Programmed Intermittent Epidural Bolus Pumps for Labour Analgesia - PIEB Protocol (CG695)

Approval

<table>
<thead>
<tr>
<th>Approval Group</th>
<th>Job Title, Chair of Committee</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Drugs &amp; Therapeutic Committee</td>
<td>Chair, DTC</td>
<td>4th December 2019</td>
</tr>
<tr>
<td>Maternity Clinical Governance Committee</td>
<td>Chair, Maternity CG Committee</td>
<td>1st November 2019</td>
</tr>
<tr>
<td>Obstetric Anaesthesia Clinical Governance</td>
<td>Chair, Obstetric Anaesthesia CG Committee</td>
<td>18th October 2019</td>
</tr>
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Change History

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<th>Date</th>
<th>Author, job title</th>
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<td>1.0</td>
<td>August 2019</td>
<td>Alexandra Reeve, Consultant Anaesthetist</td>
<td>Introduction of new procedure for pain relief</td>
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</table>

This document must be read in conjunction with:

- Epidural anaesthesia – procedure for midwives (GL765)
- Epidural analgesia – procedure for anaesthetists (GL756)
- Epidural Anaesthesia: how to convert a labour analgesia into a surgical anaesthetic block (GL757)
- RBFT Epidural analgesia in Adults (GL651)
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1.0 Purpose
Programmed intermittent epidural bolus (PIEB) is a way of delivering epidural labour analgesia. When compared to continuous epidural infusion (CEI) with patient-controlled epidural analgesia (PCEA) bolus techniques, PIEB has been shown to have greater spread within the epidural space and therefore better sensory blockade.¹ Several studies have shown a local anaesthetic-sparing effect, improvements in maternal satisfaction,² fewer instrumental vaginal deliveries, and less motor blockade³ with PIEB compared to CEI.

2.0 Scope
This protocol is intended to cover all epidural infusions used as analgesia for women in labour, and being cared for on delivery suite by a trained midwife.

3.0 Roles and Responsibilities
All clinical staff caring for patients with PIEB infusion pumps are responsible for ensuring they are assessed at the appropriate level of competence to do so.

It is the responsibility of the midwife in charge to ensure that the patient is cared for on a one to one basis by a midwife who has been assessed as competent. Training is provided by the pain team, clinical practice educators and obstetric anaesthetic consultants. Records of competence will be kept in the training records and trainers are responsible for updating this record. The epidural catheter must be removed before the patient leaves the labour ward ensuring that the blue tip is intact.

4.0 Definitions

<table>
<thead>
<tr>
<th>PIEB/PIB</th>
<th>Programmed Intermittent (Epidural) Bolus</th>
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</thead>
<tbody>
<tr>
<td>CEI</td>
<td>Continuous Epidural Infusion</td>
</tr>
<tr>
<td>PCEA</td>
<td>Patient Controlled Epidural Analgesia</td>
</tr>
<tr>
<td>LDM</td>
<td>Low Dose Mixture</td>
</tr>
<tr>
<td>IV</td>
<td>Intravenous</td>
</tr>
<tr>
<td>CTG</td>
<td>Cardiotocograph</td>
</tr>
<tr>
<td>FSE</td>
<td>Fetal Scalp Electrode</td>
</tr>
<tr>
<td>BP</td>
<td>Blood Pressure</td>
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</table>

5.0 Epidural Setup and Management

5.1 The Low Dose Mixture (LDM) of local anaesthetic that is used is **0.1% levo-bupivacaine + fentanyl 2 micrograms per ml**.

5.2 The BodyGuard ColourVision 545TM PIB pumps deliver epidural analgesia in 2 ways:

1) The patient receives an **automated bolus** of the LDM every hour

2) In addition, the patient can ‘top-up’ with a patient controlled bolus (PCEA) every 20 minutes

   These settings aim to achieve optimal analgesia with minimal side effects.

5.3 Setting up the pumps (see Appendix A for operating codes):

   a) Once you have inserted and fixed the epidural catheter, draw 15mls of LDM using an aseptic technique from the bag and administer to the patient via the epidural filter (as 10mls + 5mls). Ensure all monitoring and IV access available as per epidural guidelines GL765 and GL756.

   Then set up the pump.

   b) Open the pump cassette using the key attached to the **142 bleep**.

   c) Spike the pre-filled bag of LDM using the **yellow** NRFit infusion line and hang inside the cassette. The infusion line must be clearly marked with a yellow label stating ‘**For epidural use only**’ in order to distinguish it from other infusion lines

   d) Then feed the giving set through the appropriate channels

   e) Close the cassette door and lock the box

   f) Turn on the pump (**on/off** button)

   g) Enter **Level One Code**. Press **start/ok** button

   h) Select ‘Prime’ from the menu. Press **start/ok** button and enter **Level One Code**

      **Warning disconnect patient and press start/ok to prime**

   i) Press **stop/no** when the infusion line is fully primed

   j) Next, **Select Protocol** from the menu. Enter **Level Two Code**

   k) ‘**New patient**’ is displayed. Press **start/ok** button

   l) Select protocol **A** from the menu: ‘**Maternity 0.1% l-bup + 2mcg/ml fentanyl**’. Press **start/ok** button

   m) As indicated on the screen press **Prime/Bolus** to confirm

   n) Press **info** button to change the volume remaining to **478mls**. Press **start/ok** to change the bag volume. Press **start/ok** and enter **Level Two Code**

   o) Then press **stop/no** to exit this menu
p) Run through the rest of the Protocol menu to ensure pre-set values are correct and then press **start/ok** to accept and confirm

q) Ensure the infusion line is connected to the epidural filter and the patient and press **start/ok** to commence the auto-bolus

5.4 All patients receiving epidural analgesia must have patent intravenous (IV) access.

5.5 Resuscitation equipment, drugs and oxygen must be readily available. The labour ward anaesthetist (Bleep 142) and midwife caring for patients receiving PIEB analgesia must know where the emergency drugs are kept (including ephedrine and naloxone). Grab boxes are kept in the delivery suite store room.

5.6 They must also know where to obtain Intralipid for emergency treatment of local anaesthetic toxicity. Intralipid is stored in the anaesthetic room between Theatres 17 & 18. (See [Appendix B for Local Anaesthetic Toxicity Guidelines](#))

5.7 In the event that a patient with an epidural in-situ and PIEB running, is required to go to the operating theatre, the midwife caring for the patient should disconnect the epidural line at the filter end and place a sterile bung onto the filter (patient end) using an aseptic technique. This should be done just prior to leaving the room to ensure the woman remains comfortable.

6.0 **Clinician Boluses**

If a clinician bolus (in addition to the standard PIEB infusion) is necessary, the **Level 2 code** will be required to administer this.

6.1 **Stop the pump**

6.2 Press **Prime/Bolus** button. **Next autobolus due in xx minutes** will be displayed. Press **Start/ok** to confirm and enter **Level 2 code**

6.3 **Clinician bolus dose** will be displayed. Enter volume (up to 10mls) and press **start/ok**

6.4 Pump will automatically restart once the bolus is completed

*Please document any clinician boluses on EPR and the front of the epidural record.*

7.0 **Prescription**

The ‘Maternity Epidural’ is the first option (Protocol A) on the PIEB epidural pump and is displayed as:

```
“Maternity 0.1% l-b + 2mcg/ml fentanyl”
```

Prescribe the maternity epidural in the Electronic Patient Record (EPR) under “Maternity Epidural Analgesia Powerplan” as:

```
“High Alert Levobupivacaine + Fentanyl (Levobupivacaine 0.1% with Fentanyl 2microgram/ml)” in 500ml Sodium Chloride 0.9%.
```

<table>
<thead>
<tr>
<th>Author:</th>
<th>Alexandra Reeve</th>
<th>Date:</th>
<th>November 2019</th>
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<tr>
<td>Job Title:</td>
<td>Consultant Anaesthetist</td>
<td>Review Date:</td>
<td>November 2021</td>
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<td>Policy Lead:</td>
<td>Group Director Urgent Care</td>
<td>Version:</td>
<td>V1.0 ratified 1/11/9</td>
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<td>Location:</td>
<td>Policy hub/ Clinical/ Maternity/ Anaesthetics/ CG695</td>
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*This document is valid only on date last printed*
The LDM comes in a pre-filled bag and the epidural pump will be programmed with Royal Berkshire NHS Foundation Trust delivery suite’s current settings.*

*Refer to obstetric anaesthetists handbook and senior clinicians for current settings

Naloxone must be prescribed in conjunction with the epidural infusion.

“Naloxone 200-400 microgram intravenously as required (prn) if respiratory rate <8 per minute”

IV fluids must also be prescribed.

(See Appendix C for guidance on prescribing in the case of patients with opiate/fentanyl allergy)

8.0 Storage of Local Anaesthetic Bags

Epidural infusion bags containing fentanyl must be stored according to the Royal Berkshire Foundation Trust's Controlled Drugs’ Policy (CG399).

Staff must ensure that local anaesthetic only epidural infusion bags are locked away, labelled ‘for epidural only’ and separate from those areas storing intravenous infusions in order to reduce the risk of wrong route administration.4,5

9.0 Patient Monitoring

9.1 General

- The epidural checklist/record (as per EPR/epidural record) and patient monitoring should be performed only by midwifery staff who have been assessed as competent, who are aware of the significance and the action required in response to abnormal values.

- At no time should the patient be left unaccompanied. A midwife competent in caring for women with epidural analgesia should remain in the room for at least 20 minutes after the initial epidural dose and any additional clinician bolus dose. After this time a responsible birth partner who knows how to call for help must be present before the midwife can leave the room.

- If at any time it becomes impossible to provide one-to-one midwifery care the consultant anaesthetist should be informed and pump stopped.

9.2 Immediate care after initial dose or clinician bolus

- Continuous fetal monitoring with cardiotocograph (CTG) – may be with an abdominal transducer or fetal scalp electrode (FSE).

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4 Safer practice with epidural injections and infusions. NPSA Patient Safety Alert 21, 2007
5 Best practice in the management of epidural infusions in the hospital setting. RCoA 2010
• Record heart rate, blood pressure and fetal heart rate at 5 minute intervals for 20 minutes.
• Record pain relief before and at 20 minutes after the initial dose/clinician bolus (See Appendix G: Epidural Record)
• Document findings on K2 (and the epidural record/EPR)
• Efficacy of the epidural in providing analgesia should be noted on the epidural record as well as any actions taken
• Observations including pain score, sensory level, mobility, BP, respiratory rate and volume of local anaesthetic infused should be recorded hourly whilst the epidural pump is running. This should commence at the next hour and be repeated every hour on the hour.

9.3 Care in labour

- Refer to Appendix G: Obstetric Epidural Record for observations that must be recorded
- Pain score, mobility score, upper level of the block, BP, respiratory rate and the volume of LDM should be recorded hourly after commencement of the PIEB infusion
  - The pain score is recorded on a scale of zero to 10
    0 = no pain 10 = severe pain
  - The mobility score is recorded as follows:
    W – Walking S – able to Stand/Sit
    M – Mobile in bed D – Dense motor block
  - The block level should be tested with ethyl chloride ‘cold’ spray:
    - If the block is below the umbilicus and the patient is uncomfortable \(\rightarrow\) suggest a PCEA bolus
    - If the block is below the umbilicus and the patient is uncomfortable despite PCEA bolus \(\rightarrow\) inform the anaesthetist
    - If the block is below the umbilicus and the patient is comfortable \(\rightarrow\) recheck in one hour
    - If the block is above the umbilicus and the patient is comfortable \(\rightarrow\) recheck in one hour
    - If the block is above the fundus \(\rightarrow\) inform the anaesthetist

Also see Appendix E: Epidural anaesthesia –Procedure for midwives (GL765)
10.0 Epidural removal

- The epidural must be removed before the patient goes to the postnatal ward
- Using an aseptic technique. Remove the dressing
- Remove the epidural catheter with slow gentle traction and check that the line is complete by looking for the blue tip
- Apply op-site dressing spray.
- Document on K2 (the epidural record/EPR) that the catheter is complete and removed

11.0 Mobilisation

- If a woman with a working epidural can perform a straight leg raise for 5 seconds with each leg in turn and, if she also feels capable of weight bearing, she can be assisted to sit out or stand by the bed.
- If she is able to perform a deep knee bend, she can mobilise around the room on the arm of an assistant (who may be the birth partner).

12.0 Disconnection of epidural

If the epidural becomes disconnected from the patient side of the bacterial filter, contact the anaesthetist immediately. **Do not reconnect.**

13.0 Disposal of infusion bag

To dispose of the bag which contains Fentanyl, two Registered Nurses/Midwives must write the volume of infusion disposed in the Ward Controlled Drug register, under opioid disposal. Two Registered Nurses/Midwives must dispose of opioid contents into an appropriate container with tissue and disposed of in a clinical waste bag.

14.0 Dissemination/Circulation/Archiving

This protocol is available in the Maternity section of the Trusts Policies and Procedures page and on the Obstetric Anaesthesia page of the Trust intranet.

All midwives competent in caring for epidurals in labour and anaesthetists are made aware of this Protocol at the time of training and assessment.

15.0 Implementation

The midwifery practice educator team, pain team and Lead for Obstetric Anaesthetics will remain responsible for implementing this guideline, and for the training/assessment of midwifery and anaesthetic staff (consultants and trainees).
16.0 Training

16.1 Only anaesthetists trained in this technique should initiate this type of labour analgesia (PIEB). The anaesthetist must be assessed as competent to use the McKinley Bodyguard 545™ infusion pump

16.2 Only midwives who have their IV and epidural competency should care for these women with support from the anaesthetic staff. They must be assessed as competent to use the McKinley Bodyguard 545™ infusion pump.

16.3 Following attendance at a Royal Berkshire NHS Foundation Trust epidural education session, the midwife must contact an obstetric anaesthetic consultant or the practice education team for practical epidural assessment.

16.4 The pain nurses can also assess midwifery staff for competence

16.5 Refresher training every 2 years or during PROMPT training days

17.0 Monitoring of Compliance

<table>
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<tr>
<th>Aspect of compliance or effectiveness being monitored</th>
<th>Monitoring method</th>
<th>Individual or dept. responsible for the monitoring</th>
<th>Frequency of the monitoring activity</th>
<th>Group/committee which will receive the findings/monitoring report</th>
<th>Committee/individual responsible for ensuring that the actions are completed</th>
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<td>Compliance with protocol</td>
<td>?Audit</td>
<td>Clinical Lead for Obstetric Anaesthesia</td>
<td>?Yearly</td>
<td>Obstetric Anaesthetic Clinical Governance Committee</td>
<td>Lead Consultant Anaesthetist for Obstetrics</td>
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The Trust reserves the right to amend its monitoring requirements in order to meet the changing needs of the organisation.

18.0 Supporting Documentation and References


5. Best practice in the management of epidural infusions in the hospital setting. RCoA 2010

19.0 Equality Impact Assessment

Stage 1: Screening

Part 1: Initial Scoping
For each of the nine protected groups identified in the table below, respond to the identified questions with a Yes (Y); No (N); or Unclear (U)

<table>
<thead>
<tr>
<th>Do different groups have different needs, experiences, issues and priorities in relation to the proposed protocol/change proposal?</th>
<th>Age</th>
<th>Sex</th>
<th>Disability</th>
<th>Race</th>
<th>Gender Reassignment</th>
<th>Religion or Belief</th>
<th>Sexual Orientation</th>
<th>Marriage and Civil Partnership</th>
<th>Pregnancy and Maternity</th>
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<tr>
<td>N</td>
<td>N</td>
<td>N</td>
<td>N</td>
<td>N</td>
<td>N</td>
<td>N</td>
<td>N</td>
<td>N</td>
<td>Y</td>
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<tr>
<td>Is there potential for or evidence that the proposed protocol/change will not promote equality of opportunity for all and promote good relations between different groups?</td>
<td>N</td>
<td>N</td>
<td>N</td>
<td>N</td>
<td>N</td>
<td>N</td>
<td>N</td>
<td>N</td>
<td>N</td>
</tr>
<tr>
<td>Is there potential for or evidence that the proposed protocol will affect different population groups differently (including unintended discrimination against certain groups)?</td>
<td>N</td>
<td>N</td>
<td>N</td>
<td>N</td>
<td>N</td>
<td>N</td>
<td>N</td>
<td>N</td>
<td>N</td>
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<tr>
<td>Is there public concern (including media, academic, voluntary or sector specific interest) in potential discrimination against a particular population group or groups?</td>
<td>N</td>
<td>N</td>
<td>N</td>
<td>N</td>
<td>N</td>
<td>N</td>
<td>N</td>
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Part 2: Evidence and Feedback that has informed your analysis

Please identify below the data, information or feedback that you have drawn on to reach the conclusions above. This will be information that has enabled you to assess the actual or potential impacts in the context of the key needs to eliminate unlawful discrimination, advance equality of opportunity and foster good relations with respect to the characteristics protected by equality law. These sources could include:

No foreseen discrimination based on this equality assessment. The only exclusions would be based on clinical risk, as per the above sections.
If the analysis under Part 1 has concluded that there are equality impacts or that the impacts are unclear (i.e. you responded ‘Yes’ or ‘Unclear’ in Part 1), please move on to Part 4 of the assessment. If no equality impacts are identified, please move on to Part 3 below to conclude the assessment

**Part 3: Narrative**

If you have concluded there are no equality impacts related to the protocol/provision, please provide a brief narrative to explain why you have come to this conclusion:

Programmed intermittent epidural bolus analgesia can be given to those women in labour who fit the criteria as outlined in the Epidural – standard procedure for anaesthetist (GL756), and there will only be exclusions based on clinical risk/benefit assessment at the time of epidural insertion.

If no equality impacts have been identified, this concludes the equality impact assessment. Please complete the declaration below:

**Based on the information set out above I have decided that a full equality impact assessment is (please delete as appropriate):**

*Not necessary*

This concludes the Equality Impact Assessment.
Appendix A – BodyGuard ColourVision 545™ PIB pumps

Refer to operating manual or pump technicians for any concerns regarding pump operating function. Alternatively, seek assistance from the Pain Team.

Access Codes & Keypad Lock
To operate, programme and configure the BodyGuard ColourVision 545™/575™ PIB pumps, three access codes are required.

Level One Code 159
Allows user to run pre-programmed protocols

Level Two Code *
Allows authorised users to deliver Clinician Activated Bolus or loading dose.

Level Three Code **
Allows users to set up or modify standard infusion protocols and change pump configuration parameters in ‘Change Set Up’.

*/** refer to senior clinical or lead service personnel

A further technique and code is used to access the technicians menu but this is only provided to fully trained (by CME) and authorised electrical biomedical engineering departments.

Training to use the CME Medical BodyGuard ColourVision 545™ PIB pumps is carried out by Clinical Practice Educators and the Pain Team. See assessment form Appendix D.
Appendix B – Local Anaesthetic Toxicity Guidelines (AAGBI 2010)

AAGBI Safety Guideline
Management of Severe Local Anaesthetic Toxicity

1 Recognition

Signs of severe toxicity:
- Sudden alteration in mental status, severe agitation or loss of consciousness, with or without tonic-clonic convulsions
- Cardiovascular collapse: sinus bradycardia, conduction blocks, asystole and ventricular tachyarrhythmias may all occur
- Local anaesthetic (LA) toxicity may occur some time after an initial injection

2 Immediate management

- Stop injecting the LA
- Call for help
- Maintain the airway and, if necessary, secure it with a tracheal tube
- Give 100% oxygen and ensure adequate lung ventilation (hyperventilation may help by increasing plasma pH in the presence of metabolic acidosis)
- Confirm or establish intravenous access
- Control seizures: give a benzodiazepine, thiopental or propofol in small incremental doses
- Assess cardiovascular status throughout
- Consider drawing blood for analysis, but do not delay definitive treatment to do this

3 Treatment

IN CIRCULATORY ARREST
- Start cardiopulmonary resuscitation (CPR) using standard protocols
- Manage arrhythmias using the same protocols, recognising that arrhythmias may be very refractory to treatment
- Consider the use of cardiopulmonary bypass if available
- Give intravenous lipid emulsion (following the regimen overleaf)
- Continue CPR throughout treatment with lipid emulsion
- Recovery from LA-induced cardiac arrest may take >1 h
- Propofol is not a suitable substitute for lipid emulsion
- Lidocaine should not be used as an anti-arrhythmic therapy
- Consider intravenous lipid emulsion (following the regimen overleaf)
- Propofol is not a suitable substitute for lipid emulsion
- Lidocaine should not be used as an anti-arrhythmic therapy

WITHOUT CIRCULATORY ARREST
- Use conventional therapies to treat:
  - Hypotension, bradycardia, tachyarrhythmia

4 Follow-up

- Arrange safe transfer to a clinical area with appropriate equipment and suitable staff until sustained recovery is achieved
- Exclude pancreatitis by regular clinical review, including daily amylase or lipase assays for two days
- Report cases as follows:
  - in the United Kingdom to the National Patient Safety Agency (via www.npsa.nhs.uk)
  - in the Republic of Ireland to the Irish Medicines Board (via www.imb.ie)
- If Lidip has been given, please also report its use to the international registry at www.lipidregistry.org. Details may also be posted at www.lipidrescue.org

Your nearest bag of Lipid Emulsion is kept

This guideline is not a standard of medical care. The ultimate judgement with regard to a particular clinical procedure or treatment plan must be made by the clinician in the light of the clinical data presented and the diagnostic and treatment options available.

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Author: Alexandra Reeve Date: November 2019
Job Title: Consultant Anaesthetist Review Date: November 2021
Policy Lead: Group Director Urgent Care Version: V1.0 ratified 1/11/9
Location: Policy hub/ Clinical/ Maternity/ Anaesthetics/ CG695
This document is valid only on date last printed
Appendix C – Prescribing epidural analgesia for patients with opiate/fentanyl allergy

For patients with a true fentanyl/opiate allergy, a plain 0.15% bupivacaine infusion can be prescribed and given via the epidural catheter.

Prescribe the plain maternity epidural in the Electronic Patient Record (EPR) under “Maternity Epidural Analgesia Powerplan” as:

Bupivacaine (Bupivacaine epidural infusion 0.15%) 500mls
Appendix D – Bodyguard ColourVision 545™ PIB

Record of Assessment

The following member of staff has successfully completed their assessment on the Bodyguard 545 ambulatory epidural infusion pump.

Name: _______________________________ Title: _______________________________
Hospital Dept: _______________________ Employee Number: ____________________

Trainee:
Signature: ___________________________ Print Name: ___________________________ Date: ______/____/____

Assessor:
Signature: ___________________________ Print Name: ___________________________ Date: ______/____/____
# Epidural Analgesia – Standard procedure for Midwives (GL765)

## Approval

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<td>18\textsuperscript{th} November 2019</td>
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<td>Chair, Anaesthetic Obstetric Clinical Governance Committee</td>
<td>18\textsuperscript{th} October 2019</td>
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<td>3.0</td>
<td>Oct 2018</td>
<td>Dr L. Williams (Consultant Anaesthetist)</td>
<td>Reference to epidural chart removed throughout 2. Care in labour criteria Pg 7 – Expanded regarding women with previous uterine surgery having obstetric assessment if previously successful epidural fails</td>
</tr>
<tr>
<td>4.0</td>
<td>Oct 2019</td>
<td></td>
<td>Amended to include reference to PIEB pump delivery of epidural analgesia</td>
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Appendix F: **GL756 Epidural Analgesia – Procedure for anaesthetists**

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**Epidural Analgesia – Procedure for Anaesthetists (GL756)**

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<td>Oct 2018</td>
<td>Dr L. Williams (Consultant Anaesthetist)</td>
<td>Reference to epidural chart removed throughoutPg 5 – What to prescribe for top-ups criteria expanded to include EPR referencesPg 7 – Expanded regarding women with previous uterine surgery having obstetric assessment if previously successful epidural failsPg 8 – Decision making tree diagram added</td>
</tr>
<tr>
<td>8.0</td>
<td>Oct 2019</td>
<td>Dr A. Reeve (Consultant Anaesthetist)</td>
<td>Updated to reflect introduction of Programmed Intermittent Epidural Bolus (PIEB) Pumps</td>
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</table>
Appendix G: Epidural Record Sheet

### Obstetric Epidural/CSE Record

<table>
<thead>
<tr>
<th>Patient details</th>
<th>Anaesthetist:</th>
</tr>
</thead>
<tbody>
<tr>
<td>MRN:</td>
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<tr>
<td>DOB:</td>
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<tr>
<td>Date:</td>
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<tr>
<td>Time:</td>
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<tr>
<td>Cervical dilation: cm</td>
<td>Monitoring in place</td>
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</table>

- Technique/Sensation: Pain relief expectations
- Failure/Replacement: Epidural information booklet
- Headache: Bruised back
- Nausea: Low blood pressure/LOC
- Shivering: Nerve damage (1: 13,000)
- Need for catheter: Increased risk of instrumental del.

PIEB/PCEA PUMP PRESCRIPTION (must also be documented on EPR)
NB: if spinal catheter, DO NOT USE
Pre-filled 250ml bag: 0.1% Levo-bupivacaine + Fentanyl 2mcg/ml

### INSTRUCTIONS TO MIDWIFE/STAFF

- After initial epidural dose by anaesthetist, please record BP, pulse and FHR at 5 minute intervals for 20 minutes.
- Anaesthetist will start epidural pump – this delivers small automated boluses at regular intervals, as well as allowing the woman to self-deliver additional small boluses.
- Please then do hourly NIBP, Oxygen saturations, pulse rate.
- Please check block height, pain score & document mobility hourly.
- For any additional clinician bolus over 10mls, please do 4 sets of observations (as after initial bolus).
- The patient must not be left alone in the room with a functioning epidural in situ.
- Encourage the patient to change position frequently.
- If epidural not effective, please call anaesthetist.
- Ensure box is locked and keypad locked.

### ANAESTHETIST ADMINISTERED TOP-UPS (CLINICIAN BOLUS >10MLS INCLUDING INITIAL BOLUS)

<table>
<thead>
<tr>
<th>Time</th>
<th>Drugs used</th>
<th>Dose ml</th>
<th>Patient position</th>
<th>Epidural /Spinal</th>
<th>BP checks - minutes</th>
<th>Pain relief at 20 mins</th>
<th>Comments/ Side effects</th>
<th>Signature</th>
</tr>
</thead>
<tbody>
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</tbody>
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If systolic BP <90 mmHg:
1. Left lateral position
2. Oxygen 15 l/min
3. IV Fluid bolus
4. Call anaesthetist (Alert 141)

Consultant Anaesthetist (Dec 2019)

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### Obstetric Epidural/CSE Record

<table>
<thead>
<tr>
<th>Time (CSE every hour)</th>
<th>Total delivered (ml)</th>
<th>Pain (see chart below)</th>
<th>Mobility score (chart below)</th>
<th>Upper level block - reduced sensation of cold sensation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Right</td>
<td>Left</td>
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</table>

Before turning off pump record: (menu/view patient history/ level 1 code 700) and leave copy of this page in folder
Boluses attempted: __________ Boluses delivered: __________
Auto boluses delivered: __________ Clinician boluses: __________
Total amount UDM delivered: __________ mls. Pump number: __________

Consultant Anaesthetist (Dec 2019)