

CRI68s

Summary of Junior MARSIPAN: Management of Really Sick Patients under 18 with Anorexia Nervosa

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Organisations that endorse CR168

BEAT

British Paediatric Mental Health Group

British Society of Paediatric Gastroenterology, Hepatology and Nutrition

Faculty of Eating Disorders, Royal College of Psychiatrists

Nutrition Group of the Royal College of Paediatrics and Child Health

Royal College of Psychiatrists

Young People's Special Interest Group, Royal College of Paediatrics and Child Health

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Key recommendations

- 1 All health professionals should be aware that anorexia nervosa is a serious disorder with life-threatening physical and psychological complications, and patients require the same level of care and should be subject to the same emergency protocols as a child with any other serious illness.
- 2 Some risk parameters need to be adjusted for age and gender, including body mass index (BMI).
- 3 Parents/carers play a central role in care and decision-making until the patient is 18 years of age, with increasing autonomy for the young person according to age, developmental stage and capacity.
- 4 The role of primary care is to monitor patients and refer early to specialist services.
- 5 A lead consultant paediatrician and a lead consultant psychiatrist should be identified to coordinate care for Junior MARSIPAN patients and build working partnerships and develop protocols to support admission, including protocols for transition for young people 16–18 years of age.
- 6 The clinical condition of the patient, the quality of liaison between paediatric and child and adolescent mental health services (CAMHS) eating disorder services and the clinician's experience in managing malnutrition should be the primary factors in deciding appropriate location of care.
- 7 The key tasks of the in-patient paediatric/medical team are to:
 - safely re-feed the patient, avoiding re-feeding syndrome or underfeeding
 - manage, with CAMHS support, the behavioural manifestations of anorexia nervosa
 - use appropriate legal frameworks to treat patients under compulsion if needed
 - arrange appropriate transfer to CAMHS as soon as it is safe to do so.
- 8 Health commissioners should:
 - commission adequately resourced acute paediatric services and appropriately skilled mental health services for the care of young people with anorexia nervosa
 - support joint working between services (e.g. fund CAMHS nursing staff during admission)
 - be aware of gaps in local resources and support referral to national centres for advice or treatment when necessary.

Risk assessment: how ill is the patient?

Risk assessment combines clinical assessment with investigations, assessment of motivation and engagement with treatment plans, and available parent or carer support to determine the risk of serious complications to a young person. For example, some (but not many) people are healthy and menstruating at low weights, and medically unstable patients can be a normal weight. Behaviours associated with eating disorders are often covert, and children and pre-pubescent adolescents can present with atypical features. The risk assessment framework presented in Table 1 is intended as a guide to level of concern. The rationale for the parameters can be found in the full Junior MARSIPAN report (Royal College of Psychiatrists, 2012a). The framework can be used to assess and grade concern, but are not a substitute for assessment by an experienced clinician.

Eating disorders are relatively common, but many of the possible differential diagnoses are not. If, after a careful clinical history, examination and initial investigations, there is no obvious

underlying physical illness, it is important not to delay re-feeding.

Cardiologists increasingly use the 'tangent method' to calculate the QTc interval (Postema *et al*, 2008). A tangent is drawn to the steepest slope of the last limb of the T wave in lead II or V5. The end of the T wave is the intersection of the tangent with the baseline. QTc is defined as QT/\sqrt{RR} (Bazett's formula; Fig. 1).

Sick children and adolescents with eating disorders who need admission require the same level of care as with any other serious illness. Decisions about cardiac monitoring and admission to a high-dependency unit or psychiatric intensive care unit are made by the admitting team. A sick child with an eating disorder needs senior paediatric review on admission and at least daily if there are paediatric (medical) issues.

Physical assessment parameters and actions to take are presented in Table 2.

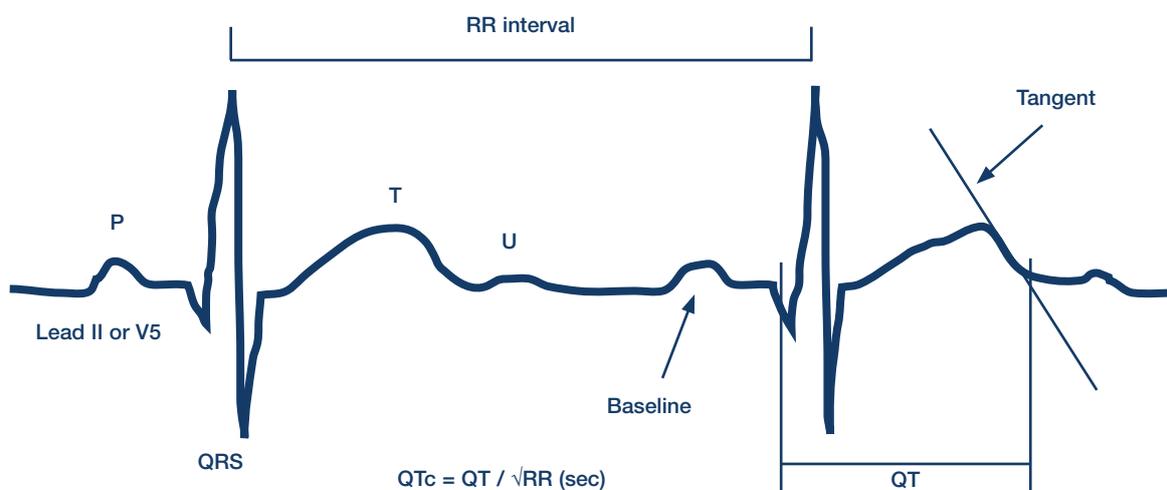


Fig. 1 Calculating the QTc interval. Reproduced with permission from Postema *et al* (2008).

Table 1 Risk assessment framework for patients with anorexia nervosa <18 years old

	Red (high risk)	Amber (alert to high concern)	Green (moderate risk)	Blue (low risk)
Body mass	<ul style="list-style-type: none"> % median BMI <70% (~below 0.4th BMI centile) Recent loss of ≥ 1 kg for 2 consecutive weeks 	<ul style="list-style-type: none"> % median BMI 70-80% (~between 2nd and 0.4th BMI centile) Recent loss of ≥ 500-999 g/week for 2 consecutive weeks 	<ul style="list-style-type: none"> % median BMI 80-85% (~between 9th and 2nd BMI centile) Recent loss of <500 g/week for 2 consecutive weeks 	<ul style="list-style-type: none"> % median BMI >85% (~above 9th BMI centile) No weight loss over past 2 weeks
Cardiovascular health	<ul style="list-style-type: none"> Heart rate (awake) <40bpm Marked orthostatic changes (in systolic BP of ≥ 20 mmHg, or in heart rate >30bpm) History of recurrent syncope Irregular heart rhythm (does not include sinus arrhythmia) 	<ul style="list-style-type: none"> Heart rate (awake) 40-50bpm Moderate orthostatic cardiovascular changes (in systolic BP of ≥ 15 mmHg, or diastolic BP fall of ≥ 10 mmHg within 3min of standing, or in heart rate ≤ 30bpm) Occasional syncope Sitting blood pressure: - systolic <0.4th centile (84-98mmHg) - diastolic <0.4th centile (35-40mmHg^a) 	<ul style="list-style-type: none"> Heart rate (awake) 50-60 bpm Pre-syncope symptoms but normal orthostatic cardiovascular changes Sitting blood pressure: - systolic <2nd centile (88-105mmHg^a) - diastolic <2nd centile (40-45mmHg^a) Cool peripheries. Prolonged peripheral capillary refill time (normal central capillary refill time) 	<ul style="list-style-type: none"> Heart rate (awake) >60 bpm Normal orthostatic cardiovascular changes Normal heart rhythm Normal sitting blood pressure for age and gender with reference to centile charts^a
ECG abnormalities^b	<ul style="list-style-type: none"> All patients <15 years: QTc >460ms Females >15 years: QTc >460ms Males >15 years: QTc >450ms With evidence of bradyarrhythmia or tachyarrhythmia (excludes sinus bradycardia and sinus arrhythmia); ECG evidence of biochemical abnormality 	<ul style="list-style-type: none"> All patients <15 years: QTc >460ms Females >15 years: QTc >460ms Males >15 years: QTc >450ms 	<ul style="list-style-type: none"> All patients <15 years: QTc 440-460ms Females >15 years: QTc 450-460ms Males >15 years: QTc 430-450ms And taking medication known to prolong QTc interval, family history of prolonged QTc or sensorineural deafness 	<ul style="list-style-type: none"> All patients <15 years: QTc <440ms Females >15 years: QTc <450ms Males >15 years: QTc <430ms
Hydration status	<ul style="list-style-type: none"> Fluid refusal Severe dehydration (>10%): reduced urine output, dry mouth, decreased skin turgor, sunken eyes, tachypnoea, tachycardia 	<ul style="list-style-type: none"> Severe fluid restriction Moderate dehydration (5-10%): reduced urine output, dry mouth, normal skin turgor, some tachypnoea, some tachycardia^c, peripheral oedema 	<ul style="list-style-type: none"> Fluid restriction Mild dehydration (<5%): dry mouth or not clinically dehydrated but with concerns about risk of dehydration with negative fluid balance 	<ul style="list-style-type: none"> Not clinically dehydrated

Table 1 continued				
	Red (high risk)	Amber (alert to high concern)	Green (moderate risk)	Blue (low risk)
Temperature	<ul style="list-style-type: none"> < 35.5°C (tympanic) or 35.0°C (axillary) 	<ul style="list-style-type: none"> < 36°C 	-	-
Biochemical abnormalities	<ul style="list-style-type: none"> Hypophosphataemia, hypokalaemia, hypoalbuminaemia, hypoglycaemia, hyponatraemia, hypocalcaemia 	<ul style="list-style-type: none"> Hypophosphataemia, hypokalaemia, hyponatraemia, hypocalcaemia 	-	-
Disordered eating behaviours	<ul style="list-style-type: none"> Acute food refusal or estimated calorie intake 400–600 kcal/day 	<ul style="list-style-type: none"> Severe restriction (\leq 50% of required intake) Vomiting Purging with laxatives 	<ul style="list-style-type: none"> Moderate restriction Bingeing 	-
Engagement with management plan	<ul style="list-style-type: none"> Violent when parents try to limit behaviour or encourage food/fluid intake Parental violence in relation to feeding (hitting, force-feeding) 	<ul style="list-style-type: none"> Poor insight into eating problems, lacks motivation to tackle eating problems, resistance to changes required to gain weight Parents unable to implement meal-plan advice given by healthcare providers 	<ul style="list-style-type: none"> Some insight into eating problems, some motivation to tackle eating problems, ambivalent towards changes required to gain weight but not actively resisting 	<ul style="list-style-type: none"> Some insight into eating problems, motivated to tackle eating problems, ambivalence towards changes required to gain weight not apparent in behaviour
Activity and exercise	<ul style="list-style-type: none"> High levels of uncontrolled exercise in the context of malnutrition (>2h/day) 	<ul style="list-style-type: none"> Moderate levels of uncontrolled exercise in the context of malnutrition (>1h/day) 	<ul style="list-style-type: none"> Mild levels of uncontrolled exercise in the context of malnutrition (<1h/day) 	<ul style="list-style-type: none"> No uncontrolled exercise
Self-harm and suicide	<ul style="list-style-type: none"> Self-poisoning Suicidal ideas with moderate-high risk of completed suicide 	<ul style="list-style-type: none"> Cutting or similar behaviours Suicidal ideas with low risk of completed suicide 	-	-
Other mental health diagnosis	-	<ul style="list-style-type: none"> Other major psychiatric co-diagnosis (e.g. obsessive-compulsive disorder, psychosis, depression) 	-	-

Table 1 continued

	Red (high risk)	Amber (alert to high concern)	Green (moderate risk)	Blue (low risk)
SUSS test: stand-squat	<ul style="list-style-type: none"> Unable to get up at all from squatting (score 0) 	<ul style="list-style-type: none"> Unable to get up without using upper limbs (score 1) 	<ul style="list-style-type: none"> Unable to get up without noticeable difficulty (score 2) 	<ul style="list-style-type: none"> Gets up without any difficulty (score 3)
SUSS test: sit-up	<ul style="list-style-type: none"> Unable to sit up at all from lying flat (score 0) 	<ul style="list-style-type: none"> Unable to sit up from lying flat without using upper limbs (score 1) 	<ul style="list-style-type: none"> Unable to sit up from lying flat without noticeable difficulty (score 2) 	<ul style="list-style-type: none"> Sits up from lying flat without any difficulty (score 3)
Other	<ul style="list-style-type: none"> Confusion and delirium Acute pancreatitis Gastric or oesophageal rupture 	<ul style="list-style-type: none"> Mallory-Weiss tear Gastroesophageal reflux or gastritis Pressure sores 	<ul style="list-style-type: none"> Poor attention and concentration 	<ul style="list-style-type: none"> -

BMI, body mass index; BP, blood pressure; ECG, electrocardiogram; SUSS, sit-up, stand-squat.

a. Patients with inappropriately high heart rate for degree of underweight are at even higher risk (hypovolaemia). Heart rate may also be increased purposefully through the consumption of excess caffeine in coffee or other drinks.

b. These are slightly revised from the Junior MARSIPAN document (Royal College of Psychiatrists, 2012b).

c. Or inappropriate normal heart rate in an underweight young person.

Table 2 Key physical assessment parameters and management actions

Check for/measure	What to look for	Specific management
Heart rate	Bradycardia, postural tachycardia	Nutrition, ECG
ECG (especially if bradycardic or any other cardiovascular system complication)	Other cause for bradycardia (e.g. heart block), arrhythmia; check QTc time and electrolytes	Nutrition, correct electrolyte abnormalities; increased QTc interval – bed rest, discuss with cardiologist; no medication unless symptomatic or tachycardic
Blood pressure	Hypotension – refer to centile charts	Nutrition, bed rest; ECG likely to be abnormal while malnourished
Hypothermia	Temperature < 36 °C	Nutrition, blankets
Assess for dehydration	Check electrolytes and renal function	Oral or nasogastric rehydration salts preferred treatment unless hypovolaemic; beware of giving fluid boluses unless hypovolaemic
Hypovolaemia	Tachycardia or inappropriate normal heart rate in undernourished young person, hypotension and prolonged capillary refill time	Senior paediatric review, normal saline 10 mL/kg bolus then review; if intravenous fluids needed, use normal saline with added potassium chloride and electrolytes (e.g. phosphate) as required; consider intercurrent sepsis
Other features of severe malnutrition	Lanugo hair, dry skin, skin breakdown and/or pressure sores	Nutrition; if skin breakdown or pressure sores, seek specialist wound care advice
Evidence of purging	Low potassium, metabolic alkalosis or acidosis; enamel erosion, swollen parotid glands, calluses on fingers	Specialist nursing supervision to prevent vomiting
Hypokalaemia	Normal electrolytes does not exclude medical compromise	Admit if <3 mmol/L; ECG; intravenous replacement initially; consider HDU, PICU or ICU if <2–2.5 mmol/L
Hyponatraemia/hypernatraemia	Less common, consider water loading	Admit if <130 mmol/L; consider HDU, PICU or ICU if <120–125 mmol/L; if intravenous correction proceed with care
Other electrolyte abnormalities	Check phosphate, magnesium, calcium	–
Hypoglycaemia ^a	–	Admit; oral or nasogastric correction where possible; intravenous bolus if severe – 2 mL/kg of 10% glucose followed by glucose-containing infusion (e.g. 5 mL/kg/h of 10% glucose with 0.45% saline); glucagon may not be effective in malnourished patients
Mental health risk or safeguarding/family	Suicidality, evidence of self-harm, family not coping	Admit for comprehensive psychosocial assessment with CAMHS involvement. Apply local self-harm and safeguarding procedures

CAMHS, child and adolescent mental health services; ECG, electrocardiogram; HDU, high-dependency unit; ICU, intensive care unit; PICU, psychiatric intensive care unit.

a. Hypoglycaemia is a relatively rare finding at presentation and implies poor compensation or co-existing illness (e.g. infection). Once re-feeding is established, brief hypoglycaemia can be found after meals but should normalise rapidly.

Location of care

Where will the patient be best treated?

The decision of where to admit rests on the clinical state of the child, the services available locally as part of a network of care for children and adolescents with anorexia nervosa and, where possible, parental or patient choice. A child whose primary need is acute medical stabilisation should be admitted to a paediatric bed. Children admitted a long distance from home should be supported in maintaining contact with family and peers. For children aged 12 years and under, the unit should be suitable for younger patients (Box 1).

Transfer between services

- There should be joint protocols between services to ensure safe transfer and optimal transition between services of young people with severe anorexia nervosa. If this is not possible, 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 including the patient and family, so that it is very clear what will happen during and after the transfer of care, and who is responsible for what. Continue such meetings until transfer is satisfactorily achieved.
- Safe care pathways and joint working between different organisations should be supported by commissioners.
- Parent and carer concerns need to form part of the risk assessment.

Box 1 Specialist eating disorder provision

Specialist eating disorder beds for children should be able to provide:

- Expertise in nasogastric feeding (insertions may be performed off site)
- Daily biochemistry
- Frequent nursing observations, up to and including 1:1 when indicated
- Prevention of anorexic behaviours (e.g. water loading, excessive exercising)
- Electrocardiograms, daily if needed
- Management of the resisting child (including safe holding, short-term use of paediatric psychopharmacology)
- Use and management of the Mental Health Act 1983 in under-18-year-olds, the Mental Capacity Act 2005 in 16- to 18-year-olds and the Children Act 2004
- Assessment of tissue viability in emaciated patients and treatment of pressure sores
- Immediate cardiac resuscitation by staff trained to administer resuscitation
- Access to advice from paediatricians and paediatric dieticians in a timely and flexibly responsive manner

Paediatric wards should additionally be able to provide:

- Expertise in management of emaciated children
- Intravenous infusions
- Treatment of serious medical complications
- Cardiac monitoring
- Provision of a paediatric 'crash' team
- Central venous pressure lines
- Total parenteral nutrition
- Artificial ventilation

Compulsory admission and treatment

Patients with an eating disorder have a mental disorder, might be putting their lives at risk and might require in-patient treatment. Feeding is recognised as treatment for anorexia nervosa and can be done against the will of the patient as a life-saving measure. Young people under 16 can be treated against their will if at least one parent consents to treatment on their behalf. However, if the child actively fights the parental decision regarding the necessity of the treatment, compulsory treatment needs to be considered. This applies to decisions within the zone of parental control (i.e. decisions parents would normally make on the child's behalf that are in the child's best interest).

The decision to apply the Mental Health Act 1983 should be considered from the outset in a Junior MARSIPAN patient refusing treatment. If both the child and the parent refuse treatment, local safeguarding procedures should be followed and the Children Act 2004 (for patients up to age 18) used if necessary. An identified CAMHS consultant with a special interest in eating disorders should provide a second opinion in cases where there is a disagreement or uncertainty.

Consultant paediatricians can no longer be the responsible clinician for a patient detained under the Mental Health Act. The responsible clinician must be an approved clinician. Trusts need managerial structures in place to receive and administer the detention paperwork.

Recommended policies and protocols

- Criteria for paediatric v. psychiatric admission.
- Special nursing: qualifications and supervision of 1 : 1 nurses; role of paediatric v. psychiatric nurses.
- Social work and legal aspects: availability of advice in situations of non-consent to treatment by either young people or their parents/carers.
- Mental Health Act: criteria for its use, identification of responsible clinician, identification of responsible manager.
- Specialist eating disorder beds (SEDBs): consultation and referral, including consideration of provision for children 12 years of age and under.
- Issues around funding (e.g. special nursing or referral to specialist eating disorders unit).
- Liaison psychiatry services (where they exist) or tier 4 CAMHS.
- Training role, involvement of consultants and trainees with patients admitted and consultation with eating disorder specialists.
- A Junior MARSIPAN group with at least a paediatrician, a child and adolescent psychiatrist, a dietician and a nurse.

Management in specific healthcare settings

Management in general practice

A single consultation about weight and eating concern is a strong indicator of a possible eating disorder. Early intervention is associated with better outcomes and a higher recovery rate than in later years. Behavioural indicators of anorexia nervosa include being a reluctant attender, seeking help for physical symptoms, resisting weighing and examination, covering the body, being secretive or evasive, increased energy (and in some cases agitation), and getting angry or distressed when asked about eating problems. Eating disorders co-exist with other disorders. The SCOFF questionnaire is a screening tool for general practice validated in adults (Morgan *et al*, 1999). Height, weight and BMI should be measured and plotted on centile charts, and a %mBMI (current BMI divided by BMI on the 50th centile for age and gender multiplied by 100) calculated. Initial assessment should include general examination, including pulse rate and blood pressure, with baseline blood tests and electrocardiogram for underweight patients or patients where weight is low or continuing weight loss.

At first presentation:

- consider findings from physical examination, including degree of underweight if relevant
- establish weight monitoring plan
- discuss psychiatric risk as needed
- provide the patient and family with information about the nature, course and treatment of eating disorders
- refer to the appropriate CAMHS or paediatric service depending on level of risk

- patient and parents should be advised not to increase intake rapidly, even if motivated to do so.

General management of anorexia nervosa in out-patient settings and differential diagnosis is summarised in Box 2.

Box 2 Management and differential diagnosis of anorexia nervosa in out-patient settings

Management:

- Rapid exclusion of other conditions
- Risk assessment: age/gender-specific body mass index centile, blood pressure, heart rate, temperature, baseline bloods and self-harm
- Refer every young person with probable anorexia nervosa to child and adolescent mental health services (CAMHS)
- Refer any child who has one or more criteria in the high risk/red category (see Table 1) to paediatrics, with simultaneous referral to CAMHS
- If re-feeding in the community, check electrolytes, phosphate, magnesium as for in-patient care. Where regular bloods are not feasible, in-patient admission should be sought
- Monitor at least weekly until seen by CAMHS or paediatrics

Differential diagnosis:

- Endocrine – diabetes mellitus, hyperthyroidism, glucocorticoid insufficiency
- Gastrointestinal – coeliac disease, inflammatory bowel disease, peptic ulcer
- Oncological – lymphoma, leukaemia, intracerebral tumour
- Chronic infection – tuberculosis, HIV, viral
- Psychiatric – depression, autism spectrum disorder, obsessive-compulsive disorder

Management in out-patient paediatric settings

A paediatrician's role with a young person with eating disorders is to:

- exclude other diagnoses for weight loss
- monitor physical health
- provide health information.

When a young person is under the care of CAMHS, the role of the paediatrician needs to be clear to all involved. A paediatrician cannot replace input from CAMHS and should not be the main carer of a patient with anorexia nervosa for any significant amount of time. Structures should be put in place for regular communication between CAMHS and the general paediatrician.

Management in in-patient paediatric settings

Medical reasons for admission in the severely unwell include administration of intravenous fluids to correct electrolyte abnormality, re-feeding for severe malnutrition, management of physical complications of severe malnutrition and/or associated behaviours such as electrolyte disturbance secondary to purging, and management of an acute medical illness unrelated to anorexia nervosa. The aim is to medically stabilise the patient with prompt discharge from the paediatric ward once it is safe to do so. Paediatric settings can also have a role as agreed locally, including respite for parents, assessment and investigation, self-harm, etc.

Throughout admission, consistent and coordinated care is paramount, with multidisciplinary collaboration on management of re-feeding, disordered eating and associated behaviours. Every hospital to which a young person with severe anorexia nervosa is likely to be admitted should identify a consultant paediatrician with the following qualities:

- an interest in this patient group
- training in the clinical problems of patients with severe anorexia nervosa and their

management (or can be supported to achieve these)

- expertise in the nutritional support of those with anorexia nervosa or can be supported to achieve this
- part of a multidisciplinary team
- access to in-patient beds
- an association with a CAMHS team with an interest or expertise in eating disorders.

This individual should be made aware whenever a patient with anorexia nervosa needs to be or is admitted, and should consult and coordinate care from a paediatric perspective, ensuring protocols/procedures are in place to effect appropriate management and calling for opinions/expertise when needed. 'Consultant of the week' systems carry the risk of discontinuity of care, so effort should be made to ensure consistency of senior paediatric care.

All paediatric units into which a severely ill patient with anorexia nervosa is likely to be admitted should have an identified psychiatrist available for consultation to provide advice, training and support to paediatric units and help develop a shared care approach. They should have the following qualities:

- an interest, training and expertise in this subject (or can be supported in achieving these)
- in a position to be able to provide shared care for those admitted to a paediatric ward
- an association with paediatric staff, specifically those with an interest or expertise in eating disorders.

The psychiatrist might come from an eating disorders, liaison psychiatry or tier 4 service and be in a position to provide prompt and reliable input (with cover arrangements) as required.

To facilitate the paediatric/psychiatric partnership, we recommend:

- the production of guidelines for medical management of severely unwell patients with an eating disorder, aimed primarily at junior medical staff
- a guide for nursing and medical staff on supporting patients and families
- regular staff meetings to ensure a consistent approach.

For each admission the following points are recommended.

- A multidisciplinary team meeting should be held regularly – weekly or more frequently if required – until discharge, involving senior paediatric, psychiatric and nursing staff together with dietetic involvement and other individuals as required. Trainees must be adequately supported by senior colleagues.
- The meeting should include a review of progress with parents, future plans (including discharge plans) and a meeting with the young person to convey these as appropriate, with minutes recorded and circulated to the professionals, family and young person.
- The formulation of a specific nursing care plan that addresses the specifics of patient care for those with an eating disorder. We recommend not nursing in a separate cubicle unless there are indications to do so.

Care on the paediatric ward

Children exhibiting anorexic behaviours (e.g. refusing and hiding food, exercising excessively and vomiting) can prove particularly challenging for acute paediatric admission services. Staff need a working knowledge of the illness and to be backed up by close liaison during the admission. The psychiatric liaison team play a key role in both training and support. We recommend that continuity of nursing care is maintained where possible. When 'special' additional nursing is needed, these staff need to be appropriately trained and arrangements put in place for handover. CAMHS eating disorder teams and paediatric services should develop behaviour-specific care plans to guide those providing extra nursing support.

On paediatric wards, it is normal for parents and carers to stay for much or all of the time. By the time the young person needs admission to hospital, parents/carers are often frightened and exhausted, which limits their ability to manage challenging behaviours. Nevertheless, supporting them in beginning to help their child reverse their deterioration can set the scene for a family's involvement in the young person's recovery.

Most paediatric wards have access to teaching. It is important to consider carefully the amount

and level of academic work that a young person with anorexia nervosa is able to undertake – they might be anxious about missing school work but not be well enough to concentrate. Ensure that the school is aware of the admission and delivery of education on the ward, subject to parental or the young person's consent (depending on age/capacity). Consider the impact of the young person's behaviour on others and vice versa, especially if admission is prolonged. Consider restricting time off the ward.

Paediatric dieticians should be contacted when a child with anorexia nervosa is admitted and a safe meal plan agreed with the team and the family (with no more than 3–5 food dislikes, generally ones they had before developing an eating disorder), including a list of snacks with similar calorific values. Estimate dietary intake prior to admission, with a particular focus on carbohydrate and B-vitamin intake, and identify any self-restriction (e.g. vegetarianism, veganism). If meals are not finished, the child/young person should have the option to make up lost calories with nutritionally complete 2 kcal/mL Ensure® TwoCal, 2.4 kcal/mL Fortisip® Compact or Ensure® Compact sip feeds. Use age-appropriate paediatric supplements/feeds (e.g. 1.5 kcal/mL feeds Fortini®, Paediasure® Plus, Frebini® Energy) during the early stages of re-feeding to help reduce the risk of re-feeding syndrome. Using a fat-free supplement alone (e.g. Fortijuice®) is not advisable. Where there is no paediatric dietician, seek immediate advice rather than waiting. Consider nasogastric tube insertion after 24 h if meals cannot be completed. A record of the meal plan should be held by staff, parents and the young person (unless they prefer not to have a copy).

The person who will be present and have the responsibility for observation, length of snack and meal times, and actions to be taken if a meal is not finished needs to be agreed and documented. If a young person is being nasogastrically fed, they should still be offered food at each meal and nasogastric feeding tailed off as oral intake improves.

Nasogastric feeds can be intermittent, bolus or continuous. Many eating disorder specialists advocate daytime bolus feeds at mealtimes so as to mimic physiological demand and so that choice can be offered on each occasion ('Are you going

to eat, drink or be fed this time?'). Night-time feeds are less helpful in anorexia nervosa than in many other paediatric conditions, because patients might stay awake to monitor the feed going in. Continuous nasogastric feeds, when used, need to be closely monitored. Insertion of a nasogastric tube against the will of the patient requires training in safe control and restraint techniques, and an appropriate legal framework. Percutaneous endoscopic gastrostomy tube feeding may be considered in severe or chronic cases, when the focus is on improving other areas of functioning.

Weighing in the same way and at the same time will help to minimise fluctuations in weight from non-nutritional reasons. For example, weigh the patient on the same scales, in the morning before breakfast and after emptying the bladder, in underclothes only. Consider restricting access to fluids, including other patient's drinks, taps/toilets/showers. Measure urine specific gravity at the same time as being weighed if necessary. Restrict access to ward scales.

Re-feeding syndrome and underfeeding syndrome

Sudden reversal of prolonged starvation leads to a sudden requirement for electrolytes involved in metabolism, known as re-feeding syndrome. Phosphate levels can fall rapidly, with neurological and cardiovascular consequences. Those most at risk of re-feeding syndrome are patients with very low BMI, minimal or no nutritional intake for more than a few days, rapid weight loss and those with abnormal electrolyte levels prior to re-feeding. A safe approach to re-feeding acknowledges the possibility of the rare, but potentially fatal, re-feeding syndrome while also recognising that an over-cautious approach (underfeeding syndrome) can be equally risky. There is little consensus in re-feeding guidelines, but clinical experience suggests that for the majority of patients an over-cautious approach to re-feeding is not necessary. However, close monitoring is required and a more careful approach might be needed in very high-risk patients. Estimates of the rate of intake increase also vary; a common recommendation is to increase intake daily from baseline by 200 kcal/day, dependant on biochemistry. If phosphate drops, then intake should remain static, not reduced,

until it stabilises. Blood tests are typically done daily during the first 2–5 days in those who are being nasogastrically fed or have risk factors for re-feeding syndrome. Repeating after 7–10 days is also recommended because of the risk of late re-feeding syndrome. For those being orally re-fed without risk factors, or being treated as out-patients, frequency of blood monitoring will be individualised. The aim is to reach full nutritional requirements in 5–7 days. Meal plans should ensure a weight gain of 0.5–1 kg a week, with weight monitored no more than twice a week. Trends are more important than individual weight measurements.

Avoidance of re-feeding syndrome can be encouraged by increasing dietary phosphate (e.g. milk). It is not standard practice to prescribe thiamine, multivitamins or phosphate replacement, although some do. Management of re-feeding is described in Box 3.

Behavioural management of patients with eating disorders on paediatric wards

Potential behavioural problems in young people with eating disorders cause great anxiety for those unfamiliar with them, and can increase risk

Box 3 Management of re-feeding

- **Starting intake should be no lower than intake prior to admission. For most patients starting at 20 kcal/kg/day or higher appears safe. Electrolytes and clinical state need careful monitoring and transfer to a paediatric unit may be required if, for example, phosphate falls to <0.4 mmol/L.**
- **In the highest risk patients, such as those with echocardiogram abnormalities, cardiac failure, electrolyte abnormalities, active comorbidities, or very low initial weight, use a lower starting intake (e.g. 5–10 kcal/kg/day) or add phosphate supplements and review twice daily, increasing intake until weight gain is achieved. Low-calorie feeding should be discussed with a nutrition support team.**
- **Re-feeding syndrome is most likely to occur in the first few days of re-feeding but may occur up to 2 weeks after. Continue biochemical monitoring for a fortnight.**

if not managed. Such behaviours are predictable and confirm the diagnosis. Patients are not always aware of, or in control of, these behaviours. Common behaviours include compulsive exercising (e.g. running up and down stairs, jiggling legs, walking around); wearing few clothes in order to shiver; preventing attempts to feed (e.g. disposing of food, turning off nasogastric feeds); running away; vomiting; becoming distressed or violent when requests are not complied with; falsifying weights by drinking water, wearing weights and gripping the scales with toes. Patients will be unable to alter their behaviour without a lot of support. Useful strategies include increasing staff numbers (special observations), agreeing a contract with the patient, confining patients to areas that can be more easily observed, locking toilets and bedrooms and observing patients during therapeutic activities. Occasionally, one-to-one nursing is required. Decisions about how to involve parents in the management of these behaviours should be made in multidisciplinary meetings with the senior staff responsible for the young person's care. Management of behavioural problems in a paediatric setting is outlined in Box 4.

Bed rest can be indicated in exceptional circumstances, although it is extremely distressing for young people with anorexia nervosa unless they are robustly supported. Generally, gentle activity (watching TV, reading a book) can reduce distress but must be supervised, as will arrangements for toileting and washing, which need to be explained, documented and maintained with consistency. Self-induced vomiting can be decreased by limiting access to toilets after food for 1 h and close observation. Be vigilant about the availability of syringes for aspiration and laxatives. Bingeing is uncommon in younger age groups, because a supply of food is required, but nonetheless should be considered.

Assessment by the psychiatry team is required if there is concern about a risk of or actual self-harm or suicidal ideation. Comorbid conditions such as obsessive-compulsive disorder and anxiety are common and might require specific management advice.

If young people become severely distressed about eating, psychiatric advice should be sought and

consideration given to specific psychiatric nursing and medication. Trusts should have their own policies for the management of violent or otherwise disturbed behaviour, including management of an acute situation. Continued restraint requires specific training.

Criteria for discharge from paediatric in-patient admission

- The patient must be physically stable with clinical problems that can be safely managed in an SEDB or in the community (i.e. the patient is no longer severely physically ill, as defined above).
- A decision about discharge should only be made after multidisciplinary discussion at senior level, and should be based on the clinical needs of the patient following a full multidisciplinary assessment of physical, nutritional and mental health needs.
- Discharge planning should begin soon after admission and discharge criteria agreed.

Box 4 Behavioural management of eating disorders in a paediatric setting

- **If weight gain is less than expected or there are sudden changes in weight, assume weight-altering behaviours. These are inevitable and punitive responses should be avoided.**
- **Early in the admission, schedule a meeting of key staff to decide how to achieve treatment aims. Document the meeting clearly in the notes. Involve (usually) parents/carers and (usually) the patient in discussions about the treatment plan.**
- **Establish the level of nursing supervision needed, and the level of parental care possible or appropriate. When possible, employ a nurse from the specialist eating disorder service to supervise and train.**
- **Write a management/care plan to be transferred between nurses with proper handover.**
- **Schedule review meetings of staff, parents and young person, to ensure goals are met or revised.**
- **Be prepared to use the Children Act 2004 and/or Mental Health Act 1983 if necessary.**

- Transfer to an SEDB with a nasogastric tube should be possible, provided dietetic review and paediatric nursing support is available to reposition nasogastric tubes.
- When an SEDB is required but not immediately available, a continuing multidisciplinary plan for care must be agreed until transfer is possible, with regular multidisciplinary meetings to assess risk, review progress and plan care accordingly.
- All transitions are moments of increased risk. Full documentation and plans for post-discharge care are required, with plans in place to address specific needs.

Families

Families do not cause eating disorders. Parental anxiety is often valid, and often the only reason that a young person has reached care. Furthermore, parents and carers are often the only source of comfort to a severely ill child or young person, who might be very frightened despite their denial and seemingly self-destructive behaviour. A young person meeting Junior MARSIPAN criteria is likely to be relying on parental support to eat at all. In addition, separation anxiety is common. However, staff might recognise that a young person is unlikely to change their eating behaviour unless the responses of those around them also change. A non-judgemental attitude is essential when working with parents and carers, who are best considered partners in the process of recovery. Nursing staff might be able to feed the patient better, by virtue of their emotional distance, but trial transfers of responsibility to parents, carers or the young person should be made as soon as possible. Providing opportunities to practice in different contexts will help clarify the level of support the young person needs to eat and from whom, and therefore length of stay and future treatment. Individual circumstances need to be considered with respect to parent/carer and sibling visits and involvement at meal times; siblings must not get drawn into a parenting role.

The role of commissioners in supporting Junior MARSIPAN patients

We recommend that commissioners require their local providers to develop strategies that can be agreed and appropriately commissioned. They should ensure that each region defines the location of the beds that will become SEDBs where these do not already exist, with a clear view about whether such beds will be co-located in units that accept emergency admissions of acutely disturbed adolescents with other mental disorders or located in a unit in a region that does not take emergencies. Where the only resource is a bed in a unit that does not take emergencies, alternative arrangements for the timely admission of young people with severe anorexia nervosa (e.g. an identified paediatric ward) are needed.

When the location of SEDBs is identified, commissioners should put together a Junior MARSIPAN group (child and adolescent psychiatrist, paediatrician, paediatric dietician, paediatric and psychiatric/eating disorders nurses) to act as a focus for skill development/dissemination and advice when a child is admitted to a paediatric bed, that is located in a hospital able to admit such patients. The Junior MARSIPAN team should have explicit links with tier 4 CAMHS eating disorders services, who will work in conjunction with tier 3 CAMHS. We suggest that one or two hospitals be identified within each strategic health authority area (average population in England per area: 5 million), so that patients can be transferred if required.

Decision-making and documentation

Good communication within the multidisciplinary team and with individuals and their families ensures consistency in decision-making and clarity of roles and responsibilities. Senior clinicians should be

directly involved in decision-making, involving the multidisciplinary team and resolving differences of view that arise. It is advisable that parents and young people are involved in decision-making; even when young people do not have the capacity to make decisions for themselves, hearing how the decision was reached can be helpful. Parents and carers will need the necessary information to make decisions collaboratively. There should be good documentation of all decisions about care, including nursing care plans and meal plans, that can be shared with the young person and family.

Management in specialist eating disorders beds

There are fewer specialist eating disorder units (SEDUs) for young people (below 18 years of age) than for adults, and many are in the private sector. Approximately 60% of young people with severe anorexia nervosa are treated in general adolescent units, and the remainder in SEDUs. The same level of medical care should be provided in both settings. If a young person is in a generic CAMHS unit and needs additional support for the management of eating disorder behaviours, consideration should be given as to whether that young person might be better placed in a SEDU.

The recommended criteria for a SEDB in either setting are listed in Box 1 (p. 9). The services provided by SEDBs are summarised in Box 5. Medical, nursing and dietetic staff for SEDBs have a responsibility to gain and maintain the appropriate level of knowledge of nutritional problems in young people and about their treatment. This is typically higher than for general training. For example, SEDB consultants should attend a course in clinical nutrition, and be knowledgeable about the assessment of nutrition, clinical risk, prevention and treatment of re-feeding syndrome and management of oral and nasogastric feeding. Medically compromised patients might require some modifications to standard furniture and equipment: special beds (e.g. ripple mattress, facilities for raising the foot and head), drip stands, special flooring (e.g. wooden to protect against spilt feed) and similar alterations.

SEDB staff need an agreed protocol for patient transfer to an identified paediatric/medical ward. We recommend that a specific consultant paediatrician, preferably with an interest in nutrition, is identified as a link. The paediatrician would have the role of advisor to the SEDB staff, be available for teaching and discussion, consultation about individual patients and discussion of abnormal results, and to supervise and teach on-call doctors who might be placed in the position of advising SEDB staff.

A small proportion of patients actively resist re-feeding, and physical restraint or sedation is needed. There are no clinical trials evaluating emergency sedation in severe anorexia nervosa in young people. The majority of adult services use oral and parenteral benzodiazepines and oral olanzapine, and there are a small number of trials and case series of atypical antipsychotic use in

Box 5 Services provided by specialist eating disorders beds

- Safe re-feeding, including access to dietetic advice
- Expertise in nasogastric feeding (insertions may be performed off site)
- Blood pressure, pulse, temperature and serum glucose monitoring up to every 4 h
- Daily biochemistry
- Echocardiograms, daily if needed
- Timely access to medical staff during and out of hours
- Assessment of tissue viability in emaciated patients and treatment of pressure sores
- Immediate cardiac resuscitation, with staff trained to administer resuscitation
- Access to advice from paediatricians and paediatric dieticians in a timely and flexibly responsive manner, ideally in the form of a Junior MARSIPAN group
- Frequent nursing observations, up to and including 1:1 when indicated
- Prevention of anorexic behaviours (e.g. water loading, excessive exercising)
- Management of resistant child behaviours, including safe holding techniques and the acute and medium-term paediatric psychopharmacology of children with eating disorders
- Use and management of the Mental Health Act 1983, expertise with the Mental Capacity Act 2005 with respect to 16- to 17-year-olds and Children Act 2004 for children under 16 years of age
- Psychological interventions for the young person and the family
- Age-appropriate educational facilities

young people. In the absence of clinical trials in profoundly malnourished patients, clinicians should use the lowest doses possible because of the risk of physical complications, especially hypotension, respiratory arrest or extended QTc interval (which increases the risk of arrhythmia). Frequent monitoring of side-effects, which are relatively common but usually mild, is essential.

When additional nursing support is required, the costs can be high. Some patients require long-term one-to-one or even two-to-one nursing. In this relatively uncommon and potentially life-threatening situation, funding should be sought at a primary-care level, rather than be left as the responsibility of a single trust, and be subject to quantitative and qualitative scrutiny.

Areas with limited local eating disorder provision

We urge all commissioners to ensure that young people living in their areas have access to a specialist eating disorders service, with appropriately trained staff and both in- and out-patient provision in line with commissioning guidance. Specific consideration should be given to the needs of those first presenting at 17 years of age, shortly before the transition to adult services, for whom links with adult services might be appropriate from early on. For children who are very young (8–11 years of age), regional or national provision might be

needed. In addition, each area needs adequate liaison services that can support the care of patients with eating disorders in paediatric settings, providing appropriate expertise in relation to psychiatric and legal aspects of care.

Lack of accessible specialist eating disorders services is a substantial problem for sparsely populated areas, those separated from the mainland, as well as those far from the nearest SEDB. In line with adult MARSIPAN recommendations, we support the following principles of service provision.

- Identify a local child and adolescent psychiatrist with training in, or a willingness to be trained in, eating disorders and a local paediatrician with training in, or a willingness to be trained in, nutrition. They should be joined by a dietitian and a nurse to form a local Junior MARSIPAN group and be supported by the local specialist service.
- This group should develop a local policy on Junior MARSIPAN cases, to include identification, resuscitation and preparation for transfer to a suitable treatment setting with SEBD.
- In the case of urgent treatment needing to be provided locally (e.g. in a paediatric ward), eating-disorder expertise should be sought to provide guidance and staff support, and arrangements made for specialist eating-disorder support to be provided on site where possible. Many specialist eating disorders services see this type of outreach as part of their role.

Audit and review

The Royal College of Psychiatrists and the charity BEAT wish to collate information on all deaths from eating disorders so that the maximum possible can be learned from these tragic events. Clinicians are urged to provide information. We recommend that patients with eating disorders are selected for review through the National Confidential Enquiry into Patient Outcome and Death system. The medical care of patients seen in CAMHS will be included in the Royal College of Psychiatrists' nationwide Quality Network for Eating Disorders. Services should monitor the quality of provision for treatment of severely ill patients with anorexia nervosa; a policy generated jointly should be made available and serious incidents and 'near misses' investigated jointly and a report issued, with follow-up of recommendations within a reasonable time frame.

Resources and further guidance

A number of services have developed comprehensive protocols for the treatment of young people with eating disorders for the guidance of junior doctors and nursing staff.

- Examples of protocols and clinical guidelines for the care of children and adolescents with eating disorders can be found on the Junior MARSIPAN website (<https://sites.google.com/site/marsipannini>), along with some of the literature referred to in this document.
- The Academy for Eating Disorders has produced a guide to early identification and management of eating disorders: *Eating Disorder: Critical Points for Early Recognition and Medical Risk Management in the Care of Individuals with Eating Disorders* (www.aedweb.org/index.php/education/eating-disorder-information/eating-disorder-information-13).
- Commissioning guidance for young people's eating disorder services, including care pathways and staffing recommendations, can be found on the NHS England website (www.england.nhs.uk/wp-content/uploads/2015/07/cyp-eating-disorders-access-waiting-time-standard-comm-guid.pdf).

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