Adult Continuous Regional Nerve Blocks for Acute Pain Management Clinical Guideline

Guideline information

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Summary of document:
This document sets out the HDUHB guideline for the management of patients with a nerve block catheter receiving local anaesthetics via
1. Manual bolus
2. Electronic pump
3. Elastomeric disposable pump

Scope:
This clinical guideline is for use with patients (over 16 years) to manage acute pain related to major surgery or chest injuries who have a regional nerve block catheter sited that is appropriate for local anaesthetic infusion.

To be read in conjunction with:
708 - Controlled Drugs Governance Policy (opens in new tab)
268 - Medicines Policy (Acute, Mental Health, Learning Disabilities and Community Services) (opens in new tab)
711 - Rib Fractures Management Guideline (opens in new tab)
795 - Management of Acute Pain in the Acute Hospital Setting Guideline (opens in new tab)

Patient information:
Include links to Patient Information Library

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Acute Pain MDT
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Mandy Rayani – Director of Nursing, Quality and Patient Experience

Reviews and updates:
1.0 – New Guideline

Keywords
Rectus Sheath Catheters, Laparotomy, Pain, Chest Trauma, Rib Fractures

Glossary of terms
PNB – Peripheral Nerve Block
LA – Local Anaesthetic
RSC – Rectus Sheath Catheter
CAB – Clinician Activated Bolus
PCA – Patient Controlled Analgesia
LAST – Local Anaesthetic Systemic Toxicity
NEWS – National Early Warning Score
ESP – Erector Spinae Plane
PVB – Paravertebral Block
APT – Acute Pain Team

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Introduction

Summary

This document provides guidance on the management of local anaesthetic (LA) nerve block infusion via Regional nerve block catheters, for adult patients (over 16 years), for the treatment of post-operative pain or chest trauma. This guidance incorporates current guidance from the RCOA, NPSA and RA-UK on best practice including prevention of LA toxicity.

Key Points

LA infusions via regional nerve block catheters are effective in the management of acute pain after surgery or trauma

Registered Practitioners should be aware of:

- Drug-related side-effects and their management
- Indications and contraindications for LA infusions
- Complications relating to analgesia and the management
- Frequency of observations
- Criteria for stopping LA infusions
- Who to contact in an emergency
- Training required and competency assessment process

Scope

This clinical guideline is for use with patients (over 16 years) to manage pain related to major surgery or chest injuries who have a Regional nerve block catheter sited that is appropriate for local anaesthetic infusion whether by an automated infusion device or manually by a suitably experienced practitioner.

All registered practitioners caring for patients receiving a LA infusion must adhere to this guideline. To ensure patient safety, patients with LA Infusions should not leave the clinical area unless accompanied by a trained member of nursing staff.

Note: for patients receiving a continuous epidural infusion, please see separate guidelines.

Aim

The aim of this document is to:

- To provide all staff with guidance and education in the use of LA infusions via regional nerve block catheters
- To provide a framework to ensure the patient receives effective and safe analgesia.

Objectives

The aim of this document will be achieved by the following objectives:

- Promoting safe practice that is evidence based and standardised within the clinical areas
- Providing clinical areas with appropriate education and information about this mode of analgesia.

Roles

Professional Responsibility

The pain management team are accountable to the Medical Director and Director of Nursing to ensure:

- Dissemination of this guideline document to wards, departments and clinical leaders as appropriate
- Maintenance and review of this guideline document

- Providing awareness sessions for anaesthetists at induction
- Training and development of staff in line with this guideline and procedures
- Monitoring of standards in clinical practice

Training Requirements
All staff who are eligible to use this guideline must have undertaken the following training programmes:
- Management of Regional nerve block catheters / Local anaesthetic toxicity training
- Immediate Life Support [ILS] training course
- HDUHB IV drug administration
- Medical Device Training for:
- Electronic Infusion Devices (Currently BD Bodyguard Pain Managers)
- Disposable Elastomeric Devices (Currently Avanos On-Q)

Practitioner pre – requisites for level 1 access to operate the BD Pain Manager pump.
- Registered practitioners who meet the following criteria can :-
- Access the menu options,
- Change infusion bags – This will be done by all nurses who have undergone the above training programme
- Deal with pump alarms
- Set up LA infusion – This will usually be done by Recovery staff or a practitioner with extended competencies; ward staff will not normally be expected to do this component

Registered Practitioner (To include Anaesthetists, Anaesthesia Associates, Acute Pain Team Nurses and Nurses who have gone extended competency assessment) with level 2 access code can:-
- Administer a prescribed 'Clinician Activated Bolus' following competency assessment.

Regional Nerve Block Catheters

This guideline encompasses all type of Regional Anaesthetic Nerve Block Catheter commonly inserted in HDUHB. Apart from the technical aspects of insertion, the subsequent infusion protocol, prescription, aftercare and monitoring requirements are identical for **2.1** – **2.3**.
Only one type of nerve block should be used at one time due to the risk of LA toxicity.

Continuous nerve blocks should be used as part of a multi-modal approach to the patient's pain management. Patients will commonly be prescribed regular multimodal analgesia of paracetamol, with non-steroidal anti-inflammatory drug if no contraindications and often in conjunction with an intravenous PCA.

Rectus Sheath Block (and other Abdominal Wall Blocks)
Indications:
- Mid-line laparotomy incisions

Mode of Delivery:
Electronic Intermittent Auto Bolus (Preferred) – BodyGuard Pain Manager
OR
Continuous infusion by disposable elastomeric device – On-Q Pain Relief System
Background:

The anterior branches of spinal segmental nerves T6-T11 innervate the rectus abdominis muscle and the skin of the abdominal wall over the rectus abdominis muscle, i.e., the midline.

RSC are placed by the surgeon or anaesthetist within the sheath of the rectus abdominis muscle, through which course the anterior branches of the spinal segmental nerves T6-T11. One catheter is placed on each side. LA drugs work by blocking nerve impulses that are transmitted by sensory, sympathetic and motor nerves.

Rectus Sheath Blocks are able to provide equivalent analgesia in most situations to epidural anaesthesia provided they are combined with intrathecal diamorphine and a PCA. They should be strongly considered in patients unable to have a neuraxial block.

Catheters may also be placed in adjacent muscle planes such as Transversus Abdominus Plane (TAP) or Quadratus Lumborum (QL) if the patient does not have a viable rectus muscle due to hernias or multiple abdominal operations. These may not be quite as effective as a Rectus Sheath Catheter but are identical in terms of aftercare and prescription.

Patients may also require additional bolus dose of LA as prescribed. Monitoring of the patient following additional bolus dose is described in Section 'Monitoring and Nursing Care'.

Erector Spinae Plane (ESP) and Paravertebral Blocks (PVB)
Indications:

- Multiple unilateral rib fractures
- Open subcostal surgical incisions e.g. Open nephrectomy or Cholecystectomy
- Complex breast surgery

Mode of Delivery:
Electronic Intermittent Auto Bolus (Preferred) – BodyGuard Pain Manager
OR
Continuous infusion by disposable elastomeric device – On-Q Pain Relief System

Background:
Refer to HDUHB 711 - Rib Fractures Management Guideline for more details. This details a risk scoring system (STUMBL) which helps to guide which patients need a nerve block. This is used in conjunction with assessing ability take deep breaths and cough effectively alongside pain scores at rest and on deep breathing. Patients unable to cough and breathe effectively are at a high risk of developing pulmonary complications and benefit from regional anaesthesia within 24 hours of presentation.

The intercostal nerves T1-T12 innervate the chest wall. ESP's and PVB's target these nerves at multiple levels and are able to provide effective analgesia for the indications listed above and are usually the first line interventional option for the management of rib fracture pain in preference to an epidural given their more favourable risk profile. ESP's in particular can often be performed safely when other procedures may be contraindicated. PVB's are a technically more challenging procedure, but provides denser analgesia with better visceral coverage. They may be a better option than ESP's for surgical incisions as detailed above, but the decision on which to perform will be at the discretion of the anaesthetist.

ESP's or PVB's are inserted by an anaesthetist under ultrasound guidance and a catheter is placed in the desired location. LA drugs work by blocking nerve impulses that are transmitted by sensory, sympathetic and motor nerves. Comprehensive training beyond the scope of this document is required in order to be able to deliver these interventions and local training processes are well established.

Patients may also require additional bolus dose of LA as prescribed . Monitoring of the patient following additional bolus dose is described in Section 'Monitoring and Nursing Care'.

Femoral, Fascia Iliaca and Sciatic Nerve Blocks
Indications:

- Patients with a fractured neck of femur where a delay to operating is anticipated
- Major foot and ankle surgery
- Management of pain after lower limb amputation

Mode of Delivery:
Electronic Intermittent Auto Bolus – BodyGuard Pain Manager
OR
Continuous infusion by disposable elastomeric device – On-Q Pain Relief System

Femoral nerve or fascia iliaca blocks are well established as the analgesic modality of choice for patients with fractured neck of femur. There are clear benefits to minimising opioid consumption in this patient population. Where a delay to surgery is anticipated due to e.g. need for medical optimisation, specific surgical equipment needs ordering or lack of operating list time catheters can be inserted under ultrasound guidance to reduce the need for patients to receive multiple injections. This should provide better pain relief and reduce the discomfort and risk from having to receive repeated single shot blocks.

Sciatic nerve blocks are used for foot and ankle surgery, and a catheter can be placed by an Anaesthetist under ultrasound guidance in order to provide an extended duration of analgesia. Occasionally, patients in Hywel Dda undergo major lower limb amputation. Postoperative pain is extremely difficult to control with systemic analgesia alone and failure to poor pain control is associated with a high incidence of chronic and phantom limb pain Sciatic nerve block catheters can be placed under direct vision by the surgeons during amputation or under ultrasound guidance by an Anaesthetist.

Brachial Plexus Blocks e.g Interscalene, Infraclavicular
Indication:

- These may be infrequently required for complex upper limb surgery.

Mode of delivery:
Continuous infusion by disposable elastomeric device only – On-Q Pain Relief System
Max infusion rate 8ml/hr

DO NOT use with BodyGuard pump with the existing Programmed Intermittent Bolus regimen. This would deliver an excessive volume of LA for these types of nerve block, with a risk of respiratory compromise due to phrenic nerve involvement.

Insertion Procedures

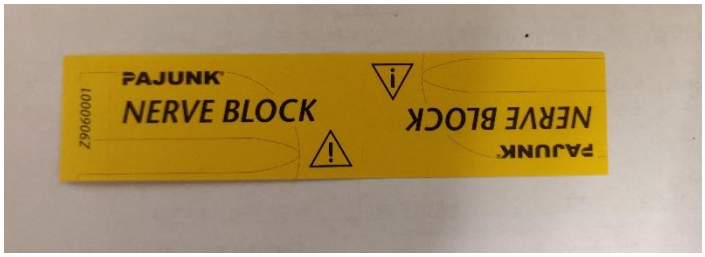
Rectus Sheath Catheter (RSC)

- RSC will be inserted in theatre either under direct vision by the operating surgeon (or by the anaesthetist under ultrasound guidance) using existing dedicated Rectus Sheath kits**.** (See Appendix 4)
- The RSC will be placed within the Posterior Rectus Sheath. https://www.youtube.com/watch?v=Xq-H3SLLwO0&has_verified=1 . (opens in new tab).
- The number and location of catheters must be recorded and they must be clearly labelled with the RSC labels included in the pack . Date and time of insertion should be documented. These should be connected together via the included Y-Connector.

- Catheters are secured using Epifix or similar dressing and taped to the abdominal wall.
- Bacterial Filters must be used and are contained within the RSC kits .
- Patients should be nursed on wards where staff are trained in post-operative care Regional nerve block catheter management
- All prescriptions are the responsibility of the prescriber.
- See section 'Removal of Nerve Block Catheters' on removal instructions.

Erector Spinae Plane and Paravertebral Block

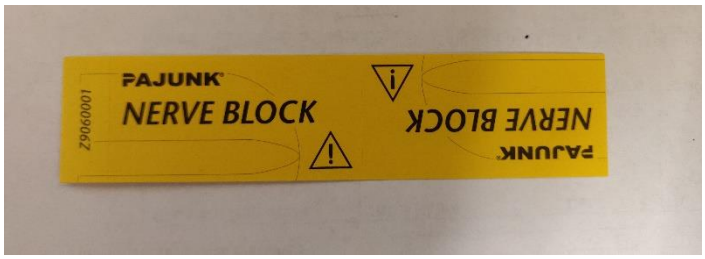
- These blocks will be inserted by an anaesthetist under ultrasound guidance in a clean, monitored environment, ideally theatres or critical care unit.
- Full surgical scrub is mandatory for catheter insertion.
- The choice of which type of catheter to use is at the discretion of the Anaesthetist, and what equipment is currently available. It is acceptable to use a 16G or 18G Tuohy epidural kit provided the catheter is clearly labelled e.g. as below



- Catheters are secured using Epifix or similar dressing and taped to the abdominal wall.
- Bacterial Filters must be used and are contained within the nerve block kits.
- Date and time of insertion should be documented
- Patients should be nursed on wards where staff are trained in Regional nerve block catheter management
- All prescriptions are the responsibility of prescriber.
- See section 'Removal of Nerve Block Catheters' on removal instructions.

Femoral, Fascia Iliaca and Sciatic Nerve, and Brachial Plexus Blocks

- These blocks will be inserted by an anaesthetist under ultrasound guidance in a clean, monitored environment, ideally theatres or critical care unit, but there may be situations where this is appropriate in ED or on a Trauma Ward, provided strict aseptic precautions are taken.
- Full surgical scrub is mandatory for catheter insertion.
- Sciatic catheters may be inserted under direct vision by surgeons in the case of lower limb amputation
- The choice of which type of catheter to use is at the discretion of the Anaesthetist, and what equipment is currently available. It is acceptable to use a 16G or 18G Tuohy epidural kit provided the catheter is clearly labelled as a nerve block e.g. as below



- Catheters are secured using Epifix or similar dressing and taped to the abdominal wall.
- Bacterial Filters must be used and are contained within the nerve block kits.
- Date and time of insertion should be documented
- Patients should be nursed on wards where staff are trained in Regional nerve block catheter management
- Brachial Plexus (upper limb) catheters should **not** be attached to the BodyGuard pump with the existing Programmed Intermittent Bolus regimen as this would deliver an excessive dose of LA for these types of nerve block.
- All prescriptions are the responsibility of prescriber.
- See section 'Removal of Nerve Block Catheters' on removal instructions.

Equipment

- Bodyguard Pain Manager pump (configured for Regional Nerve Block). See Appendix 5.
- Elastomeric Disposable Pump – On-Q Pain Manager
- Level 1 and 2 access codes to prevent unauthorised changes of pump parameters
- Dedicated Grey nerve block giving sets should be used to differentiate regional lines from arterial (red), enteral (purple) and epidural (yellow) infusions. (NPSA 2007)
- Due to fatal cases of LA / intrathecal drugs being administered via the wrong route, the NPSA issued a 'Patient Safety Alert Practice' recommending all equipment used for neuraxial procedures to use NR Fit connection: http://www.nrls.npsa.nhs.uk/alerts (opens in new tab).
- However, nationally this has yet to be implemented. Until such time, extra care must be taken when administering solutions via nerve block routes to ensure that they are not erroneously given intravenously. In order to minimise this risk a second healthcare professional should confirm that

the correct drug and line connection have been selected and that the administration method is correct. (NPSA (2007) (21);

- A ‘stop before you inject’ moment to pause and confirm the route of administration should be performed. (RAUK, NPSA 2010)

Prescription

- Regional Nerve Block infusion to be prescribed on the ‘Adult Regional Nerve Block Prescription Chart (See Appendix 1a).
- The Regional nerve block prescription chart with the standard auto-bolus protocol can be used interchangeably for the following nerve block catheters:
    - Rectus Sheath (or variations e.g. TAP, Quadratus Lumborum etc)
    - Erector Spinae Plane
    - Paravertebral
    - Femoral Nerve/Fascia Iliaca
    - Sciatic Nerve
- It must **not** be used for Brachial Plexus catheters i.e. Interscalene, Superior trunk, Infraclavicular without a supplementary prescription sticker (See Section ‘Supplementary Prescription Sticker’)
- The following standard solutions are used.

Local Anaesthetic	Levobupivacaine 1.25mgs/ml (0.125%)
Bag size	200mls
infusion rate	Auto bolus 20mls every 3 hours
Clinician Activated bolus	40mls every 6 hours (not to be given before the 6 hours)

- Premixed bags of Levobupivacaine are available to prevent risk of drug error (NPSA 2007)
- Levobupivacaine bags must be stored in separate cupboards away from other intravenous drugs and infusions (NPSA (2007) (21)
- Please note that these bags are also used for epidural infusions so they are labelled ‘ For Epidural Use Only’

Supplementary Prescription Sticker (For use with elastomeric pumps)

- Regional Nerve Block infusion to be prescribed on the ‘Adult Regional Nerve Block Prescription Chart with supplementary sticker (See Appendix 1b).
- This infusion protocol can be used interchangeably for any nerve block catheter, but is best suited for the following:

- Femoral Nerve/Fascia Iliaca
- Sciatic/Popliteal Nerve
- Brachial Plexus catheters i.e. Interscalene, Superior trunk, Infraclavicular

- The following standard solutions are used

Local Anaesthetic	Levobupivacaine 1.25mgs/ml (0.125%)
Bag size	200mls
infusion rate	7ml/hr

https://avanospainmanagement.com/product-catalog/acute-pain/pumps-accessories/elastomeric-pumps-and-accessories/on-q-pump-with-select-a-flow/saf01__on-q-pain-relief-system-with-select-a-flow-variable-rate-controller-270-ml-x-1-7-ml-hr/ (opens in new tab)

- Training with the elastomeric device described above has been given to Ward 7 PPH at time of writing, with view to roll out more widely. If the type of device changes at any time then appropriate training will be arranged.

- It has been agreed locally that Bronglais General Hospital will continue to use elastomeric devices for Rectus Sheath Block Catheters. The prescription sticker should be filled in as below. These pumps **must not** be used for Brachial Plexus Catheters and are not available on any other site.

Local Anaesthetic	Levobupivacaine 1.25mgs/ml (0.125%)
Bag size	500mls
infusion rate	14ml/hr

Procedure for Administration of a Manual Bolus via the Regional Nerve Block Catheter

Where possible patients should have the dedicated nerve block infusion device set up. If a pump is not available a manual bolus may be given to administer the Levobupivacaine by an Anaesthetist or APT.

- Ensure the patient has intravenous access at all times
- Check patient's identity against medication chart.
- Check for allergies
- Check for any signs of migrations, leakage and infection.
- Do not proceed if there are any concerns and contact the patient's surgical team, or on-call anaesthetist
- Prepare the drugs in a sterile manner for administration as per the prescription. A 2 person check should be performed until NR-Fit adopted universally.

- Gloves must be worn and an aseptic non touch technique should be used when administering a bolus
- Ensure a bacterial filter is in situ.
- Attach the syringe to the catheter filter and aspirate for blood using a low force for 30 seconds.
- If blood is present, do not administer the bolus. Inform the on call anaesthetist
- If no blood is aspirated, inject 5mL of 2.5mg/ml (0.25%) Levobupivacaine over 2 minutes. For prescription refer to (See Appendix 1a)
- Wait 3 minutes.
    - Ask the patient to inform you of symptoms of local anaesthetic toxicity e.g. double vision, tinnitus, numb mouth or metallic taste.
    - If the patient exhibits, no signs or symptoms of local anaesthetic toxicity then inject the rest of the Levobupivacaine 2.5mg/ml over 5 minutes aspirating after each 5ml increment.
    - Remove the syringe and replace with a new sterile cap.
    - Sign prescription chart.
    - Instruct the nursing staff to monitor the patient vital signs (at 5,10,15, and 30 minutes) for signs of local anaesthetic toxicity

Monitoring and Nursing Care

- Close monitoring is essential not only to detect potential complications from the surgery but also any adverse reactions from the local anaesthetic agents (NPSA 2007)
- Patients should be nursed in an area where there is adequate monitoring and trained/competent staff.
- Observations should be recorded on the National Early Warning Score chart (NEWS) and the 'Adult Regional Nerve Block Supplementary Prescription Chart' (See Appendix 1b).
- Intravenous access must be maintained whilst the infusion is in progress and cannula site checked and documented on the HDUHB Intravenous Care Bundle.
- The nerve block catheter insertion site should be observed every 8 hours and at each bolus while the infusion is running, for signs of infection or leakage. Any problems should be reported to the surgical team or anaesthetist/APT.

Clinical Observations:
When a patient is receiving a LA infusion, please complete the following observations on the NEWS chart

Observations on NEWS	Frequency on starting LA infusion	After a LA , Clinician Bolus
Blood pressure Heart rate Sedation Score Pulse Temperature	¼ hourly for 1 hour ½ hourly for 2 hours 1 hourly for 4 hours 2 hourly for 24 hours 4 hourly thereafter	5, 10, 15, 30 minutes monitor for signs of Local Anaesthetic toxicity
Pain Score	2 hourly	30 minutes after bolus

Nerve Block Specific Monitoring

When a patient is receiving a LA infusion, please complete the following observations on the Regional Nerve Block Assessment Chart

Observations recorded on regional nerve block chart	Frequency on starting LA infusion
Nerve block pump observations Volume infused No of Auto bolus No of CAB	2 hourly and 2 RN to check and sign At start of infusion Every shift change Transfer between areas
Pain Score Sedation score	2 hourly
Regional Nerve Block site and connection check	8 hourly. Please check site and connections following patient activities, such as mobilising
Signs of Local Anaesthetic Systemic Toxicity (LAST)	2 hourly Following a CAB record at 5,10,15,30 minutes (ON NEWS)

Recognition and Management of Local Anaesthetic Toxicity

There is a risk of local anaesthetic systemic toxicity (LAST) with bolus administration, especially if there is rapid absorption or inadvertent intravenous administration. (NPSA 2007).

This is very rare but it is important that the signs are recognised and prompt treatment administered to minimise risk of death or permanent harm to patients.

Refer to The Association of Anaesthetists of Great Britain and Ireland safety guideline 'Management of Severe Local Anaesthetic Toxicity' AAGBI 2010 (See Appendix 3).

Troubleshooting

Problem	Action
Severe Pain	• Check line clamp open on pump • Contact the Anaesthetist or APT (or RN with extended competencies) to administer a CAB via pump (maximum 4 bolus doses in 24 hours)

	• Re assess pain score 20 minutes after a bolus
Inadequate pain control	• Check nerve block catheter position and connections • If patient has PCA check compliance • Ensure patient has had the benefit of other prescribed analgesia • If pain persists, contact the Pain Service / on-call anaesthetist
Leakage	• If patient comfortable dressing should be re enforced • If the patient reports moderate pain then assess, consider top-up and if minimal analgesic effect convert to alternative analgesia • Rectus sheath catheters can leak on one side. Contact APS, it may be acceptable to continue unilateral infusion.
Catheter occlusion	• Check for any kinks and correct accordingly • If occlusion alarm persists, contact anaesthetist / surgical on-call to check the patency of the RSC to the patient.
Inflamed site/ Exudate	• Do not top up. • Ask surgical team to review • Send catheter tip for C&S if infection suspected

Removal of Nerve Block Catheters

- **The duration of treatment may be determined by the prescriber or its discontinuation may be at the discretion of the clinical team. Typical duration is 3-4 days, and should not be more than 5 days without explicit instruction from an Anaesthetist or the APT.**

- **Catheters should not be removed within 12 hours after receiving prophylactic LMWH unless instructed otherwise by an Anaesthetist.**
- **Seek advice from APT or Anaesthetist regarding timing of removal if taking any anticoagulants or antiplatelets other than prophylactic LMWH or Aspirin.**
- Consider alternative analgesic options at time of removal
- The catheter should be removed sooner if leakage or infection occurs
- Catheters should be removed using an aseptic non touch technique by a Registered Practitioner (Usually the nursing staff involved in the care of the patient) who have been assessed as trained/competent.
- After removal of the dressing remove the catheter with gentle traction.
- Apply a non-occlusive dressing for at least 24 hours.
- If there is any resistance, stop and inform the surgical team.
- Ensure the blue/black tip is intact at the end of the catheters and document this in the notes.
- 2 Practitioners to sign and witness Regional nerve block tip intact after removal and sign on the regional nerve block prescription chart (See Appendix 1a).
- If there is any evidence of infection at the site, or the patient is pyrexial, consider sending the tip for microbiology culture

Implementation

Training for staff	Yes
If yes :who will provide training	Acute Pain Team
When will training be provided	Acute Pain Team delivered ward based training , with one to one assessment of competency for the regional nerve block pump

Monitoring / Audit

When will this guideline be audited?	Continuously by APT. Annual audits will need to be conducted in relation to storage of LA drugs and labelling of Regional Nerve Block equipment (NPSA 2007) Data will be collected on the number and type of nerve blocks managed by each location to facilitate future quality improvement work.
Who will be responsible for auditing this guideline?	APT and staff within clinical areas that manage LA infusions
Are there any other specific recommendations for audit?	Staff competency assessed following attendance on the Regional Nerve Block teaching session. Practical competencies assessed by APT or senior ward staff who have received training and Clinical Education Teams against this guideline

Further Information / Assistance

For advice between the hours of 0830-1630

Contact the Acute Pain Team (site specific)

Out of hours contact the resident on-call anaesthetist (site specific)

References

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Appendix 1a – Adult Regional Nerve Block Prescription Chart

ADULT REGIONAL NERVE BLOCK ADMINISTRATION AND OBSERVATION RECORD

GIG CYMRU NHS WALES
Bwrdd Iechyd Prifysgol Hywel Dda University Health Board

HOSPITAL:	ADDRESSOGRAPH
WARD:	
CONSULTANT:	

ADMINISTRATION

Nerve Block Type:	Right ☐	Left ☐	Bilateral ☐
Catheter Kit Used:	US ☐	DV ☐	Other ☐

Initial Bolus dose: Levobupivicaine _____ % Volume _____ ml Date: Time:

Comments / Problems with insertion:

PUMP IDENTITY: BG 595 ☐ Bodyguard™ Pain Manager ☐

Inventory number:

Pump setup by: _____ (Sig) _____ (Print)

Checked by: _____ (Sig) _____ (Print)

Regional Nerve Block Catheter Infusion

LEVOBUPIVACAINE 1.25mg/ml (0.125%)
250mgs in 200ml bag (Ready to use bag)
Auto Bolus 20ml
Lock Out 180 minutes

ROUTE: REGIONAL NERVE BLOCK CATHETER VIA PUMP

Date	Time Set Up	Dose	Set Up By	Date	Time Set Up	Dose	Set Up By

Dr. Sign: Bleep: Date:

Clinician Activated Bolus via Pump

Only by staff who have received extended training and assessment of competency (Level 2 code required)

LEVOBUPIVACAINE 1.25mg/ml (0.125%) via pump
40 mls 6 hourly
(only to be given at least 6 hours after initial bolus dose)

ROUTE: REGIONAL NERVE BLOCK CATHETER VIA PUMP

Date	Time Given	Dose	Given By	Date	Time Given	Dose	Given By

Dr. Sign: Bleep: Date:

NOT TO BE GIVEN WITH NERVE BLOCK INFUSION PUMP REGIME

MANUAL Bolus

Only by Anaesthetist, Doctor or Specialist Practitioner, who have received assessment of competence.

LEVOBUPIVACAINE 2.5mg/ml (0.25%)
Maximum single dose 2mg/kg

ROUTE: NERVE BLOCK

Dose _____ ml
Frequency: 6 hourly

Date	Time Given	Dose	Given By	Date	Time Given	Dose	Given By

Dr. Sign: Bleep: Date:

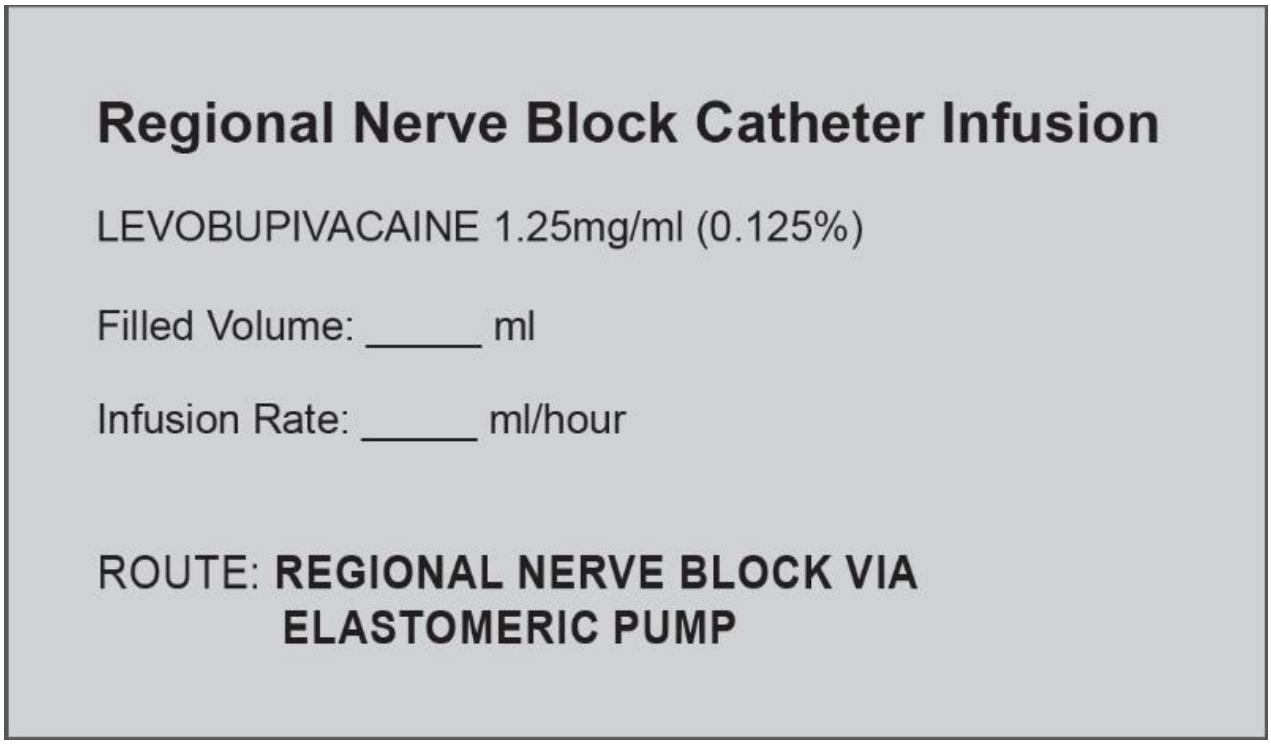
Special Instructions / comments:
Regular oral analgesia, including opioids if required, to be prescribed on the patient medication chart

V1: August 2021 Review Date: August 2024 Developed by: DT / DJ / ES Approved by: Acute Pain Group

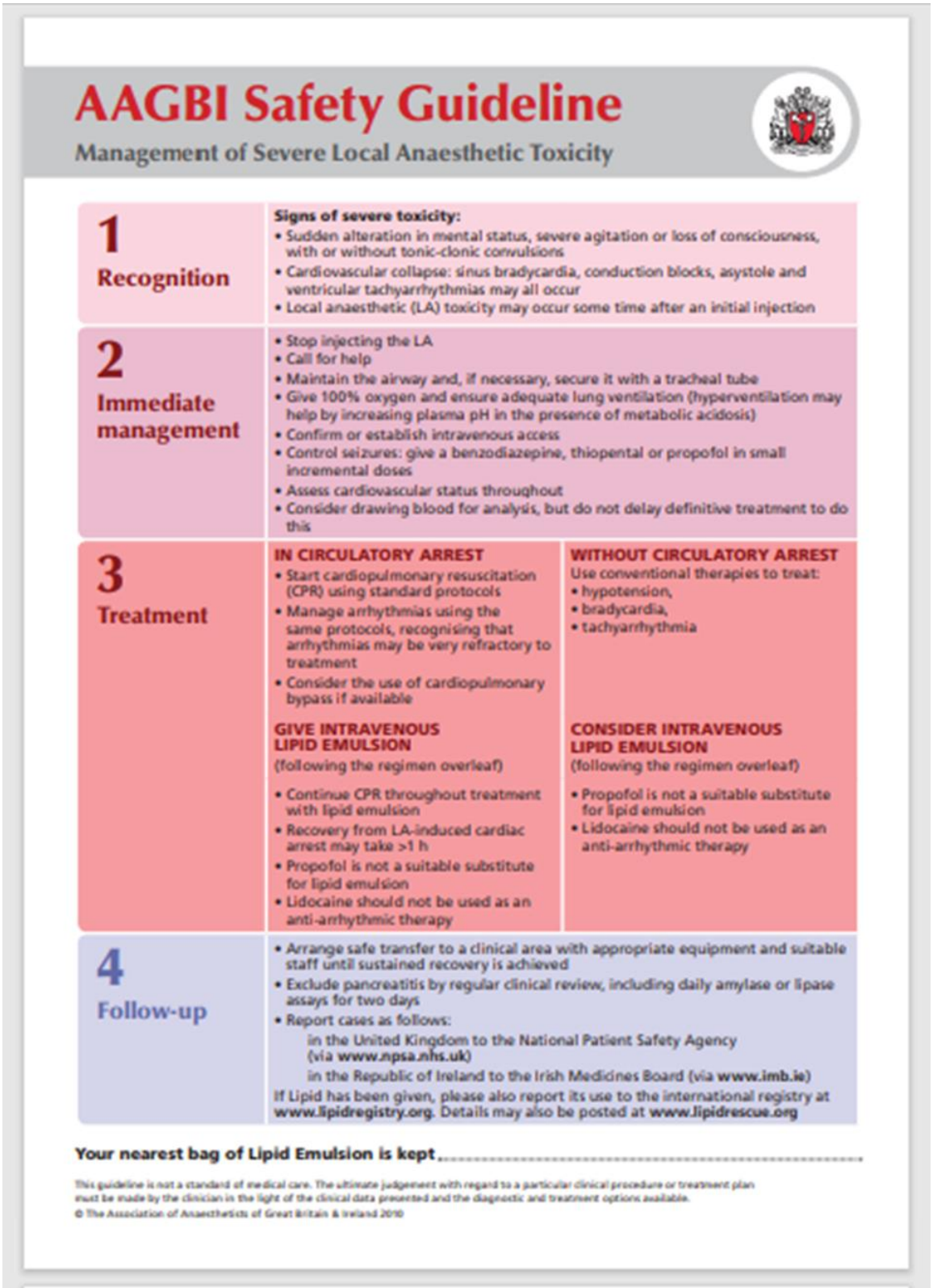
Appendix 1b – Adult Regional Nerve Block Supplementary Prescription Sticker

For use with Elastomeric Infusion Devices e.g. On-Q

Replaces Regional Nerve Block Catheter Infusion Auto Bolus section on front of Adult Regional Nerve Block Chart (Appendix 1a).



Appendix 2 – AAGBI Guidelines for the Management of Local Anaesthetic Toxicity



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

WITHOUT CIRCULATORY ARREST

Use conventional therapies to treat:

- hypotension,
- bradycardia,
- tachyarrhythmia

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

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 Lipid 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.

IMMEDIATELY

Give an initial intravenous bolus injection of 20% lipid emulsion **1.5 ml.kg^{-1}** over 1 min

AND

Start an intravenous infusion of 20% lipid emulsion at **15 ml.kg^{-1}.h^{-1}**

AFTER 5 MIN

Give **a maximum of two** repeat boluses (same dose) if:

- cardiovascular stability has not been restored **or**
- an adequate circulation deteriorates

Leave **5 min** between boluses

A maximum of **three** boluses can be given (including the initial bolus)

AND

Continue infusion at same rate, but:

Double the rate to **30 ml.kg^{-1}.h^{-1}** at any time after 5 min, if:

- cardiovascular stability has not been restored or
- an adequate circulation deteriorates

Continue infusion until stable and adequate circulation restored or maximum dose of lipid emulsion given

Do not exceed a maximum cumulative dose of 12 ml.kg^{-1}

An approximate dose regimen for a 70-kg patient would be as follows:

IMMEDIATELY

Give an initial intravenous bolus injection of 20% lipid emulsion 100 ml over 1 min

AND

Start an intravenous infusion of 20% lipid emulsion at 1000 ml.h^{-1}

AFTER 5 MIN

Give a **maximum of two** repeat boluses of 100 ml

AND

Continue infusion at same rate but **double** rate to 2000 ml.h^{-1} if indicated at any time

Do not exceed a maximum cumulative dose of 840 ml

This AAGBI Safety Guideline was produced by a Working Party that comprised:
Grant Cave, Will Harrop-Griffiths (Chair), Martyn Harvey, Tim Meek, John Picard, Tim Short and Guy Weinberg.

This Safety Guideline is endorsed by the Australian and New Zealand College of Anaesthetists (ANZCA).

Appendix 3 – Levobupivacaine 0.125% 200ml Order Form

Hywel Dda University Health Board

LEVOBUPIVACAINE REQUISITION

Ward:_____

Drug	Quantity
Levobupivacaine 0.125% Epidural injection 1.25mg/ml 200ml bag	

Ordered by: _____
Date:_____

Dispensed by:_____
Date:_____

Accepted on to ward by:_____

Please take to ward as soon as dispensed.
No other items to be delivered at the same time*

LEVOBUPIVACAINE REQUISITION

Ward_____

Drug	Quantity
Levobupivacaine 0.125% Epidural injection 1.25mg/ml 200ml bag	

Ordered by: _____ Date:_____

Dispensed by:_____ Date:_____

Accepted on to ward by:_____

Please take to ward as soon as dispensed.
No other items to be delivered at the same time*

Appendix 4 – Rectus Sheath Catheter – Surgical Checklist

PAJUNK

RECTUS SHEATH CATHETER – SURGICAL

A – CONTENTS OF PACK/IN Date:

COMPONENT	IMAGE	DESCRIPTION	CHECKED IN (tick)
Rectus sheath catheter yellow labels X 2		**2 x Rectus sheath catheter yellow labels**	
White plastic Luer female stopper X 2		**2 x White plastic Luer female stopper (long cylinders)**	
Catheter clamps X 2		**2 x Catheter clamps (blue/white)** 2 components clamp - Clamping adaptor White Luer syringe cap	
Tuohy Luer Introducing Needle X 1		**1 x Introducing needle** 4 components - Plastic protective sheath - Needle - Plastic stylet - Wings	
Catheter X 2		**2 x catheters with black markings in plastic wrapping** 3 components per catheter - Catheter tube - White catheter introducer - Perforated plastic packaging	
Y-Connector X 1		**1 x Y-Connector** 2 components - Y-Connector - White Luer syringe cap	
Filter X 1		- **1 x Flat filter**	
FixoLong X 1		**1 x FixoLong (in packet)** 4 components - Filter holder - Dressing - Plastic packet 2 x paper dressing backing	
Dressing X 2		**2 x catheter sheath dressings (green and white)** - 5 x paper dressing backings per dressing.	
White Luer syringe cap X 1		- **1 x Spare white Luer syringe cap** (loose in box)	

PAJUNK

RECTUS SHEATH CATHETER – SURGICAL

B – ITEMS RETURNED/OUT

COMPONENT	IMAGE	DESCRIPTION	CHECKED IN (tick)
Rectus sheath catheter yellow labels X 2		**2 x Rectus sheath catheter yellow labels backs part yellow**	
White plastic Luer female stopper X 2		**2 x White plastic Luer female stopper (long cylinders)**	
Tuohy Luer Introducing Needle Set X 1		**1 x Introducing needle** 4 components - Plastic protective sheath - Needle - Plastic stylet - Wings	
White Luer syringe cap X 4		**4 x Spare white Luer syringe cap**	
White catheter introducer X 2		**2 x white catheter introducers**	
Catheter packaging X 1		**Clear plastic packaging** - 2 x Perforated: Up to 4 pieces	
FixoLong Packaging X 1		**1 x FixoLong packaging** - 1 x outer packaging (paper and plastic) - 2 x paper dressing backing	
Dressing backings X 2		**2 x catheter sheath dressing backings** - 5 x paper dressing backings (per dressing)	

Appendix 5 – Quick Reference Guide Bodyguard Pain Manager

https://nhswales365.sharepoint.com/sites/HDD_Corporate_Governance/Policies/Forms/AllItems.aspx?id=%2Fsites%2FHDD_Corporate_Governance%2FPolicies%2FDraft Policies%2C Procedures and Guidelines For Consultation%2F1102 - Appendix 5%2Epdf&parent=%2Fsites%2FHDD_Corporate_Governance%2FPolicies%2FDraft Policies%2C Procedures and Guidelines For Consultation (opens in new tab)