

# First do no harm: A guide to choosing wisely in general practice

## For GPs – Vitamin D testing



### The testing for vitamin D deficiency in patients.

#### RACGP position

- Testing for vitamin D deficiency (by measuring serum 25(OH)D) is not routinely recommended for adults (including those who are pregnant), children or healthy infants.
- It may be appropriate for people at risk of vitamin D deficiency (for example, those in high-risk groups).<sup>1</sup>
- Population screening for vitamin D deficiency in older adults by measuring serum 25(OH)D is not recommended, but testing high-risk groups is appropriate.<sup>2</sup>
- Vitamin D supplementation should not be routinely given to non-institutionalised elderly people.
- Vitamin D testing is appropriate, and is only funded by the Medicare Benefit Schedule (MBS), if the patient:<sup>3</sup>
  - has symptoms of or established osteoporosis/osteomalacia
  - has increased alkaline phosphatase in otherwise normal liver function tests
  - has hyperparathyroidism, hypocalcaemia or hypercalcaemia, hypophosphataemia
  - has malabsorptions (for example, cystic fibrosis, untreated coeliac disease, short bowel syndrome or bariatric surgery)
  - has deeply pigmented skin or chronic lack of sun exposure for cultural, medical, occupational or residential reasons
  - has medications known to decrease 25(OH)D absorption (for example, anticonvulsants)
  - has chronic renal failure or renal transplant recipients
  - is younger than 16 years of age and has signs or symptoms of rickets
  - is an infant whose mother has established vitamin D deficiency
  - is an exclusively breastfed baby and has at least one of the other risk factors
  - has a sibling who is younger than 16 years of age and has vitamin D deficiency.

## Traffic lights

### RED

#### Do not take this action

- Do not routinely measure vitamin D in the general population.
- Do not retest vitamin D levels within three months of the patient beginning to take vitamin D replacement.<sup>1</sup>
- Do not routinely use high-dose vitamin D replacement.

### ORANGE

#### Under specified circumstances, take this action

- When a patient's vitamin D levels have returned to normal, do not retest (do not arrange annual testing), especially if the patient has not changed their lifestyle or is still taking a supplement.

### GREEN

#### Take this action

- Test for vitamin D in patients who are at high risk of vitamin D deficiency (refer to the MBS item criteria above).
- If retesting vitamin D levels (after three months of the patient taking replacement), use the same laboratory.<sup>1</sup>

## Patient harms and risks

- Unnecessary vitamin D supplements waste the patient's money.
- Vitamin D toxicity, although rare, can cause hypercalcaemia.<sup>4</sup>
- Vitamin D supplementation is contraindicated in patients with granulomatous disease (for example, tuberculosis), metastatic bone disease and sarcoidosis.<sup>4</sup>

## Overview

### About vitamin D deficiency

- Vitamin D deficiency does not yet have a universally defined lab value<sup>5,6</sup> (the definition of low 25(OH)D is controversial).
- Food sources of vitamin D include fortified cereals, dairy products, egg yolks and fish, but these generally provide less than 10% of vitamin D requirements.<sup>2,5</sup>

### Screening and testing for vitamin D deficiency

- Overscreening of patients for vitamin D deficiency increases healthcare costs compared to vitamin D supplementation.<sup>3,7</sup>
- Empiric treatment regimes are cheaper than annual biochemical screening.<sup>1,3,6,7</sup>

### Vitamin D supplements

- There is no accepted preventive purpose of vitamin D supplementation in the general population (including adults and children), except those relating to osteoporosis and osteomalacia in high-risk groups.
- The recommended replacement for adults with mild uncomplicated vitamin D deficiency<sup>2</sup> is cholecalciferol 25–50 mcg (1000–2000 IU) orally daily.
- Currently, the target should be about 10–20 nanomol/L above the cut-off of 50 nanomol/L,<sup>2,6,8</sup> however some people may need different doses of vitamin D depending on their metabolism, absorption, use of medication, body mass and age.<sup>6</sup>
- As the recommended replacement for children will depend on the condition causing the deficiency (for example, rickets, osteomalacia), consultation with other specialist colleagues is recommended<sup>2</sup>

- There is no long-term safety data available relating to routine high-dose administration, but it may be clinically indicated for a short period (for example, six weeks in patients with higher body mass or severe deficiency (serum level <12.5 nanomol/L<sup>2,6</sup>) or in consultation with other specialists.

### Post-supplement testing

- If there is a variation of serum 25(OH)D response following supplementation, you must wait for several months to determine the new value in the blood, as 25(OH)D has a half-life of approximately three weeks.<sup>6</sup>

### Alternatives – what can I do for the patient?

- If a patient asks for a vitamin D test:
  - explore their particular concerns, as this might reveal symptoms they've not told you about
  - explain the MBS criteria for vitamin D testing.
- Explain the role of vitamin D in bone health, and provide advice about maintaining bone health, including weightbearing exercise, maintaining a healthy weight range, ensuring adequate dietary intake of calcium and vitamin D, participating in outside activity with safe sun exposure, taking measures to prevent falls, quitting smoking and reducing alcohol consumption.<sup>9</sup>
- Treat physical symptoms, ask the patient about their expectations of the current treatment of their conditions, and re-emphasise MBS criteria for testing.<sup>10</sup>
- Consider osteoporosis risk factors and testing, if relevant:<sup>11</sup> refer to the [Guidelines for preventive activities in general practice \(Red Book\)](#).
- Continue to encourage normal general practice care.

### Resources

- The RACGP, [First do no harm: A guide to choosing wisely in general practice](#), Vitamin D testing patient resource
- The RACGP, [Guidelines for preventive activities in general practice \(Red Book\)](#)
- The RACGP, [Osteoporosis prevention, diagnosis and management in postmenopausal women and men over 50 years of age](#)
- Better Health Channel
- British Columbia (Canada) Government, [Vitamin D testing](#)
- Choosing Wisely Australia, [RCPA recommends targeted vitamin D testing](#)
- Starship (NZ), [Vitamin D deficiency: Investigation and management](#)

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