through the use of complementary medical therapies.\(^2^3\)

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No potential conflict of interest relevant to this letter was reported.


THE AUTHORS REPLY: We disagree with Kagouridis. The history as relayed by the patient was that she failed to improve with two different combination products; although not stated in the article, it is reasonable to assume, given the quality of her care otherwise, that these trials were a fair test of therapeutic efficacy. After all, patients want to get better and usually report subjective improvement even when improvement in lung function is hard to document. Since asthma treatment is for symptom relief, to continue to treat a patient with a medication that she finds ineffective is to ignore the obvious. Even though guidelines recommend combination therapy with inhaled glucocorticoids and LABAs, this combination does not work for everyone; they did not work for our patient, so we needed to explore other treatments.

O’Sullivan and colleagues raise a good point. Whenever we see patients with asthma, we ask them to demonstrate their inhaler technique; dressing them in order to achieve a full therapeutic response. Before we can recommend other specific treatments, such as lifestyle coaching, massage, or body–mind stress-management techniques, we would want to be convinced on the basis of adequately powered and controlled trials that there was strong evidence in favor of their therapeutic benefit.

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Since publication of their article, the authors report no further potential conflict of interest.

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Spurious Elevations of Vitamin B\(_{12}\) with Pernicious Anemia

**TO THE EDITOR:** Within a 3-week period, two women, 46 and 48 years of age, presented with peripheral neuropathy and associated pancytopenia with macrocytic anemia. Clinical suspicion for pernicious anemia was high, but vitamin B\(_{12}\) levels were 1644 pg per milliliter (1228 pmol per liter) and 1321 pg per milliliter (975 pmol per liter), respectively (reference range, 246 to 1320 pg per milliliter [181 to 974 pmol per liter]). On subsequent bone-marrow evaluation, specimens from both patients showed profound megaloblastic features. Additional findings on laboratory tests included elevated levels of homocysteine and methylmalonic acid combined with detection of intrinsic factor–blocking antibodies and antiparietal-cell antibodies, which further supported the diagnosis of pernicious anemia. In both patients the blood counts responded to treatment.
with vitamin B\textsubscript{12}, but both continue to have symptoms of peripheral neuropathy.

There have been reports of false normal results for vitamin B\textsubscript{12} levels generated by automated analyzers when the serum of patients with megaloblastic anemia is evaluated. The results have been attributed to the possibility that high levels of intrinsic factor–blocking antibodies interfere with the assay.\textsuperscript{1,2} Today, vitamin B\textsubscript{12} assays are primarily performed on automated analyzers that apply a method based on the competitive binding of serum vitamin B\textsubscript{12} with reagent intrinsic factor. Many of these platforms have also been found to be inaccurate when serum containing intrinsic factor–blocking antibodies is analyzed.\textsuperscript{2} Disconcertingly, pernicious anemia is the most common cause of vitamin B\textsubscript{12} deficiency, and up to 70% of patients with pernicious anemia have intrinsic factor–blocking antibodies.\textsuperscript{3}

To investigate further, we precipitated serum immunoglobulins by adding 25% polyethylene glycol (PEG) by volume in a 1:1 dilution with serum. Using unmodified and PEG-treated samples of serum from the two patients and from three controls (patients without macrocytic anemia), we then ran tests for vitamin B\textsubscript{12} levels (Fig. 1). In the PEG-treated samples from the two patients, vitamin B\textsubscript{12} levels decreased to below the limit of detection; the PEG-treated samples from the controls showed a decrease compatible with the 1:1 dilution.

We have been performing vitamin B\textsubscript{12} assays on the Siemens Dimension Vista system at our institution. A review of the package insert shows that the manufacturers are aware of this issue and recommend testing for intrinsic factor–blocking antibodies if test results are in conflict with the clinical diagnosis. We are in the midst of evaluating other platforms for this assay and have notified our clinicians of the issues described. However, we are concerned that there is insufficient awareness in the medical community of the possibility of spuriously high vitamin B\textsubscript{12} levels; we urge pathologists to review their methods and clinicians to incorporate the information presented here into their diagnostic evaluations.

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Disclosure forms provided by the authors are available with the full text of this letter at NEJM.org.


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**A Noninvasive Test to Determine Paternity in Pregnancy**

**TO THE EDITOR:** Five percent of women who are raped become pregnant, which results in an estimated 32,000 pregnancies annually in the United States.\textsuperscript{1} In many circumstances, it is unclear whether the pregnancy resulted from the rape or from consensual intercourse. The only options available for prenatal paternity determination are invasive tests, such as the sampling of chorionic...