<table>
<tr><td>Title</td><td>Subcutaneous levetiracetam for seizure management in palliative care patients</td></tr>
<tr><td>Area where Protocol Applies</td><td>SESLHD inpatient settings (including Calvary hospital)</td></tr>
<tr><td>Indications for use</td><td>To maintain control of seizures in a deteriorating and dying patient where no reduction in levels of consciousness is desired, and where the patient is unable to swallow oral medications and IV access is not possible or not desired.</td></tr>
<tr><td>Important Drug Interactions</td><td>Caution is advised with concurrent administration of carbamazepine, methotrexate or phenytoin because of isolated reports of toxicity</td></tr>
<tr><td>Dose conversion for oral to subcutaneous (subcut) route</td><td>A ratio of 1:1 between oral and subcutaneous routes should be used</td></tr>
<tr><td>Dosage</td><td>The usual starting dose is 500-1000mg over 24 hours via continuous subcutaneous infusion (CSCI) titrated to effect.</td></tr>
<tr><td>Hepatic Impairment</td><td>No dose adjustment is required with mild to moderate hepatic impairment.
Care with hepatorenal syndrome - dose based on renal function (see below)</td></tr>
<tr><td>Renal Impairment</td><td>Dose adjustment with renal impairment:
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<tr><td>Creatinine Clearance (ml/min)</td><td>Usual maintenance dose</td></tr>
<tr><td>> 80</td><td>1000 – 3000mg over 24 hours</td></tr>
<tr><td>50-79</td><td>1000 – 2000mg over 24 hours</td></tr>
<tr><td>30-49</td><td>500 – 1500mg over 24 hours</td></tr>
<tr><td>< 30</td><td>500 – 1000mg over 24 hours</td></tr>
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<tr><td>Preparations</td><td>Levetiracetam 100mg/mL concentrate solution for infusion.
Each 5mL vial contains 500mg levetiracetam.</td></tr>
<tr><td>Administration</td><td>Levetiracetam should be diluted as much as is practical to avoid infusion site irritation.

Maximum 1600mg in 20mL syringe.
Maximum 2400mg in 30mL syringe.
(30mL syringes available via Palliative Care Team)

If higher doses are required (maximum 3000mg) administer in 100mL sodium chloride 0.9% via an infusion pump. Contact Palliative Care Team for advice.</td></tr>
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Diluents	Dilute with water for injection for administration via syringe driver. Doses >2400mg must be diluted in 100mL sodium chloride 0.9% (see above)
Drug Compatibility	Levetiracetam **should not be mixed with any other medication** due to lack of robust compatibility data.
Undesirable effects	Very common (>10%): fatigue, drowsiness, headache, injection site irritation Common (<10%, >1%): ataxia, hyperkinesis, tremor, dizziness, diplopia, blurred vision, amnesia, behavioural disturbances, depression, insomnia, anorexia, abdominal pain, diarrhoea, dyspepsia, nausea, vomiting, myalgia, rash, pruritus, thrombocytopenia. See MIMS for full list.
Monitoring requirements	Monitor seizure activity and titrate dose accordingly. Monitor for injection site reactions. Perform 4 hourly infusion site checks as per Subcutaneous Syringe Driver inpatient management form SES130.021.
Management of complications	Any seizure activity seen during subcutaneous levetiracetam infusion should be managed with benzodiazepines, then specialist advice sought.
Practice Points	Administer alone in a separate syringe driver or infusion pump. Ensure dose adjustment is made for renal impairment. Benzodiazepines remain the first line management for prolonged seizure or status epilepticus. Seizure control should be achievable with appropriate dose adjustment, but if a seizure cannot be controlled or status epilepticus develops seek specialist advice. Additional antiepileptic or anaesthetic agents may be needed. Refer to eTG Pallitive Care: 'Seizures in palliative care: overview' for more information
Basis of Protocol/Guideline (including sources of evidence, references)	Palliative Care Formulary 7th Ed, 2020 p 306-309 Therapeutic Guidelines – Palliative Care, eTG, July 2018 Dickman A, Schneider J. The syringe driver: continuous subcutaneous in palliative care. Oxford University Press; 2016 Our Lady's Hospice & Care Service, Harold Cross, Dublin Ireland, 2016: https://olh.ie/wp-

	content/uploads/2019/01/Levetiracetam-in-a-Syringe-Pump-November-2018.pdf
Consultation	St George Palliative Care Team SESLHD Palliative Care working party Dr Caitlin Sheehan, Specialist Palliative Care, SESLHD southern sector

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GOVERNANCE	
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Chairperson, QUM Committee	Dr John Shephard
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