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MARSIPAN: Management of Really Sick Patients with Anorexia Nervosa

2nd edition

COLLEGE REPORT

Organisations endorsing the report

The following organisations have endorsed this report:

- Academy Nutrition Group
- BEAT (eating disorders self-help charity)
- British Association for Parenteral and Enteral Nutrition (BAPEN)

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Executive summary and recommendations

The Management of Really Sick Patients with Anorexia Nervosa (MARSIPAN) working group arose out of concerns that a number of patients with severe anorexia nervosa were being admitted to general medical units and sometimes deteriorating and dying on those units because of psychiatric problems, such as non-adherence to nutritional treatment, and medical complications, such as re-feeding syndrome. Sometimes overzealous application of National Institute for Health and Care Excellence (NICE) guidelines led to death from underfeeding syndrome. In the present guidelines, which emerged from mostly online discussions of the MARSIPAN group, we have provided:

- advice on physical assessment
- a brief handout to send to all front-line medical and psychiatric staff
- advice to the primary care team and criteria for admission to both medical units and specialist eating disorders units as well as non-specialist psychiatric units, and criteria for transfer between those services
- advice on membership of the in-patient medical team
- medical, nutritional and psychiatric management of patients with severe anorexia nervosa in medical units, including the appropriate use of mental health legislation
- advice for commissioners on required services for this group of very ill patients.

Our group became aware of over 12 cases of young people with severe anorexia nervosa who had died on medical units owing to re-feeding syndrome, underfeeding syndrome and other complications of anorexia nervosa and its treatment. We believe that the problem is widespread but as yet not quantified. However, we hope that implementation of these guidelines will help to reduce the number of avoidable deaths of patients with severe anorexia nervosa.

Recommendations

1. Medical and psychiatric ward staff need to be aware that adult patients with anorexia nervosa being admitted to a medical ward are often at high risk.
2. Physical risk assessment in these patients should include body mass index (BMI) and physical examination, including muscle power, blood tests and electrocardiography (ECG).
3. Most adults with severe anorexia nervosa should be treated on specialist eating disorders units (SEDUs).
4. Criteria for medical admission are the need for treatments not available on a psychiatric ward (such as intravenous infusion) or the unavailability of a suitable SEDU bed.
5. The role of the primary care team is to monitor such patients and refer them early.
6. The in-patient medical team should be supported by a senior psychiatrist, preferably an eating disorders psychiatrist. If an eating disorders psychiatrist is unavailable, support should come from a liaison or adult general psychiatrist.
7. The in-patient medical team should contain a physician and a dietician with specialist knowledge in eating disorders, preferably within a nutrition support team, and have ready access to advice from an eating disorders psychiatrist.

8 The key tasks of the in-patient medical team are to:

- safely re-feed the patient
- avoid re-feeding syndrome caused by too rapid re-feeding
- avoid underfeeding syndrome caused by too cautious rates of re-feeding
- manage, with the help of psychiatric staff, the behavioural problems common in patients with anorexia nervosa, such as sabotaging nutrition
- occasionally to treat patients under compulsion (using Section 3 of the Mental Health Act, or provisions of equivalent legislation), with the support of psychiatric staff
- manage family concerns
- arrange transfer to a SEDU without delay, as soon as the patient can be managed safely there.

9 Health commissioners (clinical commissioning groups (CCGs) and national commissioners) should:

- be aware of the usually inadequate local provision for MARSIPAN patients
- ensure that robust plans are in place, including adequately trained and resourced medical, nursing and dietetic staff on the acute services and specialist eating disorders staff in mental health services.

Introduction

History of the project

This report grew out of concerns arising in two clinical contexts. Members of the Royal College of Psychiatrists' Eating Disorders Faculty have been concerned for some time that patients, usually young people with anorexia nervosa, who are sent to medical wards from psychiatric or eating disorders units because they are too ill to be managed in a psychiatric service, sometimes do very badly and occasionally die. It seemed that the patients' self-destructive behaviour (e.g. turning off drips) may have been contributing to their decline. There has also been concern about the interpretation of the NICE guideline on nutrition support in adults (NICE, 2006), which states:

> '2.2 Groups that will not be covered
>
> Patients with eating disorders. This is covered in the NICE guideline on eating disorders (p. 38).'

Although some clinicians have adopted the 2006 guideline for patients with anorexia nervosa, others have not, leading to worrying variations in practice. We intend to clarify the situation and provide unambiguous advice on the management of this patient group in a number of settings.

In 2008, a case was presented at the annual meeting of the British Association for Parenteral and Enteral Nutrition (BAPEN), illustrating just such a clinical problem. A young woman with anorexia nervosa died after admission to a medical unit in which every effort was made to save her. The discussants at the meeting were two psychiatrists, two physicians, two dieticians and a barrister, and it was concluded that more interdisciplinary work was required to meet the considerable clinical challenges presented by these patients. After the meeting it was resolved that a group would be set up to generate guidelines to help manage this situation. A quick survey of physicians and psychiatrists revealed 16 fatal cases in medical settings of mostly young people with anorexia nervosa over the previous few years, and this seemed to be an underestimate of those cases known to colleagues. It seemed that some doctors did not feel free to share these events with us, perhaps for fear of criticism. It appeared that the problem was sufficiently common to give rise to serious concern.

Hence, the MARSIPAN group was set up, with contributors offering a wide range of skills. We very much hope that this guideline forms the basis of local policies. We hope that it will have the endorsement of a wide range of bodies and so make significant changes in clinical practice.

Anorexia nervosa has one of the highest mortality rates of any psychiatric condition, and some fatalities are inevitable. Nevertheless, we hope that a fatal outcome in some people will be avoided by clearer therapeutic guidelines taking into account the wide range of problems (physiological, psychological and familial) that are encountered, and by clinicians with differing skills collaborating closely in the treatment of people with anorexia nervosa.

Procedure followed in producing the 2010 report

Membership of the group, stakeholder involvement and consultations made

The initiators of the project were Dr Paul Robinson and Dr Tim Bowling, following the BAPEN conference in 2008. They consulted with professional colleagues known to be interested in the topic within the Royal College of Physicians, the Royal College of Pathologists, BAPEN, the Academy Nutrition Group and the Royal College of Psychiatrists. A request to provide details of case histories that demonstrated the sort of problem in which we were interested was circulated to BAPEN and the

Royal College of Psychiatrists' Eating Disorders Faculty members. In addition, the latter were asked to fill in a questionnaire in which they were asked about their management of patients with severe medical problems in SEDUs. After a month, the working group comprised twelve doctors, including five adult eating disorders psychiatrists, one child and adolescent eating disorders psychiatrist, and six nutrition physicians (including one paediatrician). We recruited from personal contacts one dietician in intestinal failure, one dietician in eating disorders, one medical pharmacist and one intensive care physician.

During the course of the deliberations, we agreed to consult other individuals, including a professor of general practice, a nurse, another psychiatrist, two of the authors of the NICE guideline on nutritional support for adults, the chief executive of the main user and carer organisation in the UK, and two carers (see pp. 3–5 for a comprehensive list of working group members).

Gathering information

We carried out a Medline search of the literature using the search term 'anorexia nervosa' in combination with 'in-patient death' (12 citations), 'medical ward' (9), 'gastroenterology' (50), 'death' (228), 'physician' (229) and 'medical' (1372). Guidelines in English were sought. The results were disappointing. Very little had been written on adverse outcomes of patients with anorexia nervosa on medical wards and this encouraged us to produce the MARSIPAN report in 2010 (Royal College of Psychiatrists, 2010*a*).

We repeated the exercise in 2014 with a little more result. Powers *et al* (2013) described 'failure to feed' patients with anorexia nervosa in medical settings and their report is consistent with 'underfeeding syndrome' we describe in Appendix 1.

There were reports of cases and studies which made reference to the re-feeding syndrome in anorexia nervosa. Some emphasise the danger of re-feeding syndrome (Gentile *et al* 2010; Vignaud *et al* 2010; Gaudiani *et al* 2012; Marzola *et al* 2013; Rio *et al* 2013). Marzola *et al* (2013) recommend a starting calorie provision of 30–40 kcal/kg/day and Gentile *et al* (2010) provided a mean of 28.5 kcal/kg/day. These are substantially higher than recommended in NICE guidelines on nutrition support in adults (NICE, 2006).

Another group of studies (Whitelaw *et al* 2010; O'Connor *et al*, 2014) suggests that in anorexia nervosa, re-feeding can proceed at quite high levels of calorie provision without serious problems with re-feeding syndrome. In the O'Connor study, there was no significant difference in biochemical markers of re-feeding syndrome between patients randomly allocated to 500 or 1200 kcal/day. These studies were carried out in adolescent services. In an acute medical service (Gaudiani *et al*, 2012) 45% of patients developed hypophosphataemia and in French intensive care units (Vignaud *et al*, 2010) 11% of patients developed re-feeding syndrome. It appears, therefore, that the highest rate of re-feeding syndrome is reported from the units in which patients are most unwell, namely adult medical and intensive care settings. This fits with our own discussions (Appendix 5) in which the risk of re-feeding syndrome was judged to be greater in patients in medical units who are likely to have more medical complications, such as infection.

Establishing the scope of the guideline

The scope of the guideline was established early on in our discussions and was to apply to:

- patients with severe anorexia nervosa (BMI <15)
- individuals admitted to medical wards or to specialist eating disorders units.

We believed that the main problems were in the medical wards, but wished to discuss the management of patients with serious medical problems in SEDUs, and the issues of liaison and transfer between the two settings. We would also agree that patients losing weight very rapidly and those with severe bulimic symptoms (vomiting and laxative misuse) and extreme over-exercise can have serious nutritional problems at BMI >15. This guideline may be applied to such patients, but they were not our primary focus.

Editorial independence

Although we are representing to varying degrees different bodies, including several medical Royal

Colleges, our views are independent. Several of the Colleges have endorsed the guidelines.

The problem

The MARSIPAN group came together after clinical experience indicated that patients with severe anorexia nervosa, often young, had been admitted to medical facilities in a seriously ill state and had subsequently deteriorated and died, at times from identifiable causes such as pneumonia and at others from the effects of starvation or the re-feeding syndrome. Some of the cases led to widespread coverage in the media (*BBC News*, 2008; *Daily Telegraph*, 2008), others to serious and untoward incident inquiries. One such inquiry (Scottish Parliament, 2004) concluded that liaison between medical and psychiatric or eating disorders services could be improved. However, messages from individual clinicians suggested that other issues were also important.

In Appendix 1, we reproduce a number of quotes from messages received by our group. They represent cases in which problems in care had often been associated with a fatal outcome. Some had been subject to subsequent inquiry. The issues that arose when those cases were considered included:

- failure to apply compulsory treatment
- lack of liaison psychiatry support
- collapse of local eating disorders services
- inadequacy of general psychiatry services
- inappropriate palliative care
- problems in medical management
- failure to recognise re-feeding syndrome
- failure to manage eating disorder behaviours
- calorie restriction leading to weight loss owing to overcautious re-feeding (underfeeding syndrome)
- failure of medical diagnosis.

We hope to address each of these issues in this report. We also need to admit that there is a large amount of information we do not have. Looking at patients who did badly, many had low BMI, but not all, and many patients with lower BMI do not get into a dangerous clinical state. A prospective study of patients with anorexia nervosa admitted to medical wards with a wide range of physical and psychological measures might help us identify those patients who are likely to be at particular risk. Currently, we can perform a risk assessment, but although high scoring on these measures seems to increase the probability of physical collapse (see Box 1, p. 12), it remains a blunt instrument with a weak evidence base.

Procedure adopted in writing the revision

The revision was led by Paul Robinson who wrote to a small number of psychiatric and medical colleagues, namely Tim Bowling, Mike Stroud, Janet Butler, Sylvia Dahabra, Alastair Forbes, Alan Jackson, Simon Lal, Clodagh Loughrey, John Morgan, Dasha Nicholls and Sonu Sharma. Changes suggested by the group were few and concerned the body of the report and the Modified Newcastle Guidelines; a number of appendices were added, including a report of MARSIPAN implementation activities and a brief re-feeding guide for ward staff.

Progress since the original report in 2010

Publications

- *Junior MARSIPAN*. Shortly after the MARSIPAN group was established, the Junior MARSIPAN group was set up by Dasha Nicholls and others and this led to the publication of the *Junior MARSIPAN* report in 2012 (Royal College of Psychiatrists, 2012), in which the assessment and treatment of patients under 18 is considered. *Junior MARSIPAN* was endorsed by a number of specialist interest groups within the Royal College of Paediatrics and Child Health, and widely implemented.
- A Royal College of Psychiatrists' report on liaison psychiatry has been published (CR183; Royal College of Psychiatrists, 2013). It contains substantial references to

the management of eating disorders and is to be recommended highly. It has been quoted in the present revision of MARSIPAN.

- 'Avoiding deaths in hospital from anorexia nervosa: the MARSIPAN project' (Robinson, 2012).
- *Critical Care for Anorexia Nervosa: The MARSIPAN Guidelines in Practice*, edited by P. Robinson and D. Nicholls, is currently in press.
- A MARSIPAN listserve was established to encourage communication between individuals interested in the area. Those interested in joining should send an email to: MARSIPAN-request@jiscmail.ac.uk
- There have been a number of relevant papers on the subject, a selection of which have been cited earlier ('Gathering information', p. 9).

Teaching events

- Two courses on the implementation of MARSIPAN and Junior MARSIPAN recommendations were held at UCL in February and September 2013 and attended by over 61 healthcare professionals.
- Day courses for local eating disorders and medical teams were held at NHS Greater Glasgow & Clyde in June 2013 and In Northern Ireland in February 2014.
- Many talks on MARSIPAN and Junior MARSIPAN have been given by their authors to clinical teams in a variety of services.

Activity in localities in the UK

- *MARSIPAN* is being implemented in a number of localities (details are provided in Appendices 8 and 9).

Issues arising in all settings

Risk assessment: how ill is the patient?

Patients with anorexia nervosa can seem deceptively well. They may have an extremely powerful drive to exercise which sometimes seems to override their lack of nutritional reserve, so that they may appear very energetic right up to a physical collapse. One patient was seen going round a medical ward, cheerily waving to other patients through their windows, just a few days before collapsing from fatal hypoglycaemia.

Moreover, patients with eating disorders can falsify their weight by drinking water (up to 10 litres in one go in one documented case (Robinson, 2009)) or wearing weights or other objects, and it is accepted that assessment needs to include a range of measures to have a chance of detecting those patients whose state is deteriorating but who are attempting to conceal that fact.

On the other hand, raised liver enzymes occur regularly in patients with severe malnutrition, probably as a result of hepatocellular autophagy (Harris *et al*, 2013). They should be monitored but do not usually require investigating and should not divert the physicians' attention from the need to provide nutrition.

There have been several attempts to produce a physical risk assessment schedule including, in the UK, the NICE guideline on eating disorders (NICE, 2004) and the Royal College of Psychiatrists' guideline on nutrition in anorexia nervosa (Royal College of Psychiatrists, 2005). These measures provide for monitoring of BMI, physical state, blood tests and ECG. For a basic list of observations to be made to assess risk in patients with anorexia nervosa, see Box 1.

Box 1 Risk assessment in anorexia nervosa

BMI: weight (kg)/height^2 (m^2)

- **low risk 15–17.5**
- **medium risk 13–15**
- **high risk <13**

Physical examination:

- **measure vital signs (increase risk levels in brackets): low pulse (<40 bpm), blood pressure (especially if associated with postural symptoms) and core temperature (<35ºC)**
- **muscle power reduced**
- **Sit up–Squat–Stand (SUSS) test (scores of 2 or less, especially if scores falling)**

Blood tests:

- **low sodium: suspect water loading (<130 mmol/L high risk) or occult chest infection with associated SIADH**
- **low potassium: vomiting or laxative abuse (<3.0 mmol/L high risk)**
  (*note:* low sodium and potassium can occur in malnutrition with or without water loading or purging)
- **raised transaminases**
- **hypoglycaemia: blood glucose <3 mmol/L (if present, suspect occult infection, especially with low albumin or raised C-reactive protein)**
- **raised urea or creatinine: the presence of any degree of renal impairment vastly increases the risks of electrolyte disturbances during re-feeding and rehydration (although both are difficult to interpret when protein intake is negligible and muscle mass low)**

ECG:

- **bradycardia**
- **raised QTc (>450 ms)**
- **non-specific T-wave changes**
- **hypokalaemic changes**

BMI, body mass index; bpm, beats per minute; ECG, electrocardiogram; SIADH, syndrome of inappropriate antidiuretic hormone secretion.

Criteria for different risk levels are hard to apply because of the influence of variables such as rate of onset, chronicity, reserves, other conditions and medication. When deciding on hospital admission, any life-threatening change may trigger the need for an admission and we would not advocate rigid rules, preferring a thorough clinical assessment.

Location of care: where should the patient be managed?

When the decision has been made to admit the patient to hospital, the referrer's actions will be informed by many factors, not all clinical. The options usually are:

- medical bed
- general psychiatric bed
- SEDU bed, sometimes in the private sector.

The decision rests on the clinical state of the patient as well as the services available locally (Box 2). The patient will have a number of needs, all of which must be met. They include treatment for nutritional and other medical problems and management of behaviours that may compromise treatment. The management of these behaviours, which may include food avoidance and concealment, exercising, falsifying weight, excessive water drinking, to name a few, is best achieved on a SEDU. However, the patient may be so physically ill that admission to such a unit may not be possible.

To determine whether a particular patient can be admitted to a SEDU or not, the needs of that patient must be matched with what the unit can provide. To investigate this, a survey of SEDUs was performed in which they were asked to indicate what medical services they could and could not provide (Appendix 3). In this small survey, the services that most SEDUs *could* offer were:

- nasogastric insertion and feeding
- daily biochemical tests
- frequent nursing observations
- prevention of symptomatic behaviours (water drinking, absconding, exercising, etc.)
- daily ECG
- sedation of a resisting patient
- use and management of mental health legislation
- treatment of pressure sores
- immediate cardiac resuscitation without presence of 'crash' team.

The services SEDUs *could not* usually offer were:

- intravenous infusions

Box 2 Location of care

- **We suggest that in most cases, unless the patient requires medical services that are not provided, patients with severe anorexia nervosa should be cared for in a SEDU, if available.**
- **Should a SEDU bed be unavailable, owing to waiting lists or lack of an appropriate facility, the choice is between a medical and a general psychiatric bed. Several variables will influence the decision, such as the quality of liaison between medical, psychiatric and eating disorder service, the experience of psychiatric units in managing malnutrition, as well as the clinical state of the patients and requirements for monitoring. In most areas, there will be a SEDU responsible for the population and we suggest that a senior member of the SEDU team consult with medical and psychiatric colleagues to develop a local MARSIPAN strategy to address this problem.**
- **Nasogastric feeding can usually be managed in a psychiatric setting and is quite often provided, for example, for patients unable to eat because of catatonic or depressive stupor (Mental Welfare Commission for Scotland, 2007). It would be reasonable for a general psychiatric unit or SEDU to ask that a patient's nasogastric tube be placed and position verified in a medical unit and that the initial few days of feeding be provided there, until the danger of re-feeding syndrome has reduced, while acknowledging that the syndrome can develop after up to 3 weeks of re-feeding. However, SEDUs in which experience in this procedure has been substantial may be able to care for the patient from the outset and, as elsewhere in this report, local solutions must be generated to match local provision.**
- **We suggest that patients with pre-existing electrolyte or renal abnormalities or comorbidity increasing the risk of re-feeding syndrome, such as significant infection, should be admitted to a medical ward or a unit with excellent medical support, for cautious introduction of feeds with quick-turnaround biochemical monitoring more than once daily. Please note that in gross malnutrition eGFR (estimated glomerular filtration rate) is unreliable, overestimating renal function.**

Box 3 Transfer between services

- When a patient is transferred from one service to another there should be a properly conducted and recorded meeting between representatives of the two services, usually also including the patient and their family, so that it is very clear what will happen during and after the transfer of care and who is responsible for what. Such meetings should be continued until transfer is satisfactorily achieved.

Box 4 Compulsory admission and treatment

- Eating disorders are mental disorders. Patients with eating disorders may be putting their lives at risk and may require in-patient treatment. They can be admitted under Section 3 of the Mental Health Act (and equivalent legislation) and treated against their will, although this should rarely be required. It is essential that it is done when necessary, however, and for this a qualified psychiatrist, another mental health worker and another doctor are required.
- Under the Mental Health Act feeding is recognised as treatment for anorexia nervosa and can be done against the will of the patient as a life-saving measure.
- Although a last resort, the decision to apply the Mental Health Act should be considered from the outset, for example, if a patient is refusing treatment in an accident and emergency (A&E) unit. If medical staff suspect that this course of action may be necessary, psychiatric services should be contacted. If the medical consultant is not satisfied with the opinion given, there should be direct contact between the medical consultant and the consultant psychiatrist and the issue escalated until the patient's treatment is safe.
- If psychiatric liaison staff believe that the patient is being denied treatment under the Mental Health Act for any reason, the matter must be similarly escalated between consultants and reasons documented for decisions made.
- Medical consultants can no longer be responsible medical officers for a patient detained under UK mental health legislation. Since the 2007 amendments to the Act, the equivalent role (the responsible clinician) must be an approved mental health practitioner, in this situation generally a psychiatrist, who should probably be given an honorary contract with the acute medical unit

- artificial ventilation
- cardiac monitoring
- central venous pressure (CVP) lines
- total parenteral nutrition (TPN)
- cardiac resuscitation ('crash') team
- treatment of serious medical complications.

Transfer between services

Patients being transferred from one service to another, whether it is SEDU to medical, *vice versa*, or from children and adolescent to adult psychiatric services, are vulnerable and special care is required to make sure the transfer is safe. Patients sometimes try to sabotage a transfer (e.g. when they realise that another place has a better chance of achieving weight gain) by engaging in behaviours that result in them becoming so ill that transfer becomes impossible. Moreover, staff in one unit may have information about a patient that may be lost in the transfer. Many of the problems can be avoided by adequate communication (Box 3).

Compulsory admission and treatment

Some of the information we received during the MARSIPAN working group consultations, mainly from reports by physicians about their experience on the wards, suggested misconceptions about compulsory treatment.

The Mental Health Act 1983 for England and Wales, the Mental Health (Care and Treatment) (Scotland) Act 2008 and the Mental Health (Northern Ireland) Order 1986 allow for compulsory treatment of patients with eating disorders (Box 4). The tests for compulsory admission and treatment are:

- the presence of a mental disorder (e.g. anorexia nervosa)
- in-patient treatment is appropriate (e.g. for re-feeding), necessary and available
- such treatment is necessary for the health or safety of the patient.

On the other hand, the patient's capacity to accept or refuse treatment needs to be considered (Appendix 4 has details of both the Mental Health Act 1983 and the Mental Capacity Act 2005, which apply in England and Wales).

We have been made aware of cases in which the psychiatrist has given the opinion that compulsory admission and treatment is not applicable. Although this might be true (e.g. in a patient who adheres to treatment), it may well not be. Patients with anorexia nervosa are often extremely persuasive and articulate and may, for example, persuade A&E staff to allow them to go home when this would be against the interests of their health.

Mental health legislation varies across the different jurisdictions of the UK, particularly in relation to the specific processes of detaining patients for involuntary treatment. Nevertheless, the underlying principles of using mental health legislation in the management of this patient group are broadly applicable (anorexia nervosa is a serious mental disorder, in-patient re-feeding is at times an essential and direct treatment for this illness and in rare situations, where there is life-threatening physical risk and an unwillingness or inability to agree to treatment, compulsory treatment can and should be instituted). We use the term 'Mental Health Act' for economy of expression and take it to refer to equivalent legislation in other jurisdictions of the UK as well.

Policies and protocols

Many of the problems brought to our attention could have been addressed by prior discussion between clinicians in medicine and psychiatry, and management. Examples are the use of the Mental Health Act (Box 4), admission and discharge policies, and policies around supervision and funding of special nursing. There should be a clear and agreed protocol for the use of restraint.

The protocol should make it clear exactly what restraints are acceptable and should not use euphemisms such as 'behavioural support'. A policy on advance directives should be in place. Some patients, having experienced nasogastric feeding, may be frightened of the procedure and when less ill may be willing to indicate what sort of approach they would prefer (e.g. requesting the use of a narrower nasogastric tube if possible). The question of the validity of advance directives, such as a request not to apply nasogastric feeding, needs to be evaluated with psychiatric, medical and legal help in each case as the issue arises (Box 5).

Box 5 Medical unit policies and protocols to agree in advance

We recommend that clinicians and managers from psychiatric and medical services likely to see patients with severe anorexia nervosa should meet and develop a number of protocols in advance of the situations developing. Questions to address are:

- **criteria for medical as opposed to psychiatric admission**
- **special nursing: qualifications and supervision of one-to-one nurses**
- **relevant mental health legislation: criteria for its use, identification of responsible clinician (psychiatrist) and responsible manager**
- **SEDU consultation and referral**
- **issues around funding (e.g. special nursing or SEDU referral), which may require an approach to the primary care trust**
- **liaison psychiatry services: training role, involvement of consultants and trainees with patients admitted and consultation with eating disorder specialists**
- **all local health commissioners should demand that a MARSIPAN group with at least a physician, a psychiatrist, a dietician and a nurse as well as management be set up in their area to advise on services required in medical units.**

Management in different sectors

Management in primary care

Patients with anorexia nervosa can deteriorate quickly or arrive already very unwell. Some are referred late and in some cases diagnosis could be earlier. Any patient, of any age, with unexplained weight loss with or without amenorrhea may have anorexia nervosa, especially if there are signs of weight preoccupation, lack of concern about weight loss or compensatory behaviours such as vomiting. Height, weight and BMI should be measured and followed on a graph, and BMI centile charts should be used for those aged under 18. Differential diagnosis includes psychiatric and physical conditions (e.g. depression, coeliac disease, diabetes mellitus, infectious mononucleosis, Addison's disease); eating disorders may coexist with other disorders.

Initial assessment should include general examination and baseline blood tests (Connan *et al*, 2000) with an ECG for those with BMI <15. It should be noted that some drugs (e.g. antipsychotics, often prescribed to patients with anorexia nervosa) can lengthen the QTc and hence enhance the cardiac ill-effects of malnutrition.

If weight loss is rapid or BMI has fallen below the threshold for diagnosis of anorexia nervosa (17.5), referral to specialist services should be considered and urgent referral should be considered when BMI <15. The referral letter must include current weight and height as well as other relevant information so that a risk assessment can be performed at the specialist clinic. Extensive and time-consuming physical investigations should be avoided.

Patients who have overeating binges after a long period of extreme restriction can induce re-feeding syndrome. Take blood daily for electrolytes, phosphate and magnesium in this situation. Until the patient is seen in the specialist clinic, they should be seen regularly for weight monitoring and SUSS test (Appendix 2, p. 35) and have bloods and ECG monitored (Box 6). The general practitioner (GP) should consider sending the patient to the A&E to manage abnormal or deteriorating physical state, blood tests or electrocardiograph.

Box 6 Management of anorexia nervosa in primary care

- **Rapid exclusion of other conditions**
- **Risk assessment: BMI, SUSS test, bloods, ECG**
- **Blood tests: full blood picture, urea and electrolytes, liver function tests, creatine kinase, glucose**
- **Refer if rapid weight loss or BMI <17.5, urgently if BMI <15**
- **If rapid re-feeding in the community, check electrolytes, phosphate and magnesium daily**
- **Monitor until appointment**
- **Consider referral to accident and emergency (A&E) if physical tests abnormal or deteriorating**

Management in in-patient medical settings

Developing expertise in the medical service

All medical units to which a severely ill patient with anorexia nervosa could be admitted should have an identified eating disorders psychiatrist available for consultation. Part of the role of SEDUs is to be available to medical units; in particular, nutrition support teams should provide training for staff who might be called upon to treat these patients.

Identifying an eating disorders nutrition physician

We recommend that every hospital to which a patient with severe anorexia nervosa could be admitted should identify a consultant physician who should have all of the following qualities:

- an interest in managing patients with anorexia nervosa
- expertise in clinical nutrition and nutrition support and be capable of leading a multi-disciplinary nutrition support team
- access to in-patient beds
- an association with a specialist in eating disorders psychiatry
- training in the clinical problems (medical and psychiatric) of patients with severe anorexia nervosa, and their management.

This consultant physician would be made aware whenever a patient with an eating disorder is admitted to the hospital, would consult as soon as possible and take over care in selected cases in which re-feeding is a significant part of treatment. In hospitals where a nutrition support team is established, the consultant physician would normally be a part of that team.

Psychiatric input

Inadequate psychiatric support

Many physicians feel that once a patient with anorexia nervosa has been admitted to a medical ward, support from the psychiatric service is either missing or inadequate.

Partnership between physician and psychiatrist

Patients with anorexia nervosa admitted to a medical ward should have the full and ongoing support of a consultant psychiatrist, who should form a partnership with the physician. Input from psychiatric trainees is welcome, but must be backed by involvement of the psychiatrist and regular contact between the two consultants. It is essential that psychiatrists providing support in this way be fully conversant with severe eating disorders and their management through specific training and experience.

The liaison psychiatry service

The psychiatric liaison service in an acute hospital can have a major impact on care, especially if there is limited access to a specialist in eating disorders psychiatry. We welcome and endorse the recent College report *Liaison Psychiatry for Every Acute Hospital* (Royal College of Psychiatrists, 2013), which notes that 'People with severe anorexia nervosa are dying in acute hospitals because of avoidable physical or mental health complications related to lack of understanding of the combined physical and mental health needs', and makes a series of recommendations.

1. There should be planning for high-risk but relatively infrequent clinical scenarios such as marked behaviour disturbance as a result of severe anorexia nervosa.
2. An observation policy should include clinical management and de-escalation advice related to circumstances requiring increased observation in acute hospitals, such as re-feeding in anorexia nervosa.
3. Acute hospitals should have a group involved in re-feeding for anorexia nervosa, as recommended in the MARSIPAN guidance.
4. Acute hospitals should follow MARSIPAN recommendations and have written guidance for staff (see Appendix 10 for an example of such guidance).
5. If the patient is detained under mental health legislation for re-feeding, the responsible clinician will usually need to be the consultant psychiatrist, who therefore needs to be involved in treatment decisions on an ongoing basis.
6. All patients admitted to an acute hospital for re-feeding for anorexia nervosa should receive one-to-one observation by mental health-trained staff unless agreed not necessary by both the consultant physician and psychiatrist responsible for their care. Patients should also be assessed by a specialist in eating disorders to see whether/when re-feeding can be managed on a specialist eating disorders unit rather than in the acute hospital.
7. There should be agreed care pathways for transfer and discharge of patients from the acute hospital (Royal College of Psychiatrists,

2010*b*) to mental health facilities agreed between all organisations funding or providing such care.

8 Acute hospitals should have guidance for staff relating to safe discharge of patients with medical complications of eating disorders, such as hypokalaemia or dehydration. Guidance should emphasise that it is vital to take a holistic view of the patient's physical and mental health, for example including advice in addition to blood test results when assessing medical risk.

9 Management of patients with severe eating disorders in acute hospitals would benefit from the involvement of liaison psychiatrists or eating disorders specialists to facilitate staff meetings to ensure a consistent approach and minimise the risk of splitting (Royal College of Psychiatrists, 2013).

Dietetic input

Generally, a nutrition team will contain a dietician skilled in re-feeding. Such teams are not universal, however, and we recommend that dieticians in all hospitals potentially receiving a patient with anorexia nervosa make contact with the dietician in the nearest SEDU, develop a protocol for re-feeding such patients and consult together when a patient is admitted. It is essential that any hospital admitting patients with anorexia nervosa have a dietician trained to provide dietetic care to such patients.

Nutrition support teams

Nutrition support teams are common but not universal. We believe that they greatly improve the chances of adequate care being provided to individuals with these complex clinical problems, and recommend that all acute trusts caring for patients with severe anorexia nervosa aspire to provision of such a team within a defined time frame.

Some practical considerations

There is support for patients with anorexia nervosa to be nursed in a single room, with en-suite bathroom. This ensures privacy for someone in a disturbed mental state and may limit disruption to the rest of the ward. However, it also gives the patient opportunities to exercise, dispose of nutrients and purge, which would be more difficult in an open ward. We anticipate that all patients coming under the MARSIPAN category will need special psychiatric nursing and single-room accommodation makes this even more necessary.

Nasogastric and other routes of feeding

The preferred route of feeding is oral. However, some patients fail to gain weight when fed orally. Some may opt for nasogastric feeding as they may feel less responsible for the weight gain, rendering it more acceptable. Others may resist weight gain by any means and in such cases compulsory treatment (always under the relevant mental health legislation) using nasogastric intubation and feeding may be necessary. This should certainly occur if poor nutritional intake is life threatening. Insertion of a nasogastric tube against the patient's will usually requires the presence of mental health nurses trained in safe control and restraint techniques, and psychiatric advice should be sought before embarking on this procedure.

Recognising and avoiding re-feeding syndrome and underfeeding syndrome

Re-feeding syndrome is a potentially fatal condition (World Health Organization, 1999; Crook, 2001; Casiero & Frishman, 2006; Mehanna *et al*, 2008) that occurs when patients who have had their food intake severely restricted are given large amounts of food via oral or nasogastric re-feeding as well as during total parenteral nutrition (TPN). It is characterised by rapid reductions in certain electrolytes, such as phosphate and potassium, caused by rapid transport into cells, and the resulting cardiac effects can be fatal. Avoidance of the syndrome can be achieved by gradually increasing nutritional

intake. It has been noted in out-patients with anorexia nervosa who have suddenly increased their food intake after several weeks of starvation (Case study 1).

Case study 1

A patient with a BMI of 14.5 had been eating almost nothing. Her psychiatrist told her that unless she could reverse the weight loss she might find herself in hospital. Terrified by this prospect, she began to overeat (binge) to gain weight. Within 3 days her serum phosphate level had fallen to 0.4 mmol/L and she required oral phosphate supplements to correct this abnormality.

Re-feeding syndrome is characterised by rapid reductions in phosphate, potassium and magnesium, due to rapid transport into cells. The resulting effects, most notably cardiac compromise, can be fatal. Respiratory failure, liver dysfunction, central nervous system abnormalities, myopathy and rhabdomyolysis are also recognised complications. Risk of re-feeding syndrome can be reduced by slow, gradual increase in caloric intake.

There is substantial variation in opinion about the rate at which to start re-feeding a patient with anorexia nervosa. Some units follow NICE guidelines for adult nutrition support (NICE, 2006), which recommend starting at 5 kcal/kg/day for a patient with a BMI <14 and then building up steadily with close monitoring and correction of any electrolyte abnormalities. Although the guidance excludes eating disorders, it is considered by some to be relevant to patients with severe anorexia nervosa. However, there is wide variation in its application, some physicians and dieticians applying it strictly and others regarding it as not applicable to this patient group.

One of the very few published guidelines in this area, from the USA, referring to the treatment of children with anorexia nervosa (Sylvester & Forman, 2008: p. 393), advises that patients should be started on 1250–1750 calories, depending on their intake prior to hospitalisation and severity of malnutrition, and advance by 250 calories daily. For patients with very low weight (<70% average body weight), the protocol is altered: caloric intake requirements may be decreased to avoid re-feeding syndrome, and advancement takes place over a longer period. (For a 14-year-old at the 50th percentile for height, 70% average body weight is around 35 kg.)

Opinions in the MARSIPAN group were divided between physicians, who were particularly concerned to avoid re-feeding syndrome by beginning re-feeding slowly, and psychiatrists, who were concerned to avoid further weight loss in a very underweight patient, having been aware of patients who had deteriorated and died after being given very low calorie diets. The psychiatrists had not usually run into problems with re-feeding syndrome in their patients. From the physicians' experience, one case of the syndrome was noted in a patient given 500 kcal/day (15 kcal/kg/day) from the outset.

It was suggested that if higher calorie levels were thought to be essential (e.g. to correct low glucose), a critical care approach with constant monitoring and correction of abnormalities might be considered.

The different views of the psychiatrists and physicians can be attributed to a number of factors. First, most of the psychiatrists were aware of patients who had been underfed for several days on medical wards (a condition some have been tempted to call underfeeding syndrome), whereas most of the physicians were aware of patients who had died from re-feeding syndrome with higher calorie intakes. Second, the NICE guidelines for nutrition support in adults suggested starting with a low calorie intake (NICE, 2006), which has been applied by some dieticians and physicians in clinical nutrition. Last, and perhaps most importantly, the population of patients in medical beds compared with the psychiatric population was almost certainly more unwell, with lower BMI and greater comorbidity including infection and cardiac, hepatic and electrolyte dysfunction. These patients would be more at risk for re-feeding syndrome than those without comorbidity. After extensive discussion the compromise documented in Box 7 was reached and was acceptable to all members of the group.

Avoidance of re-feeding syndrome can also be encouraged by restricting carbohydrate calories and increasing dietary phosphate. When patients are prescribed oral or enteral nutritional supplements, consideration should be given to the use of high-calorie supplements (e.g. 2 kcal/ml) as they have lower levels of carbohydrate and may

Box 7 Management of re-feeding

- **In SEDUs, re-feeding syndrome with a calorie intake of 20 kcal/kg/day is rare. However, it can occur and we have learnt of a fatal case in a SEDU using this approach. Patients with known risk factors for re-feeding syndrome, namely very low BMI, pre-existing electrolyte or renal abnormalities, infection and other medical complications, should be given fewer calories (5–10 kcal/kg/day) but frequently assessed (at least 12 hourly) so that calories can be increased in the absence of re-feeding syndrome and under-feeding syndrome can be avoided. Electrolytes and clinical state need careful monitoring and transfer to a medical unit may be required if, for example, phosphate falls to <0.4 mmol/L.**
- **In medical in-patient settings, too, it is sometimes prudent to use lower starting intakes (e.g. 5–10 kcal/kg/day), especially in the presence of severity indicators (Appendix 5). If low initial calorie levels are used (5–15 kcal/kg/day), clinical and biochemical review should be carried out twice daily, with calories increased in steps to 20 kcal/kg/day within 2 days unless there is a contraindication.**
- **The decision to initiate low-calorie feeding should be made in consultation with an expert physician in clinical nutrition and a nutrition support team. Minor or even moderate abnormalities of liver function (e.g. alanine transaminase up to ten times the upper limit of the normal range) should not delay increased feeding (Hanachi et al, 2013).**

therefore be less likely to produce re-feeding syndrome. Moreover, the diet should be rich in phosphate (e.g. milk) to help avoid the syndrome. The total fluid intake can easily exceed safe levels, and the recommendation is a maximum total of 30–35 ml/kg/24 h of fluid from all sources, as re-feeding oedema is well recognised.

Behavioural management of eating disorders on medical wards

Behavioural problems are among the most difficult and urgent to sort out. A key factor is the provision of adequate psychiatric and medical nursing staff to manage the challenging and risky behaviours in which patients with eating disorders often engage (Box 8).

Patients with anorexia nervosa are subject to an extreme compulsion to pursue thinness. This compulsion has been likened to addiction to heroin and patients will take terrible risks in order to satisfy it. They may deny that they have the compulsion, to others and sometimes to themselves, and hardly be aware of their behaviours. These behaviours include falsifying weight by means such as drinking water before weighing, wearing weights or other items and gripping the weighing machine with long toes to increase weight. They may engage in obsessive exercise such as running up and down hospital towers (following notices often displayed on hospital stairs encouraging exercise to promote health), standing, wiggling toes and generally walking around. They may wear very little clothing

Box 8 Behavioural management of patients with eating disorders

1. **If weight gain is less than expected, suspect that sabotaging behaviours may be going on.**
2. **Early in the admission schedule, a meeting should be arranged between the medical consultant, medical nurse, psychiatric (SEDU) consultant or, if not available, liaison psychiatry consultant to decide on how to achieve treatment aims. Document the meeting clearly in the notes. Schedule regular follow-up meetings including the consultant psychiatrist.**
3. **If a nutrition support team (physician, nurse, dietician, pharmacist, clinical biochemist) is available, appropriate members of the team should meet with the psychiatric team (consultant, trainee psychiatrist, psychiatric nurse) to plan and monitor care.**
4. **Involve the patient and (usually) family in a further discussion to explain the treatment plan.**
5. **Ideally, employ a nurse from the SEDU to supervise and train one-to-one nurses who usually should be registered mental health nurses aware of the problems occurring in patients with eating disorders.**
6. **Write a management plan to be transferred between nurses with proper handover.**
7. **Members of the psychiatric and medical team should meet regularly (one to two times per week) to discuss progress and revise the plans. If there are clear problems, another meeting of senior team members should be scheduled and the plan revised.**
8. **Be prepared to use mental health legislation if necessary.**

in order to shiver. They may sabotage attempts at feeding by disposing of food, running nasogastric feed into the sink or a pillow and turning off drips. They may try and run away. They may vomit in the toilets. They may recruit friends and relatives to dispose of food or provide it for binges. A patient engaging in these behaviours can be very difficult to manage. At the same time, such behaviours may contribute to deterioration and sometimes death. Discovering that a patient is doing these or other things sometimes leads to a sense of exasperation and anger (not to mention emotional stress) among staff, particularly as they may feel they might be criticised as a result. The patient should be regarded as being under an irresistible compulsion and, unless their mental state changes, they are powerless to alter their behaviour. They may promise to stop, but are likely to break that promise. Staff on psychiatric units are used to patients, especially if detained under the Mental Health Act, disagreeing with treatments and attempting to sabotage them by spitting out tablets and absconding from the ward. On medical units the set-up is aimed at providing essential treatment to generally willing and cooperative patients with, usually, inadequate staff numbers. The seriously ill patient with anorexia nervosa has a potentially fatal condition and also is subject to behaviours that sabotage treatment.

These problems are not straightforward to deal with. Staff working on SEDUs attempt to address them by increasing staff numbers, by agreeing a 'contract' with the patient, by confining patients to areas that can be more easily observed, by locking toilets and bedrooms, and by observing patients during therapeutic activities such as group therapy. Patients who continue to sabotage their care may be observed one to one (occasionally a higher ratio is required) for 24 h a day. This is also used for suicidal patients. The most important factor contributing to the success of one-to-one observation is the training and experience of the staff involved. A staff member, often from an agency, who knows neither the ward nor the issues encountered in eating disorders is unlikely to be successful in preventing a patient from engaging in all behaviours alluded to earlier. The most successful examples brought to the attention of the MARSIPAN group were those in which there was close collaboration with the SEDU:

> 'On the whole, our patients who are transferred to the medical ward do well, and don't have the opportunity to sabotage their treatment because of the system we have of working with one particular physician, with clear protocols and one-to-one nursing by a registered mental health nurse experienced in eating disorders.' (Eating disorders psychiatrist)

Who should pay for special nursing?

One issue that comes up repeatedly is the question of whether medical or mental health services should cover the cost of special nursing. The costs can be very high, some patients requiring long-term one-to-one or sometimes two-to-one nursing. In some units the SEDU budget is used for special nursing on medical wards, in others funding comes out of the medical ward budget. Given that this is a relatively uncommon and potentially life-threatening situation that involves two or three services, it would not be unreasonable to ask commissioners to pay for the extra costs involved rather than leaving it to one service to cope with a substantial hit on its budget. This will need to be negotiated locally and preferably in advance.

Families

Family members of severely ill patients with anorexia nervosa can be even more distressed than relatives of patients with non-psychiatric life-threatening conditions. This may in part be caused by the common feelings of guilt and anger experienced by relatives that can cause them to become extremely upset and sometimes angry with staff.

The distress the family experience is partly caused by not being valued or recognised in their caring role. It is equally vital that the staff stress to the patient how valuable family input can be and that collaborative care can be instrumental in good recovery. Most carers value information that is about the patient's condition and day-to-day care, which can be conveyed with the consent of the patient.

The problem that many families report is lack of information. In psychiatric units and SEDUs this often arises from overenthusiastic defence of patient confidentiality. Even if the patient has said they do not want their family to be given information, the family can still be seen and counselled

in general about any issue they wish to raise, as long as information coming from the patient is not divulged. On medical wards the communication problem seems more likely to be caused by limited availability of staff. It is always important where possible to hold a meeting with a family member, a senior member of the medical team and a relevant member of the psychiatric or eating disorders team. Carers are likely to be less aggressive and abusive to staff if they feel that their voice is being heard (Case study 2). *The Triangle of Care* (Carers Trust, 2013) emphasises the indispensible roles of patient, professional and carers in the management of mental health problems and is highly recommended.

Case study 2

A young man with anorexia complicated by a nutritionally induced psychosis was in a general medical ward. His mother contacted the ward several times a day and made complaints against several nurses, including allegations that they were sexually interfering with her son. A meeting with her, the ward manager and the eating disorders psychiatrist was held every week to discuss his progress. Although his mother's anxiety continued to be high, it was more contained and, as issues were addressed in the meeting, her complaints reduced.

Sometimes the best efforts of staff to explain and reassure fail and relatives' behaviour threatens to harm the patient's treatment (Case study 3).

Case study 3

A young woman of 18 was admitted to a clinical nutrition unit with severe anorexia nervosa. Her mother frequently smelt of alcohol and there were major arguments on the ward between the patient and her parents, who were fighting each other for custody of the patient. The grandfather (a doctor) made private arrangements for her to be seen by another doctor and also disclosed to the patient a distressing piece of information regarding her family. In this chaotic atmosphere, direct communication between the team and the family was very difficult.

In this (eventually fatal) case, clear boundaries needed to be drawn to separate warring parties and individuals should have been seen alone to answer questions and establish rules. The presence of an eating disorders specialist or another psychiatrist can be very helpful, but the process is time consuming and difficult on a busy medical unit. A patient may need to be placed under the appropriate provision of the relevant mental health legislation (e.g. to provide nasogastric feeding against the patient's will or prevent them from exercising) and the nearest relative may object. In such a case, the social worker can apply to the county court for the nearest relative to be set aside and the Section 3 can then go ahead. Relatives and others can also be excluded if their presence is deemed to be counter-therapeutic.

More often, however, the family is consumed by concern over the health of the patient and regular meetings can keep them informed and allow them to influence treatment in an extremely helpful way (Case study 4).

Case study 4

A young woman was admitted to an in-patient unit with severe malnutrition and self-harm. Her parents were seen regularly as a couple so that they could remain informed about her progress and provide information helpful to the team. The patient was aware of the meetings and agreed to them. She gradually improved and when more physically healthy was able to join family meetings and begin to address some of the family issues.

Criteria for transfer back to the SEDU

It is extremely important that patients do not stay in medical settings longer than necessary because of the ever-present possibility that they may sabotage treatment, especially as they feel a bit better owing to rehydration and improvement in electrolytes. Every time the team meets, the question should be asked of whether a particular patient presents clinical problems demanding resources that are not available on the SEDU. If the answer is no, the patient should usually be transferred back to the SEDU without delay. This should occur even if an unexplained abnormality (such as abnormal thyroxine or liver function tests) has been discovered. The abnormality can be handed over and followed up in the psychiatric setting with the help of the physician liaising with the eating disorders service.

It should be added, however, that SEDU beds are not always immediately available and the management of the patient may need to be continued on the medical ward for longer than ideal. Under these circumstances we recommend the

procedure described in Box 9. General psychiatric units should be open to the possibility of patients awaiting a SEDU bed being treated in their unit. This may involve continuing nasogastric feeding, in which case the continued support of the medical team is essential.

Last, patients are sometimes admitted to a medical bed in a poor physical state (e.g. BMI=12, K=2.5 mmol/L). We are aware of many cases in which such a patient has been discharged home as soon as the potassium is in the normal range. We regard this as a dangerous practice that is often motivated by the need to clear beds rather than by the clinical needs of the patient (see p. 18, point 8).

We advise that a patient with severe anorexia nervosa (BMI <15) should not be discharged without the physician in charge consulting with an eating disorders psychiatrist or, if not available, with a liaison or general adult psychiatrist to assess physical and psychiatric risk factors.

Patients admitted to intensive care or high-dependency units

Patients in intensive care or high-dependency unit settings can become a little easier to manage in one way as their treatment-sabotaging behaviours can become less apparent, perhaps because they are more physically ill. The need for a multidisciplinary approach remains, however, and regular meetings between medical staff (including all members of the nutrition support team if one exists) and psychiatric, preferably eating disorders, staff should continue. As patients improve, their problematic behaviours can return and this will need to be watched for carefully by staff dealing with the patient, as psychiatric nurses may not be employed at this stage. Transfer back to the general ward may be a time of increased risk. The level of treatment-sabotaging behaviours can increase and it is at this point that psychiatric nursing must be reintroduced and closely monitored.

The role of commissioners in supporting medical in-patient services for MARSIPAN patients

We recommend that medical in-patients who require it should have access to a physician with special expertise in nutrition, backed by a nutrition support team and associated with and supported by a specialist in eating disorders psychiatry. It is difficult to estimate how many such beds should be available and the need might vary depending on local eating disorders services. We appreciate that not all acute hospital trusts will be able to reach the level of provision we recommend, and suggest that hospitals unable to provide this should identify a nearby hospital with such provision so that patients can be transferred if required.

Box 9 Transfer of patients from medical wards

Criterion for transfer: clinical problems can be managed on a SEDU. If a SEDU bed is not immediately available,

- **obtain an opinion from the eating disorders specialist on management of the patient's psychological and behavioural problems, especially those that might sabotage weight gain; this opinion should be followed up by regular visits to continue until the patient can be taken over;**
- **establish a regular meeting between medical and nursing ward staff and liaison psychiatry staff, initially to establish and then to implement the eating disorders specialist's advice and to decide what to do if the patient's state is deteriorating;**
- **establish a clear procedure for supervising 'special' (one-to-one) nurses that identifies when supervision is failing to prevent damaging behaviours;**
- **consultant physicians and psychiatrists in the medical, liaison psychiatry and the SEDU should have each other's contact details and be in touch, especially if the patient's state gives rise to substantial concern;**
- **if physical state allows, consider transfer to a psychiatric in-patient bed, with nasogastric tube in place if appropriate and ongoing support from the medical team, for instance in the event that the nasogastric tube is pulled out.**

When to reconsider discharge/transfer:

- **if potassium, magnesium or phosphate has been corrected with an intravenous infusion, the patient may still have low total body electrolyte levels and be at risk of rapid falls of one or the other after discharge, especially if purging behaviours resume;**
- **we advise close electrolyte monitoring in the few days after such treatment;**
- **consider a liaison psychiatry assessment before discharge.**

Management in SEDUs

Medical expertise on the SEDU

Medical, nursing and dietetic staff on SEDUs have a clear responsibility to gain and maintain an appropriate level of knowledge of nutritional problems and their avoidance and treatment. For doctors this means medical knowledge at a higher level of sophistication than is usually encountered or required in psychiatry. A therapist treating an out-patient who is vulnerable to nutritional or other medical problems must have regular as well as urgent contact as required with a medically trained specialist in addition to therapy supervision. There is a risk that paying attention to psychosocial aspects of the patient's difficulties can inadvertently draw attention away from the need to monitor and manage the medical risks of eating disorders. All team members seeing individuals should develop systems of practice that guard against that risk. Medical eating disorders staff should, as part of their postgraduate training, attend a course in clinical nutrition, such as that organised by the Academy Nutrition Group Academy Nutrition Group (Intercollegiate Course on Human Nutrition, www.aomrc.org/intercollegiate-group-on-nutrition/icgn-courses.html). Areas of expertise include assessment of nutritional state, clinical risk, prevention and treatment of re-feeding syndrome and management of oral and nasogastric feeding. Our view is that, because of the difficulty of addressing behavioural problems on a general medical unit, patients should be treated on a SEDU unless services required in their management are not available. This means that for some units, more medically ill patients will be treated in the SEDU than before and medical expertise among SEDU staff may therefore need to be at a higher level. Some patients will need transfer, for example to evaluate potentially serious symptoms. However, they should be returned to the SEDU as soon as possible, as long as the medical services they require are available there (Appendix 3).

The psychologist on the SEDU

The psychologist has the very important role of leading on the psychological work that needs to take place, modified by the patient's physical state and by the location of care. As well as advising on the level and type of psychological intervention appropriate to the patient at any one time, the psychologist also shares the role of engaging, reassuring and educating carers who may become extremely distressed when their relative is in a severely ill state.

Dedicated physician

To maximise medical expertise in the SEDU, we advise that a specific consultant physician, preferably with an interest in nutrition, is identified as a link for the SEDU. Ideally, a service-level agreement should be negotiated between trusts for a specified number of sessions with a consultant physician who would have the role of advisor to the SEDU staff and also be available for teaching and discussion, as well as consultation about individual patients. The physician should be available to discuss abnormal results, and to supervise and teach on-call doctors who may be placed in the position of advising SEDU staff.

Criteria for transfer to a SEDU

Patients who do not require the specialist expertise and equipment available on medical units should in general be transferred back to the SEDU. The decisions will need to be taken with reference to local provision as well as the clinical state of the patient. Facilities not generally available on SEDUs are listed in Box 2 (p. 13) and those that should be provided are listed in Box 10.

Practical considerations

The majority of patients in SEDUs have their own rooms. However, medically compromised patients may require some modifications so as to allow special beds (with a ripple mattress, facilities for raising foot and head, and other features), drip stands for nasogastric feeding, special flooring (e.g. wooden to protect against spilt feed) and similar alterations.

Sedation of resisting or agitated patients

Sedation may be a difficult problem in a resisting patient (for general guidance, see Fricchione *et al*, 2008). It is rare for a severely ill patient to engage in active resistance to attempts to feed them, but it does happen.

Box 10 Services provided by the SEDU

We suggest that SEDUs be ready to provide all of the following services (they were found to be provided in the majority of the SEDUs that we surveyed):

- **nasogastric insertion and feeding**
- **daily biochemical tests**
- **frequent nursing observations**
- **prevention of symptomatic behaviours (water drinking, absconding, exercising, etc.)**
- **daily ECGs (and expertise at reading them)**
- **sedation of a resisting patient**
- **use and management of the Mental Health Act**
- **treatment of pressure sores**
- **immediate cardiac resuscitation.**

We understand that some units would need to extend their range to meet these requirements. For example, some units currently do not admit patients under the Mental Health Act, but we would not regard this as acceptable in a service that may be the only specialist unit in a particular part of the country.

There are many medical problems that could arise when a dose of a sedative drug is given to a severely nutritionally compromised patient.

We requested information on practice by eating disorders psychiatrists and received a number of responses from different units (Appendix 6). Overall, the practice can be summarised thus:

- medications used include oral and parenteral benzodiazepines and oral olanzapine
- preference is to use the lowest dose possible because of the risk of physical complications, especially hypotension and respiratory arrest, in a profoundly malnourished patient
- frequent monitoring in medical intensive care for the most severely compromised patients
- some units have reported using two or three nurses continuously to restrain a resistant patient (e.g. continually pulling out a percutaneous endoscopic gastrostomy (PEG) tube)
- close working between psychiatrists, physicians and anaesthetists is essential.

Treatment of children and adolescents under 18

This report has concentrated on the needs of seriously ill adults with anorexia nervosa. However, the needs of children cannot be fully separated. Some medical units are admitting children as young as 14 and their adult-oriented physicians require help from both psychiatric and paediatric services to manage them appropriately. Similarly, several SEDUs admit patients as young as 13 and their needs are often being managed by clinicians with adult-oriented training. Many of the issues will be similar but some, such as the rate of physical deterioration, can be frighteningly different. Moreover, the legal issues attending the involuntary treatment of children are substantially different from those relevant to adults. We welcome the publication of guidance along the lines of this document with special attention to the needs of patients under 18 (*Junior MARSIPAN*; Royal College of Psychiatrists, 2012*a*).

Areas with limited local eating disorders provision

Responsibilities of health commissioners

The Royal College of Psychiatrists' (2012*b*) report on eating disorders recommended that:

> '…specialist eating disorders services should be led by a consultant psychiatrist and need to be multidisciplinary…at least another 39 consultant [whole-time equivalents] WTEs are required to bring the country average up to 1.2 WTE per 1 million population.'

> 'The broad composition of a specialist eating disorders service for a population of 1 million people should be 1.2 WTE consultant psychiatrists, 2.4 WTE senior and junior psychiatric trainees, 5.4 WTE psychological therapists, 28.8 WTE nurses, 1.2 WTE dieticians, 3.6 WTE occupational and creative therapists, 4.2 WTE administrators and 0.6 WTE house-keepers.'

We urge all purchasers to ensure as soon as possible that people living in their areas have access to a specialist eating disorders service with a consultant psychiatrist in eating disorders who can act as a source of support for both general and liaison psychiatry services and physicians providing care for patients in the MARSIPAN category.

Responsibilities of local providers

Lack of accessible specialist eating disorders provision is a substantial problem for sparsely populated areas, for those separated from the mainland as well as for those far from the nearest SEDU.

We propose the following principles of service provision.

1. Identify a local psychiatrist with training in eating disorders and a local physician with training in nutrition.
2. If either of the above is unavailable, the primary care trust or equivalent should identify suitable consultants and arrange for them to be trained by a recognised expert. They should be joined by a dietician and a nurse to form a local MARSIPAN group.
3. Develop a clear local policy on MARSIPAN patients, to include identification, resuscitation and preparation for transfer to a suitable unit with experience in the field.
4. In places such as Northern Ireland, requiring air travel to access SEDUs, acute medical units require help to deal with patients who are at risk of sabotaging their treatment. There should be a high level of eating disorders input with frequent visits from a doctor or nurse from a specialist eating disorders service, and active supervision of any nurses providing one-to-one observation of the patient to make them fully aware of behaviours to look for and what to do if they observe them.
5. Use of air ambulance: there is some limited experience in places such as Northern Ireland with no SEDU available. Patients are admitted to a suitable bed and medically stabilised before transfer by air ambulance to a unit on the mainland. It is clear, however, that because these patients are so frail, they cannot be allowed to sabotage their treatment, so use of the Mental Health Act and combined medical treatment, psychiatric monitoring and

restraint may be required. Owing to the rarity of this situation, such intensive care is not usually available and this is a substantial gap in provision which could have very serious consequences for the patient involved. We recommend that occasional high-dependency care should be available, funded separately by the local National Health Service funding body, to provide intensive medical and psychiatric care for such patients.

6 On the mainland, given the exposure to cold that may accompany air ambulance travel, the advantage of a shorter journey should be weighed against the safer environment of a road ambulance with a longer journey time.

Audit and review

Case reporting

We would welcome the introduction of a case reporting system for patients such as those described here.

The Royal College of Psychiatrists, BEAT and the National Patient Safety Agency wish to collate information on all deaths from eating disorders so that the maximum possible can be learnt from these tragic events. The contact for this is Dr John Morgan (jmorgan@sgul.ac.uk). All clinicians are urged to provide information, as many cases are missed because the eating disorder is not cited on a death certificate.

Quality review of services available

The Royal College of Psychiatrists has established a nationwide quality network for eating disorders (CCQI QED), in which SEDUs are being assessed for quality of service provision. It may be possible to include arrangements for the medical care of patients seen in SEDUs in the quality network assessment.

Local governance

Each medical and eating disorders unit must monitor the quality of provision for the management of severely ill patients with anorexia nervosa. A clear policy should be generated jointly and available in each setting. Any serious incident or 'near miss' should be investigated jointly and a report issued that highlights any necessary changes in psychiatric or medical services or in liaison psychiatry. Such recommendations should be followed up within a reasonable time frame, for instance 3–6 months, to establish that the changes have occurred.

Appendix 1. Cases reported to the MARSIPAN group

We reproduce here extracts from messages the MARSIPAN group received from a number of colleagues (the list is not exhaustive). In each case we propose the likely problem that caused the outcome reported.

Failure to use the Mental Health Act

'A few years ago a male patient died, most likely related to his anorexia nervosa. He had been assessed by two psychiatrists and the team looking after him were advised he couldn't be force-fed.' (Physician)

'I am ... concerned at that "grey" area when a … patient [with severe anorexia] ends up in accident and emergency, refusing treatment, food or indeed even liquid. I wonder if your group [MARSIPAN] would be able to secure more willingness to admit these patients against their will by medical teams? We have had our daughter in accident and emergency for 24 hours on one occasion, 11 of those hours waiting for the duty psychiatrist who then said he couldn't section her despite a cannula being inserted ready for her imminent collapse/coma.' (Parent of young woman with anorexia nervosa)

This shows that some clinicians (including psychiatric staff) are unaware that compulsory treatment is sometimes (albeit rarely) indicated to save the life of a patient with anorexia nervosa.

Physician and GP apparently providing palliative care in severe anorexia nervosa

'I would be grateful for opinions on a patient with anorexia nervosa who has a BMI of 9.4 currently under the care of a physician. She is in her mid-fifties with anorexia nervosa since adolescence. She has somehow in the past evaded and refused specialist psychiatric input. She is not being referred to our service as she is essentially being treated by the physician and general practitioner (GP) as having a terminal condition.' (Eating disorders psychiatrist)

This indicates that some clinicians take the view that palliative care is sometimes indicated in anorexia nervosa when the patient has not had a course of intensive treatment.

Psychiatry seems to disappear from the scene

'Two to three times a year I get a frantic phone call about keeping some young girl alive. We have had two deaths in 10 years from memory. The problem is that the ward is full of patients with Crohn's disease and the general medical component has lots of heavy-nursing-dependent elderly patients. Also, psychiatry seems to disappear from the scene

once the patient is in such a poor physical shape.' (Physician)

This shows that treating patients with anorexia nervosa in medical wards is difficult and that physicians sometimes feel unsupported by psychiatric colleagues.

Failure to control eating-disordered behaviours can be fatal

'A 24-year-old female (BMI 11) on a general medical ward, who prior to a planned move to an eating disorders unit exercised by standing and wiggling her toes and fingers for the whole weekend, day and night, in front of two 'special nurses', before collapsing and dying from hypoglycaemia on the Monday morning.' (Eating disorders psychiatrist)

This indicates that severity of physical state can be underestimated and that non-specialist psychiatric nurses may be unprepared to challenge behaviours (such as micro-exercising, as here) in patients with anorexia nervosa that can contribute to a fatal outcome.

'A 19-year-old female patient (BMI 10) with renal failure on a medical ward who turned off her dextrose drip, intended to rehydrate her and restore renal function, because having read the bottle she thought it had too many calories. She died within a few hours.' (Eating disorders psychiatrist)

This shows how powerful the drive for thinness can be.

Collapse of local eating disorders services

'We meet a lot of these cases and indeed have just submitted a case series of 14 seen in 1 year to a medical journal as an abstract. One of these died but nearly all had quite severe electrolyte disturbances, renal failure, etc. The high number may reflect the fact that our local eating disorders services have pretty much collapsed in the past couple of years.' (Physician)

This points to problems with local eating disorders services as well as the major medical problems faced by patients with severe anorexia nervosa.

Collaborative relationships can improve the outcome

'If any [patient with anorexia] is admitted for any reason to the trust…the site manager…directs the admission to the gastroenterology ward. I am made aware of the patient and usually take over. I have a very good working relationship with the eating unit psychiatrist and we always talk about emerging medical problems.' (Physician)

This shows that the systems can work.

Shortcomings in medical management

'[The patient] was looked after by the general physicians who had no clue as to the severity of her illness (despite an abnormal ECG, abnormal biochemistry and a BMI that must have been about 12). They did virtually nothing and the family said they were "discriminatory" against her…The cause of death was given as septicaemia but I doubt this.' (Physician)

This indicates that medical management of patients with severe anorexia nervosa in medical wards is sometimes less than satisfactory.

Failure to recognise re-feeding syndrome

'An 18-year-old female who died after admission with re-feeding syndrome undetected by the medical team. The general psychiatric team had refused referral to a specialist service.' (Eating disorders psychiatrist)

The problems highlighted here are failure to recognise re-feeding syndrome and possible mismanagement by the psychiatric team.

Overcautious re-feeding: underfeeding syndrome

'We have someone with BMI around 10 at the moment and the dietician wanted to start with 220 calories per day – the medical consultant and I both over-ruled and started with around 1000, because

she was having repeated severe hypoglycaemia.' (Eating disorders psychiatrist)

This indicates the very difficult balance between providing enough calories to prevent hypoglycaemia and weight loss, yet not provoking a dangerous re-feeding syndrome.

'A female patient of 20 years with BMI of 13 was transferred from the eating disorders ward to a local accident and emergency because of chest pain. In accident and emergency cardiac causes were excluded but she was admitted to a medical ward where she was given a very low calorie intake, around 200 calories per day. She remained in the ward while mild liver abnormalities were investigated and died after 5 days in hospital.' (Eating disorders psychiatrist)

This shows that inappropriate investigation of mildly abnormal test results can lead to inappropriately prolonged general hospitalisation and that very low calorie regimen without early and frequent monitoring and review may contribute to a fatal outcome in patients with anorexia nervosa (underfeeding syndrome).

Self-induced fatal re-feeding syndrome at 15 kcal/kg/day

'A male anorectic in his mid-thirties was admitted because of critical further weight loss and some mild electrolyte abnormalities on a Friday afternoon. He had a weight of 36 kg, a BMI of about 13 and had lost about 3 kg in the past 2 weeks with very little recent food intake. His potassium was 3.1 mmol/L, his phosphate was 0.6 mmol/L and my nutrition support team felt he was at very high risk of re-feeding problems. They recommended that he be started on just 10 kcal/kg/day, i.e. a target of 350 kcal in 24 h, but with blood tests on Saturday morning to check on K, Mg and PO_4 levels, so that this could be doubled if no problems had arisen. The team wanted to do this via controlled nasogastric feeding but he refused, although he was happy to accept 30ml of 1kcal/ml sip-feed administered and observed to be drunk by the nurses 2-hourly, day and night. He was also given high oral doses of phosphate and potassium supplements. On Saturday morning, he was well and his blood tests showed normal K, Mg and PO_4 levels and his 2-hourly sip-feeds were increased to 40ml as planned, with the aim to repeat the same process on Sunday morning. However, he was found dead in bed at about 6am on Sunday morning, apparently having persuaded the night staff to let him have more sip-feed since he 'had decided to take more so that he could get out of hospital quickly'. They had thought it was helpful to agree to his wishes. We think he had consumed two cartons sometime between 11.00 pm and his death.' (Nutrition physician)

Correct management of the patient's re-feeding risk was sabotaged by the patient who increased his initial intake beyond a safe level.

Fatal re-feeding syndrome induced at 15 kcal/kg/day

'A 37-year-old alcoholic with chronic pancreatitis but no liver disease presented with about 20% weight loss over 3 months and a BMI of 16. Her recent intake had been very poor due to pain and probably included a lot of alcohol. She had diabetes but did not have hyperglycaemia on admission. Her intestinal absorption was probably poor. Her amylase on admission was normal as were her urea and electrolytes, but nevertheless it was recognised that she was dehydrated since her urea was normal rather than very low. Her phosphate was 0.8, her magnesium was not measured.

The case preceded the publication of the NICE guidance and she was not reviewed by a senior dietician or the nutrition support team. A nasogastric tube was inserted and she was commenced on approximately 15 kcal/kg/day. She was also given intravenous normal saline. However, 8 h after commencing her feed she became breathless and over 20 min she became hypoxic and had a cardiac arrest in ventricular fibrillation from which she could not be resuscitated. A blood sample taken during the first few minutes of her acute decline was later reported as showing potassium 2.0 mmol/L and phosphate 0.2 mmol/L. Her blood glucose was 5.0 mmol/L.' (Nutrition physician)

This is a case of a patient with multiple pathologies for whom a very slow introduction of nutrition might have averted a fatal outcome.

Failure to diagnose medical condition with fatal outcome

'A 24-year-old teacher presented to the GP several times over 8 months with a history of nausea,

vomiting and 6 kg weight loss (to a BMI of 17.2), with some associated anxiety. She was vomiting several times each week, but not every day and was eating slowly, with difficulty finishing meals. She was anxious at mealtimes and chose not to eat in company, other than her parents. She had also felt very fatigued, faint and light-headed and had consequently given up work. The GP performed blood tests showing Na 126 mmol/L, K 4.8 mmol/L, albumin 44 g/L, and normal renal, liver and thyroid function. She was eventually referred to eating disorder services but did not 'fulfil the criteria for having an eating disorder'. Over the 2 weeks following this appointment she was prescribed various anti-emetics, Dioralyte™ and diazepam by the primary care team and became progressively bed-bound and sleepy. She then had a cardiac arrest at home, had hyperkalaemia, hyponatraemia and acidosis on admission to hospital and was declared dead the following day; BMI at post-mortem was 14.8.

In retrospect, there was a 2-year history of increasing skin pigmentation and preference for salty foods. Autoimmune Addison's disease was subsequently confirmed.' (Parents)

Both GPs and eating disorder (as well as other) physicians require a high level of diagnostic expertise in order to evaluate atypical cases presented to eating disorder services. Any patient with unexplained low sodium or high potassium should have screening tests for adrenal insufficiency, which typically has a very non-specific presentation that could mimic disordered eating. Other pointers might include skin pigmentation, history of other autoimmune disease and significant hypoglycaemia.

Failure to correct hypoglycaemia

'A 20-year-old was admitted to a medical unit with a BMI of 10.8, moderate hypoglycaemia (blood glucose <4 mmol/L) and liver abnormalities. He was not fed for 4 days while his liver was investigated. He was transferred to another medical unit where he developed severe hypoglycaemia (blood glucose <2 mmol/L), which was left untreated, and he developed terminal hypoglycaemic coma.'

Hypoglycaemia is a potentially fatal complication of anorexia nervosa and must be treated as a matter of urgency. While initial caution in re-feeding can be justified, calories must be increased within 12–24 h so that underfeeding syndrome is avoided. Liver abnormalities are common in severe anorexia nervosa and must not divert attention from the patient's nutritional needs.

Appendix 2. Modified Newcastle guideline for MARSIPAN cases

Guidelines for the management of really sick patients with anorexia nervosa (MARSIPAN) on general psychiatric wards or medical wards

1 Introduction

1.1 This protocol has been developed to offer guidelines in the care of a recently admitted patient with severe anorexia nervosa (defined as body mass index less than 15) for the physicians, psychiatrists, nursing staff and dieticians involved in their care.

1.2 Nasogastric feeding is associated with significant physical risks, including re-feeding syndrome. Therefore, nasogastric feeding should usually be commenced on a medical ward. Once medically stable, the patient can be transferred to a psychiatric ward. The timescale for this can vary, but because of the difficulties managing patients' behaviour on medical wards it should not normally extend beyond a few days. Some special eating disorders units (SEDUs) may be able to initiate nasogastric feeding if adequate medical monitoring can be provided.

1.3 By the nature of their illness, MARSIPAN patients require care from various professionals and regular multidisciplinary review is vital to coordinate this care.

1.4 Consider admission to a medical intensive care unit or high dependency unit especially if the patient is very unwell.

2 Physical health issues (joint medical and nursing care)

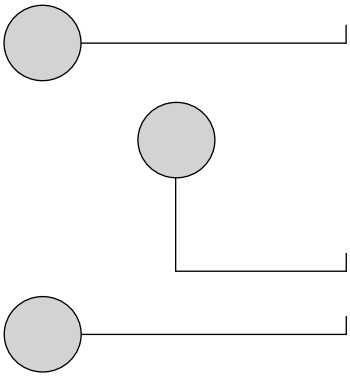
2.1 On admission

2.1.1 Physical examination – a comprehensive physical examination is required including checking for bradycardia and postural hypotension, hepatomegaly and the SUSS test (Fig. 1) (see the first MARSIPAN report). Abnormalities in any of these clinical signs are important indicators of physical risk.

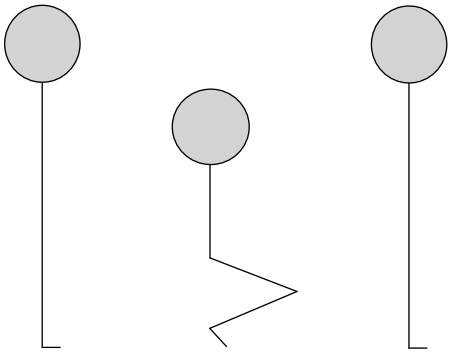
2.1.2 Physical investigations: These are outlined in Table 1. On the ECG, prolongation of the QTc interval to more than 450 ms, bradycardia of <40 bpm and changes compatible with ischaemia (T inversion and ST depression or elevation) are thought to be significant risk factors.

2.1.3 Nursing assessment and care plan formulation

- Bed rest: required in view of compromised physical state of patient.
- Fluids: often patients drink large amounts of fluid causing dangerous overloading and electrolyte disturbance, therefore fluid balance should be carefully monitored and excessive intravenous provision avoided.
- Supervise showers and washes: owing to patient's compromised physical state, to monitor for abnormal behaviours.



1. Sit-up: patient lies down flat on the floor and sits up without, if possible, using their hands.



2. Squat–Stand: patient squats down and rises without, if possible, using their hands.

Scoring (for Sit-up and Squat–Stand tests separately)
0: Unable
1: Able only using hands to help
2: Able with noticeable difficulty
3: Able with no difficulty

Fig. 1 The SUSS (Sit up–Squat–Stand test). From Robinson (2012).

Table 1 Physical investigations for seriously ill patients with anorexia nervosa during re-feeding

Baseline	Weight – early morning weight after voiding ECG Lab tests: FBC Urea, creatinine and electrolytes (sodium, potassium, chloride and bicarbonate); phosphate, calcium, magnesium, albumin; CRP; LFTs; amylase (urine biochemistry – sodium, potassium, chloride, osmolality, creatinine – may be useful in hypokalaemia, hyponatraemia or altered hydration status) Glucose (by POCT on a glucose meter on the ward and/or laboratory method) Thyroid function Iron, ferritin, vitamin B_{12} and folate Some units may choose to measure the following micro-nutrients: zinc, copper, selenium, Vitamin A/E, carotene, Vitamin D
Daily (clinical judgement)	Urea and electrolytes, phosphate, calcium, magnesium – daily for 1 week, then reduce to twice weekly (if normal) Glucose by POCT method before main meals (confirmed if low by lab glucose, in line with local policy)
Twice weekly	FBC LFTs Weight
Monthly	ECG Copper, zinc (if required)
	All tests may be repeated more frequently if abnormal.

CRP, C-reactive protein; ECG, electrocardiogram; FBC, full blood count; LFT, liver function test; POCT, point of care testing.

- Toilet supervision: owing to patient's compromised physical state, to monitor for abnormal behaviours.
- Meals: patients should be encouraged to take an appropriate diet, in consultation with dietetic staff, alone and to supplement nasogastric feeding.
- Leave: patients not under the Mental Health Act cannot legally be prevented from leaving the ward. However, it should be recognised that they may be using these opportunities to exercise and in other ways sabotage weight gain.
- Physical observations: patients are vulnerable to hypothermia and hypoglycaemia; as well as carrying out physical observations, ensure room is kept warm (Table 2).

3 Mental health issues

3.1 On admission, mental state examination is required, focusing on ideas of self-harm and/or suicide as well as ideas and behaviours aimed at weight loss. Mental state examination should be kept under review throughout the patient's treatment.

3.2 Professionals are aiming for a collaborative stance in the management of the patient and aiming for the patient to be able to manage their own physical health needs, including adequate nutrition as a long-term aim.

3..3 The Mental Health Act Commission Guidance Note is a useful reference guide (Mental Health Act Commission, 1997; Care Quality Commission, 2008). Anorexia nervosa is a mental disorder

Table 2 Points to consider in care plan formulation

	Severe anorexia nervosa	
	BMI <13 high risk	BMI 13–15 moderate risk
Bed rest	24 h for most patients (consider deep vein thrombosis prophylaxis) Risk assessment for tissue viability Liaise with tissue viability nurse regarding a special mattress	Periods of bed rest may be introduced Rest in social settings
Fluids	Input and output to be measured (supervised) Liaise with dietician Water supply in room to be turned off to reduce fluid overloading if this is problematic	Liaise with dietician regarding fluid balance May need to consider turning off water to reduce fluid overloading
Showers/ washes	Supervised washes ONLY within bedroom area recommended	Supervised showers recommended to monitor physical well-being and activity
Toilet	Supervised to ensure physical safety and accurate fluid balance	Unsupervised (but fluid balance monitoring may be required)
Nutrition	Liaise with dietician regarding nasogastric feeding Supervised (and up to 30 min post-meal supervision) All meals to be advised by dietician Monitor for effects of re-feeding syndrome	Supervised (and up to 30 min post-meal supervision) All meals to be advised by dietician
Leave	No leave when on medical ward	Short periods in wheelchair where appropriate (depending on physical well-being) No unaccompanied leave
Physical observations	Blood pressure, pulse and core temperature (four times daily) Blood glucose four times daily before meals using BM machine and finger prick	Blood pressure, pulse and core temperature (twice daily) Blood glucose (daily – depending on physical well-being)

within the terms of the Mental Health Act 1983 (and equivalent legislation). For patients with severe anorexia nervosa who are physically ill and who are refusing treatment, use of the Mental Health Act (or equivalent) should be considered.

3.4 Eating disorders often co-occur with depression and/or obsessive–compulsive disorders. Common practice in the treatment of these comorbid illnesses is the use of selective serotonin reuptake inhibitors (SSRIs). However, if the patient is already on alternative treatment to which they are responding well, this need not be altered as long as their cardiac function is stable, as well as their liver function tests. If a patient is not already on psychotropic medication, it is recommended not to start treatment until they are medically stable. It may also be appropriate to consider use of the Mental Health Act (or equivalent) when there is comorbid depression, including significant risk of suicide.

3.5 Indications for liaison with psychiatric colleagues regarding the necessity for constant nursing observation may include:

- tampering with feed or infusion
- self-harm
- extreme distress
- aggression
- excessive exercise (including covert behaviour and 'micro-exercising').

3.6 Patients on constant observation can be very challenging to nurses. Behaviours such as falsifying weight, disposing of feed and exercising on the bed must be identified and addressed effectively by staff.

4 Re-feeding of patients

4.1 Nasogastric feeding (Fig. 2) is associated with significant physical risks, including re-feeding syndrome. Re-feeding syndrome is characterised by fluid and electrolyte shifts, the consequences of which can include hypophosphataemia, hypokalaemia, hypomagnesaemia, altered glucose metabolism, sodium and water dysregulation, and liver dysfunction. This may affect many body systems and even cause death. Hence, nasogastric feeding should be commenced on a medical ward unless adequate monitoring and treatment is available on a SEDU. Advice on the safe implementation of nasogastric feeding can be found on the National Patient Safety Agency website (National Patient Safety Agency, 2005; 2009).

Notes on intravenous electrolyte replacement

1 Intravenous electrolyte infusions should always be given via an electronic infusion pump.

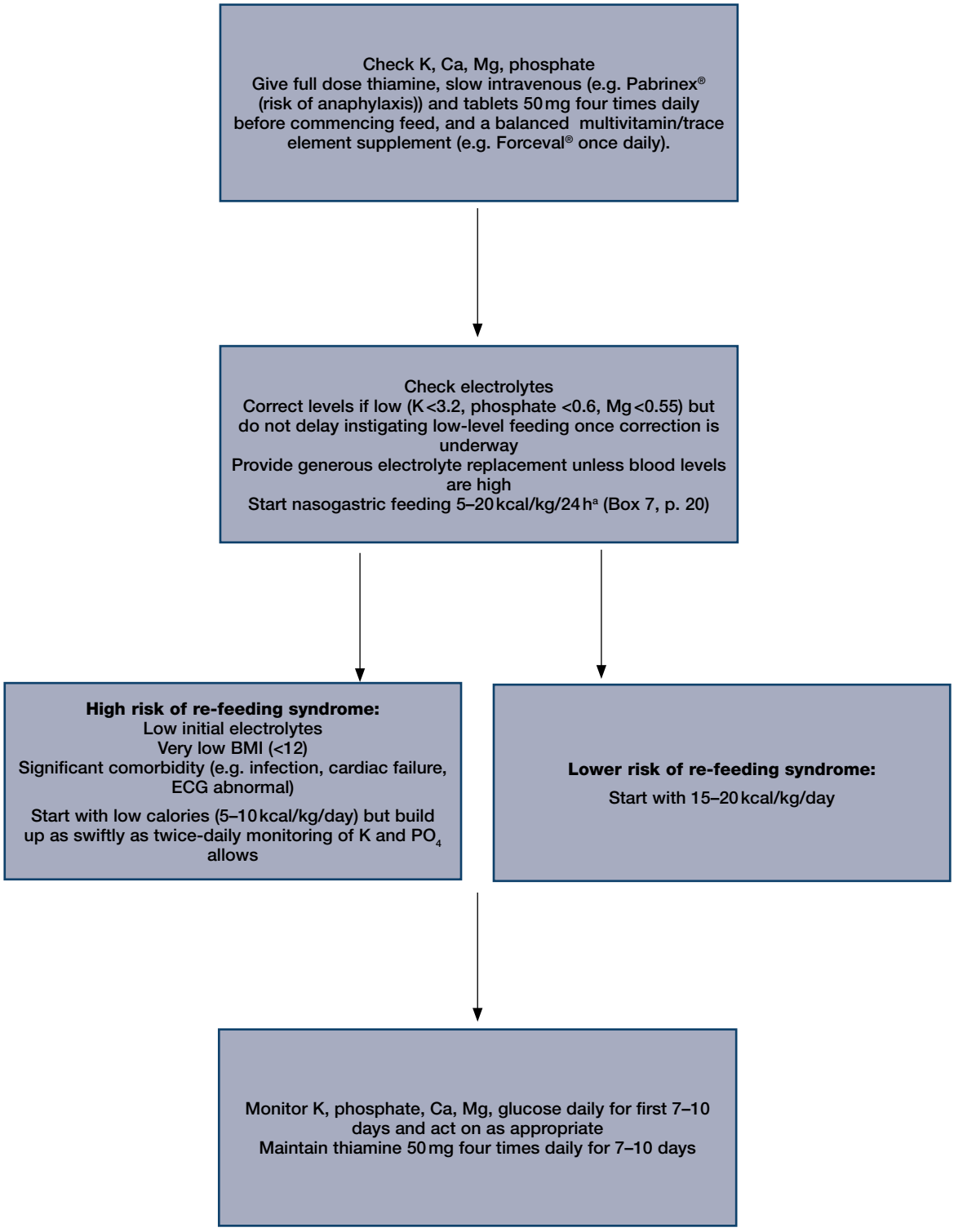
2 ECG monitoring may be indicated.

3 All serum electrolytes should be measured at least daily in patients receiving intravenous replacement and dosages should be adjusted accordingly. Low serum levels of potassium phosphate or magnesium at baseline (i.e. before re-feeding) represent very low total body stores of these predominantly intracellular ions, and prolonged administration of relatively large doses may be required to normalise serum levels.

4 Intravenous replacement should usually be carried out under the supervision of a physician.

5 Specialist medical or biochemical advice may be required in cases of severe fluid and electrolyte depletion.

6 Beware of possibility of renal impairment with urea and creatinine which appear to be only modestly elevated, and the danger of serious electrolyte disturbance during rehydration.



a. First 24 h, limit calorie intake to between 5 and 20 kcal/kg/day, depending on clinical risk factors. For initial feeding at over 15 kcal/kg/day, increase energy intake by 10–20% every 2–3 days until basal metabolic requirement (BMR) intake is achieved. If low initial calorie levels are used (5–15 kcal/kg/day, Box 7, p. 20), clinical and biochemical review should be twice daily with calories increased in steps to 20 kcal/kg/per day within 2 days unless there is a contraindication. Once BMR intake is established and the patient is physically stable, it is recommended that 10% is added if bed-bound and 15–20% if mobile. Once this is achieved, an extra 400 kcal can be added to facilitate weight gain. Careful monitoring of blood glucose is essential during this period. Note that hypoglycaemia, pyrexia or hypothermia, and either a rise or fall in white blood count may indicate hidden infection rather than lack of food.

Fig. 2 Nasogastric re-feeding in patients with severe anorexia nervosa

Appendix 3. Healthcare provision in UK eating disorders units

In 2009, members of the Royal College of Psychiatrists' Eating Disorders Faculty were sent a questionnaire asking about care provision in their eating disorders units. It transpired that the 10 eating disorders units in the UK were able to provide the following medical and psychiatric care:

- nasogastric insertion and feeding: 8 units
- intravenous infusion: 3 units
- artificial ventilation: 0 units
- daily biochemistry: 10 units
- frequent nursing observations: 10 units
- prevention of symptomatic behaviours (e.g. water drinking, absconding, exercising): 9 units
- 24-hour cardiac monitoring: 1 unit
- central venous line: 1 unit
- total parenteral nutrition: 0 units
- sedation of a resisting patient: 9 units
- use and management of the Mental Health Act (or equivalent legislation): 8 units
- treatment of pressure sores: 8 units
- immediate cardiac resuscitation: 9 units
- cardiac resuscitation ('crash') team: 4 units
- treatment of serious medical complications, for example pneumonia: 0 units
- daily electrocardiograms (not requested in the survey, but mentioned by 6 respondents): 5 units.

Appendix 4. Compulsory treatment

The mental health acts

Different acts and procedures pertain to Northern Ireland and Scotland and appropriate guidance should be consulted there; see the *Mental Health Act Code of Practice*.

Some of the information we received suggested misconceptions about compulsory treatment.

The 2007 amendments to the Mental Health Act 1983 allowed for compulsory treatment under Section 3 of the Act on the grounds that:

> (a) [the patient] is suffering from [mental disorder] of a nature or degree which makes it appropriate for him to receive medical treatment in a hospital; and
>
> (b) …
>
> (c) it is necessary for the health or safety of the patient or for the protection of other persons that he should receive such treatment and it cannot be provided unless he is detained under this section.'

Section 3 requires a recommendation from a psychiatrist, a second recommendation from another doctor (generally the general practitioner (GP) or another psychiatrist) and an application from an approved mental health practitioner (formerly an approved social worker).

Moreover, a patient already in hospital (e.g. in a hospital medical ward) can be detained under Section 5(2) by the doctor in charge of their care for up to 72 h, while assessment under Section 2 or 3 is arranged.

A person who is a voluntary patient in hospital can be legally detained there if a registered medical practitioner provides the Mental Health Act managers with an appropriate report.

It has been clarified in the Mental Health Act that anorexia nervosa is a mental disorder (Care Quality Commission, 2008) and that feeding (including nasogastric feeding and a nasal loop to impede removal if required) is regarded as treatment for the disorder, and so is permissible against the patient's will under the Act. Such treatment is lawful under Sections 2 and 3. Under other circumstances it may be necessary to administer urgent life-saving treatment under common law.

It is sometimes difficult to accept that a highly intelligent and articulate person who promises to adhere to treatment may in fact be completely unable to do so as a result of a potentially fatal drive for thinness. In fact, English law is more inclusive than law in other countries, such as Italy where patients with anorexia nervosa have to be more physically ill to be compulsorily detained.

When a patient is on a medical ward, the consultant physician, before the 2007 amendments to the Mental Health Act 1983, used to be able to act as the responsible medical officer, to be in charge of compulsorily detained patients on a medical ward. This is no longer the case. The professional (now termed the responsible clinician) in charge of a detained patient needs to be an approved clinician. This role is only open to psychiatrists and certain other professionals after special training and experience. This means that to have a detained patient in a medical ward, a responsible clinician has to be appointed. If this does not occur, the detention is illegal and the ward staff could be sued for assault if any treatment is enforced.

A responsible clinician (in this context, in practice, a consultant psychiatrist) can be recruited in one of two ways:

1. When the patient is placed on the section, the bed is found within the mental health trust and the patient is immediately sent on leave (under Section 17 of the Mental Health Act, or equivalent) to the medical ward. The responsible

clinician is now one of the mental health trust consultants and advises on treatment while the patient is in the acute trust on Section 17 leave.

2 A psychiatrist from the mental health trust admits the patient to the medical ward under their consultant care, perhaps jointly with a medical consultant. This psychiatrist could be (and would preferably be) a specialist in eating disorders psychiatry but could also be, for example, a consultant liaison psychiatrist or the catchment area consultant psychiatrist, responsible for the patient's home address or GP area. This option would require that the consultant psychiatrist is granted an honorary contract with the acute trust. Both solutions would require that the psychiatrist attend the ward to see the patient and consultant with the ward staff as often as necessary to manage care effectively.

It should also be noted that a hospital in which compulsory treatment is used must be registered with the Care Quality Commission.

Mental capacity and consent

The Mental Capacity Act 2005 is distinct from the Mental Health Act. In the latter, the question is: Does the patient have a mental disorder that is both harmful and requires in-patient care? In consideration of mental capacity, the question is: can this patient make an informed decision about proposed treatment at present?

The following is adapted from the Code of Practice of the Mental Capacity Act 2005 (Department for Constitutional Affairs, 2007). It applies to people over 16, but see the Code (para. 12.8–12.20) for 16- and 17-year-olds.

- Stage 1: Does the person have an impairment of or a disturbance in the functioning of their mind or brain?
  - Mental illness is one of the listed causes of impairment. Anorexia nervosa is a mental illness and so it could lead to loss of capacity.
- Stage 2: Does the impairment or disturbance mean that the person is unable to make a specific decision when they need to? A person is unable to make a decision if they cannot:
  - understand information about the decision to be made
  - retain that information in their mind
  - use or weigh that information as part of the decision-making process, or
  - communicate their decision (by talking, using sign language or any other means).

Assuming the patient is conscious, they are likely to meet tests 1, 2 and 4. However, because of the patient's mental disorder, which may cause extreme drive for thinness, even if life-threatening, capacity to meet test 3 may be impaired. Thus, the patient may not have the capacity to decide whether or not to accept treatment (e.g. nasogastric feeding).

Note that capacity is assessed by whoever is providing the intervention (a physician, dietician or psychiatrist in the case of nasogastric feeding). However, if capacity is uncertain, a formal evaluation of capacity by, for example, a psychiatrist or a psychologist may be required.

Patients refusing treatment may appear to possess capacity if judgements are made using the same framework as might be applied in schizophrenia or dementia. However, capacity assessments need to consider the values and beliefs of the individual with considerable subtlety, and this can be challenging for psychiatrists not used to assessing capacity in individuals with eating disorders. As a result, there can be considerable variation in practice across the UK. Where doubt exists, seeking a second opinion from an eating disorders specialist is strongly recommended.

Consent to treatment in young people

Young people under 16 are sometimes admitted to adult wards, although this is usually discouraged. Assessing competence is informed by the 'Gillick decision':

'For many years the criteria that have been referred to as the test for Gillick competence have provided clinicians with an objective test of competence. This identifies children aged under 16 who have the legal capacity to consent to medical examination and treatment, providing they can demonstrate sufficient maturity and intelligence to understand and appraise the nature and implications of the proposed treatment, including the risks and alternative courses of actions' (Wheeler, 2006).

Further discussion of the complex area of consent for children is outside the scope of this report and includes the Children Act 1989, parental consent and the application of the Mental Health Act to children. More detailed discussion will be found in Junior MARSIPAN (Royal College of Psychiatrists, 2012*a*) and in Robinson & Nicholls (in press).

Appendix 5. Initial low-calorie feeding rates in anorexia nervosa

We asked physicians and psychiatrists in the MARSIPAN group as well as others from the Royal College of Psychiatrists' Eating Disorders Faculty electronic mailing list to indicate how many calories they would provide for a patient with anorexia nervosa weighing 32 kg, who had not eaten for 3 weeks before admission. The mean (and s.e.m.) results were:

- those on medical units: 412.3 (66.4) kcal/day (13 kcal/kg/day)
- those on eating disorders (psychiatric) units: 825 (65) kcal/day (25.8 kcal/kg/day).

The means are significantly different ($P<0.001$). It emerged that for doctors working in specialist eating disorders units, an average starting intake of 20 kcal/kg/day had been found to be safe. However, for those working in medical wards, that starting intake had sometimes been associated with fatal re-feeding syndrome, and a lower starting intake commencing at 5–10 kcal/kg/day was suggested with early review (12 to maximum 24 h) to ensure that any problems generated are corrected and allowing feeding rates to increase. That rate must increase to 15–20 kcal/kg/day within 48 h unless there are continuing biochemical and clinical problems that preclude such an increase.

The view was expressed that lower calorie intakes were sometimes appropriate under the following circumstances:

- significant ECG abnormalities
- substantial electrolyte abnormalities at baseline (before feeding starts)
- active comorbidities, infections etc.
- significant comorbidities, especially cardiac, including heart failure
- very low initial weight (BMI <12) may require fewer calories initially
- patient has not yet started thiamine and other vitamin replacements
- when beginning enteral (e.g. nasogastric) feeding.

Appendix 6. Drug treatment during assisted nutrition

When providing sedative medication to facilitate assisted nutrition in extremely agitated and treatment-resistant patients, there are several points to consider:

- drug uses specifically for assisted nutrition should be kept to a minimum
- benzodiazepines are the drug of first choice; other drugs may have significant effects on blood pressure and cardiac rhythm
- wherever possible, drugs should not be prescribed on a regular or long-term basis but for specific occasions
- a drug regime should be tailored to avoid the development of tolerance (short-term use, drug holidays etc); drug use should be closely monitored and formally reviewed at least weekly.

We surveyed eating disorders psychiatrists' use of sedative medication through the Faculty of Eating Disorders in 2009 and received information from six units.

Unit 1

- Chlorpromazine oral 100–200 mg four times daily, plus diazepam building up to 15 mg four times daily
- For patients with lower BMI use only diazepam because of hypotension risk

Unit 2

- Benzodiazepines
- Olanzapine 2.5 mg daily on intensive therapy unit

Unit 3

- Lorazepam intramuscular or nasogastric, 0.25–5 mg up to four times daily
- Sometimes add haloperidol
- Olanzapine oral

Unit 4

- Intramuscular lorazepam 1 mg
- p.r.n. clonazepam oral
- Olanzapine oral

Unit 5

- Clonazepan oral up to 4 mg
- Olanzapine oral up to 20 mg

Unit 6

- Oxazepam with or without olanzapine oral
- Titrate the dose carefully against response and conscious level
- Use one-to-one or two-to-one nursing
- In intensive therapy/high-dependency unit can use intravenous benzodiazepines

Appendix 7. MARSIPAN: key points for hospital staff

Overleaf is a reproducible page for hospital staff. It should be made available at induction for all frontline staff (A&E, medicine, psychiatry) and be automatically accessed whenever a patient with severe anorexia nervosa presents.

Management of Really Sick Patients with Anorexia Nervosa: key points for hospital staff to distribute at induction and make available on intranet

1 Physical assessment

- Patients near to death often look well
- BMI range: <13 or rapid weight loss (>1kg per week) high risk
- Physical examination, including muscle power (SUSS test)
- Blood tests: especially electrolytes, glucose, phosphate, Mg, liver function tests, full blood count
- Electrocardiogram, especially QTc interval, also ST and T-wave changes.
- Do **NOT** discharge patients at high risk without specialist consultation.
- Even mild hypokalaemia in eating disorders probably signifies low total body potassium and more severe hypokalaemia can recur after discharge with fatal results.

2 Nutritional issues

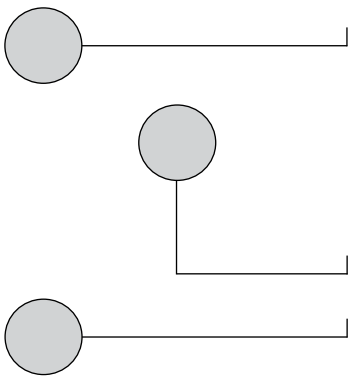
- Consult a medical expert in nutrition if possible
- Replace thiamine early and prescribe a vitamin and mineral supplement
- Avoid re-feeding syndrome by slow re-feeding and close monitoring in vulnerable patients
- Avoid underfeeding syndrome by frequent (12-hourly) reassessment and increasing calories as soon as safe.

3 Psychiatric issues

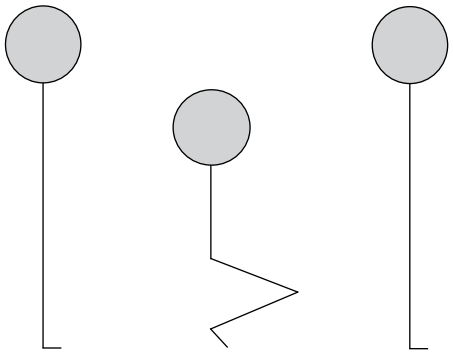
- Transfer to a specialist eating disorders unit (SEDU) if possible
- Regular liaison with a psychiatrist (eating disorders, liaison or community)
- Be aware of sabotaging behaviour such as falsifying weight, water drinking, exercising
- Use only experienced and trained nurses to observe.
- If staff inexperienced in management of anorexia nervosa are recruited (e.g. agency nurses), provide a concise management plan to follow.
- Consider Mental Health Act section if patient fails to improve.

4 Consult the *MARSIPAN* report

- A free version of the report is available for download at the Royal College of Psychiatrists' website (www.rcpsych.ac.uk/files/pdfversion/CR162.pdf)



1. Sit-up: patient lies down flat on the floor and sits up without, if possible, using their hands.



2. Squat–Stand: patient squats down and rises without, if possible, using their hands.

Scoring (for Sit-up and Squat–Stand tests separately)
0: Unable
1: Able only using hands to help
2: Able with noticeable difficulty
3: Able with no difficulty

Fig. 1 The SUSS (Sit up–Squat–Stand test). From Robinson, 2012.

Appendix 8. MARSIPAN implementation in UK localities, 2010–2014†

This is a report of a survey by the Royal College of Psychiatrists' Eating Disorders Faculty Executive Committee carried out in November 2012 (Dr Jessica Morgan), concentrating on adult services.

Two years after producing the MARSIPAN report, we wrote to 14 regional representatives covering London, South East England, South West England, East England, Trent, West Midlands, North East England, Yorkshire, North West England, Wales, Scotland and Northern Ireland as well as to the clinical lead from North Wales. We received 10 responses (none from central London), illustrating a wide range of progress in implementing the MARSIPAN guidelines. I have grouped the responses into three categories of 'very good', 'satisfactory' and 'room for improvement'.

'Very good'

There were six responses showing very good implementation of MARSIPAN recommendations. They mostly came from the north of the UK. Within these areas, MARSIPAN had been identified as a key area for development over the previous 2 years and in some it was classed as a Commissioning for Quality and Innovation (CQUIN), or similar, target by specialist commissioning. In all of them, the specialist eating disorders unit had initiated development of a multidisciplinary MARSIPAN group aimed at addressing the needs of MARSIPAN patients. These groups usually consisted of a consultant psychiatrist in eating disorders, a gastroenterologist for a nutritional support team, an eating disorders dietician, a nutritional support team dietician, commissioners (in some) and other interested clinicians.

These MARSIPAN groups had developed a shared clinical care pathway for the early identification and management of MARSIPAN patients as well as specific guidelines to be used in non-specialist centres such as 'Nutritional management, over a weekend in a district general hospital without specialist eating disorders input'. The pathways also recognised the essential need for joint working between physician and psychiatrist.

These groups met approximately every 6 months to review the pathway and compliance with it, with respect to individual cases and, in some groups, a system for auditing compliance with the pathway was in place or being developed.

Some of these sites recognised the need and usefulness of involving liaison psychiatry and most were involved in the dissemination of knowledge of MARSIPAN beyond the specialist units where patients often present, for example the A&E department of a district general hospital. Some were providing training to professional groups who were more likely to require knowledge of MARSIPAN, such as gastroenterology trainees, as well as training medical students, trainee physicians and trainee psychiatrists.

'Satisfactory'

In two services, clinical pathways had been developed for the implementation of MARSIPAN recommendations. There had been a positive push

†Author: Dr Jessica Morgan.

from the commissioning angle as an incentive to provide this and it had been developed by the local eating disorders service; however, due to a combination of geography, lack of a specialist eating disorderd unit and lack of engagement of consultant physicians, the pathways had not been integrated into clinical care and there has been a lack of enthusiasm to plan for use of the pathway.

'Room for improvement'

Two responses were received that fell within this category. Generally, this was probably due to a combination of lack of a specialist eating disorders unit and wide geography. However, in one of these areas, the neighbouring specialist eating disorders unit provided a wide range of liaison services with acute medical wards when a MARSIPAN patient was admitted, prior to transfer to their unit. They had also widely used liaison teams in improving the care of MARSIPAN patients on medical wards and the local eating disorders service would offer advice to the wards when possible.

Limiting factors

Three main issues that seemed to impede progress were:

- the absence of a local specialist eating disorders unit
- a wide geographical area, thus less likelihood of specialist services in general
- less willingness of a gastroenterology team to engage in the process.

Further suggestions

- Engage liaison psychiatry teams in facilitating the implementation of MARSIPAN.
- Include MARSIPAN at all levels of medical training.
- Involve commissioners in areas where MARSIPAN implementation has been difficult to achieve.
- Raise the profile of MARSIPAN in professional and general media.

Appendix 9. MARSIPAN implementation 2010–2014: other reported activities

The following information was reported from different sources to the chair of the MARSIPAN group.

Wales

- MARSIPAN care pathways in some hospitals
- MARSIPAN groups established, but attendance variable
- Protocol written, not yet endorsed
- Identifying a consultant physician and a nominated ward responsible for treating patients with eating disorders in all Welsh general hospitals is an 'intelligent target'. Target has been achieved in most but not all areas.

North West

- Links with nutrition support unit in Liverpool
- 6-monthly MARSIPAN meetings with:
  - two consultant psychiatrist in eating disorders
  - eating disorders dietician
  - consultant gastroenterologist(s)
  - gastroenterology dietician
- Full care pathway for MARSIPAN
- Regular review of all MARSIPAN and other complex cases
- Help for eating disorders staff to maintain skills (e.g. nasogastric tube management)
- Patients admitted to medical ward are nursed one-to-one by eating disorders service nurses
- Audit of the group activities and impact
- MARSIPAN included as a CQUIN target by commissioners of in-patient care

West Midlands

- Junior MARSIPAN group set up
- Local MARSIPAN lead for each hospital
- Difficulties remain in liaison with adult medical services and during transition between child and adolescent and adult mental health services

Durham, Darlington and Tees

- 2-day teaching session arranged following near miss events
- MARSIPAN pathways for adults and under 18-year-olds

Stafford

'*Junior MARSIPAN* emphasises the importance of transition protocols, but I have had no success with this. The two cases I know with fatal outcomes died within 18 months of transition to a non-psychiatrist-led specialist adult service. How to implement *MARSIPAN* in those services is an interesting challenge.'

(Consultant psychiatrist, north of England)

Oxford

- Local gastroenterologists are familiar with MARSIPAN
- Some meetings with nutrition support teams
- Grand round on MARSIPAN

Northern Ireland

- There is no SEDU in Northern Ireland. The community eating disorders service has an 'in-reach' model, going to where the patient has been admitted and supporting staff there, including on medical wards. Medical admissions are focused on improvement of the patient's physical state until transfer to a psychiatric unit is possible. In one trust, a dedicated nurse-led programme has been developed in the in-patient psychiatric unit.
- No SEDU admissions have been required in one area for the past 4 years.
- A MARSIPAN training day for Northern Ireland eating disorders and medical services was held in February 2014.

North London

- MARSIPAN group with local physicians, eating disorders specialists and dieticians at one large general hospital
- Audit of MARSIPAN implementation in several general hospitals in progress

Sussex

- Attempts to meet with local physicians so far unsuccessful
- Specialist eating disorders staff have trained liaison staff with good effect
- Local SEDUs have provided advice and liaison with medical wards (although not commissioned to do so)

Dumfries and Galloway

In this area there is no nearby SEDU and the consultant psychiatrist has linked up with a consultant physician. Severely ill patients are admitted to the medical ward under the care of the consultant physician. The staff on the ward are trained in eating disorders management and, if required, staff will come from the eating disorders service to assist with meals during the day. There have been no SEDU admissions for 6 years.

Appendix 10. Re-feeding in anorexia nervosa: information for ward staff†

What is anorexia nervosa

Anorexia nervosa is a mental disorder where patients try to restrict their food intake to lose weight. It has the highest mortality of all mental disorders, generally due to the risks related to physical health. Patients usually believe that they are fat, despite efforts by others to convince them otherwise. They are terrified of gaining weight, not only fearing becoming fat but also fearing loss of control. This fear can lead to behaviours to avoid food such as vomiting after eating, consuming large amounts of laxatives, hiding food, lying about what has been eaten or excessive exercising. When encouraged to gain weight, patients will usually feel terrified and become distressed. Although psychological problems underlying anorexia nervosa generally require the patient to achieve some level of health before psychological therapy can address these problems directly, psychological work needs to take place at all phases of recovery, even at very low BMI. The nature of the work needs to be adapted to the patient's physical presentation.

When is acute hospital admission needed for anorexia nervosa

Although the main treatment for anorexia nervosa should be undertaken by eating disorders services and generally based in the community, patients with severe anorexia nervosa require admission to an acute hospital when their life is at risk due to metabolic instability from malnutrition, rapid weight loss or frequent vomiting or laxative abuse.

Re-feeding in an acute hospital: risks

Physical risks

- Re-feeding syndrome (rapid drop of phosphate, potassium or magnesium)
- Arrhythmias from abnormal or rapid correction of chronically abnormal electrolytes
- Death soon after discharge (if discharge occurs solely on the basis of electrolytes being corrected without consideration of the overall physical risk profile)
- Constipation
- Increased side-effects of medication.

Mental health risks

- Distress (e.g. tearfulness, withdrawal, anger) is almost inevitable for the patient
- Self-harm or suicide if the patient is unable to manage the distress associated with increased calorie intake (this may even be calories that seem negligible to staff, such as the sugar in 5% dextrose solution)
- Sabotaging food intake due to terror of weight gain (e.g. disconnecting nasogastric feed, tipping nasogastric feed or dietary supplements down the sink, hiding food)

†University Hospital Southampton NHS Foundation Trust. Authors: Dr Janet Butler and Dr Trevor Smith, 2012.

- Exercising to burn calories (e.g. wriggling legs in bed, walking up and down corridors)
- Misleading weight measurement due to terror of weight gain (e.g. drinking large amounts of water or putting weights in pockets before being weighed)

Problems that may occur for staff

- Staff feeling helpless or cross at apparently irrational behaviour
- Patients telling different staff different things which can cause staff to feel frustrated with each other, with some feeling they are unfairly being labelled as 'bad'
- Staff feeling emotionally drained at displays of significant distress related to treatment
- Mixed messages/different decisions being made by different staff who have not communicated (usually in response to persuasion from the patient)

Guidelines for ward staff managing re-feeding in patients with anorexia nervosa

Communication with the patient

- Be aware that the patient may be very frightened of dying, but equally frightened of gaining weight. They require non-judgemental, supportive but firm management.
- Although there can be few, or no, negotiations about nutrition due to the medical risks, you should try to help the patient feel in control over other aspects of their care if this is safe and possible, for example choosing the time they want to have a wash.
- To reduce the patient's fear and suspicion, try to keep some consistency of a sympathetic member of staff to be her allocated nurse each day. This nurse should be experienced, and not a nursing student, so they have gained skills in remaining supportive but firm.
- Remind the patient that you know they are scared, but that their fears are the anorexia talking and you need to help them overcome this. You recognise that re-feeding is not the only solution to anorexia nervosa but that they need to be physically healthy enough to be able to leave hospital to continue psychological therapy. Also remind them that staff will not let them get overweight, and that the aim of acute hospital treatment is just to become medically safe.
- Only the consultant physician or consultant liaison psychiatrist should talk to the patient about detailed aims of the admission, supervision or plans for discharge. If asked by the patient, other staff should say that these decisions are the responsibility of the consultants but that the admission in general is to be as brief as possible to ensure that the patient is physically safe to leave an acute hospital and return to the support of eating disorders or general mental health services.

Communication with the relatives

Relatives may also be very anxious and so may appear very demanding or critical. If the patient agrees, it is often helpful to arrange a meeting with them regularly to explain the treatment and hear concerns. It may be useful to have one relative who acts as a contact with the ward and informs the rest.

Monitoring nutrition

- Weigh the patient on the same scales on the ward on admission and twice a week during treatment ensuring that the patient does not have weights concealed in their pockets or on their person.
- Try to weigh the patient at the end of the night shift, after they have been to the toilet but before eating/drinking in the morning – always document the time of weighing as well as the weight.
- Try to start the patient on prescribed dietary supplements (unless they say they would prefer nasogastric feeding) but if the patient is unable to achieve sufficient intake after 24 h then use nasogastric feeding. If the patient remains in hospital after stabilisation on dietary supplements or nasogastric feeding they may introduce solid food. The dietician can

advise on calorie-checked matches to the hospital menu.

- The food chart and any fluid chart must be completed by the allocated nurse who has witnessed the intake.
- Be aware that early weight gain is likely to be re-hydration or oedema.
- If weight gain does not occur as expected from prescribed calories then consider whether the patient is hiding food, tipping feed down a sink or into a container, taking laxatives or exercising on or off the ward including in bed.
- If weight is going up but other measures such as appearance and muscle power are not improving, consider that the patient may be falsifying weight (e.g. drinking lots of water before being weighed).
- In general it is not helpful for patients to know their weight more than once a week since they will get unduly distressed by minor fluctuations.
- The only staff to discuss the current or planned weight with the patient should be the dietician and consultant physician. This avoids other staff getting drawn into promises they cannot keep or increasing the patient's anxiety. Other staff should remind the patient which staff are able to discuss their weight concerns, and that their worry about weight is one of the unhelpful anorexic thoughts that you are trying to help them overcome. Then try to distract the patient by switching to another topic such as their previous hobbies or other interests.
- Patients should be strongly encouraged to avoid going to the toilet or into the bathroom for at least 30 min, and ideally for 1 h, after eating (to avoid the risk of vomiting). Patients who are detained under mental health legislation should generally be observed in the bathroom if they insist on going during this time period.

Management decisions and staff communication

- Be observant to indications that the patient, her relatives or friends have brought in things that counteract the treatment, for example laxatives.
- Management decisions about changes to feed, medication or hydration, unless an emergency, should only be made in consultation with the consultant physician.
- Any changes to feed or hydration should be explained to the patient so they know what to expect. Medication changes should be discussed, but unless essential the patient's wishes in this regard should be respected.
- Ideally, a ward nurse would join the daily ward round but if this is not possible the medical team need to liaise with the ward nurses before and after ward round decisions.
- The patient should be kept in an observable bed and if there are concerns about self-harm or sabotaging the re-feeding then a one-to-one mental health trained nurse should be provided to both support the patient's anxiety and maintain safety.

Patients detained under mental health legislation

- If a patient wants to self-discharge they should be given time to discuss their fears and attempts should be made to get them to stay and talk to the liaison psychiatry team and their consultant physician.
- If a patient with life-threatening complications of anorexia nervosa or strong suicidal wishes wants to self-discharge an urgent referral to the mental health service should be made. If the patient wants to leave before this assessment, then they should be detained under Section 5(2) of the Mental Health Act 1983 (or equivalent legislation) to enable a full assessment of their mental disorder and related risks.
- If the patient continues to refuse re-feeding then ask the liaison psychiatry service whether they should be detained under the Mental Health Act for treatment.
- If a patient is placed on Section 5(2) then inform the local approved mental health practitioners who will organise the Mental Health Act assessment.
- The use of the mental health legislation for treatment of anorexia nervosa enables the provision of food, hydration, medication, close observation and nursing or medical care

related to malnutrition or, if present, suicide risk.

- Patients detained under mental health legislation for anorexia nervosa should have a one-to-one mental health trained nurse with them at all times unless the consultant physician or consultant psychiatrist thinks this is not required.
- Another member of staff from the ward needs to cover the one-to-one observation during rest and toilet breaks of the allocated one-to-one nurse.
- Patients detained under mental health legislation should generally remain on the ward and, if required, should not leave the ward unless accompanied by a trained member of staff.
- For further details or advice, please contact the Department of Psychological Medicine.
- If a patient is on the ward detained under mental health legislation or there are other ward management problems please also ensure the area matron is aware.

Appendix 11. Authors' comments

Since the publication of the MARSIPAN report in 2010, many positive developments have been reported. These include educational initiatives, with training of many psychiatric and some medical service staff and changes in clinical arrangements, with regular meetings between staff from medical and mental health services in what have been called MARSIPAN groups or committees. These activities should be occurring wherever patients with anorexia nervosa might be admitted urgently.

The advice in the MARSIPAN guideline that patients should spend as little time as necessary in a medical unit and be transferred to a SEDU as soon as possible has caused particular problems in locations with limited access to in-patient SEDUs (see Appendix 9,sections on Northern Ireland and Dumfries and Galloway). In those places, staff in medical wards to which patients have been admitted are supported by eating disorders trained staff who visit, support, supervise and train the ward staff and may supply staff to assist with oral feeding. This appears to be a prudent use of resources, but, like a fire service, the trained staff have to be available at all times and able to attend quickly on a unit where such a patient has been admitted. The model of a specialist anorexia liaison team that can be brought into action when needed may prove useful in isolated areas where an in-patient SEDU is inaccessible. Experience in Northern Ireland and in Dumfries and Galloway suggests that such teams might be useful even if a SEDU is close by. The idea that a team with special expertise in eating disorders might appear on a unit to which a severely ill patient has been admitted has given rise to the notion of a 'pop-up specialist eating disorders unit' in which expertise is made available as required for care, support, advice and training to a general medical or psychiatric in-patient unit. This model might be particularly apt in remote areas.

Recommendations

We recommend the following developments:

1. The availability and uptake of MARSIPAN training should be increased, especially among medical teams.
2. MARSIPAN principles should be taught to frontline undergraduates in medicine, nursing, dietetics and trainees in psychology.
3. MARSIPAN one-page guidance should be made available to all frontline staff (medical, psychiatric, nursing, psychology, dietetic) at induction. The relevant bodies overseeing standards (Royal College of Psychiatrists, Royal College of Physicians, Royal College of Nursing, British Dietetic Association) will be asked to cascade this advice to their members.
4. The number of MARSIPAN groups bringing together eating disorders and medical expertise in planning and directing local services should be increased.
5. A nationwide survey of MARSIPAN implementation and an audit of admissions of patients with anorexia nervosa to medical units and the outcomes of such admissions should be mounted.
6. Establishing MARSIPAN training and MARSIPAN groups should be targets for acute trusts (e.g. CQUIN targets) admitting patients with severe anorexia nervosa.

References

BBC News (2008) Anorexic treatment delay concern. *BBC News*, 5 November. Available at http://news.bbc. co.uk/1/hi/england/norfolk/7711098.stm (accessed August 2014).

Care Quality Commission (2008) *Guidance on the Treatment of Anorexia Nervosa under the Mental Health Act 1983*. CQC.

Carers Trust (2013) *The Triangle of Care. Carers Included: A Guide to Best Practice in Mental Health Care in England* (2nd edn). Carers Trust (http://static.carers.org/files/the-triangle-of-care-carers-included-final-6748.pdf).

Casiero D, Frishman WH (2006) Cardiovascular complications of eating disorders. *Cardiology in Review*, **14**: 227–31.

Connan F, Lightman S, Treasure J (2000) Biochemical and endocrine complications. *European Eating Disorders Review*, **8**: 144–57.

Crook MA, Hally V, Panteli JV (2001) The importance of the refeeding syndrome. *Nutrition Journal*, **17**: 632–7.

Daily Telegraph (2008) Anorexic student 'wasted away' following 'inappropriate delays' in her care. *Daily Telegraph*, 5 November. Available at http://www.telegraph.co.uk/news/uknews/3386945/Anorexic-student-wasted-away-following-inappropriate-delays-in-her-care.html (accessed August 2014).

Department for Constitutional Affairs (2007) *Mental Capacity Act 2005 Code of Practice*. TSO (The Stationery Office).

Department of Health (2008) *Code of Practice: Mental Health Act 1983*. TSO (The Stationery Office).

Fricchione GL, Nejad SH, Esses JA, *et al* (2008) Postoperative delirium. *American Journal of Psychiatry*, **165**: 7.

Gaudiani JL, Sabel AL, Mascolo M, *et al* (2012) Severe anorexia nervosa: outcomes from a medical stabilization unit. *International Journal of Eating Disorders*, **45**: 85–92.

Gentile MG, Pastorelli P, Ciceri R, *et al* (2010) Specialized refeeding treatment for anorexia nervosa patients suffering from extreme undernutrition. *Clinical Nutrition*, **29**: 627–32.

Hanachi M, Melchior JC, Crenn P (2013) Hypertransaminasemia in severely malnourished adult anorexia nervosa patients: risk factors and evolution under enteral nutrition. *Clinical Nutrition*, **32**: 391–5.

Harris RH, Sasson G, Mehler PS (2013) Elevation of liver function tests in severe anorexia nervosa. *International Journal of Eating Disorders*, **46**: 369–74.

Marzola E, Nasser JA, Hashim SA, *et al* (2013) Nutritional rehabilitation in anorexia nervosa: review of the literature and implications for treatment. *BMC Psychiatry*, **13**: 290.

Mehanna HM, Moledina J, Travis J (2008) Refeeding syndrome: what it is, and how to prevent and treat it. *BMJ*, **336**: 1495–8.

Mental Health Act Commission (1997) *Guidance on the Treatment of Anorexia Nervosa under the Mental Health Act 1983*. Mental Health Act Commission.

Mental Welfare Commission for Scotland (2007) *Nutrition by Artificial Means: Guidance for Mental Health Practitioners*. MWCS.

National Institute for Health and Clinical Excellence (2004) *Eating Disorders: Core Interventions in the Treatment and Management of Anorexia Nervosa, Bulimia Nervosa and Related Eating Disorders* (Clinical Guideline CG9). British Psychological Society & Gaskell.

National Institute for Health and Clinical Excellence (2006) *Nutrition Support in Adults: Oral Nutrition Support, Enteral Tube Feeding and Parenteral Nutrition* (Clinical Guideline CG32). National Collaborating Centre for Acute Care at the Royal College of Surgeons of England.

National Patient Safety Agency (2005) *Reducing the Harm Caused by Misplacement of Nasogastric Feeding Tubes*. NPSA (http://www.nrls.npsa.nhs.uk/resources/?entry id45=59794&q=0¬nasogastric).

National Patient Safety Agency (2009) *Nasogastric Tube Feeding under Restraint*. NPSA (http://www.nrls.npsa.nhs.uk/resources/?entryid45=65337&q=0¬nasogastric).

O'Connor G, Nicholls D, Singhal (2014) A randomised controlled trial: determinates of refeeding hypophosphatemia in hospitalised adolescents with anorexia nervosa. *European Eating Disorders Review*, **22**: e1.

Powers PS, Cloak NL (2013) Failure to feed patients with anorexia nervosa and other perils and perplexities in the medical care of eating disorder patients. *Eating Disorders*, **21**: 81–9.

Rio A, Whelan K, Goff L, *et al* (2013) Occurrence of refeeding syndrome in adults started on artificial nutrition support: prospective cohort study. *BMJ Open*, **3**: e002173 doi:10.1136/bmjopen-2012-002173.

Robinson P (2009) *Severe and Enduring Eating Disorder (SEED): Management of Complex Presentations of Anorexia and Bulimia Nervosa*. Wiley.

Robinson P (2012) Avoiding deaths in hospital from anorexia nervosa: the MARSIPAN project. *Psychiatrist*, **36**: 109–13.

Robinson P, Nicholls D (eds) *Critical Care for Anorexia Nervosa: The MARSIPAN Guidelines in Practice*. Springer (in press).

Royal College of Psychiatrists (2005) *Guidelines for the Nutritional Management of Anorexia Nervosa* (CR130). Royal College of Psychiatrists.

Royal College of Psychiatrists (2010*a*) *MARSIPAN: Management of Really Sick Patients with Anorexia Nervosa* (CR162). Royal College of Psychiatrists (http://www.rcpsych.ac.uk/files/pdfversion/CR162.pdf).

Royal College of Psychiatrists (2010*b*) *Self-Harm, Suicide and Risk: Helping People who Self-Harm* (CR158). Royal College of Psychiatrists.

Royal College of Psychiatrists (2012*a*) *Junior MARSIPAN: Management of Really Sick Patients under 18 with Anorexia Nervosa* (CR168). Royal College of Psychiatrists (http://www.rcpsych.ac.uk/files/pdfversion/CR168.pdf).

Royal College of Psychiatrists (2012*b*) *Eating Disorders in the UK: Service Distribution, Service Development and Training. Report from the Royal College of Psychiatrists' Section of Eating Disorders* (CR170). Royal College of Psychiatrists.

Royal College of Psychiatrists (2013) *Liaison Psychiatry for Every Acute Hospital: Integrated Mental and Physical Healthcare* (CR183). Royal College of Psychiatrists.

Scottish Parliament (2004) Case 200400447: Lothian NHS Board. *Journal of the Scottish Parliament, Annex C.*

Sylvester CJ, Forman S (2008) Clinical practice guidelines for treating restrictive eating disorder patients during medical hospitalization. *Current Opinion in Pediatrics*, **20**: 390–7.

Vignaud M, Constantin JM, Ruivard M, *et al* (2010) Refeeding syndrome influences outcome of anorexia nervosa patients in intensive care unit: an observational study. *Critical Care*, **14**: R172.

World Health Organization (1999) *Management of Severe Malnutrition: A Manual for Physicians and Other Senior Health Workers*. WHO (http://whqlibdoc.who.int/hq/1999/a57361.pdf).

Wheeler R (2006) Gillick or Fraser? A plea for consistency over competence in children. *BMJ*, **332**: 807.

Whitelaw M, Gilbertson H, Lam PY, *et al* (2010) Does aggressive refeeding in hospitalized adolescents with anorexia nervosa result in increased hypophosphatemia? *Journal of Adolescent Health*, **46**: 577–82.

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