

Folate tests



Folate and vitamin B12 testing have increased rapidly in the last decade. Mandatory fortification of wheat flour for bread-making in Australia has meant that folate deficiency is now very rare. Folate testing should only be ordered in a selected group of patients.

Key points

- ▶ An MBS review identified a rapid increase in folate and vitamin B12 testing over the last decade.
 - Item 66602 (serum B12 and red cell folate and, if required, serum folate) increased by 307%.¹
 - Item 66599 (serum B12 or red cell folate and, if required, serum folate) more than doubled (119% increase).¹
- ▶ These previous MBS items link vitamin B12 and serum folate/red cell folate testing. This made it difficult to identify which test or tests are being ordered at an individual patient level and may have led to over-ordering.
- ▶ Because of the introduction of mandatory folate fortification of wheat flour for bread-making in Australia, folate deficiency is now very rare. Folate testing should only be ordered in a selected group of patients.^{2,3}
- ▶ In order to encourage the quality use of testing under Medicare, vitamin B12 and serum folate/red cell folate testing are now listed under separate items. This decision is evidence-based and supported by the Medical Services Advisory Committee (MSAC; www.msac.gov.au).

Requesting folate tests

While folate and vitamin B12 tests may be used singularly or in combination to establish vitamin deficiency, linking these tests in the same MBS item has resulted in difficulty identifying which test or tests were being ordered at an individual patient level and may have led to over-ordering.^{1,4}

As a result of a review of MBS items for B12 and folate these individual tests will now be separated and the following item number will need to be used when investigating folate levels:

ITEM	ITEM DESCRIPTION	SCHEDULE FEE	BENEFIT PAID
66840	Serum folate test and, if required, red cell folate test for a patient at risk of folate deficiency, including patients with malabsorption conditions, macrocytic anaemia or coeliac disease	\$23.60	75% = \$17.70 85% = \$20.10

What is the role of folate?

In humans, folate and vitamin B12 are linked by two enzymatic reactions where they function as co-factors.⁵ Deficiency of either vitamin can interrupt these two key pathways with consequent disruption of DNA synthesis resulting in megaloblastic anaemia and other adverse effects on the nervous system and other organs.^{6,7}

In addition, poor folate status is associated with other negative health outcomes. For example, inadequate maternal folate status has been linked to abruption placentae, preeclampsia, spontaneous abortion, stillbirth, pre-term delivery, low birth weight and neural tube defects.^{8,9}

The symptoms of folate deficiency can occur within 4–5 months.⁶

Is folate testing required in Australia?

Because of the introduction of mandatory folate fortification of wheat flour in Australia, folate deficiency is now very rare and testing should only be ordered in a select group of patients.¹

Folate deficiency may still occur in some people because of inadequate nutritional intake caused by poor diet, alcoholism, increased requirements such as in pregnancy and lactation and impaired absorption and intake e.g. coeliac disease.^{6,10}

What does folate testing involve?

There is no gold standard test for the diagnosis of folate deficiency, but two measures are used routinely in Australia:

- ▶ Serum folate concentration which is a reflection of short-term folate balance.⁴
- ▶ Red blood cell folate concentration, which is theoretically a more reliable indicator of tissue folate adequacy as it reflects a time-averaged value of folate availability, and is not subject to short-term fluctuations.^{4,11}

Table 1 shows approximate reference limits for folate deficiency.

Table 1. Folate reference limits*¹²

STATUS	SERUM FOLATE (NMOL/L)	RBC FOLATE (NMOL/L)
Reference Limit	> 7	>360
Deficient	< 7	< 360

*Reference limits may vary between laboratories.

As serum folate is less affected by analytical variables than red cell folate and is less expensive, serum folate should be requested as the initial test when required.^{6,11}

Who requires folate testing?

The MBS review did not identify any prospective trials that evaluate the clinical indications for folate testing.¹

Folate testing is not required to inform folate supplementation before and during pregnancy. All women should be given folic acid supplements prophylactically (0.5 mg/day, or 5 mg/day if at high-risk of having babies with neural tube defects) for 1 month before conception and for the first trimester.¹³

Guidelines recommend reserving red cell folate testing for patients at risk of chronic folate deficiency when serum folate levels may not be easily interpreted such as patients who have only recently improved folate intake in hospital.⁴

Practice points

Assess patients for folate deficiency if they have:

- ▶ Neuropsychiatric abnormalities (dementia, depression, psychosis, personality changes).^{1,7}
- ▶ Haematological symptoms (anaemia, macrocytosis).^{1,4}
- ▶ Risk factors associated with deficiency (check patient's medical history, alcohol intake, poor diet).^{1,6,10}

Before initiating folic acid supplementation, vitamin B12 levels should be determined as the use of folate supplements in patients with vitamin B12 deficiency may further exacerbate or initiate neurologic disease.¹⁴

There is no need to repeat testing unless there is a lack of patient response to treatment (i.e. patient remains symptomatic) or if anaemia reoccurs.¹

Further information

For further detail see the MBS review, Folate testing report (at: www.msac.gov.au/internet/msac/publishing.nsf/Content/0012r-public).

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