Approved by Quality & Patient Care Committee
2 June 2016

EPIDURAL ANALGESIA GUIDELINES FOR THE RHW

EPIDURAL ANALGESIA GUIDELINES FOR THE RHW cont'd

SECTION 1 – RATIONAL

- The blockade of transmission of pain impulses by the use of local anaesthetic medication can reduce the body's physiological response to the stress of pain.
- Systemic opioids only, although a strong pain reliever, may cause respiratory depression, sedation, nausea, vomiting, confusion, lightheadedness, constipation and immobilisation.
- The goal of regional axial blockade (epidural analgesia) in moderate to severe pain is to diminish the development of an efficient pain pathway, by blocking conduction along pain nerve fibers.
- Epidural infusions however, requires constant assessment and at times intervention in order to provide this level of pain control.
- Vigilance is required as tolerance to local anaesthetic can develop which can require more agent be infused in order to maintain the level of block.
- Other factors such as patient position and movement will influence the effectiveness of the infusion, as will the precision of the pump and time spent when changing infusions.
- Opioids added to an epidural infusion can augment the analgesic effect of the local anaesthetic block. The dosage is very much less than what would be required by systemic opioids, but can also cause side effects.
- The tip of the catheter sits in the epidural space close to the nerve roots supplying the required area.
- The infusion rate of solution affects the area of spread to the dermatomes as does the patient's individual anatomy.
- In some instances it is not possible to block conduction to all required areas.
- If an epidural catheter is in too far it may cause a unilateral block and the infusion may cause one-sided motor block with poor analgesia on the opposite side.
- Assessing the depth of the catheter and the height and range of the block provides information on the area being affected by the epidural infusion.
- If conduction to a significant part of a wound is blocked by the epidural infusion there may be advantage in continuing the local anaesthetic to that area and manipulating the other drugs i.e. opiates to cover the additional pain.
- The infusion may be changed to opioid only. In this instance the patient will be receiving less systemic opioid than with PCA and will continue to benefit.
- Local anaesthetic agents administered into the epidural space gain access to the spinal nerve roots and block the pain impulses from travelling to the brain.
- Depending on the concentration of anaesthetic agent and the total dose used, all nerves i.e. sensory, sympathetic and motor can be affected. However, sensory (pain, temperature) and sympathetic nerves are thin and unmyelinated and thus easier to block. Motor nerve fibres are thick and myelinated and more difficult to block. Immobility is usually not desirable after surgery or labour, so low concentrations of local anaesthetic are used to avoid weakness of the limbs.
- At The RHW epidural catheters are predominantly placed in the L3-4 space for Caesarean sections and Labour, and L1-2 or higher for Gynae-oncology surgery. Local anaesthetic in this area at the concentrations required for surgery can cause a significant sympathetic block and motor block.

EPIDURAL ANALGESIA GUIDELINES FOR THE RHW cont'd

SECTION 2 – EDUCATION OF NURSING/MIDWIFERY STAFF

- All nursing and midwifery staff involved in managing epidural infusions must have received adequate training, and have the necessary work competencies to undertake their duties safely and effectively.

Steps to attain competency:

1. Successfully complete Epidural Analgesia – Education Program on the Theory of Epidural Analgesia (POWH - 2012)
2. Read and sign Epidural Analgesia Guidelines for RHW - 2016
3. Read and sign relevant Epidural LOP/s (Ward or Delivery Suite)
4. In-service on the use of the epidural pain management pump (Sapphire or CADD Solis)
5. Mastery of Epidural Skills Assessment.

- Patients with epidural infusions should only be managed in wards where the nursing staff have received training and have been assessed as competent in epidural analgesia management.

SECTION 3 – INDICATIONS, DOSING AND OBSERVATIONS

- The decision that a patient is a suitable candidate for an epidural is made by the Anaesthetist in consultation with the patient and the treating medical team.
- A risk-benefit analysis must be determined for each patient and informed consent must be obtained.
- At The RHW epidural analgesia is used in the Delivery Suite and in the general ward areas (Acute Care Centre & Macquarie Ward) for pain management as follows:

DELIVERY SUITE (2 Protocols)

USE	Labour and Delivery
PROTOCOL (DS - 1)	**Programmed Intermittent Epidural Bolus (PIEB) plus Patient Controlled Epidural Analgesia (PCEA)**
MEDICATION	Ropivicaine 0.1% with Fentanyl 2mcg/mL in 0.9% sodium chloride 250mL (Premix)
DOSE	PIEB dose:10 mL/Hr. First PIEB Dose: 30 minutes > commencement PCEA dose: 5 mL Lock out time: 10 minute Max. hourly limit: 25 mL
PRESCRIBING/OBSERVATION CHART	SESLHD Epidural/Intrathecal (Spinal)/Regional Infusion/PCEA Chart (AMR140.070) Plus "Label"
PAIN MANAGEMENT PUMP	Smith-Medical - CADD Solis Epidural Pump
SPECIFIC LOCAL OPERATING PROCEDURE	Programmed Intermittent Epidural Bolus (PIEB) plus Patient Controlled Epidural Analgesia (PCEA) - 2016

EPIDURAL ANALGESIA GUIDELINES FOR THE RHW cont'd

USE	Labour and Delivery
PROTOCOL (DS – 2)	**Continuous Epidural Infusion (CEI) with Patient Controlled Epidural Analgesia (PCEA)**
MEDICATION	Ropivicaine 0.1% with Fentanyl 2mcg/mL in 0.9% sodium chloride 250mL (Premix)
DOSE	Infusion Rate: 4mL/Hr. Bolus dose: 10mL Lock out time: 20 minute Hourly limit: 34mL
PRESCRIBING/OBSERVATION CHART	SESLHD Epidural/Intrathecal (Spinal)/Regional Infusion/PCEA Chart (AMR140.070)
PAIN MANAGEMENT PUMP	Smith-Medical – CADD Solis Epidural Pump
SPECIFIC LOCAL OPERATING PROCEDURE	Epidural Analgesia Patient Controlled – Delivery Suite (2012)

OBSERVATIONS	**FREQUENCY**
Blood Pressure and Heart Rate	After initial bolus given by anaesthetist on insertion and after any clinician bolus: • 5 minutely for 20 minutes then at 30 minutes. • Then every 30 minutes provided the patient is stable
Number of PIEB doses, number of boluses attempted and delivered plus cumulative dose in mL	• Record every hour
Sensory block (Dermatome level) **Motor block (Bromage scale)** **Height of block** **Respiratory rate** **Sedation score** **Oxygen saturation**	• Record hourly for 2 hours post insertion then record second hourly unless there is a: o change in the program, o Increasing pain or o Hypotension (a drop in systolic BP greater than 15mmhg).
Epidural insertion site and dressing **Epidural filter** **Epidural infusion lines** **Epidural program against the orders (2 clinicians to sign)**	• Check and record every 8 hours
If any of the following occur : **• Fetal bradycardia** **• Hypotension** **• Poor analgesia** **• Change in infusion or bolus**	• Follow PACE escalation and Delivery Suite protocols • Increase the frequency of observations for BP, HR, Height of block, 0_2 saturation as per initial bolus observations

LOCAL OPERATING PROCEDURE

CLINICAL POLICIES, PROCEDURES & GUIDELINES

Approved by Quality & Patient Care Committee
2 June 2016

EPIDURAL ANALGESIA GUIDELINES FOR THE RHW cont'd

GENERAL WARD AREAS (Recovery, Acute Care and Macquarie Ward)

USE	Major Abdominal, Vulval surgery or Brachytherapy
PROTOCOL (WARD)	**Continuous Infusion**
MEDICATION	Ropivicaine 0.2% with Fentanyl 2mcg/mL in 0.9% sodium chloride 100mL (Premix)
DOSE	Infusion rate: 4 – 14 mL/hour Rescue bolus dose: 3 – 4mL
PRESCRIBING CHART	NSW State Epidural Analgesia Adult (Not for Intrapartum Use) Chart (SMR130022)
PAIN MANAGEMENT PUMP	Hospira – Sapphire Epidural Pump
SPECIFIC LOCAL OPERATING PROCEDURE	Epidural Analgesia – Continuous Infusion (Non-Maternity) – 2015

OBSERVATIONS	**FREQUENCY**
Vital signs, pain and sedation scores	• Hourly for the first six (6) hours and while the patient is unstable then 2nd hourly thereafter.
After Rescue Bolus (Blood Pressure and Pulse)	• Every 10 minutes for 30 minutes and then one hour post bolus.
Motor Block (Bromage scale)	• Every two (2) – four (4) hours and prior to mobilisation.
Sensory Block (Dermatome level) *Check height and distribution of block with ice bilaterally*	• Record every four (4) hours, prior to mobilisation and one (1) hour after a bolus dose.
Epidural catheter insertion site, dressing, filter and lines. *Check for catheter position, signs of leakage, infection or bleeding*	• Once per shift – preferably at shift change .
Infusion pump settings	• Commencement of each shift • Patient transfer • When solution is changed
Bladder function check *Patient should have indwelling urinary catheter if local anaesthetic infused via epidural*.	• Once per shift.

SECTION 4 – PROCEDURE

Prescription

- Epidural infusions must be prescribed on either the SESLHD Epidural /Intrathecal (Spinal) / Regional Infusions/PCEA form (AMR140.070) (Delivery Suite), or the NSW State Epidural Analgesia Adult (Not for Intrapartum Use) Chart (SMR130022) (Ward areas) in accordance with NSW Ministry of Health Policy Directive 'Medication Handling in NSW Health Facilities' PD2013_043.
- Prescribing the epidural infusion rate/dose may only be attended by an anaesthetist, anaesthetic registrar or pain specialist, or in consultation with them.
- No opioids or sedatives are to be administered by any other route except as ordered by an anaesthetist, anaesthetic registrar or pain specialist, or in consultation with them.
- PACE calling criteria adjustments must be documented by the anaesthetist on the 'Prescribed Modifications to Adult PACE Calling Criteria' form.

EPIDURAL ANALGESIA GUIDELINES FOR THE RHW cont'd

Note:

- All patients with epidural infusions must have intravenous access at all times and continued for a minimum of four hours post epidural catheter removal.
- Naloxone, Ephedrine, Atropine and Plasma volume expanders eg.Gelofusine must be readily available on the ward for management of potential side effects

Preparation of Epidural Infusion

- Use pre-loaded epidural infusion bags to help reduce medication error whenever possible.
- Refer to the learning package for further detail on setting-up and programming of the epidural pain management pumps.
- Dedicated epidural administration sets must have an anti-syphon valve and must be clearly labelled with the nationally recommended yellow epidural line label.
- Do not inject any other drugs into the epidural line.

Programming of Epidural Pump

- Only use dedicated epidural infusions pumps which are easily distinguishable from those used for intravenous and other types of infusions.
- A pump used for epidural infusion must be programmed/checked by two Registered Nurses or Registered Midwives who have been assessed as competent in this procedure. Refer to Section 2 – Education of Staff.
- A pump used for epidural infusions must be programmed according to the parameters set by the prescriber on the charts as above.
- The epidural pump settings should be checked at commencement of each shift and on patient transfer.

Administration of a Bolus Dose (Ward – Continuous Infusion only)

- A bolus dose should be administered, as prescribed, when a patient is experiencing inadequate analgesia.
- Prior to administration check the epidural infusion delivery device and administration set for faults, kinks or disconnection and perform a full set of observations, including catheter insertion site, motor block, wound check (where applicable) and urine output.
- An RN/RM who has been assessed as competent in this procedure can administer a bolus dose and/or increase the rate as per prescription. The dose must be checked and witnessed by a 2nd RN/RM
- Give prescribed bolus dose using the pump.
- The RN/RM must then record the bolus dose in the 'bolus dose' section and a second RN/RM must sign in the 'bolus checked' section on the relevant chart
- If pain persists after 30 minutes and observations are stable give another bolus dose and/or increase the infusion rate (*if the maximum rate has not been reached)* and if not contra-indicated by height of block and motor block
- If pain continues to persist contact the APRS or an Anaesthetist.

Changing the Infusion Bag

- An infusion bag must be checked by two RNs / RMs and changed by an RN / RM who has been assessed as competent in this procedure. It must be recorded on relevant chart in the record of bags/ syringes and signed by both RNs / RMs.
- Both RNs / RMs must witness the discarded amount and record in 'Volume Discard (mL)' and sign.
- Wash hands before changing the infusion bag. A no-touch aseptic technique must be used when changing bags. Routine changing of the giving set is not required.

EPIDURAL ANALGESIA GUIDELINES FOR THE RHW cont'd

SECTION 5 – MANAGEMENT GUIDELINES

Epidural analgesia is always delivered via a dedicated Pain Management Pump (PMP).

- **Delivery Suite** uses the **SMITHS CADD Solis** Epidural Pain Management Pump.
- **General wards** use the **Hospira Sapphire** Epidural Pain Management Pump.
- The epidural administration set must be a yellow designated epidural set with NO injection ports and must be labelled in accordance with the NSW Health User applied Labelling of Injectable Medicines, Fluids and Lines (2012) .
- No other opioids should be administered to the patient whilst they are on an opioid epidural infusion unless reviewed by APRS or an Anaesthetist.
- **DO NOT inject other medications into the epidural administration set**
- A bacterial filter must be attached to the epidural set. If disconnected, an epidural filter must not be reconnected unless the disconnection was witnessed and no contamination occurred. The APRS/Anaesthetist must be called to obtain a new filter.
- A yellow additive label must be used for both premixed or made up infusion bags in accordance with the RHW Labelling LOP.
- Supplemental oxygen is not required unless oxygen saturation fall below 95% or if otherwise ordered.
- Where supplemental oxygen is indicated it should be given at 2-4 Litres per minute via nasal prongs or 6 Litres via face mask.
- Only an Anaesthetist or APRS may alter infusion rates or boluses.
- Maintain intravenous access at all times and for a minimum of four (4) hours after cessation of the epidural therapy.
- Always prevent a time delay during the change of epidural infusion. Have a new infusion prepared before the existing one runs out.
- **DO NOT tilt the head of the bed down at any time, particularly when treating hypotension as this may increase the height of block and cause further hypotension and bradycardia. The legs alone may be raised in the event of hypotension.**

SECTION 6 – COMPLICATIONS & MANAGEMENT

Respiratory Depression
Concurrent use of parenteral opioids and sedatives increase the risk of respiratory depression

If respiratory rate 6 – 10 and/or SpO2 < 90% and/or increase in O_2 requirements:

- Stop infusion
- Give oxygen at 15 Litres/minute and support airway if necessary
- Encourage patient to breathe deeply
- Activate a PACE Tier 1 call or call Code Blue if respiratory arrest appears likely
- Contact APRS/Anaesthetist

If respiratory rate ≤ 5 or patient is unrousable:

- Stop infusion
- Give oxygen at 15 Litres/ minute and support airway if necessary
- Encourage patient to breathe deeply
- Activate a PACE Tier 2 call or call Code Blue if respiratory arrest appears likely
- Give IV Naloxone 100 microgram IVI every 3 –5 minutes until patient rouses or respiratory rate >10 (*refer to RHW Naloxone LOP*)

EPIDURAL ANALGESIA GUIDELINES FOR THE RHW cont'd

Over Sedation

Sedation Score 2

- Cease administration of all opioids.
- Give oxygen
- Check respiratory rate frequently
- Activate a PACE Tier 1
- Contact APRS/Anaesthetist

Sedation Score 3 (Difficult to rouse)

- Cease administration of all opioids.
- Give oxygen
- Check respiratory rate
- Activate a PACE Tier 2
- Give naloxone as prescribed OR as per naloxone LOP
- Contact APRS

Sedation Score 3 (Unresponsive)

- Cease administration of all opioids.
- Give oxygen
- Check respiratory rate
- Activate a CODE BLUE
- Give naloxone as prescribed OR as per naloxone LOP
- Contact APRS

Hypotension

Sympathetic blockade may lead to hypotension. With low concentrations of anaesthetic drugs used for continuous epidural infusions, hypotension may be the result of hypovolemia rather than the epidural infusion. Other causes of hypotension must always be investigated such as bleeding, sepsis, myocardial insufficiency, pulmonary embolus and dehydration.

If systolic is <90mmHg or as adjusted on the 'Prescribed Modifications to Adult PACE Calling Criteria' form

- Stop the infusion
- Lie patient flat with legs elevated
- Contact APRS or Anaesthetist
- Activate a PACE Tier 1 call
- Give 250ml IV fluid bolus (ordered by doctor)
- Give IV Ephedrine 6mg IV 5 minutely - maximum 30mg (ordered by doctor)

Bradycardia

- Stop epidural infusion
- Activate PACE Tier 1 call if heart rate < 45 or as adjusted on 'Prescribed Modifications to Adult PACE Calling Criteria' form
- Contact APS / anaesthetist
- Atropine 0.6 mg must be available in the clinical area

EPIDURAL ANALGESIA GUIDELINES FOR THE RHW cont'd

Dense Motor Block

- If Bromage scale 1, 2 or 3 **DO NOT** ambulate.
- Observe for signs of spinal cord compression: Back Pain, Increasing motor block, Bladder / Bowel Incontinence, Numbness / Tingling in lower limbs.
- Notify APRS or Anaesthetist for Bromage >1
- Contact on call anaesthetist / anaesthetic registrar **urgently** if there are any signs of spinal cord compression

Low Block

- If block is present below desired level (i.e. lower than surgical incision site)
- Bolus epidural as prescribed
- Reassess level of coverage
- If continues to be insufficient, contact APRS/Anaesthetist

High block

- Stop infusion
- If able, tilt patient head up
- If required, administer oxygen and call PACE Tier 1
- Call APRS/Anaesthetist

Hemi-block

- If block is present on only one side of patient's body and is not providing adequate analgesia, assist patient to roll so that the unaffected side is down to allow gravity filtration of local anaesthetic
- Patient may require a bolus as prescribed in addition
- Reassess in 15-30 minutes to determine effectiveness of intervention
- If no improvement/unable to roll patient call APRS/Anaesthetist

Inadequate Analgesia (Continuous Epidural)

- Give prescribed epidural bolus and increase rate by 1-2mL/hour within prescription limits.
- If required, repeat after 30 minutes.
- If analgesia is inadequate after 2nd bolus, notify APR or Anaesthetist.

Inadequate Analgesia (PCEA/PIEB)

- Repeat patient education. Ensure comprehension.
- Any patient requiring 3 bolus doses per hour for more then 2 hours requires review by APRS/Aneasthetist.
- An increase in the bolus dose must be done cautiously and the lock out period reviewed.

Nausea and Vomiting

- Administer antiemetics as prescribed
- Contact APRS if antiemetic is not effective

Urinary Retention

- Contact patient's primary care team for assessment ± □atheterization

Pruritus

- Notify APRS or Anaesthetist
- Consider low dose Naloxone
- Use sedative antihistamines with caution

EPIDURAL ANALGESIA GUIDELINES FOR THE RHW

Catheter Disconnection

- If catheter is disconnected at the filter, do not reconnect
- Stop the infusion
- Cover the catheter end with sterile gauze
- Contact APS/ Anaesthetist
- Infusion line should be changed
- Bacterial filter should either be changed using aseptic technique or thoroughly cleaned prior to reconnection as per current CVAD Guidelines.
- If epidural has been paused for a prolonged period (i.e. close to/over an hour), administer a bolus as prescribed

Leaking at the site

- If integrity of current dressing is compromised clean and apply occlusive dressing over top of existing dressing. Do not try to remove dressing without APS/Anaesthetist review as catheter may be inadvertently removed.
- Call APS (in-hours)/ on-call anaesthetic registrar (our of hours)
- Assess effectiveness of epidural – if inadequate block, epidural may have dislodged and need to be removed
- If excessive bleeding, observe for signs of epidural haematoma. Epidural may need to be removed.

Dressing detaching / lifting

- Reinforce only if catheter insertion site is not exposed
- If insertion site exposed contact APS/ Anaesthetist

Air in line

- Pause infusion and clamp line
- Disconnect set at connection port nearest to filter using aseptic technique
- Two registered nurses/registered midwives will be required
- Prime set into tray to remove bubble then reconnect using aseptic technique.
- If epidural has been paused for a prolonged period (i.e. close to/over an hour), administer a bolus as prescribed

<u>Potentially Serious Epidural Complications</u>

Post Dural Puncture Headache

- If the dura is inadvertently punctured during epidural insertion, leakage of cerebrospinal fluid (CSF) can occur. This decrease in CSF pressure can cause traction on the meningeal vessels and nerves that can result in headache, which is often exacerbated when patient is in an upright position and relieved when lying flat
- Contact APS / Anaesthetist
- Treatment includes lying flat, bed rest, analgesia (simple or opioid), and increased fluid intake (unless contraindicated) and caffeine and/or may require blood patch.
- If patient has had a blood patch they must be supplied with “Patient Discharge Instructions after Epidural Blood Patch” (Appendix 2)

Epidural Haematoma

- The puncture of epidural blood vessels during catheter insertion or removal may result in the formation of an epidural haematoma particularly in the presence of coagulopathy

EPIDURAL ANALGESIA GUIDELINES FOR THE RHW cont'd

Signs & Symptoms:

- back pain
- lower limb weakness and / or numbness
- bowel or bladder dysfunction

- Patient needs immediate neurological assessment / may need urgent MRI / urgent surgical decompression if neurological changes develop due to nerve or spinal cord compression

Epidural Space Infection

- May be prevented by using strict aseptic technique during insertion, preparation and administration of solutions. Always connect epidural line to a bacterial filter, ensure all connections are locked and maintain an occlusive dressing over site
- If patient has temperature spikes > 38.5, notify APRS and consider removal of epidural catheter
- If signs of inflammation / infection at insertion site, notify APRS, consider removal of epidural catheter
- The presence of severe or increasing back pain, may indicate epidural space infection and should be investigated promptly (even in the absence of fever)
- As epidural space infection can present up to 6 weeks post epidural catheter removal patients should be educated re signs and symptoms. (refer to "Epidural Discharge Advice" – Appendix 1)

Neurological Injury

- Direct damage to the spinal cord or peripheral nerves due to the epidural needle or catheter is extremely rare.
- Signs and symptoms: weakness, numbness, tingling sensation in lower limbs, bowel or bladder incontinence. *(Usually evident once the block has worn off)*
- Stop infusion, call APRS / medical team for immediate urgent neurological assessment.

Catheter Migration

- Rarely a catheter placed in the epidural space may migrate into the intrathecal space or an epidural blood vessel
- Signs and symptoms: migration into the intrathecal space will usually result in a rapidly increasing block with a sudden onset of complications. Migration into a blood vessel usually results in increasing pain +/- signs of local anaesthetic toxicity (perioral numbness, tinnitus, dizziness, facial twitching, seizures)
- Stop infusion, notify APRS / medical team and activate PACE Tier 1 or 2 call according to symptoms of complications, anticipate catheter removal or replacement

SECTION 7 REMOVAL OF EPIDURAL CATHETER

An epidural catheter may be removed when:

- APRS / Anaesthetist has instructed its removal
- The patient has **NOT RECEIVED unfractionated heparin** within the last **six hours**
- The patient has **NOT RECEIVED a low molecular weight heparin (LMWH) e.g. fragmin or clexane** within the previous **12 hours**
- The patient has **NOT RECEIVED rivaroxaban** within the previous **18 hours**
- **No anticoagulants to be administered for at least 2 hours** following the removal of an epidural catheter.
- Rivaroxaban **not** to be administered for at least 6 hours post epidural catheter removal

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EPIDURAL ANALGESIA GUIDELINES FOR THE RHW cont'd

The following procedure is to be followed when removing an epidural catheter:

- Explain the procedure to the patient.
- Position patient lying on side or sitting with spine slightly flexed.
- Wash hands and organise equipment.
- Stop infusion. Do not wean infusion.
- Remove epidural catheter dressing.
- Wash hands and put on sterile gloves.
- Gently withdraw catheter. Do not forcefully pull out catheter.
- Contact the APRS if too much resistance is felt when trying to remove catheter.
- If signs of infection (purulent drainage, redness or swelling) are present send the epidural catheter tip for culture and notify APRS.
- Cover site with an occlusive dressing.

Post Removal of Catheter:

- Confirm that epidural catheter tip is intact with 2nd RN and document and sign on the appropriate epidural chart and in clinical notes.
- Monitor patient's sensory and motor function every two (2) hours for first six (6) hours then every four (4) hours for next eighteen (18) hours post epidural catheter removal.
- Check epidural site every 8 hours for 24 hours then at 48 hours.
- If a patient is to be discharged from hospital prior to 24 or 48 hours they must receive adequate education of possible complication and supplied with "Epidural Discharge Advice" – Appendix 1)

SECTION 8 CONCURRENT USE OF ANTICOAGULANTS

- Anticoagulation is the most important risk factor for the development of epidural haematoma following insertion of epidural needle/catheter.
- It is vital that adequate time delays exist between the administration of anticoagulants and the insertion and removal of epidural catheters.
- Each individual patient's risk/benefit assessment needs to be considered by the Anaesthetist.

Antiplatelet medications

- Non-steroidal anti-inflammatory drugs (NSAIDs) and low dose aspirin alone do not significantly increase the risk of spinal haematoma, but are registered as a risk factor if combined with other classes of anticoagulants.

Recommended time interval between discontinuation of antiplatelet medications and neuraxial blockade are:

- 4–8 hours for eptifibatide and tirofiban
- 24 hours for rivaroxaban
- 24–48 hours for abciximab
- 7 days for clopidogrel
- 14 days for ticlopidine

Unfractionated IV and SC heparin

- For patients who have had more than 4 days of heparin therapy, a platelet count should be done prior to removal of an epidural catheter to identify heparin-induced Thrombocytopenia
- Intraoperative anticoagulation with IV heparin should start no sooner than 1 hour after placement of the epidural or spinal needle.
- Epidural catheters should be removed 6 hours after the last heparin dose or following an evaluation of the patient's coagulation status

EPIDURAL ANALGESIA GUIDELINES FOR THE RHW cont'd

Low molecular weight heparin (LMWH)

- Epidural catheter placement should occur at least 12 hours after standard prophylactic LMWH doses or 24 hours after standard treatment dose of LMWH.
- The first postoperative dose of LMWH dose should be given 6–8 hours after surgery and subsequent doses every 24 hours after that.
- Low Molecular Weight Heparin for prophylaxis should be prescribed as a **single daily dose** and administered in the evening (e.g. at 1800 hrs) to allow safe "time window" for removal of neuraxial catheter during daytime.
- The epidural catheter should be removed at least 12 hours after the last prophylactic dose of LMWH or 24 hours after the last treatment dose of LMWH.
- The next dose should not be given until at least 2 hours after catheter removal.

ANTICOAGULANT	Brand NAME	Time between dose and insertion of neuraxial catheter	When to dose after INSERTION	When to REMOVE Catheter	When to Dose after REMOVAL of catheter
Low Molecular Weight Heparin	Clexane/Fragmin ***(prophylaxis)***	12 hours	6-8 hours	12 hours after last dose	2 hours after removal
Low Molecular Weight Heparin	Clexane/Fragmin ***(treatment)***	24 hours	6-8 hours	24 hours after last dose	2 hours after removal

Oral anticoagulants (Warfarin)

- Established warfarin therapy should be discontinued at least 4–5 days prior to neuraxial blockade and the International Normalised Ratio (INR) measured.
- Preoperative initiation of warfarin therapy requires an INR check prior to neuraxial blockade
- An INR ≤ 1.4 is a value estimated to be safe for removal of catheter

Fibrinolysis and thrombolysis

- Insertion of epidural catheters in patients receiving fibrinolytic or thrombolytic therapy is contraindicated except in exceptional circumstances

New anticoagulants

- The situation with regard to the newer anticoagulants remains unclear.
- The Anaesthetist must leave clear instructions about catheter removal and administration of any anticoagulants that are not discussed in this document

DOCUMENTATION

- SESLHD Epidural /Intrathecal (Spinal) / Regional Infusions/PCEA form (AMR140.070)
- NSW Ministry of Health Epidural Analgesia Adult (Not for intrapartum Use) Chart
- NSW Ministry of Health Policy Directive 'Medication Handling in NSW Health Facilities' PD2013_043 and clearly labelled as 'Epidural' infusion.
- Medication Chart MR70
- Naloxone – Use of Naloxone for the treatment of opioid induced over-sedation, respiratory depression, pruritus and nausea. (2015)
- Patient clinical notes

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EPIDURAL ANALGESIA GUIDELINES FOR THE RHW cont'd

AUDIT

- Patients receiving Epidural Analgesia will be regularly reviewed by Pain Management clinicians

REFERENCES

- NSW Ministry of Health Policy Directive 'Medication Handling in NSW Health Facilities' PD2013_043
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- National Recommendations for User-applied Labelling of Injectable Medicines, Fluids and Lines, 2010. Australian Commission of Safety and Quality in HealthCare

RISK RATING
LOW

NATIONAL STANDARD
MS - MEDICATION SAFETY

REVISION & APPROVAL HISTORY
Reviewed and endorsed Therapeutic & Drug Utilisation Committee 12/4/16
Previously titled – *Epidural Policy and Management Guidelines*
Approved Quality Council 15/3/04
Endorsed Therapeutic & Drug Utilisation Committee 21/10/03

FOR REVIEW : JUNE 2019

…./Appendices

APPENDIX 1

EPIDURAL DISCHARGE ADVICE

The epidural catheter (tube) has now been removed from your back. Rarely, complications can occur after an epidural is removed. We will continue to observe you during your admission. Please tell the Midwife/Nurse looking after you if:

- You have a headache.
- You have any pain in your back.
- You have any pain or any change in the feeling or strength in your legs.

Things to look out for when you go home

Once you have gone home, it is important that you, or your carers, continue to look out for any symptoms that could suggest a complication of your epidural may be developing. These are:

- New onset of moderate to severe headache
- Redness and/or swelling around the site where the epidural catheter was inserted. It is normal for the site to have some minor redness and/or swelling for the first few days but this should disappear. You should only be concerned if the redness and/or swelling persists.
- Pus – a discharge may develop from the insertion site.
- Fever or stiff neck (temperature, sweats, shakes)
- New severe back pain near the site of the epidural
- Changes in the feeling and/or strength in your legs

If you experience any of the above:

Contact The Royal Hospital for Women on 9382 6111 and ask to speak to the Anaesthetic Fellow or Registrar.

APPENDIX 2

PATIENT DISCHARGE INSTRUCTIONS AFTER EPIDURAL BLOOD PATCH

This information is for women who have had an epidural block during labour, caesarean section or gynaecological surgery and have had an epidural blood patch procedure.

1. Rest and limit exertion for 24hours. Lie down as much as possible.
2. Avoid straining, rapid bending, pushing or lifting heavy objects for 6 weeks. Try not to lift anything heavier than your baby.
3. Try to increase your fluid intake for 24hours. Water, fizzy drinks, tea, coffee, Gatorade, milk, soup or broth are **OK** but **NOT ALCOHOL**.
4. You may notice some low back ache or tightness in your bottom for a few days but this is usually minor and gradually resolves.
5. Contact the Anaesthesia Department Secretary or Anaesthetists-on-duty through The Royal Hospital for Women switchboard on 938-26111 if you:
   - experience sudden return of the ("spinal") headache you had previously;
   - develop a fever or a stiff neck;
   - develop nausea and/or vomiting;
   - experience numbness or weakness in your legs or bladder or tummy disturbance;
   - develop increasing redness and/or tenderness at the injection site; or
   - have any questions or concerns regarding your anaesthetic care.

Severe headache may take up to 24hours to resolve after a blood patch.
One of the members of the Anaesthesia Department – most probably the Anaesthetist who placed your blood patch – will contact you tomorrow to check how you are faring.

Additional Instructions:
_____
_____
_____
Date:_____ Patient's Signature:_____
Patient's Name/Surname (Block Letters): _____
Date:_____ Physician's: Name:_____
Physician's Name/Surname (Block Letters): _____