

**Procedural Sedation - Adult Emergency Department –
Appendix 1: Sedative Agents - Derby Only**

Appendix 1: Sedative agents

Midazolam (level one sedation training required)

Preparation: comes in a 5ml vial of 1mg/ml
Should be drawn up in 10ml syringe adding 5ml of 0.9%
NaCl to achieve a concentration of 0.5mg/ml

Dose:

Adult: 1mg-2mg boluses delivered over 1-2 minutes
Can be repeated after 2-5 mins
Usual total dose 3.5-5mg, maximum 7.5mg

Elderly: 0.5mg bolus over 1-2 minutes
Can be repeated after 2-5 mins
Maximum 3.5mg

Pharmaco-kinetics: onset 2-5 minutes, duration of action 3-120 minutes

Pro's: Familiar to most ED staff
Excellent Amnesic
Has the availability of flumazenil as a reversal agent

Con's: Respiratory depression
Hypotension (particularly in those that are hypovolaemic)
Unpredictable action
Long period of post procedural sedation
Can have an enhanced and prolonged sedative effect in
hepatic failure and precipitate coma
Can cause enhanced and prolonged sedative effects
from interactions with opioids, antidepressants,
antihistamines, α -blockers and anti-psychotics

Propofol (level two sedation training/ED RSI training required)

- Preparation: Come in a 20ml vial of 1% solution (10mg/ml)
This does not require dilution & should be drawn up neat
in 2 x 10ml syringes
- Dose:
- Adult: 0.5-1mg/kg bolus delivered over 1- 5 minutes titrated to
effect
Additional boluses of 0.25-0.5mg/kg as required every 3 –
5 minutes
- Elderly: 10-20mg delivered over 1-5 minutes titrated to effect
Additional boluses of 10-20mg as required every 3-5
minutes
- Pharmaco-kinetics: Rapid onset over approximately 40 seconds with one
arm-brain circulation time
Duration of action 5-10 minutes (longer if an opioid has
also been used)
- Pro's: Rapid onset/offset
Excellent sedative & amnesic
- Con's: Can cause apnoea and respiratory depression
Hypotension - particularly in the hypovolaemic patient,
elderly or debilitated patient

Ketamine (level two sedation training/ED RSI training required)

Preparation: Comes in a 5ml vial of 10mg/ml
This should be drawn up in a 10ml syringe adding 5mls of 0.9% NaCl to achieve a concentration of 5mg/ml

Dose:

Adult: 0.5-1.0mg/kg given as a bolus over 1 minute
Additional boluses of 0.25-0.5mg/kg may be required every 5-10 minutes

Pharmacokinetics: Onset of action 10-30 seconds with duration of action up to 30 mins

Pros: Has excellent analgesic properties
Cardiovascularly stable

Con's: Should be avoided in patients with severe cardiovascular disease or severe hypertension
May elicit increased secretions and laryngospasm
Can cause an emergence phenomenon (post sedation confusion particularly in the elderly)

Analgesic Agents

Morphine

Preparation: Pre-prepared 10ml syringe with contains a total of 10mg to achieve a concentration of 1mg/ml

Dose: 0.1-0.2mg/kg IV

Pharmaco-kinetics: Peak effect after IV bolus is 15 mins, duration of action 2-3 hrs

Pros: Most people are familiar with morphine
Excellent analgesic

Cons: Can cause respiratory depression and apnoea
Nausea and vomiting
Can have an enhanced and prolonged effect in patients with renal failure, the elderly, and where hypovolaemia or hypothermia exists.
Can precipitate coma in hepatic failure
Can cause enhanced sedative and respiratory depression from interactions with benzodiazepines, anti-psychotics and anti-depressants

Fentanyl:

Preparation: Comes in a 2ml vial of 50mcg/ml.
This should be drawn up in a 10ml syringe adding 8mls of 0.9% NaCl to achieve a concentration of 10mcg/ml

Dose: 0.25-0.5mcg/kg

Pharmaco-kinetics: Onset of action is within 1-2 minutes after IV injection with peak effect within 4-5 minutes. Duration of action after a single bolus is approximately 20 minutes

Pros: Quick onset of action and short duration of action
Excellent analgesic

Cons: short duration of action
Can cause respiratory depression and apnoea
Can cause bradycardia and hypotension
Nausea and vomiting
Can enhance the sedation and respiratory depression from interaction with benzodiazepines, antidepressants, anti-psychotics
Has an enhance and prolonged sedative effect with hepatic failure