## Patient Controlled Analgesia on Critical Care

**Aim:** To provide quick reference guide and resource for all critical care doctors on the management of PCAs and common problems they may encounter on-call. Full PCA guidelines can be found on the intranet.

**Scope:** Adult patients with PCAs running for pain management

PCAs are used frequently on critical care when the enteral route is not feasible and the patient is able to use the PCA. Commonly:
- Polytrauma
- Post-operative pain
- Acute pancreatitis
- Failed epidural analgesia

### MORPHINE PCA 50mg in 50ml
- **Concentration:** 1mg/ml
- **Bolus:** 1mg (1ml) max. 12mg/hr
- **Lockout:** 5min

**TIPS:**
- Morphine metabolites accumulate in renal failure
- Slow to build up to analgesic level
- May need extra IV bolus to control pain

### FENTANYL PCA 2.5mg in 50ml
- **Concentration:** 50micrograms/ml
- **Bolus:** 25microgram (0.5ml) max. 300micrograms/hr
- **Lockout:** 5min

**TIPS:**
- Faster onset, shorter duration of action
- Good for use in renal failure – no active metabolites

### OXYCODONE PCA 50mg in 50ml
- **Concentration:** 1mg/ml
- **Bolus:** 1mg (1ml) max. 12mg/hr
- **Lockout:** 5min

**TIPS:**
- Better if side effects of morphine intolerable
- Can be safe in mild renal impairment but still a risk of accumulation

Settings can be altered on the PCA pumps but only by trained staff – **seek advice if you think this is required (Pain team bleep Anaesthetic 1st on bleep 8523)**

All PCAs should be prescribed with **naloxone, an anti-emetic and regular paracetamol** – prescribe on proforma for patients going to ward.

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Written by Patrick Thorburn v1.2
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### Adverse effects

<table>
<thead>
<tr>
<th>Adverse effect</th>
<th>Management tips</th>
</tr>
</thead>
<tbody>
<tr>
<td>Respiratory depression</td>
<td>Check renal function&lt;br&gt;Ensure only patient is using the handset&lt;br&gt;See next page</td>
</tr>
<tr>
<td>Sedation</td>
<td>Check renal function&lt;br&gt;Ensure only patient is using the handset&lt;br&gt;See next page</td>
</tr>
<tr>
<td>Inadequate analgesia</td>
<td>Check cannula&lt;br&gt;Check PCA machine&lt;br&gt;Check patient use +/- education&lt;br&gt;Check drug history for opioid tolerance/review dose&lt;br&gt;Check use of multimodal analgesia (paracetamol/NSAIDs if appropriate/gabapentin)</td>
</tr>
<tr>
<td>Pruritis</td>
<td>Consider chlorphenamine 4mg oral or 10mg IV&lt;br&gt;Consider reduced dose&lt;br&gt;Consider opioid switch</td>
</tr>
<tr>
<td>Nausea and vomiting</td>
<td>Multi-modal anti-emetics&lt;br&gt;Consider reduced dose&lt;br&gt;Consider opioid switch</td>
</tr>
<tr>
<td>Hallucinations/dysphoria</td>
<td>Consider reduced dose&lt;br&gt;Consider opioid switch</td>
</tr>
</tbody>
</table>
Appendix 1 Protocol for opioid-induced respiratory depression

Start

Is respiratory rate <10/min or are there periods of apnoea

Remove handset, give O2, observe respiratory rate closely for 10 mins and encourage breathing

Is respiratory rate still <10/min?

Is resp rate <8 AND sedation score >2? *

Contact anaesthetist + draw up 400mcg naloxone (Narcan) + 7ml N/Saline = 8ml total

Give 100mcg naloxone IV (2ml) - wait 2 mins

Is resp rate still <10?

Repeat 100mcg naloxone until 400mcg given or respiratory rate >/=10

Immediate anaesthetic review

Continue observation

Observe patient closely for 30

Flow diagram taken from BSUH trust policy on PCA. Can be found on the intranet under Acute Pain Service.