

**Subcutaneous lidocaine (lignocaine)
for refractory neuropathic pain
in the palliative care setting**



Title	Subcutaneous lidocaine (lignocaine) for refractory neuropathic pain in the palliative care setting
Area where Protocol/Guideline applicable	SESLHD Inpatient settings (including Calvary hospital)
Authorised Prescribers	Specialist Palliative Care Services
Indications for use	<p>Must be used under the supervision of a Palliative Care Specialist.</p> <ol style="list-style-type: none"> 1. Refractory neuropathic pain not responding to standard analgesic drugs, including optimal use of opioids and adjuvant therapies. 2. Refractory pruritis when the oral route is no longer available
Place in Therapy	Lidocaine is a systemic local anaesthetic agent and known membrane stabiliser. It is used in the palliative care setting as a third or fourth line drug in the treatment of complex & refractory neuropathic pain.
Contraindications	<ul style="list-style-type: none"> • Adams-Stokes syndrome, Wolff-Parkinson-White syndrome • Severe atrioventricular, sino-atrial or intraventricular heart block not managed with a pacemaker • Sensitivity to amide-type local anaesthetics • Patients on flecainide
Precautions & Relative Contraindications	<p>Cardiac monitoring in the palliative care setting is not indicated due to doses not exceeding the threshold of 2 g over 24 hours via CSCI.</p> <p>Caution in patients with known cardiac disease, cerebral palsy, electrolyte imbalance (correct before starting treatment) or a history of arrhythmia</p>

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Important Drug Interactions	Avoid in patients taking flecainide
Known Adverse Effects	<p>Monitor closely for the following initial signs of systemic toxicity:</p> <ul style="list-style-type: none"> • Light-headedness, Dizziness • Perioral numbness or tingling (around lips) • Tinnitus • Metallic taste • Drowsiness and dysarthria <p>If any of the above are observed, cease infusion immediately and inform Palliative Care Medical Officer. Lidocaine infusion may be restarted at a lower dose.</p> <p>Worsening toxicity is indicated by the progressive appearance of:</p> <ul style="list-style-type: none"> • Visual changes • Muscle spasm • Seizures • Coma • Cardiorespiratory depression and arrest
Preparations	<p>Lidocaine (lignocaine) 2% 100 mg/5 mL ampoules</p> <p>Lidocaine (lignocaine) 10% 500 mg/5mL ampoules</p>
Dosing	<p>Lidocaine has a narrow therapeutic index and dose is determined by consultation with Palliative Care Specialist.</p> <p>Starting dose: Lidocaine 0.5 mg/kg/hr (i.e. 200 - 800 mg over 24 hours) via CSCI⁶</p> <p>Titration: Increase by 200- 800 mg every 24 hours as required; titrate to effect.</p> <p>Maximum dose 2,800 mg per 24 hours (~120 mg/hr)</p>

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Administration	DOSE of lidocaine	VOLUME & recommended FORMULATION of lidocaine		Approx. Volume of WFI to make total volume
		Lidocaine 2%	Lidocaine 10%	WFI
	200 mg	10 mL	-	7 mL
	400 mg	-	4 mL	13 mL
	500 mg	-	5 mL	12 mL
	600 mg	-	6 mL	11 mL
	700 mg	-	7 mL	10 mL
	800 mg	-	8 mL	9 mL
	900 mg	-	9 mL	8 mL
	1000 mg	-	10 mL	7 mL
	1100 mg	-	11 mL	6 mL
	1200 mg	-	12 mL	5 mL
	1300 mg	-	13 mL	4 mL
	1400 mg	-	14 mL	3 mL
	1500 mg	-	15 mL	2 mL
1600 mg	-	16 mL	1 mL	
For doses < 1600 mg; use a 20 mL syringe <i>and make the volume up to 17 mL.</i>				
Doses > 1600 mg will require a 30 mL syringe.				
Diluents	Water for Injection (WFI)			
Drug Compatibility	Lidocaine should not be mixed in a syringe with any other medication due to lack of robust compatibility data. Lignocaine may be given in conjunction with ketamine but NOT in same syringe driver.			
Monitoring requirements	Monitor for signs of adverse effects (as above) and if any of the initial signs of toxicity occur cease the infusion and report to the Palliative Care consultant immediately. Perform 4-hourly subcut infusion site checks as per Subcutaneous Syringe Driver inpatient management form SES130.021			
Practice Points	Lidocaine is only given by continuous subcutaneous infusion via syringe driver. It is NOT to be given by intermittent bolus subcutaneous injections.			

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<p>Basis of Protocol/Guideline (including sources of evidence, references)</p>	<ol style="list-style-type: none"> 1. Benowitz NL, Meister W. Clinical pharmacokinetics of lignocaine. <i>Clinical pharmacokinetics</i>. 1978;3(3):177-201 2. Pasero CM, M. <i>Pain Assessment and Pharmacologic Management</i>. Missouri: Mosby Elsevier; 2010 3. Schwartzman RJ, Patel M, Grothusen JR, Alexander GM. Efficacy of 5-day continuous lidocaine infusion for the treatment of refractory complex regional pain syndrome. <i>Pain medicine (Malden, Mass)</i>. 2009;10(2):401-12 4. Swenson BR, Gottschalk A, Wells LT, Rowlingson JC, Thompson PW, Barclay M, et al. Intravenous lidocaine is as effective as epidural bupivacaine in reducing ileus duration, hospital stay, and pain after open colon resection: a randomized clinical trial. <i>Regional anesthesia and pain medicine</i>. 2010;35(4):370-6. 5. Hsu Y-W, Somma J, Newman M, Mathew JP. Population Pharmacokinetics of Lidocaine Administered During and After Cardiac Surgery. <i>Journal of cardiothoracic and vascular anesthesia</i>. 2011;25(6):931-6. 6. Palliative Care Formulary online. In <i>Medicines Complete</i>. Available via CIAP: https://www.medicinescomplete.com.acs.hcn.com.au/#/browse/palliative 7. Palliative Care [published 2016]. In <i>Therapeutic Guidelines [digital]</i>. Melbourne: Therapeutic Guidelines Ltd. 2022 May. Available via CIAP : https://tgldcdp.tg.org.au.acs.hcn.com.au/topicTeaser?guidelinePage=Palliative+Care&etgAccess=true 8. CHCK Policy 'Pain Management (Neuropathic – Lignocaine & Ketamine). September 2018 9. Dickman A, Schneider J. 2016. <i>The Syringe Driver: Continuous subcutaneous infusions in palliative care</i>. Oxford University Press; 2016 10. Macleod, R Macfarlane, S. 2018 <i>The Palliative Care Handbook</i>. 9th Ed. Hammondcare Media.
<p>Consultation</p>	<p>St George Palliative Care Team SESLHD Palliative Care working party Dr Caitlin Sheehan, Staff Specialist St George & Calvary Hospital</p>

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