ALFACALCIDIOL (Vitamin D, 1α-hydroxycolecalciferol)

Trade Name	One-Alpha®
Class	Vitamin D3 metabolite Fat Soluble Vitamin
Mechanism of Action	Binds vitamin D receptors in the kidneys, parathyroid gland, intestine and bone promoting intestinal absorption and renal retention of calcium and regulating calcium resorption from bone.
Indications	**Indication 1:** Prevention of Vitamin D deficiency in neonates with kidney disease **Indication 2:** Management of hypoparathyroidism or secondary Hyperparathyroidism **Indication 3:** Persistent Neonatal Hypocalcaemia
Contraindications	Any concurrent disease associated with hypercalcaemia Concurrent treatment with digoxin
Supplied As	**Oral solution:** 2 microgram/mL, clear colourless solution **Capsules**: 0.25 microgram
Dilution	Not required
Dosage	Start at 0.05mcg/kg/day and dose adjustments would be directed by paediatric endocrinology and nephrology. Dose range usually 0.02 – 0.1 microgram/kg/day
Guardrail	N/A
Interval	Once a day
Administration	Oral
Compatible With	N/A
Incompatible With	N/A
Interactions	Anticonvulsants (phenobarbitone, phenytoin, carbamazepine) may reduce vitamin D absorption and result in patients requiring higher doses of alfacalcidol than expected. Cholestyramine may reduce alfacalcidol absorption. Risk of cardiac arrhythmia if patient is being treated with digoxin and develops hypercalcaemia secondary to treatment with alfacalcidol. Thiazide diuretics including chlorothiazide may increase risk of hypercalcaemia when given in combination with alfacalcidol.

Monitoring	Monitor for symptoms of hypercalcaemia including; weakness, drowsiness, nausea, vomiting, constipation irritability. Monitor Vitamin D levels monthly
Stability	Oral Solution: expiry is 6 weeks after opening Capsules: Manufacturer's expiry
Storage	Oral Solution: Store in the Fridge 2-8 ^{0}C Capsules: Room temperature
Adverse Reactions	Hypercalcaemia, hyperphosphatemia, hypercalciuria, rash, itch, abdominal pain, vomiting, diarrhoea, constipation, muscle weakness, renal impairment
Metabolism	Rapidly converted in the liver to 1,25-dihydroxycolecalciferol
Comments	Two liquid vitamin D supplements are currently available in NZ ensure the correct formulation is chosen based on indication. **Colecalciferol (Puria® Vitamin D drops)** – for prevention of vitamin D deficiency due to prematurity, lack of sufficient sunlight and/or malabsorption due to conditions such as biliary obstruction, coeliac disease, cyctic fibrosis or short gut. **Alfacalcidiol (One-Alfa® drops)** – are used for treatment of severe resistant forms of vitamin D deficiency, disorders of synthesis of biologically active forms of vitamin D within the body such as chronic liver or kidney disease, induction of excessive metabolism of vitamin D by enzyme inducers such as anticonvulsants or management of other Vitamin D sensitive endocrine disorders such as hypoparathyroidism or secondary hyperparathyroidism. **Note**: dosing of alfacalcidiol is often quoted in nanograms: 1000 nanogram = 1 microgram **Other conversion tips:** 1 microgram of vitamin D = 40 units of vitamin D
References	1. Alfacalcidol Data Sheet www.medsafe.govt.nz 2. www.nzf.org.nz 3.BNFc 2011-2012 4.https://starship.org.nz/guidelines/vitamin-d deficiency-investigation and management/
Updated By	A Lynn, B Robertshawe June 2014 A Lynn, B Robertshawe July 2016 A Lynn, M Wallenstein, B Robertshawe, A Evison May/Sept 2020 (update) A Lynn, B Robertshawe May 2023 (routine review)