University Hospitals of Derby and Burton NHS Foundation Trust

Sedation for GI Endoscopy - Full Clinical Guideline

Ref No: CG-ENDO/2024/006

1. Introduction

This document provides clinical guidance on the administration of intravenous sedation to adult patients undergoing GI endoscopy at UHDB (Royal Derby Hospital, Queen's Hospital, Burton and Sir Robert Peel Hospital, Tamworth). It should be read in conjunction with the overarching Trust Policy **TRUST POLICY FOR INTRAVENOUS SEDATION OF ADULTS** (intranet Policy site) (1)

Intravenous sedation is used by practitioners to facilitate healthcare procedures in patients that may otherwise be uncomfortable or unpleasant. Due to the nature of the drugs used during sedation there is the potential that events may occur during sedation that have the potential to cause harm to patients, with errors in the selection wrong concentration of midazolam during conscious sedation being a never event in 2015-16 (2). A recent publication has been produced that describes safe sedation practice (3).

Whilst primarily aimed at conscious sedation, it should be remembered that sedation is a continuum and that minimal sedation can easily become conscious sedation, and conscious sedation deep sedation.

2. Definitions Used

Operator sedationist – practitioner who provides or supervises the sedation for a procedure and who also performs the procedure.

Sedation assistant – a registered nurse, ACP or appropriately trained healthcare assistant whose role is to monitor the patient's comfort, safety and observations during the procedure. They should communicate any changes to the operator-sedationist. If a trained nurse, who has completed their IV drug competencies, then under the direct supervision of the "prescriber" they may administer drugs to the patient. They should be hospital life support trained as a minimum.

Procedure Assistant – a registered nurse, ACP or healthcare assistant whose role it is to assist the operator-sedationist in the performance of the procedure and who has undergone local training in order that they can do this.

Minimal sedation/anxiolysis – normal response to verbal stimulation, with the cardiorespiratory system and airway unaffected.

Conscious sedation – Purposeful response to verbal or tactile stimulation, no airway interventions required, adequate ventilation and cardiovascular function usually maintained

Pre-assessment

All patients should be pre-assessed prior to the commencement of sedation. This should include an assessment of any comorbidities, medication, allergies and fasting status and the recording of baseline physiological parameters (oxygen saturations, respiratory rate, pulse rate, blood pressure, consciousness level).

If the patient is unable to lie flat for any reason consideration should be given as to whether it is possible to perform the intended procedure under sedation.

There should be an assessment of the airway, especially of the ability to maintain oxygenation in the event of over sedation or an emergency (see appendix 1).

For cases where patients have multiple comorbidities or risk factors, or where the procedure may require prolonged/deep sedation, consideration should be given as to the need for the procedure to be performed under General Anaesthetic

If the procedure is being performed in day case setting, an assessment of suitability to return home post procedure should take place.

4 Information and Consent

Information should be given to the patient about the procedure being performed and the sedation that will be given. This should ideally be given prior to the day of the procedure and is included in the written information given to the patient.

An explanation of the target state of sedation should be given to patients so that they are aware of what is aiming to be achieved e.g. anxiolysis vs conscious sedation.

Consent for sedation is included with the consent for the procedure being performed. This should include options of IV sedation, no sedation, topical anesthesia or use of entenox.

5 Fasting

Previously the standard fasting time is 2 hours for clear fluids (including tea/coffee with minimal milk) and 6 hours for solids (including particulate fluids). This excludes procedure related fluids e.g. mucolytics given in endoscopy.

However, the Trust has moved to "Sip till send". Details for: Fasting Prior to Regional and General Anaesthesia, and Sedation - Adults and Children - Clinical Guidelines › Trust Policies Procedures & Guidelines catalog (koha-ptfs.co.uk)

This now means that patients should not eat solid food for 6 hours before any endoscopic procedure they can drink clear fluids right up until the procedure including gastroscopy. (reduced volumes in 2 hours before)

For patients requiring emergency endoscopy in the Operating Theatre (both out of hours and during the day), these must be performed with anaesthetic support and whilst usual practice would be to intubate the patient to secure the airway the decision on airway management will be made by the anaesthetic team after liaison with the endoscopist

6 Pre-sedation Checks and Records

Prior to the commencement of the procedure/sedation checklist should be performed during a "STOP" moment.

The pre-sedation checklist should ensure that the following pre-assessments have taken place;

1. Assessment of patient comorbidities
2. Medication history
3. Allergies
4. Assessment of fasting status/aspiration risk
5. Assessment of ability to maintain oxygenation
6. Baseline observations checked and recorded
7. Sedation drugs prepared
8. Sedation equipment present and checked
9. Consent and specific pre-procedure checks completed
10. Decision on monitoring required (e.g. BP, oxygen sats, ECG etc)

7 Target State

Prior to commencement of sedation, practitioners should consider the target state of sedation that they will aim to achieve to allow the procedure to be safely performed (see appendix 2).

Practitioners should remain aware that sedation is a continuum and be prepared to manage a level of sedation deeper than was anticipated. This includes ensuring that they have the necessary skills and equipment available to manage such a situation should it arise.

If it is felt that deep sedation is to be required, strong consideration should be given as to the need for anaesthetic support and the procedure performed on a GA list

8 Monitoring and Oxygen Requirements

All patients should be administered an oxygen from the commencement of sedation via the nasal route.

A pulse oximeter should be attached to **all** patients undergoing sedation from before the commencement of sedation until recovery discharge criteria have been met.

Patients undergoing upper GI endoscopy with NO sedation, require oxygen saturations, but not BP recording during the procedure. BP should be recorded during admission and in recovery only

Patients undergoing lower GI endoscopy with NO sedation, do not require oxygen saturations or BP recording during the procedure. BP should be recorded during admission and in recovery only

BP monitoring is NOT routinely required for all sedated patients in endoscopy. Blood pressure monitoring should be readily available and should be used in patients with relevant comorbidities, or in whom continuous verbal contact may be lost during the procedure. A decision will be made for each individual patient whether BP monitoring is required as part of stop moment.

ECG monitoring is not routinely required for all sedated patients in endoscopy. ECG monitoring should be readily available and should be used in patients with relevant comorbidities or in whom continuous verbal contact may be lost during the procedure. A decision will be made for each individual patient whether ECG monitoring is required as part of stop moment

Capnography is not required in the endoscopy unit

Emergency equipment in the form of a fully stocked resuscitation trolley is immediately available within the Endoscopy Unit and should be checked according to manufacturers and local guidelines.

Monitoring data should be recorded during and after the procedure on the Endoscopy Unit observations sheet

Monitoring data should be recorded every 5 to 10 minutes, depending on the procedure being performed and the co-morbidities of the patient.

Monitoring data should include as a minimum heart rate, oxygen saturations, blood pressure (if being used) and sedation level – see monitoring and oxygen.

There should be a contemporary record of the drugs administered (including dose and time given) both during and after the procedure

9 Choice of Technique/Medication

Secure intravenous access is mandatory prior to the commencement of sedation.

Practitioners should only use drugs that they are familiar with and have appropriate experience of using.

When used in combination, opioids and benzodiazepines work synergistically so should be titrated to response allowing the drugs time for their effect to occur before administering more.

If using multiple drugs the potential for respiratory depression may occur at lower doses and this should be actively considered when administering drugs.

In patients with hepatic or renal impairment, multiple co-morbidities, who are frail or elderly the dose of drug given should be reduced and titrated to response.

Midazolam must only be used at a concentration of 1mg/ml in the endoscopy unit.

Only 3mg (3ml) Midazolam should be drawn up in a 5ml labelled syringe.

Fentanyl should be used undiluted

Drugs may be drawn up for an individual patient before the patient has entered the Endoscopy room, but multiple aliquots of medication for multiple patients must not be drawn up

Sedation drugs may be drawn up before the patient enters the endoscopy room but draw up usual maximum doses as listed below ONLY i.e. do NOT draw up 3mg of midazolam and 100micg of fentanyl, for all patients regardless of age

Usual maximum total cumulative doses of sedation drugs are as follows

Fentanyl	<70 years	100micgram
Fentanyl	>70 years	50micgram
Midazolam	<70 years	3mg
Midazolam	>70 years	2mg
Midazolam	>80 years	1mg

Up to 5mg Midazolam may be used for younger patients (<30years) who are very anxious.

Due to the increased complexity, length of time and discomfort that can be experienced during ERCP, EUS and long EMR procedures higher doses of Midazolam and opiates can be given at the endoscopists discretion.

These doses may only be exceeded in individual situations after careful titration and should be explained on the endoscopy report.

10 Antagonist Drugs

Antagonist drugs (flumazenil and naloxone) should be immediately available but do not need to be drawn up.

The dose of naloxone is 100-200 microgram intravenously, with a subsequent dose of 100 microgram every 2 minutes to a maximum of 10 milligram.

Care should be taken as to the dose of naloxone when used in patients receiving long-term opioids or who are in pain (4).

The dose of flumazenil is 200 microgram intravenously over 15 seconds, with further doses of 100 microgram at 60 second intervals if required to a maximum of 1 milligram.

If Flumazenil or naloxone are given after the report is completed e.g. in recovery, it must be immediately added retrospectively to the endoscopy report

The use of antagonist drugs should be audited at least yearly and the results reported to the sedation group.

11 Personnel

In all procedures there should be three members of staff: an operator-sedationist, a dedicated, trained sedation assistant to monitor the patient and a procedure assistant to help the operator-sedationist during the course of the performance of the procedure. At least one of the assistants should be a trained nurse or ACP.

The operator sedationist should be Immediate Life Support (ILS) trained as a minimum as per national guidelines (2)

The sedation assistant should be hospital life support trained as a minimum as per national guidelines.

If the sedation assistant is a Registered Nurse who has completed their Trust approved IV therapy theory and achieved their competences, then they may administer sedation medication to the patient under the direct instructions of the “prescriber” (the operator sedationist).

Prior to administering any drugs the sedation assistant must repeat back to the “prescriber” (operator sedationist) the name of the drug and the amount that is to be administered.

The operator seditionist must be competent in the use of basic airway manoeuvres, airway adjuncts, supraglottic devices and bag and mask ventilation

12 Recovery

Patients should be recovered in the recovery area, where appropriate monitoring can be continued.

A dedicated, trained practitioner should remain with the patient until they have recovered from the effects of the sedation.

Monitoring should be continued until the patient has recovered from the effects of sedation.

Emergency equipment that has been appropriately checked should be available.

13 Discharge

Patients should only be discharged once their observations have returned to the pre-procedural state.

Verbal and written instructions should be provided to both the patient and the person who is accompanying them covering both recovery from sedation and from the procedure itself.

Appropriate contact details should be provided in case of problems once the patient has returned home.

If a patient does not recover from sedation sufficiently to allow discharge home, each department should have a local policy in place that specifies the admission process.

*14 **Training***

All practitioners using sedation and sedation assistants should participate in continuing professional development. A list of topics that practitioners should be able to demonstrate appropriate knowledge and skills of is included in appendix 3.

Trainees/non-medical practitioners providing sedation should not do so unsupervised until they have been deemed competent to provide sedation by a supervising consultant.

Procedure assistants should be appropriately locally trained within their department to provide assistance to the operator/operator sedationist as required.

*15 **Monitoring Compliance and Effectiveness***

Endoscopy unit will perform audit on a yearly basis. Suggested topics include: number of procedures performed by each operator, unplanned admissions and operations within eight days of procedure, 30-day mortality, use of flumazenil, use of naloxone, need for ventilation, sustained drop in O2 saturation <90%.

The results of the audit will be reported to the trust audit committee and thence onto the Sedation Committee for review.

Any situation necessitating an emergency call e.g. arrest call, urgent call for anaesthetic assistance should be reported via the DATIX system

References

1. TRUST POLICY FOR INTRAVENOUS SEDATION OF ADULTS

2. The never events list 2015-16. NHS England, 2013.

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3. Safe sedation Practice for Healthcare Procedures: Standards and Guidance. Academy of Medical Royal Colleges, London, 2013. (http://www.aomrc.org.uk/doc_view/9737-safe-sedation-practice-for-healthcare-procedures-standards-and-guidance)

4. NPSA Rapid Response Report: Reducing the risk of overdose with midazolam injection in adults. (http://nrls.npsa.nhs.uk/resoursces/?entryid45=59896)

5. Patient safety alert – risk of distress and death from inappropriate doses of naloxone in patients on long-term opioid or opiate treatment. (https://www.england.nhs.uk/wp-content/uploads/2014/11/psa- inappropriate-doses-naloxone.pdf)

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Safe sedation of adults in the Emergency Department. RCoA and CEM, London 2012. (www.rcoa.ac.uk/node/10214).

Recommendations for standards of monitoring during anaesthesia and recovery

(4th Edition). AAGBI, London 2007

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Documentation Controls

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17. Appendices

Appendix 1

Factors associated with a difficulty to maintain oxygenation

- Obesity,
- sleep apnoea,
- current or previous pathology of the oropharynx, larynx or cervical spine,
- being edentulous,
- facial hair,
- mandibular hypoplasia

Appendix 2

Target State of Sedation

	Minima	**Conscious sedation**	**Deep sedation**
Responsiveness	Normal response to verbal stimulation	Purposeful response to verbal or tactile stimulation	Purposeful response following repeated painful stimulation
Airway	Unaffected	No intervention required	Intervention may be required
Spontaneous Ventilation	Unaffected	Adequate	May be inadequate
Cardiovascular Function	Unaffected	Usually maintained	Usually maintained

*Reflex withdrawal from a painful stimulus is NOT considered a purposeful response

Appendix 3

Knowledge and skills for sedationists, operator sedationists and sedation assistants

1. ASA grading
2. Pre-procedural assessment including prediction of difficulty in airway management
3. Pre-procedural fasting and risk benefit assessment
4. Consent and documentation
5. Drug selection and preparation: benzodiazepine and opioid combinations, intervals between increments and reversal drugs
6. Monitoring, complications (airway obstruction recognition, hypoxia, hypotension, inadvertent over-sedation) and rescue strategies
7. Governance and audit