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# SAMJ

## Conscious Sedation Clinical Guidelines

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# Conscious sedation clinical guideline

Conscious Sedation Working Group,  
Medical Association of South Africa

**Objective.** The objective of this guideline is to promote safe conscious sedation technique.

**Outcome.** (i) The use of safe conscious sedation techniques with endpoints of patient comfort and anxiolysis without loss of protective reflexes; (ii) the use of drugs with a wide margin of safety that will protect against unintended oversedation.

**Evidence.** Based on existing consensus statements and some research reports.

**Validation.** Relevant organisations involved in conscious sedation were asked to select a representative to participate in the MASA Conscious Sedation Working Group. All participants represented organisations. The working group met in January 1996 to consider a draft guideline. The document was amended and circulated to working group members, representative organisations and 35 interested persons for endorsement and comment using a modified Delphi technique. All respondents endorsed the guideline (with or without minor corrections.) The national organisations endorsing the guidelines are listed.

**Recommendations.** The use of drugs, equipment and personnel as directed in such a way that enhances the safety of the patient. Pre-sedation screening for at-risk patients. Intra-sedation monitoring, especially the use of a

pulse oximeter. Post-sedation care and discharge instructions for the patient.

**Sponsors.** The organisational sponsor is the Committee for Science and Education, Medical Association of South Africa. Educational grant from Roche Products in accordance with MASA code of conduct on financial sponsorship.

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Conscious sedation is a therapeutically induced state of depressed consciousness that allows the patient's protective reflexes to be maintained with the patient independently maintaining a patent airway and adequate ventilation and leaves intact appropriate responses to physical or verbal stimuli.<sup>1</sup> This technique usually uses intravenous sedative-hypnotic drugs (mainly benzodiazepines, often combined with systemic opiates or local/regional anaesthetics). It has become standard practice in most countries to facilitate the performance of gastrointestinal endoscopy.<sup>2</sup> A widening range of specialists use conscious sedation for diagnostic and increasingly complex therapeutic procedures.<sup>3,4</sup>

The objectives of conscious sedation are to:

- reduce anxiety and help patients accept distressing diagnostic and therapeutic procedures
- ease the technical difficulties for the operator by improving patient co-operation
- facilitate compliance with repeat procedures when necessary.

Intravenous sedation has the advantage of speed of onset and timing relative to the procedure. Orally or rectally administered drugs may be unpredictable and delayed in their effects. Inhalational sedation with nitrous oxide is easily reversible and relatively free of risk. Local or regional analgesia and/or systemic analgesics are used when necessary for pain relief. Sedation techniques should never be used to compensate for inadequate analgesia.

The assessment of the value of conscious sedation has largely been based on intuition and national surveys.<sup>5,6</sup> A recent study has shown that patient tolerance of endoscopy is improved by the use of sedation and analgesia, with the authors concluding that the benefits of conscious sedation outweigh the risks and endorsing the widespread use of sedation and analgesia.<sup>7</sup> However, the safety of the procedure gives cause for concern, particularly when performed outside the operating room in the absence of anaesthetic personnel.<sup>8</sup> The estimated mortality rate (mostly related to cardiopulmonary events) ranges from 1 in every 7 500 - 11 000 endoscopic procedures<sup>9</sup> to 0.3/1 000 procedures.<sup>9</sup> While the latter figure is very low it considerably exceeds the mortality associated with general anaesthesia for minor outpatient procedures.<sup>10</sup>

There are few studies of the risks attributable to intravenous conscious sedation. Several risks, particularly related to depression of respiratory and cardiovascular function, are obvious, including:

- the effects of the sedative drugs (especially if used in combination with other drugs)
- the administration of excessive amount of the sedative drug

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List of Conscious Sedation Working Group members by organisation. Medical Association of South Africa Committee for Science and Education: E M Barker (Chairperson), D Presbury, J Snyman, V J Pinkney-Atkinson. The following organisations nominated representatives to participate in the meeting. Dental Association of South Africa: P Cleaton-Jones, Trauma Society of South Africa: H J C du Plessis, Association of Plastic and Reconstructive Surgeons of South Africa: M S Fayman, South African Academy of Family Practice: R Kirby, Radiological Society of South Africa: V Andrijlich, South African Society for Anaesthesiologists: T Manicam, D Morrell, South African Society of Cardiac Practitioners: A Dalby, South African Society of Obstetricians and Gynaecologists: G H de Wet, South African Theatre Sisters Society: A Nel, South African Gastroenterology Society: S K Spies, Anaesthesiologist: A P Boezaart, Financial sponsor, Roche Products: R G C W Brown, A Story

National organisations endorsing these guidelines: Dental Association of South Africa, Medical Association of South Africa, South African Academy of Family Practice, South African Association of Anaesthesiologists, South African Society of Cardiac Practitioners, South African Gastroenterology Society, Trauma Society of South Africa, Radiological Society of South Africa

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- individual variations in response to the drugs, particularly in children, the elderly and the infirm
- the varying ability, training and experience of the non-anaesthetist sedationist.

There are a number of guidelines and recommendations from speciality groups that use sedation techniques.<sup>10-14</sup> The objective of this report is to promote safe conscious sedation techniques.

## 1. Definitions

### 1.1 Conscious sedation

Conscious sedation is a technique that uses parenteral or inhaled drug(s) to produce a state of altered consciousness, thereby enabling treatment to be carried out within optimal levels of achievable patient comfort. During the period of conscious sedation communication is maintained so that the patient will respond to commands. The clinical endpoints for sedation are anxiolysis and patient comfort and *not* ptosis and hypnosis.

The Radiological Society of South Africa accepts the definition of conscious sedation for adults but feels that in children a deeper degree of sedation is often required. This exceeds the definition of conscious sedation, as hypnosis (sleep) is usually necessary.

### 1.2 Margin of safety

The drugs and techniques used for conscious sedation should carry a margin of safety wide enough to render unintended loss of consciousness or loss of protective reflexes unlikely. Measures must be immediately available that will either protect the patient from the effects of unintended oversedation or allow for rapid reversal of such oversedation.

In radiological examinations children may become drowsy, dysphoric and irritable. While this may be the result of underdosage, the Radiological Society of South Africa recommends that an anaesthesiologist should be consulted before embarking on repeat doses of the same sedative or the addition of other sedatives. In such cases it may be safer to reschedule the procedure.

### 1.3 Anaesthesia

Any technique that exceeds the above definitions of sedation and margin of safety must be regarded as general anaesthesia with all its attendant consequences and responsibilities.

## 2. Risk assessment

The risk of each case should be assessed by the sedationist before the intended procedure and documented in the patient's notes. This is of particular importance for procedures being carried out on an unscheduled basis. Appropriate assessment of risk factors may highlight the need to modify drug dosage and the availability of equipment. Where risk assessment suggests that the premises and facilities are unsuitable for the intended procedure, alternative arrangements should be made.

### 2.1 At-risk patients

'At-risk' patients include:

- the elderly
- the morbidly obese
- patients with concomitant medical diseases,<sup>15,16</sup> e.g. anaemia, cerebrovascular disease, heart disease,<sup>17</sup> lung disease,<sup>18</sup> renal disease, liver disease, etc.

Pregnancy and the puerperal period constitute a particular risk because of the potential for airway obstruction or aspiration.

### 2.2 Conscious sedation patient questionnaire

A conscious sedation patient questionnaire should be completed by the patient at the time of booking for the proposed procedure (Appendix 1, p. 489). Its purpose is to help ascertain whether the patient has any risk factors that need to be taken into account or require modification of technique, equipment, facilities or drug dosage.

### 2.3 Pre-procedural questionnaire

A pre-procedural questionnaire should be completed by the nurse to provide a readily scanned list of potential risk factors for the sedation (Appendix 2, p. 489).

### 2.4 Pre-procedural checklist

A pre-procedural checklist should be completed (Appendix 3, p. 490).

- Fasting recommendations are:
- on the day of surgery — no solid food
  - children — clear fluids only up to 2 hours pre-operatively
  - adults — clear fluids/water up to 4 hours pre-operatively
  - gastro-intestinal procedures — at least 8 hours' fasting pre-operatively
  - pregnancy — H<sub>2</sub> antagonist and 4 - 6 hours' fasting pre-operatively.

### 2.5 American Society of Anesthesiologists (ASA) classification

The ASA classification of the patient's status provides an easily remembered indicator of possible risk (Appendix 4, p. 490). Patients classified as ASA III or higher are considered 'at risk' when undergoing sedation.

## 3. Premises and facilities

### 3.1 Appropriate selection of patients

Suitable premises allow for conscious sedation of patients classified ASA I and II. However, patients with severe concomitant disease (ASA classes III and above) require facilities such as the operating theatre/recovery/resuscitation room to be available immediately.

### 3.2 Suitability

Premises suitable for the safe practice of conscious sedation must have oxygen, suction and resuscitation equipment, pulse oximetry and drugs immediately available (Section 6).

### 3.3 Facilities for transfer of patients

It must be possible to transfer the patient rapidly and easily to a higher care facility in the event of a catastrophe.

## 4. Responsibilities

### 4.1 Sedationist

In the majority of procedures the sedationist is also likely to be the operator and as such carries the ultimate responsibility for the safety of both the conscious sedation technique and the procedure itself. Responsibility for risk assessment lies with the sedationist and cannot be devolved or assumed to lie with the referring practitioner. All procedures should be carried out under the direct supervision of a suitably trained sedationist.

### 4.2 Assistants

The operator-sedationist cannot monitor the patient's condition adequately while performing a procedure. At least one other suitably trained professional must be present and responsible for providing clinical monitoring of sedated patients. The intensity of monitoring should be proportional to the perceived risk. For major procedures, a dedicated person should be available to provide clinical monitoring of sedated patients.

### 4.3 Head of unit

The head of the unit (department or practice) where the procedures are performed is responsible for ensuring that all facilities are adequate and in working order and that the unit is appropriately staffed (Section 4.2).

## 5. Techniques

### 5.1 Drugs (Appendix 5)

All sedatives may produce anaesthesia if excessive doses are used. The safety of conscious sedation techniques is dependent upon keeping the dosages of all drugs to the minimum amount permitting patient comfort and successful performance of the procedure. General anaesthetic agents (e.g. propofol) can only be recommended for use in conscious sedation in the presence of medical professionals who have appropriate anaesthetic skills and experience, since their therapeutic index is small.<sup>19</sup>

#### 5.1.1 Benzodiazepines

Benzodiazepines are the most commonly used class of drugs for intravenous conscious sedation. When administered in appropriate doses using a careful titration technique they provide a satisfactory margin of safety between sedation and the induction of anaesthesia. The pharmacodynamic and pharmacokinetic properties vary, particularly in the elderly and the very young. Water-soluble shorter-acting drugs (e.g. midazolam) are the preferred benzodiazepines for intravenous conscious sedation.

#### 5.1.2 Inhalational agents

The inhalation agent used for conscious sedation is nitrous oxide (N<sub>2</sub>O). The machine used may be a completely mobile device with attached N<sub>2</sub>O/O<sub>2</sub> cylinders or be connected to piped gases, and must be capable of delivering N<sub>2</sub>O sedation in accordance with the following requirements:

- a suitable delivery system for continuous N<sub>2</sub>O/O<sub>2</sub> gas flow calibrated to deliver a minimum of 30% oxygen in the gas mixture and a fail-safe device that cuts off nitrous oxide in the event of oxygen failure
- inhalational conscious sedation should be used in a well-ventilated environment to minimise risk to health care workers
- the volatile anaesthetic agents cannot be relied upon to provide conscious sedation.

#### 5.1.3 Opioids

Opioids (e.g. morphine, pethidine, fentanyl, alfentanil, sufentanil, etc.) are used during conscious sedation. The margin of safety is relatively narrow, necessitating extreme caution and careful dosage titration.

#### 5.1.4 Combinations

The combinations of a benzodiazepine with an opioid can increase the risk of adverse cardiorespiratory events.<sup>9</sup> There is evidence of a major synergistic drug interaction between these two classes of drugs.<sup>20</sup> If an opioid drug is used in combination with an intravenous benzodiazepine, the opioid should be given first in a reduced dose. Then, after an appropriate length of time (see Appendix 5), the intravenous benzodiazepine is administered by careful titration. Failure to modify the dosage of these drugs, when used in combination, may lead to life-threatening complications.

Inhalation and parenteral agents should not be used simultaneously because of the risk of inducing anaesthesia.

The use of conscious sedation allows for the reduction of the total dose of local anaesthetic agent used. While there are no known drug reactions between opioids, benzodiazepines and local anaesthetics, the possibility of synergism between the agents used for conscious sedation and the local anaesthetic must be taken into account. When an opioid is used in combination with a benzodiazepine, preference should be given to short-acting drugs.

#### 5.1.5 Antagonists

The specific antagonists for benzodiazepines (flumazenil) and opioids (naloxone) must be available for immediate use. The availability of specific antagonists should not encourage sedationists to adopt a lax approach to titrating dose against response. There should be no compromise with regard to the use of the minimum effective dose of the drug for each patient.

Administration of an antagonist does not alter the requirement to maintain vital functions where depression of these has occurred. Monitoring of oxygen saturation and other vital functions (see Section 5.3) should be carried out until recovery is complete. The effect of opioid and benzodiazepine antagonists is not instantaneous and often of shorter duration than that of their agonists, so repeated injections of the antagonists may be necessary to prevent re-sedation from occurring.

## 5.2 Oxygen

Oxygen desaturation is a common occurrence in patients receiving sedation.<sup>8,15,21</sup> The problem may be aggravated by the interference with a clear airway caused by dental, ENT, respiratory tract or upper gastro-intestinal endoscopic instrumentation and procedures.<sup>22</sup>

### 5.2.1 Availability of oxygen

An oxygen supply and equipment with compatible fittings for its delivery to the patient must be available in any area where conscious sedation is undertaken.

### 5.2.2 Routine use of supplemental oxygen

It is recommended that every patient undergoing conscious sedation receive oxygen-enriched air throughout the procedure. Routine use of supplemental oxygen before the administration of the sedative and commencement of the procedure will decrease the possibility of hypoxaemia at a time when this is most likely.<sup>23,24</sup> The amount of supplemental oxygen normally used (2 - 4 l/min) will not compromise ventilation in patients with chronic obstructive airways disease except in the most severe cases.

The Radiological Society of South Africa notes that in certain circumstances there are physical constraints that preclude the routine use of supplemental oxygen in certain radiological examinations, e.g. the use of the head coil in magnetic resonance examinations.

## 5.3 Monitoring

### 5.3.1 Clinical monitoring

The sedationist must ensure the well-being of the patient by having another suitably trained individual present. This person's responsibility is to remain in communication with the patient and monitor his/her safety. Where major procedures are to be undertaken, or when the patient is at particular risk, it is recommended that a dedicated health care professional be present, whose sole responsibility is the care of the patient.

Clinical observation of the early signs of respiratory depression is known to be unreliable.<sup>25</sup> For this reason, additional monitoring techniques must be employed.

### 5.3.2 Oximetry

A pulse oximeter continuously displays the oxygen saturation of the haemoglobin in arterial blood. This provides valuable information on both the cardiovascular and respiratory systems. These devices are accurate to 1% in the clinically important range of saturation (> 80%).

Significant hypoxaemia may occur without any notable clinical signs and without evidence of cyanosis. The normal alarm setting for oximeters in anaesthesia is 94% and a saturation below 90% represents a significant degree of hypoxaemia that requires immediate correction. It is recommended that oximetry become standard practice in the administration of conscious sedation.<sup>26,27</sup>

Special magnetic resonance dedicated oximeters may be necessary for use in radiology.

### 5.3.3 Electrocardiography

Continuous ECG monitoring is recommended only as an adjunct to oximetry in those patients with cardiac disease or major cardiovascular risk factors.

### 5.3.4 Blood pressure measurement

Blood pressure measurement should be mandatory as part of the risk assessment before the procedure, but need not be employed during the procedure unless specifically indicated.

## Intravenous access

It is considered mandatory that all patients undergoing conscious sedation should have a cannula placed in a vein for reliable continuous intravenous access throughout the procedure. A flexible cannula with an introduction needle that is removed after insertion must be employed. This cannula must be left in place until recovery is complete.

## 6. Resuscitation

### 6.1 Equipment

Resuscitation equipment available in the treatment area and the recovery area (if separate) should include a source of oxygen and suction together with the equipment necessary for the maintenance of airway, breathing and circulation. Appropriate drugs to allow for the adequate treatment of all common medical emergencies involving the cardiovascular and respiratory systems, including anaphylaxis and life-threatening haemorrhage, must be available (Appendix 6).

### 6.2 Staff and training

Staff of all grades and disciplines, including consultant staff should be familiar with resuscitation methods and undergo periodic retraining. Regular practice in simulated emergencies is recommended.

## 7. Recovery

### 7.1 Facilities

A large number of the problems associated with conscious sedation occur in the recovery area.<sup>18</sup> Adequate recovery facilities in a suitably staffed area must be available after conscious sedation. These should include all monitoring and resuscitation equipment, drugs already referred to, and the facility to obtain appropriate help to cope with a medical emergency.

### 7.2 Monitoring

Clinical monitoring must be continued until recovery is complete. Pulse oximetry must be available in the recovery area for 'at-risk' patients. The sedationist is responsible for instructing the recovery staff on the level of monitoring/ observations required. Where recovery is to take place in a ward appropriate instructions should accompany the patient and the same standards of clinical monitoring should apply.

### 7.3 Staffing

Appropriately trained staff should be available so that patients are not left unattended at any time until recovery is complete.

## 8. Discharge

### Discharge criteria

The minimum criteria for discharge include stable vital signs, the ability to walk without support, toleration of oral fluids, the ability to void urine, minimal nausea, adequate analgesia and appropriate aftercare.

### 8.2 Escort home and written instructions

Day cases should be accompanied home by a responsible adult who should be given written instructions as to what to do and whom to contact in the event of problems. Appendix 7 is an example of such a note, but may need amendments for procedures other than endoscopy. If the patient has no escort the procedure should be cancelled or the patient admitted to hospital. No patient should be allowed to sign legally binding agreements, drive or carry out any activity involving motor skills for 24 hours after conscious sedation.

While reversal of conscious sedation and/or analgesia with flumazenil and/or naloxone may allow earlier discharge of outpatients, this advice for the patient and escort after discharge remains the same.

There appear to be no legal references to support the viewpoint that patients should not be allowed to sign legally binding agreements within 24 hours after conscious sedation. If it is accepted that, on clinical grounds, conscious sedation could render a patient confused for up to 24 hours after sedation, then a patient may be considered not to be in full control of mental faculties. Each case should be assessed depending on the circumstances and condition of the patient. Doctors should consider advising patients not to sign legally binding documents, as well as not to drive, within 24 hours of conscious sedation, as the patient may still experience confusion and may be regarded as *non compos mentis*.

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## Appendix 3. Pre-procedural checklist

Patient's name \_\_\_\_\_

Date \_\_\_\_\_

### Staff check

Operator and assistant know

emergency procedure? \_\_\_\_\_ Yes/No

Dedicated clinical observer required? \_\_\_\_\_ Yes/No

### Equipment check

Site of emergency equipment known? \_\_\_\_\_ Yes/No

Higher care facility available? \_\_\_\_\_ Yes/No

### Have the following been checked by you the operator?

Oxygen supply \_\_\_\_\_ Yes/No

Suction \_\_\_\_\_ Yes/No

Positive-pressure ventilating bag (Ambu-bag) \_\_\_\_\_ Yes/No

Sphygmomanometer \_\_\_\_\_ Yes/No

Pulse oximeter \_\_\_\_\_ Yes/No

Other automatic monitor (BP/ECG) \_\_\_\_\_ Yes/No

Emergency drugs \_\_\_\_\_ Yes/No

Sedation equipment \_\_\_\_\_ Yes/No

Resuscitation equipment \_\_\_\_\_ Yes/No

### Patient check

Patient, parent or guardian know

what is planned? \_\_\_\_\_ Yes/No

Written consent obtained? \_\_\_\_\_ Yes/No

Medical and dental history checked? \_\_\_\_\_ Yes/No

Routine medication taken? \_\_\_\_\_ Yes/No

Last meal or drink checked? \_\_\_\_\_ Yes/No

Fasting patient? \_\_\_\_\_ Yes/No

if 'Yes' — has glucose been given? \_\_\_\_\_ Yes/No

Patient has consumed alcohol today? \_\_\_\_\_ Yes/No

if 'Yes' — advice to postpone procedure? \_\_\_\_\_ Yes/No

Escort present? \_\_\_\_\_ Yes/No

Weight recorded? \_\_\_\_\_ Yes/No

BP recorded? \_\_\_\_\_ Yes/No

Operator/sedationist's name \_\_\_\_\_

**Please make sure that each question is answered.**

Adapted from the Royal College of Surgeons of England (1993).<sup>11</sup>

## Appendix 4. Classification of physical status

### Class I

The patient has no organic, physiological, biochemical or psychiatric disturbance. The pathological process for which surgery is to be performed is localised and does not entail a systemic disturbance.

*Examples:* a fit patient with an inguinal hernia, a fibroid uterus in an otherwise healthy woman.

### Class II

Mid-to-moderate systemic disturbance caused either by the condition to be treated surgically or by other pathophysiological processes.

*Examples:* non- or only slightly limiting organic heart disease, mild diabetes, essential hypertension or anaemia. The extremes of age may be included here, even though no discernible systemic disease is present. Extreme obesity and chronic bronchitis may be included here.

### Class III

Severe systemic disturbance or disease from whatever cause, even though it may not be possible to define the degree of disability with finality.

*Examples:* severely limiting organic heart disease, severe diabetes with vascular complications, moderate to severe degrees of pulmonary insufficiency, angina pectoris or healed myocardial infarction.

### Class IV

Severe systemic disorders that are already life-threatening, not always correctable by operation.

*Examples:* organic heart disease with marked signs of cardiac insufficiency, persistent angina, or active myocarditis, advanced degrees of pulmonary, hepatic, renal or endocrine insufficiency.

### Class V

The moribund patient who has little chance of survival but is submitted to operation in desperation.

*Examples:* the burst abdominal aneurysm with profound shock, major cerebral trauma with rapidly increasing pressure, massive pulmonary embolus. Most of these patients require operation as a resuscitative measure with little if any anaesthesia.

According to the American Society of Anesthesiologists (ASA).



## Appendix 5. Drugs used for conscious sedation

Indication	Agent	Contraindications	Complications	Dose	Minimum necessary monitors
		<ul style="list-style-type: none"> <li>Allergy to barbiturates</li> <li>NB dangers if elderly, hypertensive, hypovolaemic, other CNS depressants underlying cardiorespiratory disease</li> </ul>			<ul style="list-style-type: none"> <li>RN</li> <li>O<sub>2</sub></li> <li>ECG with defibrillator</li> <li>Airway tray</li> <li>Suction</li> <li>BP</li> </ul>
Sedation (light and deep)	Midazolam	NB dangers if hypovolaemic	<ul style="list-style-type: none"> <li>Hypotension</li> <li>Respiratory depression especially in conjunction with opioids, patients with COPD</li> </ul>	<ul style="list-style-type: none"> <li>0.01 - 0.1 mg/kg IV</li> <li>May be given intranasally, 0.3 mg/kg.</li> <li>Orally 0.5 mg/kg.</li> </ul>	<ul style="list-style-type: none"> <li>RN</li> <li>ECG</li> <li>Should have benzodiazepine antagonist available</li> <li>Airway tray</li> <li>O<sub>2</sub></li> <li>Suction</li> <li>BP</li> </ul>
Sedation (light and deep)	Chloral hydrate	Major use: radiological procedures.	Rare: nausea, vomiting, hyperactivity	50 - 100 mg/kg (max. 2 mg)	<ul style="list-style-type: none"> <li>RN</li> <li>Airway tray</li> <li>O<sub>2</sub>, pm</li> </ul>
Sedation (light and deep)	Pentobarbital (Nembutal)	Major use: imaging procedures in patient > 18 months.	As per chloral hydrate	2 - 6 mg/kg, orally or IV	<ul style="list-style-type: none"> <li>RN</li> <li>Airway tray</li> <li>O<sub>2</sub>, pm</li> </ul>
Dissociative sedation	Ketamine	Patients with upper respiratory and lung infections may develop laryngospasm	<ul style="list-style-type: none"> <li>Increased pulse, BP, intracranial pressure</li> <li>Respiratory depression</li> <li>Increased secretions, e.g. saliva</li> <li>Emergence reactions (may be severe, Rx with benzodiazepine)</li> <li>Emesis</li> </ul>	<ul style="list-style-type: none"> <li>4 mg/kg IM or</li> <li>0.2 - 0.5 mg/kg IV</li> </ul>	<ul style="list-style-type: none"> <li>RN</li> <li>O<sub>2</sub></li> <li>ECG with defibrillator</li> <li>Airway tray</li> <li>Suction</li> <li>BP</li> </ul>
Analgesia	Potent opioids (fentanyl, alfentanil)	Few haemodynamic effects	<ul style="list-style-type: none"> <li>Respiratory depression</li> <li>Muscular rigidity</li> <li>Short duration of action</li> </ul>	<ul style="list-style-type: none"> <li>Fentanyl 1 - 3 µg/kg</li> <li>Alfentanil 8 - 10 µg/kg</li> </ul>	<ul style="list-style-type: none"> <li>Airway tray</li> <li>O<sub>2</sub></li> <li>Available narcotic antagonist</li> <li>BP</li> <li>Suction</li> <li>ECG</li> </ul>
Rapid tranquillisation	Butyrophenone (haloperidol, properidol)		<ul style="list-style-type: none"> <li>Minimal respiratory depression</li> <li>mild α-blocker</li> </ul>	<ul style="list-style-type: none"> <li>0.1 mg/kg</li> <li>IV push repeat every 5 - 10 min to a max. 5 mg/kg</li> </ul>	<ul style="list-style-type: none"> <li>Airway tray</li> <li>O<sub>2</sub></li> <li>Suction</li> <li>BP</li> <li>ECG</li> </ul>

Adapted from Murphy, 1993.<sup>28</sup>

## Appendix 6. Conscious sedation equipment

The following basic equipment should be available:

1. An operating surface that can be tilted
2. Suction apparatus, including nozzles and catheters
3. Oxygen
4. A defibrillator (preferably coupled to an ECG)
5. Aids for airway management, including:
  - 5.1 Oropharyngeal airways
  - 5.2 Face masks
  - 5.3 A resuscitator bag and a catheter mount
  - 5.4 A range of endotracheal tubes (sizes 6 - 9) including a range of paediatric tubes
  - 5.5 A laryngoscope with spare batteries and bulb
  - 5.6 Optionally, a range of laryngeal mask airways (3 - 5)
6. Intravenous infusion equipment
  - 6.1 A selection of cannulas
  - 6.2 Infusion sets
  - 6.3 Infusion fluids, including normal saline, Ringer's lactate and 5% dextrose
7. Emergency drugs, including:
  - 7.1 Flumazenil and naloxone
  - 7.2 Adrenaline (at least 10 ampoules).
  - 7.3 Atropine
  - 7.4 Suxamethonium

All equipment should be checked regularly, and items 5 - 6 should preferably be kept together in a mobile cupboard

## Appendix 7. Conscious sedation aftercare

For the next 24 hours you should not:

- sign legally binding agreements
- drive your car or operate any machinery
- drink any alcohol.

You may drink any other fluids.

Go home and rest today and tonight.

You may have a sore throat for about 24 - 48 hours.

**Important:**

Severe pain in the neck, chest or abdomen should be reported to your doctor at once, or telephone the clinic/

hospital on \_\_\_\_\_ Extension: \_\_\_\_\_

Follow-up appointment:

Own doctor on: \_\_\_\_\_

Outpatient Dept on: \_\_\_\_\_

Additional comments: \_\_\_\_\_

*The list of clinical features for referral on this form are specific for endoscopy and may need adaptation to the particular procedure being performed.*