Trust Guideline for the Management of Adult Patients Receiving Epidural, Paravertebral and Interscalene Brachial Plexus Analgesia

A Clinical Guideline recommended for use

For Use in:	All clinical areas, except Obstetrics
By:	Anaesthetists, Nursing staff, Acute Pain Service staff, junior medical staff, Allied Health Professionals
For:	Adult patients receiving epidural, paravertebral and interscalene analgesia
Division responsible for document:	Surgical
Key words:	Epidural, Paravertebral, Interscalene brachial plexus, Analgesia
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Assessed and approved by the:	Chairs action and reported to Clinical Guidelines Assessment Panel (CGAP) If approved by committee or Governance Lead Chair's Action; tick here ☑
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Compliance links: *(is there any NICE related to guidance)*	None
If Yes - does the strategy/policy deviate from the recommendations of NICE? If so why?	N/A

This guideline has been approved by the Trust's Clinical Guidelines Assessment Panel as an aid to the diagnosis and management of relevant patients and clinical circumstances. Not every patient or situation fits neatly into a standard guideline scenario and the guideline must be interpreted and applied in practice in the light of prevailing clinical circumstances, the diagnostic and treatment options available and the professional judgement, knowledge and expertise of relevant clinicians. It is advised that the rationale for any departure from relevant guidance should be documented in the patient's case notes.

The Trust's guidelines are made publicly available as part of the collective endeavour to continuously improve the quality of healthcare through sharing medical experience and knowledge. The Trust accepts no responsibility for any misunderstanding or misapplication of this document.

Version and Document Control:

Version Number	Date of Update	Change Description	Author
8	27/04/2020	Updated reference list Updated reference to Early Warning Score to NEWS2 as per NEWS2 policy Updated advice regarding Covid-19 advice	Katherine Dyer
9	25/06/2020	Update with addition of paravertebral and interscalene brachial plexus analgesia	Benjamin Morrison
10	11/08/2020	Edoxaban / NRFIT added	Benjamin Morrison
11	15/09/2022	Contact details updated	Benjamin Morrison

This is a Controlled Document

Printed copies of this document may not be up to date. Please check the hospital intranet for the latest version and destroy all previous versions.

Contents

1. Quick reference guidelines

Problem	Action
Respiratory Depression (Respiratory rate < 8 breaths/min)	**Nursing Staff** • Give oxygen by reservoir mask at 15L/min • Switch off epidural, paravertebral or Interscalene brachial plexus analgesia infusion • Monitor oxygen saturation continuously with pulse oximeter • Inform medical team • Record pain and sedation scores on Trust Pain Assessment Chart • Record a full set of observations (temperature, pulse, respiration rate, blood pressure, level of consciousness. Alert, Verbal, Pain, Unconscious (AVPU), oxygen saturation and NEWS2 score). Please refer to trust guideline CA200011 for full explanation of NEWS2 score. **Medical Staff** • Assess and document respiratory function • Consider Naloxone 200-400 micrograms intravenously • Consider discussing analgesia by contacting the APS via Alertive during core working hours (08.15 - 17.00 Monday to Friday and from 08.15 to 14.00 on Saturdays) Outside these hours, please contact the first on call anaesthetist via Alertive
Hypotension (as stated on prescription chart)	**Nursing Staff** • Lie patient flat (but not head down) • Record a full set of observations (temperature, pulse, respirations, blood pressure, levels of consciousness (AVPU), oxygen saturations and a NEWS2 score. • Consult prescription chart and administer prescribed fluid bolus if prescribed on the drug chart Ensure fluid balance documentation completed If no improvement in hypotension contact the patient's medical team. **Medical Staff** • Consider other possible causes of hypotension e.g. haemorrhage, hypovolaemia or sepsis • Review fluid management including urine output • Consider discussion of analgesia management with APS staff by contacting the APS via Alertive during core working hours (08.15 - 17.00 Monday to Friday and from 08.15 to 14.00 on Saturdays) Outside these hours, please contact the first on call anaesthetist via Alertive • If dense sensory and, or motor block then intrathecal migration of catheter should be considered. Stop infusion immediately and contact the APS via Alertive during core working hours (08.15 - 17.00 Monday to Friday and from 08.15 to 14.00 on Saturdays) Outside these hours, please contact the first on call anaesthetist via Alertive

Motor Block Heaviness / weakness in one or both legs	• Follow flow chart 1 (page 6)
Inadequate pain relief	• Follow flow chart 2 (page 7)
Filter disconnection	**Nursing Staff** • The catheter MUST not be reconnected. • Alternative analgesia should be substituted or the catheter resited in theatre. Please contact the pain team during normal hours or the on call anaesthetist for advice if required. • The catheter should be capped off until removed. Removal must be at the first available opportunity in accordance with the risk assessment tool (Appendix B).
Urinary retention	**Nursing Staff** • Catheterise – if not already insitu • Commence fluid balance charting **Medical Staff** • Consider need for epidural analgesia and use of alternatives • Consider low dose intravenous Naloxone 10-20 micrograms
Itching (Related to epidural opiate usage)	**Medical Staff** • Consider Chlorphenamine 4 milligrams tds orally • Consider Naloxone 10-20 micrograms intravenously • If intractable consider using plain Bupivicaine 0.15%
Suspected infection	• Risk factors for epidural abscess include impaired immunity (diabetes, malignancy, alcoholism and immune-suppressive therapy), patients who have been in hospital for >48 hours prior to insertion, technical difficulty requiring multiple attempts, anti-thrombotic drug therapy and prolonged catheterisation (>48 hours). • Patients may complain of back pain, lower limb weakness or pyrexia. Signs of infection may also be present at the epidural site. • If any of the above are present then do the following: **Nursing Staff** • Check site for signs of infection (pain, swelling, pus or erythema). • Record a full set of observations (temperature, pulse, respiration rate, blood pressure, level of consciousness (AVPU), oxygen saturations and NEWS2 score). • Please contact the APS via Alertive during core working hours (08.15 - 17.00 Monday to Friday and from 08.15 to 14.00 on Saturdays) Outside these hours, please contact the first on call anaesthetist via Alertive **Medical Staff** • Discuss with APS or duty anaesthetist whether catheter needs to be removed. Check anticoagulation status first. • Inform spinal surgeons of possible diagnosis. • Send catheter tip, site swab and blood cultures to Microbiology. Inform

	Microbiologist and start recommended antibiotic cover. • Send blood for Full Blood Count and C-Reactive Protein. • If leg weakness is present 4 hours after stopping the epidural infusion then an urgent MRI scan should be arranged. Do not delay. • If there is no neurology then an MRI should still be considered. The timing and appropriateness of this will need to be discussed with the duty Radiologist.

2. Objective of Guideline

To facilitate the effective and safe use of epidural, paravertebral and interscalene brachial plexus analgesia, using step-by-step flow charts and tables to outline optimal management of complications and side effects. This guideline refers to epidurals sited for the relief of acute pain and not those used in chronic pain or palliative care settings. The guideline also details:

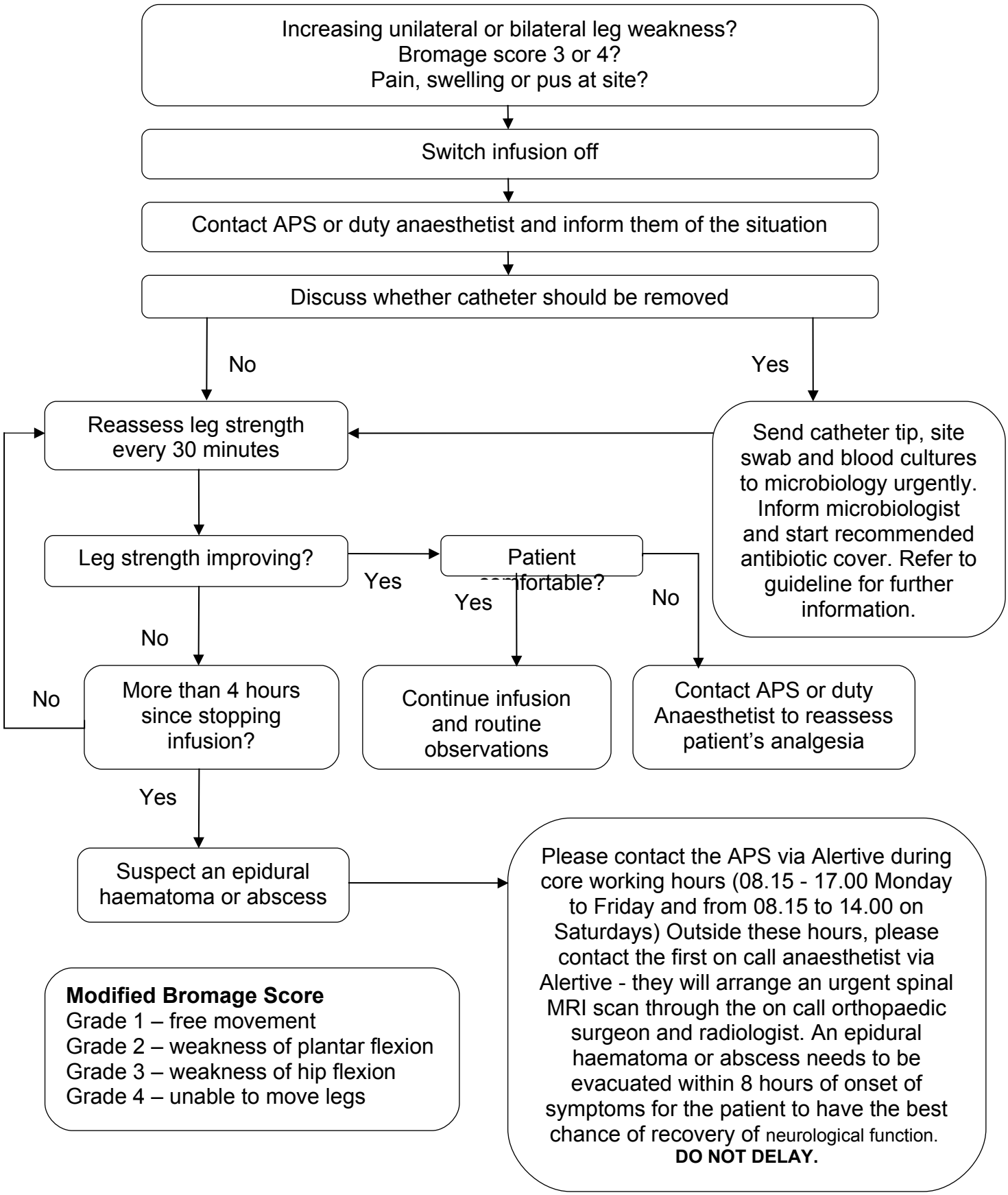
- Patient selection
- Epidural insertion and catheter management
- Prescription
- Patient monitoring
- Removal of the Paravertebral and Interscalene brachial plexus catheter

3. Rationale for the recommendations

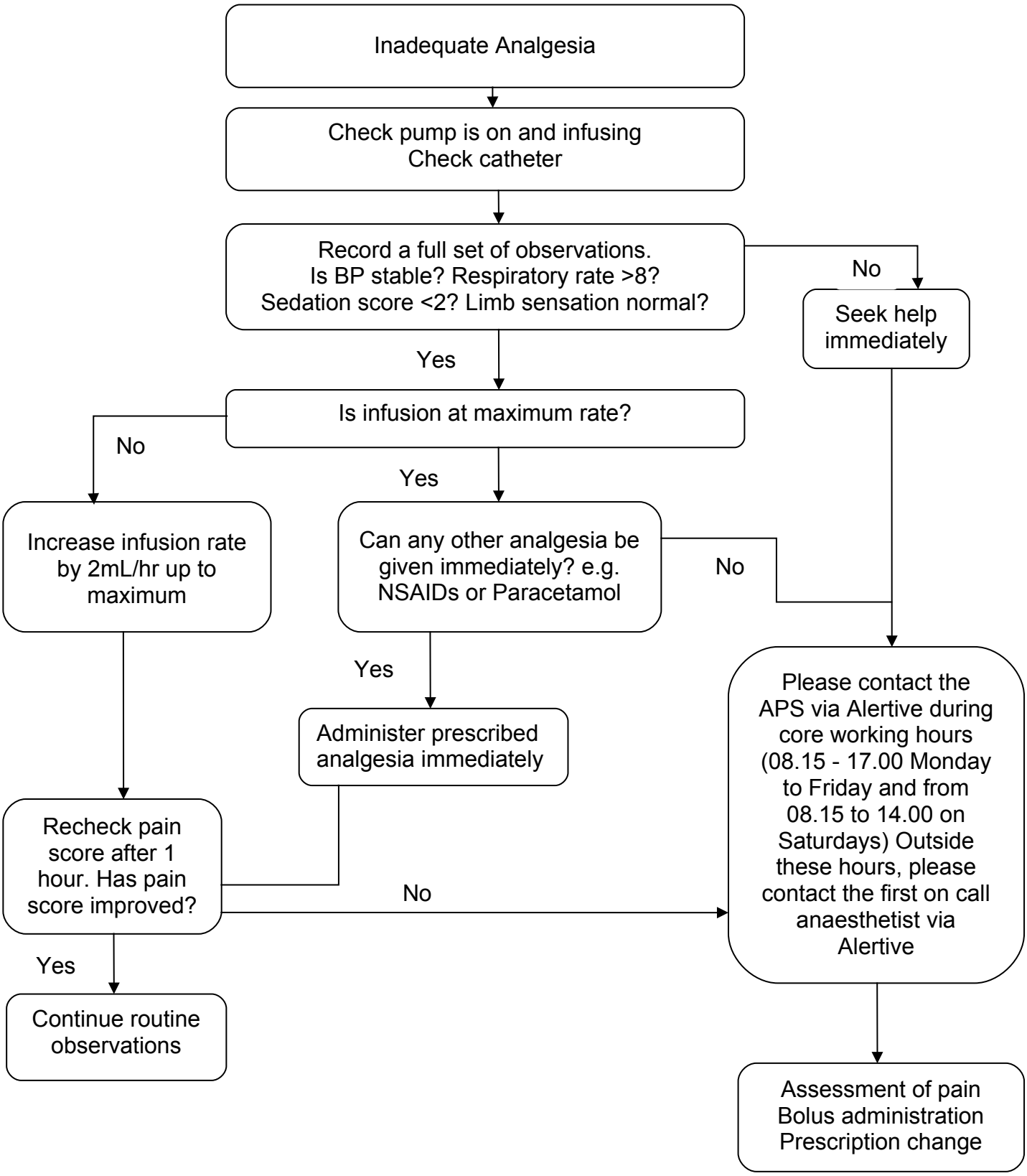
Epidural, Paravertebral and Interscalene brachial plexus analgesia can provide effective pain relief in a wide variety of situations. However, there are also a number of side effects that may limit its effectiveness and result in significant morbidity.

These guidelines are based on a review of the literature, consensus from pain specialists and anaesthetists and guidelines from the Royal College of Anaesthetists (2010) and Faculty of Pain Medicine (2015) (see reference list).

4. Management of unilateral or bilateral leg weakness with Epidural, Paravertebral and Interscalene analgesia



5. Management of Inadequate Epidural / Paravertebral and Interscalene brachial plexus analgesia



6. Broad recommendations

Epidural analgesia may be defined as the administration of a solution of local anaesthetic and/or opioid into the epidural space to provide pain relief.

7. Paravertebral and interscalene brachial plexus analgesia

Paravertebral and interscalene brachial plexus (essentially a cervical paravertebral) drug administration carries the risk of epidural spread / migration and the monitoring of any such infusions should follow this guideline. Any individual discussion around risk balance benefit with anticoagulation should occur with the on-call or black spot anaesthetist.

7.1 Indications epidural

- Severe pain of acute onset.
- A source of pain that is below the T4 dermatome.

Consideration should be given to the anticipated duration of analgesic requirement. Use of epidural analgesia for short periods of time (<18 hours) may not be justifiable.

In addition to acute post-operative pain, epidural analgesia is particularly useful for the management of pain related to:

- Chest trauma.
- Acute lower limb ischaemia.
- Some cancer pains.

7.2 Contraindications

Absolute contraindications to epidural analgesia are:

- Patient refusal.
- Known sensitivity to any drug that will be used in the epidural.
- Lack of safe nursing environment for placement and subsequent care.
- Insufficient experience in epidural placement and management by the operator.

Medical conditions may also contraindicate the use of epidural analgesia:

7.2.1 Raised intra-cranial pressure:

Because of the risk of accidental dural puncture leading to brainstem herniation, raised intracranial pressure is a contraindication to attempted epidural placement. Consequently, epidural analgesia should be avoided in any patient within 48 hours of a closed head injury in which raised intracranial pressure is suspected.

7.2.2 Coagulopathy:

A patient's coagulation status must be considered before insertion or removal of an epidural, paravertebral or Interscalene brachial plexus analgesia catheter. These guidelines and timings should also be observed if any adjustments to catheter length or depth are planned. Anti-coagulation should be managed according to Trust guideline **CA2060v9.** Please consult this guideline if there is any doubt.

1. Patient on prophylactic Low Molecular Weight Heparin (LMWH) e.g. Dalteparin ≤ 5000IU or Tinzaparin ≤ 4500IU or Enoxaprin ≤ 40mg per day. Wait 12 hours after dose of LMWH before siting an epidural. After insertion, a period of 4 hours must elapse before subsequent administration of a LMWH dose.

   Whenever possible, all prophylactic LMWH should be administered at 18.00 hours, which would enable safe catheter siting and removal to occur between 06.00 and 14.00. Epidurals sited later than 14.00 will necessitate changes in the timing of subsequent LMWH.

2. Patients on subcutaneous Unfractionated Heparin (UFH) 5000IU 8-12 hourly, or 7,500 12 hourly. The last dose of UFH should be at least 4 hours prior to insertion/removal of epidural catheter. Subsequent administration of UFH should not occur within 1 hour of epidural siting.
3. Patients on intravenous Heparin: Stop Heparin for 6 hours and ensure aPTTr <1.5 prior to insertion/removal of epidural catheter
4. Patients on Warfarin: Stop 4 days prior to insertion and convert to intravenous heparin or LMWH. Ensure INR is <1.5 prior to insertion/removal of epidural catheter.
5. Patients on anti-platelet drugs: Aspirin, NSAIDs and dipyridamole when used alone represent no added risk. Clopidrogel and other Thienopyridine derivatives should be stopped for 7 days prior to insertion and must *not* be restarted until the epidural catheter has been removed. If these are given in error before the catheter is removed please seek advice from the on call haematologist and contact the Acute Pain Service
6. Patients on New Oral Anticoagulant drugs (NOAC) should be managed as per Trust document CA2060V9 - Management of patients requiring emergency surgery who are taking a new oral anticoagulant (NOAC) e.g. Apixaban, Dabigatran, Rivaroxaban (see Click for Clots on Trust Intranet). Spinal anaesthesia (and thus epidural analgesia) is not recommended within 48 hours since last dose of NOAC. If eGFR <30 ml/min/1.73m^2 longer times may apply.

Regardless of compliance to the above criteria, epidural catheter insertion or removal should not be undertaken in the presence of abnormal coagulation. Ideally the following criteria should be met:

Platelet Count >80 x 10^9/L
INR<1.5
aPTTr <1.5

7.2.3 Infection:

Skin infection close to the site of puncture is a contraindication to epidural placement because of the risk of iatrogenic meningitis and epidural abscess formation.

7.2.4 Systemic sepsis:

(including MRSA) is not an absolute contraindication to epidural analgesia, but due consideration should be given to the monitoring and management of haemodynamic instability subsequent to the sepsis and any additional sympathetic blockade resulting from epidurally infused local anaesthetics.

7.2.5 Untreated hypovolaemia:

The effects of hypovolaemia are likely to be exacerbated by the infusion of epidural local anaesthetic, so hypovolaemia that is untreated is a contraindication to epidural analgesia.

7.3 Initiation of epidural

7.3.1 Consent process:

Patients should always be consented. If the epidural is *not* undertaken at the time of an operative procedure, written informed consent should be obtained and documented using the standard Trust consent form. Patients should be informed of the advantages and disadvantages of the procedure, with reference to alternative forms of analgesic provision.

Patients should be informed of the possible side effects eg itching, hypotension, weak legs and retention of urine as well as the complications of placement. Risk for less serious complications such as post dural puncture headache and neurapraxia are quoted as 1 in 100 and 1 in 13,000 for permanent damage respectively. Data shows that serious complications arising from perioperative (non-obstetric) epidurals are relatively rare. The risk of epidural haematoma from perioperative epidural is 1 in 16,300 and the risk of suffering permanent harm is 1 in 19,500. The risk of epidural abscess from perioperative epidural is 1 in 9,800 and the risk of suffering permanent harm is 1 in 33,000. For perioperative epidurals the combined risk of permanent injury or death is 1 in 5,800 (Royal College of Anaesthetists 2009). It is up to each individual anaesthetist to decide how much information to give during the consent process.

7.3.2 Placement:

- Location.
  Epidurals should be sited in an appropriate clinical environment, which must include trained assistance and immediate access to advanced resuscitation equipment. Anaesthetic rooms represent the ideal location.

- Intravenous access.
  Suitable intravenous access should be established and checked as patent before attempting epidural placement. **Intravenous access must be present and patent for as long as the epidural, paravertebral or Interscalene brachial plexus catheter is in situ.**

- Monitoring.
  Continuous ECG and regular blood pressure monitoring should be in use during epidural placement. If any sedation is used, oxygen therapy and monitoring of oxygen saturation should be instituted.

- Use of sedation.
  Unless there are over-riding clinical grounds to warrant siting the epidural whilst the patient is sedated (e.g. uncooperative, paediatric practice), the epidural should be placed with the patient sufficiently awake to co-operate and indicate potential neuronal damage.

- Sterile technique.
  Maximal barrier precautions should be observed during insertion as mandated in AAGBI published “Safety Guideline - Skin Antisepsis For Central Neuraxial Blockade”(2014). Specific recommendations from this document include:

  1. Optimum aseptic technique for Central Neuraxial Blockade (CNB) requires thorough handwashing with surgical scrub solution and the use of barrier precautions including the wearing of a cap, mask, sterile gown and gloves, and the use of a large sterile drape.
  2. Chlorhexidine (0.5%) in alcohol should be used for skin antisepsis before

performing CNB.

3. The anaesthetist must be meticulous in taking measures to prevent chlorhexidine from reaching the cerebrospinal fluid (CSF):
    a. Chlorhexidine should be kept well away from the drugs and equipment to be used for CNB and should not be poured into containers on or near the same surface as the equipment for CNB. Equipment should be covered or protected while the antiseptic is applied by swab, applicator or spray.
    b. The solution must be allowed to dry before the skin is palpated or punctured.
    c. The operator should check his/her gloves for contamination with chlorhexidine. If there is any doubt, they should be changed before continuing the procedure.

The following precautions are local recommendations and whilst not mandatory should also be considered.

- Personnel in the anaesthetic room should be kept to a minimum during insertion. Masks should be worn by all personnel in the anaesthetic room during epidural insertion. Masks become ineffective after 15 minutes and so should be changed each time a new central neuraxial block is performed.
- The anaesthetic room doors should be locked if possible to prevent intrusions and disturbances during this time. The epidural catheter should be left in its plastic bag until the epidural space is located. If insertion is prolonged and requires multiple attempts then consideration should be given to using a new set and re-prepping and re-draping.
- Consideration should also be given to tunnelling the catheter if it is likely to remain in for longer than 72 hours.

The skin entry site should be cleaned with a 0.5% Chlorhexidine gluconate in 70% denatured ethanol B solution (or alcoholic povidone-iodine solution if allergic to chlorhexidine). Two applications should be applied and it should be allowed to dry between applications and before proceeding with epidural insertion. It may be applied by spraying or by painting using the swab sticks provided in the packs.

Whichever method is used sufficient care must be taken to ensure that the antiseptic solution does not contaminate the contents of the epidural pack. Contamination of epidural equipment or proceeding before the solution has dried have both been cited as possible causes of adhesive arachnoiditis. The solution should not be allowed to pool under the patient as this may cause a chemical burn.

- Catheter attachment.
  The epidural catheter should be secured by means of an adhesive transparent dressing that allows inspection of the epidural insertion site. A bacterial filter must be used at all times. The dressings should be applied by the anaesthetist whilst still scrubbed to maintain sterility.

- Test dose.
  Prior to commencement of an epidural infusion, the anaesthetist responsible for its insertion should verify the catheter placement by means of a test dose.

7.4 Prescription of epidural analgesia

The prescription will be provided by the anaesthetist responsible for the initiation of the epidural and will be prescribed on an inpatient drug chart

Information on the prescription chart should include:

- Interspace (spinal level), depth of loss of resistance, catheter marking at skin
- Drug choice:
    - The standard solution is 0.1% L-Bupivacaine with 2 micrograms/mL of fentanyl. This may be varied at the discretion of the supervising anaesthetist to 0.125% L-Bupivacaine with 4 micrograms/mL fentanyl, or 0.125% Bupivacaine without fentanyl
- Details of desired rate range and starting rate

If the epidural solution includes an opioid, no other form of opioid analgesia should be administered for the duration of use of the epidural unless directed by inserting anaesthetist or member of the Acute Pain Service.

7.5 Equipment

An epidural or paravertebral infusion pump with dedicated NRFIT giving sets will be available from the Main Recovery NNUH. These are marked with a yellow flashing for clear epidural identification and grey for paravertebral analgesia. In the absence of a yellow or grey marked NRFIT giving set, a yellow or grey NRFIT giving set may be utilised, but is should be clearly labelled as an epidural or paravertebral infusion. Nursing staff should ensure this information is communicated at all patient handover situations.

A bacterial filter must be used at all times.

The giving set and filter need not be replaced unless instructed by the Acute Pain Service or supervising anaesthetist.

The dedicated epidural pump is the only infusion device to be attached to the epidural catheter.

7.6 Setting up

Epidural bags will be stored according to the Trust's Controlled Drug Procedure in a dedicated locked cupboard in Main Theatre Recovery. Trained staff will oversee the programming and priming of the epidural pump according to the prescription.

The use of a loading dose or bolus will be at the discretion of the supervising anaesthetist.

7.7 Designated Clinical Areas and Standards of Monitoring

All patients with epidural analgesia should be nursed on wards within the Norfolk and Norwich University Hospital where epidural training has been undertaken, and nurses are familiar with the management of patients using the designated epidural equipment. Where possible patients receiving epidural analgesia should not be nursed in single rooms. However, if a single room is being considered for other indications, a full risk assessment with respect to the epidural should be undertaken and staff should be sure that appropriate monitoring and care can take place in this environment.

It is a requirement that there is an epidural trained nurse on every shift in ward areas where

patients with epidurals are nursed. These wards are currently CCC, Denton, Gateley, Dilham, Gissing, Docking, Edgefield & Cley. During abnormal times, these wards may vary but the ward area where these patients are nursed must have suitably trained staff (any anomalies should be reported to Surgical Matrons).

The following should be monitored: pain scores, leg movement, sedation, nausea, and a full set of observations (temperature, pulse, respiration rate, blood pressure, level of consciousness (AVPU), oxygen saturation and NEWS2 score). These must be monitored and recorded hourly for the first eight hours after initiation of an epidural, two hourly for the next forty eight hours and four hourly thereafter until discontinuation of treatment. These observations can be recorded by any RN, by a Band 4 Assistant Practitioner (after attendance at the Enhanced Practice Study Day) or by Band 3 Health Care Assistant who have received appropriate training from the acute pain service (as discussed in their professional development).

The entry site of the epidural, paravertebral or interscalene catheter should be inspected daily through the transparent dressing. This inspection should be documented in the patient's health record. Any inflammation, tenderness or leakage of fluid should be reported to the Acute Pain Service during the hours of 08:15 am to 5:00pm Monday-Friday and from 08:15am to 2:00pm on Saturdays, or to the patient's medical team outside of these hours.

7.8 Bag changing

Bag changing will only be undertaken by staff that have been trained and assessed as competent.

7.9 Discontinuation and Removal

Epidural and Paravertebral and Interscalene brachial plexus analgesia may be continued for a maximum of 7 days under the instructions and monitoring of the Acute Pain Service or the prescribing anaesthetist. However the lowest incidence of epidural abscess is associated with catheters removed within 48 hours.

Epidurals should therefore be used for the shortest appropriate period only.

In patients whose platelets were <100 x 10^9/L- 100 x 10^9/L on insertion it is advised that the platelet count be repeated prior to removal.

The epidural, paravertebral and interscalene brachial plexus catheter risk assessment tool (Appendix B) must be completed before the catheter is removed. This can be found on page 4 of the epidural observation chart. If any of the criteria regarding anticoagulation are not met then the catheter must not be removed and advice should be sought from the APS or duty anaesthetist.

With the adoption of recommendations incorporated in the Trust Guidelines on anticoagulation and regional blockade, LMWH will be administered at 18.00 for most patients. In these patients, the ideal time for removal of the catheter will be 10.00 to 14.00 on the following day. No further dose of LMWH should be administered within 4 hours of epidural removal. No further dose of unfractionated heparin should be administered within 1 hour of epidural removal.

Suitable alternative analgesia must be prescribed and available before the epidural, paravertebral or interscalene brachial plexus infusion is stopped and the catheter removed.

Only epidural trained nurses, anaesthetists or members of the APS may remove epidural, paravertebral and Interscalene brachial plexus analgesia catheters. The catheter should be removed intact. This may be facilitated by asking the patient to adopt the 'fetal' position, or alternatively sitting up and flexing forwards whilst arching their back. If there is any indication of local infection around the epidural site (reddening, purulent discharge, induration or if the patient has a pyrexia of unknown origin) the tip should be sent to Microbiology in a sterile pot for microscopy, culture and sensitivity.

After the catheter is removed for epidural analgesia the patient should be given a copy of "Epidural Analgesia: advice for patients after removal" (Appendix C). This details symptoms and signs of potential complications and gives instructions about who to contact if there are any concerns. The Acute Pain Service will usually visit the patient once after the epidural, paravertebral or interscalene brachial plexus has been removed unless early discharge from hospital prevents this.

8. Clinical Audit Standards

The following standards should be monitored:

- Management of inadequate analgesia
- Management of complications of epidural analgesia
- Completeness of epidural, paravertebral and interscalene brachial plexus monitoring
- Adequacy of training for epidurals, paravertebral and interscalene brachial plexus catheters

Any patients with inadequate analgesia are referred via the online system to the Acute Pain Service or duty anaesthetist. Any patients with suspected complications would also be referred this way. Reason for referral and action taken needs to be filled in for each entry and all data from this can be analysed. Patients with epidurals, paravertebral and interscalene brachial plexus catheters are also reviewed every day except Sunday by members of the acute pain service. A welfare form is filled in when patients are seen and includes data on adequacy of analgesia, observations, the condition of the epidural, paravertebral or interscalene brachial plexus site and any complications. The data from these forms is collected on an electronic database which can be analysed for the above standards. The standard for nurse training is that in areas where epidurals are used, there must be a minimum of one epidural trained nurse per shift to provide appropriate care. Monitoring of this is undertaken by the Acute Pain Service and the Training department.

9. Summary of development and consultation process undertaken before registration and dissemination

The authors listed drafted these guidelines derived from those adopted by other national groups and suggested by the Pain Society. During its development, it has been circulated for comment to anaesthetists, ward staff, surgical and theatre nurses, Practice Development Department and Acute Pain Service Nurses.

This version has been endorsed by the Anaesthetic Department, the Professional Protocols, Policies and Guidelines Committee and the Clinical Guidelines Assessment Panel.

10. Distribution list/ dissemination method

- Theatre recovery

- All Surgical, Gynaecology and Orthopaedic wards
- Anaesthetic Department
- Trust intranet

11. References & Source documents

Acute Pain Management: scientific evidence 2015 Section 5.6
http://www.anzca.edu.au/documents/fpm-apmse4-final-20160426-v1-0

Association of Anaesthetists of Great Britain and Ireland 2014. AAGBI Safety Guideline Skin Antisepsis For Central Neuraxial Blockade. AAGBI, London.

Royal College of Anaesthetists.2009 Major Complications of Central Neuraxial Block in the United Kingdom. NAP3, the 3rd National Audit Project of the Royal College of Anaesthetists. RCOA, London

RCoA Best Practice in epidural analgesia 2010
https://fpm.ac.uk/sites/fpm/files/documents/2019-07/Best%20practice%20management%20of%20epidural%20analgesia.pdf

FPM Core Standards for Pain Management Services 2015
https://fpm.ac.uk/sites/fpm/files/documents/2019-07/Core%20Standards%20for%20Pain%20Management%20Services.pdf

Appendix A – Epidural PVB/PCA Observations Chart

B

Our Vision To provide every patient with the care we want for those we love the most

NHS Norfolk and Norwich University Hospitals

Epidural / PVB / PCA Observations Chart

Pain Assessment and Observation frequency guidance:		
Epidural / PVB/ PCA:	Hourly for 8 hours 2 hourly for 48 hours 4 hourly thereafter	*Patient Identifier label*
Oral/IM/SC analgesia	Once per shift 1 hour after analgesia	

	Pain	Sedation	Nausea	Catheter site	Leg Movement
0	No pain	Alert	None	Clean	Full movement
1	Mild pain on movement	Mild: Easy to rouse	Mild nausea	Skin reddening, No induration	Weakness of plantar flexion
2	Moderate pain on movement	Easy to rouse, often drowsy	Nausea and retching	Skin induration No discharge	Weakness of hip flexion
3	Severe pain on movement	Somnolent. Difficult to rouse	Vomiting	Discharge from catheter	Unable to move legs

	Date/ time or 24 clock	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
Pain	3																									
	2																									
	1																									
	0																									
Sedation	3																									
	2																									
	1																									
	0																									
Nausea	3																									
	2																									
	1																									
	0																									
PCA	Tries																									
	Good																									
	Resp																									
	Total																									
Epidural/ PVB	Rate																									
	Site																									
	Leg Mvmt																									
	Resp																									
	Total																									
	Signature																									

Trust Guideline for the Management of Adult Patients Receiving Epidural, Paravertebral and Interscalene brachial plexus analgesia

Appendix B Epidural / Paravertebral / Interscalene brachial plexus Catheter Risk Assessment Tool

B

Patient Name: **Hospital Number:**

Before removing an epidural / paravertebral / interscalene brachial plexus catheter please answer all the questions below:

Question	Yes	No
A. Heparin		
1. Is the patient prescribed Dalteparin (Fragmin) greater than 5,000 units or Tinzaparin (Innohep) dose greater than 4,500 units or Enoxaparin (Clexane) greater than 40 mg		
2. Has <u>any</u> heparin (Dalteparin, Tinzaparin, Enoxaparin or Unfractionated Heparin -sc or iv) been given in the last 12 hours?		
3. If the patient weighs less than 50 kgs have they received **any** heparin in the last **24** hours?		
B. Other anti-coagulant or anti-platelet Drugs		
4. Has Warfarin been given within the past 2 days?		
5. For patients who received Warfarin in the last week – is the INR greater than 1.5 **on the day of removal**?		
6. Has the patient received Rivaroxaban within the last 18 hours?		
7. Has the patient received Fondaparinux or Dabigatran within the last 36 hours?		
8. Has Clopidogrel or Prasugrel been given within the past 7 days?		
9. Is the patient taking Aspirin doses greater than 300mg per day?		
10. Is the patient taking any other anticoagulants or anti-platelet drugs**?		
C. Early Warning Score		
11. At time of assessment does the patient trigger the Early Warning Score (EWS)?		

If the answer is YES to any of the questions, DO NOT remove the epidural, PVB or brachial plexus catheter <u>Seek advice from the Pain Team or the On-call Anaesthetist</u>

If unable to remove (any YES response) please document the name of the person contacted and advice given:

Signature: **Date** **Time:**

Epidural / paravertebral / interscalene brachial plexus catheter removed?

Print Name: **Signature:**

Date: **Time:**

Patient Information Leaflet given? **Yes ☐** **Signature:**

Dose Post Removal Advice: Drugs may be restarted after the following time intervals

4 hours: Unfractionated Heparin, Warfarin
4-6 hours: Dalteparin, Tinzaparin, Enoxaparin
Next day: Rivaroxaban, Dabigatran, Fondaparinux, Clopidogrel, Aspirin, Prasugrel, Edoxaban

** Other anti-coagulant and anti-platelet agents include (this is not an exhaustive list):
Abciximab Acenocoumarol Apixaban Bivalirudin Danaparoid Epoprostenol Idraparinux Phenindione Ticagrelor Tirofiban, Edoxaban

For further information see Adult Patients Receiving Epidural Analgesia Trustdocs ID: 1191

Appendix C - Epidural - Discharge Advice for Patients

http://trustdocs/Doc.aspx?id=374