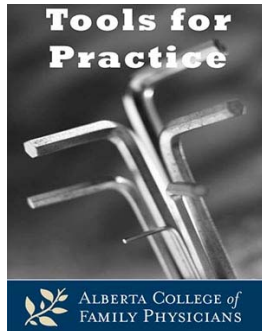


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## Vitamin B12 Deficiency: Monthly shots or daily pills?

### Clinical Question:

**In patients with Vitamin B12 deficiency, is oral Vitamin B12 as effective as intramuscular (IM) Vitamin B12?**

### Evidence

A Cochrane Review<sup>1</sup> summarizes the 2 randomized control trials<sup>2,3</sup> (RCT) which address this question in B12 deficient patients:

- The first study<sup>2</sup> randomized 38 outpatients to daily oral B12 at 2000 mcg/day or IM B12 1000mcg at days 1, 3, 7, 10, 14, 21, 30, 60, 90.
- The second study<sup>3</sup> randomized 70 patients to 1000 mcg B12 oral or IM: daily for 10 days, then weekly for one month and then monthly for three months.
- Over the 3-4 month follow-up, both trials showed oral B12 as effective as IM therapy<sup>1</sup> in:
  - B12 levels and associated biochemical B12 markers (total homocysteine and serum methylmalonic acid)
  - Hematological and neurological responses.
- Both trials had important limitations: small, short, unblinded and lack of intention to treat analysis.

### Context

- 5-20% of elderly patients are B12 deficient<sup>4</sup>
  - The majority of Canadian physicians use IM B12 in treating deficiency<sup>5</sup>
- Switching from IM to oral B12 would reduce health care costs as well as the discomfort and inconvenience of intramuscular injections<sup>6</sup>
- Dosing recommendation based on the RCTs trials is difficult as they used different oral doses<sup>2,3</sup>
- However, a well-designed and longer (18 months) cohort study of 50 patients with B12 deficiency showed that 1000mcg orally a day was effective<sup>7</sup>
  - A recent review also recommends 1000 mcg orally a day<sup>8</sup>
- Oral B12 appears effective over a range of causes of B12 deficiency (dietary, pernicious anemia, gastric or ileal surgery, malabsorption syndromes) studied<sup>2,3,7</sup>
  - Celiac disease and Inflammatory Bowel Disease are not well studied.

- Due to limits in the evidence, patients switched to oral should likely have their B12 levels checked to confirm they are not declining.<sup>9</sup>

**Bottom-line: Oral Vitamin B12 is as effective as IM in most B12 deficient patients. A dose of 1000mcg (1mg) orally a day appears to be adequate and most commonly recommended.**

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**Tools for Practice** is a biweekly article summarizing medical evidence with a focus on topical issues and practice modifying information. It is coordinated by G. Michael Allan, MD, CCFP and the content is written by practising family physicians. Archived articles are available on the Towards Optimized Practice and ACFP websites.

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