Epidural analgesia on Critical Care

Aim: To provide quick reference guide and resource for all critical care doctors on the management of epidurals and common problems they may encounter on-call
Scope: Adult patients with epidurals running for pain management on critical care

Epidurals are placed by trained anaesthetists only. They deliver a mixture of local anaesthetic and opioids to selective sensory dermatomes to provide pain relief post-operatively and in chest trauma. This theoretically reduces parenteral opioid use limiting their side effect profile.
There is recognised benefit for their use particularly in those patients at high risk of respiratory complications post-operatively.

FULL POLICY can be found on the Acute Pain Service intranet site

Uses: AAA surgery
Oesophagectomy
Major abdominal surgery
Rib fractures
Amputation
Thoracic surgery
Major hip and knee

Common Issues

1. **Hypotension** – common due to loss of sympathetic tone and venous pooling. Perform assessment of fluid status. Often needs low dose vasopressor *not* fluids. **Don't forget to assess for bleeding.**

2. **Sensory block too high**
   a. Difficulty breathing = STOP EPIDURAL
   b. Numbness above nipples = REDUCE rate by 2ml/hr

   RISKS:
   - involvement of respiratory muscles and diaphragm
   - bradycardia due to loss of sympathetic cardiac tone (T1-4)
   - malignant arrhythmias and haemodynamic instability (rare)

3. **Sensory block too low/Absent block** – follow flow chart on next page

4. **Progressive motor block** – STOP epidural infusion if unable to flex at knee. Follow flow chart on next page.

RISKS:
- Epidural haematoma/abscess
- May be normal if lumbar epidural or high concentration used intra-op

For all emergencies in weekday hours contact Acute Pain Service PRH 6468 RSCH 8102
Out of hours contact the Anaesthetic team RSCH 8235 PRH 6327

Block too low/inadequate block

Check block to establish dermatome level. T4 = nipples T10 = umbilicus.

Is the patient in pain?

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EPIDURAL Pre-MIX
NORMAL: 0.1% L-bupivacaine and 2mcg/ml fentanyl
STRONG: 0.125% L-bupivacaine and 4mcg/ml fentanyl

Check anaesthetic chart:
- Level inserted
- Difficulty
- Catheter mark at skin
- Volume/concentration used intra-op

Check epidural site on patient
- Has it moved? NB: 1cm markings, two lines = 10cm, three lines = 15cm.
- Is there a leak?
- Disconnection?

All OK?

- N → Seek expert help; Acute Pain Service, ICU SpR or Anaesthetic 1st on-call
- Y → Is block unilateral?
  - Y → Lie patient un-affected/ painful side down → Y → Give 5ml bolus via pump
  - N → Give 5ml bolus via pump

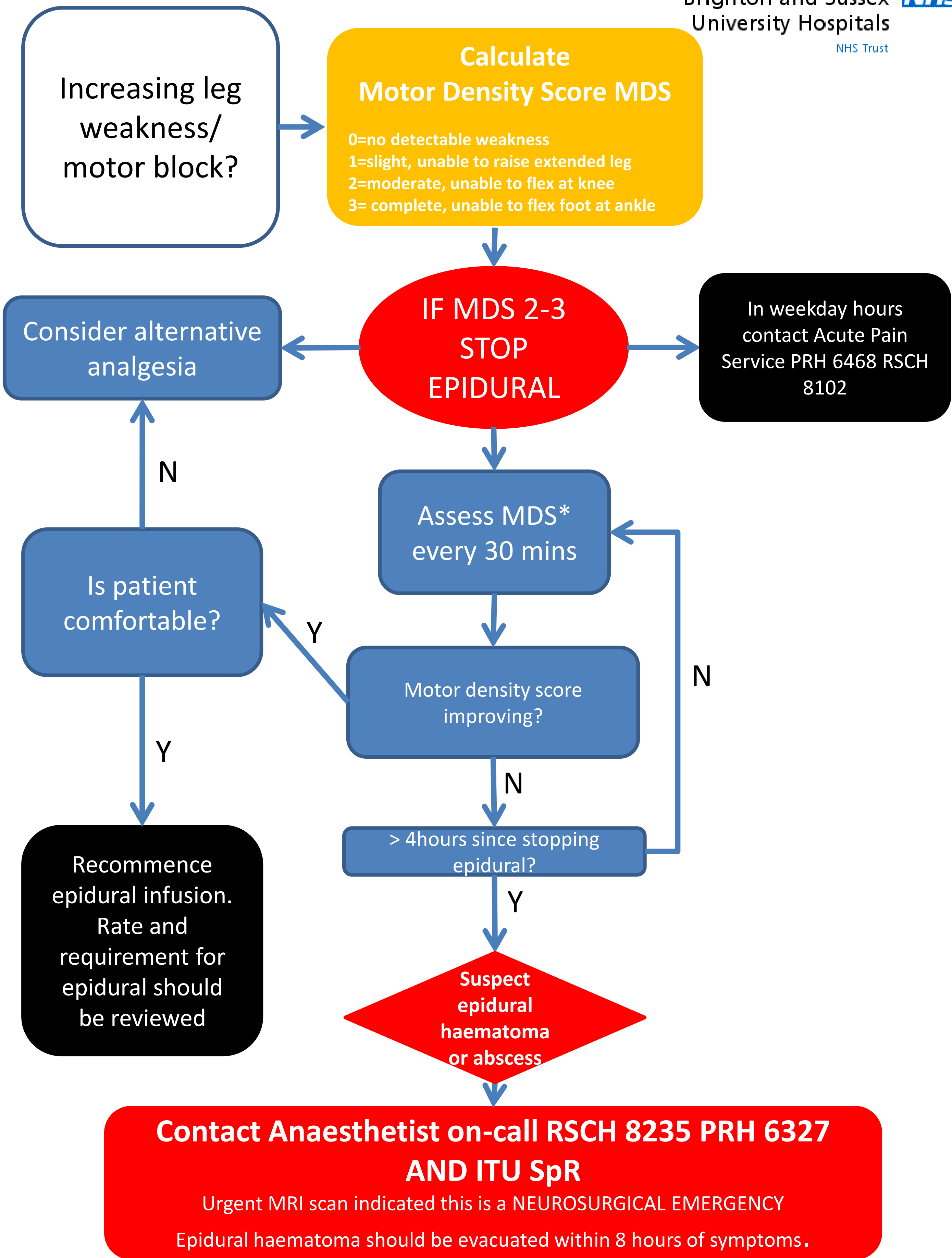
Give 5ml bolus via pump
(press: "STOP – BOLUS – code – 5ml – OK")

Repeat up to three times max 15ml

→ Reassess block after 15min → Is block now adequate?

- N → Give 5ml bolus via pump
- N – after 3 boluses →
  - If sensory block is completely absent, >15ml volume may be required or a higher concentrations; **seek expert help (Acute Pain Service or Anaesthetic team)**
  - If block remains unilateral after 15ml – catheter may be withdrawn 1cm and the process repeated; **seek expert help (acute Pain Service or Anaesthetic team)**
  - **If no improvement consider removing epidural and starting PCA**
- Y → Consider increasing rate of infusion by 2-4ml/hr → Y → Document what you have done

Document what you have done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NHS
Increasing leg weakness/ motor block?
Calculate Motor Density Score MDS
0=no detectable weakness
1=slight, unable to raise extended leg
2=moderate, unable to flex at knee
3= complete, unable to flex foot at ankle
IF MDS 2-3 STOP EPIDURAL
Consider alternative analgesia
In weekday hours contact Acute Pain Service PRH 6468 RSCH 8102
N
Assess MDS* every 30 mins
Is patient comfortable?
Y
Motor density score improving?
N
Y
N
> 4hours since stopping epidural?
Y
Recommence epidural infusion. Rate and requirement for epidural should be reviewed
Suspect epidural haematoma or abscess
Contact Anaesthetist on-call RSCH 8235 PRH 6327 AND ITU SpR
Urgent MRI scan indicated this is a NEUROSURGICAL EMERGENCY
Epidural haematoma should be evacuated within 8 hours of symptoms.