

Colecalciferol

1,000units/0.5mL*

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Note:

This guideline provides advice of a general nature. This statewide guideline has been prepared to promote and facilitate standardisation and consistency of practice, using a multidisciplinary approach. The guideline is based on a review of published evidence and expert opinion.

Information in this statewide guideline is current at the time of publication.

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Health practitioners in the South Australian public health sector are expected to review specific details of each patient and professionally assess the applicability of the relevant guideline to that clinical situation.

If for good clinical reasons, a decision is made to depart from the guideline, the responsible clinician must document in the patient's medical record, the decision made, by whom, and detailed reasons for the departure from the guideline.

This statewide guideline does not address all the elements of clinical practice and assumes that the individual clinicians are responsible for discussing care with consumers in an environment that is culturally appropriate and which enables respectful confidential discussion. This includes:

- The use of interpreter services where necessary,
- Advising consumers of their choice and ensuring informed consent is obtained,
- Providing care within scope of practice, meeting all legislative requirements and maintaining standards of professional conduct, and
- Documenting all care in accordance with mandatory and local requirements

Synonyms

Vitamin D₃, hydroxycholecalciferol, cholecalciferol

One microgram of colecalciferol is equivalent to 40 units

Dose and Indications

Prevention of rickets and osteomalacia in neonates born <34 weeks gestation or weighing <2000gram

Oral

400units/day (from Penta-vite Infant[®]) until 12 months corrected gestation

Note: Term formulas (e.g. modified or elemental term formula) or unfortified expressed breast milk have low levels of vitamin D. If using in neonates born less than 34 weeks gestation, consider supplementing with addition colecalciferol to meet Recommended Nutritional Intake until term gestation or discharge (see Nutrition Delivery Composition Tables: Preterm Infants – Neonatal Medication Monograph). Then reduce to dose as above.



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Prevention of rickets and osteomalacia in term, and late preterm infants (34+0 – 36+6 weeks) born to

- **Mothers with vitamin D level ≤ 50 nmol/L at booking or 28 weeks (whichever is later) OR**
- **Mother has had little or no antenatal care OR**
- **Mother is veiled, darker skinned or newly arrived refugee (even if vitamin D > 50 nmol/L and receiving routine supplementation during pregnancy)**

Oral

400 units/day until 12 months corrected gestation, regardless of method of feeding
 Colecalciferol may be obtained by a proprietary vitamin D liquid or Penta-vite Infant[®].

Prevention of vitamin D deficiency with cholestasis or fat malabsorption**Oral**

800units/day (400units from a proprietary vitamin D liquid and 400units from Penta-vite Infant[®]) until cholestasis/ fat malabsorption resolves

Then standard maintenance dose: 400 units/day of colecalciferol through Penta-vite Infant[®] until 12 months corrected gestation.

Treatment of documented vitamin D deficiency, and vitamin D deficient osteomalacia or rickets**Oral**

800 to 1,000units/day from all sources (including Penta-vite Infant[®], vitamin D preparations and milk)

See monitoring. For term infants, refer to [SA Paediatric Clinical Practice Guideline 'Vitamin D Deficiency in Children'](#)

Preparation and Administration**Oral maintenance therapy**

Use the 1000 units/0.5mL oral mixture*

Dose	400 units
Volume	0.2mL

Commercial formulation Penta-vite Infant[®] (0 to 3 yrs) provides 400 units of colecalciferol per 0.45mL, which may be more suitable in a premature (or previously premature) infant



Adverse Effects

Infrequent

Hypercalcemia including vomiting, constipation, sweating and polyuria

Monitoring

- > Nil required with standard dosing
- > For infants with osteomalacia or rickets, monitor 25-hydroxyvitamin D, alkaline phosphatase (ALP), parathyroid hormone (PTH), calcium and phosphate

Practice Points

- > Give with feeds to minimise gastro-intestinal irritation
- > Breast milk fortifiers and term and preterm formulas contain varying amounts of Vitamin D (colecalciferol)
- > There are a variety of commercial colecalciferol products, and colecalciferol concentrations of these products vary significantly
- > If social or language barriers suggest that compliance will be difficult, vitamin D levels should be measured at 3 months of age and treated according to the [SA Paediatric Clinical Practice Guideline](#)
- > Definition of Vitamin D deficiency is based on maternal or neonatal 25(OH)D level:
 - Mild deficiency: 25(OH)D 30-50 nmol/L
 - Moderate deficiency: 25(OH)D 12.5 – 30 nmol/L
 - Severe deficiency: 25(OH)D < 12.5 nmol/L
- > Documented maternal vitamin D deficiency at term gestation may warrant a 25OHD level prior to 3 months. Treat according to the [SA Paediatric Clinical Practice Guideline](#)
- > Larger doses of colecalciferol may be required in some circumstances and are guided by vitamin D levels, plasma PTH, ALP, calcium and phosphate levels.
- > Recent global consensus guidelines (Munns 2016) recommend that all infants from birth to 12 months of age, independent of their mode of feeding are treated with colecalciferol 400units/day to prevent rickets. The Australian and New Zealand position statement (Paxton 2013) recommends supplementation of only those at risk.
- > Further studies are required to confirm whether universal supplementation will reduce the risk of nutritional rickets in Australia and New Zealand.



References

- > Maria G. Vogiatzi, Elka Jacobson-Dickman, Mark D. DeBoer, for the Drugs, and Therapeutics Committee of The Pediatric Endocrine Society; Vitamin D Supplementation and Risk of Toxicity in Pediatrics: A Review of Current Literature. 2014; 99 (4): 1132-1141. doi: 10.1210/jc.2013-3655
- > Munns, Craig F, et al. "Global consensus recommendations on prevention and management of nutritional rickets." *Hormone Research in Paediatrics* 85.2 (2016): 83-106.
- > Paxton GA, Teale GR, Nowson CA et al. Vitamin D and health in pregnancy, infants, children and adolescents in Australia and New Zealand: a position statement. *Med J Aust* 2013;198(3):142-3

Document Ownership & History

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