Ashford and St. Peter's Hospitals NHS
NHS Foundation Trust

WOMEN'S HEALTH AND PAEDIATRICS
MATERNITY UNIT

GUIDELINE FOR EPIDURAL AND COMBINED SPINAL EPIDURAL (CSE) LABOUR ANALGESIA (INCLUDING ACCIDENTAL DURAL PUNCTURE)

Amendments			
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08/04/05	10 & 11	Additional bladder care information added after discussion at Labour Ward Forum 25/02/05 Change to the use of an amber line	Guideline Committee
22/04/05	8 (18)	Whole document review Addition of guidance for use of PCEA	Guideline Committee
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Comments on this document to: Dr Tauqeer Husain

CONTENTS

See also;
Bladder care guideline
Care in labour

1. INDICATIONS/ CONTRAINDICATIONS FOR EPIDURAL ANALGESIA

Indications

- Maternal request (labour pain)
- Maternal medical disease, including:
    - Pre-eclampsia / hypertension
    - Cardiac or respiratory disease
- Increased risk of operative delivery, including:
    - Multiple gestation
    - Malpresentation
    - Vaginal birth after caesarean delivery (VBAC)
    - Maternal obesity

Absolute Contraindications

- Maternal refusal
- Sepsis at site of insertion
- Bleeding disorders, anticoagulants, etc (see section 2 below)
- Severe hypovolaemia/ cardiovascular instability

Relative Contraindications

Any epidural to be sited in patient with relative contraindication must be discussed with the Duty/On-call Anaesthetic Consultant prior to proceeding, and discussion should be documented in the notes

- Gross spinal deformity/ previous spinal surgery
- Neurological disorders, e.g. raised intracranial pressure
- Severe systemic sepsis
- Fixed cardiac output states

2. ANTICOAGULANT THERAPY AND BLEEDING DISORDERS WITH REGIONAL ANALGESIA

Known disorders of coagulation

The platelet count should be checked before any neuraxial procedure if there is any suspicion of decreasing platelet numbers during routine antenatal testing, signs of the development of pre-eclampsia, e.g. proteinuria or hypertension, or other clinical features suggesting coagulopathy, placental abruption or if the patient has been given recent anticoagulant therapy. Otherwise, it should not be routine to check platelet numbers and delay neuraxial block whilst these results are awaited.

Gestational thrombocytopenia

Women with thrombocytopenia in pregnancy must have a full blood count within 24 hours of the proposed spinal/epidural.

They may have a spinal or epidural if:

- The platelet count is greater than 100 X 10^9/l
- The platelet count is 75 –100 X 10^9/l with a normal coagulation screen, and the platelet count is not rapidly decreasing

If the platelet count is below 75 X 10^9/l or the coagulation screen is abnormal then a spinal or epidural should not be performed without a strong indication and the approval of the Duty/ On-call Consultant Anaesthetist.

A coagulation screen is not required routinely unless the platelet count is suspected of being below 100 X 10^9/l.

Pre-eclampsia

In mild to moderate pre-eclampsia, spinal or epidural may be inserted within 6h of the last platelet count and clotting studies.

In severe/ fulminating pre-eclampsia or HELLP syndrome, a platelet count and clotting studies must be performed immediately before performing the procedure.

Within these time frames, it is acceptable to perform a spinal or epidural if:

- The platelet count is greater than 100 X 10^9/l
- The platelet count is 75 –100 X 10^9/l with a normal coagulation screen, and the platelet count is not rapidly decreasing

Other disorders of coagulation

Women with other known coagulation disorders should not have a spinal or epidural unless discussed first with the Consultant Anaesthetist and/or a Consultant Haematologist determines that the disorder is adequately corrected. These patients will normally have a clear birth plan for coagulation and regional anaesthesia management on Badgernet

Anti-coagulant and anti-platelet therapy

General Principles

Thromboprophylactic doses of subcutaneous Unfractionated Heparin or Low Molecular Weight Heparin (LMWH) should be timed to avoid the high-risk time of spinal/epidural insertion or epidural catheter removal. Therefore if the woman is in early labour discuss the type and timing of analgesia with the woman and anaesthetist.

Remember: LMWH does not affect the APTT, PT or INR even at full therapeutic dosage. The clotting screen cannot be used to guide management.

Note that **removing** an epidural catheter is as hazardous as insertion if fully anticoagulated.

Aspirin

- Spinal or epidural analgesia can safely proceed in women on aspirin

Unfractionated Heparin

- Do not perform a spinal or epidural for 4 hours after heparin has been given
- If a spinal or epidural has been removed then the next dose of heparin should be delayed until 4 hours have passed

Low molecular weight heparin (LMWH, e.g. enoxaparin)

Prophylaxis dose (e.g. enoxaparin 40mg once daily)

- Do not perform spinal or epidural for 12 hours after LMWH has been given
- If a spinal or epidural has been removed then the next dose of LMWH should be delayed until 4 hours have passed

*Intermediate dose (e.g. enoxaparin 40mg twice daily, 60 mg once daily, 80mg once daily **adjusted to weight**)*

- Some women with BMI > 35 may be risk assessed as requiring antenatal LMWH. The dose will be adjusted by weight, and may be higher than 40mg once daily. As long as the LMWH dose is weight-based, this should still be considered a prophylactic dose. Therefore, neuraxial procedures can be performed 12 hours after the last dose. Anti-Xa Level assays are NOT required in this group of patients.

- ***Care must be taken to differentiate between women with a high BMI receiving a weight-adjusted dose of thromboprophylaxis, and those with a lower BMI receiving the same dose for therapeutic anticoagulation.***

- ***These women will have haematological input, will often require anti-Xa level assays to guide management, and will usually have a clear birth plan on BadgerNet.***

Therapeutic dose (e.g. enoxaparin 1mg/kg BD or 1.5mg/kg OD)

- Do not perform spinal or epidural for 24 hours after LMWH has been given
- If a spinal or epidural has been removed then the next dose of LMWH should be delayed until 4 hours have passed

Other agents

Further guidance is available from the Association of Anaesthetists of Great Britain and Ireland, the Obstetric Anaesthetists' Association, and Regional Anaesthesia UK, available at:

https://anaesthetists.org/Portals/0/PDFs/Guidelines%20PDFs/Guideline_regional_anaesthesia_patients_abnormalities_coagulation_2013_final.pdf?ver=2018-07-11-163756-520&ver=2018-07-11-163756-520

3. PREPARATION BY MIDWIFE FOR EPIDURAL AND COMBINED SPINAL-EPIDURAL (CSE) ANALGESIA

Discuss pain relief with the woman in labour and give her the Epidural Information Sheet to read if she is considering epidural analgesia. If she requests epidural analgesia:

- Liaise with the shift leader to ensure that there are enough staff on the Labour Ward to manage the epidural.
- Inform Anaesthetist of request for epidural and give the woman's details and indications for the epidural.

In pre-eclampsia, check results of Full Blood Count (FBC) is available according to severity of pre-eclampsia (i.e. within 6h for mild/moderate pre-eclampsia, immediately for severe pre-eclampsia/ HELLP syndrome – see section 2 above). Routine clotting studies are not required unless the platelet count is known to be low or the patient has a suspected coagulopathy.

- Record baseline observations of blood pressure and fetal heart rate.
- An appropriately sized intravenous (IV) cannula (16G or 18G) must be sited. If not already done, take blood for FBC and Crossmatch and label the tubes immediately.
- Encourage woman to void bladder prior to epidural insertion.
- Collect the epidural trolley, IV infusion (if required), a yellow Patient Controlled Epidural Pump (PCEA), and a 250ml bag of mobile mix solution from the controlled drugs cupboard. For a Combined Spinal/Epidural liaise with the anaesthetist as other drugs may be required. Ensure the epidural trolley is adequately stocked.
- An intravenous infusion is not needed routinely unless the patient is dehydrated or bleeding. If an infusion is required, run through a giving set and needless bionector using a 1 litre bag of Plasmalyte-148.
- Help the anaesthetist position the patient, prepare the epidural equipment, and chosen adhesive dressing. Check all drugs with the anaesthetist. Provide a stool for the anaesthetist if requested and then help the patient to stay in position during the epidural.
- If you have concerns during the procedure, press the call bell and inform the shift leader. The anaesthetist should be informed if additional help is being called.
- CTG monitoring must be maintained throughout the procedure. This may require an assistant. The anaesthetist must be informed if the CTG trace is inadequate to allow appropriate adjustment in positioning.
- Once the epidural catheter is sited, ensure the catheter is appropriately secured. A “Lock-it” dressing is recommended and should be covered with a Tegaderm dressing. Options to further secure the catheter include Opsite spray, Hypafix tape, Sleek tape, and Transpore tape.
- The anaesthetist is responsible for giving the initial bolus dose and setting up the epidural infusion or PCEA pump.
- The blood pressure must be measured every 5 minutes for 20 minutes after every clinician bolus >10 mL and documented on the epidural record. The midwife must stay with the patient continuously during this time.
- Ensure that the epidural pump is working correctly and that the filter is suitably placed and connected.
- See also section 7 (Care of women with Epidural or CSE analgesia), and section 9 (Post-Delivery Care).

4. EPIDURAL INSERTION STANDARDS OF CARE

Consent and Preparation

- Attend the woman as soon as possible after an epidural request is made. If a delay of greater than 30 minutes is expected, the anaesthetist should contact another anaesthetist, e.g. #5007 or the Duty/ On-call Consultant
- Exclude contra-indications
- Check understanding of Epidural Information Sheet, clarify any questions regarding the procedure and its risks
- Advise of necessity for urinary catheter
- Record verbal consent and any specifics of discussion on epidural chart and on electronic BadgerNet record
- Ensure appropriate IV cannula sited, check maternal BP and fetal heart rate
- Assess anatomy of vertebral column

Sterility

- Skin should only be prepared with 0.5% chlorhexidine with 70% alcohol spray and allowed to dry. Under no circumstances should chlorhexidine be kept in the sterile field.
- The use of hat and mask, sterile scrub technique and sterile gown and gloves is mandatory for any neuraxial procedure
- Place drapes to cover patients back and bed

Preparation of Equipment

- Carefully prime filter and catheter with saline

Performance of Procedure

Patient may be positioned upright or lateral depending on patient preference and experience of the anaesthetist

- Always infiltrate skin and ligaments adequately with 1% lidocaine
- Loss-of-Resistance with saline is the technique of choice
- Pause during uterine contractions
- Warn patient about paraesthesia when threading catheter
- Never withdraw catheter through needle
- 3 – 6 cm of catheter should be left within the epidural space
- Check for meniscus fall, aspirate for blood or Cerebro-Spinal Fluid
- Ensure the catheter is appropriately secured. A “Lock-it” dressing is recommended and should be covered with a Tegaderm dressing. Options to further secure the catheter include Opsite spray, Hypafix tape, Sleek tape, and Transpore tape
- Any anaesthetist should not have more than 3 attempts at inserting an epidural before calling for assistance (max. 15 minutes). The midwife is required to inform the shift leader if they have concerns during the procedure
- The midwife must maintain CTG contact at all times and will inform the anaesthetist if there is loss of contact to allow repositioning
- Document procedure on electronic BadgerNet record, ensure maintenance epidural regime has been prescribed and ensure patient is on the follow up list

5. PATIENT CONTROLLED EPIDURAL ANALGESIA (PCEA) PROTOCOL

- For labour analgesia use the mobile mix solution (0.1% bupivacaine and 2μg/ml fentanyl). Ask the midwife to obtain the prepared 250 ml bag of mobile mix solution from the controlled drugs cupboard. A 15 - 20ml test dose should be administered either via a 20ml syringe (ensure this is drawn up under aseptic conditions) or using the PCEA pump
- Check fetal heart rate, maternal pulse and blood pressure every 5 minutes for 20 minutes after each top-up of local anaesthetic. Do not leave patient lying on her back but turn from side to side.
- Set up the CADD-Solis epidural pump. The pump has battery back-up power using 4 AA batteries.
- Connect the PCEA administration set to the 250ml epidural bag.
- Manually purge the administration set ensuring bubbles are not caught in the flow control clamp.
- Remove the blue clip and insert the cassette into the pump. Close the cassette clamp and lock with the pump key.
- Switch the pump on and select “Maternity” and “Epidural PCEA”.
- Confirm the pump settings:
  - Background rate at 4 ml/hr
  - Patient bolus dose at 8ml
  - Bolus lockout 25 minutes
  - Maximum number of boluses per hour 2
  - Container size 250ml
- Prime the administration set if not already primed manually.
- Connect the administration set to the patient (epidural catheter connection) and start the pump.
- Ensure that patients have access to and understand how to use the PCEA button.

6. COMBINED SPINAL-EPIDURAL (CSE) STANDARDS OF CARE

CSEs are not normally recommended in early labour, but are very useful in the late first stage or second stage of labour, or following previous failed epidural. Single-shot spinals should not be used alone for labour analgesia as delivery may take longer than the duration of the spinal.

- Prepare as for epidural analgesia.
- Either the sequential, or needle-through-needle techniques may be used according to the experience of the anaesthetist. Trainees must be adequately trained and competent in their chosen technique.
- Recommended dosage for spinal component:
  - 2 – 3 ml 'mobile mix'
  - 2 – 3 ml 0.125% levobupivacaine +/- 5 micrograms fentanyl. This can be made up by adding 1mL saline to 1mL 0.25% levobupivacaine +/- 0.1mL of fentanyl (50mcg/mL). Injectate preparation should be sterile
- Draw up solutions in sterile manner using filter needle
- Start a PCEA infusion as above. Ensure that height of block is monitored.
- Document procedure on electronic Badgernet record, ensure maintenance epidural regimen has been prescribed and ensure patient is on the follow up list.

7. CARE OF WOMEN WITH EPIDURAL OR CSE ANALGESIA

After siting an epidural, the anaesthetist should review the woman after 30 minutes to ensure satisfactory analgesia, or take appropriate action to remedy an inadequate block. The anaesthetist must maintain awareness of the adequacy of all active epidurals and ensure this is handed over at change of shift.

After epidural top-ups or CSE injections record the BP and FH every 5 minutes for 20 minutes (see section 8 for Epidural Top-Up guidance).

Epidural Infusions

- Every hour, record infusion rate, BP, upper sensory level and effectiveness of the block on the epidural form. The sensory level is the highest dermatome where there is reduced sensation either to cold (ethyl chloride spray or ice pack).
- If sensory level is above T6 (the xiphisternum) temporarily stop the infusion and inform the Anaesthetist.
- If sensory level is above T4 (the nipples) stop the infusion and inform the Anaesthetist.
- Do not allow the infusion to run out even if you think delivery is imminent.
- Women should not be advised to avoid epidural use in the 2nd stage. This is not evidence-based and leads to unnecessary pain.

Inadequate Pain Relief

- If the woman is experiencing pain, test the sensory level, turn the patient onto the painful side if block is one-sided, and inform the anaesthetist

Positioning

- Avoid the supine position to minimise aorto-caval compression. Use a wedge under the right buttock if the woman needs to be supine or in lithotomy for a procedure.
- Woman may adopt whatever position is comfortable but vary the position to keep the block even on both sides and avoid pressure sores. Always ensure her back is well supported.

Hypotension

- See section 10 below

Bladder Care

- Women should be strongly encouraged to empty their bladder prior to epidural/CSE insertion.
- Indwelling (Foley's) catheter should be introduced urethrally when the anaesthesia is effective and the woman can no longer void their bladder spontaneously
- Routine antibiotic cover is not required provided aseptic technique is used.
- Lubrication with instillagel reduces infection risk.
- Attach catheter to inner side of thigh to prevent pulling on bladder neck.
- Regularly empty the urinary bag and document the urine output.
- Check catheter positioning if no/ static urine output over 1h, exclude kinking or obstruction from blood clot.
- Call the obstetric SHO if catheter re-insertion required, difficult insertion or frank haematuria.
- Remove the catheter only when the woman is fully mobile and has full sensation of her lower body. If the catheter is removed prior to instrumental delivery, it should be re-inserted after the delivery.
- Ensure the woman can void 6 hours after removing the urinary catheter. Measure and Document the amount of urine passed by the woman. See Bladder Care Guidelines for further information.

Mobilisation

- Encourage the woman to move regularly on the bed. If her BP is stable and she wishes to stand up, then check there is no weakness of the legs when doing a straight leg raise. She then may attempt to

stand while accompanied by a midwife. If her legs feel steady she may walk, but must have a midwife with her while standing. If an IV infusion is running the cannula should be capped off while the woman is walking.

Pyrexia

- Monitor the woman's temperature every hour. An epidural in labour is associated with an increase in body temperature, however persistent significant pyrexia (>38°C) requires a full clinical assessment.

Pethidine

- Be alert for respiratory depression if epidural or spinal opioids are used, especially if pethidine was given recently (see Section 10). Occasionally, the baby may have respiratory depression if the mother has had epidural fentanyl, although the effect is usually less than is seen with pethidine. Respiratory depression due to fentanyl can be reversed by naloxone.

Removal of epidural catheter

- First check that the woman has not received anticoagulants or could have a coagulopathy from heavy bleeding, HELLP syndrome etc. Position the woman in the left lateral position and gently remove the epidural catheter. Check the catheter is complete with another midwife and document this on the epidural form. Spray the site with Opsite and apply a small dressing. Call the anaesthetist if the catheter is difficult to remove.
- If the woman is on heparin, removal of the epidural catheter may have to be delayed (see Section 2).

Oral intake in labour with epidural analgesia

- An epidural in labour **is not** a contra-indication to eating and drinking in labour.
- Decisions about oral intake in labour should be multi-disciplinary and individualised to each patient's risk profile.

8. EPIDURAL TOP-UP

- Epidural top-ups and clinician boluses should only be performed by an anaesthetist
- The epidural should be topped up when a more extensive block is required (e.g. for operative vaginal delivery or caesarean section), or if the epidural is wearing off.
- For urgent caesarean section, give a top up as soon as safely possible so that surgery is not delayed.

Standards of Practice

- Record baseline observations of BP, pulse, FH and stage of labour.
- Position patient appropriately, usually on side where the pain is returning.
- For inadequate pain relief in labour, PCEA pumps can be used to administer a top-up of mobile mix by programming a loading dose. Alternatively a top up may be delivered via syringe but care must be taken to ensure strict asepsis. See section 10 for recommended regimens.
- For operative delivery 20ml 2% lidocaine, or 10ml 0.5% levobupivacaine + 10ml 2% lidocaine should be administered in incremental boluses. 0.1ml of 1:1,000 adrenaline in addition will improve block duration. Adrenaline should only be added immediately prior to administration.
- Epidural top-ups may take place in the labour room or in theatre, however top-ups in the labour room require the same monitoring and availability of fluids and drugs to manage any cardiovascular disturbance as would be available in theatre, and the anaesthetist must remain with the woman at all times.
- Minimum monitoring standards include maternal HR, ECG and NIBP every 5 minutes, and fetal HR monitoring as long as reasonable practicable when preparing for operative delivery.
- Document the top-up on electronic BadgerNet record.

9. POST-DELIVERY CARE

- Provided there is no concern about perineal tears, post-partum haemorrhage, or the coagulation status of the woman, the epidural catheter may be removed after completion of the third stage
- The midwife should confirm the blue tip is intact and document this in the notes (see section 7 above)
- All epidural catheters must be removed before the woman leaves the Labour Ward
- The return of full motor power must be assessed and documented before the woman is allowed to mobilise
- Any concerns regarding the return of neurological function, headache or backache should be referred to the anaesthetist

Anaesthetic follow up

- All women who have received an epidural must be reviewed the following day on the post-natal ward
- The 'Anaesthetic Follow Up' proforma on the electronic Badgernet record must be completed
- In particular, women should be screened for the presence of:
  - On-going neurological deficit
  - Headache or backache
  - The ability to pass urine once the catheter has been removed
  - The effectiveness of analgesia provided during labour
- See section 10 for management of PDPH and delayed neurological recovery

10. COMPLICATIONS AND ADVERSE EFFECTS OF REGIONAL ANALGESIA

Inadequate Pain Relief*

If the woman reports on-going pain after epidural insertion, attend urgently and perform a full assessment:

- Where is the pain?
- Examine for block height, examine for unilateral block or missed segments, and check for sacral coverage
- Check how far through labour the woman has progressed, and the orientation of the fetal head
- Rule out a full bladder

Note: Any top up > 10 ml of mobile mix requires the same level of monitoring as when the epidural is first inserted (i.e. the BP must be measured every 5 minutes for 20 minutes after every top-up and documented on the epidural record. The midwife must stay with the patient continuously during this time, see section 3).

No/ Low block

- Give 10 – 20 ml low dose mix from bag with mother in normal position
- Recheck in 20 minutes – consider resite at different interspace if still not high enough

Unilateral block

- Place patient in lateral position, painful side down
- Give 10 ml low dose mix
- Recheck in 20 minutes – if still sore give 10 ml low dose mix +/- 50 micrograms fentanyl in same position
- Recheck in 20 minutes – consider resite at different interspace if still inadequate

Missed segment

- Give 5 – 10 ml low dose mix +/- 50 micrograms fentanyl
- If worse on one side give this while mother positioned sore side down
- Recheck in 20 minutes – consider resite at different interspace if still inadequate

Poor sacral coverage

- Groin/ vaginal/ rectal/perineal pain suspected
- Check feet for S1/2 dermatome
- Give 10 – 20ml low dose mix with mother sat upright
- Recheck in 20 minutes – consider resite at different (**preferably lower**) interspace if still inadequate, or consider CSE

Back pain/ Rectal pressure

- More common in latter stages of labour, especially if OP fetal head orientation
- If block adequate on testing give 5 – 10ml low dose mix +/- 50 micrograms fentanyl but warn mother complete relief may not be achievable
- Recheck in 20 minutes – consider resite at different interspace if still inadequate

Remember the **"TWO STRIKES AND IT'S OUT"** rule – always consider re-siting after 2 failed attempts at troubleshooting!

**Modified from oaa-anaes.ac.uk/assets/_managed/cms/files/Glasgow%20Epidural%20troubleshooting4-1.pdf*

Hypotension

- Hypotension most commonly occurs after induction of epidural analgesia and is aggravated by supine hypotension syndrome.
- The woman may have pallor and nausea. The CTG may become abnormal.
- Treatment :
  - Level the bed and lie woman in the left lateral position
  - Call for help
  - Give oxygen 4L/min via facemask
  - Give 500ml bolus of IV Plasmalyte
  - Inform obstetrician and anaesthetist
  - Monitor the blood pressure, maternal pulse and CTG
- If the blood pressure does not improve, the anaesthetist should give vasoconstrictor boluses of metaraminol 0.25mg or phenylephrine 50mcg. Observe for bradycardia.
- The obstetric registrar must be informed.

Accidental Dural Puncture

Following dural tap

- Consider giving a low-dose spinal anaesthetic via the Tuohy needle to provide immediate pain relief. Wait 2 minutes before removing needle/ syringe to avoid the local anaesthetic leaking away
- Consider inserting the catheter as a spinal catheter but **only if urgent operative delivery** or **significant difficulty with second epidural attempt** is anticipated.
- Consider attempting to re-site an epidural catheter in another space (usually higher up the spine). The anaesthesist should consider contacting a senior anaesthetist before continuing with the procedure.
- Alternatively, discuss other analgesic options, such as PCA fentanyl
- Inform obstetric registrar and midwife shift leader, and On-call/Duty Consultant Anaesthetist.
- Document dural tap on the epidural form, on electronic Badgernet record and the follow up list. Write instructions in the notes following this protocol.

Intra-thecal catheter management

- An intra-thecal catheter must be clearly labelled and documented, the midwife, shift lead, obstetrician and consultant anaesthetist **must be informed**, and it must be clearly handed over at change of shift.
- **Top-Up's are to be delivered only by the anaesthetist.**
- If a patient with an intrathecal catheter requires operative delivery, the Duty/On-call consultant must be contacted and is expected to attend.

Managing an epidural catheter following dural puncture from previous epidural insertion attempt

- Give small increments of mobile mix (e.g. 5 ml) to establish epidural block as excessive spread may occur. The effective dose is usually about half the normal epidural dose.
- Set up and prime the PCEA pump using Mobile-Mix, but select "Dural Tap" instead of "Epidural PCEA". This program will administer a background infusion of 5 ml/hr. Additional Clinician Boluses can be administered from the pump or via syringe if needed but should only be given by an anaesthetist.
- Regularly review the height of the block and ensure the midwife is doing the same.

After delivery

- Patient may mobilise gently after delivery. She should avoid straining.
- Maintain hydration.
- Prescribe regular fybogel and regular analgesia.
- Visit daily while in hospital.
- Anaesthetic team to follow-up via telephone after patient has been discharged home.

If a post-dural puncture headache is suspected

- Ensure anaesthetic review within 24h
- Take a full medical history and physical examination to exclude other causes of post-natal headache
- Provide information leaflet on PDPH
    - https://www.labourpains.com/assets/_managed/cms/files/Headache_after_epidural.pdf
- The following should be considered:
    - Best rest may reduce symptoms but may increase risk of thromboembolic complications
    - Consider thromboprophylaxis in all women with reduced mobility due to PDPH
    - Encourage oral fluid intake to maintain hydration
    - Regular simple oral analgesia, including paracetamol, weak opioids and NSAIDs if not contra-indicated
    - Stronger opioid courses should be limited to <72h
    - Consider stool softener or laxative to reduce straining
    - Caffeine may be offered, but limited to 24h duration with a maximum dose of 900mg (200mg maximum in breastfeeding women)
    - Offer an epidural blood patch if symptoms affect daily living and care of baby (see section 11)
- Follow up should continue daily until the headache resolves, including after hospital discharge, whether or not an epidural blood patch is performed. Details of the headache, associated symptoms and management should be recorded on electronic Badgernet record.

- No patient with a suspected dural leak headache or neckache should be allowed home without the approval of a consultant anaesthetist.

- Before discharge, women should be given information on symptoms that require further medical assessment and who to contact. A letter to the GP and community midwife should be sent detailing the diagnosis and treatment.

Spinal Opioids including Respiratory Depression

- If epidural or spinal opioids (e.g. fentanyl, diamorphine) are used the patient should be monitored for respiratory depression, which may occur hours after the original dose.
- Usually the patient will become very drowsy before their respiratory rate is affected. The respiratory rate may fall to less than 6/min or the patient may have a respiratory arrest.
- Treatment of severe respiratory depression.
    - Call for help, consider 2222 priority call
    - Clear the airway
    - Ventilate using a facemask
    - Give IV naloxone 0.4mg
- Itching over body or face.
    - Severe itching may be treated with chlorpheniramine 10mg IM/ slow IV, or naloxone 0.2mg subcutaneously.

Nausea

- Treat with cyclizine 50mg diluted in 20 ml water slowly IV
- Give ondansetron 4mg IV if cyclizine is not effective

Urinary retention

- Manage as for standard epidural analgesia.

Total Spinal

- Excessive spread of local anaesthetic in the CSF results in a total spinal anaesthetic. This is rare and is usually caused by an epidural top-up being accidentally injected intrathecally (into the CSF).
- The effects in the patient are:
    - A numb feeling “all over”
    - Difficulty breathing
    - Respiratory arrest
    - Loss of consciousness with dilated and unresponsive pupils
    - Hypotension and bradycardia

Treatment of total spinal

- Call for help (anaesthetist, obstetrician, shift leader and ODP) – consider priority 2222 call to get further anaesthetic trained help quickly
- Left pelvic tilt with wedge under right buttock
- Manage according to ABCDE principles
- Ensure full maternal and fetal monitoring
- Total spinal will require rapid induction of anaesthesia with tracheal intubation and supportive care with IV fluids and vasopressors
- Operative delivery may be required if fetal compromise – work with MDT

Delayed neurological recovery

- Motor block should fully recover within 6 hours of an epidural or spinal injection. Sensory block may take slightly longer to recover especially if 0.5% bupivacaine has been used. Occasionally small areas of numbness may persist for about 24 hours after large doses of epidural 0.5% bupivacaine
- Call the duty anaesthetist if there is delayed neurological recovery after regional analgesia in case it is due to an underlying nerve injury

<u>Role of the anaesthetist</u>

- Urgently attend patient
- Take full history, including neurological symptoms, labour details, anaesthetic technique and drugs used, and examine patient
- Discuss with Duty/ On-call consultant anaesthetist

Central Pathology Suspected (e.g. spinal haematoma)

- Urgent consultant review
- Arrange urgent MRI
    - St Peter’s MRI department open 7am to 8pm
    - Out-of-hours requires transfer to St George’s Hospital for imaging
- Early discussion with neurosurgical team at St George’s Hospital and online referral via www.referapatient.org
- Anticipate urgent transfer to St George’s Hospital
- Document all findings on electronic Badgernet record, complete Datix form

11. EPIDURAL BLOOD PATCH

- The decision to perform an epidural blood patch should be made by the Duty/ On-call consultant anaesthetist. A blood patch should be offered if a dural leak headache or neckache has prevented mobilisation for 24 hours.
- Exclude contra-indications, including recent anti-coagulant dose (see section 2), local or systemic infection, and absence of red-flag symptoms suggesting an alternative diagnosis
- Obtain written consent from patient using consent form, explaining the benefits, risks and side effects

Benefits

- Complete relief in up to one-third of patients. Partial relief in 50 – 80%

Risks and side effects

- Repeat dural puncture
- Back pain during and for several days afterwards
- Rare complications – bleeding, nerve damage, infection

Standards of Practice

- Perform blood patch on labour ward
- Requires 2 clinicians – Consultant Obstetric Anaesthetist to perform epidural injection, second clinician to take blood
- Both clinicians should ensure full aseptic technique
- Establish cardiovascular monitoring and IV access in case of bradycardia during procedure
- Ideally use one interspace below where dural tap occurred
- Inject blood into epidural space immediately after venesection. Volumes of 20ml recommended if tolerated by patient
- Patient should remain supine for 1 – 2h
- Regular maternal observations for heart rate, blood pressure and temperature should be made following procedure, the frequency and duration according to clinical circumstance
- Prescribe regular laxative and advise against staining and heavy lifting for several days
- Ensure anaesthetic follow up within 4h to assess effect on headache and presence of side effects Following this, allow to mobilise and consider discharge home if appropriate
- Follow up should continue as per section 10, including written information for patient and letter to GP and community midwife
- Ensure full documentation on electronic Badgernet record

12. INTRAVENOUS FENTANYL PATIENT CONTROLLED ANALGESIA (PCA)

Fentanyl PCA may be offered to women in labour who require pharmacological analgesia but who have contraindications to epidurals or IM injections (for example women who are being treated with anticoagulants).

Fentanyl is more potent than pethidine and has a faster onset of action, making it more suitable for PCA in labour.

Protocol

- An IVAC PCAM pump and PCA giving sets should be kept on the labour ward.
- If the woman requires parenteral analgesia then the on-call labour ward anaesthetist should set up a fentanyl PCA. Consider anti-emetic prophylaxis prior to PCA commencement.
- Pre-diluted syringes of 1000mcg fentanyl in 50ml 0.9% saline for PCA usage are kept in the labour ward controlled drug cupboard
- The PCA pump should then be set up with the following settings:
    - Fentanyl concentration 20mcg/ml
    - Bolus dose 20mcg
    - Dose duration Stat
    - Lock out 3 minutes
    - Four-hour max 1.6mg (1600mcg)
- The anaesthetist should connect the PCA pump to the patient's IV cannula and administer 20mcg loading doses until the woman is comfortable.
- The woman needs one to one midwifery care as monitoring of respiratory rate and sedation is mandatory whilst on PCA.
- Observations should be documented on the standard hospital PCA charts.
- If nausea is experienced whilst on PCA ondansetron 4mg IV can be given as a rescue antiemetic.
- After delivery the baby must be monitored for respiratory depression. Naloxone may be required as for respiratory depression following maternal pethidine.

13. REFERENCES

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14. MONITORING

Compliance with this policy will be monitored annually by the Labour ward anaesthetists. Epidural procedure documentation, complications, and critical incidents are reported to the Labour ward forum. Where the monitoring has identified deficiencies, recommendations and action plans will be developed and changes implemented. Any actions will be monitored by the Women's Health Governance & Guidelines Group.

EQUALITY IMPACT ASSESSMENT TOOL

Policy/Service: GUIDELINE FOR EPIDURAL AND CSE LABOUR ANALGESIA (INCLUDING ACCIDENTAL DURAL PUNCTURE)

Background • This policy is to ensure the correct procedure is followed to prevent restricted access and to ensure the correct procedure is followed when restricted access is unavoidable
• To ensure consistent and high standards of care within the maternity service. • To ensure we continue to provide a safe maternity service at all times
Methodology This policy is to prevent a negative impact on all groups of people both staff and clients
• Impact assessment revealed no obvious impact identified • N/A • The multidisciplinary team delivering maternity care had the opportunity to contribute to development of the policy.
Key Findings • No negative impact found
Conclusion • Provide a summary of the overall conclusions
• No impact
Recommendations •
• Review in 3 years or earlier if required

Guidance on Equalities Groups

Race and Ethnic origin (includes gypsies and travellers) (consider communication, access to information on services and employment, and ease of access to services and employment)	**Religion or belief** (include dress, individual care needs, family relationships, dietary requirements and spiritual needs for consideration)
Disability (consider communication issues, access to employment and services, whether individual care needs are being met and whether the policy promotes the involvement of disabled people)	**Sexual orientation including lesbian, gay and bisexual people** (consider whether the policy/service promotes a culture of openness and takes account of individual needs
Gender (consider care needs and employment issues, identify and remove or justify terms which are gender specific)	**Age** (consider any barriers to accessing services or employment, identify and remove or justify terms which could be ageist, for example, using titles of senior or junior)
Culture (consider dietary requirements, family relationships and individual care needs)	**Social class** (consider ability to access services and information, for example, is information provided in plain English?)

If further assessment is required please see the Integrated Single Equality Scheme.

PROFORMA FOR RATIFICATION OF POLICIES AND GUIDELINES BY RATIFYING COMMITTEE

Policy/Guidelines Name: Policy	**GUIDELINE FOR EPIDURAL AND CSE LABOUR ANALGESIA (INCLUDING ACCIDENTAL DURAL PUNCTURE)**
Name of Person completing form:	Helen Matthews
Date:	October 2019

Author(s)	Tauqeer Husain & Matt Sinnott	
Name of author or sponsor to attend ratifying committee when policy/guideline is discussed	Helen Matthews	
Date of final draft	Oct 2019	
Has this policy/guideline been thoroughly proof-read to check for errors in spelling, typing, grammar and consistency?		Yes
By whom:	Women's Health Guidelines Group	
Is this a new or revised policy/guideline?	revised	
Describe the development process used to generate this policy/guideline.		
Consultant Anaesthetists/Obstetricians, Women's Health Governance & Guidelines Group		
Who is the policy/guideline primarily for?		
Health Professionals working within the maternity service		
Is this policy/guideline relevant across the Trust or in limited areas?		
Maternity Services		
How will the information be disseminated and how will you ensure that relevant staff are aware of this policy/guideline?		
Intranet, newsletters, email		
Describe the process by which adherence to this policy/guideline will be monitored.		
See *monitoring section of policy*		
Is there a NICE or other national guideline relevant to this topic? If so, which one and how does it relate to this policy/guideline?		
See *reference section of policy*		
What (other) information sources have been used to produce this policy/guideline?		
See *reference section of policy*		
Has the policy/guideline been impact assessed with regard to disability, race, gender, age, religion, sexual orientation?		
No impact		
Other than the authors, which other groups or individuals have been given a draft for comment		
All obstetric Consultants, Women's Health Guidelines Group, Supervisors of Midwives		
Which groups or individuals submitted written or verbal comments on earlier drafts?		
Any comments received considered by Women's Health Guidelines Group		
Who considered those comments and to what extent have they been incorporated into the final draft?		
All comments considered		
Have financial implications been considered?		
Yes		