

# PROCEDURAL SEDATION OF ADULT PATIENTS IN THE EMERGENCY DEPARTMENT

Ref No: 2013

<b>Lead Clinician</b>	:	Dr Dodi Herman, Consultant in Emergency Medicine
<b>Care Group</b>	:	Unscheduled Care (Emergency Assessment)
<b>Implemented</b>	:	February 2014
<b>Last updated</b>	:	November 2016
<b>Last reviewed</b>	:	November 2016
<b>Planned review</b>	:	November 2019
<b>Keywords</b>	:	Conscious sedation, Procedural sedation, Sedation in Emergency Department
<b>Comments</b>	:	Review and advice from Dr Chris De Klerk Consultant Anaesthesia

*It is strongly suggested that this document should be read in conjunction with the Trust Guideline for 'Adult Sedation Guidelines for Non-Anaesthetists Ref No: 1682'*

---

## PURPOSES

---

To assist clinicians, nursing staff and other healthcare professional in improving and standardise patient care for adult patients requiring procedural sedation in the Emergency Department (ED)

---

## 1 OBJECTIVES

---

This guideline is to help the ED clinicians safely deal with adults who need procedures requiring sedation in the Emergency Department e.g. joint reduction, fracture manipulation, emergency synchronise cardioversion

---

## 2 SCOPE

---

For use by Senior/ Experience Emergency Physicians in Procedural Sedation in the ED

---

## 3 DEFINITIONS

---

- ED (Emergency Department)
- ASA (American Society of Anaesthesiologist)
- Conscious sedation (Drug-induced depression of consciousness, similar to moderate sedation, except that verbal contact is always maintained with the patient)

---

## 4 BACKGROUND

---

Procedural sedation is becoming a common practice in ED and is often performed in conjunction with clinicians from other specialties. The aims are to relieve anxiety, reduce pain, facilitate a procedure and provide amnesia.

Sedation can produce a continuum of states, ranging from minimal sedation (anxiolysis) through to general anaesthesia. This guideline specifically applies to moderate sedation (i.e. “conscious sedation”). The drugs used can produce cardiovascular and respiratory complications.

Use of a standard protocol and knowledge of the drugs involved are vital to minimize the potential risks. It is not acceptable for single operators to be sedating and performing a procedure in the ED.

***The minimum personnel required are two doctors and one nurse.***

The doctor supervising sedation should be familiar with this document and trained to recognize and have the skills to deal with potential complications, including advanced airway skills.

This document outlines the pre-sedation checklist, peri-sedation observations required and post-sedation management.

**All patients undergoing procedural sedation require a proforma to be completed prior to any sedation being carried out.**

---

## 5 PRE-SEDATION CHECKLIST

---

### History:

**A full history, including drugs, previous sedation or anaesthesia, allergies and fasting time should be documented.**

### **Procedural sedation is contraindicated if any one of these applies:**

- History of airway instability, tracheal surgery, or tracheal stenosis, abnormal facial anatomy
- Procedures involving stimulation of the posterior pharynx
- Active pulmonary infection or disease (including upper-respiratory infection, exception is for asthma)
- Head injury associated with loss of consciousness, altered mental status, or vomiting
- Central nervous system space occupying lesions, abnormalities, or hydrocephalus
- Poorly controlled seizure disorder
- A full meal or milk within **6 hours** or clear fluids within **2 hours**

### **Relative contra-indications include:**

- Glaucoma or acute globe injury
- Psychosis, porphyria, thyroid disorder, or thyroid medication. Beware, acute trauma may cause delayed gastric emptying

### **Examination and observations**

- The patient’s airway should be assessed; this includes identifying features associated with increased risk of difficult intubation and/or ventilation:
- Obesity
- Short neck, limited neck movements, dysmorphic face, reduced hyoid-mental distance (<3cm), overbite
- Limited mouth opening, protruding incisors, large tongue
- Small jaw
- A focused physical examination including auscultation of the heart and lungs
- Vital signs: 3 lead ECG, BP, HR, SpO2 monitoring and ETCO2 monitoring

### **Environment and staff**

- Procedural sedation should take place in the **ED Resuscitation Room**
- There should be a tilting trolley, suction, oxygen, and equipment for advanced airway management
- Consultant or SpR/ Middle Grade present who is adept at advanced airway management
- One clinician is nominated as performing the sedation while another performs the procedure
- Intravenous access in situ and supplemental oxygen in place
- Availability of appropriate nursing staff and recovery area

### **Consent**

- Consent to be obtained by a senior staff member and documented

---

## **6 ADMINISTRATION OF SEDATION**

---

Intravenous sedative/analgesic drugs should be given in small, incremental doses that are titrated to the desired end-point of analgesia and sedation. In general single agents are safer than polypharmacy though no one agent or regime is conclusively more effective than another. Familiarity with drugs effects and potential side effects is most important.

### **Morphine**

- Frequently used opiate with reasonably quick onset of action (10-20 min IV), and lasts up to 4 hours
- Used mainly as an analgesic, care should taken when given with other drugs
- Usually stocked in ampoules of 10mg in 1ml which are diluted to 10ml with sodium chloride 0.9% to give a final concentration of 1mg in 1ml
- Dosage intravenously of 100-200 micrograms/kg, dose to be reduced in elderly
- Should be given in 1-2 mg aliquots, titrated to level of analgesia required

Side effects include nausea, respiratory depression and hypotension

### **Fentanyl**

- A potent synthetic opiate with a rapid onset of action and short half life.
- Stocked in 2ml ampoules of 50micrograms in 1ml.
- Should be drawn up into a 2ml syringe (100micrograms in total) and labelled.
- Dosage intravenously of 1microgram/kg over 30 – 60 seconds

May cause significant respiratory depression and hypotension

**Only to be used by ED Consultants or Senior/ Experience Clinicians trained in Procedural Sedation**

### **Midazolam**

- A short acting water soluble benzodiazepine which at higher doses causes intense sedation (anaesthesia) and retrograde amnesia
- Dosage intravenously is initially 100 microgram/kg (usually 5mg initially), small and elderly patients may require smaller first dose e.g. 2-3mg and a longer titration to level of sedation required
- Onset of action 30-60 seconds with peak action at 12min
- Manufacturer's information indicates that Midazolam has an elimination half life of 1.5 to 2.5 hours. In patients over the age of 60 years, this may be prolonged up to 4 times.
- Augmentation with local anaesthetic recommended where possible
- May cause hypotension.
- Respiratory depression may be reversed with Flumazenil. Note that the ½ life of Flumazenil is shorter than Midazolam, so respiratory depression may recur later

- Manufacturer's information indicates that Flumazenil has an elimination half life of 40 to 80 minutes which is largely unaffected by age

The routine reliance on Flumazenil for reversal is not considered to be good practice and is not without the potential for side effects. Due to the shorter elimination half life of Flumazenil, residual sedation can unexpectedly return. Healthcare staff should be aware of the potential for re-sedation to occur and take steps to minimise risks to patients. An example scenario is when patients are discharged home following short diagnostic and therapeutic procedures.

Close monitoring is indicated after the procedure.

### **Ketamine**

- Usually for children; see NICE Clinical Guideline 112: Sedation in Children and Young People <http://www.nice.org.uk/nicemedia/live/13296/52132/52132.pdf>
- Intravenous: 1mg/kg give slowly; add 500 micrograms/kg as needed for prolonged procedures (Onset immediate).
- Augmentation with local anaesthetic recommended where possible.
- Beware emergence phenomena:
  - Must be allowed to waken undisturbed.
  - Used alone may cause dysphoric reactions.
- May cause abnormal EEG activity, avoid in epileptics
- Profound analgesic.
- Sympathomimetic, use with care in Ischaemic Heart Disease

### **Only to be used by ED Consultants or Senior/ Experience Clinicians trained in Procedural Sedation**

### **Propofol**

- Beware using Propofol with opioids (respiratory depression)
- Propofol is an alkylphenol derivative, very lipid soluble general anaesthetic agent
- 1% solution should be drawn up into a 20ml syringe, so 10mg in 1ml
- Starting dose: 2-3ml increments, titrated carefully to sedation level and blood pressure
- Sedation dose is 500 microgram – 1mg/kg, i.e. may be only 3mls for 60kg patient
- Give small increments and observe the effect. Remember, small and elderly patients may require smaller dose first and a longer interval between doses because of long arm-brain circulation time.
- Augmentation with local anaesthetic recommended where possible
- Although a potent anticonvulsant Propofol may rarely cause fits as an idiosyncratic reaction

### **Only to be used by ED Consultants or Senior/ Experience Clinicians trained in Procedural Sedation**

---

## **7 PATIENT MONITORING**

---

- Close observation of airway and respirations by an experienced health care professional until recovery well-established
- If using drapes, positioned such that airway and chest motion can be visualised at all times
- Continuous oxygen supplementation with pulse oxymetry and ECG monitoring
- Blood pressure measured every 5 minutes

## **Possible Complications**

- Laryngospasm/stridor (0.3%) – Very rare. Treat with 100% Oxygen. If severe, adrenaline nebs (5ml of 1:1000) may be used while urgent anaesthetic assistance is sought
- Hypoxia from respiratory depression (SpO2 <92%)
- Hypotension (BP <90mmHg)
- Bradycardia (HR < 50bpm)
- Excessive sedation (general anaesthesia) with loss of airway control
- Specific drug side effects (especially Ketamine)

If a complication occurs in the Resuscitation room then the on-call Anaesthetist should be contacted for assistance

---

## **8 POST-SEDATION MANAGEMENT**

---

### **Recovery Area**

- Minimal physical contact or other psychic disturbance. Quiet area with dim lighting if possible
- Dedicated nurse/doctor adept at airway maintenance
- Advise parents or caretakers not to stimulate patient prematurely
- Continue oxygen therapy until fully awake and saturation monitoring returns to pre-sedation levels once oxygen has been removed

### **Discharge criteria**

- Recovery time depends on drug(s) used
- Return to pre-treatment level of verbalisation, awareness and mobility
- Normal vital signs and ability to take oral fluids.
- Steady on feet (if appropriate)
- Give discharge instructions/ leaflet
- Responsible adult to accompany patient if discharged

### **Reminder**

**During working hours; procedural sedation in ED by ED Physicians should only be performed with the presence of ED Consultants**

**Out of normal working hours; procedural sedation in ED by ED Physicians should only be done with the presence and supervision of ED Consultants or the on-call anaesthetist**

---

## **9 AUDIT CRITERIA**

---

The Emergency Department regularly audit the use of sedation against national standards. Any serious complications or near misses will be reported through the hospital incident reporting system and discussed at the ED clinical governance meetings and will prompt early clinical review.

---

## 10 REFERENCES

---

1. American Society Anaesthesiologists Task Force. Practice guidelines for sedation and analgesia by non-Anaesthesiologists. *Anaesthesiology* 2002; 96: 1004
2. Intercollegiate working party chaired by Royal college of Anaesthetists. UK Academy of medical royal colleges and their faculties-implementing and ensuring safe sedation practice for healthcare procedures in adults. London: Royal College Anaesthetists, 2001
3. Goodwin SA et al. Clinical policy: procedural sedation and analgesia in the ED. *Ann Emergency Med* 2005; 45(2): 177-96
4. Mc Auley, D. Sedation of adult patients in the Emergency Department. Addenbrooke's Emergency Department Guideline 2006
5. Lloyd, S. Sedation of adult patients in the Emergency Department. Bedford Hospital Emergency Department Guideline 2009

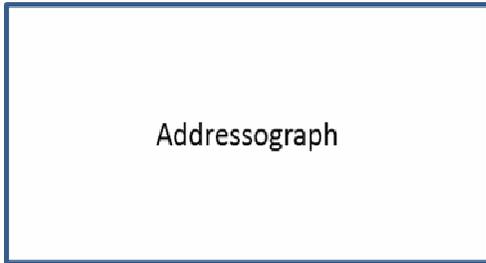
**Author:**

*Dr Dodi Herman, Consultant Emergency Medicine*

---

**Emergency Department Sedation Record**

---



Date:

Recovery from Procedural Sedation

Recovery time from conscious sedation depends on the drug(s) and the amount used. Ensure to continue with cardiac monitoring, oxygen therapy until patient fully awake and saturation monitoring returns to pre-sedation levels once oxygen has been removed.

Discharge SAFETY Checklist

- Return to pre-sedation level of verbalisation, awareness and mobility
- Return to pre-sedation vital signs/ normal vital signs
- No vomiting and able to tolerate oral fluids
- Able to walk steadily and unaided (if appropriate)
- Not in severe pain
- Suitable transport arrangement and responsible adult to accompany patient at home
- Post sedation advice (verbal and written) given to patient
- Appropriate follow up arranged e.g. fracture clinic
- Ensure documentation of procedural sedation in the ED notes

Safe for Discharge (Time of Discharge):

Name:

Signed:

---

**PATIENTS WHO UNDERGONE PROCEDURAL SEDATION IN THE EMERGENCY DEPARTMENT**

---

**PATIENT INFORMATION LEAFLET**

**What is sedation?**

Sedation is a medical procedure involving the administration of sedative drugs, generally to facilitate a medical procedure like reducing a shoulder dislocation or putting a plaster on a broken ankle.

You have been given a sedative drug to assist with your procedure. You may experience a short period of memory loss during the time the sedation is effective. This drug may also impair your judgment for up to 24 hours.

For this reason the doctor has advised the following:

**Do not**

- Drive a vehicle.
- Drink alcohol.
- Sign any important documents.
- Operate any machinery or appliances like kettles or cookers.
- Care for any dependent adults or children without responsible help.

**Do**

- Rest.
- Drink plenty of fluids and eat a light diet.
- Have a responsible adult to care for you at home.

**After resting at home for 24 hours:**

If you experience any chest pain or shortness of breath after discharge home, please contact the department or return as soon as possible.

If you or your carer has any concerns either ring the Emergency Department for advice via:

Royal Shrewsbury Hospital switchboard	01743 261000
Princess Royal Hospital, Telford switchboard	01952 641222

OR

Return to the Emergency Department

Please show this information to the person who is looking after you

The Shrewsbury and Telford Hospital   
 NHS Trust

**Emergency Department Sedation Record**

Addressograph

Date:

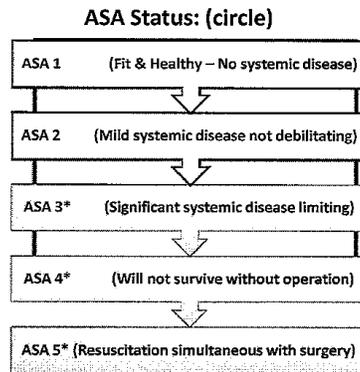
**Details of procedure to be performed:**

**Level of sedation intended:**

- Personnel present (Roles)**
- 1.
  - 2.
  - 3.
  - 4.

**Patient Safety Checklist: (Circle)**

Procedure explained	yes
Consent	yes
Last meal / drink	yes When:
Airway assessment	yes
Allergies	yes / no
* Patients ASA 3 should only be sedated by ED Consultant	
* Patients ASA 4-5 should not be sedated in ED	



**Pre-sedation Safety Checklist: (Circle)**

Airway equipment available:	yes
O2 given:	yes
SaO2 monitoring:	yes
ECG & Cardiac monitor attached:	yes
IV access gained & check for patency:	yes
ETCO2 monitoring:	yes / no

**STOP!** Is it still **SAFE** to continue with Procedural Sedation?  
 Yes / No

Please copy and file in sedation folder in Resuscitation Room

**Emergency Department Sedation Record**

**Baseline observations:**

HR		BP		GCS	/ 15
RR		SaO2	%	Pain Score	/ 10

**Details of sedation procedure:**

Drug	Route	Initial Dose	Subsequent Dose
1.			
2.			
3.			

**Sedation & Recovery observations at 5 minutes interval:**

Time						
Resp Rate						
SaO2 %						
Heart Rate						
BP						
ETCO2						

**Complications / further interventions during or following sedation/recovery:**

Desaturation (<90%) for >60 seconds	yes / no	
Hypotension (<90 systolic)	yes / no	Others:
Nausea / vomiting	yes / no	
Delayed recovery	yes / no	

Time sedation given: \_\_\_\_\_ Level of sedation achieved: \_\_\_\_\_

Time recovered: \_\_\_\_\_ Pain Score: \_\_\_\_\_ /10

Destination: \_\_\_\_\_ Patient Satisfaction: \_\_\_\_\_

Safe for Discharge (See Discharge Checklist): yes / no

Name: \_\_\_\_\_ Signed: \_\_\_\_\_

Please copy and file in sedation folder in Resuscitation Room