

## **Vitamin D in pregnancy and the term newborn guideline**

### **Definition**

Pregnant women with a serum level of 25-OH vitamin D less than 75 nmol/L are considered to be vitamin D<sub>3</sub> deficient.

### **Expected outcomes**

1. Prevention of childhood rickets.
2. Prevention of maternal osteomalacia/osteoporosis.

### **General advice and information in pregnancy**

Vitamin D deficiency is important in pregnancy because it has implications for both maternal and child health. Vitamin D deficiency is common in the general population, including in pregnant women. Until recently, it was thought that vitamin D deficiency was common only in high risk women (women with dark skin and those with minimal exposed skin) However, about 30% of “low risk” women screened in pregnancy in Melbourne have been shown to be vitamin D deficient. Therefore, all women should be informed at their first antenatal visit about the importance of vitamin D in pregnancy for their own and their baby’s health, ensuring they have adequate vitamin D stores during pregnancy and whilst breast feeding. All women should be offered testing for vitamin D status in early pregnancy and recommended supplementation if deficient.

Transplacental passage of maternal 25-OH vitamin D<sub>3</sub> is the sole source of vitamin D in the developing fetus. Therefore infants are wholly reliant on their mother for their vitamin D status. Accordingly, pregnant women need to be vitamin D replete at the time of giving birth to ensure sufficient vitamin D levels in their baby to last the first 4-6 months of life.

Infants born to vitamin D deficient mothers will be vitamin D deficient. As very little Vitamin D is obtained from diet, breast fed babies of deficient mothers should be advised to supplement their baby with oral vitamin D. Formula milks already have a vitamin D supplement added.

At the Initial booking visit, women should be provided with the maternity *Vitamin D and calcium in pregnancy and breast feeding information sheet*, which discusses the importance of vitamin D and vitamin D supplementation in pregnancy.<sup>1,4</sup>

## At booking

All women should be recommended and offered vitamin D (25-OH vitamin D<sub>3</sub>) testing in early pregnancy. The results of vitamin D testing, if performed, should be discussed with the woman and documented in the antenatal record.

- Women with a 25-OH vitamin D<sub>3</sub>  $\geq$  **75 nmol/L** require no further testing or follow up.
- Women with a 25-OH vitamin D<sub>3</sub>  $<$  **75 nmol/L** should:
  - Have a dietary assessment for calcium intake. The recommended daily calcium intake for pregnant women is 1300mg (age14-18 years) and 1000mg (above 19 years).<sup>5</sup>
  - Be recommended daily supplementation of 1000 international units (IU) vitamin D<sub>3</sub> (such as 'Ostelin Vitamin D<sup>®</sup>', 'OsteVit D<sup>®</sup>' or 'Blackmores Vitamin D3<sup>®</sup>'). If combined calcium and vitamin D supplementation is required Calvid<sup>®</sup> contains 1000mg elemental calcium with 880 IU vitamin D<sub>3</sub>.
  - Be recommended and offered re-testing at 28 weeks of pregnancy, at the time of their Glucose Challenge test (GCT).

## Ongoing pregnancy management

As indicated by initial results, all women with an early pregnancy vitamin D level  $<$ 75nmol/L should be offered re-testing at 28 weeks gestation. The results should be again discussed with the woman and documented in the antenatal record.

- Women with a 25-OH vitamin D<sub>3</sub> level  $\geq$  **75nmol/L** should continue supplementation but require no further testing or follow up of either mother or baby.
- Women with a 25-OH vitamin D<sub>3</sub> level  $<$  **75nmol/L** should continue supplementation. Unless the woman has malabsorption (such as coeliac disease) she is probably non compliant. Supplementation of the baby after birth is recommended.

## Newborn management

If the mother's last antenatal results (at booking or 28 weeks) have been  $\geq$  **75nmol/L** there is no need to assess the baby's vitamin D status, or to recommend supplementation.

### General advice and information

All breastfed babies born to a mother known to be vitamin D deficient (last results  $<$ **75 nmol/L** during pregnancy) should be offered a cholecalciferol **bolus (50,000 IU) dose** orally for their babies to prevent serious sequelae of vitamin D deficiency. A single dose of cholecalciferol (Vitamin D) syrup should provide sufficient vitamin D stores for four months.<sup>2,3</sup>

Babies who are formula feeding will not require additional supplementation.

If maternal vitamin D status is unknown and the baby is breastfed then the administration of vitamin D should be guided by maternal risk factors (skin colour, skin coverage etc).

## Neonatal supplementation

The neonatal dose of cholecalciferol mixture is 50,000 units (0.5mL of 100,000 IU/mL).

A single oral bolus dose should be drawn up in a sterile 1 mL oral dispenser and administered with maternal consent.

The single dose should be documented on the Neonatal Record (MRFB01) in the 'once only doses' section.

## Discharge communication

The Discharge Summary and Child Health Record should communicate to the ongoing health professionals the maternal pregnancy status and where the bolus dose of cholecalciferol (vitamin D) mixture has been administered to the newborn.

The breast feeding mother should be advised to follow up with her Maternal and Child Health Nurse (MCHN) and/or GP for an ongoing supplementation plan **after 4 months**.

If the infant remains totally breastfed at 4 months, supplementation with Pentavite® 0.45mL daily is generally recommended until 12 months old or weaned to at least 500mL formula per day.<sup>2</sup>



If an adverse event (actual or 'near miss') is associated with this guideline document details in the health record and complete an incident report on Riskman.



1. National Institute for Health and Clinical Excellence (2008) Antenatal Care Routine care for the Healthy Pregnant Women. NICE Clinical Guideline 62, London
2. Munns C, Zacharin, M, Rodda C et al, Prevention and treatment of infant and childhood vitamin D deficiency in Australia and New Zealand: a consensus statement, MJA 2006; 185:268-272
3. Royal Children's Hospital, Parkville Pharmacopia
4. Southern Health (2009) *Vitamin D and calcium in pregnancy and breast feeding Information Sheet for Women* (to be developed) Clinical Protocols and Guidelines, Maternity
5. Nutrient Reference Values for Australia and New Zealand National Health and Medical Research Council, 2006  
[www.nhmrc.gov.au/publications/synopses/files/n35.pdf](http://www.nhmrc.gov.au/publications/synopses/files/n35.pdf)

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## Disclaimer

These clinical practice guidelines and protocols have been developed having regard to general circumstances. It is the responsibility of every clinician to take account of both the particular circumstances of each case and the application of these guidelines. In particular, clinical management must always be responsive to the needs of the individual woman and particular circumstances of each pregnancy.

These guidelines have been developed in light of information available to the authors at the time of preparation. It is the responsibility of each clinician to have regard to relevant information, research or material which may have been published or become available subsequently. Please check this site regularly for the most current version.