LOCAL CLINICAL GUIDELINE

CLINICAL GUIDELINE TITLE	Epidural Management Guideline for Anaesthetists v0.2

1) SUMMARY *This guideline provides a framework for the assessment and management ofadults with thoracic epidurals. This guideline does not apply to obstetric and lumbar epidurals.*

2) INTRODUCTION *Epidurals are commonly used for pain management after surgery and chest trauma/ rib fractures. Following surgery or trauma an epidural infusion is commenced which aims to maintain a sensory block over the surgical site/wound. This guideline provides some advice for anaesthetists on how to assess and manage commonly encountered problems with epidurals.*

3) DEFINITIONS

Epidural = Catheter in thoracic epidural space intended for analgesia.
Epidural top up = Bolus dose of local anaesthetic down epidural catheter.
PCA = Patient controlled analgesia
Motor Block = Reduced motor power. Assessed by Bromage Score:

Grade	Criteria	Degree of block	
I	Free movement of legs and feet	Nil (0%)	EXPECTED
II	Just able to flex knees with free movement of feet	Partial (33%)	NOT IDEAL
III	**Unable to flex knees, but with free movement of feet**	**Almost complete (66%)**	**DANGER***
IV	**Unable to move legs or feet**	**Complete (100%)**	**DANGER***

PLEASE REFER TO SECTION ON 'EPIDURAL HAEMATOMA'.

4) SCOPE *This guideline is intended for use by anaesthetists who are required to manage problems with thoracic epidurals on ITU and the ward, including the failing epidural, motor block and suspected epidural haematoma. It is not intended for use in the obstetric population, or in those with lumbar epidurals. This guideline applies to adults only.*

5) FULL GUIDELINE

If you are called to see a patient because the epidural "is not working", make every effort to attend as soon as possible.Make sure you have **metaraminol**, **ephedrine** and **atropine** within reach before administering any medication via the epidural. The patient should be **on the bed** with working **IV access** before a top up is given, in case the blood pressure drops after the top up.

ASSESSMENT:

- Check the epidural pump set up, contentsand the connections. Ensure that the filter is taped to patient.
- Check the upper and lower cold level with ethyl chloride spray.
- Assess the ability of the patient to take a deep breath and cough.
- Assess the ability of the patient to bend both knees and push themselvesup in the bed.
- Assess for motor block (See Bromage Scale, above).

It does not matter if there is no block to cold if the patient can cough and move comfortably.
Complaints occur frequently in this area- ensure that you document clearly in the patients notes what you do.

Pain management

Provided there is no motor block, manage pain with an epidural bolus.
If pain is unilateral, position the most painful side down if possible.
If there is motor block, go to section on epidural haematoma.

For minor discomfort;
Check the type of infusion then review the dressing and insertion site. Bolus 10mls via the epidural pump and increase the rate of epidural infusion.

How to bolus from the Bodyguard infusion pumps:
Remember to de-activate and activate keypad lock if necessary.
1 Press STOP/NO
2 Press BOLUS
3 Enter Clinician bolus access code, press START/OK
4 Follow on-screen prompt to enter the bolus dose required, press START/OK to commence delivery
Press STOP at any time to stop delivery
On completion of bolus delivery, the infusion running screen displays.

How to change rate of infusion from the Bodyguard infusion pumps:
Remember to de-activate and activate keypad lock if necessary.
1 With the infusion in progress, enter the new rate using the numerical keypad, press START/OK
2 Enter relevant code, press START/OK
3 Check the rate change is complete on the infusion running screen.

For major discomfort;

- Check the epidural insertion site (incase catheter has become dislodged).
- Prepare 10mls of 0.25% bupivacaine and give 3mls initially (ensuring no hypotension or motor blockdevelops), and the rest slowly over 10 minutes. Another 10mls may be needed.
- Avoid hypotension (use metaraminol/ephedrine if needed).
- Nursing staff must be aware of top up and it must be charted on the drug chart.

- Consider a noradrenaline infusion if the epidural is causing hypotension (4mg in 50mls Dextrose 5%, rate 0-0.1µg/kg/min or a metaraminol infusion if the patient does not have central IV access (see metaraminol guideline). This would involve moving the patient to an area where noradrenaline/metaraminol infusions can be managed.

Do not dismiss the epidural as "not working" unless 20mls of 0.25% bupivacaine have failed to make the patient comfortable.

If the top up has worked, increase the rate of the epidural infusion.

DIAMORPHINE: This is a useful adjunct and can be given alongside the low dose epidural mix (levobupivacaine 0.125% + fentanyl 2µg/ml). Consider adding it to the bolus. If you are unsure of the dose to use, please speak to a more senior anaesthetist.

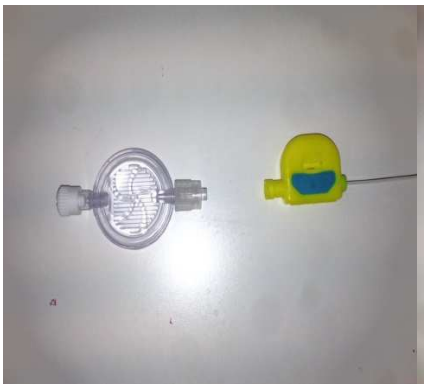
If the top-up has failedwithin 72hrs of surgery, a repeat epidural may be indicated. An epidural cannot be inserted for 12hours after aprophylactic dose or 24 hours after therapeutic dose oflow molecular weight heparin (Enoxaparin). Consider delaying the next dose. Inform the anaesthetic registrar and surgical team.
An anaesthetist should not leave the patient with only a PCA (patient-controlled analgesia) without having seen the patient, discussed the case with a senior anaesthetist, and having documented everything in the notes.

If the patient is in considerable pain, remain with them and bolus intravenousmorphine to make them as comfortable as possible (usually 2mg titrated every 5 minutes). If the decision is made to re-site the epidural but the 12 hours post Enoxaparin has not expired, use PCA morphine to act as a stop-gap.

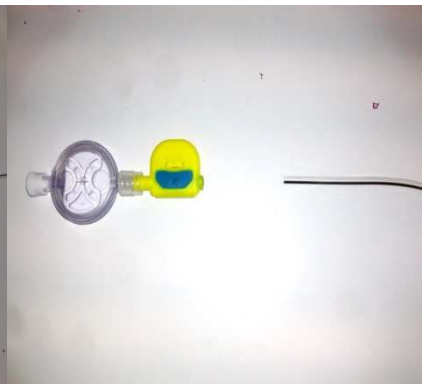
<u>Catheter disconnection</u>

If the catheter has become disconnected from the filter (open to air) and this was not witnessed, the epidural may need to be removed (see notes above about re-siting). Please discuss with a senior anaesthetist.
If the catheter disconnection was witnessed by the nurse, but has not come in to contact with anything, consider shortening the catheter by at least 7cm with sterile scissors, and reconnecting to a fresh epidural filter.

Epidural catheter disconnection can occur between the filter and the hub (picture 1), or between the hub and the catheter (picture 2).



Picture 1

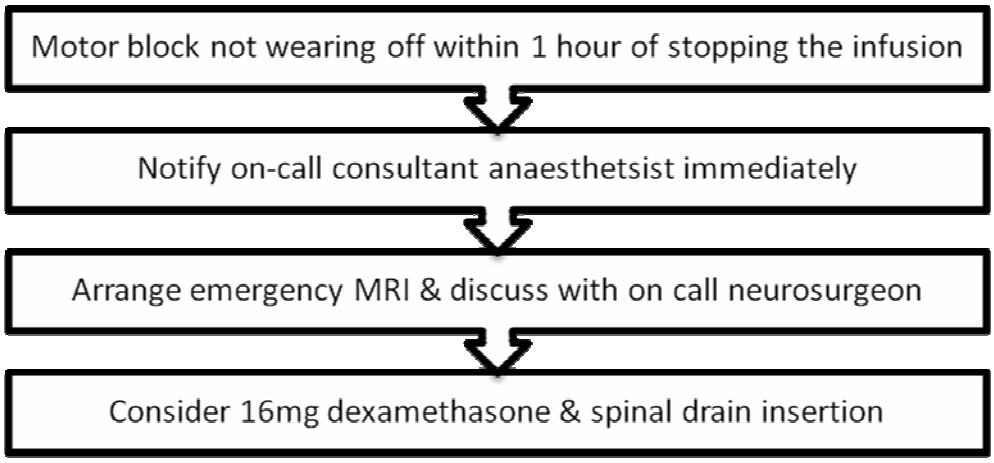


Picture 2

Suspected epidural haematoma

THE MOST RELIABLE SIGN OF A DEVELOPING EPIDURAL HAEMATOMA IN A PATIENT WITH AN EPIDURAL INFUSION IS THE DEVELOPMENT OF A MOTOR BLOCK.

Motor block should not occur with a correctly sited thoracic epidural- it may be too caudal.
If motor block develops at any time, even within 24 hours of removing the epidural catheter, you must suspect an epidural haematoma. 50% of epidural haematomas develop on removal of the epidural catheter. If the motorblock is as a result of a topup, observe and ensure that it wears off appropriately. If in doubt, stop the epidural infusion and observe. Within an hour, the motor block should be starting to wear off. If the motor block is not starting to wear off within an hour, the cause could be a developing epidural haematoma which is an emergency. The consultant anaesthetist on-call should be notified immediately.



6) IMPLEMENTATION

Training required for staff	Yes but only on the St Mary's site as thoracic epidurals are not used on the other two sites
If yes, who will provide training: At St. Mary's Hospital	Dr A. Knaggs, consultant anaesthetist at St Mary's hospital. Dr Dan Horner (consultant anaesthetist and service director for anaesthetics at Charing Cross) and Dr Marta Prestedge (consultant anaesthetist and lead for acute pain on the Hammersmith site) will be responsible for ensuring training happens should the need arise in both those hospitals.
When will training be provided? At St. Mary's Hospital	As part of consultant led teaching programme. 6 monthly teaching sessions take place for junior anaesthetists.
Date for implementation of guideline:	It is already in place in an informal manner at St. Mary's hospital. Formal date: 1st April 2015

7) MONITORING / AUDIT

When will this guideline be audited?	On-going currently
Who will be responsible for auditing this guideline?	Dr A. Knaggs (at St Mary's site only) Dr Dan Horner (consultant anaesthetist and service director for anaesthetics at Charing Cross) and Dr Marta Prestedge (consultant anaesthetist and lead for acute pain on the Hammersmith site) will be responsible for ensuring auditing happens should the need arise in both those hospitals.
Are there any other specific recommendations for audit?	None

8) REVIEW

Frequency of review	**Please indicate frequency of review:** *3 years* **Person and post responsible for the review:** Dr A. Knaggs, consultant anaesthetist.

10) GUIDELINE DETAIL

Start Date:	**01/04/2015**
Approval Dates	**Enter name of Divisional group: Anaesthetics** **Date of ratification:**01/04/2015
	Enter name of Directorate group: Surgery, cancer & cardiovascular **Date of ratification:**01/04/2015
Have all relevant stakeholdersbeen included in the development of this guideline? *(Trust sites, Divisions and Directorates)*	**Please list all (name and role):** **Anaesthetics, St Mary's Hospital**

Who will you be notifying of the existence of this guidance?	**Please give names/depts:** **Anaesthetic Department and ITU at St Marys Hospital** Dr Dan Horner (consultant anaesthetist and service director for anaesthetics at Charing Cross) and Dr Marta Prestedge (consultant anaesthetist and lead for acute pain on the Hammersmith site) are aware of the existence of the guidelines.
Related documents *(if applicable)*	None
Author/further information	**Name: Dr Alison Knaggs, Dr Louise Davies, Dr Alex Wickham** **Title: Consultant anaesthetist, anaesthetic registrar, anaesthetic registrar.** **Division: Anaesthetics** **Site: St Mary's hospital** **Telephone: 21248** **Trust email address:**Alison.Knaggs@imperial.nhs.uk
Document review history *(If applicable – version number, dates of previous reviews)*	**Next review due: 13/08/2018**
THIS GUIDELINE REPLACES: *(list the title of the replaced guideline, its archive location and previous versions where known)*	**Epidural Management Guideline for Anaesthetists V0.1.**

11) INTRANET HOUSEKEEPING

Key words	Epidural, Epidural haematoma, Local anaesthetic, Bupivacaine
Which Division/Directorate category does this belong to?	Surgery, cancer & cardiovascular
Which specialty should this belong to when appearing on The Source?	Anaesthetics

12) EQUALITY IMPACT OF GUIDELINE

Is this guideline anticipated to have any significant equality-related impact on patients, carers or staff?

No impact.