

# CONTINUOUS REGIONAL BLOCK ANALGESIA - SCH

## PRACTICE GUIDELINE<sup>®</sup>

### DOCUMENT SUMMARY/KEY POINTS

- Continuous regional analgesia must be prescribed by a medical officer.
- Continuous regional analgesia with local anaesthetic must be prescribed on the SCN130350\_Regional Analgesia Prescription form.
- Only those registered nurses assessed as competent in continuous epidural analgesia may hang bags and care for patients receiving continuous regional analgesia.
- Intravenous access must be maintained during the period of any continuous regional analgesic (local anaesthetic) infusions.
- Refers to: Between The Flags (BTF) : Clinical Emergency Response System (CERS)  
<http://webapps.schn.health.nsw.gov.au/epolicy/policy/3183>

### CHANGE SUMMARY

- Added requirements for eMM placeholder
- New Guidance on the management of severe local anaesthetic toxicity
- New Prescription Form -SCN130350\_Regional Analgesia Prescription
- Management of complications for Pain Buster elastomeric pump

This document reflects what is currently regarded as safe practice. However, as in any clinical situation, there may be factors which cannot be covered by a single set of guidelines. This document does not replace the need for the application of clinical judgement to each individual presentation.

<b>Approved by:</b>	SCHN Policy, Procedure & Guideline Committee	
<b>Date Effective:</b>	1 <sup>st</sup> January 2021	<b>Review Period:</b> 3 years
<b>Team Leader:</b>	Clinical Nurse Consultant	<b>Area/Dept:</b> Pain Services, SCH

Date of Publishing: 8 December 2020 9:30 AM

Date of Printing:

Page 1 of 8

K:\CHW P&amp;P\ePolicy\Dec 20\Continuous Regional Block Analgesia - SCH.docx

This Guideline may be varied, withdrawn or replaced at any time.

## READ ACKNOWLEDGEMENT

- All Clinical Nurses and Medical Officers must read and notify their local manager that they understand the content of the document.
- Local managers will maintain records of read receipts for subsequent compliance and other audits.
- Only those Registered Nurses assessed as competent in continuous epidural analgesia may hang bags and care for patients receiving continuous regional analgesia.

## TABLE OF CONTENTS

<b>1</b>	<b>Introduction.....</b>	<b>3</b>
<b>2</b>	<b>Standard.....</b>	<b>3</b>
	Outcomes.....	3
<b>3</b>	<b>Guidelines.....</b>	<b>3</b>
	<i>Continuous Regional Analgesia may be used for:.....</i>	<i>3</i>
<b>4</b>	<b>Ordering.....</b>	<b>4</b>
<b>5</b>	<b>Care of a Continuous Regional Analgesic Infusion.....</b>	<b>4</b>
<b>6</b>	<b>Management of Complications.....</b>	<b>5</b>
	<i>Unrelieved pain.....</i>	<i>5</i>
	<i>Leakage of blood or fluid.....</i>	<i>5</i>
	<i>Haematoma, abscess or oedema at insertion site.....</i>	<i>5</i>
	<i>Local Anaesthetic toxicity.....</i>	<i>5</i>
<b>7</b>	<b>References.....</b>	<b>6</b>
<b>8</b>	<b>Appendix 1 Management of Severe Local Anaesthetic Toxicity.....</b>	<b>7</b>

## 1 Introduction

Blockade of nerves with local anaesthetic is a method used for the relief of acute pain. It also produces sympathetic blockade, which can be beneficial following certain types of surgery. This regional method of pain relief using local anaesthetics can be used either alone or in combination with systemic analgesia. (It is sometimes necessary to provide adjunctive analgesia).

## 2 Standard

- Continuous regional analgesia must be prescribed by a medical officer.
- Continuous regional analgesia with local anaesthetic must be prescribed on SCN130350\_Regional Analgesia Prescription form - indicating in box as to which type of infusion.
- eMM place holder for epidural/regional anaesthesia must be completed – search for SCH Pain power plan under orders tab in eMR
- Only those registered nurses assessed as competent in continuous epidural analgesia may hang bags and care for patients receiving continuous regional analgesia.
- Intravenous access must be maintained during the period of any continuous regional analgesic (local anaesthetic) infusions.

## Outcomes

- Continuous regional analgesia is administered in a safe and effective manner, in accordance with hospital policy.
- Improved analgesia and earlier mobilisation.

## 3 Guidelines

### *Continuous Regional Analgesia may be used for:*

- **Brachial plexus block:** The infusion of local anaesthetic via a catheter placed near the brachial plexus produces brachial plexus block. The analgesia obtained covers almost the entire upper limb.
- **Extra pleural block:** Involves the infusion of local anaesthetic via a catheter, inserted by a surgeon, under direct vision external to the parietal pleura alongside the vertebral column. This technique provides excellent analgesia in lateral thoracotomies with a significant reduction in opioid requirements.
- **Femoral nerve block:** These infusions are used for the relief of pain and muscle spasm following trauma – usually a fractured femur and/ or lower limb surgery. Local anaesthetic is infused via a catheter inserted in the femoral nerve sheath.

- **Local wound infusions:** These provide analgesia directly below the surface of the wound/suture line and are placed by the surgeons, any concerns or issues with these catheters are managed by the surgical team

## 4 Ordering

- The prescriber must follow guidelines for prescribing medications.
- The prescription must be ordered on the SCN130350\_Regional Analgesia Prescription form
- Place holder on eMM must be completed using SCH Pain power plan
- **Standard Solution:**  
Ropivacaine 0.2% (2mg/mL) at 0.2mL/kg/hr (to a maximum of 0.4mL/kg/hr)

**NOTE:** In certain clinical situations higher strength local anaesthetics may be used at a lower rate of infusion.

**Neonates may require** 0.1% ropivacaine for there to be sufficient volume to maintain the block.

## 5 Care of a Continuous Regional Analgesic Infusion

- Regional analgesic infusions are usually administered via an epidural catheter or other specifically designed catheter
- They are usually left insitu for 2-3 days.
- This can be extended at the discretion of the APS based on clinical need.
- To prevent displacement of the catheter, firm fixation of the catheter to the skin is recommended.
- Most regional block infusions will be run via a Sapphire pain management pump. Polybags to be changed every 24 hours.
- Pain Buster- Elastomeric pumps may on occasion be placed for local wound infusions by the surgeon- this is prescribed in the continuous infusion section of Regional Analgesia prescription form, and indicated in Block type at top of the form.
  - These infusions remain under the management of the surgical team.
- **Observations:**

Temperature, Pulse, Respiration	Hourly for first 6 hours, then 4 hourly if stable
Blood Pressure	Hourly for first 6 hours, then 4 hourly if stable
Pain score and infusion totals	Hourly (Pain scores only if awake)
Site Check (for inflammation, discharge or haematoma)	4 hourly

*NOTE: If a dressing covers the site, observe dressing for ooze and any increase in peripheral temperature.*

*Patients with Extra Pleural Infusions must have continuous pulse oximetry for the duration of the infusion.*

- Regular analgesia as per orders must be given (if prescribed).

## 6 Management of Complications

### **Unrelieved pain**

- Check site for excessive leaking and displacement of catheter.
- Consider giving bolus dose or supplement with systemic analgesia (if prescribed)
- Contact Acute Pain Service
- Out of hours activate BTF Clinical Review call

### **Leakage of blood or fluid**

- Check connections and insertion site
- Contact Acute Pain Service
- For Pain Buster contact Surgical Team
- Out of hours Activate BTF Clinical Review call

### **Haematoma, abscess or oedema at insertion site**

- Stop infusion
- Contact Acute Pain Service in normal working hours
- For Pain Buster contact Surgical Team
- Out of hours Activate BTF Clinical Review- the admitting team can then discuss with on-call anaesthetist for advice

### **Local Anaesthetic toxicity**

- Signs of local anaesthetic toxicity include:
  - dizziness, blurred vision, decreased hearing, restlessness, tremor, hypotension,
- Severe local anaesthetic toxicity: These symptoms require code blue activation
  - *bradycardia, arrhythmias, numbness of tongue, seizures, sudden loss of consciousness*
- If local anaesthetic toxicity suspected:
  - STOP infusion and clamp the line on the delivery set
  - Activate BTF Rapid Response call
  - Initiate Oxygen therapy via non rebreather mask

- In hours: Obtain SMOFlipid® 20% from pharmacy
- Out of hours: Access SMOFlipid® 20% from Emergency Drug Room or Contact Nursing Supervisor
  
- Follow ANZCA endorsed guideline Management of Severe Local Anaesthetic Toxicity
- or [Appendix 1](#).

**Note:** Horner's syndrome when local anaesthetic is administered via an extra pleural catheter infusion is a rare complication but is not a sign of local anaesthetic toxicity.

Horner syndrome, also referred to as oculosympathetic paresis, is a classic neurologic constellation of ipsilateral blepharoptosis, pupillary miosis, and facial anhidrosis resulting from disruption of the sympathetic pathway supplying the head, eye, and neck and is reversible upon ceasing the infusion.

## 7 References

1. Brown TCK, Eyres RL & McDougall RJ. 1999. Local and regional anaesthesia in children. *British Journal of Anaesthesia*; 83 65-77.
2. Downs, C. & Cooper, C.S. 1997. Continuous extrapleural intercostal nerve block for post thoracotomy analgesia in children. *Anaesthesia and Intensive Care*; 25 (4): 390-7.
3. Johnson, C.M., 1994. Continuous femoral nerve blockade for analgesia in children with femoral fractures. *Anaesthesia and Intensive Care*; 22 (3): 281-3.
4. Rosenberg, H., 1994. Use of nerve blocks in the treatment of post-operative pain. *Pain Digest* 4:110-114.
5. Blechman KM, Zervos M. Post-thoracotomy Horner syndrome associated with extrapleural infusion of local anesthetic. *Interact CardioVasc Thorac Surg*, 2009. 9:309-310
6. Association of Anaesthetists of Great Britain and Ireland. Management of severe local anaesthetic toxicity 2010 [Accessed 31/07/2020] Available from <https://anaesthetists.org/Home/Resources-publications/Guidelines/Management-of-severe-local-anaesthetic-toxicity>

### **Copyright notice and disclaimer:**

The use of this document outside Sydney Children's Hospitals Network (SCHN), or its reproduction in whole or in part, is subject to acknowledgement that it is the property of SCHN. SCHN has done everything practicable to make this document accurate, up-to-date and in accordance with accepted legislation and standards at the date of publication. SCHN is not responsible for consequences arising from the use of this document outside SCHN. A current version of this document is only available electronically from the Hospitals. If this document is printed, it is only valid to the date of printing.

# 8 Appendix 1 Management of Severe Local Anaesthetic Toxicity

## AAGBI Safety Guideline

### Management of Severe Local Anaesthetic Toxicity



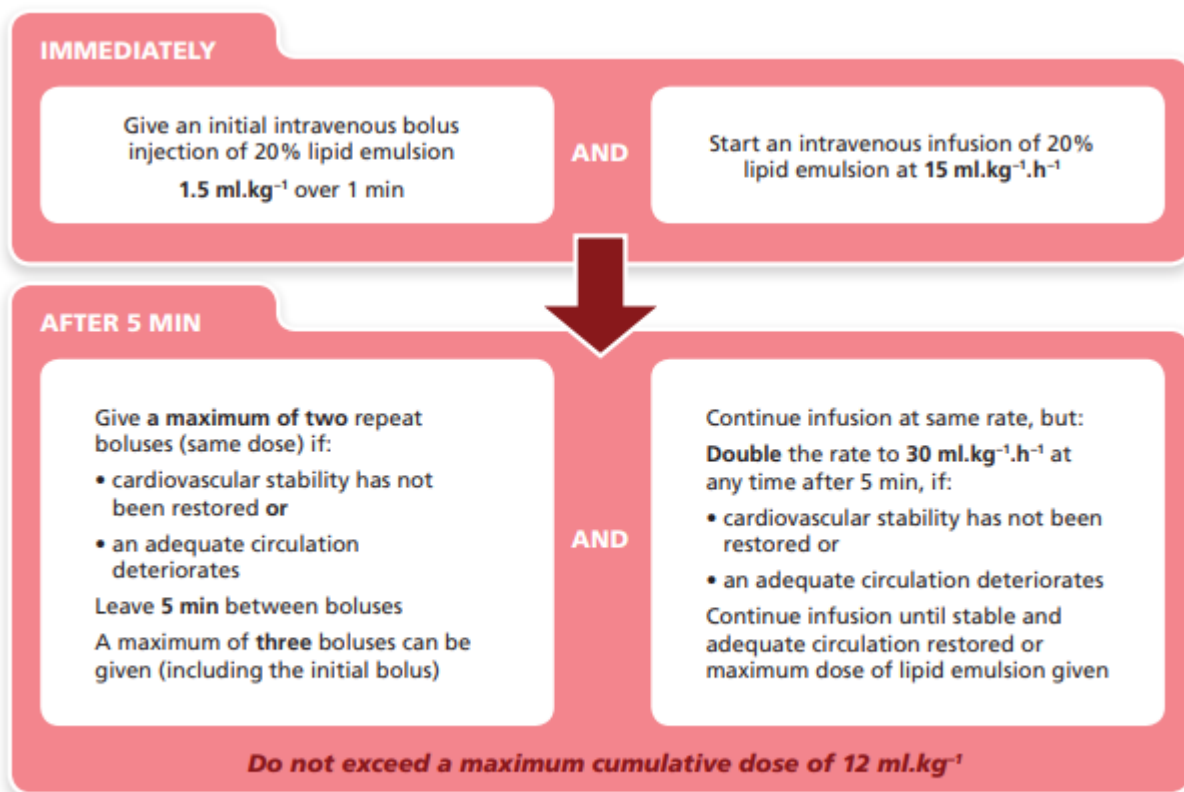
<h1>1</h1> <h2>Recognition</h2>	<p><b>Signs of severe toxicity:</b></p> <ul style="list-style-type: none"> <li>• Sudden alteration in mental status, severe agitation or loss of consciousness, with or without tonic-clonic convulsions</li> <li>• Cardiovascular collapse: sinus bradycardia, conduction blocks, asystole and ventricular tachyarrhythmias may all occur</li> <li>• Local anaesthetic (LA) toxicity may occur some time after an initial injection</li> </ul>	
<h1>2</h1> <h2>Immediate management</h2>	<ul style="list-style-type: none"> <li>• Stop injecting the LA</li> <li>• Call for help</li> <li>• Maintain the airway and, if necessary, secure it with a tracheal tube</li> <li>• Give 100% oxygen and ensure adequate lung ventilation (hyperventilation may help by increasing plasma pH in the presence of metabolic acidosis)</li> <li>• Confirm or establish intravenous access</li> <li>• Control seizures: give a benzodiazepine, thiopental or propofol in small incremental doses</li> <li>• Assess cardiovascular status throughout</li> <li>• Consider drawing blood for analysis, but do not delay definitive treatment to do this</li> </ul>	
<h1>3</h1> <h2>Treatment</h2>	<p><b>IN CIRCULATORY ARREST</b></p> <ul style="list-style-type: none"> <li>• Start cardiopulmonary resuscitation (CPR) using standard protocols</li> <li>• Manage arrhythmias using the same protocols, recognising that arrhythmias may be very refractory to treatment</li> <li>• Consider the use of cardiopulmonary bypass if available</li> </ul> <p><b>GIVE INTRAVENOUS LIPID EMULSION</b> (following the regimen overleaf)</p> <ul style="list-style-type: none"> <li>• Continue CPR throughout treatment with lipid emulsion</li> <li>• Recovery from LA-induced cardiac arrest may take &gt;1 h</li> <li>• Propofol is not a suitable substitute for lipid emulsion</li> <li>• Lidocaine should not be used as an anti-arrhythmic therapy</li> </ul>	<p><b>WITHOUT CIRCULATORY ARREST</b> Use conventional therapies to treat:</p> <ul style="list-style-type: none"> <li>• hypotension,</li> <li>• bradycardia,</li> <li>• tachyarrhythmia</li> </ul> <p><b>CONSIDER INTRAVENOUS LIPID EMULSION</b> (following the regimen overleaf)</p> <ul style="list-style-type: none"> <li>• Propofol is not a suitable substitute for lipid emulsion</li> <li>• Lidocaine should not be used as an anti-arrhythmic therapy</li> </ul>
<h1>4</h1> <h2>Follow-up</h2>	<ul style="list-style-type: none"> <li>• Arrange safe transfer to a clinical area with appropriate equipment and suitable staff until sustained recovery is achieved</li> <li>• Exclude pancreatitis by regular clinical review, including daily amylase or lipase assays for two days</li> <li>• Report cases as follows:                         <ul style="list-style-type: none"> <li>in the United Kingdom to the National Patient Safety Agency (via <a href="http://www.npsa.nhs.uk">www.npsa.nhs.uk</a>)</li> <li>in the Republic of Ireland to the Irish Medicines Board (via <a href="http://www.imb.ie">www.imb.ie</a>)</li> </ul> </li> </ul> <p>If Lipid has been given, please also report its use to the international registry at <a href="http://www.lipidregistry.org">www.lipidregistry.org</a>. Details may also be posted at <a href="http://www.lipidrescue.org">www.lipidrescue.org</a></p>	

**Your nearest bag of Lipid Emulsion is kept** .....

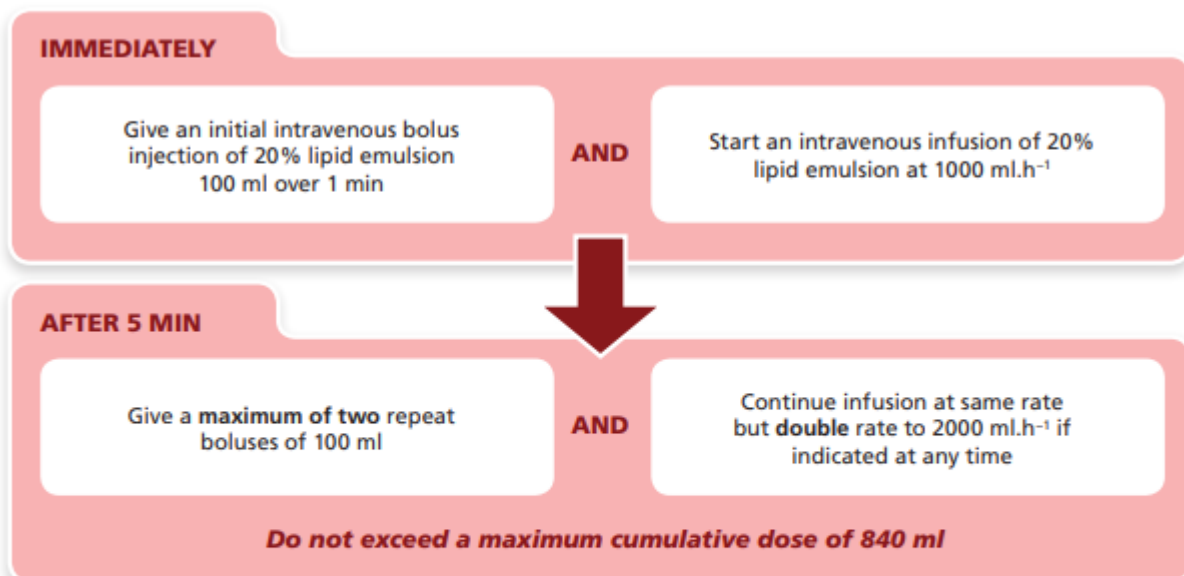
This guideline is not a standard of medical care. The ultimate judgement with regard to a particular clinical procedure or treatment plan must be made by the clinician in the light of the clinical data presented and the diagnostic and treatment options available.

© The Association of Anaesthetists of Great Britain & Ireland 2010





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



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).**

© The Association of Anaesthetists of Great Britain & Ireland 2010