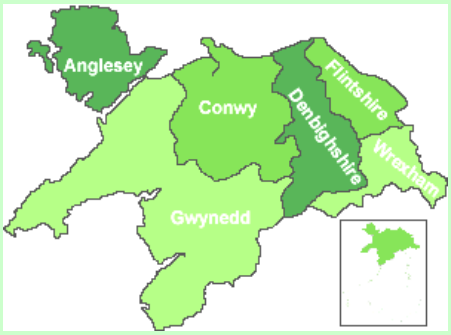
North Wales Critical Care Network



SEDATION GUIDELINES FOR ADULTS IN CRITICAL CARE

GIG CYMRU NHS WALES

Bwrdd Iechyd Prifysgol
Betsi Cadwaladr
University Health Board

Sedation guidelines for intensive care
Betsi Cadwaladr University Health Board
(Adapted from guidelines written by East Sussex Hospitals NHS Trust)

[1] Aims

1) Patient comfortable, pain free, calm and co-operative.

2) Patient able to sleep when undisturbed, but easily rousable.
NB to reduce the risk of delirium this does not mean they must be asleep at all times

3) Patient able to tolerate organ support, including mechanical ventilation.

4) RASS score of between 0 and -3 unless there is a clinical need for deeper sedation.

[2] Other Considerations

Even patients who require full sedation for procedures such as mechanical ventilation can benefit from other simple considerations such as non-pharmacological interventions. The following should be considered for **all** patients in the critical care unit.

- **Clinical problems** – consider MI, PE, abdominal pathology, worsening gases.
- **Communication** – reassure and explain.
- **Immobility** – physiotherapy and pressure relieving mattress.
- **Nausea** – anti-emetics and/or nasogastric tube.
- **Distended bladder** – catheterise or check that catheter is working.
- **Thirst** – fluids and mouth care.
- **Ventilation** – change settings or mode (SIMV, BiPAP, pressure support) as appropriate.
- **ET tube** – consider early tracheostomy, based on clinical need.
- **Sleep** – avoid noise and bright lights at night, consider ear plugs.
- **Relaxation** – massage, music therapy, breathing exercises.

[3] Always treat pain first - Consider the following

- **Regional analgesia** – epidural, peripheral nerve blocks. Caution in presence of coagulopathy or cardiovascular instability.
- **Analgesic ladder** - start with simple analgesics and work up to intravenous opioids as necessary. Consider regular Paracetamol, NSAIDs; consider Naproxen or Ibuprofen (short term only).
    - Avoid Diclofenac and other NSAIDS in cardiovascular instability, GI bleed, age > 65 years, renal or hepatic impairment.
- Opioids may be administered by continuous intravenous infusion, sub-cutaneously or orally. Consider PCA for co-operative patients. Caution with Fentanyl patches – overdose may occur (seek advice from acute pain team).
- **Acute pain team** – will advise in difficult cases.

4] Sedative/ analgesic regimens for ventilated patients

A combination of a sedative and an opioid analgesic is appropriate for the ventilated patient. Some form of analgesia should usually be provided, as prolonged immobility and tracheal intubation are generally painful although this decreases with time.

An initial loading dose should be given, titrated to achieve the desired effect and followed by continuous intravenous infusion. All patients should have a once daily sedation break unless contraindicated. See local protocol.

Sedation

1st Line

Morphine 0.04-0.2 mg/kg/hour for surgical or expected long term patients
or
Alfentanil 20-100ug/Kg/hour for short term patients
or
Fentanyl 1-5ug/Kg/hour

Propofol 0.5 - 4.0 mg/kg/hour (1% solution)
NB: Propofol must not be used if patient less than 16 years old.

Propofol may cause hypotension – review daily, consider fluids, noradrenaline or change to 2nd line management. If the benefits of rapid reversal outweigh the disadvantage of cardiovascular depression (e.g. in head injury), vasopressors may be used.

If Propofol is used in high dose (>4mg/kg/hour) or for more than 48 hours, monitor and serum triglycerides and unexpected change in acid-base status. Consider alternatives as in 2nd or 3rd line management.

2% Propofol may only be used in select patients and following discussion with, or at the request of, the dietician.

2nd Line

Clonidine may be used, alone or in combination, if the 1st regimen fails to provide adequate analgesia, sedation and autonomic stability.

Oral/ NG: 150-300ug 8-hourly. If dose inadequate, consider continuous IV infusion.

IV bolus: 1-2ug/kg in 50-100ml saline. Slow IV injection over 15-30 minutes, 4-8-hourly. If required dose exceeds 150mcg/4hours, consider continuous infusion:

- IV infusion: 750mcg in 50ml saline
- Infuse at 1-2ug/kg/hour, starting at 2ug/kg/hour.
- Discuss with Consultant if more is required
- Consider IV loading dose – 75ug (2.5ml) over 15 minutes.
- Clonidine is not licensed as a sedative, and should be prescribed after consultation with a Consultant.

3rd Line

Morphine 0.04-0.2 mg/kg/hour
Midazolam 0.04-0.2mg/kg/hour
This regimen may be used if 1st and 2nd line drugs fail to provide adequate sedation without unacceptable cardiovascular depression or Midazolam alone can be added to the first line drugs to reduce Propofol infusion rates.

Muscle relaxants

Muscle relaxants should be avoided if possible. However, if there is an indication for a relaxant, Atracurium should be given – 0.3-0.6 mg/kg bolus, followed by infusion at 0.25-1mg/kg/hour. Bispectral index (BIS) monitoring should be used.

Night sedation

If patients do not require day time sedation but are having trouble sleeping at night and all the other considerations (see section 2) have been addressed consider

Trazodone 50mg OD Nocte (see also appendix 1 for additional considerations regarding night sedation).
DO NOT use Propofol for night sedation. Night sedation should be reviewed daily.

Head injury
Alfentanil 20-100 ug/kg/hour
Propofol 0.5 - 4.0 mg/kg/hour (1%)

This regimen may be considered for short-term sedation, if rapid awakening is required to allow neurological assessment. If sedation is required for more than 72hours, or ICP control is required, consider using the longer-term regimen for example 1st or 2nd line management.

Transfer of the critically ill
Type of sedation will depend on what the patient was receiving beforehand. If the patient is ventilated then the following can be considered:
Alfentanil 20-100ug/kg/hour or Morphine 0.04-0.2mg/kg/hour
Propofol 0.5 - 4.0 mg/kg/hour (1%)
Muscle relaxants may be required (see above)

Alcohol Withdrawal
See delirium protocol, appendix 1 and follow local guidelines.

[5] Monitoring
Vital signs - as a minimum BP, heart rate, oxygen saturation and respiratory status must be recorded hourly. Signs of undersedation or pain include sweating, lachrymation, tachycardia, hypertension dilated pupils and facial expression. Over sedation may be indicated by hypotension, bradycardia or unreactive pupils.

Sedation Score – use RASS and record regularly (at least 3-4 hourly). Aim for RASS score of between 0 and -3 unless there is a clinical need for deeper sedation. Appropriate level of sedation will depend on the patient and diagnosis.

Stop all sedation each morning - provided there are no contra-indications (see ventilator care bundle and ALI/ARDS Bundle) perform sedation break at the earliest opportunity. Re-institute sedation as necessary, starting at half the previous dose and titrating to effect.

Delirium screening tool – CAM-ICU tool is to be used on all patients. See delirium protocol, appendix 1.

[6] Withdrawal delirium
If opioids or benzodiazepines have been administered for more than 7 days, or at high dosage, infusion rate should be decreased gradually over 4-5 days (see delirium protocol, appendix 1). Alternatively, Clonidine may be used. Side effects may be troublesome, and the dose should be tapered over a period of days to prevent rebound hypertension.

Ed Farley-Hills

Appendix 1

Management guidance for patients who experience delirium on critical care

SCREENING	ALL PATIENTS ADMITTED TO A CRITICAL CARE UNIT ARE VULNERABLE TO DELIRIUM • Within 24 hours of admission screen / assess for delirium using the CAM-ICU tool • Repeat the screen / assess every 12 hours or if concern regarding changing mental state • Document results clearly in the notes
DIAGNOSIS	USE THE CAM-ICU TOOL TO DIAGNOSE DELIRIUM For delirium to be diagnosed the patient must have 1. Altered mental state ***plus*** 2. Inattention ***plus*** 3. ***Either*** altered level of consciousness ***or*** disorganised thinking
PREVENTION	• Engage patients regularly in conversation to reassure, orientate and check the patient is comfortable • Maintain adequate hydration – particularly important in hypoactive delirium • Avoid moving patient within the unit • Enhance orientation e.g. lighting, signage, clocks etc • Organise interesting activities on the ward • Consider involvement the family, friends and carers • Avoiding unnecessary urinary catheterisation • Encourage early mobilisation • Appropriate pain management including non verbal aids • Ensure hearing and visual aides are available • Reduce noise to a minimum during sleep periods • Avoid benzodiazepines
MANAGEMENT	Identity and treat any reversible cause **D**rug side effects or drug withdrawal **E**lectrolyte imbalance **L**iver, cardiac or respiratory failure **I**nfection / infarction **R**etention of urine / faeces **I**ntracranial event **U**raemia due to dehydration **M**etabolic
TREATMENT	See overleaf for pharmacological treatment guidance Avoid Propofol or Midazolam as first line treatment for agitation and / or delirium <u>Avoid Olanzapine and Haloperidol in Lewy body disease, Parkinson's and alcohol withdrawal</u>

PHARMACOLOGICAL MANAGEMENT OF DELIRIUM

EMERGENCY TREATMENT

Attempt to deescalate the situation – trying to avoid psychotropic drugs

- Ensure the safety of patient, other patients and staff, and the environment
- Get patients attention before speaking / say one thing at a time / do not argue
- Acknowledge their distress & be aware of your body language
- Give rational explanations for the situation they are

PSYCHOTROPIC MEDICATION guide for acute problem

HALOPERIDOL

- 0.5 – 5 mg IV STAT
- if no effect in 10 mins repeat but at double the initial dose
- repeat as necessary at 10 min intervals using 'double dose' regime until patient is calm
  (Note: there is no maximum dose but use clinical discretion)

Or

CLONIDINE

- 50-150mcg IV or ng STAT
- Consider re-sedating and commencing Clonidine infusions (750mcg/50 ml) 0-5ml/hr prior to next sedation break
- Max dose 750mcg / 24 hours

SUBACUTE TREATMENT

ONGOING CHALLENGING BEHAVIOUR

Select from following options

OLANZIPINE

- 5MG OD PO

HALOPERIDOL

- 0.5 – 5 mg od either po or ng

CLONIDINE

- 50-150mcg IV or ng STAT
  - Consider IV infusion (750mcg/50 ml) 0-5ml / hr Max dose 750mcg / 24 hours

SPECIAL CIRCUMSTANCES

DANGEROUS MOTOR ACTIVITY

MIDAZOLAM

- 1 - 5mg IV every 2-3 mins until patient is calm

NIGHT SEDATION caution with interactions if taking other psychotropic

Consider **Melatonin** 2mg od one hour prior to 'sleep' time, with adjunct

Option 1: **TRAZODONE** 50mg po nocte (for 7 days)

Option 2: **AMYTRIPTILINE** 25mg po nocte

Option 3: **HALOPERIDOL** 2-5MG IV nocte

WITHDRAWAL

ALCOHOL: follow local guidelines

OPIATE and / or **BENZODIAZIPINE**: consult with substance misuse team.

Avoid abrupt withdrawal if either has been administered for more than 7 days, or at high dosage. Consider tapering dose over 24-48 hours.

If signs or symptoms of withdrawal occur, restart the opioid or benzodiazepine at a dose sufficient to suppress withdrawal and taper the dose over a longer period

- Consider conversion to the enteral route
- Consider long acting agents such as Diazepam or Methadone
- Consider Clonidine.