Sedation of Ventilated Patients - ICU Clinical Guideline

Reference no.: CG – ICU/2015/001

1. Summary guideline

These revised guidelines are applicable to all mechanically ventilated patients requiring sedation on the Intensive Care Unit (ICU) and are intended to provide a consistent approach to the management of sedation.

2. Introduction

Sedation should be managed within the parameters set out in these guidelines but tailored to the requirements of each individual patient.

Deviations from the guidelines may be appropriate and necessary in patient-specific situations due to a wide and unpredictable variation in patient response to drugs, particularly in the critically ill. Common sense together with the knowledge of an experienced doctor should prevail in unusual or difficult patients who cannot be managed adequately and effectively within these guidelines.

The decision to exceed the parameters laid out in these guidelines should be taken by the duty doctor on the ICU.

The use of other 'sedative' drugs for specific indications where patients are not controlled by conventional sedation is not prevented by these guidelines.

3. Aim and Purpose

To ensure patient comfort and wellbeing whilst ventilated and to facilitate effective weaning.

Changes to Previous Guidelines

The Intensive Care Society Guidelines “Review of Best Practice for Analgesia and Sedation in The Critical Care June 2014”are adopted in full (ICS 2014).

In practice, initial sedation of ventilated patients will be with propofol with midazolam used for longer term care. Analgesia will be with Fentanyl or Remifentanil initially and morphine used for longer term ventilation.

4. Definitions

[Any definitions that give the reader a better understanding of the subject matter. Include acronyms or abbreviations in a glossary, as necessary.]

5. Guideline

Aims of Sedation

Intensive Care Society National Guidelines (ICS 2014)

1) All patients must be comfortable and pain-free.

   Analgesia is thus the first aim.

2) Anxiety should 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.

3) Patients should be calm, co-operative and able to sleep when undisturbed.

   This does not mean that they must be asleep at all times.

4) Patients must be able to tolerate appropriate organ system support.

   Thus patient with very poor gas exchange, particularly those requiring inverse I:E ratio or the initial stages of permissive hypercapnoea may need neuromuscular blockade. It is impossible to stop interbreathing with sedatives without serious overdosage. The use of a nerve stimulator to monitor the extent of neuromuscular blockade may be useful in some situations.

5) Patients must not be paralysed and awake.

Remember

Before increasing sedation or adding neuromuscular blockade:

1. Any avoidable source of physical discomfort should be excluded.
2. The need for any uncomfortable or disturbing therapies should be reviewed.
3. A perceived need to increase sedatives may be an index of clinical deterioration.
4. When sedation has been stopped night sleep is often fitful because of rebound REM sleep. Continued night sedation may prolong this rather than treat it.
5. Non-drug measures (e.g. massage etc.) should be considered.

Goals of Sedation

- The principal aim of sedation on the ICU is to provide analgesia and anxiolysis.
- Patients should be co-operative, orientated and tranquil when aroused and able be to tolerate medical procedures as well as nursing care.
- Where possible and the patients condition permits, the aim is to sedate the patient to a level of 'just asleep'.
- Patients should be able to sleep when not disturbed but should be easily rousable from a light sleep and able to respond to commands.

Monitoring and Assessment of Sedation

- Good control of sedation and the achievement of an adequate and appropriate level of sedation can only be attained by monitoring sedation levels using a sedation score.
- The doctor should inform the nurse caring for the patient and prescribe the desired New Sheffield Sedation Score (Olleveant 1998 - Appendix I) on the ICU prescription/observation chart.
- The nurse caring for the patient should be aware of the desired level of sedation to be attained.
- The desired level of sedation should be reviewed on a daily basis or as dictated by changes in the patient's clinical condition.
- The patient's level of sedation should be assessed and recorded on the ICU prescription/observation chart using the New Sheffield Sedation Score every hour taking into account the whole of the previous hour's observations.
- The sedation regime should be adjusted to produce a score of 1, 3 and 4 on the New Sheffield Sedation Score.

Although a score 1, 3 and 4 should be the aim for the majority of the time, a score of 5 could also be acceptable, if the patient's condition necessitates.

- Nursing staff should aspire to achieve this level of sedation in all patients UNLESS a doctor indicates otherwise or the patient is paralysed with a neuromuscular blocking agent
- Deep levels of sedation may be required for specific indications such as head injuries, status epilepticus and management of critical conditions of extremely ill/unstable patients.
- Where paralysis is necessary and neuromuscular blocking agents are administered, it is essential that patients are adequately sedated for comfort and to avoid the situation where the patient is paralysed but awake. Patients who are pharmacologically paralysed but awake could show signs of distress such as tachycardia, hypertension and lacrimation.

The Sedation Regimen

- The sedation regimen should be chosen and prescribed by the duty doctor on the continuous infusion section of the ICU prescription/observation chart.

  It is acceptable for the doctor to prescribe the sedation regimen in the following manner (unless they wish to specifically deviate from the guidelines):

  e.g. *Fentanyl* / *Midazolam* { *as per sedation guideline* *Drs Signature*

- The choice of agent should be guided by the information in guidelines and Algorithm II.

- Combinations of anxiolytics and analgesics act synergistically, are more effective and produce less adverse effects than single agents.

  In most instances the sedation regimen should consist of an 'anxiolytic' agent together with an 'analgesic' agent.

- Adequate analgesia must be prescribed in situations where little or no sedation is used or where an opioid analgesic does not form part of the sedation regimen.

  Midazolam and Propofol do not possess specific analgesic properties. It is unwise to use them alone for a sedation regime without the provision for analgesia in most patients.

- Regular review of all aspects of the sedation regimen is essential to maintain the desired sedation level.

  All sedative prescriptions should be reviewed at least daily on the ward round and additionally, as dictated by changes in the patient's clinical condition.

- The duty doctor should review patients who cannot be successfully sedated on the chosen regimen, or who develop intolerance to their sedation regimen. Ideally this should be discussed during the Multi-displinary Team ward round.

  If the chosen regimen does not appear suitable, an alternative sedative agent should be considered and either substituted or added into the sedation regimen.

An agent not included in the guidelines may be used in exceptional circumstances on the authority of the Consultant Intensivist.

Drugs

Agents that are Principally Anxiolytic/Sedative

Midazolam

- Indications:

  Anxiolytic agent of choice in all patients who are likely to require sedation for greater than 24-48hours and who do not require regular neurological assessment.

  Patients who have received Propofol and are likely to need sedation for greater than 48hrs should be converted to midazolam.

- Preparation:

  Pre-filled syringe containing Midazolam 1mg/ml in sodium chloride 0.9% manufactured by the Pharmacy Aseptic Unit.

  Pre-filled syringes of a greater concentration up to 5mg/ml (undiluted midazolam) can be made by the Critical Care Satellite or the nursing staff on ICU.

- Renal Impairment:

  Use cautiously and consider reducing dose by 50% in severe impairment due to accumulation of the active metabolite

- Hepatic Impairment:

  Significantly prolonged sedative effects due to accumulation of the parent drug; doses should be reduced by up to 50%.

Propofol

- Indications: (Use only in the following circumstances on ICU)
  - Short-term ventilation (24-48 hours) where rapid extubation is anticipated and the patient is expected to wake promptly.
  - Where regular neurological assessment is required.
  - During weaning from the ventilator after prolonged periods of sedation with midazolam.
  - Allergy to or unsuccessful sedation with midazolam.
  - Short procedural sedation to provide (additional) cover for a specific event or procedure e.g. bronchoscopy.

- Duration of Use:

  The use of Propofol should be reviewed after the first 24 hours and then at least once daily on the ward round.

  The maximum recommended licensed duration of infusion is 3 days. *(See manufacturer's information)*

  No patients should receive a Propofol infusion in excess of 3 days except on the authority of the Consultant Intensivist.

- Preparation:

  Commercially manufactured pre-filled syringes and ampoules containing Propofol 1% (10mg/ml).

- Caution:

  Do not use in patients with hypersensitivity to soyabean oil or egg lecithin (egg yolk).

- Hyperlipidaemia:

  Can potentially to cause hyperlipidaemia since Propofol is formulated in a lipid emulsion. 1ml of Propofol contains approximately 0.1g fat or 1.1 Kcal.

  Patients receiving parenteral nutrition should have their lipid dosage adjusted to take account of calculations of the lipid content of Propofol infusion.

  Blood lipid concentrations (triglycerides and cholesterol) should be monitored in patients who are at risk of fat overload and in all patients who are sedated with Propofol for longer than 3 days (*See manufacturer's information*).

  Administration of Propofol should be adjusted or discontinued if the monitoring indicates that fat is being inadequately cleared from the body.

- Renal & Hepatic Impairment:

  Can be used cautiously in significant impairment; no change in dose is required.

Agents That Are Principally Analgesics

Fentanyl

- Indication:

  Analgesic agent of choice in any sedative regime.

- Preparation:

  Pre-filled syringe containing Fentanyl 50 microgram's/ml manufactured by the Pharmacy Aseptic Unit.

- Hepatic Impairment:

  Enhanced and prolonged sedative effects in hepatic failure due to accumulation of parent drug; reduce doses by up to 50%.

- Renal Impairment:

  Relatively safe in significant impairment; no change in dose usually required but a dose reduction of up to 50% may be necessary if metabolites accumulate

Morphine

- Indications:

  As an alternative analgesic to Fentanyl where less respiratory depression is desirable.

  As a bolus dose to provide additional analgesia for painful procedures or events.

- Preparation:

  Pre-filled syringes containing morphine 1mg/ml in sodium chloride 0.9% manufactured by the Pharmacy Aseptic Unit.

  The Critical Care Satellite or the nursing staff on the ICU can provide pre-filled syringes containing morphine 2mg/ml, 5mg/ml, and 10mg/ml.

- Hepatic Impairment:

  Can precipitate coma in hepatic failure due to accumulation of the parent drug; reduce dose by up to 50%.

- Renal Impairment:

  Sedative effects are enhanced and prolonged and cerebral sensitivity is increased due to accumulation of active metabolites.

  Use cautiously at 50% of the normal dose in severe impairment - it may be preferable to avoid use altogether.

Doses

- The dose ranges to be used for each of the sedative agents are laid out in Table 1 (Appendix III).

  A ready reckoner of bolus doses for various weights is included in Table 2 (Appendix IV).

- All doses should be based on the patient's weight in conjunction with their clinical state and their response to previous doses.

- Due to inter-patient variability the doses in these guidelines may need to be exceeded if a patient is responds to the regime to some extent but demonstrates a need for higher doses.

- If the maximum dose is reached and sedation is still inadequate, careful consideration should be given to changing one or both of the sedative agents or using a triple agent combination prior to exceeding the dose limits of the original sedative agents.

- The doses specified in these guidelines should only be exceeded after careful thought and upward titration of the dose undertaken and only on the authority of the duty doctor.

  Please Note: Maximum licensed dose of Propofol 4mg/kg/hr (*refer to manufacturer's information*).

Administration and Management of Sedation

- Sedation should be minimised to the smallest dosage required and for the briefest duration possible.

- Each patient should be assessed as an individual and their sedation titrated according to their response.

- The aim is to maintain an adequate background level of sedation but not one that will ablate the most noxious stimuli. The background level can then be increased with supplemental boluses if necessary prior to events, which are likely to be painful such as nursing care, physiotherapy or invasive procedures.

- Administration and adjustment of the sedation regime is the responsibility of the nurse caring for the patient.

- Sedation should be administered by continuous intravenous infusion together with extra intravenous bolus doses when necessary to top up the sedation level.

- The nurse caring for the patient should record the infusion rate of each sedative agent as well as any sedative boluses administered on the ICU Prescription/Observation Chart on an hourly basis to indicate the true amount of sedation the patient has received.

- Algorithm II (Appendix V) serves to guide nursing staff through the management of sedation.

Initial Loading Doses

- A drug given by intravenous infusion will take four half-lives to achieve a steady state level. This means it will take some time for adequate sedation to be achieved by starting an infusion without a loading dose.

- The correct way to initiate sedation is to administer a loading dose, which is titrated to effect before starting an infusion.

- On commencement of sedation, all patients should receive a loading dose of the prescribed sedative agents calculated to body weight (see Appendix III Table1) unless the duty doctor indicates otherwise or a loading dose is unnecessary because:

    - A sedative or anaesthetic agent given in theatre, during the operation, is still effective.
    - One of the drugs in the sedation regime was given as a bolus to facilitate intubation.

- The nurse caring for the patient should administer sufficient bolus doses to attain the desired level of sedation.

- The dose(s) should be given by slow intravenous injection to prevent unwanted hypotension.

> *A common used analogy to simplify the understanding of these principles is that of the leaking bucket. In order to fill the bucket a bolus of water is required. The size of this bolus is independent of the size of the leak. However in order to keep the bucket full an infusion rate, which is equal to the size of the leak, is required. If the infusion is started with no bolus then the bucket will never fill. (ICS 2014)*

Continuous Infusion

- Once the desired level of sedation has been achieved with a loading dose, all patients should receive a prescribed sedation regime as a continuous intravenous infusion (Appendix III Table 1) to maintain sedation at the desired level.

- Table 1 (Appendix III) gives suggestions for an initial infusion rate.

- Subsequent adjustment of the infusion rate should be made by the nurse caring for the patient as necessary based on their assessment of the patient sedation score.

Supplemental Bolus Dose

- In certain circumstances it may be necessary to administer further supplemental bolus doses (See Appendix III Table 1) of the analgesic/sedative agent:

  - If the desired level of sedation cannot be achieved.
  - To facilitate clinical and nursing care intervention and procedures.

- Increases in sedative infusion rate should follow the same principle of commencing sedation with a initial loading dose, i.e.: a bolus, titrated to effect, should be administered and the infusion then increased by a small increment to achieve the desired sedation score (see Appendix III Table 1).

- Appendix V: Algorithm 2 may assist in the decision-making process of the choice of analgesic/sedative agent to administer as the supplemental bolus dose.

- The dose(s) should be given by **slow** intravenous injection to prevent unwanted hypotension.

A common used analogy to simplify the understanding of these principles is that of the leaking bucket. In order to fill the bucket a bolus of water is required. The size of this bolus is independent of the size of the leak. However in order to keep the bucket full an infusion rate, which is equal to the size of the leak, is required. If the infusion is started with no bolus then the bucket will never fill. (ICS 2014)

Daily Discontinuation of Sedation to Prevent Accumulation

- Sedation should be stopped or reduced routinely for a period of time each morning to prevent accumulation and excessive sedation due to poor excretion of the drug, unless there is reason not to do so.

  This will avoid prolonged weaning times and allow assessment of the patient's condition.

- Daily discontinuation of infusions may not be appropriate in patients who have brain injuries, critical oxygenation or who are cardio-vascularly unstable.

- All infusions should be stopped or their rates reduced each morning, until the patient is seen to recover from its effects.

  The infusion should be re-started once the patient begins to show signs of restlessness or agitation. The infusion rate should be reduced if recovery is prolonged.

- The decision as to whether to stop the sedative infusions should be taken by the doctor daily on a ward round.

- The nurse caring for the patient should be informed of the decision and is responsible for managing the necessary changes in the sedative infusions.

Management of Under-Sedation

- Before the dose of sedative agents is increased, the following points should be considered:
  - Any avoidance source of physical discomfort should be excluded.
  - The need for any uncomfortable or disturbing therapies should be reviewed.
  - Non-drugs measures such as reassurance may be helpful.
  - The need to increase sedatives may be an index of clinical deterioration.

- If the level of sedation is inadequate (the New Sheffield Sedation Score 2 or lower than the prescribed level) it is recommended that a bolus dose titrated to effect should be administered prior to increasing the infusion rate.

  Changes in infusion rate will take some time to be effective (with the exception of Propofol) and the stepwise increase of a continuous infusion without bolus injections may lead to accumulation of the drug.

- If pain is thought to be the predominant problem, increase only the analgesic agent otherwise to provide extra sedation increase the anxiolytic and/or the analgesic agent.

- Tables 1 and 2 (Appendix III Appendix IV) detail suitable bolus doses and also give suggested increments for increasing the infusion rate.

Management of Over-Sedation

- If sedation is excessive (the New Sheffield Sedation Score 5 or 6, or higher than the prescribed level) and the patient does not require deep sedation for their clinical condition or paralysis with neuromuscular blocking agents, the following action is recommended:

  Pain is not a recognised or potential problem

  Discontinue both the anxiolytic and the analgesic agent until the sedation score is at the desired level to allow the patient to clear excess drug then recommence the infusion at a reduced rate.

  Pain is a recognised or potential problem

  Discontinue only the anxiolytic agent (i.e. Midazolam or Propofol) until the sedation score is at the desired level to allow the patient to clear excess drug then recommence the infusions at a reduced rate.

- Table 1 (Appendix III) gives suggested increments for reducing the infusion rate.

Weaning

- As soon as weaning is planned, sedative agents should be gradually reduced/discontinued to maintain light sedation (the New Sheffield Sedation Score 1 or 3) through the weaning process.

  Abrupt discontinuation is not recommended.

- Consideration should be given to using or changing to a short acting agent such as Propofol, if a sedative agent is necessary during the weaning process.

- Ideally sedative agents should have been discontinued and allowed to clear from the body before extubation is attempted.

1. References

Sedation Committee of the Intensive Care Society United Kingdom. (June 2014). *Intensive Care Society Review of Best Practice for Analgesia and Sedation in the Critical Care.* Retrieved from the official documents website: http://www.ics.ac.uk/EasysiteWeb/getresource.axd?AssetID=2362

2. Documentation Controls

Development of Guideline:	Dr David Rogerson
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Approval date:	ICU - Jan 2019 Surgical Division - 19/02/2019
Review Date:	March 2022
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3. Appendices

Appendix I: The New Sheffield Sedation Score (Olleveant 1998)

Instructions:

Nurse/Dr should assess the sedation of the patient hourly and their evaluations should be charted on the observation chart.

Please insert: 'P' when a pt. is paralysed.

'S' when a patient is sleeping.

***Levels 3 and 4**

Allows the patient to tolerate treatments and general nursing care, physiotherapy and suction without compromising their ventilation or cardiovascular state.

1. **Awake Level**
   - Patient should be awake and orientated, requiring minimal or no sedation.
   - Patient should be self-ventilating - either via a facemask or through an endotracheal tube, which they are tolerating.
   - Should be reached by the patient prior to being extubated after having gone through the weaning process successfully.
   - No sedation is what may be aimed for in many patients who are ventilated and who have either a tracheostomy or a particular neurological problem.

2. **Agitation**
   - Patient is showing signs of agitation and restlessness, compromising ventilation, oxygenation and general condition.
   - Observe for signs of distress on physio, suctioning of the endotracheal tube, oropharynx and on handling in general

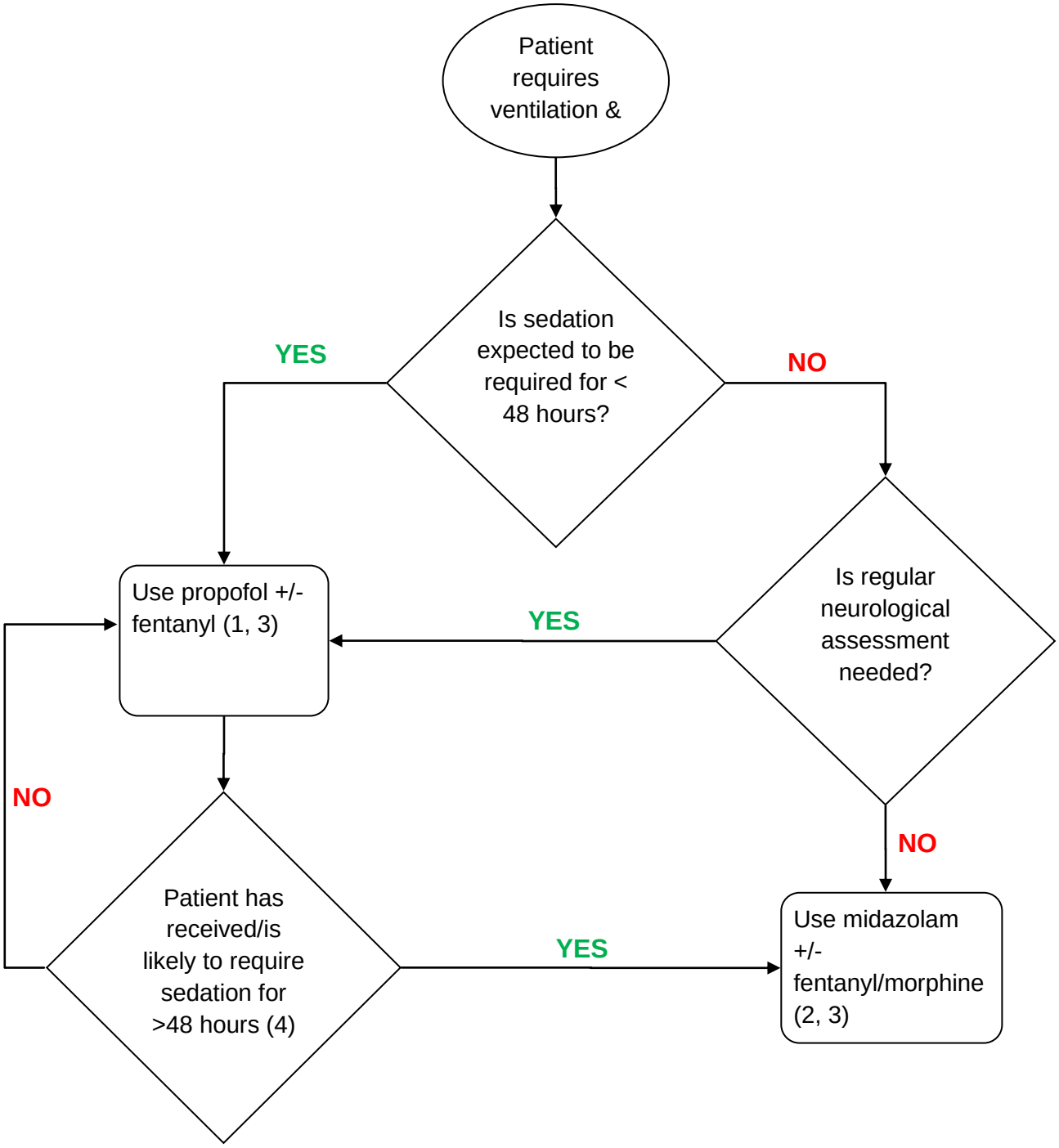
3. **Optimal Level (1)***
   - The patient is just asleep.
   - The patient should respond to speech and to touch either by squeezing of the hand or by blinking.
   - The patient may require bolus sedation as well as the background sedation cover prior to handling, during physio. sessions or any invasive procedure.

4. **Optimum Level (2)***
   - The patient is just asleep.
   - The patient should respond to speech, and to touch either by squeezing the hand or blinking.
   - The patient should also handle well and tolerate care.

5. **Sluggish Level**
   - The patient has dull/sluggish responses to any form of stimulation. e.g. Glabellar tap, or on suction through the ET. Tube

6. **Flat Level**
   - The patient is showing no signs of response to stimulation of any kind.

Appendix II: Algorithm 1 - Choosing a Regime for Sedating Ventilated Patients on ICU



Notes:

1. The use of Propofol should be reviewed daily
2. Consider changing to Propofol for weaning
3. Consider alternative agent(s) if sedation cannot be successfully managed with the chosen regime
4. Maximum recommended duration of Propofol infusion is 3 days. Use in excess of 3 days on the authority of a Consultant Intensivist only

Appendix III: Table 1-Doses of Drugs for Sedating Ventilated Patients on ICU

The doses below form part of the Sedation Guidelines and must be adhered to at all times except on the authority of a doctor.

Drug	Initial Loading Dose(1)	Dose Range for Continuous Infusion	Suggested Initial Infusion Rate (5)	Supplemental Bolus Dose (2)	Suggested Increment for Increasing or Decreasing Infusion Rate (5)
Fentanyl (3)	1 - 3 micrograms/kg	0 - 5 micrograms/kg/hour up to a maximum of 500 micrograms/hour	0.7 – 1.5 micrograms/kg/hour (Around 100 micrograms/hour for most patients)	0.7 - 1.5 microgram/kg	0.7 - 1.5 micrograms/kg/hour at 30 minute intervals (usually 50 - 100 micrograms/hour for most patients)
Morphine (3)	0.05 - 0.1 mg/kg	0 - 0.15 mg/kg/hour up to a maximum of 10mg/hour	0.03mg/kg/hour (Around 2mg/hour for most patients)	0.03 - 0.05 mg/kg	0.01 - 0.03 mg/kg/hour at hourly intervals (usually 1 - 2 mg/hour for most patients)
Midazolam (3)	0.05 - 0.1 mg/kg	0 - 0.15 mg/kg/hour up to a maximum of 10mg/hour	0.03mg/kg/hour (Around 2mg/hour for most patients)	0.03 - 0.05 mg/kg	0.01 - 0.03 mg/kg/hour at hourly intervals (usually 1 - 2 mg/hour for most patients)
Propofol	0.5 - 1 mg/kg	0 - 3mg/kg/hour up to a maximum of 300mg/hour	0.3 –0.6 mg/kg/hour (Around 30 – 50 mg/hour for most patients	0.3 - 0.5 mg/kg (4)	0.3 - 0.6 mg/kg/hour at 10 minute intervals (usually 20 - 40 mg/hour for most patients)

Notes:

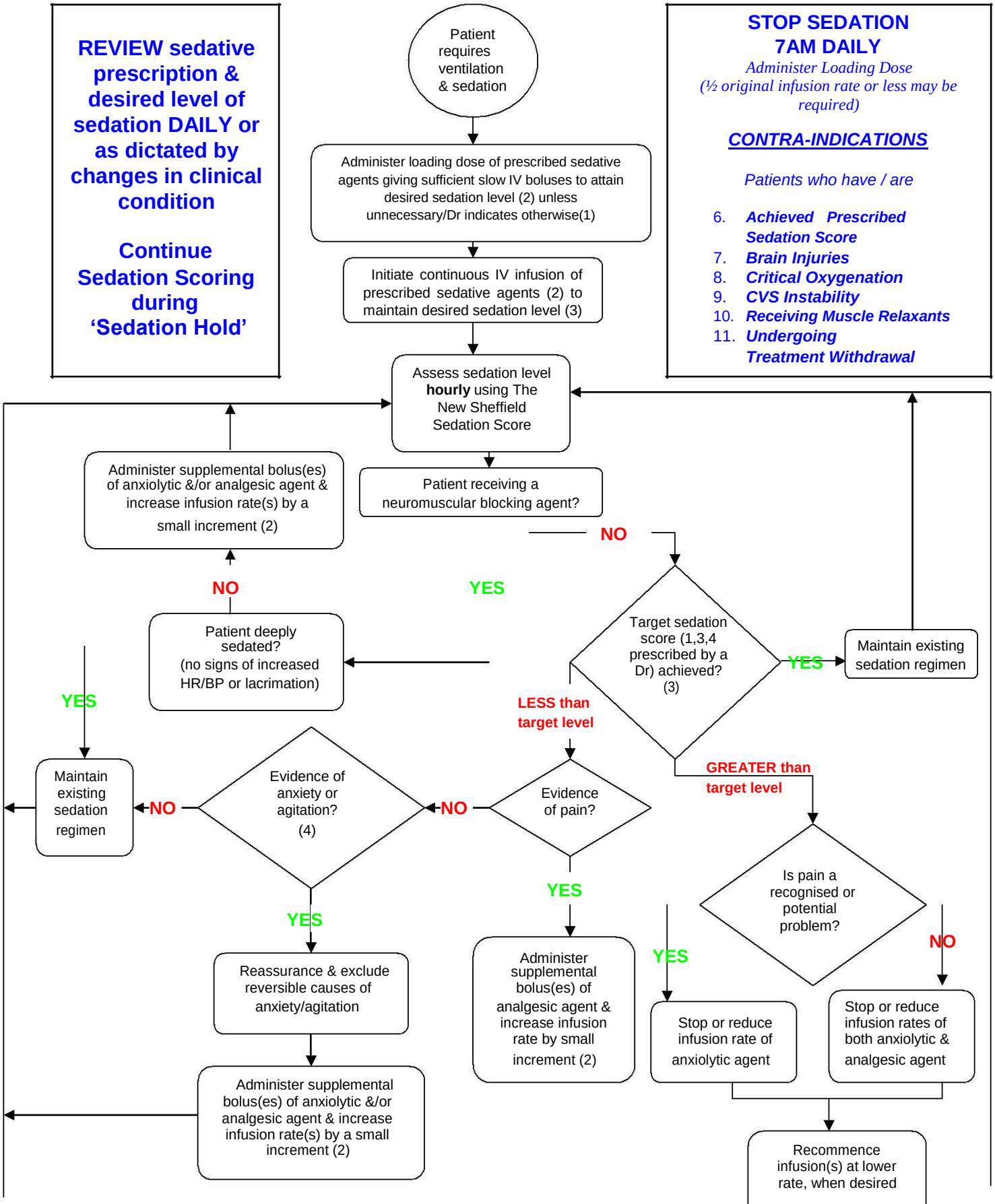
1. May be repeated until desired level of sedation is attained
2. May be repeated as often as necessary to achieve/maintain desired sedation score
3. Consider reducing doses by up to 50% in significant renal or hepatic impairment (See guidelines for further details)
4. Use bolus doses of Propofol cautiously and administer slowly especially if the patient is haemodynamically unstable
5. Suggested Initial Infusion and Increments are intended to give guidance when sedation is inadequate or excessive

Appendix IV: Table 2 - Ready Reckoner of Doses for Sedative Drugs

The table below is a quick reference guide for loading doses and supplemental bolus doses based on various patient weights.
Refer to the Appendix III -Table 1 for the exact dose ranges that can be administered under these Guidelines

WEIGHT	MIDAZOLAM				PROPOFOL				FENTANYL				MORPHINE			
	Initial (mg)		Supplemental Bolus Dose	Max. Continuous Dose Range	Initial (mg)		Supplemental Bolus Dose	Max. Continuous Dose Range	Initial (micro grams)		Supplemental Bolus Dose	Max. Continuous Dose Range	Initial (mg)		Supplemental Bolus Dose	Max. Continuous Dose Range
(kg)	Loading Dose (mg)	Infusion Dose (mg)	(mg)	(mg/hr)	Loading Dose (mg)	Infusion Dose (mg)	(mg)	(mg/hr)	Loading Dose (mcg)	Infusion Dose (mcg)	(micrograms)	(micrograms/hr)	Loading Dose (mg)	Infusion Dose (mg)	(mg)	(mg/hr)
40 - 49	3	*1.5*	2	<7	30	*30*	20	*<150*	50	*50*	50	*<250*	3	*1.5*	2	*<7*
50 - 59	4	*2*	2	<8	40	*30*	20	*<180*	75	*50*	50	*<300*	4	*2*	2	*<8*
60 - 69	5	*2*	2.5	<10	50	*40*	25	*<210*	100	*50*	75	*<350*	5	*2*	2.5	*<10*
70 - 79	6	*2*	3	<10	60	*50*	30	*<240*	100	*100*	75	*<400*	6	*2*	3	*<10*
80 - 89	7	*2*	3.5	<10	60	*50*	30	*<270*	125	*100*	100	*<450*	7	*2*	3.5	*<10*
90 - 99	7	*2*	4	<10	70	*60*	40	*<300*	150	*100*	100	*<500*	7	*2*	4	*<10*
100 -109	8	*3*	4	<10	80	*60*	40	*<300*	150	*150*	100	*<500*	8	*3*	4	*<10*
110 -119	8	*3*	4.5	<10	80	*70*	50	*<300*	175	*150*	125	*<500*	8	*3*	4.5	*<10*
120-129	9	*3.5*	5	<10	90	*80*	50	*<300*	175	*150*	125	*<500*	9	*3*	5	*<10*
Increments For Decreasing and Increasing Infusion Rate			**Usually 1 - 2mg/hr**				**Usually 20 - 40mg/hr**				**Usually 50- 100mcg/hr**				**Usually 1 - 2mg/hr**	

Appendix V: Algorithm 2 - Management of Sedation in Ventilated Patients on the Intensive Care Unit



Notes **Observe that CVS and Respiratory status are maintained within safe parameters**

1.See Guidelines 'loading doses' for indications for omitting the loading dose

2.See Guidelines Appendix l l l Table 1 for approved doses of doses of sedative agents - base doses on body weight.

3.The New Sheffield score of 5 may be considered acceptable in some circumstances but aim for a level of 1,3+4 for the majority of the time.

4. If max. doses reached/ the regimen is unsuitable + patient cannot be adequately sedated; Investigate causes/ explanations and consider alternative/additional agent(s)