

## **Freedom of Information Request: Our Reference CTHB\_334\_17**

### **You asked:**

The latest Guidelines for Diagnosing and Treating Cobalamin and Folate Disorders point out that 'Definitive cut-off points to define clinical and subclinical deficiency states are not possible, given the variety of methodologies used and technical issues, and local reference ranges should be established'.

We are compiling a chart that will show the variation in the threshold figures used by different laboratories to determine a Serum B12 Deficiency and, with this in mind,

**I would be most grateful if you would let me know at what value your laboratory uses to define a patient as being deficient in vitamin B12. It would be useful if that figure was given as pmol/l?**

Please be aware that this information will help us to understand the issues with patients receiving a timely diagnosis of having Pernicious Anaemia (33% of members of this society waited over five years for a diagnosis) and hopefully correct this problem.

### **Our response:**

The diagnosis of vitamin B12 deficiency is more complex than a simple definition based on serum levels. It requires the review of biochemical and haematological data as well as clinical presentation. As such, it is not defined by serum levels alone. The lower limit of normal at Cwm Taf University Health Board (UHB) is 132.8 pmol/l, however it is important to state that this does not define deficiency.

The laboratory reports values with appropriate advisory comments as follows:

- <73.8 pmol/L: low B12, deficiency very likely, treat as necessary.
- 73.9 – 110.7 pmol/L: Low B12, deficiency possible, treat if clinically appropriate otherwise repeat after 2 to 6 months and review.
- 110.8 – 162.3 pmol/L: Intermediate B12 level, consider treatment if other evidence of deficiency, eg neuropathy or macrocytosis.

(Further comments are reported at higher levels as appropriate).

In summary, Cwm Taf UHB does not define vitamin B12 deficiency based on a specific value, but reports results with appropriate advisory comments. Vitamin B12 results are interpreted in context with haematological and biochemical results, and the clinical scenario. The final diagnosis is made based on a combination of data from laboratory parameters and clinical presentation.