

## DERBYSHIRE JOINT AREA PRESCRIBING COMMITTEE (JAPC)

### Monitoring and Medication after Bariatric Surgery

#### Key messages

- Long-term nutritional monitoring and follow-up are essential components of all bariatric surgical services. Patients will be required to stay on lifelong nutritional supplements and have lifelong monitoring of their nutritional status after surgery.
- Currently there is no national agreement on biochemical monitoring and replacement of essential micronutrients post bariatric surgery. JAPC has aligned recommendations in line with Sheffield Teaching Hospitals.
- DDICB do not commission maintenance or preventative vitamin supplementation (as per local self-care policy). Patients are encouraged to purchase vitamin supplementation lifelong as advised by the bariatric services. However, clinicians can prescribe for the treatment of a medically diagnosed deficiency. Any nutritional deficiency prior to bariatric surgery should be assessed and treated by bariatric services.
- Following bariatric surgery, patients are recommended to purchase over the counter (OTC) 'complete' multivitamins to take lifelong.
- Following gastric bypass & sleeve gastrectomy - Hydroxocobalamin (Vitamin B12) intramuscular injection 1mg every 3 month is recommended and should be continued and prescribed lifelong.
- **For the first two years after surgery, patients are actively supervised and supported by bariatric service follow-ups** (see appendix 2 specialist responsibilities) with some monitoring being carried out in primary care.
- **After discharge from the bariatric service GPs will continue to monitor annually according to discharge care plan provided.**
- It is important to check compliance with OTC multivitamin as part of the annual monitoring.
- Factors to consider when prescribing for a patient after bariatric surgery include the type of surgery, drug considerations such as formulations and altered pharmacokinetics, and patient choice. See [PrescQIPP](#) and [SPS](#) resources.
- If any medicines are required in liquid form post bariatric surgery, these should be provided by the hospital and should be switched to the standard formulation at the time solid food can be tolerated or up to 6 weeks post-surgery.

#### Types of bariatric surgery

The term 'bariatric surgery' covers three main procedures:

- Adjustable gastric bands (AGB)
- Sleeve gastrectomy (SG)
- Roux-en-Y gastric bypass (GBP)

## 1. Nutritional supplement

After all types of bariatric surgeries, patients will be recommended to self-care and purchase over the counter ‘complete’ multivitamins to take lifelong.

- These can be purchased over the counter from pharmacies, supermarkets, or local health stores.
- For bypass and sleeve gastrectomy, supplements should contain a minimum of 2mg copper/day however, most over the counter products such as Sanatogen A-Z contain only 1mg of copper, so two tablets per day will be needed<sup>2</sup>.
- Sheffield Teaching Hospitals (STH) advises patients to take two OTC multivitamins daily following gastric bypass & sleeve gastrectomy; and one daily following adjustable gastric band.

Following gastric bypass & sleeve gastrectomy – Hydroxocobalamin (Vitamin B<sub>12</sub>) intramuscular injection 1mg every 3 month is recommended and should be continued and prescribed lifelong.

Following gastric bypass & sleeve gastrectomy- patients may require over the counter iron and calcium/vitamin D supplement as per specialist advice.

## 2. Monitoring requirements

The bariatric surgery service will continue to follow up patients for 24 months post-op. NICE clinical guideline 189 recommends that after discharge from bariatric surgery service follow-up, all people are offered at least **annual monitoring** of nutritional status and appropriate supplementation according to need following bariatric surgery<sup>3</sup>

**It is important to check compliance with OTC multivitamin as part of the annual monitoring.**

GPs will be advised by the bariatric surgery service about which blood tests need to be done annually, usually as per BOMSS GP guidance<sup>1</sup> for the management of nutrition following bariatric surgery (see table 1).

In addition to below GP may be requested to carry out annual vitamin B<sub>12</sub>, Glucose/HbA1c, thyroid function test, lipid profile, Zinc/Copper/Selenium monitoring as standard.

Pregnant women, following bariatric surgery, should undergo nutritional screening during each trimester. This should include ferritin, folate, vitamin B12, calcium, vitamin D, vitamin A.

Adolescents who have undergone bariatric surgery should be monitored for dietary adherence and nutritional assessment on a regular basis due to changes in body composition, growth and sexual development.

Table 1: Annual monitoring requirements<sup>1</sup>

Blood test	Gastric bands	Sleeve gastrectomy	Roux-en-Y Gastric bypass
U&E, renal function	Yes	Yes	Yes
Liver function test	Yes	Yes	Yes
Full blood count	Yes	Yes	Yes
Ferritin	Yes	Yes	Yes
Folate	Yes	Yes	Yes
Vitamin B12	No	Yes unless patient is having 3 monthly IM hydroxocobalamin	
Calcium	Yes	Yes	Yes
Vitamin D	Yes	Yes	Yes
Parathyroid hormone	Yes	Yes	Yes
Vitamin A	No	No	Measure if concerns regarding steatorrhoea or symptoms of deficiency eg. Night blindness
Zinc, copper	No	Yes	

		Also when concerns eg. Unexplained anaemia, hair loss, pica, neutropaenia	
<b>Selenium</b>	No	Check levels if there is chronic diarrhoea, metabolic bone disease, unexplained anaemia or unexplained cardiomyopathy	Yes and if there is chronic diarrhoea, metabolic bone disease, unexplained anaemia or unexplained cardiomyopathy
<b>HbA1c</b>	Monitor as appropriate in patients with preoperative diabetes		
<b>Lipid profile</b>	Monitor in those with dyslipidaemia		

### 3. Treatment for nutritional deficiency

Any nutritional deficiency prior to bariatric surgery should be assessed and treated by bariatric services. This section outline the standard treatment recommended when deficiencies are detected in post bariatric surgery blood monitoring.

**It is essential to ensure that patient is taking appropriate OTC multivitamin supplement.**

Appropriate dietary advice should always be given as first line alongside treatment/ supplementation of nutritional deficiency – see also NHS Choices [website](#) 'Vitamins and minerals'.

For maintenance treatment (following treatment for deficiency) patients should purchase over the counter (OTC) supplement.

Table 2 – treatment recommended following detection of **deficiency** (local formularies apply)

<b>Ferritin</b>	Advise to eat iron-rich foods alongside foods high in vitamin C. See local formulary. Continue for 3 months after deficiency corrected.
<b>Calcium</b>	Encourage dietary sources of calcium. See local formulary
<b>Vitamin D</b>	See local formulary. Maintenance dose should be continued and purchased OTC. For vitamin D insufficiency encourage self-care with OTC vitamin D. <a href="#">JAPC positional statement</a>
<b>Folate</b>	Encourage folate rich foods or self-care with OTC folic acid 400 microgram daily If plans to conceive prescribe 5mg daily
<b>Zinc/ copper</b>	Re-test if it is minimally low; if replacement is needed Forceval 2 daily or additional A-Z multivitamin as per specialist advice.
<b>Selenium</b>	2-3 Brazil nuts per day or OTC supplement (eg. Selenium ACE)

If any nutritional blood results are abnormal, screen for others should also be considered, and the patient likely to require a dietary assessment together with advice regarding additional/alternative nutritional supplement. Patients with micronutrient deficiencies following a gastric bypass or sleeve gastrectomy are likely to require supplementation lifelong. If deficiency continues despite compliance with additional recommended supplementation refer to bariatric dietician.

### 4. Other prescribed medicines

Short courses of post-operative treatments eg. analgesia will be provided in full by the hospital pharmacy. GPs may be asked to continue medications initiated post bariatric surgery for specified length of time. Follow discharge instructions.

<b>Derby</b>	<b>Sheffield</b>
Omeprazole 20mg capsules daily (or patient's usual PPI if already on) for 12 months. Only for 6 weeks postop following adjustable gastric band.  Ursodeoxycholic acid 500mg tablets twice daily for 6 months following sleeve gastrectomy and gastric bypass.	Lansoprazole capsules for 3 months post-surgery (fastab form usually only needed for 4 weeks)

## 5. Impact of bariatric surgery on medicines

As part of the medicines optimisation process post-surgery, it is important to consider how bariatric surgery can affect the medicines a patient is taking and also the effects of that particular medicine on the patient.

Factors to consider when prescribing for a patient after bariatric surgery include the type of surgery, drug considerations such as formulations and altered pharmacokinetics, and patient choice. e.g. effervescent preparations should be avoided as the build-up of gas trapped in the pouch can be uncomfortable for the patient. The type of surgery the patient has received should be clearly recorded in their medical notes.

Clinicians should consider impact of bariatric surgery on conditions which may be affected by malabsorption of nutrients e.g. increased risk of osteoporosis; and carefully consider medicines use e.g. avoid bisphosphonate where possible due to increased risk of GI adverse effects.

[PrescQIPP](#) and [SPS](#) have both produced useful resources see links.

### Liquid formulations

Avoid using costly, unlicensed, 'special' liquids where possible. See local [specials and expensive liquids guideline](#)

Derby	Sheffield
Patients will <b>not</b> routinely be asked to change their medication from tablet to liquid form either before or after surgery.  <b>If any medicines are required in liquid form these will be supplied by the hospital and should be switched to the standard formulation at the time solid food can be tolerated or at 6 weeks post-surgery.</b>	Where possible, tablets should be changed to a liquid/ dissolvable/ crushable form prior to admission to hospital.  This is only usually required for 4-6 weeks post-surgery.

## 6. Further information

Derby- The East-Midlands Bariatric & Metabolic Institute (EMBMI)

<https://www.uhdb.nhs.uk/service-bariatric-surgery-weight-loss>

Discuss with bariatric service if patient is pregnant or there are any concerns about surgery or nutritional status as a result of surgery.

Sheffield Teaching Hospital Bariatric surgery <http://www.sth.nhs.uk/services/a-z-of-services?id=239>

Includes [patient information](#), [referrals](#), and [resource for health care professionals](#).

Bariatric Dietitian on 0114 226 9083 Clinical Nurse Specialist on 0114 226 9083

### Reference

1. British Obesity and Metabolic Surgery Society Guidelines on perioperative and postoperative biochemical monitoring and micronutrient replacement for patients undergoing bariatric surgery—2020 update <https://onlinelibrary.wiley.com/doi/full/10.1111/obr.13087> (accessed August 2022)
2. BMJ 2016; 352:i945 – Primary care management of patients after weight loss surgery (Published 10 March 2016)
3. NICE Obesity: identification, assessment and management of overweight and obesity in children, young people and adults; <http://www.nice.org.uk/guidance/cg189/chapter/1-recommendations> (accessed March 2015, August 2022)
4. PrescQIPP Bariatric surgery patients and their medicines including alternative formulations and nutritional supplements (August 2019) <https://www.prescqipp.info/our-resources/bulletins/bulletin-224-bariatric-surgery/> (accessed August 2022)
5. SPS Factors to consider when using medicines following bariatric surgery (gastric bypass). <https://www.sps.nhs.uk/articles/factors-to-consider-when-using-medicines-following-bariatric-surgery-gastric-bypass/> (accessed August 2022)

**Reviewed by Derbyshire Medicines Management Shared Care & Guideline Group in consultation with**

Drug and therapeutic committee, UHDBFT

Bariatric Services Sheffield Teaching Hospital

The Derbyshire Medicines Management Shared Care & Guideline Group

Monitoring and Medication after Bariatric Surgery

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## Appendix 1

### Impact of surgery on absorption

<b>Gastric band</b> 	<b>Sleeve gastrectomy</b> 	<b>Roux-en-Y Gastric bypass (RYGB)</b> 
No impact on absorption of nutrients, but patients may experience vomiting or regurgitation and develop food intolerances.	Iron, calcium, vitamin D, vitamin B12, zinc, copper, selenium, vitamin A absorption may be affected.	Iron, calcium, vitamin D, vitamin B12, zinc, copper, selenium, vitamin A absorption may be affected.

Duodenal switch- Iron, calcium, vitamin D, vitamin B12, protein, fat, fat soluble vitamins A, E and K, zinc, copper and selenium absorption are affected.

Source [PrescQIPP Bulletin 224 \(2019\): Bariatric surgery](https://www.prescqipp.info/our-resources/bulletins/bulletin-224-bariatric-surgery/) <https://www.prescqipp.info/our-resources/bulletins/bulletin-224-bariatric-surgery/>

## Appendix 2

### Bariatric service follow-up as per recommended in NICE CG189 Obesity [2014]

Offer people who have had bariatric surgery a follow-up care package for a minimum of 2 years within the bariatric service. This should include:

- monitoring nutritional intake (including protein and vitamins) and mineral deficiencies
- monitoring for comorbidities
- medication review
- dietary and nutritional assessment, advice and support
- physical activity advice and support
- psychological support tailored to the individual
- information about professionally-led or peer-support groups.

After discharge from bariatric surgery service follow-up, ensure that all people are offered at least annual monitoring of nutritional status and appropriate supplementation according to need following bariatric surgery, as part of a shared care model of chronic disease management.