# SEDATION: Assessment, Monitoring & Nursing Care of a Critically Ill Adult in Intensive Care - Full Clinical Guideline

Reference no:CG-CRITCARE/4511/22

**These are nursing guidelines for use within critical care to support best practice. They are not prescriptive and as with all nursing practice should be utilised in conjunction with the registrant's clinical judgement**

## Introduction

Sedation is the practice of administering drugs to allow organ supportive therapies and associated nursing care to be undertaken whilst minimising patient distress. The Intensive Care Society (ICS) published guidelines for Analgesia and Sedation in 2014 (ICS 2014) and these form the basis of this guideline.

Correct management of sedation is often difficult as patients cannot easily communicate how they feel or what they are experiencing. Due to the drugs used, no single sedation regimen is without significant unwanted side effects. The side effects are therefore managed to allow sedation to occur.

## Aim

The purpose of this guideline is to ensure that the patient's sedation status is assessed and monitored effectively, and that associated care is delivered in a safe and effective way.

It aims to promote the maintenance of a safe environment for patients, relatives, and the multidisciplinary team, to direct the delivery of excellent and informed nursing care and to ensure the nurse acts as patient advocate. (NMC. 2018).

**Keywords** – Sedation, Critically Ill Adult, Intensive Care Unit

## Main Body of Guidelines

Sedation should be tailored to individual patient needs.

1. The administration of sedation is to ensure the following

- For patients to be comfortable and pain free. Analgesia is a primary aim.
- For patient anxiety and distress to be minimised. This is difficult as anxiety is an appropriate emotion. The most important way of achieving this is to provide compassionate and considerate care; communication is an essential part of this.
- For patients to be calm, co-operative, and able to sleep when undisturbed. This does not mean that they must always be asleep.
- For patients to be able to tolerate appropriate organ system support.
- For patients not to be paralysed and awake.

2. Reasons for sedation:

- To tolerate intubation with an endotracheal tube
- To optimise mechanical ventilation
- To tolerate painful/distressing procedures (e.g. endotracheal intubation, invasive lines insertion)
- To optimise mechanical ventilation (e.g. tolerate permissive hypercapnia)
- To decrease O2 consumption (e.g. sepsis)
- To decrease ICP in neurosurgical patients.
- To facilitate cooling (e.g. therapeutic hypothermia)

3. Sedative drugs are administered intravenously via a peripheral cannula or via a CVAD device. Drugs are delivered by either an Infuser Pump or Syringe Driver. Most sedation drugs are compatible and can be administered together via a single IV access lumen. The exception is Remifentanil which should be infused separately and independently due to its cardiovascular side effects when bolused. See Appendix 1 for IV access drug compatibilities.

4. Most continuous sedative regimens will include an opiate analgesic plus a hypnotic. The medical team should consider patients who have other sources of opiate in situ (e.g. PCA, Epidural, analgesic patch), regarding administration of an opiate by infusion. The regimen is decided/prescribed by the medical team and will be appropriate for the patient at that time. Sedative regimens may change to achieve this. See Appendix 2 for common sedative regimens.

5. Patients may need to have a bolus of one of the drugs intermittently. A prescribed drug bolus is used to re-sedate a patient when their level of sedation decreases. For example, a prescribed bolus may be administered if the patient airway is at risk of compromise, if patient/staff safety is at risk, or to administer an analgesic if pain is suspected.

6. For patients to be able to tolerate appropriate organ system support, they may need (in some specific circumstances), the addition of a neuromuscular blockade. This regimen is decided by the medical team. These patients should have BIS monitoring to avoid awareness as well as avoid oversedation.

7. Patients should have their depth of sedation assessed hourly to achieve the desired level of sedation and avoid oversedation. The Richmond Agitation Sedation Scale (RASS) (Sessler et al 2003) should be assessed and documented on the ICU 24hr observation chart. The medical team will decide the depth of sedation required. Drug regimens are titrated using the RASS score. See Appendix 3.

8. Patients should have a daily sedation hold to assess their underlying neurological function. A daily sedation hold is an element of the Ventilator Care Bundle (DoH 2011, Hellyer et al 2016). A sedation hold should be attempted after 8am unless the medical team instruct for no sedation hold to take place. This may be due to a variety of physiological factors which include high oxygen requirements, cardiovascular instability, further planned surgery, neurological preservation. The

length of the sedation hold will vary.

N.B. Sedation holds should only be undertaken when it is clinically safe to do so and when an advanced airway trained doctor is available to re-intubate if patient agitation results in premature airway displacement / extubation.

9. The patient's response to the sedation hold will be assessed, and in conjunction with the medical team, a decision will be taken to either proceed with extubation or re-sedate.

10. In the event the sedation hold fails due to increased agitation, other sedative drugs may be prescribed to aid the process. Sedative drugs used for ICU delirium can help the patient 'wake up' with less agitation and lead to a successful extubation. Depending on the ICU delirium drug used, it may need to be weaned off once the patient is awake and compliant. See Appendix 1 and 2.

**Definitions**

Analgesia/analgesic: a drug which acts to relieve pain

BIS: a processed EEG parameter that provides a direct measure of the effects of sedatives on the brain. Waveform interpretation indicates depth of sedation.

CVAD: a Central Venous Access Device: Central Venous Catheter (CVC), Vas Cath, Midline, or PICC (peripherally inserted central catheter). A single or multi-luminal tube which is inserted into a large vein which leads to the heart. Used for long term IV access, difficult access, renal replacement therapy or the administration of drugs that are irritant to peripheral veins.

Endotracheal Tube and Endotracheal Intubation: a tube is inserted into the trachea via the mouth for the purpose of providing and maintaining a patent airway

Hypnotic: a drug intended to induce sedation

Mechanical Ventilation: the use of a piece of equipment called a ventilator to move air in and out of the lungs. Used to provide oxygen delivery to the lungs and carbon dioxide removal from the lungs.

Neuromuscular blockade: the act of causing skeletal muscle paralysis by administrating neuromuscular blocking drugs. These drugs prevent acetylcholine from acting at the neuromuscular junction, which prevents the triggering of skeletal muscle contractions.

Opiate: an analgesic from the Opioid class of drugs. Opioids may be derived from the poppy plant or may be synthetic (manufactured). They activate nerve cells called

opioid receptors that block pain signals between the brain and the body. Opioid receptors are found in the brain, spinal cord, and peripheral sensory nerves.

**References (including any links to NICE Guidance etc.)**

Department of Health (2007) High Impact Intervention No 5. Care Bundle for Ventilated Patients (or tracheostomy where appropriate) www.clean-safe-care.nhs.uk

Hellyer. T., Ewan. V., Wilson. Simpson A. (2016), The Intensive Care Society bundle of interventions for the prevention ventilator-associated pneumonia. Journal of the Intensive Care Society Vo/. 17.(3) pp. 238-243.

NMC (2018) The Code. Professional standards of practice and behaviour for nurses, midwives, and nursing associates. http://www.nmc.org.uk/code.

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University College London Hospitals NHS Foundation Trust. 2010. UCL Hospitals Injectable Medicines Administration Guide. 3rd ed. Wiley-Blackwell.

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**1. Documentation Controls** (these go at the end of the document but before any appendices)

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## Appendices

### Appendix 1:

IV Access Drug Compatibility

The table shows sedation drugs can be titrated via a single lumen, and which other sedative drugs are compatible (UCL Injectable Medicines Administration Guide 2010).

| **DRUG** | IV Access | Compatibility via a single IV access lumen |
|---|---|---|
| Propofol | PVC or CVAD | Fentanyl Midazolam Morphine Atracurium |
| Fentanyl | PVC or CVAD | Propofol Midazolam Atracurium |
| Remifentanil | PVC or CVAD | Nil |
| Midazolam | PVC or CVAD | Propofol Fentanyl Morphine Atracurium |
| Morphine | PVC or CVAD | Propofol Midazolam Atracurium |
| Clonidine | PVC or CVAD | Fentanyl Midazolam Morphine Atracurium |
| Atracurium | PVC or CVAD | Propofol Fentanyl Midazolam Morphine Clonidine |

For the most up-to-date information please refer to Medusa - Injectable medicines guide via net-i. >Quick Links > Pharmacy and Prescribing.

### Appendix 2.

Common sedative regimes

The table shows which drug combinations are commonly used for different types of sedation.

| **Sedation Aim** | Sedation Regimen |
|---|---|
| Short Term sedation | - Propofol and Fentanyl<br>- Propofol and Remifentanil |
| Long Term sedation | - Midazolam and Fentanyl |
| Sedation for difficult to sedate patients | - Propofol, Fentanyl and Midazolam |

| | |
|---|---|
| Sedation for patients requiring neuromuscular blockade | - Propofol, Fentanyl, and Atracurium<br>- Midazolam, Fentanyl and Atracurium<br>- Propofol, Midazolam, Fentanyl and Atracurium |
| Sedation for patients requiring ICU delirium regimen | - Propofol, Fentanyl, and Clonidine<br>- Midazolam, Fentanyl and Clonidine |

The medical team will decide which regimen is required by the patient, and a regimen may change during the patient's sedation period.

**Appendix 3.**

Richmond Agitation Sedation Scale (RASS) (Sessler et al 2003)

| **Score** | **Description** | |
|---|---|---|
| +4 | Combative | Overtly combative, violent, danger to self |
| +3 | Very agitated | Pulls or removes tubes, catheters, aggressive |
| +2 | Agitated | Frequent non-purposeful movements, fights ventilator |
| +1 | Restless | Anxious but movements not aggressive |
| 0 | Alert and calm | |
| -1 | Drowsy | Not fully alert but has sustained wakening to voice (>10 secs) |
| -2 | Light sedation | Briefly wakens with eye contact to voice (>10 secs) |
| -3 | Moderate sedation | Movement or eye opening to voice but no eye contact |
| -4 | Deep sedation | No response to vice but movement or eye opening to physical stimulation |
| -5 | Unrousable | No response to voice or physical stimulation<br>+- |