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1. Purpose and scope

To provide guidance on the use of dexamethasone administered subcutaneously in the palliative care population. Dexamethasone is generally the systemic corticosteroid of choice.

Note: *The Notes on Injectable Drugs recommends avoiding subcutaneous injection where possible as atrophy and sterile abscesses may occur. However, when the oral route is unavailable to palliative patients the subcutaneous route is the preferred method of drug administration and when parenteral use is necessary; dexamethasone is traditionally given subcutaneously rather than intramuscularly/intravenously.*

2. Drug

Drug	**Dexamethasone, dexamethasone phosphate, dexamethasone sodium phosphate injection**
Drug action	Pharmacology: synthetic adrenocorticosteroid with glucocorticoid activity with little if any mineralocorticoid activity. Has anti-inflammatory and immunosuppressant activity. Pharmacokinetics: metabolised mostly by CYP3A in the liver. Small amounts of unchanged drug and the inactive metabolites are excreted in the urine.
Indications	Cerebral oedema (raised intracranial pressure), hypercalcaemia of malignancy, nausea/vomiting, sweating, itch, hiccup, pain, liver capsule pain, tenesmus, increased energy, allergy/anaphylaxis, replacement, shock, collagen diseases, asthma, respiratory insufficiency, leukaemia, lymphoma, rheumatic disease, psoriasis, colitis, enteritis. **(Note: some may be unlicensed)**
Presentation	The **4mg/1mL** ampoule formulation contains sodium citrate and creatinine. No preservatives or antioxidants are present. The **8mg/2mL** vial contains sodium citrate, disodium edetate and sodium sulphite anhydrous. No preservatives are present.
Route	Unlicensed route: Subcutaneous (subcut) as a bolus or as an infusion via a Niki T34 syringe driver. **Note:** For infusions check syringe driver compatibility.
Dose	**2mg to 16mg/24 hours** **Note:** Maximum recommended single subcut bolus dose is 8mg (2mL).
Contraindications	Known allergy or hypersensitivity to dexamethasone or other corticosteroids or to any component of the injection.
Precautions	• Systemic infections – corticosteroids may increase susceptibility to or mask the symptoms of infection. • In patients with peptic ulcer, GI bleeding or psychoses. • Patients with latent tuberculosis or tuberculin reactivity. • On discontinuation after more than 5 consecutive day's usage, decrease dose slowly (taper) – too rapid a withdrawal may lead to drug induced secondary adrenocortical insufficiency. • Patients with diabetes or with family history of diabetes, chronic

	renal failure, recent cardiac infarction, liver failure, thromboembolic disorders, Cushing's disease.
Interactions	*Increased clinical effect/toxicity of dexamethasone* (due to increased blood concentrations) may occur with some CYP metabolising enzyme inhibitors e.g. aprepitant, clarithromycin, grapefruit juice, indinavir, itraconazole, ketoconazole, nelfinavir, ritonavir, telapravir, voriconazole. *Decreased clinical effect/toxicity of dexamethasone* (due to decreased blood concentrations) may occur with some CYP metabolising enzyme inducers e.g. carbamazepine, phenobarbitone, phenytoin, rifampicin, St John's wort. *Decreased clinical effect/toxicity of other drugs metabolised by CYP enzymes* (due to induction of their metabolism by dexamethasone) may occur e.g. aprepitant, carbamazepine, clonazepam, diazepam, domperidone, fentanyl, itraconazole, ketoconazole, methadone, midazolam, prednisone, quetiapine, triazolam. *Increased risk of GI bleed/ulceration* when given with NSAIDs (e.g. diclofenac).
Adverse effects	*Common:* insomnia (decrease by giving as single dose in the morning); *Less common:* hypertension, sodium/fluid retention, potassium and calcium loss, GI ulceration, delayed wound healing, thinning of skin, proximal myopathy, Cushing's syndrome, weight gain, mania, depression, delirium, hyperglycaemia, osteoporosis.

3. Administration

Competency for administration	This procedure is carried out by, or under, the direct supervision of a registered nurse/registered midwife who holds Waikato DHB generic medicine management and IV certification.
Preparation & administration	**For subcut injection**: administer dexamethasone undiluted. Flush line with 0.2mL of sodium chloride 0.9% before and after dexamethasone administration. **For subcut infusion**: prepare immediately before use. If mixing in the same syringe with other medications, dexamethasone needs to be added last as it most likely to precipitate and water for injection is the recommended diluent. A clear solution should form after mixing. If precipitate remains discard as the mixture may be incompatible. Administer via Niki T34 syringe driver as prescribed. Discard any unused solution. For further information on *Subcutaneous Pump – Niki T34* use and syringe sizes please refer to Lippincott Clinical Procedures.
Observations and management	Monitor for signs and symptoms of hypersensitivity / anaphylaxis to dexamethasone or any of its excipients. Monitor for adverse reactions- particularly when using high doses or during prolonged use. Recommend capillary blood glucose level (BGL) testing around 1600hrs – 1700hrs – this is when BGL's will peak due to dexamethasone.

Special Considerations	• Dexamethasone is not licensed in New Zealand for subcutaneous administration. • pH of dexamethasone sodium phosphate is 7 to 9.
Rescue medication	Discontinue immediately and seek urgent medical assistance if anaphylaxis or severe adverse reactions occur.

4. Definitions/Abbreviations

CYP	cytochrome P450 family of metabolising enzymes
subcut	subcutaneous
GI	gastrointestinal
NSAIDs	non-steroidal anti-inflammatory drugs
BGL	blood glucose level

5. References

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