Royal Cornwall Hospitals
NHS Trust

Intravenous Lidocaine: Use for Perioperative analgesia Clinical Guideline

V3.0

March 2025

Summary - Intravenous Lidocaine: Use for Perioperative analgesia

The use of intravenous lidocaine for analgesia is NOT endorsed by the RCoA, AofA or MHRA. This guidance is to promote safest use of this treatment where an anaesthetist/intensivist has decided upon, and taken responsibility for, its use.

GET PATIENT CONSENT if possible

Contraindications:

- Local Anaesthetic administration by other route
- Severe Hepatic impairment
- Allergy

Cautions:

- Arrhythmia/ Conduction defects
- Cardiac failure
- Bradycardia
- Epilepsy/ Seizures
- Pregnancy
- Severe renal failure

Loading dose:
1.5 mg/kg IDEAL BODY WEIGHT* (Max. 120mg = 12ml 1% Lidocaine) infused over at least 10 mins. Wait 15 mins before commencing infusion
PRESCRIBE PERIOP LIDOCAINE PROTOCOL ON EPMA
AND COMPLETE LIDOCAINE PRESCRIPTION SHEET – Appendix 4

Maintenance Dosing (after 15 mins):
1.5 mg/kg/h IDEAL BODY WEIGHT* (Max. 120mg/h = 12ml/h)
1% Lidocaine neat, via syringe driver.
Separate cannula preferred, or anti-reflux valve mandatory

[Example regime in 165 cm female: 90mg (9ml 1%) + 90mg/h (9ml/h 1%)]

Intraoperative monitoring as per AAGBI standards

Monitoring in recovery:

- Continuous ECG monitoring
- Monitor BP, HR, RR, SpO_2 pain as per RCHT 'Analgesic Assessment Chart'

Discontinuation:

- After 24 hours MAXIMUM
- Or earlier if transferred to ward
- IMMEDIATELY if concerns of adverse reaction

If any concerns over side effects or toxicity, STOP THE INFUSION and contact patient's anaesthetist urgently, or the SAT on bleep 3513 if out of hours.

NB: This protocol is for analgesic use of Lidocaine, not treatment of arrhythmia.
Please report any issues to the acute pain lead

*Ideal Body Weight Broca's formulae: Male: height (cm) – 100. Female: height (cm) – 105
Use ACTUAL weight if this is lower than ideal weight. Do not use if IBW<40kg.

1. Aim/Purpose of this Guideline

1.1. Degree and character of postoperative pain is difficult to predict.

1.2. Various treatments are available and used in common practice, each of which have their own profile of side effects and risks. A multimodal approach to postoperative analgesia is used to balance these against the benefits each drug offers.

1.3. Lidocaine is a commonly used local anaesthetic agent, which may have beneficial effects on postoperative pain when used intravenously.

1.4. Lidocaine should be considered a high-risk medicine when used intravenously.

1.5. This document is to guide Anaesthetists in using intravenous lidocaine as safely and consistently as possible.

1.6. This version supersedes any previous versions of this document.

Data Protection Act 2018 (UK General Data Protection Regulation – GDPR) Legislation.

The Trust has a duty under the Data Protection Act 2018 and UK General Data Protection Regulations 2016/679 to ensure that there is a valid legal basis to process personal and sensitive data. The legal basis for processing must be identified and documented before the processing begins. In many cases we may need consent; this must be explicit, informed, and documented. We cannot rely on opt out, it must be opt in.

Data Protection Act 2018 and UK General Data Protection Regulations 2016/679 is applicable to all staff; this includes those working as contractors and providers of services.

For more information about your obligations under the Data Protection Act 2018 and UK General Data Protection Regulations 2016/679 please see the Information Use Framework Policy or contact the Information Governance Team.

Royal Cornwall Hospital Trust rch-tr.infogov@nhs.net

2. The Guidance

2.1. The Urgent Update

2.1.1. The Journal Anaesthesia issued an article and an editorial in January 2021 regarding this treatment. Links are provided in appendix. In summary:

- There have been deaths and near misses associated with this treatment regime.
- There is a consensus statement regarding how this treatment should be used, if it is to be used at all.
- The editorial emphasizes that the consensus statement should not give the impression that this treatment is approved or endorsed.

2.1.2. **Intravenous lidocaine for analgesia is not endorsed** by the Royal College of Anaesthetists, The Association of Anaesthetists, or the Medicines and Healthcare Products Regulatory Agency (Information from Safe Anaesthesia Liaison Group SALG)

2.1.3. This guidance is provided on the basis that:

- It is the personal opinion of the author that it may be reasonable to use this treatment where no safer alternatives are available.
- Information should be provided to maximize safety in the event that this treatment is considered by the prescribing anaesthetist to be appropriate.

2.2. Background:

2.2.1. Lidocaine is an amide local anaesthetic agent which is routinely used for peripheral and regional anaesthesia. It also has class 1b anti-arrhythmic action.

2.2.2. Its mechanism of action involves sodium channel blockade, preventing neuronal action potential generation and propagation.

2.2.3. There is evidence for the effectiveness of its intravenous use in the management of both acute and chronic pain. However, its specific mechanism of action in these particular circumstances remains unclear.

2.2.4. Other potential beneficial effects of perioperative Lidocaine include reduced incidence of ileus, reduced PONV, reduced opioid requirements.

2.2.4.1. Intraoperative IV Lidocaine has also been reported to have a MAC sparing effect.

2.2.4.2. IV Lidocaine has been reported to blunt airway reflexes and therefore has been employed to aid intubation, and to prevent coughing on extubation.

2.3. Indications:

2.3.1. The best evidence for beneficial effects from IV Lidocaine is in patients undergoing laparoscopic or open abdominal procedures.

2.3.2. Benefit has been reported in other specialties, but evidence of such is low grade and sparse.

2.3.3. This is a controversial treatment. Clinicians should advise patients accordingly and attain their consent to use it if possible.

2.4. Contraindications:

2.4.1. IV Lidocaine should NOT be used in conjunction with other administration of moderate to large volumes of local anaesthetic. This includes epidural, regional, or peripheral nerve blocks (especially those with indwelling nerve catheters). **At least 4 hours should elapse**

between an intravenous lidocaine infusion and the administration of local anaesthesia via other routes.

2.4.2. IV Lidocaine may be used with caution in conjunction with spinal anaesthesia / analgesia.

2.4.3. IV Lidocaine should not be used in those with severe hepatic impairment due to its hepatic clearance.

2.4.4. Documented allergy to lidocaine.

2.5. Cautions:

2.5.1. Those with disturbed cardiac conduction; first three months after myocardial infarction; conditions of reduced cardiac output (left ventricular output less than 35 per cent of normal); bradycardia with heart rate below 50; Adam-Stokes syndrome; Wolff- Parkinson-White syndrome.

2.5.2. Epilepsy, or other increased tendency to convulsions; myasthenia gravis.

2.5.3. Severe renal impairment (eGFR <30ml/min/1.73m2).

2.5.4. Pregnancy.

2.6. Initial dosing:

2.6.1. An initial loading dose of **1.5mg/kg ideal body weight (max. 120mg)** of 1% Lidocaine should be given over at least 10 minutes.

2.6.2. This can be given at induction or peri-operatively.

2.6.3. If this is given as rescue analgesia in recovery, this should be administered by the Anaesthetist. **Caution:** It should be considered whether such patients may have already received a local anaesthetic block. Do not administer within 4 hours of such a block.

2.7. Maintenance dosing:

2.7.1. A continuous infusion of **1.5mg/kg/h** up to a maximum of 120mg/h (i.e. 12ml/h lidocaine 1%). Start at least 15 mins after bolus dose.

2.7.2. This may be down-titrated if required.

2.8. Prescribing and administration:

2.8.1. ***Prescribe the perioperative Lidocaine protocol on EPMA and chart the bolus dose***

2.8.2. Lidocaine should be prescribed in the **Lidocaine prescription sheet** (see appendix 4). This should be filed in the patient's notes.

2.8.3. 50 ml (of 1% Lidocaine) containing 500mg should be drawn up in a LABELLED syringe.

2.8.4. This should be administered via a syringe driver only, with an anti-reflux valve. Use “Rate Lock” if possible. Use a separate cannula if possible. The rate should be recorded on the analgesia chart. 1% Lidocaine can be given via peripheral venous access.

2.8.5. Lidocaine infusions for postoperative analgesia should only be given in theatre, theatre recovery, or critical care.

2.8.6. Dose regimens of IV Lidocaine differ if using peri-operatively to treat pain, or to treat arrhythmias. This must be carefully distinguished when prescribing.

2.9. Monitoring:

2.9.1. ECG monitoring should be continuous while any patient remains on a Lidocaine infusion.

2.9.2. Intraoperative monitoring should continue as per AAGBI standards.

2.9.3. Minimum frequency of postoperative BP, HR, RR and SpO2 monitoring should be: Every 15 minutes for the first hour; then half hourly for two hours; then hourly thereafter.

2.9.4. Standard frequency of monitoring in recovery should continue if this is more frequent.

2.9.5. Patients on a Lidocaine infusion should be nursed at a minimum ratio of 1:2.

2.9.6. The cannula site should be checked at least as frequently as the observations, but as often as possible.

2.9.7. Document observations, infusion rate and any signs of LA toxicity on the RCHT ‘Analgesic assessment chart’.

2.10. Identification of local anaesthetic toxicity:

2.10.1. Early or mild symptoms may include:

- Perioral tingling.
- Metallic taste.
- Tinnitus.
- Agitation.
- Dizziness.

2.10.2. Moderate symptoms may include:

- Slurred speech or blurred vision.
- Bradycardia.

- AV blocks.
- Hypotension.
- Paraesthesia.
- Confusion.

2.10.3. Late or severe symptoms may include:

- Seizure.
- Coma.
- Ventricular arrhythmia.
- Cardiac arrest.

2.11. Management of local anaesthetic toxicity or other complication.

2.11.1. If any adverse reaction is identified the infusion should be **immediately discontinued** and the anaesthetist (or on call anaesthetist, bleep 3513) should be contacted as a matter of urgency.

2.11.2. Local anaesthetic toxicity should be managed as per the AAGBI guidelines (see reference card in Appendix 3).

2.11.3. In the event of cardiac arrest: A cardiac arrest call should be made by dialing 2222 and management of the patient should follow advanced life support algorithms.

2.12. Discontinuation:

2.12.1. The infusion should be discontinued after 24 hours, or beforehand if the patient is due to return to the ward before this time.

2.12.2. Patients should never be transferred back to the ward with a Lidocaine infusion running.

2.13. Other uses:

Intravenous Lidocaine has uses in outpatient management of chronic pain and intra-arterial use during fibroid embolization. Use in these settings is not covered by this guideline.

NB. This document is only as guidance for anaesthetists or intensivists prescribing, and the recovery and critical care staff administering, IV Lidocaine for analgesia – the use of IV Lidocaine for this purpose by other doctors or departments would not be expected without consultation.

3. Monitoring compliance and effectiveness

Information Category	Detail of process and methodology for monitoring compliance
Element to be monitored	Problems occurring during infusion of intravenous lidocaine should be reported to the Acute Pain Lead and documented using Datix. Audit forms provided for feedback.
Lead	Dr K Mitchell, Consultant Anaesthetist.
Tool	Prescribing / Audit form – see appendix 4.
Frequency	Periodic review of audit forms.
Reporting arrangements	All incidents will be reported to Acute/In-patient Pain Lead. Issues will be discussed at Acute Pain Group meetings.
Acting on recommendations and Lead(s)	See “Reporting Arrangements”.
Change in practice and lessons to be shared	As indicated.

4. Equality and Diversity

4.1. This document complies with the Royal Cornwall Hospitals NHS Trust service Equality and Diversity statement which can be found in the Equality Diversity And Inclusion Policy or the Equality and Diversity website.

4.2. Equality Impact Assessment

The Initial Equality Impact Assessment Screening Form is at Appendix 2.

Appendix 1. Governance Information

Information Category	Detailed Information
Document Title:	Intravenous Lidocaine: Use for Perioperative Analgesia Clinical Guideline V3.0
This document replaces (exact title of previous version):	Intravenous Lidocaine: Use for Perioperative Analgesia Clinical Guideline V2.2
Date Issued/Approved:	December 2024
Date Valid From:	March 2025
Date Valid To:	March 2028
Directorate/Department responsible (author/owner):	Keith Mitchell, Consultant Anaesthetist
Contact details:	01872 252792
Brief summary of contents:	To provide safe and efficient administration of intravenous lidocaine to provide analgesia in High Dependency Areas in the perioperative period
Suggested Keywords:	Lidocaine, lignocaine, recovery, rescue, analgesia, intravenous, pain, perioperative
Target Audience:	**RCHT:** Yes **CFT:** No **CIOS ICB:** No
Executive Director responsible for Policy:	Chief Medical Officer
Approval route for consultation and ratification:	Anaesthetic Dept Governance Meeting. Medication Practice Committee.
Manager confirming approval processes:	Doug Riley
Name of Governance Lead confirming consultation and ratification:	Suzanne Barber Interim Governance Lead ACCT
Links to key external standards:	https://www.aagbi.org/sites/default/files/la_toxicity_2010_0.pdf
Related Documents:	Foo et al. The use of intravenous lidocaine for postoperative pain and recovery: international

Information Category	Detailed Information
	consensus statement on efficacy and safety. Anaesthesia 2021, 76, 238–250 https://associationofanaesthetists-publications.onlinelibrary.wiley.com/doi/full/10.1111/anae.15270 Pandit & McGuire. Unlicensed intravenous lidocaine for postoperative pain: always a safer 'licence to stop' than to start. Anaesthesia 2021 76, 156-160 https://associationofanaesthetists-publications.onlinelibrary.wiley.com/doi/10.1111/anae.1528
Training Need Identified?	No specific training required.
Publication Location (refer to Policy on Policies – Approvals and Ratification):	Internet and Intranet
Document Library Folder/Sub Folder:	Clinical / Anaesthetics

Version Control Table

Date	Version Number	Summary of Changes	Changes Made by
1 May 2018	V1.0	Initial Issue	Keith Mitchell Consultant Anaesthetist
1 May 2021	V2.0	Doses reduced in light of International consensus statement. Language altered in light of that statement. Desirability of patient consent added.	Keith Mitchell Consultant Anaesthetist
24 August 2021	V2.1	Appendix 4. Intravenous Lidocaine for Perioperative analgesia added and section to provide details on how to use the form.	Anneka McBride, Governance Lead ACCT
15 November 2021	V2.2	Appendix 4. 'Proof' removed from form and hyperlink updated to Forms to print for this form CHA 4603	Keith Mitchell, Consultant Anaesthetist
August 2024	V3.0	No substantive change	Keith Mitchell, Consultant Anaesthetist

All or part of this document can be released under the Freedom of Information Act 2000.

All Policies, Strategies and Operating Procedures, including Business Plans, are to be kept for the lifetime of the organisation plus 6 years.

This document is only valid on the day of printing.

Controlled Document.

This document has been created following the Royal Cornwall Hospitals NHS Trust The Policy on Policies (Development and Management of Knowledge Procedural and Web Documents Policy). It should not be altered in any way without the express permission of the author or their Line Manager.

Appendix 2. Equality Impact Assessment

Section 1: Equality Impact Assessment (EIA) Form

The EIA process allows the Trust to identify where a policy or service may have a negative impact on an individual or particular group of people.

For guidance please refer to the Equality Impact Assessment Policy (available from the document library) or contact the Equality, Diversity, and Inclusion Team rcht.inclusion@nhs.net

Information Category	Detailed Information
Name of the strategy/policy/proposal/service function to be assessed:	Intravenous Lidocaine: Use for Perioperative Analgesia Clinical Guideline V3.0.
Directorate and service area:	Anaesthetics, ACCT care group
Is this a new or existing Policy?	Existing
Name of individual completing EIA (Should be completed by an individual with a good understanding of the Service/Policy):	Keith Mitchell, Consultant Anaesthetist
Contact details:	01872 252792

Information Category	Detailed Information
1. Policy Aim - Who is the Policy aimed at? (The Policy is the Strategy, Policy, Proposal or Service Change to be assessed)	To guide the safe and appropriate use of intravenous Lidocaine for perioperative analgesia.
2. Policy Objectives	To guide the safe and appropriate use of intravenous Lidocaine (lidocaine) for perioperative analgesia.
3. Policy Intended Outcomes	To guide the safe and appropriate use of intravenous Lidocaine (lidocaine) for perioperative analgesia.
4. How will you measure each outcome?	Monitoring through audit, departmental feedback, and discussion at governance meetings.
5. Who is intended to benefit from the policy?	Patients

Information Category	Detailed Information
6a. Who did you consult with? (Please select Yes or No for each category)	• Workforce: Yes • Patients/visitors: No • Local groups/system partners: No • External organisations: No • Other: No
6b. Please list the individuals/groups who have been consulted about this policy.	**Please record specific names of individuals/ groups:** Anaesthetists' via group email and governance meeting.
6c. What was the outcome of the consultation?	Policy agreed
6d. Have you used any of the following to assist your assessment?	**National or local statistics, audits, activity reports, process maps, complaints, staff, or patient surveys:** No

7. The Impact

Following consultation with key groups, has a negative impact been identified for any protected characteristic? Please note that a rationale is required for each one.

Where a negative impact is identified without rationale, the key groups will need to be consulted again.

Protected Characteristic	(Yes or No)	Rationale
Age	No	
Sex (male or female)	No	
Gender reassignment (Transgender, non-binary, gender fluid etc.)	No	
Race	No	
Disability (e.g. physical or cognitive impairment, mental health, long term conditions etc.)	No	

Protected Characteristic	(Yes or No)	Rationale
Religion or belief	No	
Marriage and civil partnership	No	
Pregnancy and maternity	No	
Sexual orientation (e.g. gay, straight, bisexual, lesbian etc.)	No	

A robust rationale must be in place for all protected characteristics. If a negative impact has been identified, please complete section 2. If no negative impact has been identified and if this is not a major service change, you can end the assessment here.

I am confident that section 2 of this EIA does not need completing as there are no highlighted risks of negative impact occurring because of this policy.

Name of person confirming result of initial impact assessment: Keith Mitchell, Consultant Anaesthetist.

If a negative impact has been identified above OR this is a major service change, you will need to complete section 2 of the EIA form available here:
Section 2. Full Equality Analysis

Appendix 3. AAGBI Safety Guideline for the Management of Severe 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**)

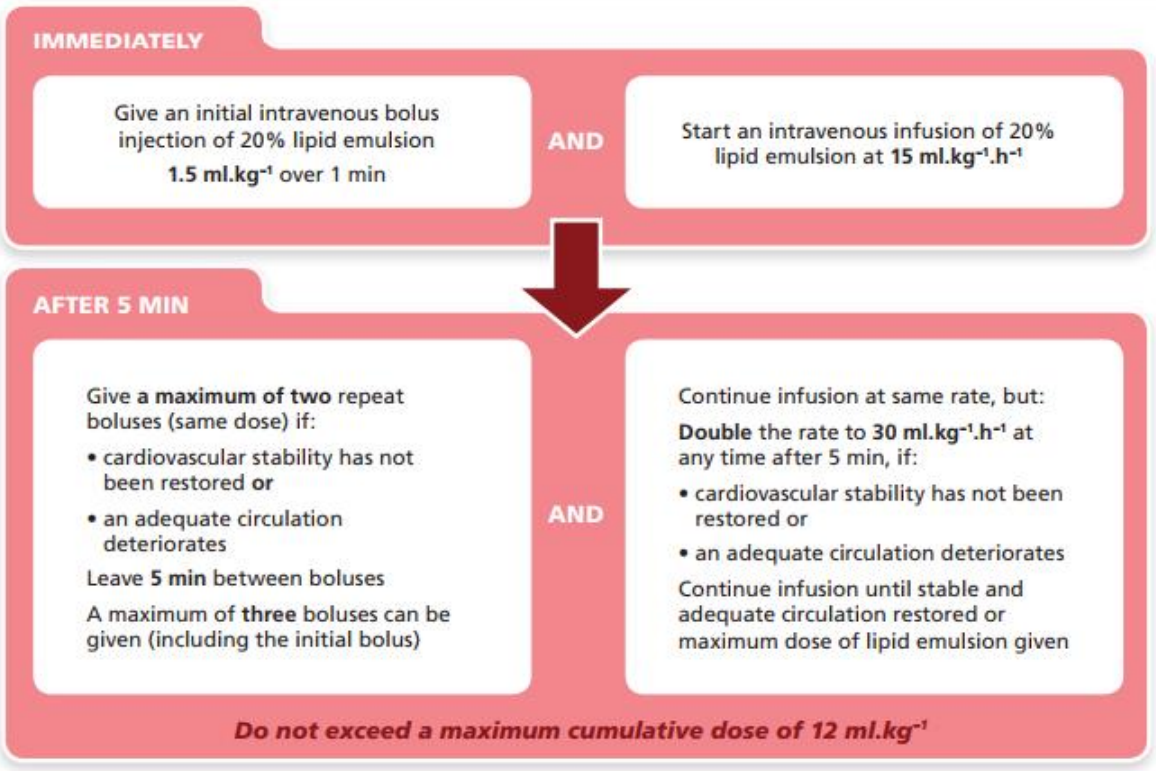
If Lipid has been given, please also report its use to the international registry at **www.lipidregistry.org**. Details may also be posted at **www.lipidrescue.org**

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

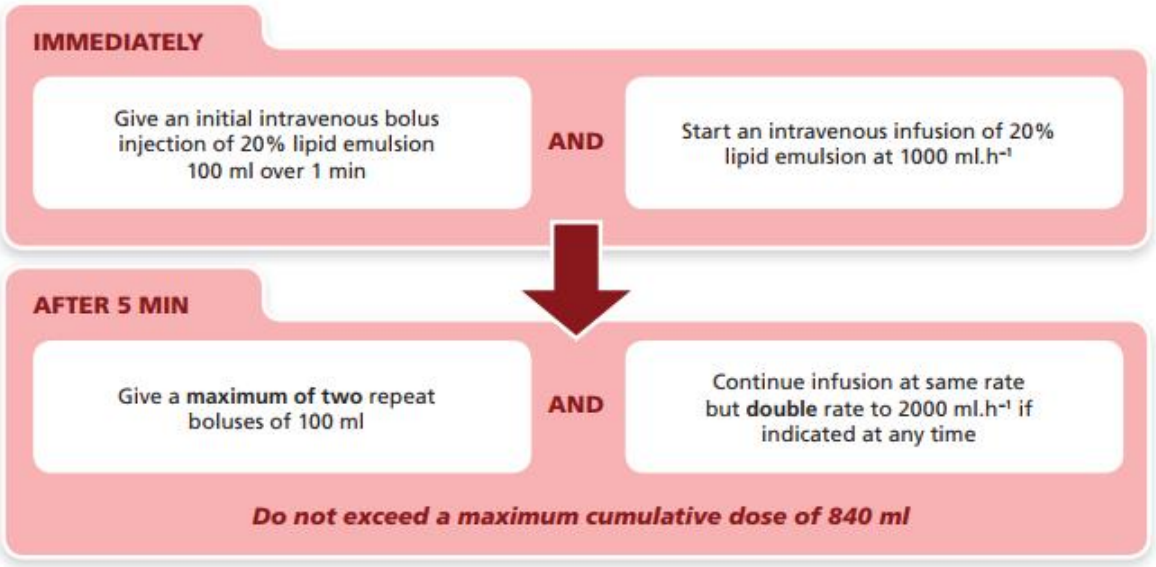
This guideline is not a standard of medical care. The ultimate judgement with regard to a particular clinical procedure or treatment plan must be made by the clinician in the light of the clinical data presented and the diagnostic and treatment options available.

Reproduced by kind permission of the Association of Anaesthetists of Great Britain and Ireland and available for download at:

www.aagbi.org/publications/guidelines/docs/la_toxicity_2010.pdf



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).

Reproduced by kind permission of the Association of Anaesthetists of Great Britain and Ireland and available for download at:

www.aagbi.org/publications/guidelines/docs/la_toxicity_2010.pdf

Appendix 4. CHA4603 Intravenous Lidocaine for Perioperative analgesia

File in patient notes alongside anaesthetic chart

Place patient sticker **within** this box

NHS
Royal Cornwall Hospitals
NHS Trust

Intravenous Lidocaine for Perioperative Analgesia

****Avoid local anaesthesia via other routes (except spinal) within 4 hours****

Prescribe periop lidocaine protocol on EPMA. See guideline.

Consented?	Yes	or	No	(Delete as appropriate)
Height: _____ cm	Estimated	or	Actual	(Delete as appropriate)
Weight: _____ kg	Estimated	or	Actual	(Delete as appropriate)

Ideal body weight (IBW): _____ kg
Male: height (cm) - 100
Female height (cm) - 105

Calculate dose from IBW unless actual weight is lower, in which case use actual weight.

Bolus dose 1.5 x IBW = _____ mg — Duration at least 10 minutes

Infusion 1.5 x IBW = _____ mg/hr — Infusion maximum rate 120 mg/hr

Infusion rate of lidocaine 1% (10g/ml) = _____ (maximum 12ml/hr)

Bolus: _____ mg

Time commenced: _____

Time completed: _____

Given by: _____

Infusion: Lidocaine 1% at _____ ml/hr (maximum 12ml/hr)

Prescribed by (Name in caps): _____

Prescribed by (Signature): _____

****Infusion maximum duration 24 hours****

Time commenced: _____

Commenced by (Name in caps): _____

Commenced by (Signature): _____

Time completed: _____

Discontinued by: _____

PTO

CHA4603 V1 08/2021 Review due: 2024

[redacted] Place patient sticker **within** this box [redacted]

Intravenous Lidocaine for perioperative analgesia - Audit

Pain at rest prior to infusion _____

Pain at rest after bolus _____

Pain at rest after infusion _____

All if applicable. 0 = No pain. 10 = Worst imaginable pain.

Briefly detail circumstances
Briefly detail effectiveness
Briefly detail side effects or complications
Any other comments?

File in patient notes alongside anaesthetic chart

CHA4603 V1