Epidural Analgesia in Birth Suite
Cairns Hospital

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Epidural Analgesia in Labour

Epidural analgesia is performed to improve to the mother’s experience for childbirth. Mothers should not have to tolerate the unpleasant side effects that a dense motor block causes.

Regional analgesia is available on request to any mother unless medically contraindicated.

An epidural can relieve pain without causing profound muscle weakness. Low dose epidurals can be used in nearly all situations as long as they provide adequate pain relief. Low dose epidurals restrict the ability for most women to stand and walk.

Stages of Labour

Following the regional procedure the mother should remain in bed. After this time the mother should be pain free and have a normal blood pressure. The anaesthetist must be contacted if the mother remains in pain or is hypotensive.

The initial dose given by the anaesthetist may last up to 1.5 hours. This is often the best combination of analgesia.

After the first litre of IV fluid has been infused and if the mother had not been hypotensive the infusion can be taken down. The IV cannula must remain in place.

The mother should be encouraged to use her PCEA when she feels her contractions again but before they become painful. In this way she will remain in control of her pain. If she waits too long before commencing the PCEA she will need a top up of stronger solution to maintain adequate pain relief.

If the anaesthetist prescribes an epidural infusion or midwife–administered top ups only, then the anaesthetist must give the first epidural top up/loading dose.

Motor block must be assessed hourly. It can develop and increase in intensity the longer the epidural is in progress.
Patient Controlled Epidural Analgesia (PCEA)

1. Patient Controlled Epidural Analgesia (PCEA) can only be commenced by an anaesthetist. A referral to the anaesthetist is initiated by the obstetric team. Should a referral be from a midwife the obstetric team must be notified at the time of referral.

2. Reliable intravenous access must be established before an epidural/CSE is sited.

3. The “Go Medical” disposable PCEA device delivers a 4ml bolus and has a 15 min lockout. The solution used is 0.125% levobupivacaine with 2mcg/ml Fentanyl. The prescription will be written on the standard PCEA form by the anaesthetist.

4. After a CSE the anaesthetist should ideally return to give the initial epidural top up when the analgesia from the intrathecal injection is wearing off. Alternatively the first PCEA dose can be regarded as a test dose. In either case the mother needs to be monitored for 30 mins and the anaesthetist informed.

5. When connecting the PCEA device to the epidural catheter the midwife must aspirate the catheter. If blood or CSF is obtained the PCEA must not be connected and an anaesthetist must be called.

6. It is not necessary to monitor the mother’s blood pressure and vital signs after each 4ml bolus injection with PCEA. Monitoring requirements are the same as for an epidural infusion. See section on Monitoring.

7. The first PCEA dose can be self administered by the mother in any position except lying flat on her back, which may cause aorta-caval compression and hypotension. The mother should be supervised during these administrations.

8. PCEA may not be suitable for all mothers. The mother must be educated in its use. The mother should provide evidence of a good understanding of the technique and demonstrate aptitude in its use. In the situation where a woman is unable use the PCEA independently then a more suitable technique such as a continuous infusion should be considered for these mothers.

9. The same safety procedures must be followed when setting up a PCEA as with any epidural infusion (see below).
Instructions for priming GO MEDICAL disposable PCEA device.

Adhere to strict aseptic technique when setting up the device.

In a separate 50ml syringe make up 50mls of 0.125% levobupivacaine and 2mcg/ml fentanyl solution as prescribed on the standard Birth Suite form.

Remove the blue cap from the infusion port. Prime the infusion line with the remaining solution. Ensure the line is free of air and remove the 50ml syringe.

Inject 45ml of this solution through the cream coloured injection bung on the line to the reservoir syringe and aspirate any air.

Remove white protector cap from the patient demand syringe. With the patient demand button fully depressed, turn and lock the demand syringe firmly on the infusion port. The patient demand button must be fully depressed when making the junction to the infusion line port. It is this action that creates a vacuum to ensure the transfer of 4ml of solution from the reservoir to the patient demand syringe.

Remove red cap, aspirate to ensure no blood or CSF and then attach the line firmly to the epidural filter. The first dose will be ready in 15 min.
Refill the reservoir through the injection bung when the level of drug is between 5 and 10ml.

Second Stage Labour

During the second stage it is safe and indeed desirable to continue epidural analgesia. Using the low-dose epidural technique there is usually minimal motor block and the mother will be able to push and assist with positioning herself for delivery. Asking the mother to straight leg raise can assess muscle power. If she can do this there is no significant muscle weakness. There is no need and nothing to be gained by turning off the epidural.

The PCEA delivers small doses of local anaesthetic and while this may be adequate for the first stage of labour, often it does not provide sufficient analgesia for the second stage of labour. Giving a top up of 0.125% levobupivacaine and 2mcg/ml fentanyl before the mother starts pushing will not remove the urge to push for more than a few minutes. By ensuring analgesia, pushing will often be more effective.

The epidural should not be ceased before the baby is born unless it is thought to be unsafe. If the midwife or the obstetrician feels that the epidural should be temporarily ceased they must contact anaesthetist.
Intermittent Top Ups

Accredited midwives can administer low-concentration epidural top ups during labour in Birth Suite as long as the anaesthetist has reviewed the mother and is satisfied that the epidural is effective and safe.

This will be prescribed by the anaesthetist on the relevant APS form as 10ml of a solution of 0.125% levobupivacaine and 2mcg/ml Fentanyl, which can be given one hourly PRN. This is the only strength of solution that a midwife is accredited to give.

There are three situations in which these top ups can be administered:

1. If the mother is using an infusion, program the machine to deliver 10ml of the solution
2. If the mother is using a PCEA, 10 ml of the solution can be drawn from the reservoir syringe and administered as a bolus.
3. If the mother is not using either of the above techniques she can still receive bolus top ups from the midwife. In this case the solution should be made up in a 50ml syringe by mixing:

   12.5 ml of 50mg/10ml Levobupivacaine
   2 ml (100 mcg) Fentanyl
   35.5ml Saline

The syringe should be labelled with the mother’s details and its contents. It should be capped with the drawing up needle and kept only in the mother’s room. It can be kept for 6 hours.

The epidural catheter must always be aspirated before injecting. If blood or SCSF is obtained do not inject but contact the anaesthetist.

Inject solution slowly over 1 or 2 minutes. Use an aseptic technique but do not swab filter with alcohol or iodine, as these are neurotoxic.

Top ups can be administered to the mother if she is sitting or lying on her side. They must never be given if she is lying flat on her back as severe hypotension can result.

Monitoring the mother’s vital signs and the foetal heart rate must be carried out every 5 minutes for 15 minutes after the first top up (given by anaesthetist or from the PCEA). Full monitoring for 30 minutes is also required following first midwife top up.

If both mother and foetus have been well antenatally and perfectly stable after 2 X 10 ml top ups then monitoring mother’s vital signs and FHR may be limited to 5, 10 and 15 minutes for subsequent top ups.

Full 30 minute monitoring must be continued for the duration of the epidural if there have been any abnormal readings or if there is concern for the mother and fetus.

The duration of analgesia us is usually 60 to 90 minutes after each top up. If the first top up of 10 ml is not effective within 20 minutes call the anaesthetist.
Monitoring

Monitor blood pressure and pulse every 5 minutes for 15 minutes after the spinal component of CSE and also after the first epidural top up. Thereafter observations are half hourly until the epidural is ceased.

Fetal heart monitoring is performed in adherence with the Maternity and Neonatal Clinical Guideline – *Intrapartum fetal surveillance* (IFS). Continuous CTG monitoring is indicated prior to insertion of the epidural and during the procedure. There have been a number of reports of fetal bradycardia occurring soon after the spinal injection of a CSE.(4)

The mother’s pain should be monitored - this will be obvious with each contraction and an overall assessment should be recorded each hour.

Adhering to the Queensland Clinical Guidelines – shortGUIDE – *Epidural analgesia in labour* observations are as follows:
- Ongoing intrapartum maternal observations every 30 minutes; additionally
  - Assess sedation, motor weakness, back pain and catheter site
  - Observe for nausea, vomiting, and pruritis

Monitor height of the sensory block using temperature sensation to ice. This should be performed initially 30 min post insertion and thereafter at hourly intervals. Dermatome maps should be consulted.

Monitor the extent of any motor block by straight leg raising, initially at 30 min and then hourly, using the Bromage score.

If the mother is receiving a continuous epidural infusion or is using patient controlled epidural analgesia (PCEA), then the volume infused must be recorded hourly. It is not necessary to record every bolus when a mother is using a PCEA – hourly totals are sufficient.

Bladder Care

Refer to: *Intrapartum and Postnatal Bladder Care* Procedure - Cairns and Hinterland Hospital and Health Service:
Observations and Monitoring of Epidural Analgesia in Labour

<table>
<thead>
<tr>
<th>Regional procedure performed</th>
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<tbody>
<tr>
<td>→ Commence 30 minutes of monitoring</td>
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<tr>
<td>→ Make up epidural solution</td>
</tr>
<tr>
<td>→ Attach PCEA device</td>
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<table>
<thead>
<tr>
<th>After 30 minutes</th>
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</thead>
<tbody>
<tr>
<td>Is there any pain/hypotension/leg weakness?</td>
</tr>
<tr>
<td>If YES call anaesthetist</td>
</tr>
<tr>
<td>If NO</td>
</tr>
<tr>
<td>→ Cease IV fluids (do not remove cannula)</td>
</tr>
<tr>
<td>→ Commence bladder care chart</td>
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</tbody>
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<table>
<thead>
<tr>
<th>Is pt suitable to mobilise?</th>
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</thead>
<tbody>
<tr>
<td>Uncomplicated pregnancy and labour</td>
</tr>
<tr>
<td>No IV drug infusions</td>
</tr>
<tr>
<td>No hourly urine measures</td>
</tr>
<tr>
<td>Intermittent monitoring (fetal HR and uterine contractions) appropriate</td>
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<thead>
<tr>
<th>Mobilise only if:</th>
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<tbody>
<tr>
<td>* the mother can straight leg raise</td>
</tr>
<tr>
<td>* the mother feels she has normal power and sensation</td>
</tr>
<tr>
<td>* no postural hypotension</td>
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<thead>
<tr>
<th>SAFETY FIRST – avoid falls</th>
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<tbody>
<tr>
<td>If there is any doubt do not allow the mother to mobilise. The mother must be accompanied and supported at all times</td>
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<table>
<thead>
<tr>
<th>First PCEA/epidural top up</th>
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<tbody>
<tr>
<td>30 minutes monitoring in bed</td>
</tr>
<tr>
<td>Then: is there pain/hypotension/leg weakness?</td>
</tr>
<tr>
<td>If NO continue to mobilise</td>
</tr>
<tr>
<td>If YES call anaesthetist</td>
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</table>

<table>
<thead>
<tr>
<th>Subsequent top ups</th>
</tr>
</thead>
<tbody>
<tr>
<td>No need to return to bed</td>
</tr>
<tr>
<td>2-3 hrs after commencing epidural it is likely the mother will begin to feel leg weakness; she should then stop mobilising</td>
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<tr>
<th>Ongoing Monitoring</th>
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<tbody>
<tr>
<td>Every 30 minutes: routine obs</td>
</tr>
<tr>
<td>Every hour: check sensory level and leg weakness</td>
</tr>
<tr>
<td>Bromage ≥ 1 confine to bed</td>
</tr>
<tr>
<td>Bromage 0 ask if legs feel normal, if YES continue to mobilise if NO no further walking</td>
</tr>
<tr>
<td>Every 2 hours:</td>
</tr>
<tr>
<td>Voided? Record volume</td>
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Resuscitation Equipment and Drugs

The following must be immediately available when inserting an epidural.

- Laryngoscope (size 3 and 4 blade)
- Bougie
- Endotracheal tubes sizes 6, 7, 8
- 'Proseal' LMA’s sizes 3, 4
- Face masks sizes 2, 3, 4
- Geudel’s oropharyngeal Airways sizes 2, 3, 4
- Self-inflating ambu bag
- Supplemental oxygen
- Suction apparatus

In the white plastic box (on the epidural trolley):
- Thiopentone
- Ephedrine
- Metaraminol – pre-mix
- Normal Saline

In the Adult Resuscitation Trolley:
- Adrenaline
- Naloxone
- Atropine

In Pyxis
- Midazolam

In the fridge:
- Suxamethonium
References


Further Reading:


- Short Guide: Nitrous oxide and oxygen in labour
- Short Guide: Opioids in labour
- Short Guide: Remifentanil via PCA in labour