sedation period at appropriate intervals, not greater than every 15 minutes;
  - respiration.
4. A sedation record must be kept which includes the recording of vital signs as listed above.
5. Alarm settings and their audio component on monitoring equipment must be utilized at all times.
6. The patient may be discharged once he/she shows signs of progressively increasing alertness and has met the following criteria:
  - conscious and oriented
  - vital signs are stable
  - ambulatory
7. The patient must be discharged to the care of a responsible adult.
8. Written post-sedation instructions must be given. The patient must be instructed to not drive a vehicle, operate hazardous machinery or consume alcohol for a minimum of 18 hours, or longer if drowsiness, or dizziness persists.

#### 4. PARENTERAL CONSCIOUS SEDATION

Parenteral conscious sedation may be accomplished utilizing any one of the following routes of administration: intravenous, intramuscular, subcutaneous, submucosal or intra-nasal. For the purposes of this document, these Guidelines also apply when the rectal route of administration is utilized. In addition to the General Guidelines, this section outlines Guidelines specific to parenteral conscious sedation techniques.

##### Additional Professional Responsibilities

1. All dentists administering parenteral conscious sedation must be registered with the RCDSO.
2. All facilities where parenteral conscious sedation is administered must have a permit from the RCDSO. Such permit will be granted subject to training and conformance with all aspects of these Guidelines and subject to satisfactory on-site inspections and evaluation by the RCDSO.
3. The following training is required:
  - Dentists who qualify for the administration of deep sedation and general anaesthesia, as outlined in Part II.
  - If not qualified for the administration of deep sedation or general anaesthesia, then the following training is required:  
Successful completion of a course of instruction in parenteral conscious sedation that must be affiliated with an accredited educational institution and meeting the didactic and clinical requirements outlined below. A certificate or other evidence of satisfactory completion of the course and a description of the program signed by the course director must be submitted to the RCDSO for consideration. Completion of such a course will be entered onto the dentist's record.

*Didactic requirement:* The training shall include a minimum of 40 hours of lecture and seminar time presented by dentists formally trained in anaesthesia and sedation as they apply to dentistry or physicians formally trained in anaesthesia.

Dentists in a hospital internship or general practice residency program, recognized by the RCDSO, may be given credit for one-half of this didactic requirement, provided that documentation of formal training is obtained from the program director.

*Clinical Requirement:* The training shall include supervised application of parenteral conscious sedation concurrent with dental treatment, performed on a minimum of 20 patients. Active participation in the above is required. Observation alone is not sufficient.

##### Documented experience of EITHER

- the equivalent of a 4-week rotation in the anaesthesia department of a teaching hospital, with active participation in the administration of general anaesthesia, including venipuncture, airway maintenance and endotracheal intubation, must also be included in the training; **OR**
- evidence of successful completion of a provider course in Advanced Cardiac Life Support (ACLS).

THOSE DENTISTS WHOSE PRIOR TRAINING IS NOT DESCRIBED HEREIN, WHO HAVE BEEN PRACTISING THIS MODALITY, MAY SUBMIT THEIR QUALIFICATIONS TO THE RCDSO FOR CONSIDERATION.

4. Parenteral administration of a single sedative drug is a prudent approach to conscious sedation. Intravenous titration of a benzodiazepine alone may be utilized by those with the training specified immediately above. Only those dentists with additional formal training as outlined below may utilize more than a single agent. Otherwise no additional sedative drugs should be administered. Non-sedative agents may be administered as deemed appropriate.

Other than the single parenteral sedative, additional sedative agents should not be used by any route of administration unless the dentist

- qualifies for the administration of deep sedation or general anaesthesia, as outlined in Part II of these Guidelines; **OR**

- received approval from the College prior to December 31, 2004.
5. Dentists administering parenteral general anaesthetic drugs, such as short-acting barbiturates, ketamine or propofol, must qualify for and comply within the Guidelines listed in Part II, Deep Sedation and General Anaesthesia.
  6. Preoperative instructions must be given in writing to the patient or responsible adult. Patients should be given instructions not to eat solid food for a minimum of six hours prior to the appointment. Clear fluids may be taken up to three hours prior to the appointment. Possible exceptions to this are usual medications or preoperative medications which may be taken as deemed necessary by the dentist.
  7. Consent must be obtained prior to the administration of any parenteral sedative.
  8. During the assessment and treatment of female patients by a male dentist, the presence of a female staff member is required.
  9. The patient must never be left unattended following administration of the sedative until fit for discharge.
  10. Anaesthetic and monitoring equipment must conform to current appropriate standards for functional safety.
  11. A dentist qualified for this sedative technique and responsible for the patient must not leave the facility until that patient is fit for discharge.

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## THE SEDATION TEAM

Parenteral conscious sedation for ambulatory dental patients must be administered through the combined efforts of the sedation team. The use of a sedation team allows the qualified dentist to provide parenteral conscious sedation services simultaneously with dental procedures. The sedation team shall consist of the following individuals:

The **dentist**, who is directly responsible for the sedation, the sedation team, and the dental procedures

The **sedation assistant\***, who must be a nurse currently registered with the College of Nurses of Ontario in the Registered Nurse Class, a respiratory therapist registered with the College of Respiratory Therapists of Ontario, or a dentist or physician currently registered in Ontario

It is the responsibility of the dentist that the sedation assistant is adequately trained to perform their duties. The dentist must ensure this assistant has or develops the skills necessary for his/her responsibilities as described elsewhere in this document. His/her primary function is to provide assistance under the direction of the dentist by:

- assessing and maintaining a patent airway
- monitoring vital signs
- recording appropriate records
- venipuncture
- administering medications as required
- assisting in emergency procedures

The **operative assistant**, whose primary function is to keep the operative field free of blood, mucous and debris

The **recovery supervisor\*** who, under the dentist's supervision, has the primary function of supervising and monitoring patients in the recovery area, as well as determining, under the direction and responsibility of the dentist, if the patient meets the criteria for discharge, as outlined elsewhere in this document.

This person must have the same qualifications as described under sedation assistant. The sedation assistant may act as recovery supervisor if not required concurrently for the other duties. One cannot perform both duties simultaneously.

\* Where there is a separate dentist or physician solely providing the sedation, then a sedation assistant or recovery supervisor is not required.

The **office assistant** whose function is to attend to office duties so the sedation team is not disturbed

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## OFFICE PROTOCOL AND FACILITIES

The facility must permit adequate access for emergency stretchers and have auxiliary powered back-up for suction and lighting for use in the event of a power or system failure.

### 1. Patient Selection

An adequate, clearly recorded current medical history, including present and past illnesses, hospital admissions, current medications and dose, allergies (in particular to drugs), and a functional inquiry, along with an appropriate physical examination must be completed for each patient and must form a permanent part of each patient's record. This assessment should be consistent in content with Appendix I.

The patient's ASA Classification (see Appendix II) and risk assessment must then be determined. These findings will be used to determine the appropriate facility and technique used.

### 2. Sedation Protocol

1. The medical history must be reviewed for any changes, at each sedation appointment. Such review must be documented in the permanent record.
2. The patient must not have had solid food for a minimum of six hours prior to the appointment. Clear fluids may have been taken up to three hours prior to the appointment. Possible exceptions to this are usual medications or preoperative medications which may be taken as deemed necessary by the dentist.
3. Laboratory investigations may be used at the discretion of the dentist.
4. Clinical observation must be supplemented by the following means of monitoring throughout the sedation administration:
  - continuous pulse oximeter monitoring of hemoglobin oxygen saturation recorded at a minimum of 15 minute intervals;

- blood pressure and pulse must be taken and recorded preoperatively and throughout the sedation period at appropriate intervals, not greater than every 15 minutes;
- respiration.

5. A sedation record must be kept consistent with Appendix III.

6. When intravenous sedation is used, an intravenous needle or indwelling catheter must be *in situ* and patent at all times during the procedure. An intermittent or continuous fluid administration must be used to ensure patency.

7. Alarm settings and their audio component on monitoring equipment must be utilized at all times.

### 3. Recovery Protocol

1. As described below, recovery accommodation and supervision is **mandatory** when parenteral sedation is administered.
2. The recovery area or room shall be utilized to accommodate the post-sedation patient from the completion of the procedure until the patient meets the criteria for discharge. Oxygen and appropriate suction and lighting must be readily available. The operatory can act as a recovery room.
3. A sufficient number of such recovery areas must be available to provide adequate recovery time for each case. Caseload must be governed accordingly.
4. Supervision and appropriately recorded monitoring by the recovery supervisor must occur throughout the recovery period, until the patient meets the criteria for discharge.
5. The patient may be discharged once he/she shows signs of progressively increasing alertness and has met the following criteria:
  - conscious and oriented
  - vital signs are stable
  - ambulatory

6. The patient must be discharged to the care of a responsible adult.

7. Written post-sedation instructions must be given and explained to both the patient and accompanying adult. The patient must be instructed to not drive a vehicle, operate hazardous machinery or consume alcohol for a minimum of 18 hours, or longer if drowsiness or dizziness persists.

#### 4. Sedation Equipment

All anaesthetic and monitoring equipment must receive regular documented service and maintenance by qualified personnel according to the manufacturer's specifications, or annually, whichever is more frequent.

It is the dentist's responsibility to ensure that the dental office in which sedation is being performed is equipped with the following:

- reserve source of oxygen (as a minimum, an E-size tank is required)
- portable apparatus for intermittent positive pressure resuscitation
- pulse oximeter
- sphygmomanometers and stethoscopes of appropriate sizes
- tonsil suction (Yankauer) adaptable to the suction outlet
- full face masks of appropriate sizes and connectors
- adequate selection of endotracheal tubes and appropriate connectors
- laryngoscope with an adequate selection of blades, spare batteries and bulbs
- Magill forceps
- adequate selection of oral airways
- portable auxiliary systems for light, suction, and oxygen
- apparatus for emergency tracheotomy or cricothyroid membrane puncture
- needles - IV
- drugs for management of emergencies, including:
  - oxygen
  - epinephrine
  - nitroglycerin
  - parenteral antihistamine (e.g. diphenhydramine)
  - bronchodilator (salbutamol)
  - parenteral vasopressor (e.g. ephedrine)
  - parenteral atropine
  - parenteral corticosteroid
  - intravenous lidocaine
  - flumazenil (if benzodiazepines are administered)
  - naloxone (if opioids are administered)
  - intravenous fluids
  - acetylsalicylic acid (ASA)

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## Part II – Deep Sedation and General Anaesthesia

**Definition** Deep sedation is a controlled state of depressed consciousness, accompanied by partial loss of protective reflexes, including inability to respond purposefully to verbal command.

General anaesthesia is a controlled state of unconsciousness accompanied by partial or complete loss of protective reflexes including inability to maintain an airway independently and respond purposefully to physical stimulation or verbal command.

These states therefore apply to any technique that has depressed the patient beyond conscious sedation, as defined in Part I. Any technique leading to these conditions in a patient, including neuroleptanalgesia/anaesthesia or dissociative anaesthesia, regardless of route of administration, would fall within the following Guidelines.

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### ADDITIONAL PROFESSIONAL RESPONSIBILITIES

In addition to the General Guidelines listed in Part I, the following responsibilities apply:

1. All dentists administering deep sedation or general anaesthesia must be registered with the RCDSO.
2. All facilities where deep sedation or general anaesthesia is administered must have a permit from the RCDSO. Such permit will be granted subject to training and conformance with all aspects of these Guidelines and subject to satisfactory on-site inspections and evaluation by the RCDSO.
3. Deep sedation or general anaesthesia must only be performed in the dental office by a professional qualified according to the following Guidelines.
  - Dentists who have successfully completed a post-graduate anaesthesia program in a university and/or teaching hospital over a minimum of 24 consecutive months. The program must have specifically evaluated and attested to the competency of the individual.
  - Dentists who had successfully completed a post-graduate anaesthesia program in a university and/or teaching hospital over a minimum of 12

consecutive months prior to 1993 and have continued to practise these modalities since that time. The program must have specifically evaluated and attested to the competency of the individual.

- Dentists who have successfully completed a formal post-graduate program in oral and maxillofacial surgery suitable for certification in the Province of Ontario, incorporating adequate training in anaesthesia, such that the individual competence has been specifically evaluated and attested to.
- Physicians registered to practise in Ontario who hold a fellowship in the Royal College of Physicians and Surgeons of Canada in anaesthesiology, or who can provide evidence satisfactory to the College that they have successfully completed a post-graduate program in anaesthesiology recognized by a Canadian Faculty of Medicine, and **EITHER** Hold active hospital privileges to administer deep sedation or general anaesthesia in a public hospital in Ontario; **OR** Can show proof of recent regular anaesthesiology practice.

Adherence to these Guidelines is a joint responsibility of such physicians and the treating dentist when anaesthesia is provided in a dental office.

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4. When the operating dentist is not administering the anaesthetic, he/she shares the responsibility to ensure that these Guidelines are followed.
  5. Preoperative instructions must be given in writing to the patient or responsible adult. Patients should be given instructions not to eat solid food for a minimum of six hours prior to the appointment. Clear fluids may be taken up to three hours prior to the appointment. Possible exceptions to this are usual medications or pre-operative medications which may be taken as deemed necessary by the dentist.
  6. Consent must be obtained prior to the administration of any parenteral sedative or general anaesthetic.
  7. During the assessment and treatment of female patients by a male dentist, the presence of a female staff member is required.
  8. Anaesthetic and monitoring equipment must conform to current appropriate standards for functional safety.
  9. The patient must never be left unattended by a dentist qualified for this sedative/anaesthetic technique during the administration of the sedative or general anaesthetic.
  10. A dentist or physician qualified for this sedative/anaesthetic technique and responsible for the patient must not leave the facility until that patient is fit for discharge.

## THE ANAESTHETIC TEAM

General anaesthesia or deep sedation for ambulatory dental patients must be administered through the combined efforts of the anaesthetic team. The use of an anaesthetic team allows the qualified dentist to provide anaesthesia services simultaneously with dental procedures. The anaesthetic team shall consist of the following individuals:

The **dentist-anaesthetist**, who is directly responsible for the anaesthesia, the anaesthetic team, and the dental procedures

The **anaesthetic assistant\*** must be a nurse currently registered with the College of Nurses of Ontario in the Registered Nurse Class, a respiratory therapist currently registered with the College of Respiratory Therapists of Ontario, or a dentist or physician currently registered in Ontario

It is the responsibility of the dentist that the anaesthetic assistant is adequately trained to perform his/her duties. The dentist must ensure this assistant has / or develops the skills necessary for his/her responsibilities, as described below. His/her primary function is to provide assistance, under the direction of the dentist, by:

- assessing and maintaining a patent airway
- monitoring vital signs
- recording appropriate records
- venipuncture
- administering medications as required
- assisting in emergency procedures

The **operative assistant**, whose primary function is to keep the operative field free of blood, mucous and debris

The **recovery supervisor\*** who, under the dentist's supervision, has the primary function of supervising and monitoring patients in the recovery area, as well as determining, under the direction and responsibility of the dentist, if the patient meets the criteria for discharge, as outlined below

This person must have the same qualifications as described under Anaesthesia Assistant. The anaesthesia assistant may act as recovery supervisor if not required concurrently for the other duties. One cannot perform both duties simultaneously.

\* Where there is a separate dentist-anaesthetist or physician-anaesthetist solely providing the deep sedation or general anaesthetic, then an anaesthetic assistant or a recovery supervisor is not required.

The **office assistant** whose function is to attend to office duties so the sedation team is not disturbed

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## OFFICE PROTOCOL AND FACILITIES

The facility must permit adequate access for emergency stretchers and have auxiliary powered backup for suction and lighting, for use in the event of a power or system failure.

### 1. Patient Selection

An adequate, clearly recorded current medical history, including present and past illnesses, hospital admissions, current medications and dose, allergies (in particular to drugs), and a functional inquiry, along with an appropriate physical examination must be completed for each patient and must form a permanent part of each patient's record, prior to the administration of deep sedation or general anaesthesia. This assessment should be consistent in content with Appendix I.

The patient's ASA Classification (see Appendix II) and risk assessment must be determined. These findings will be used to determine the appropriate facility and technique to be used.

### 2. Anaesthesia Protocol

1. The medical history must be reviewed for any changes at each deep sedation or general anaesthetic appointment. Such review must be documented in the permanent record.
2. The patient must not have had solid food for a minimum of six hours prior to the appointment. Clear fluids may have been taken up to three hours prior to the appointment. Possible exceptions to this are usual medications or pre-operative medications which may be taken as deemed necessary by the professional responsible for the administration of the sedation or general anaesthetic.
3. Laboratory investigations may be used at the discretion of the dentist.

4. Clinical observation must be supplemented by the following means of monitoring performed at appropriate intervals, usually every 5 minutes, throughout the deep sedation or general anaesthetic administration:

- continuous pulse oximeter monitoring of hemoglobin oxygen saturation
- blood pressure and pulse
- respiration
- continuous electrocardioscope monitoring
- if intubated, monitoring by capnometry is required

5. If triggering agents for malignant hyperthermia are being used (volatile inhalational general anaesthetics or succinylcholine), measurement of temperature and appropriate emergency drugs, as outlined below, must be readily available.

6. An anaesthetic record must be kept consistent with Appendix III.

7. An intravenous needle or indwelling catheter must be *in situ* and patent at all time during the procedure. An intermittent or continuous fluid administration must be used to ensure patency.

8. Alarm settings and their audio component on monitoring equipment must be utilized at all times.

### 3. Recovery Protocol

1. As described below, recovery accommodation and supervision is mandatory where deep sedation or general anaesthesia is administered.
2. The recovery area or room shall be utilized to accommodate the patient from the completion of the procedure until the patient meets the criteria for discharge. Oxygen and appropriate suction and lighting must be readily available. The operatory can act as a recovery room.
3. A sufficient number of such recovery areas must be available to provide adequate recovery time for each case. Caseload must be governed accordingly.

4. Supervision and appropriately recorded monitoring by the recovery supervisor should occur throughout the recovery period, until the patient meets the criteria for discharge. Monitors must be immediately available for recovery use, including pulse oximeter, sphygmomanometer, and electrocardioscope.

5. The patient may be discharged once he/she shows signs of progressively increasing alertness and has met the following criteria:

- conscious and oriented
- vital signs are stable
- ambulatory

6. The patient must be discharged to the care of a responsible adult.

7. Written post-sedation/anaesthetic instructions must be given. The patient must be instructed to not drive a vehicle, operate hazardous machinery or consume alcohol for a minimum of 18 hours, or longer if drowsiness or dizziness persists.

#### 4. Deep Sedation / General Anaesthetic Equipment

Anaesthetic and ancillary equipment must be checked regularly and before use for functional integrity. Equipment must be serviced according to the manufacturer's specifications or annually, whichever is more frequent. A record of this service must be kept.

1. Gas delivery systems used for the administration of nitrous oxide and oxygen:

- must have a fail-safe mechanism such that it will not deliver an oxygen concentration of less than 30% in the delivered gas mixture;
- must have pipeline inlet fittings, or pin-indexing that do not permit interchange of connections with oxygen and nitrous oxide;
- must be equipped with a common gas outlet compatible with 15mm male and 22mm female conical connectors;

- must be equipped with connectors and tubing which allow use of a full face mask for resuscitative ventilation with 100% oxygen;
- must have readily available a reserve supply of oxygen ready for immediate use. This should be portable, an "E" size cylinder as a minimum and attached with appropriate regulator, flowmeter and connectors as described previously;
- must be equipped with a scavenging system installed per manufacturer's specifications.

2. If a vaporizer is fitted to the gas delivery system, then:

- It shall have an agent-specific, keyed filling device.
- The connection of the inlet and outlet ports of the vaporizer to the gas machine shall be such that an inadvertent incorrect attachment cannot be made.
- All vaporizer control knobs must open counter-clockwise and be marked to indicate vapour concentration in volume percent. It must mark and lock the control in the "off" position.
- The vaporizer must be connected to the scavenging system. Where multiple vaporizers are used, an Interlock System must be installed.

3. If the patient is intubated then the anaesthetic machine must be fitted with an oxygen supply failure protection device that conforms to the relevant CSA standard.

4. It is the dentist's responsibility to ensure that the dental office in which deep sedation or general anaesthesia is being performed is equipped with the following:

- reserve source of oxygen
- portable apparatus for intermittent positive pressure resuscitation
- pulse oximeter
- sphygmomanometers and stethoscopes of appropriate sizes
- tonsil suction (Yankauer) adaptable to the suction outlet

- 
- full face masks of appropriate sizes and connectors
  - adequate selection of endotracheal tubes and appropriate connectors
  - laryngoscope with an adequate selection of blades, spare batteries and bulbs
  - Magill forceps
  - adequate selection of oral airways
  - portable auxiliary systems for light, suction, and oxygen
  - apparatus for emergency tracheotomy or cricothyroid membrane puncture
  - electrocardioscope and defibrillator
  - capnometer, if endotracheal intubation is used to administer general anaesthesia
  - drugs for management of emergencies, including:
    - oxygen
    - epinephrine
    - nitroglycerin
    - parenteral antihistamine e.g. diphenhydramine
    - bronchodilator (salbutamol)
    - parenteral vasopressor e.g. ephedrine
    - parenteral atropine
    - parenteral corticosteroid
    - intravenous lidocaine
    - flumazenil, if benzodiazepines are used
    - naloxone, if opioids are used
    - intravenous fluids
    - succinylcholine
    - antihypertensive
    - dantrolene, if triggering agents for malignant hyperthermia are being used
    - acetylsalicylic acid (ASA)

## APPENDIX I

### Medical History and Patient Evaluation

An adequate, current, clearly recorded and signed medical history must be made for each patient.

The history is part of the patient's permanent record. It forms a database upon which appropriate sedation or anaesthetic modality is determined. The medical history must be kept current. This information may be organized in any format that each dentist prefers provided that the scope of the content contains the **minimum information described in this section.**

### Vital Statistics

This includes the patient's full name, date of birth, sex, and the name of the person to be notified in the event of an emergency. In case of a minor or a mentally disadvantaged patient, the name of the parent or guardian must be recorded.

### Core Medical History

The core medical history must fulfil the following two basic requirements:

- It must elicit the core medical information to enable the dentist to assign the correct ASA Classification (see Appendix II) in order to assess risk factors in relation to sedation or anaesthetic choices.
- It must provide written evidence of a logical process of patient evaluation.

This core information should be a system-based review of the patient's past and current health status. It can be developed from the responses to the following inquiries:

- Are you now under a physician's care or direction or have you been during the last 5 years?
- When was your last medical examination?
- Have you every had a serious illness, accident, or required hospitalization?
- Are you taking any medication(s)? If yes, what is the drug(s), dose(s) and for how long?
- Do you have any allergies or have you ever had a reaction to any drugs?
- Have you ever had any breathing difficulty or asthma, emphysema, chronic cough, pneumonia, tuberculosis or any other lung problems? Do you smoke?

- Have you or any family member ever had any problems associated with the administration of anaesthesia?
- Have you every had any heart or blood vessel problems such as murmurs, heart attack, high or low blood pressure?
- Have you ever had a stroke?
- Are you subject to fainting, dizziness, nervous disorders, or seizures?
- Have you ever had hepatitis, liver or kidney disease, jaundice, yellow skin?
- Have you had any health problems not described above?

### Core Physical Examination

A current, basic physical examination, suitable for determining information that may be significant to sedation and anaesthesia and appropriate to the modality being used, must be carried out for each patient. At a minimum, all modalities of sedation or general anaesthesia require the evaluation and recording of significant positive findings related to:

- general appearance, noting obvious abnormalities;
- head, neck and intra-oral examination, particularly pertaining to airway, such as range of motion, loose teeth, potential obstruction from large tongue, tonsils, etc.;
- the taking and recording of vital signs i.e. heart rate and blood pressure.

### This can be carried out by most general practitioners and specialists.

If a more in-depth physical examination is required involving:

- auscultation (cardiac or pulmonary)
- examination of other physiologic systems, or
- other assessments

This examination **must be performed** by a physician or by a dentist who has received formal training in a post-graduate anaesthesiology program, or an oral and maxillofacial surgery program.

The core physical examination may include an order for and assessment of laboratory data if indicated.

## APPENDIX II

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### American Society of Anaesthesiology Physical Status Classification System

ASA I: A normal healthy patient	ASA V: A moribund patient not expected to survive 24 hours with or without operation
ASA II: A patient with mild systemic disease	ASA E: Emergency operation of any variety; E precedes the number, indicating the patient's physical status
ASA III: A patient with severe systemic disease that limits activity but is not incapacitating	
ASA IV: A patient with incapacitating systemic disease that is a constant threat to life	

## APPENDIX III

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### Anaesthetic Record for Parenteral Conscious Sedation, Deep Sedation or General Anaesthesia

An anaesthetic/sedation record should contain the following information:

- patient name
- date of procedure
- verification of NPO status
- verification of accompaniment for discharge
- preoperative blood pressure, heart rate, and oxygen saturation
- ASA status
- names of all drugs administered
- doses of all drugs administered
- time of administration of all drugs
- if used: intravenous type, location of venipuncture, type and amount of fluids administered
- list of monitors used
- record of systolic and diastolic blood pressure, heart rate, oxygen saturation, at appropriate intervals as described in the Guidelines. If the monitors used provide an automated printout, this printout may be attached in lieu of handwritten recording of these signs.
- time of the start and completion of the administration of the general anaesthetic/sedation
- time of the start and completion of the administration of the dental procedure
- recovery period
- discharge criteria met: oriented, ambulatory, vital signs stable (record of blood pressure, heart rate, oxygen saturation)
- time of discharge
- name of professional responsible for the case
- a notation of any complication or adverse reaction

A SAMPLE ANAESTHETIC RECORD FORM IS SUPPLIED HERE AS AN EXAMPLE ONLY. THE USE OF THIS PARTICULAR FORM IS NOT MANDATORY. EACH PRACTITIONER MAY DETERMINE THE FORMAT OF HIS/HER OWN RECORD. THE PRACTITIONER SHOULD USE A FORM THAT, AS A MINIMUM, CONTAINS THE INFORMATION LISTED IN APPENDIX III, IN A FORMAT THAT IS CLEAR AND READILY UNDERSTOOD.

# Sample Anaesthetic Record

PATIENT'S NAME \_\_\_\_\_ AGE \_\_\_\_\_ DATE \_\_\_\_\_

MEDICAL HISTORY REVIEWED \_\_\_\_\_

ALLERGIES \_\_\_\_\_ MEDICATIONS \_\_\_\_\_

NPO \_\_\_\_\_ ACCOMPANIED BY RESPONSIBLE ADULT \_\_\_\_\_

Pre-Op BP \_\_\_\_\_ Pre-Op HR \_\_\_\_\_ Pre-Op O<sub>2</sub> St'n \_\_\_\_\_ ASA CLASSIFIC'N I II III IV V E

PREMEDICATION \_\_\_\_\_ TIME \_\_\_\_\_

IV ANGIO or BF GAUGE SITE R L DOH ACF FA OTHER

FLUIDS TYPE VOLUME

MONITORS PULSE OXIMETER BP ECG OTHER

DRUGS \_\_\_\_\_ TIME 0 15 30 45 0 15 30 45 0 15 30 45

O<sub>2</sub> (1/MIN) \_\_\_\_\_

N<sub>2</sub>O (1/MIN) \_\_\_\_\_

LOCAL ANAES. \_\_\_\_\_ ML OF \_\_\_\_\_

TIME  
START ANAES. \_\_\_\_\_

START PROCEDURE \_\_\_\_\_

END PROCEDURE \_\_\_\_\_

END ANAES. \_\_\_\_\_

TO RECOVERY ROOM \_\_\_\_\_

DISCHARGE CRITERIA  
ORIENTED \_\_\_\_\_

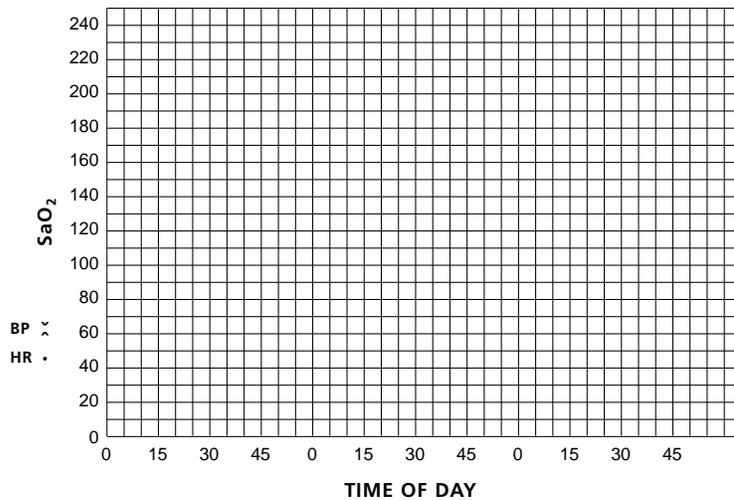
VITAL SIGNS STABLE \_\_\_\_\_

BP \_\_\_\_\_ HR \_\_\_\_\_

AMBULATORY \_\_\_\_\_

DISCHARGE TIME \_\_\_\_\_

IN THE COMPANY OF \_\_\_\_\_



NOTES \_\_\_\_\_

ANAESTHETIST \_\_\_\_\_