

**NATIONAL INSTITUTE FOR HEALTH AND CARE  
EXCELLENCE**

**Guideline scope**

**Vitamin B12 deficiency, including  
pernicious anaemia: diagnosis and  
management**

October 2022: This scope has been amended. The guideline will no longer cover children and young people due to a lack of available data in this population.

NHS England has asked NICE to develop a guideline on pernicious anaemia.

The guideline will be developed using the methods and processes outlined in [developing NICE guidelines: the manual](#).

**1 Why the guideline is needed**

Vitamin B12 deficiencies occur when there is not enough dietary intake or because not enough vitamin B12 is absorbed from the gastrointestinal tract (for example, because of pernicious anaemia). Vitamin B12 deficiency can lead to a wide range of symptoms and complications, including neurological complications.

Vitamin B12 deficiency is more common in older people. It is thought to affect around 5% of people aged between 65 and 74 years and more than 10% of people aged 75 and over.

**Current practice**

Vitamin B12 deficiency is usually diagnosed and treated in primary care. A simple blood test for vitamin B12 deficiency is usually done when people present with non-specific complaints, such as tiredness, or when there are abnormal findings on other blood tests. Testing for vitamin B12 deficiency is also done when investigating anaemia, macrocytosis, and neuro-psychiatric or

FINAL

neuro-degenerative symptoms or signs. It is unclear which people should be tested for vitamin B12 deficiency and how often. Once vitamin B12 deficiency is detected, it is also uncertain which further investigations should be used to diagnose the cause.

Treatment for vitamin B12 deficiency depends on the cause but the main aim is to replace vitamin B12. The most common treatments are intramuscular injections given by a healthcare professional or oral tablets. It is uncertain how often injections are needed, or what the ideal dosage of medicine should be. Self-administered injections may be more cost effective than injections given by a healthcare professional, but it is unclear if this is suitable for all people with vitamin B12 deficiency. Follow-up of people having treatment for vitamin B12 deficiency also varies.

This guideline aims to improve the diagnosis and management of vitamin B12 deficiency, including pernicious anaemia, and reduce complications and improve quality of life for people with vitamin B12 deficiency.

## **2 Who the guideline is for**

This guideline is for:

- health and social care practitioners providing NHS-commissioned services
- commissioners of health and social care services
- people using services, their families and carers, and the public.

NICE guidelines cover health and care in England. Decisions on how they apply in other UK countries are made by ministers in the [Welsh Government](#), [Scottish Government](#) and [Northern Ireland Executive](#).

### **Equality considerations**

NICE has carried out an [equality impact assessment](#) during scoping. The assessment:

- lists equality issues identified, and how they have been addressed
- explains why any groups are excluded from the scope.

Vitamin B12 deficiency, including pernicious anaemia: NICE guideline final scope (November 2021)

The guideline will look at inequalities relating to age, disability, pregnancy and maternity, race, religion and belief, and sex.

### **3 What the guideline will cover**

#### **3.1 Who is the focus?**

##### **Groups that will be covered**

Adults with suspected and diagnosed vitamin B12 deficiency, including pernicious anaemia.

Specific consideration will be given to pregnant women with a vitamin B12 deficiency, including pernicious anaemia.

#### **3.2 Settings**

##### **Settings that will be covered**

All settings where NHS-funded care is provided or commissioned.

#### **3.3 Activities, services or aspects of care**

##### **Key areas that will be covered**

We will look at evidence in the areas below when developing the guideline, but it may not be possible to make recommendations in all the areas.

- 1 Information and support
  - for people with suspected or diagnosed vitamin B12 deficiency, including pernicious anaemia (and their families or carers).
- 2 Identifying and assessing people with suspected vitamin B12 deficiency
  - signs and symptoms
  - risk factors for vitamin B12 deficiency, such as comorbidities that increase the risk of vitamin B12 deficiency.
- 3 Diagnosing vitamin B12 deficiency
  - testing to diagnose vitamin B12 deficiency.
- 4 Identifying the causes of vitamin B12 deficiency

## FINAL

- testing for the cause of vitamin B12 deficiency, including pernicious anaemia.
- 5 Managing vitamin B12 deficiency, including pernicious anaemia
  - treatment options for vitamin B12 replacement.
- 6 Ongoing care and follow-up
  - Frequency and content of follow-up of people with vitamin B12 deficiency, including pernicious anaemia.
- 7 Monitoring for gastric cancer (the decision to include this area has been agreed with the National Screening Committee).

Note that guideline recommendations for medicines will normally fall within licensed indications; exceptionally, and only if clearly supported by evidence, use outside a licensed indication may be recommended. The guideline will assume that prescribers will use a medicine's summary of product characteristics to inform decisions made with individual patients.

### **Areas that will not be covered**

- Screening for vitamin B12 deficiency, including in newborn babies.
- Prevention of vitamin B12 deficiency.
- Managing general symptoms of vitamin B12 deficiency (such as fatigue).
- Blood transfusion.
- Investigating and managing complications related to vitamin B12 deficiency.

### **Related NICE guidance**

#### **Published**

- [Antenatal care](#) (2021) NICE guideline NG201
- [Suspected neurological conditions: recognition and referral](#) (2019) NICE guideline NG127
- [Non-alcoholic fatty liver disease \(NAFLD\): assessment and management](#) (2016) NICE guideline NG49
- [Blood transfusion](#) (2015) NICE guideline NG24

FINAL

- [Coeliac disease: recognition, assessment and management](#) (2015) NICE guideline NG20
- [Type 1 diabetes in adults: diagnosis and management](#) (2015, updated 2021) NICE guideline NG17
- [Suspected cancer: recognition and referral](#) (2015, updated 2021) NICE guideline NG12
- [Active B12 assay for diagnosing vitamin B12 deficiency](#) (2015) NICE medtech innovation briefing MIB40
- [Maternal and child nutrition](#) (2008, updated 2014) NICE guideline PH11

### **In development**

- [Maternal and child nutrition \(update\)](#). NICE guideline. Publication expected November 2023

### **NICE publications that will be updated by this guideline**

- Active B12 assay for diagnosing vitamin B12 deficiency (2015) NICE medtech innovation briefing MIB40

### **NICE guidance about the experience of people using NHS services**

NICE has produced the following guidance on the experience of people using the NHS. This guideline will not include additional recommendations on these topics unless there are specific issues related to vitamin B12 deficiency and pernicious anaemia:

- [Shared decision making](#) (2021) NICE guideline NG197
- [Decision-making and mental capacity](#) (2018) NICE guideline NG108
- [Medicines optimisation](#) (2015) NICE guideline NG5
- [Patient experience in adult NHS services](#) (2012) NICE guideline CG138
- [Service user experience in adult mental health](#) (2011) NICE guideline CG136
- [Medicines adherence](#) (2009) NICE guideline CG76

### **3.4 Economic aspects**

We will take economic aspects into account when making recommendations. We will develop an economic plan that states for each review question (or key area in the scope) whether economic considerations are relevant, and if so whether this is an area that should be prioritised for economic modelling and analysis. We will review the economic evidence and carry out economic analyses, using an NHS and personal social services (PSS) perspective, as appropriate.

### **3.5 Key issues and draft questions**

While writing this scope, we have identified the following key issues and draft questions related to them:

- 1 Information and support for people with vitamin B12 deficiency, including pernicious anaemia, and their families or carers
  - 1.1 What information and support is needed by people with suspected or confirmed vitamin B12 deficiency caused by a lack of vitamin B12 in their diet, and their families or carers?
  - 1.2 What information and support is needed by people with suspected or confirmed vitamin B12 deficiency caused by inadequate absorption of vitamin B12 (including pernicious anaemia), and their families or carers, and when should this be provided?
- 2 Initial identification and assessment of people with suspected vitamin B12 deficiency
  - 2.1 When should vitamin B12 deficiency be suspected (for example, based on signs or symptoms, risk factors, comorbidities, or abnormal findings on a full blood count)?
- 3 Diagnosing vitamin B12 deficiency
  - 3.1 What is the diagnostic accuracy of individual tests (including the serum cobalamin assay and holotranscobalamin, methylmalonic

acid and homocysteine tests) for diagnosing vitamin B12 deficiency?

3.2 What are the most clinically and cost-effective ways to diagnose vitamin B12 deficiency, including the serum cobalamin assay and holotranscobalamin, methylmalonic acid and homocysteine tests?

4 Identifying the cause of vitamin B12 deficiency, including pernicious anaemia

4.1 What is the diagnostic accuracy of individual tests and investigations (including tests for serum intrinsic factor antibody and gastric parietal cell antibody, and gastroscopy and colonoscopy) for identifying the cause of vitamin B12 deficiency, including pernicious anaemia?

4.2 What is the clinical and cost effectiveness of tests and investigations (including tests for serum intrinsic factor antibody and gastric parietal cell antibody, and gastroscopy and colonoscopy) for identifying the cause of vitamin B12 deficiency and pernicious anaemia?

5 Managing vitamin B12 deficiency, including pernicious anaemia

5.1 What is the clinical and cost effectiveness of vitamin B12 replacement, including the dose, frequency and route of administration?

5.2 What is the clinical and cost effectiveness of self-administration compared with healthcare professional administration of parenteral vitamin B12 replacement?

6 Ongoing care and follow-up

6.1 What is the optimal frequency of follow-up for people with vitamin B12 deficiency, including pernicious anaemia?

6.2 What should be included in a follow-up review for people with vitamin B12 deficiency, including pernicious anaemia?

7 Monitoring for gastric cancer (the decision to include this area has been agreed with the National Screening Committee)

7.1 What monitoring should be offered to people with pernicious anaemia to identify gastric cancer?

### **3.6 Main outcomes**

The main outcomes that may be considered when searching for and assessing the evidence are:

- quality of life
- patient-reported outcomes
- complications and adverse events
- adherence to treatment.

## **4 NICE Pathways**

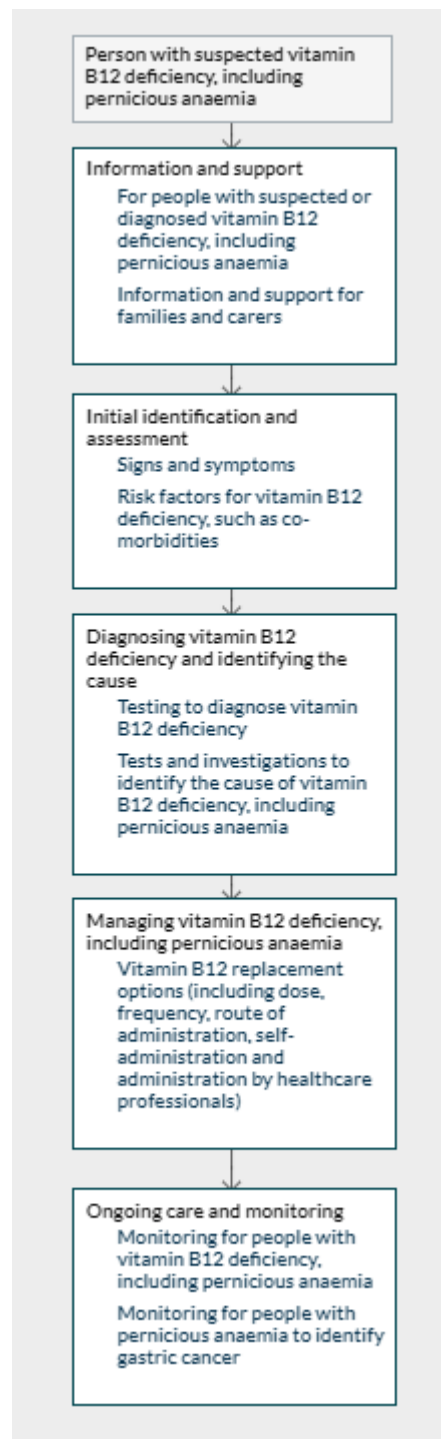
### **4.1 NICE Pathways**

[NICE Pathways](#) bring together everything we have said on a topic in an interactive flowchart. When this guideline is published, the recommendations will be included in the NICE Pathway (in development).

Other relevant guidance and advice will also be added.

An outline based on this scope is included below. It will be adapted and more detail added as the recommendations are written during guideline development. Links will be added to relevant NICE Pathways.





## 5 Further information

This is the final scope, which takes into account comments from registered stakeholders during consultation.

The guideline is expected to be published in November 2023.

You can follow progress of the [guideline](#).

Our website has information about how [NICE guidelines](#) are developed.

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