



Ten top tips for the management of patients post bariatric surgery in primary care

Obesity is recognised as a major health and economic issue for the NHS. The rate of severe obesity with BMI >40 is increasing rapidly and these patients have a disproportionate increase in health and social care needs. NICE recognises bariatric surgery as an appropriate and cost-effective treatment for this group of patients and the number of surgical procedures is likely to increase. With a lack of commissioned local Tier 3 weight management services many of these patients may be lost to follow-up and be at risk of nutritional deficiencies and metabolic complications. The RCGP Nutrition Group has developed these guidelines in response to this problem.

Patients who have had their procedure carried out under the NHS have follow up within specialist services for the first 1-2 years post surgery. These guidelines are aimed at all non-specialist clinicians, dietitians and nurses to aid management of these patients once they are discharged back to primary care and aid management of any patients where follow up guidance by the surgical team was not issued. Please note that patients who have moved area or who undergo a private procedure are likely to have had less specialist follow up and may need to be managed in primary care earlier post procedure.

Any new concerns should always trigger referral to a Tier 3 weight management service (if available) or the local bariatric surgical team for further advice.

Ten top tips – brief summary

1. Keep a register of bariatric surgery patients and record the type of procedure in the register. Please note that follow up varies according to the type of surgery.
2. Encourage patients to check their own weight regularly and to attend an annual BMI and diet review with a health professional.
3. Symptoms of continuous vomiting, dysphagia, intestinal obstruction (gastric bypass) or severe abdominal pain require emergency admission under the local surgical team.
4. Continue to review co-morbidities post surgery such as diabetes mellitus, hypertension, hypercholesterolaemia and sleep apnoea, as well as mental health.

5. Review the patient's regular medications. The formulations may need adjusting post-surgery to allow for changes in bio-availability post surgery.
6. Bariatric surgery patients require lifelong annual monitoring blood tests, including micronutrients. Encourage patients to attend for their annual blood tests.
7. Be aware of potential nutritional deficiencies that may occur and their signs and symptoms. In particular, patients are at risk from anaemia and vitamin D deficiency, as well as protein malnutrition and other vitamin and micronutrient deficiencies. If a patient is deficient in one nutrient, then screen for other deficiencies too.
8. Ensure the patient is taking the appropriate lifelong nutritional supplements required post surgery as recommended by the bariatric centre. Ensure guidance regarding vitamin supplementation has been issued by the bariatric surgery team. Request a copy for the patient's GP records if this has not been included in the discharge information.
9. Discuss contraception – ideally pregnancy should be avoided for at least 12-18 months post surgery.
10. If a patient should plan or wish to become pregnant after bariatric surgery, alter their nutritional supplements to one suitable during pregnancy. Inform the local bariatric unit of patient's pregnancy and the obstetric team of the patient's history of bariatric surgery.

Ten top tips – longer summary

1. **Keep a register of bariatric surgery patients.** It is important to record the type of procedure in the register as different procedures have different risks regarding nutritional deficiencies, e.g. malabsorptive procedures such as gastric bypass have a higher risk and require more extensive monitoring. This is also important information to include when liaising with specialist services.
2. **Encourage patients to check their own weight regularly and to attend an annual BMI and diet review with a health professional.** Do not assume all patients are eating a "well-balanced diet"; some patients may have maladaptive eating patterns and poor nutritional intake. If BMI is increasing consider referral to local weight management services to support and encourage lifelong weight maintenance.
3. **Symptoms of continuous vomiting, dysphagia, intestinal obstruction (gastric bypass) or severe abdominal pain** require emergency admission under the local surgical team. Please see "Primary care management of post operative bariatric

patients” on the British Obesity and Metabolic Surgery Society (BOMSS) management guidance web pages for further details of both urgent and routine indications for referral back to specialist services.

4. Continue to review co-morbidities post surgery such as diabetes mellitus, hypertension, hypercholesterolaemia and sleep apnoea as well as mental health.

- a. Medications will need to be titrated in the post operative period as weight loss occurs.
- b. Diabetic patients should continue to have routine diabetes follow-up even if their diabetes is in remission (i.e. be kept on QOF diabetes register).
- c. Despite weight loss, cardiovascular and metabolic risk factors need to continue to be monitored (such as blood pressure and cholesterol levels) and treatments will need to be adjusted as required.
- d. Patients on CPAP should continue to use their machines until they have had a repeat sleep study performed post surgery.
- e. Be aware that there is a higher rate of mental health problems in patients with severe and complex obesity. This may persist even after successful bariatric surgery and their mental health should be reviewed regularly.

5. Review the patient’s regular medications. The formulations may need adjusting post-surgery to allow for in bio-availability post surgery. This is particularly relevant to gastric bypass and changes duodenal switch patients. Other considerations include the following:

- a. Review co-morbidity medications post surgery, such as anti-hypertensives, diabetes medications, etc. Requirements are likely to fall with post-operative weight loss, but may increase later if weight loss is not maintained.
- b. Use diuretics with caution due to the increased risk of hypokalaemia.
- c. Replace extended release formulations with immediate release formulations.
- d. Avoid NSAIDS, if no alternative use only with PPI.
- e. Avoid bisphosphonates.
- f. Consider pill size – patients may need liquid formulations or syrups in the short term in the immediate post-operative period. However, usual medication formulations should be tolerated by around 6 weeks post-op.
- g. Monitor anticoagulants carefully.
- h. Psychiatric medications may need increased or divided doses.

- i. Avoid effervescent medications for patients with gastric bands.

6. Bariatric surgery patients require lifelong annual monitoring blood tests, including micronutrients. Encourage patients to attend their annual blood tests. Depending on your practice computer system, use patient record reminders to prompt that annual blood testing is required. An annual audit of patient monitoring is recommended to ensure correct follow up is being given. The recommended tests are listed below:

Blood tests	Surgical procedure		
	Gastric bypass	Sleeve Gastrectomy	Duodenal switch
Liver function tests	Yes	Yes	Yes
Full Blood Count	Yes	Yes	Yes
Ferritin	Yes	Yes	Yes
Folate	Yes	Yes	Yes
Vitamin B12	Yes *	Yes *	Yes *
Calcium	Yes	Yes	Yes
Vitamin D	Yes	Yes	Yes
Parathyroid hormone	Yes	Yes	Yes
Vitamin A	Possibly **	No	Yes
Zinc, copper	Yes	Possibly ***	Yes
Selenium	No ***	No ***	No ***

* If patient is having three monthly intramuscular injections of vitamin B12, there may be no need for annual checks.

**If the patient has a long limbed bypass, symptoms of steatorrhoea or night blindness.

***Measure when concerns (see below).

Gastric band patients require annual FBC, U&Es and LFTs, but appropriate tests should be carried out earlier if there are any concerns regarding the band.

- 7. Be aware of potential nutritional deficiencies that may occur and their signs and symptoms.** Liaise with the local specialist bariatric unit regarding any deficiencies and their treatment. In particular, patients are at risk from anaemia and vitamin D deficiency as well as protein malnutrition and other vitamin and micronutrient deficiencies. If a patient is deficient in one nutrient they are likely to be deficient in others as well so it is advised to screen for other deficiencies. Clinicians should be aware of the following potential nutritional deficiencies:
- a. **Protein malnutrition** – oedema, this may present several years post surgery, these patients need urgent referral back to the bariatric team.
 - b. **Anaemia** – iron, folate and vitamin B12 deficiencies are all possible, but rule out and investigate other potential causes such as blood loss. Less common causes such as zinc, copper and selenium deficiencies are a potential cause of unexplained anaemia. Some patients may need parenteral iron or blood transfusions if oral iron does not correct the deficiency.
 - c. **Calcium and vitamin D deficiency** – This may result in secondary hyperparathyroidism. It is recommended that vitamin D should be replaced as per National Osteoporosis Society guidance.
 - d. **Vitamin A deficiency** – suspect in patients with changes in night vision. Patients with steatorrhoea or those who have had a duodenal switch are at high risk.
 - e. **Zinc, copper and selenium** – unexplained anaemia, poor wound healing, hair loss, neutropenia, peripheral neuropathy and cardiomyopathy are potential symptoms. Ask about over the counter supplements and liaise with bariatric unit as zinc supplements can induce copper deficiency and vice versa.
 - f. **Thiamine deficiency** – suspect in patients with poor intake, persistent regurgitation or vomiting. This may be caused by anastomatic stricture in the early postoperative phase, food intolerances or an over tight band. Start thiamine supplementation immediately and refer urgently to the local bariatric unit as these patients are at risk of Wernicke’s encephalopathy. Do not give sugary drinks as this may precipitate Wernicke’s encephalopathy.
- 8. Ensure the patient is taking the appropriate lifelong nutritional supplements required post surgery as recommended by the bariatric centre.** Patients will need lifelong supplements and guidance should have been given by the bariatric unit on discharge as the supplementation required depends on both the procedure and the patient’s individual requirements. Examples of the usual minimal supplements are listed below for each type of procedure (more details can be found in “GP Guidance for the Management of Nutrition following Bariatric Surgery” on the BOMSS management guidance web pages). However, we would advise always liaising with the bariatric unit in the first instance if guidance on supplements has not been given on discharge.

a. Gastric band

Although no supplements should be needed for this group of patient, it is still recommended that they take a comprehensive multivitamin and mineral supplement once a day, such as Sanatogen A to Z or Forceval.

b. Gastric bypass

- i. multivitamin and mineral (i.e. any over the counter comprehensive multivitamin preparation, one to be taken twice a day or Forceval, one to be taken once a day)
- ii. 3 monthly vitamin B12 injections
- iii. calcium and vitamin D (i.e. Adcal D3 Forte, Calceos or Calcichew D3 Forte) plus additional vitamin D as required
- iv. iron (start at 200mg od and monitor as may need to increase dose), especially for women of menstruating age.

c. Sleeve gastrectomy

- i. multivitamin and mineral (i.e. any over the counter comprehensive multivitamin preparation, one to be taken twice a day or Forceval, one to be taken once a day)
- ii. 3 monthly vitamin B12 injections if low B12 levels at 12 months
- iii. calcium and vitamin D (i.e. Adcal D3 Forte, Calceos or Calcichew D3 Forte) plus additional vitamin D as required
- iv. possibly iron especially for women of menstruating age (dose as above).

d. Duodenal switch

As for gastric bypass, but additional fat soluble vitamins (A, D, E and K) also needed as well as possibly zinc and copper supplementation. Liaise with specialist local services for advice regarding these supplements.

9. Discuss contraception. Ideally pregnancy should be avoided for at least 12-18 months post surgery. A long acting reversible contraceptive of the patient's choice would be appropriate. Oral contraception and Depo-Provera are not recommended, due to issues with absorption and weight gain, respectively.

10. If a patient should plan or wish to become pregnant after bariatric surgery alter their nutritional supplements to one suitable during pregnancy. Additional monitoring and supplementation may be required. Inform the local bariatric unit (ideally prior to conception) so that the patient can be reviewed by a bariatric dietitian. In addition, gastric

band patients may need their band adjusting on becoming pregnant to allow good nutritional intake and foetal growth. Also inform the obstetric team of patient's history of bariatric surgery as soon as possible due to a higher rate of first trimester miscarriages in this cohort of patients. Recommended changes before and during pregnancy are:

- a. Change forceval to a supplement appropriate in pregnancy such as Pregnacare or Boots Pregnancy Support.
- b. If a PPI is needed, omeprazole is recommended.
- c. Continue vitamin D supplementation as indicated by vitamin D levels and as per National Osteoporosis Society guidance.
- d. Continue vitamin B12 injections in those currently receiving injections or monitor vitamin B12 levels for those not receiving vitamin B12 injections (for sleeve gastrectomy patients).
- e. Iron 200mg od is recommended.
- f. Folic acid 5mg od is recommended.

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