

# Vitamin A and E solution

## Newborn use only

2022

<b>Alert</b>	<p>There are individual formularies for vitamin A and E.</p> <p>The dose recommendation of vitamins A and E oral solution in this formulary is based on the vitamin A content and may not match with vitamin E recommended dosage.</p> <p>Vitamin A is expressed as microgram retinol activity equivalents (RAE) or international units (IU) or units.  <b>1 microgram RAE = 1 microgram retinol = 3.3 units of retinol. (1)</b></p> <p>Vitamin E 1 International Unit (hereafter referred to as "units") = 0.67 mg d-alpha-tocopherol.</p> <p>The consensus Australasian lipid formulation provides:</p> <ul style="list-style-type: none"> <li>- 920 units/kg/day of vitamin A at 3 g/kg/day</li> <li>- 2.8 IU/kg/day of vitamin E at 150 mL/kg/day.</li> </ul> <p>Penta-Vite Infant, a commonly used multi-vitamin supplement in Australia, contains vitamin A but doesn't contain vitamin E.</p>
<b>Indication</b>	Cholestatic liver disease
<b>Action</b>	<p>Vitamin A: Fat soluble vitamin required for vision, growth and bone development, immune function and maintenance of epithelial cells particularly in the retina and respiratory tract tissues.</p> <p>Vitamin E: Antioxidant protecting cell membranes from oxidative stress. Active isomer is <math>\alpha</math>-tocopherol.</p>
<b>Drug type</b>	Fat soluble vitamins.
<b>Trade name</b>	Bio-Logical Vitamins A & E oral solution
<b>Presentation</b>	Bio-Logical Vitamins A & E oral solution (50 mL bottle): Each 1 mL contains Retinol palmitate 1.2 mg = Vitamin A 2210 units=663 microgram retinol equivalents and d-alpha-tocopheryl acetate 75 mg/mL (102 units/mL).
<b>Dose</b>	<p><b>Cholestatic liver disease</b></p> <p>Bio-Logical Vitamins A &amp; E Solution: 1.5 – 2 mL/day in 1 or 2 divided doses.*#</p> <p>*Prescription is based on vitamin A component, which would provide a dose between 3315-4420 units/day. (2) (ANMF consensus)</p> <p>#The prescribed dose provides 153 to 204 units/day of vitamin E. Although this vitamin E intake is considered excessive, these doses have been used in neonates without any reported toxicity. (3)</p>
<b>Dose adjustment</b>	<p>Therapeutic hypothermia – No information.</p> <p>ECMO – Not applicable.</p> <p>Renal impairment - No information.</p> <p>Hepatic impairment – No information.</p>
<b>Maximum dose</b>	
<b>Total cumulative dose</b>	
<b>Route</b>	Oral
<b>Preparation</b>	No preparation is required.
<b>Administration</b>	Oral: Administer undiluted with a feed.
<b>Monitoring</b>	
<b>Contraindications</b>	Hypersensitivity to vitamins A or E, or any component of the formulation, hypervitaminosis A.
<b>Precautions</b>	<p>Vitamin E interacts with iron and other oxidants or any polyunsaturated fatty acids.</p> <p>Vitamin E can increase serum bilirubin.</p>
<b>Drug interactions</b>	<p>Vitamin A may increase effects of anticoagulant and antiplatelet agents.</p> <p>Iron - Lowers bioavailability of Vitamin E.</p> <p>Vitamin E may increase the effects of vitamin K antagonists and antiplatelet agents.</p>
<b>Adverse reactions</b>	<p>Hypervitaminosis A: Irritability, vomiting, bulging fontanelle.</p> <p>Vitamin E: Sepsis, necrotising enterocolitis</p>
<b>Compatibility</b>	Not applicable
<b>Incompatibility</b>	Not applicable
<b>Stability</b>	
<b>Storage</b>	Protect from light (all forms). Store below 25°C (room temperature)
<b>Excipients</b>	Bio-Logical Vitamin A & E oral solution contains sodium benzoate. Avoid exposure to sodium benzoate of >99 mg/kg/day in neonates.
<b>Special comments</b>	
<b>Evidence</b>	<b>See individual Vitamin A and Vitamin E monographs for evidence summaries.</b>

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<b>Practice points</b>	
<b>References</b>	<ol style="list-style-type: none"><li>1. <a href="https://dietarysupplementdatabase.usda.nih.gov/Conversions.php">https://dietarysupplementdatabase.usda.nih.gov/Conversions.php</a>. Accessed on 17 November 2021.</li><li>2. Yang CH, Perumpail BJ, Yoo ER, Ahmed A, Kerner Jr. JA. Nutritional Needs and Support for Children with Chronic Liver Disease. <i>Nutrients</i>. 2017;9(10):1127.</li><li>3. Hittner HM, Godio LB, Rudolph AJ, Adams JM, Garcia-Prats JA, Friedman Z, Kautz JA, Monaco WA. Retrolental fibroplasia: efficacy of vitamin E in a double-blind clinical study of preterm infants. <i>New England journal of medicine</i>. 1981 Dec 3;305(23):1365-71.</li></ol>

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