

Guideline for the Management of Children Admitted to Hospital with Eating Disorders

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|---------------------|---|
| Version | 1 |
| Applicable to | Children or Young Person in Need of Medical Assessment / Admission |
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Disclaimer: This guideline has been ratified at the Child Health Clinical Governance Meeting and CAMHS Eating Disorders MDT Meeting. Clinical guidelines are guidelines only. The interpretation and application of the clinical guidelines will remain the responsibility of the individual clinician. If in doubt, contact a senior colleague or expert. Caution is advised when using guidelines after the review date.

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Introduction:

Eating disorders are mental health conditions with serious physical health impact. The impact is caused by direct effect of starvation in addition to risk of refeeding syndrome. Signs and symptoms of refeeding syndrome can be found in Appendix 1.

Scope:

This document addresses the care of children who have an eating disorder and admitted to the Grange University Hospital for refeeding.

The scope does not cover other important aspects of eating disorders such as location of care and managing children with Type 1 diabetes. Please refer to the Royal College of Psychiatrists’ guidance, Medical Emergencies in Eating Disorders (MEED, 2022) report for further information.

The risk assessment tool (Appendix 2) can be used as an aid memoire to help in history taking for children with suspected eating disorder. It is always important to consider other differential diagnosis. For example, pancytopenia and raised transaminases can both be seen in starvation but are also signs of leukaemia and hepatitis, respectively. Thyroid disorders and coeliac disease may mimic eating disorders.

Criteria for hospital admission:

There are **no** specific criteria which automatically warrant hospital admission. The risk assessment tool (Appendix 2) is a guide for specific points to address.

In some cases, the child may not be at high risk of refeeding syndrome, but the eating disorder team may have enough evidence to believe that compliance is a major issue, and inpatient hospital management may be needed. The monitoring of such patients may not need to follow this guideline. It is important to agree with CAMHS who is going to be the lead clinician in cases of admission due to poor compliance only.

Note: Children can present with eating disorders at ‘normal’ body weights/ BMI, especially if there is a history of preceding obesity.

Physical Monitoring:

The minimum physical monitoring requirements are summarised in Table 1 below.

Weight monitoring should be individualised. As a minimum, weight should be checked on admission and just before discharge.

There are other investigations which may be useful in the assessment of nutritional status but do not have a role in refeeding syndrome assessment. Those investigations include but are not limited to the following: Zinc, Copper, Selenium, CK, Iron studies, Vitamin B12, Folate, Vitamin D, PTH.

| Table 1: Investigations | |
|--|---|
| Interval | Monitoring |
| Admission Investigations: On admission or the week before | - FBC, U&Es, LFTs, CK, glucose (bedside), Bone profile, Magnesium, Coeliac screen, CRP, Thyroid Function Tests - ECG |
| Daily Bloods: for a minimum of 5 days or until achieved full energy requirements | - Electrolytes, Bone profile, magnesium, glucose (bedside) |
| Every 2-3 days | - FBC and LFT -Consider repeating the ECG if it was abnormal initially OR there is a significant electrolyte imbalance. |

Note: ECG abnormalities can either be caused by the eating disorder itself (electrolyte imbalance or chronic starvation) or could be due to a primary cause which is aggravated by the eating disorder. So, cardiology opinion should be sought early in case of ECG abnormalities.

Nutritional Management:

Each child should have an individualised meal plan decided by the paediatric dietitians. Please refer to the paediatric dietitians as soon as possible if refeeding is required following medical review. Within normal working hours (Monday-Friday) the dietitians will aim to review within 24 hours. However, in case of an acute admission out-of-hours, generic meal plans should be initiated until the child has a dietetic review. Initial Generic Meal plans can be found in in the Out of Hours Dietetics Booklet available in Owl Pod.

Aim for an initial caloric intake of 1400-2000 Kcal unless indicated otherwise. Meal Plan 1 provides 1400 Kcal.

The decision to go up a meal plan or stay on the same meal plan is led by the dietitians. However, during out-of-hours this is led by the paediatric medical team. In general, the aim should always be to go up the meal plan if the meal plan intake was completed whether as whole food or Fortisip. If there was a doubt about incomplete completion of meal plans, keep on the same meal plan unless advised otherwise by the dietitians.

Note: Underfeeding is not uncommon and should be avoided.

Supplements and Electrolyte Management:

Table 2 includes ROUTINE supplements which should be prescribed to all children admitted for refeeding. They should not be stopped unless there is clear contraindication which may cause harm to the child that outweighs the risk of possible refeeding syndrome. Table 3 includes additional supplements and medications in case of deficiency. Please note that intravenous replacement is rarely needed, and the threshold values in the table are reminders to consider IV replacement which should always be discussed with the paediatric consultant or PICU/WATCH.

| Table 2: Routine Supplements | | |
|---|----------|-------------------|
| Name of supplement | Dose | Frequency |
| Phosphate (Phosphate Sandoz 500 mg = 16.1 mmol Phosphate) | 1 Tablet | Twice Daily |
| Thiamine | 100 mg | Three times daily |
| Multivitamin (Forceval) | 1 Tablet | Once Daily |

Note: Although very rare, needing intravenous electrolyte replacement is an indicator of advanced refeeding syndrome which is potentially fatal so involve PICU/WATCH early.

| Table 3: Electrolyte management | | |
|--|---|---|
| Problem | Oral Replacement | Intravenous Replacement |
| Hypokalaemia | <p><u>Threshold:</u> <3.0 mmol/L</p> <p><u>Treatment:</u> Sando K (12 mmol Potassium) 2-4 tablets daily</p> | <p><u>Threshold:</u> <2.5 mmol/L or symptomatic</p> <p><u>Treatment:</u> Consider IV correction; NOT exceeding 0.4mmol/kg/hour</p> |
| Hypophosphatemia | <p><u>Threshold:</u> Below reference range for age.</p> <p><u>Treatment:</u> (Phosphate Sandoz 500 mg = 16.1 mmol Phosphate) 2-3mmol/kg in 2-4 divided doses. (maximum 97 mmol/day)</p> | <p><u>Threshold:</u> <0.4 mmol/L or symptomatic</p> <p><u>Treatment:</u> Consider IV correction; 0.4 mmol/kg once daily via slow intravenous injection over 10 minutes</p> |
| Hypocalcemia | <p><u>Threshold:</u> below reference range for age.</p> <p><u>Treatment:</u> Adcal D3 (1500 mg Calcium Carbonate) Twice daily</p> | <p><u>Threshold:</u> <1.8 mmol/L (<1.0 ionised) or symptomatic</p> <p><u>Treatment:</u> Consider IV correction; Calcium gluconate injection (10%) 0.11mmol/kg (=2ml/kg of 10% Calcium Gluconate) via slow IV injection over 10 minutes.</p> |
| Hyponatraemia | The most common cause is dilutional from excessive drinking of water. Consider monitoring input and output as a first line. | |
| Hypomagnesemia | Usually corrected by correcting phosphate and calcium. If critically low or symptomatic treat with IV Magnesium Sulfate 50mg/kg bd (maximum 5 mg/day) | |

Poor Compliance:

Poor compliance should be discussed with CAMHS as soon as possible. All cases will have an MDT meeting within 72 hours of admission. Compliance will be discussed in the meeting. A representative of paediatric team should attend the meeting or have clear documentation of the suggested plan of action to help in the shared decision-making process.

Refusal can take many forms including: refusing food, refusing fluids, refusing hospital admission or blood tests. In most situations, discussion with parents and the young person is enough for resolution. Use of restraint should be avoided. However, use of restraint may be necessary but may also have detrimental effect on mental health and have medicolegal implications. So, the decision for using restraint should be discussed in a multidisciplinary approach or discussed with CAMHS during out-of-hours.

Note: Any compulsory treatment should follow the Mental Health Act. Compulsory action without adhering to this is against the law.

Note: Do not use IV fluids as an alternative to oral or NG feeding. If concerned about the risk of dehydration or hypoglycemia, consider closer monitoring of blood glucose, electrolytes and physical observations including heart rate and blood pressure.

Discharge Plan:

Discharge is decided via a discharge planning meeting involving the dietitian, CAMHS team, paediatrics and other relevant professionals.

Appendix 3 has a suggested discharge checklist.

After discharge, the hospital staff (Paediatric Nurses and Paediatric Doctors) do not need be involved unless specified otherwise. Patients will be followed up by the eating disorders team in CAMHS.

Appendices

Appendix 1:

Refeeding Syndrome

Re-introduction of nutrition to severely malnourished individuals can precipitate refeeding syndrome which may result in cardiac failure and death. The key biochemical abnormality is hypophosphataemia, due to total body phosphate depletion and a shift of extracellular to intracellular phosphate when the body changes from a catabolic state to anabolic. The risk is greatest in the initial stages of refeeding (first week). The incidence increases with decreasing BMI and if weight loss is rapid.

Features of the syndrome include:

- Delirium with visual and auditory hallucinations
- Respiratory compromise (dyspnoea, tachypnoea)
- Generalised weakness and fatigue
- Paraesthesia
- Signs of fluid overload e.g. peripheral oedema, cardiac failure
- Diarrhoea
- Seizures and reduced conscious level
- Electrolyte imbalances

Appendix 2:

| Risk Assessment Tool | | | |
|-------------------------------|--|---|--|
| | Red: High impending risk to life | Amber: Alert to high concern for impending risk to life | Green: Low impending risk to life |
| Weight loss | Recent loss of weight of $\geq 1\text{kg/week}$ for 2 weeks (consecutive) in an undernourished patient ³⁴ Rapid weight loss at any weight, e.g. in obesity or ARFID | Recent loss of weight of $500\text{--}999\text{g/week}$ for 2 consecutive weeks in an undernourished patient ¹²⁶ | Recent weight loss of $<500\text{g/week}$ or fluctuating weight |
| BMI and weight | <input type="checkbox"/> Under 18 years: $m\% \text{BMI}_{35} < 70\%$ <input type="checkbox"/> Over 18: $\text{BMI} < 13$ | <input type="checkbox"/> Under 18: $m\% \text{BMI} 70\text{--}80\%$ <input type="checkbox"/> Over 18: $\text{BMI} 13\text{--}14.9$ | <input type="checkbox"/> Under 18: $m\% \text{BMI} > 80\%$ ³⁶ <input type="checkbox"/> Over 18: $\text{BMI} > 15$ |
| HR (awake) | < 40 | $40\text{--}50$ | > 50 |
| Cardio-vascular health | Standing systolic BP below 0.4th centile for age or less than 90 if 18+, associated with recurrent syncope and postural drop in systolic BP of $> 20\text{mmHg}$ or increase in HR of over 30bpm (35bpm in < 16 years) | Standing systolic BP $< 0.4\text{th}$ centile or < 90 if 18+ associated with occasional syncope; postural drop in systolic BP of $> 15\text{mmHg}$ or increase in HR of up to 30bpm (35bpm in < 16 years) | <input type="checkbox"/> Normal standing systolic BP for age and gender with reference to centile charts <input type="checkbox"/> Normal orthostatic cardiovascular changes <input type="checkbox"/> Normal heart rhythm |

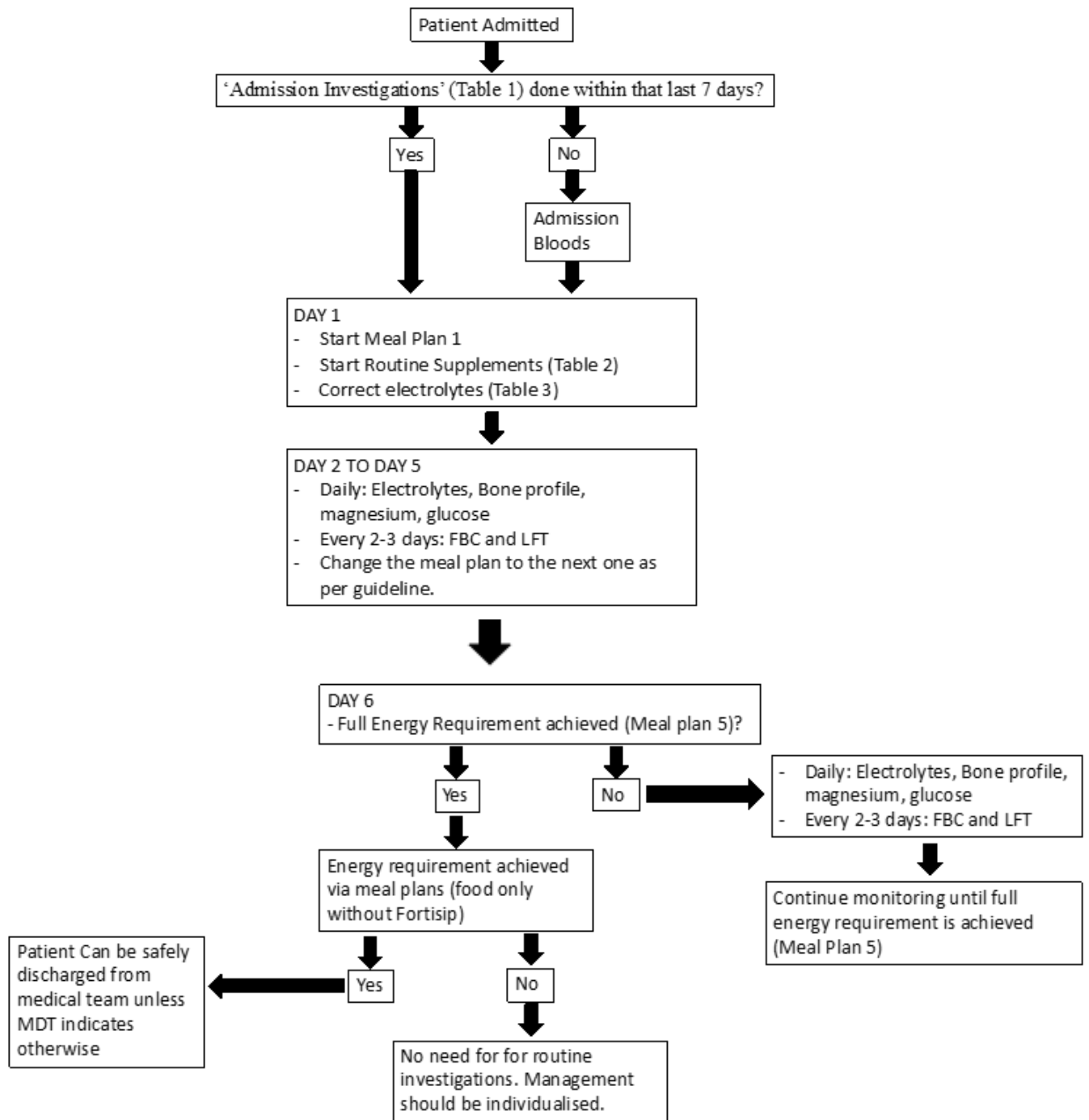
| | | | |
|--|--|---|--|
| Hydration status | - Fluid refusal - Severe dehydration (10%): reduced urine output, dry mouth, postural BP drop (see above), decreased skin turgor, sunken eyes, tachypnoea, tachycardia | - Severe fluid restriction - Moderate dehydration (5–10%): reduced urine output, dry mouth, postural BP drop (see above), normal skin turgor, some tachypnoea, some tachycardia, peripheral oedema | - Minimal fluid restriction - No more than mild dehydration (<5%): may have dry mouth or concerns about risk of dehydration with negative fluid balance |
| Temperature | <35.5°C tympanic or 35.0°C axillary | <36°C | >36°C |
| Muscular function: SUSS Test | Unable to sit up from lying flat, or to get up from squat at all or only by using upper limbs to help (Score 0 or 1) | Unable to sit up or stand from squat without noticeable difficulty (Score 2) | Able to sit up from lying flat and stand from squat with no difficulty (Score 3) |
| Muscular function: Hand grip strength Muscular function: MUAC ⁴¹ | Male <30.5kg, Female <17.5kg (3rd percentile) <18cm (approx. BMI<13) | Male <38kg, Female <23kg (5th percentile) 18–20cm (approx. BMI<15.5) | Male >38kg, Female >23kg >20cm (approx. BMI >15.5) |
| Other clinical state | Life-threatening medical condition, e.g. severe haematemesis, acute confusion, severe cognitive slowing, diabetic ketoacidosis, upper gastrointestinal perforation, significant alcohol consumption | Non-life-threatening physical compromise, e.g. mild haematemesis, pressure sores | Evidence of physical compromise, e.g. poor cognitive flexibility, poor concentration |
| ECG abnormalities | <input type="checkbox"/> <18 years: QTc >460ms (female), 450ms (male) <input type="checkbox"/> 18+ years: QTc >450ms (females), 430ms (males) <input type="checkbox"/> And any other significant ECG abnormality | <input type="checkbox"/> <18 years: QTc >460ms (female), 450ms (male) <input type="checkbox"/> 18+ years: QTc >450ms (females), >430ms (males). <input type="checkbox"/> And no other ECG anomaly <input type="checkbox"/> Taking medication known to prolong QTc interval | <18 years: QTc <460ms (female), 450ms (male) <input type="checkbox"/> 18+ years: QTc <450ms (females), <430ms (males) |
| Biochemical abnormalities ⁴² | <input type="checkbox"/> Hypophosphataemia and falling phosphate <input type="checkbox"/> Hypokalaemia (<2.5mmol/L) <input type="checkbox"/> Hypoalbuminaemia <input type="checkbox"/> Hypoglycaemia (<3mmol/L) <input type="checkbox"/> Hyponatraemia <input type="checkbox"/> Hypocalcaemia <input type="checkbox"/> Transaminases >3x normal range <input type="checkbox"/> Inpatients with diabetes mellitus: HbA1C >10% (86mmol/mol) | | |

| | | | |
|--|---|--|--|
| Haematology | <ul style="list-style-type: none"> <input type="checkbox"/> Haemoglobin <10g/L <input type="checkbox"/> Low white cell count | | |
| Disordered eating behaviours | Acute food refusal or estimated calorie intake <500kcal/day for 2+ days | | |
| Engagement with management plan | <ul style="list-style-type: none"> <input type="checkbox"/> Physical struggles with staff or parents/carers over nutrition or reduction of exercise <input type="checkbox"/> Harm to self <input type="checkbox"/> Poor insight or motivation <input type="checkbox"/> Fear leading to resistance to weight gain <input type="checkbox"/> Staff or parents/carers unable to implement meal plan prescribed | <ul style="list-style-type: none"> <input type="checkbox"/> Poor insight or motivation <input type="checkbox"/> Resistance to weight gain <input type="checkbox"/> Staff or parents/carers unable to implement meal plan prescribed <input type="checkbox"/> Some insight and motivation to tackle eating problems <input type="checkbox"/> Fear leading to some ambivalence but not actively resisting | <ul style="list-style-type: none"> Some insight and motivation to tackle eating problems <input type="checkbox"/> May be ambivalent but not actively resisting |
| Activity and exercise | High levels of dysfunctional exercise in the context of malnutrition (>2h/day) | Moderate levels of dysfunctional exercise in the context of malnutrition (>1h/day) | Mild levels of or no dysfunctional exercise in the context of malnutrition (<1h/day) |
| Purging behaviours | Multiple daily episodes of vomiting and/or laxative abuse | Regular (=>3x per week) vomiting and/or laxative abuse | |
| Self-harm and suicide | Self-poisoning, suicidal ideas with moderate to high risk of completed suicide | Cutting or similar behaviours, suicidal ideas with low risk of completed suicide | |

Appendix 3:

| Discharge check list: | Completed |
|---|-----------|
| 1. Patient deemed medically fit as decided by a registrar or consultant paediatrician (ST4 and above) | |
| 2. Patient meeting required meal plan for discharge (Meal plan 5) | |
| 3. Follow up with appropriate teams agreed and team informed when patient is discharged. | |
| 4. TTH as medically required. Check which vitamins are required. If no concern with magnesium and phosphate. Provide Forceval for 2 weeks and parents/ carers to purchase multivitamin at home after. | |
| 5. Bloods prior to discharge if needed. Notify CAMHS if further refeeding bloods need to be monitored in community and when e.g. 2 weeks | |
| 6. Discharge weight needs to be checked and documented | |
| 7. Dietitian to be informed of discharge plan and liaise with community team. Supplements to be arranged if needed. | |
| 8. Parents / carers to be given a copy of meal plan and summary of care plan for discharge. | |

Quick Reference Algorithm



References:

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