

ACUTE PAIN SERVICE
Anaesthetic Department, Level 1, Freeman Hospital

**PROTOCOL FOR THE ROUTINE USE OF EPIDURAL ANALGESIA (EPCA) IN
PAEDIATRICS**

OPERATIONAL POLICY: Use and management of Epidural Patient Controlled Analgesia for post-operative pain relief in the following clinical areas only:

- All Theatres and Recovery areas
- Wards 17 and 23, or by prior arrangement of the Acute Pain Service
- Paediatric Intensive Care Unit

EFFECTIVE FROM: August 2007

EFFECTIVE TO: August. 2010

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1. Planned use of epidural infusion by a trainee Anaesthetist should be discussed pre-operatively with a Consultant Anaesthetist.
 2. Pre-operatively the child and parent(s) / guardian should receive a verbal explanation of the technique together with an Epidural Patient Information leaflet (as produced by the Royal College of Anaesthetist).
 3. The Anaesthetist should liaise pre-operatively with the Nurse-in-Charge of the relevant ward to ensure that adequately trained staff (day & night) will be available to care for the patient on return to the ward.
 4. Epidurals should be sited in a clean environment e.g. Theatre Anaesthetic room, Recovery Unit or Paediatric Intensive Care Unit.
 5. All children must be catheterised whilst the epidural infusion is insitu.
 6. Patent I.V. access must be maintained and continued for 24 hours post-discontinuation of epidural.
 7. Epidural infusion must be prescribed on a yellow Epidural Prescription Chart and delivered only via the Hospira Gemstar pump with the dedicated infusion set.
 8. Epidural catheters should be dressed using an aseptic technique with the appropriate epidural dressing. The catheter should be clearly visible at the insertion site in order to aid examination.
 9. Infusions should contain 0.1% Bupivacaine 500ml (pre-filled bag). No opiates should be added to the infusion bag without prior discussion between the Acute Pain Service (APS), the relevant Consultant Anaesthetist and the Nurse in charge of the ward.

The following table can be used as a suggested regimen for children >1Yr.

| Weight Kg | MAX DOSE Bupivacaine/Hr in mg = Vol 0.1%/mls / hr | Background mls / Hr | PCA Dose mls | Lock-Out mins |
|-----------|---------------------------------------------------------|------------------------|--------------------|------------------|
| 1 | 0.5 mls | 0.2 mls | 0.1 mls | 20 mins |
| 2 | 1.0 mls | 0.25mls | 0.25mls | 20 mins |
| 3 | 1.5 mls | 0.5 mls | 0.3 mls | 20 mins |
| 4 | 2.0 mls | 0.5 mls | 0.5 mls | 20 mins |
| 5 | 2.5 mls | 0.7 mls | 0.6 mls | 20 mins |
| 10 | 5.0 mls | 1.3 mls | 1.2 mls | 20 mins |
| 15 | 7.5 mls | 2.0 mls | 1.8 mls | 20 mins |
| 20 | 10.0 mls | 2.5 mls | 2.5 mls | 20 mins |
| 25 | 12.5 mls | 3.5 mls | 3.0 mls | 20 mins |
| 30 | 15.0 mls | 4.0 mls | 3.5 mls | 20 mins |
| 40 | 20.0 mls | 5.0 mls | 5.0 mls | 20 mins |

MAX Dose = 0.5mls/ kg / hour of 0.1% Bupivacaine.

Normal Prescription is 1/4 total dose by infusion & 3/4 divided into 3 PCA doses per hour.

10. Prescriptions are to be set and / or altered only by an Anaesthetist or by a member of the APS.
11. Programmes are to be set and / or altered only by an Anaesthetist, a member of the APS or an appropriately trained Recovery Nurse.
12. Children with an epidural infusion should not be discharged from the Recovery unit until they meet the discharge criteria. Any concerns should be raised with the Nurse in charge in the first instance. The patient may require review by the initiating Anaesthetist, APS or 1st on call Anaesthetist.
13. Hospira Gemstar pump keys must be kept on the Ward Controlled Drugs key ring.
14. A grey "*local anaesthetic infusion in progress*" warning sticker should be attached to the front of the drug kardex and in the 'PRN' section. However, if opiates are added to the infusion an orange "*opiates in progress*" warning sticker should be used. The epidural should also be recorded in the '*Any other charts in use*' section of the Drug Kardex by the prescriber.
15. Children on long term Benzodiazepines or receiving psycho-tropic medications should continue to receive these drugs. The APS should be consulted regarding these children on an individual basis.
16. Children receiving epidural opiate infusion should have oxygen administered at 2 litres per minute by nasal cannula / 4 litres per minute via face mask
17. All ward areas listed in the epidural operational policy should ensure adequate stocks of:-
 - Bupivacaine 0.1%, pre-filled bags
 - Ephedrine 30mg ampoules
 - Naloxone 0.4mg / ml ampoules

18. If Naloxone is administered the APS or 1st on call Anaesthetist should be informed immediately.
19. Additional loading doses should only be administered by an Anaesthetist, a member of the APS or an appropriately trained Recovery nurse.
20. All children receiving epidural analgesia should be recorded on the epidural log in the equipment store in Central Operating Theatres and Cardio Recovery. This documentation is the responsibility of the Anaesthetist initiating the epidural or the person taking the Hospira Gemstar pump from the equipment store room.
21. The epidural prescription should be checked by 2 qualified Nurses and a record of this documented inside the prescription chart when children are transferred from one clinical area to another, or at staff change over.
22. A qualified Nurse must remain with the child at all times whilst the epidural is in situ, if required to leave the ward area – e.g. for investigations / X-ray.
23. Children with an epidural will be assessed 1-2 times per day by the APS or the 1st on call Anaesthetist. Visits should be documented on the epidural prescription chart and should include daily inspection of the epidural exit site
24. Problems with epidural Infusions should be referred to the APS or the 1st on call Anaesthetist as per instructions on the epidural prescription chart. The overall responsibility for the epidural lies with the Anaesthetist who initiated the technique. This Consultant Anaesthetist should be informed regarding any significant or persistent problems.
25. Observations must be documented as per instructions on the epidural prescription chart
26. **PAIN SCORE**
- 2 consecutive pain scores of 5 (out of 10) on movement - inform Nurse in Charge
 - 1 pain score of 7+ (out of 10) contact APS or, 1st on call Anaesthetist
27. **HYPOTENSION**
- If the child's systolic blood pressure falls 20% below the following values, administer colloids 10-20mls / kg
- | Years | Blood Pressure |
|-------|----------------|
| <1 | 70-90 |
| 1-2 | 80-95 |
| 2-5 | 80-100 |
| 5-12 | 90-110 |
28. Dense motor block (score of 3 bilaterally) may be a neurological emergency. The APS or 1st on call Anaesthetist must be informed immediately. If persistent, the epidural should be stopped and the Consultant Anaesthetist concerned. If the block is not resolving 3 – 4 hours after stopping the epidural, the child needs an urgent MRI scan to exclude a treatable lesion e.g. haematoma. Once the motor block has started to resolve, the epidural may be restarted. The child may need alternative analgesia e.g. Morphine PCA while the epidural is stopped.
29. Removing epidural catheters - If a child is on an anti-coagulant infusion, clotting levels must be checked and discussed with the Consultant Anaesthetist regarding timing of

catheter removal. Epidural catheters can be removed **12 hours** post Tinzaparin administration. After the removal of the epidural catheter, administration of Tinzaparin must be delayed for **4 hours**. Epidural catheter tips should be sent for culture and sensitivity if there are any signs of infection at the exit site or the child is pyrexial.

30. Nursing staff caring for children with an epidural infusion should be familiar with the information and handouts on epidurals and have attended an epidural teaching session within the previous 3 years. .

31. The APS should be contacted immediately if any of the following occur:

- Development of a motor block
- The epidural catheter is exposed
- The filter becomes disconnected
- There is excessive leakage at the epidural exit site
- The catheter mark at skin is altered from the documented mark on the epidural prescription chart
- There is redness / swelling / pain around the exit site