

# Fifteen-minute consultation: Recognition and management of eating disorders presenting to the emergency department

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## ABSTRACT

Eating disorder presentations in children and young people during the COVID-19 pandemic have increased, and this has become a common presentation to paediatric emergency departments (EDs). We cover a structured approach on identifying and managing these presentations within the ED including history taking, what to look for on examination, what investigations are needed and how to decide who requires admission to hospital.

## INTRODUCTION

It is estimated that over 700 000 people in the UK have an eating disorder, with the highest risk of onset in adolescents and young adults.<sup>1</sup> Eating disorder presentations in children and young people (CYP) during the COVID-19 pandemic have increased, and this has become a common presentation to paediatric emergency departments (paediatric EDs) leading to increased admissions to paediatric wards.<sup>2</sup> Not only has this trend been seen in the UK, but one US multicentre study demonstrated a 62% increase in eating disorder presentations to the ED between the months of July and December 2020 compared with 2018–2019.<sup>3</sup> National UK Data from Q2 of 2021–2022 also revealed a 267% increase in urgent cases of eating disorders in CYP awaiting treatment and a 240% increase for routine cases compared with the same period from the previous year.

The eating disorder referral to treatment standard for children and young people states that children and young people referred for assessment or treatment for an eating disorder should receive NICE-concordant treatment within 1 week if the case is urgent, and 4 weeks if the case is routine/non-urgent.<sup>4</sup> When classifying

risk, clinicians should consider the physical risk, psychiatric risk (including risk to self), safeguarding concerns and/or other area of risk (such as risk to others).<sup>4</sup> Data for quarter 2 of 2021–2022 found that only 62.6% of patients started urgent treatment within 1 week of presentation while 64.8% of patients started routine treatment within 4 weeks, demonstrating that more needs to be done in the initiation of treatment for these young people.<sup>5</sup>

Diagnostic interview data from the National Comorbidity Survey Replication show an increased risk of other mental health disorders in those with eating disorders. This may be the primary reason for ED attendance, hence the importance of a holistic approach to CYP presenting with eating disorders. More than half (56.2%) of respondents with anorexia nervosa, 94.5% with bulimia nervosa and 78.9% with binge eating disorder met criteria for at least one of the core mental disorders assessed, including anxiety disorders, mood disorders, impulse control disorders and substance use disorders.<sup>6</sup>

Early recognition and detection of eating disorders is vital to achieve good long-term outcomes<sup>7</sup>; the PED may be the first time that a patient with an eating disorder has made contact with a healthcare professional. New guidance has been published in the UK this year specifically looking at managing medical emergencies in eating disorders; this replaces the previous Junior MARSIPAN guidance, which many paediatric healthcare practitioners will be familiar with.<sup>8</sup>

## EATING DISORDERS PRESENTING TO ED

The ICD-11 defines four different eating disorders: anorexia nervosa (AN),



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**Table 1** Key features of eating disorders<sup>8,9</sup>

Eating disorder	Clinical features
Anorexia nervosa	<ul style="list-style-type: none"> <li>▶ Energy intake restriction with the aim of body weight reduction or body shape change</li> <li>▶ Intense fear of weight gain</li> <li>▶ Behaviours that interfere with weight gain (eg, excessive exercise, use of laxatives or diuretics, appetite suppression medication)</li> <li>▶ BMI for age of &lt;5th percentile, or a rapid weight loss (eg, more than 20% within 6 months) not accounted for by another medical condition or unavailability of food</li> <li>▶ These are not diagnostic, but you may also see features such as emaciation, loss of muscle strength, dry skin, lanugo hair, cold extremities, amenorrhoea, bradycardia and osteopenia</li> </ul>
Bulimia nervosa	<ul style="list-style-type: none"> <li>▶ Recurrent binge eating episodes often associated with distress</li> <li>▶ Recurrent inappropriate compensatory behaviour (eg, vomiting, purging, excessive exercise, laxative use)</li> <li>▶ A preoccupation with body shape or weight</li> <li>▶ Bloating</li> <li>▶ Fullness</li> <li>▶ These are not diagnostic, but you may see Russell's sign (knuckle calluses from induced vomiting), loss of enamel on teeth from repeated vomiting or parotid swelling</li> </ul>
Binge eating disorder	<ul style="list-style-type: none"> <li>▶ Recurrent binge eating episodes</li> <li>▶ Bingeing is often accompanied by negative emotions, for example, guilt or disgust. It may lead to weight gain and in some cases obesity</li> <li>▶ No regular inappropriate compensatory behaviour</li> </ul>
Avoidant/restrictive food intake disorder	<ul style="list-style-type: none"> <li>▶ There may be a low interest in eating or a sensory-based avoidance as examples</li> <li>▶ Intake of an insufficient quantity or variety of food to meet energy and nutritional requirements</li> <li>▶ May result in weight loss, nutritional deficiencies or other negative impacts on the physical health of the person, or impairment in other aspects of their life, for example, unable to socialise due to distress associated with eating</li> <li>▶ Not related to beliefs about weight/shape</li> </ul>
Other specified feeding/eating disorder	<ul style="list-style-type: none"> <li>▶ Features of AN, BN or BED</li> <li>▶ Not clinically met by ICD-11 criteria</li> </ul>

bulimia nervosa (BN), binge eating disorder (BED) and avoidant/restrictive food intake disorder (ARFID). For those who do not meet these definitions, there is an additional classification of other specified feeding/eating disorder (OSFED). All five eating disorders share some characteristics such as unusually low/high BMI, change in eating behaviour, disproportionate body weight/shape concern and menstrual problems. Table 1 illustrates some of the key features of each eating disorder to help differentiate them.<sup>8,9</sup>

It is important to consider and rule out any organic causes, particularly if this is the first presentation. The list of possible differentials is long and varies depending on the clinical features. As an example, haematological changes found in anorexia nervosa can also be seen in haematological malignancies and weight loss can be a feature of chronic infections such as tuberculosis, or other chronic conditions such as coeliac disease. As with any patient, a full history and examination should be done to start to narrow the differential down, and initial basic investigations performed.<sup>8</sup>

## HISTORY

Diagnosis and the management of eating disorders can be challenging in CYP.<sup>10</sup> Presentation to the emergency department may be the child's initial contact with any healthcare professional about their eating disorder. It is important to remember that complications as a result of eating disorders can occur at any weight and, therefore, the absolute weight or BMI should not dictate the need for admission in isolation.<sup>8</sup>

As well as a general paediatric history, a focused eating history and psychosocial history should be taken. The HEEADSSS assessment (covering Home and environment, Education and employment, Eating and exercise, Activities, Drugs/substances, Sexuality, Suicide/depression and Safety) is useful to get an overall psychosocial history.<sup>11</sup>

A thorough medical history is important. The prevalence of autistic spectrum disorder (ASD) and emotionally unstable personality disorder (EUPD) is higher in those with eating disorders, so asking about other known diagnoses is important.<sup>8</sup>

A more detailed history on the patient's weight and eating patterns should include the following (figure 1)<sup>8,12,13</sup>:

## EXAMINATION/INVESTIGATIONS

A full set of vital signs observations with the patient's height and weight should be taken (the latter ideally without shoes or heavy clothing), plotting them on age-adjusted growth charts or per cent median BMI for age calculated ((BMI/median BMI for age and gender)×100); <85% mBMI is defined as malnutrition and <70% as severe emaciation.<sup>8</sup> Remember that being weighed is anxiety provoking for someone with an eating disorder; therefore, it needs to be performed sensitively and without judgement. Consider whether weight might be altered through drinking fluids or other means.

Any change in postural blood pressure and heart rate should be recorded.<sup>14</sup>

- Maximum and minimum weight
- Quantify recent weight loss
- Typical daily intake (ask about quantity as well as types of foods, with particular attention to avoidance of energy dense foods (fats and sugars))
- Any purging behaviours including exercise
- Any food binging
- Body image and perception – be aware that in males with disordered eating it is often better to ask about perceptions around muscularity rather than weight or “thinness” (14).
- Collateral history from a carer or parent may give yet more information about eating habits and is equally important
- Important to ask about symptoms of anxiety and depression which may be due to concurrent mental health illness or related to the state of starvation. (10) Those with disorders associated binging or purging are also more likely to have worse emotional regulation (15)
- Questions regarding cardiovascular stability should include any history of syncopal episodes, palpitations and the presence of symptoms when standing up or sitting (8)
- Bloating, nausea, and changes in bowel habit may be present. If vomiting is a method of purging,

**Figure 1** Points to cover in history taking.<sup>8 10 20 21</sup>

Eating disorders affect a wide range of body systems,<sup>15</sup> and the examination should take a systems-based approach to identify the potential problems listed below.

- ▶ **Neurology:** Confusion and delirium are signs of severe disease and may represent refeeding syndrome, Wernicke’s encephalopathy or an alternative organic cause. Tetany and seizures are rare but may be secondary to hypocalcaemia.
- ▶ **Cardiovascular:** Bradycardia is common in eating disorders and in particular for those who are underweight. Hypotension secondary to dehydration or pronounced vagal tone along with syncopal episodes may point to cardiovascular instability. ECG changes include right axis deviation and prolonged QTC due to hypokalaemia. Structural changes such as mitral valve prolapse are also seen.<sup>8</sup>
- ▶ **Gastro:** Abdominal bloating, faecal loading and haemorrhoids secondary to constipation have been attributed to a range of eating disorders. Oedema is likely multifactorial, due to a mixture of nutritional status, refeeding syndrome or cardiac failure. Dermatological findings can be widespread,<sup>8</sup> so skin and hair should be examined. Lugano hair, yellowish discolouration of the skin (carotenoderma) or hair loss may all be present. The knuckles may demonstrate Russell’s sign—scars on the knuckles may indicate self-inflicted vomiting. Pressure areas and bony prominences may highlight bruising or skin breakdown.
- ▶ **Ear nose throat:** Dental erosion is the most common oral manifestation of recurrent vomiting.<sup>16</sup> Painless parotid

enlargement, pharyngitis as well as trauma to the oral cavity may be found on examination of the mouth.

Relevant blood tests should be sent in the acute setting: full blood count, renal profile, glucose, electrolytes (including sodium, potassium, phosphate, calcium, chloride and magnesium), liver function tests and amylase. Further blood investigations should include vitamin D, thyroid and gonadotrophins.<sup>6</sup> However, the findings of blood tests alone rarely change management and normal blood results do not rule out an eating disorder.

An ECG should be performed, in particular looking for arrhythmias and a prolonged QTc.

The SUSS test (table 2) for muscle power (Sit Up Squat Stand) may be used. A low score is concerning, but bear in mind that adolescents will often ‘pass’ this test, particularly if they are quite athletic, so don’t be falsely reassured by a good score.<sup>8</sup>

It is important to note that young people with eating disorders may be more unwell than they look and may not have insight into their illness. Examination needs to be carried out sensitively, but with this in mind, ensuring that examination is thorough including looking beneath baggy clothes and an examination of the skin.

## MANAGEMENT

NICE recommend that anyone who requires admission should have a designated general paediatrician as well as a consultant psychiatrist.<sup>15</sup> They should be admitted to an age-appropriate ward with adequate supervision and care.

The overall consensus is that patients with the following complications or examination findings will need to be considered for inpatient management and discussed with the appropriate teams.<sup>8 14 17 18</sup>

1. Weight—BMI below the 0.4th centile (age and gender adjusted) or <70% mBMI, more than 1kg of weight loss in each of the last 2 weeks
2. Eating—Acute food refusal or estimated calorie intake of <500kcal/day for 2+ days
3. Cardiovascular—Heart rate of less than 40 beats per minute while awake, with changes in the postural blood pressure or heart rate (postural drop in systolic BP of >20mmHg or increase in heart rate of >30bpm). Standing systolic BP of <0.4th centile for age
4. An abnormal ECG—Prolonged QTc (consulting normal ranges for age and sex) or changes secondary to electrolyte disturbance

**Table 2** SUSS test<sup>8</sup>

Score	0	1	2	3
Sit up from lying flat	Unable to sit up at all from lying flat	Unable to sit up without using limbs	Unable to sit up without noticeable difficulty	Sits up from lying flat without any difficulty
Stand up from squatting	Unable to get up at all from squatting	Unable to get up without using upper limbs	Unable to get up without noticeable difficulty	Stands up from squat without any difficulty

## Best practice

Assessing	Refeeding	Managing
<p>Does the patient have an eating disorder?</p> <p>Yes AN BN Other            Not sure <b>Request psychiatric review</b></p> <p>Is the patient medically compromised?</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> BMI &gt;13 (adults); mMBI &lt;70% (under 18)?</li> <li><input type="checkbox"/> Recent loss of &gt;1kg for 2 consecutive weeks?</li> <li><input type="checkbox"/> Acute food or fluid refusal/intake &lt;400kcal per day?</li> <li><input type="checkbox"/> Pulse &lt;40?</li> <li><input type="checkbox"/> BP low, BP postural drop &gt;20mm, dizziness?</li> <li><input type="checkbox"/> Core temperature &lt;35.5°C?</li> <li><input type="checkbox"/> Na &lt;130mmol/L?</li> <li><input type="checkbox"/> K &lt;3.0mmol/L?</li> <li><input type="checkbox"/> Raised transaminase?</li> <li><input type="checkbox"/> Glucose &lt;3mmol/L?</li> <li><input type="checkbox"/> Raised urea or creatinine?</li> <li><input type="checkbox"/> Abnormal ECG?</li> <li><input type="checkbox"/> Suicidal thoughts, behaviours?</li> </ul> <p>Is the patient consenting to treatment?</p> <p>Yes            No: <b>Mental health assessment requested</b></p>	<p>High risk for refeeding syndrome?</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Low initial electrolytes</li> <li><input type="checkbox"/> BMI &lt;13 or mBMI &lt;70%</li> <li><input type="checkbox"/> Little or no intake for &gt;4 days</li> <li><input type="checkbox"/> Low WBC</li> <li><input type="checkbox"/> Serious medical comorbidities, e.g. sepsis</li> </ul> <p>High risk? <b>Management:</b></p> <ul style="list-style-type: none"> <li>• &lt;20 kcal per kg per day</li> <li>• Monitor electrolytes twice daily</li> <li>• build up calories swiftly</li> <li>• avoid underfeeding</li> </ul> <p>Lower risk? <b>Management:</b></p> <ul style="list-style-type: none"> <li>• Start at 1,400-2,000kcal per day (50 kcal/kg/day) and build by 200 kcal/day, to 2,400kcal/day or more</li> <li>• Aim for weight increase of 0.5-1kg/week</li> <li>• Avoid underfeeding</li> </ul> <p>Monitoring</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Electrolytes (especially P, K, glucose)</li> <li><input type="checkbox"/> ECG</li> <li><input type="checkbox"/> Vital signs</li> <li><input type="checkbox"/> BMI</li> </ul>	<p>Are medical and psychiatric staff collaborating in care?</p> <p>Yes            No: <b>Psych. consultation awaited</b></p> <p>Are nurses trained in managing medical and psychiatric problems?</p> <p>Yes            No and appropriately skilled staff requested/training in place</p> <p>Are there behaviours increasing risk?</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Falsifying weight</li> <li><input type="checkbox"/> Disposing of food</li> <li><input type="checkbox"/> Exercising</li> <li><input type="checkbox"/> Self-harm, suicidality</li> <li><input type="checkbox"/> Family to stress/anxiety</li> <li><input type="checkbox"/> Safeguarding concerns</li> </ul> <p>Mobilise psychiatric team to advise on management</p>

Figure 2 Eating disorder risk checklist for emergencies.<sup>8</sup>

5. Fluid status—Fluid refusal or evidence of severe dehydration such as reduced urine output, decreased skin turgor, tachycardia, tachypnoea or postural BP drop
6. Electrolyte disturbance
7. Hypothermia temperature—Less than 35.0°C axillary or 35.5°C tympanic
8. Hypoglycaemia—This is usually seen as ketotic hypoglycaemia. Ketotic hypoglycaemia should be treated with complex carbohydrates (eg, Food or Maxijul), rather than be managed with rapid acting carbohydrates like Glucogel. However, in an emergency setting where the cause of hypoglycaemia is not yet certain, it should be managed as per general hypoglycaemia guidance. A hypoglycaemia screen may be helpful and other causes of hypoglycaemia such as Addison's disease should be considered.
9. Behaviour—Food refusal, failure to comply with health-care professionals, treatment failure as an outpatient.
10. Concurrent mental health problems or significant safeguarding concerns.
11. A score of 0 or 1 on the SUSS test.

The new Medical Emergencies in Eating Disorders guidance has an “Eating disorder risk checklist for emergencies” (figure 2) which is helpful when assessing patients presenting with eating disorders to the ED.<sup>8</sup>

Deciding where to admit the patient often not only depends on the physical state of the child or young person but also what services are available. Services may range from an inpatient paediatric bed, specialised eating disorder bed or a generic CAMHS bed. In most cases, admission to a paediatric ward for medical

Start refeeding at home with at least 30-35kcal/kg/day (about 1400kcal a day), but no less than immediate pre-presentation intake.

Increase intake by 200kcal a day until about 2400kcal a day total intake.

Blood tests will need to be done every 1-2 weeks, if the electrolytes are abnormal then refeeding may need to be slowed.

If the patient struggles with irregular eating, they should aim for 3 meals and 2 snacks a day.

If they are vomiting after meals, advice to remain in the company of a parent/carer for 1 hour after meals and not to go to the bathroom alone in this time.

If they have a reduced calorie intake, they should stop all exercise until a medical professional has advised that it is safe.

In the event of a mental health crisis, they should call the crisis help line on **0800 6444 101**

Parents should be advised to come back to the ED if their child has chest pain, shortness of breath, fainting, further reduced oral intake, worsening mental health symptoms, further weight loss, or further concerns.

Figure 3 Advice on discharge.<sup>8 19</sup>

The UK's Eating Disorder Charity - Beat ([beateatingdisorders.org.uk](http://beateatingdisorders.org.uk))

Useful contacts - <https://www.mind.org.uk/information-support/types-of-mental-health-problems/eating-problems/useful-contacts/>

Local eating disorder support services - <https://www.nhs.uk/Service-Search/other-services/Eating%20disorder%20support/LocationSearch/341>

Parent/carer advice - <https://www.hwehealthtogether.nhs.uk/parents/carers/support-advice-parents-eating-disorders/>

Figure 4 Helpful resources for patients and parents/carers.

stabilisation followed by community care by a specialist eating disorders team is the treatment of choice.<sup>8</sup>

Patients, who are shocked (this is relatively uncommon in the UK, but is seen) or those with ECG changes secondary to electrolyte disturbance, should be reviewed by the paediatric intensive care team or discussed with the regional PICU team if there is no on-site PICU.<sup>18</sup> Fluid boluses should only be given after discussion with a senior paediatrician as they may precipitate heart failure. If the child is otherwise dehydrated, then they should be given oral or NG fluids.

Hypoglycaemia is not uncommon and, again, should ideally be managed with oral replacement. On the rare occasion that intravenous dextrose is needed, it should be preceded with intravenous thiamine.<sup>18</sup>

Should the CYP be admitted, the main aims of the paediatric inpatient team are to

1. Stabilise the patient, managing fluid and electrolyte disturbances.
2. Refeed the patient while avoiding refeeding syndrome or underfeeding.
3. Manage any compulsive behaviours.
4. Discharge/transfer to appropriate community or inpatient psychiatric care as agreed with the specialist community eating disorders team.

It is also an opportunity to provide respite for the young person and their family, and to provide support, treatment and education for the young person and their family in a safe environment.

Refeeding should ideally be done orally. Nasogastric feeding is occasionally used but is only a short-term option and normal meals or oral nutritional supplements should be continued to be offered. All patients being referred should have a meal plan designed by a paediatric dietitian. Complications of refeeding are prevented by close monitoring. An agreed protocol for refeeding is helpful for the patient, family and staff.<sup>8</sup>

Patients not requiring admission from ED must have a clear plan prior to discharge. CYP with a suspected or confirmed eating disorder should take an age-appropriate multivitamin.<sup>19</sup> The follow-up plan will depend on the resources available in the local area, but there should be follow-up in place either with CAMHS or paediatric outpatient teams. Finally, they should be discharged with explicit safety netting advice and clear guidance as to when to re-attend ED (figure 3).<sup>8 19</sup>

Patients and their parents/carers can be signposted to online resources such as charities “Beat eating

disorders” and “Mind” which provide good quality information and resources for patients as well as parents/carers including helplines and online chat rooms for further support (figure 4).

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