EPIDURAL ANALGESIA IN LABOUR

DEFINITION

An epidural is a method of pain relief which can be used for labour and birth. A dilute local anaesthetic (often in conjunction with the opioid drug Fentanyl) is injected continuously through a fine plastic catheter which is placed in the woman's epidural space in the lumbar spine.

Around 4-5 cm of catheter is inserted via a Tuohy needle and left in situ. The tip lies near the nerves which carry the pain signals to the brain, so the drug will provide effective pain relief from T-10 to L1 in the first stage. It is an effective method of pain relief which can be extended for instrumental or caesarean birth as required.

RATIONALE

To provide best practice information to staff caring for women with epidural analgesia which will assist them in providing standardised and safe care.

OBSTETRIC INDICATIONS

- Obstetrician recommendation for management of Obstetric or Medical conditions, eg. failure to progress, oedema of cervix, increased risk of instrumental birth.
- Maternal request for pain relief in labour as appropriate.

RELATIVE CONTRAINDICATIONS

- Maternal refusal (this is the sole absolute contraindication)
- Abnormal spinal anatomy
- Hypovolaemia
- Localised skin infection over lower back/generalised sepsis
- Coagulopathy (including low platelets < 80 x 109/L)
- Anticoagulant therapy
- Stenotic heart lesions
- Cardiovascular instability
- Patient unable to cooperate (technical difficulty, high risk of morbidity)
- Unstable neurological disease

If these conditions exist antenatally and a woman is considering an epidural for labour it is worth consulting with the anaesthetic team on Pager 5071 or 5085.

SIDE EFFECTS

COMMON *(up to 1 in 10 women)*	**UNCOMMON**	**RARE**
Technical difficulties (complete failure or unilateral block: incidence 5-10 %)	Fetal distress	Nerve damage is rare < 1:13,000
Increased risk of instrumental birth (but not Caesarean Section)	Post dural puncture headache (1 in 200)	Paralysis is very rare < 5:1,000,000
Pain on insertion (local infiltration reduces this)	Hypotension may occur in conjunction with aorto-caval compression	
Soft tissue back pain (self- limited bruise type pain)	Pruritus generalised	
	Nausea and vomiting	

MANAGEMENT

- The Midwife caring for the woman must hold an epidural endorsement.
- If not:
  - The LMC may consider contacting a back-up midwife who holds an epidural endorsement. *Alternatively,*
  - The LMC discusses with the ACMM the continuing care of the labouring woman.
- A midwife who is undergoing supervised practical experience to become epidural endorsed must be supervised by an epidural endorsed midwife. The midwife working towards her endorsement remains responsible for the midwifery care of that woman.

PRE-EPIDURAL PREPARATION

- The request for an epidural is a consult as per referral guidelines (MOH, 2012) and must be approved by the obstetric team (public or private).
- The midwife must ensure the woman has received the necessary information to make a fully informed decision regarding the use of epidural analgesia in labour and given an opportunity to ask questions.
- Ensure that a full assessment of progress has been conducted prior to the request of an epidural.
- Placement of epidural catheter should be delayed for at least 12 hours after administration of prophylactic low molecular weight heparin, eg. enoxaparin and 6 hours after unfractionated heparin (UFH).
- Any request for epidural at full dilatation should only be made following full assessment by the obstetric team. The woman should also be encouraged to empty her bladder and advised that an indwelling catheter will be inserted whilst the epidural is in situ as bladder sensations will be reduced.

RECORDINGS

- Electronic fetal monitoring (EFM) should be recorded for at least 20 minutes prior to the epidural insertion and a CTG assessment sticker completed.
- If the cardiotocograph trace is abnormal obtain obstetric review.
- Delay of epidural insertion after significant fetal heart rate deceleration is advised. Continue CTG to assess fetal wellbeing. Obtain obstetric review prior to proceeding with epidural.
- Baseline Temperature, Pulse, Respiratory rate and Blood Pressure (BP).

TESTS AND EQUIPMENT

- Site a large bore intravenous cannula (size 16 g) and commence crystalloid infusion as prescribed by the anaesthetist:
- Collect blood for Complete Blood Count (CBC) and Group & Hold at the request of the anaesthetist.
- Send a repeat CBC to laboratory for Platelet count if woman is pre-eclamptic or has thrombocytopenia and the last test is > 6 hours prior.
- Consult with the Anaesthetist if they require coagulation studies also, this may depend on woman's history.

DOCUMENTATION

- The Anaesthetist completes the Epidural Insertion and Prescription Record (Ref.2899 QMR0168).

INTRAPARTUM EPIDURAL MANAGEMENT

DRESSING

Once the epidural is sited, the epidural catheter should be secured to avoid migration of the catheter from the epidural space.

- Place a large Tegaderm® clear dressing over the epidural catheter entry site
- Sleek to the edges and along the length of the catheter up to the shoulder
- Tape to the woman's clothing
- Place a yellow epidural sticker next to the filter to avoid medication errors

POSITIONING

- Position the woman laterally or in an upright position of comfort, using pillows to assist; this is to avoid aorta-caval compression and hypotension. Turning to the opposite side or position of comfort after 20 minutes may help to achieve an even block.
- Care is needed when the woman is moving around the bed to avoid epidural catheter migration or its inadvertent forceful removal.

OBSERVATIONS/RECORDINGS

A woman having an epidural requires constant supervision by an epidural certified midwife.

Monitor for risks of hypotension, fetal distress, Central Nervous System (CNS) and Cardiovascular system (CVS) toxicity and side effects of Epidural anaesthesia (see Major Complications section).

Maternal recordings pertaining to the epidural are charted on the Obstetric Epidural Observations Record (Ref.6606 C280101) and are in addition to standard intra-partum observations, eg. temperature.

OBSERVATION	INITIALLY AND FOLLOWING TOP-UPS	ONGOING FREQUENCY
Heart rate	Every 5 minutes for 20 minutes (or longer if unstable)	Hourly
Blood Pressure (BP) Systolic should be >100mmHg	Every 5 minutes for 20 minutes	Hourly
Respiration rate should be > 8-10 breaths per minute	Initially	Hourly
Sensory level/block (see guidance below)	20 minutes after a loading dose or clinician bolus	Hourly
Sedation score should be rousable to voice, or in a natural sleep	Initially	Hourly
Pain score (0-10)	Initially	Hourly or as required
Electronic fetal monitoring	Should be carried out for the duration of the labour whilst an epidural is in situ	Continuous
Epidural solution infusion volumes	Initially	Hourly
Pressure areas	Initially	2 Hourly
Fluid balance	-	Continuous

BP DEVIATIONS

OBSERVATION	ACTION
Systolic BP > 90 ≤ 100 mmHg	• Place woman in lateral position • Increase IV fluid rate • Contact Anaesthetist
Systolic BP < 90 *or* Woman is sleepy and difficult to rouse	• **STOP the epidural immediately** • Call for assistance (including Anaesthetist and Obstetrician) • Turn the woman to a lateral position or lower the head of the bed • Increase intravenous fluid rate • Maintain airway • Give 4 L/min oxygen via mask
Decrease in level of consciousness *or* Convulsion	• **STOP the epidural immediately** • Ring the emergency bell for assistance • Stay with the woman • If not breathing initiate basic CPR • Monitor fetal heart closely to ensure utero-placental perfusion is not compromised

MAJOR COMPLICATIONS

FETAL BRADYCARDIA

1. Call for assistance by using the red emergency bell in the room.
2. Place the woman in left lateral position (or right lateral if bradycardia persists) to try to re-establish and maintain fetal wellbeing.
3. Check BP, if low, act accordingly. (see above)
4. Contact Obstetric Registrar.
5. Contact Anaesthetist who will consider ephedrine or phenylephrine.

CVS (CARDIOVASCULAR SYSTEM) TOXICITY

SIGNS AND SYMPTOMS	ACTION
• Hypotension • Maternal Bradycardia • Arrhythmias • Cardiovascular collapse and cardiac arrest	• Call for help using the Red Emergency bell in the birthing room for immediate assistance *and* • Use the Green Clinical Emergency button which calls the adult cardiac arrest team *and* • Dial 777 and ask for the obstetric emergency team which calls the obstetric and anaesthetic teams • Provide CPR if in full cardiac arrest Bring to the room immediately: – cardiac arrest trolley (outside PACU) – Intralipid 20% emulsion (from the anaesthetic top shelf of the birthing suite drug room)

SIGNS AND SYMPTOMS	ACTION
	• Prepare for perimortem caesarean section if cardiac output not restored by 4 minutes post arrest. Caesarean section offers the best chance of survival for the woman and the fetus
• Numbness around the mouth • Ringing in the ears • Decreased level of consciousness	• If any of these occur report to the Anaesthetist immediately
• Convulsions/seizures	• Call for help using the Red Emergency bell in the birthing room for immediate assistance *and* • Use the Green Clinical Emergency button which calls the adult cardiac arrest team *and* • Dial 777 and ask for the obstetric emergency team which calls the obstetric and anaesthetic teams Bring to the room immediately: – airway box (from resus trolley outside PACU) – Thiopentone is made up daily and stored in a red box in the Theatre 26 fridge – Propofol (from theatre or PACU fridge)

SENSORY (DERMATONE) LEVEL/BLOCK

Checking the level of the block allows detection of high levels of anaesthesia which, with resulting hypotension and ventilatory difficulties, could eventually lead to respiratory arrest.

- Assess 20 minutes after the loading dose or clinician bolus, otherwise hourly while epidural infusion is in progress.
- Assess bilaterally using an ice block.
- Use an area of comparison (eg. cheek or inside wrist) to check for sensation.
- Ask the woman to inform you of differences in sensation from cold to numbness.
- Signs of a good sympathetic block are that the woman will have warm and dry feet to touch – vasodilatation and sweat gland inhibition, both factors due to action of the local anaesthetic on the spinal nerves.

HIGH BLOCK LEVEL

SIGNS AND SYMPTOMS	ACTION
Woman is unable to detect a cold sensation at or above nipple level (= T4 dermatome)	• STOP the epidural and contact the anaesthetist **immediately** • Give oxygen via mask 4 L/min • Check observations and repeat (incl. block height) every 15 minutes • When the block falls below T4, recontact the anaesthetist. They will advise the appropriate time to restart the infusion and will adjust the continuous hourly infusion rate and the bolus dose as required

PAIN SCALE

- Monitor the woman's comfort levels and effectiveness of the epidural block using the 0-10 pain scale. The Anaesthetist can be contacted if the rate needs adjusting. If a range for the rate has been prescribed by the Anaesthetist, the midwife can increase and decrease the rate as required.
- If the woman is not pain free after 30 minutes of commencement of epidural, after top up's or thereafter, the Anaesthetist should be asked to review.

HEAT SOURCE

Do not use any kind of direct heat source (eg. hot water bottle, hot towel, wheat bag) whilst an epidural is in situ, to avoid burns.

EPIDURAL INFUSION OR PROGRAMMED INTERMITTENT BOLUS

- The continuous epidural infusion rate or Programmed Intermittent Bolus (using pre filled bags of Ropivicaine 0.2% and Fentanyl 2 microgram/mL) is set up through the Cadd Solis infusion pump and prescribed on the QMR0168 form by the Anaesthetist.
- Intravenous fluids are to be prescribed by the Anaesthetist on the Fluid Prescription Chart (Ref.2544 C280049), unless already commenced by the midwife or obstetric team.

TOP UPS

Must be prescribed and may be given via:

1. Patient Controlled Epidural Analgesia (PCEA)
   - Following PCEA bolus the infusion pump will automatically restart
2. Using infusion solution (if in progress)
   - Following a clinician bolus via the pump, the infusion will automatically restart
3. By syringe 'top-up' (if no infusion is in progress)
   - Always check prescription on QMR0168 before administration
   - Requires double checking
   - Check catheter entry site before each top-up in case of migration from the epidural space

- Observations should be taken at 5 minute intervals for 20 minutes after every top-up
- Assess the effectiveness of each top-up
- Document administration and observations

For more information on top-ups by syringe please see Appendix A.

SECOND STAGE OF LABOUR

- Once full cervical dilatation has been reached and as long as there are no concerns with the fetal heart tracing it is advised to **wait a minimum of one hour before commencement of active pushing**, to allow passive descent of the fetal head.
- The midwife should discuss with the woman if she wants to feel the urge to push and if so the epidural rate can be reduced.
- It is not advisable to cease the epidural infusion until completion of 3rd stage of labour.

THIRD STAGE OF LABOUR

- Turn epidural infusion pump off after birth of placenta and perineal repair.

BLADDER CARE

Intrapartum	Insert indwelling urinary catheter (IDC) once epidural has taken effect to avoid bladder over distension
Second stage of labour	The IDC balloon should be deflated to prevent damage to the urethra during descent and from pressure of the fetal head
Immediately post birth	Replace IDC following birth of the baby and placenta and keep in situ for 6 hours following removal of the epidural catheter as the woman will still be under the effect of the epidural anaesthesia at this point. This will ensure the bladder is empty, as the urge to pass urine is reduced and mobility is restricted.

Special Note: At reinsertion of the IDC discuss the reason for this and document the discussion. Before removal of the IDC check the return of full sensation and that the woman is well enough to mobilise independently. *Refer to Intrapartum & Postnatal Bladder Care Guideline (GLM0038)*

POSTNATAL MANAGEMENT

REMOVAL OF THE EPIDURAL CATHETER

- Once 3rd stage is complete and perineum sutured.
- Can be done by a midwife holding current epidural certification.
- Remove epidural catheter if platelets at time of insertion are known to be > 80 x 109/L with no coagulopathy.
- If the woman is on low molecular weight heparin delay removal until 12 hours post last dose or if on unfractionated heparin delay removal until 6 hours post last dose.

- Administration of low molecular weight heparin or unfractionated heparin should not take place for at least 4 hours after removal of epidural catheter to minimize the risk of haematoma.
- If in doubt it is very important to seek advice from an Anaesthetist regarding epidural catheter removal.

TECHNIQUE

1. The woman should be asked to sit or lie with a flexed spine.
2. After removal of the dressings the catheter should be gently and steadily withdrawn. If there is resistance, call for an anaesthetist.
3. The catheter should be checked to ensure it is complete by visualising the blue tip. If the tip is not intact, notify the Anaesthetist.
4. Administer Opsite® spray to the puncture site and/ or apply a small plaster.
5. Document in clinical notes that catheter has been removed and is complete, ie. blue tip is visualised.

BLADDER CARE

- Refer to Intrapartum & Postnatal Bladder Care Guideline (GLM0038).

MOBILISING

1. Check with the woman to ensure that she feels confident to mobilise.
2. Measure **vital signs** and calculate MEWS prior to mobilising.
3. Be aware that women who have an epidural which is more effective on one side may be more **prone to one-sided muscle weakness** when mobilising.
4. While still in supine position, **assess strength and power** in both legs by asking the woman to:
    a. Flex both knees
    b. Raise each leg against resistance
5. **Midwife or nurse to be in close proximity** to the woman when she first stands. Ensure she does not feel dizzy when seated on side of bed prior to initial standing.
6. Provide support to the woman when walking to gauge her stability in an upright position
7. Should there be a fall or any trauma to the lower half of the woman's body when complete return of sensation post epidural is in question, complete a full assessment of areas of potential harm to epidural affected areas given that harm may not be felt by the woman and refer for specialist assessment if applicable.

AFTER-CARE

- Consult with anaesthetist on call for Christchurch Women's if there is any unresolved numbness in lower limbs or postural headache.

REFERENCES

Epidural Anaesthesia Guideline 0007 (2007) Nigel Skjellerup, CDHB, Women & Children's Health

Adult Epidural Management Volume 12 Fluid & Medication Management- Acute Pain Management (2012) Ref 4701

Epidural – Midwifery Care of a Woman (2007) CDHB, Women's & Children's Health -OPS

Epidural- 'Top Up's' By Midwife (2007) CDHB, Women's & Children's Health -OPS

Intrapartum & Postnatal Bladder Care Guideline (2017) CDHB, Women's & Children's Health, W&CH/GL/M0038

Intrapartum Care (2007) NICE Clinical Guideline

Readings for Epidural Education Course for Nurses (2009) CDHB Policy & Procedure Manual, Volume 12, Fluid & Medication Manual, Dept of Nursing.

Referral Guidelines, Ministry of Health (2012)

Epidural Anaesthesia, Care during labour (2011) Procedures, Lippincott Williams & Wilkins

Guideline for Epidural Analgesia in Labour (2009) D Banks, D Pearson, East Cheshire NHS Trust, United Kingdom.

Midwifery: Preparation for Practice (2010) Pairman,Tracy, Thorogood, Pincombe ch 25 Leap N, Vague S.

Skills for Midwifery Practice (2004) Johnson, Taylor, ch 27

APPENDIX A TOP-UPS

TOP-UPS BY SYRINGE 'TOP-UP' (IF NO INFUSION IS IN PROGRESS)

Check that bolus is prescribed on QMR168