Brighton and Sussex University Hospitals NHS Trust

Eating Disorders - MARSIPAN assessment and Pathways for RACH

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DIAGNOSIS (DSM-V)

Anorexia Nervosa (AN)
1. Marked restriction of calorific intake with **Calculated % Median BMI < 85 %**
2. Intense fear of gaining weight, despite being underweight
3. Disturbance in the way in which one's body weight, size or shape is experienced, undue influence of body shape and weight on self-evaluation.

Bulimia
Frequent (once a week or more) episodes of binge eating, followed by self-induced purging behaviour, in order to avoid weight gain.

Most children in Sussex will be under the Pan-Sussex Eating Disorder Team (FEDS). However some children will be under CAMHS due to pre-existing or additional comorbidities. Some children may have started with FEDS and been admitted to Chalkhill before transferring to RACH.

Differential Diagnosis

Any child presenting with rapid/considerable weight loss you should consider

- Eating disorder
- GI: Inflammatory bowel disease, malabsorption, coeliac disease
- Malignancy, Chronic infection
- Endocrine causes: diabetes, hyperthyroidism, hypopituitarism, Addison's
- CNS disease including SOL
- Other psychiatric disorders: depression, OCD/anxiety

1. **NEW DIAGNOSIS SUSPECTED?** e.g. a young person seen in CED or outpatients

- If after an initial assessment (using this document to guide you), refer to FEDS
- *hyperlink to FEDS referral form*
- CED patients: Discuss with Paediatric Mental Health Liaison Team (PMHLT) #2414 or bleep 8913

2. **IF FEDS or Chalkhill/CAMHS team refer to RACH for admission - Please contact RACH beforehand :**

1. Bleep COW on 8636 to inform of plan to admit and to know bed state etc.
2. Bleep CED Consultant on 8641 to inform that sending child to CED and ask for their email to send referral letter and individual care plan.

Try to avoid Friday admissions, i.e. advance planning

FEDS/CAMHS to send

i) referral letter
ii) completed Individual Care Plan (ICP) – see Appendix

Last few weights and weight for height
The name of lead practitioner
Whether admitting for instability or RFS risk (or both)
Details of amount of bed rest to be completed on ICP
Details of recent food intake
Details of previous MHA or current MHA paperwork

ASSESSMENT IN CED

1. **HISTORY:** It is essential to get an idea of weight loss trajectory for risk assessment. **You MUST ask about current/recent intake and features in bold below** Rapid weight loss from overweight to normal weight can result in medical instability **(patients already under FEDS team don't need all the questions below asked)-**

Weight	Diet	Exercise
How much would you like to weigh? How do you feel about your current weight? How frequently do you weigh yourself? What's the most you can remember weighing? When did you start to lose weight? How have you tried to control your weight?	**<u>Restriction</u>** **What's your intake like at the moment?** **Run me through what you had to eat Yesterday? And the last 5 days** What sort of things do you avoid? **<u>Bingeing</u>** Do you ever binge on food? If so how often? What do you binge on? How much of that would you eat? **<u>Purging</u>** ***Sometimes when young people are trying to control their weight they use medicines or other methods to get rid of food, either by making themselves vomit or by going to the toilet a lot.*** **Have you ever tried this? If so frequency, amount.** **Have you ever tried any diet pills or water tablets to help you lose weight?**	How often do you exercise each week? For how long? What exercise do you do? How do you feel about exercising?

Menstrual history

- age at menarche
- regularity of cycles
- last normal monthly period

Review of systems

- **Dizziness, blackouts, weakness, fatigue**
- Pallor, easy bruising/bleeding
- Cold intolerance
- Hair loss/dry skin
- Vomiting, diarrhoea, constipation
- Fullness, bloating, abdominal pain, epigastric burning
- **Muscle cramps, joint pains, palpitations, chest pain**
- **Symptoms of hyperthyroidism, diabetes, malignancy, infection, inflammatory bowel disease**
- **Symptoms of depression, anxiety, OCD, self-harm**

<u>NEW SUSPECTED CASES: Think about other causes of weight loss/change in appetite</u>
(lymphadenopathy, oral ulcers, rectal blood, abdo mass, coeliac features, hepatosplenomegaly, features of intracranial lesion, social issues or low mood)

2. Examination – record info on Junior MARSIPAN Risk Assessment (APPENDIX 1).

Look at the referral letter from FEDS- this contains essential information about previous weight.

Look for sunken cheeks & eyes, sallow dry skin and a flat affect. They often have cool peripheries and lanugo hair (fine downy hair over the trunk) and are bradycardic.

CALCULATE: Patients with severe anorexia have a BMI < 0.4 centile. You must quantify the degree of underweight by using %BMI, which is better known as Weight for Height (WfH).

1. Measure Weight and Height and plot on centile chart
2. Calculate BMI (weight (kg) ÷ height ^{2} (m)
3. Then calculate the % Median BMI using APPENDIX 2 or use an instant WfH app: : https://itunes.apple.com/gb/app/instant-weight-for-height/id1107990045?mt=8

%Median BMI (WfH) = $\frac{\text{actual BMI}}{\text{50th centile BMI}}$ **X 100**

4. HR, BP (lying/standing) - look at 0.4 centile. BP centiles see APPENDIX.
5. Peripheries and CRT, assess % dehydration. Mitral valve murmur ?
6. **ECG + manual calculation** of QTc- use tangent method below (to avoid over-diagnosis) and look at T waves

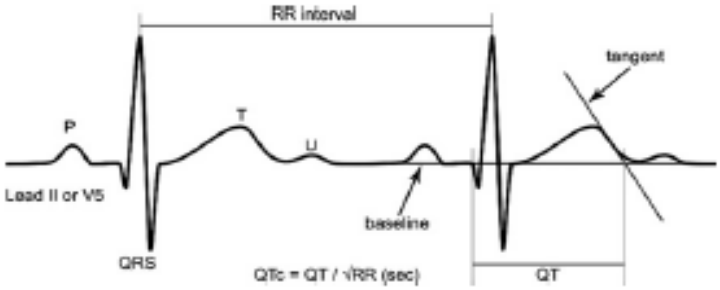

Figure 2 Illustration of the lectured method. A tangent is drawn to the steepest slope of the last limb of the T wave in lead II or V5. The end of the T wave is the intersection of the tangent with the baseline. QT is heart rate corrected with Bazett's formula with use of the preceding RR interval.

7. Temp (hypothermia is worrying)
8. SUSS test (See APPENDIX) and deep tendon reflexes (diminished implies electrolyte problem)
9. Oral/GI system: gingivitis, dental caries, loss of enamel, swollen parotid glands, RUQ tenderness.
10. Confusion /delirium?

3. Investigations

To some extent investigation will depend on the need to exclude other diagnoses.

- **Urinalysis** –(if amenorrhoeic patients) urine pregnancy test

BLDS in CED: IV Cannula + FBC, U&E, Bone profile, Vitamin D levels, TFTs, LFTs, Mg, CK, glucose (amylase if abdo pain), coeliac screen, Blood gas - **inflammatory markers and faecal calprotectin** (for new suspected cases)

Confusion/delirium/acute pancreatitis/acute abdomen and tachycardia (latter indicates imminent cardiovascular collapse) NEED URGENT ATTENTION

CED MANAGEMENT

Manage as an Out-patient-

- If low risk + known to FEDS agrees to meal plan- ensure FEDS f/up date in place:
- If low risk **and not known to FEDS** – make FEDS referral – you may need to discuss with Paediatric Mental Health Liaison Team ext. 2414 or bleep 8913.
- Contact the GP with discharge plan (Symphony discharge letter) within 24 hours

Who/Why to admit?

A) Risk of refeeding syndrome (RFS) **(***see in-patient management for more info*)
B) Medically unstable – physiological parameters
C) Younger children (presentation more complex, higher risk, plus no Chalkhill beds < 12yrs)

Many YP admitted to actual Eating disorder units have poor long term outcomes- with increased learnt and secretive behaviours, collusion between patients, and development of "Resistant" anorexia. Admission to a paediatric ward can remind YP and families just how serious their disease has become and offer a chance at nutritional resuscitation (we know that just by increasing calorie intake, this can itself change the YP's abnormal thinking and anorectic behaviour).

What is known about risk of medical instability and RFS?

REFEEDING SYNDROME – cause and symptoms

In the starved, anorectic state fat stores are used and ketones produced. The reversal of prolonged starvation changes the body from a catabolic to an anabolic state – there is a shift in extracellular to intracellular phosphate (needed for ATP production) causing hypophosphataemia. There can also be shifts in potassium and magnesium when feeding begins, causing serum levels to drop. Life threatening fluid and electrolyte derangement can occur, resulting in disturbance of organ function (CNS and cardiovascular).

SYMPTOMS of RFS: a combination of oedema, confusion, resting tachycardia and (usually) low phosphate (occasionally may be normal). There may be dyspnoea, paraesthesia, generalized weakness, seizures, and coma

Although RFS is rare in young people, the development of Hypophosphataemia / RFS is related to degree of malnutrition prior to start of refeeding (rather than rate of feeding).

THIAMINE is consumed (cofactor for CHO metabolism and glycolysis) when refeeding from a *starved* state. Most YP in UK will not need extra thiamine supplementation (as per GOSH). Wernicke's is a triad of altered mental state+ ataxia+ ocular signs.

Physiological Instability

- Patients can appear deceptively well. UK Surveillance study of younger children with anorexia found 40% medical instability with BMI < 2nd centile.
- Children who are obese and rapidly lose weight (with WfH >85%) can also be unstable.
- The risk of cardiac decompensation with arrhythmias and cardiac failure is highest in the initial stages of refeeding when left ventricular function is already compromised by chronic malnutrition.
- **Hypotension or recurrent syncope in the context of malnutrition** (as assessed by %BMI + wt. loss trajectory) implies reduced cardiac mass and poor cardiac output

DECIDING WHETHER TO ADMIT

A) The following have the highest risk of RFS

MUST ADMIT to Level 9 if a combination of 2 out of 3 factors:

1. %Median BMI <70
2. < 500kcal/day for previous 5 **days**
3. **RAPID WEIGHT LOSS**: > 1kg / week for 2 consecutive weeks
   OR weight loss of >15% over last 3 months

If only Point 2 or 3 are present (such as with a higher %WfH) then discuss with Consultant

B) **ADMIT** for medical instability : **IF ANY** OF FOLLOWING PRESENT-

- **Low wbc**
- **albumin < 40**
- **hypothermia (<35.5 tympanic) - high risk**
- Baseline electrolyte disturbance before refeeding (K<3.0mmol, Na < 130mmol, phosphate<0.5mmol)
- Severe dehydration OR refusing fluids
- Medical comorbidity e.g. Diabetes or CF
- Seizures, pancreatitis
- Cardiac failure or abnormal rhythm,
- bradycardia HR <50bpm (day) <45 bpm (night)- HR < 55 if < 13 years
- Prolonged Qtc (>(>460 girls, 440 m/s boys)
- History of recurrent syncope or marked orthostatic change (15-20mm Hg Systolic drop, or 10mmm diastolic drop or HR increases >20bpm with standing)
- BP< 0.4centile systolic/diastolic for age

IF YOU ARE UNSURE about instability - please contact Dr Rabbs 07798808506

DRUG CHART FOR admission

1. Add 1 tablet Vitamin B Co Strong OD **if WfH < 75%** for 7 days. KC to check

2. Multivitamin - Oral Forceval (multivitamins, minerals and trace elements supplement), one capsule daily, continue at discharge until weight restored. (If being NG fed no multivitamin needed as contained within Fortisip.)

3. When to prescribe prophylactic phosphate?

If, WfH < 68% mBMI
OR, low baseline phosphate (even if WfH is higher)
OR, wbc <3 x10^9
OR previous history of re-feeding syndrome
OR ECG shows a prolonged QTC >500ms,

Prescribe Sandoz Phosphate (1 tablets BD) (as per GOSH) - for first 5 days of refeeding- see discharge info about weaning

4. **If** low albumin/deranged U+E or LFTs, use lower doses for any other medications (discuss with pharmacist)

5. Do not prescribe drugs which can increase the QTc e.g. clarithromycin (see BNFc)

6. Although used in adult patients with AN, evidence for YP is scanty. In high income countries, thiamine rarely needed (consider need if very low weight for prolonged duration and reduced intake) 100mg Thiamine OD for 7 days,

It is not acceptable for child to remain just on IV fluids until seen by dietician:

SENIOR DOCTOR TO EXPLAIN TO CHILD AND PARENTS

- Nutritional intake at RACH is not an option; it is a necessity as they are very unwell. The disease itself is altering their brain and thought processes making it even harder to eat as time progresses.
- FOOD = MEDICINE
- The disease is the problem- " we" (i.e., the child and RACH) can best fight it with nutrition- the" voice" telling them not to eat becomes less powerful when they receive nutrition.
- **Given that they have become so unwell as to need admission to hospital, they therefore only have one option, i.e. to have oral nutrition: they have a choice as to whether this is solids or a liquid meal replacement drink.**

If **Child is admitted in the afternoon/evening:** you must provide patient with an oral meal/s or Fortisip carton (with water) or COMPAK. -*you should not wait for dietician review to provide an evening/breakfast meal plan or replacement drink* – see next page and meal plan appendices. Remaining on IV fluids only is NOT acceptable.

If this conversation has not occurred due to CED emergency- this must be handed over to ward team and must occur one on ward to set expectations.

IN-PATIENT MANAGEMENT

- Once DTA made, bleep-holder and COW to be informed.
- **Print this ENTIRE Guideline, FEDS Referral letter and ICP** sent by FEDS
- Most YP will need to have meal times supervised by parent or HCA
- All children admitted under MHA must have RMN.
- The ward's aim is to monitor the young person when they are at physiological risk (this includes the very rare risk of sudden death from cardiac arrest) and to balance between the theoretical (also rare) risk of Refeeding Syndrome (RFS) when nutrition is commenced and overly-cautious, "under" feeding.
- Day 1-5 is highest risk for RFS.
- Check drug chart (see p6)

Duration of Admission depends on reasons for admission, risk severity, /instability, monitoring of bloods, nutritional intake and level of f/up with CAMHS/FEDS - expect 4-5 days as a minimum

WARD ROUNDS + MONITORING

- Daily inspection for any signs of oedema (in particular peripheral oedema) for first five days.
- Resting tachycardia (differential includes anxiety, sepsis, arrhythmia, RFS)- ECG, U+E, Po4, CRP, gas
- Confusion or altered conscious state (check glucose, consider RFS or Wernicke's)
- Review daily lying and standing blood pressure for first five days (part of MARSIPAN).
- Review biochemical/blood parameters of the re-feeding syndrome:
- Assuming baseline bloods taken in CED. DAY 2 am- take **refeeding bloods** ALSO take Zinc, Selenium, copper, iron studies and B12 on Day 2 as general nutritional profile.
- Thereafter **Daily urea, creatinine, sodium, potassium, phosphate, magnesium daily for five days**. The drop in phosphate seen when re-feeding will normally occur within 48-72 hours.
- Apart from initial BM on admission, blood sugars should not be measured routinely unless there are symptoms of hypoglycaemia or hyperglycaemia. Hypoglycaemia (which in anorexia will be ketotic) is best treated orally with a complex carbohydrate unless symptomatic to avoid surges in insulin 9and then a rebound hypoglycaemia).

MEALTIME PLANS

1. **DAY1- 3: FEDS ask all patients to start at 1200kcal.** All patients should generally be started on the 1200kcal meal plan for 3 days.

2. **COW to review bloods daily on ward round**. If bloods are stable, increase as per table below-

Day 1 (admission via CED)	Start meal plan/fortisip	Up to 1200
Day 2	Take Early Morning bloods	1200
Day 3	Early morning bloods	1200
Day 4	Early morning bloods	1500
Day 5	Early morning bloods	1800

3. If discharged on Day 5- then Day 7 bloods can be taken at convenient place- speak with FEDS (Day 10 and 14 needed if started on phosphate supplements at any point)
4. Calories need to be spread over day as 3 small meals + 3 snacks (see Appendix
5. Oral feeding is the preferred route for re-feeding. See appendices 8 – 11 for meal plans. If after 30 mins the meal is not completely eaten then a meal replacement drink should be given. If refuses their solid meal, liquid feed calorie equivalent to be given (guidance under meal plan))
6. There may be times when it is "too hard" to eat orally and there is much anxiety at the meal time. Promethazine (antihistamine) can be helpful with this (see table for doses- you do not need to speak to a psychiatrist for this.
7. If refusing all intake, see flow chart on page 21.

NGT Use : Junior MARSIPAN states that if after 24-48 hours the young person is still not able to have adequate oral intake that an NGT discussion is needed with FEDS or CAMHS team (depending on who is managing case). NGT is needed when becoming seriously physically compromised and only after full self-harm and competence/ capacity MHA assessment is undertaken (see Appendix 7).

TROUBLE –SHOOTING- ELECTROLYTES

1. **REFEEDING syndrome and Phosphate -** bottom line- only increase to next step of feeding once normal phosphate achieved. Management varies depending on whether symptomatic or not. (A combination of oedema, confusion, resting tachycardia) and (usually) low phosphate (usually low but may be normal).

   Refeeding can bring about purely a fall in phosphate, **or** a low/normal phosphate WITH symptoms (i.e. RFS)

A low phosphate (<1.1 mmol/L) **before** initiating feeds is unusual and should be corrected as soon as is possible on the day of admission. Discuss with consultant. Other causes of low phosphate should be excluded – in particular Vitamin D deficiency and hypoparathyroidism: check PTH and Vitamin D with next set of bloods (if hasn't already been checked). These bloods should not hold up commencing of feeding once phosphate is normalised.

WHAT TO DO: if phosphate results low AND ASYMPTOMATIC

0.5-1.1mmol/l- ORALLY

- Give Stat dose 2 Sandoz-phosphate tablets (1.936g Sodium Acid Phosphatase per tab)
- Commence TDS 1 Sandoz-phosphate regime.
- Recheck U&E/Phosphate 8 hours after stat dose given and monitor clinically
- **Do not make any increases on the feeding regime until phosphate has been corrected**.
- If phosphate is still low at 8 hours then consider repeated double dose or IV correction.

<0.5mmol/l needs IV treatment (needs ECG, BP monitoring on HDU)

Use intravenous potassium dihydrogen phosphate (0.08 - 0.16 mmol/kg diluted appropriately over 6 hours)

<0.3mmol/l – as above and discuss with STRS- may advise higher dose

KEY POINT: If phosphate falls (but ASYMPTOMATIC) then food intake to **remain static** until phosphate stabilises with treatment as above.
If symptomatic- see below

WHAT TO DO if a young person has clinical SYMPTOMS of re-feeding syndrome:

- Do not increase feeds – **reduce** to starting dose.
- Ensure immediate monitoring of
  - blood pressure, blood gas, blood sugar, ECG and cardiac status, neuro obs to commence
  - Weight, fluid balance and hydration status.
- Contact COW and arrange move to HDU – check and correct electrolyte/glucose abnormalities and recheck 6 hours later- electrolytes, calcium, phosphate and magnesium.
- Discuss with STRS: **Parenteral Thiamine if encephalopathic (Wernicke's).**

2. **Electrolyte imbalance**

Electrolyte imbalance is common and can usually be corrected orally.

- Hyponatraemia- Check urinary electrolytes and specific gravity. Assess fluid status. Consider SIADH, sepsis, excessive loss from vomiting, or excessive water drinking to hide weight loss.
- Low Phosphate (Supplement orally unless <0.5mmol or symptomatic)
- Hypocalcaemia- tetany, stridor, seizures, QTc prolongation and risk of sudden death. See BNFc. *May be refractory if phosphate or Mg is low*

In the event of a critical electrolyte imbalance urgent intravenous replacement may be required (HDU) as patients with anorexia nervosa are at increased risk of cardiac arrhythmias (see next page)

Hypoglycaemia **If symptomatic (**confused, altered Mental state; seizures) or low BM in context of symptomatic RFS	**If asymptomatic treat with oral complex carbohydrate (e.g. milky sugary drink, hypostop) and repeat BM in 1 hour.** 2ml/kg of 10% glucose followed by ongoing Infusion containing glucose (0.9%saline/10% dextrose) until repeat BMs stabilise.
Hypomagnesaemia **Serum Mg <0.6mmol/L**	Institute ECG and blood pressure monitoring. Correct with iv 0.2ml/kg 50% $MgSO_4$ (max 10ml) in 250ml NaCl over 4 hours
Hypokalaemia **Serum potassium <2.5mmol/L**	Institute continuous ECG monitoring. Correct with the addition of intravenous KCl to IV fluids. (DO NOT EXCEED 0.4mmol/kg/h)

CARDIOVASCULAR + FLUIDS

The risk of cardiac decompensation with arrhythmias and cardiac failure is highest in the initial stages of refeeding when left ventricular function is already compromised by chronic malnutrition

Most patients will have bradycardia (due to reduced cardiac mass/systolic dysfunction with compensatory SAN slowing and increased vagal tone). Patients with syncope and low BP are indicative of low cardiac mass- consider Echo to assess ejection fraction (Adult technician for teenagers).

Prolonged QTc (15%) –

- Reduced muscle mass is also thought to cause stretching of myocytes, affecting conductivity with prolongation of Qtc.
- Take detailed personal and family cardiac history (palpitations, syncope, exercise-related symptoms, seizures or sudden death in family), followed by cardiovascular risk discussion with ECH Cardiology.
- ECG will need repeating after discharge as the Qtc should improve once the eating disorder is treated

Hydration

- Avoid boluses
- Notoriously difficult to assess hydration status (most patients have delayed CRT)- use urine output and SG of urine
- If moderately dehydrated, replace deficit over 48 hours and NO bolus (unless has reduced urine output AND NORMAL HR or tachycardia suggesting hypovolaemia – use **cautious** replacement with maximum 10mls/kg of 0.9% saline, as may precipitate heart failure
- Oedema can be due to low albumin, heart failure, or refeeding syndrome.

Other Complications	
Apathy, muscle weakness, cramps	Anaemia (usually normocytic)
Skin breakdown	Neutropenia with associated increased infection risk

Oesophagitis- try PPI	Pancytopaenia (with severe AN)- resolves with nutrition
Vitamin D deficiency and osteoporosis	Sick Euthyroid and deranged LFTs- should normalise once nutrition improved
Pancreatitis (check amylase if complains of abdo pain)	Central abdo pain –refer to surgeons ? superior mesenteric artery syndrome

Agitation/distress

In general it is not necessary to prescribe medication in the treatment of Anorexia Nervosa. Usually a firm and fair approach to expected dietary intake within a containing and well communicated framework will be effective.

However, particularly in the early stages of engagement, a child/young person may feel overwhelmed by their fear of food causing high levels of agitation and distress.

If it is considered that medication could be helpful then advice from a Child Psychiatrist should always be sought. Support can be sought from Paediatric Mental Health Liaison Team #2414.

In an emergency (when a child psychiatrist is unavailable for consultation agitation/ distress can be treated with:
First Line Management:
Promethazine oral
Up to 12 years old: Promethazine oral 10mg up to tds (0.3mg/Kg up to tds)
Up to 18 years old: Promethazine oral 25 mg up to tds (0.45mg/Kg up to tds)

Second Line Management: Speak to Duty FEDS in hours or out of hours, On-call PSYCHIATRIST (MIGHT ADVISE Olanzapine via the PRH Switchboard: 01444 441881.***Avoid diazepam***

DISCHARGE CRITERIA from RACH

1. Seek to correct electrolytes, syncopal symptoms and temperature to be >36.5.
2. Be cautious if BMI still remains at <70% -discuss with Dr Rabbs/FEDS – if on leave, consider discussion with Kings (Dr Chapman) or GOSH (Dr Hudson).
3. **There is no minimal/maximal time for admission**- in the majority of cases should be able to discharge by Day 5 of nutritional introduction (for ongoing management and monitoring of bloods). Discharge planning to occur at consultant level. Decision about date discharge will also depend on where child is being discharged to. Bloods are needed on Day 7. Discharge is on a case by case basis and there may be some YP sent home in conjunction with FEDS on a lower calorie intake with ongoing monitoring at home.
4. Do not expect QTc, BP or HR to have **fully** corrected (this can take weeks). ECG **must** be repeated in a month if there was prolonged QTc on admission (to ensure we do not miss congenital problem)
5. The decision as to whether children be discharged on Fortisip/Fortisip Compact or if they go home on solids lies with FEDS/CAMHS. We can prescribe a maximum of 2 weeks of replacement.
6. CAMHS/FEDS will need to make contact with GP (if going on meal replacements) i.e. with a view to move to solids in home/FEDS setting

7. FEDS/CAMHS review date for patient to take home.

8. If phosphate was started on the ward, continue phosphate for 2 weeks (Bloods needed on day 7, 10, 14) Phosphate should normally be weaned off after two weeks of treatment if phosphate remains stable as long-term phosphate can lead to paradoxical hypophosphataemia. Reduce the dose by one Sandoz phosphate tablet every two days with serial measurement of phosphate (i.e. change from BD to OD on Day 15, checking bloods on Day 17 and stopping if normal, with final bloods on day 19 or 20)

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6. Hudson L, Nicholls D, Viner R. Medical compromise and initial management of young adolescents and children with early onset eating disorders: a national study from the United Kingdom. *J.Adolesc. Health* 2011; 48: S48–9
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11.Hudson L, O'Connor G (2015) **The role of the paediatric medical team** in Robinson PH, Nicholls D (2015) **Critical Care for Anorexia Nervosa (The MARSIPAN Guidelines in Practice).** Springer, London
12. O'connor G, Nicholls D (2013) **Refeeding hypophosphataemia in adolescents with Anorexia Nervosa: a systematic review.** *Nutrition in clinical practice* 28(3): 358-64
13- Great Ormond Street Hospital- Refeeding Guideline (www.gosh.nhs.uk/health-professionals/clinical-guidelines/refeeding-guidelines-children-and-young-people-feeding-and-eating-disorders-admitted-mildred-creak)

CONTACTS FOR ADVICE

FEDS team

Mon-Fri 9-5pm 07391010452 (FEDS Duty Team Worker)
Dr Jon Rabbs (FEDS Paediatrician 07798808506
Chalkhill 01444472670 (FEDS is Option 4)

Out of hours- contact Duty Psychiatrist via PRH Switchboard- but they cover the entire county.

CAMHS: contact the team in which child lives (see RACH page link)

RACH Paediatric Mental Health Liaison Team: ext. 2414 (Bleep 8913)
RACH dietician : ext. 2390 / 2389 (Bleep 8695) – they do not routinely see children- but can provide advise if needed

Escalate to Paul Savage (NHS England) if there are specialist ED bed difficulties

Brighton and Sussex University Hospitals NHS Trust

MARSIPAN RISK ASSESSMENT

This combines clinical assessment of physical complications together with recent nutritional intake/engagement with meal plan + CAMHS

Patient Details (affix sticker)

Name: ……..

Date of Birth: ……

Trust ID Number: ……

NHS number: .....

				RESULT
	System Test or Investigation	**Amber (mod-high)**	**Alert**	
	Average daily calorie intake	<50% RDA	<500kcal	
	% mBMI	<80	<70	
	Wt. loss per week - 2 consecutive wks.	>0.5kg	>1.0kg	
	15% weight loss in 3 mths		YES	
Circulation	**Sitting Systolic BP**	<0.4 centile		
	Sitting Diastolic BP	<0.4 centile		
	Syncope and orthostatic changes when go from sit to stand	Occasional syncope Fall in SBP >15mmHg **OR increased HR up to 30bpm**	Recurrent syncope Fall in SBP > 20mmHg **OR increased HR >30bpm**	
	Pulse Rate	<40-50 (awake)	<40 (awake) < 55 (**if <13 yrs**)	
	Corrected QT interval (QTC)	N/A	>460ms (girls) > 440ms (boys)	
	Arrhythmias (not sinus arrhythmia)	N/A	Alert	
T°C	**Temperature**	<36C	<35.5C (Tympanic) <36C (Axillary)	
Bone Marrow	**WCC**	<4.0	<2.0	
	Neutrophil count	<1.5	<1.0	
	Hb	<11	<9.0	
	Acute Hb drop (MCV and MCH raised – no acute risk) **Platelets**	<130	<110	
Hydration		Marked fluid restriction 5-10% dehydrated	Fluid **refusal**, reduced UO TACHYCARDIA 10% dehydrated	
Salt Water Balance	**Potassium K+**	<3.4 - 2.6	<2.5	
	Sodium Na+_	<126-134	<125	
	Magnesium Mg++	0.5-0.7	<0.5	
	Phosphate PO 4	0.33-0.8	<0.32	
	Urea	>7	>10	
	Albumin	<35	<30 **< 15 high mortality risk**	
	Creatinine Kinase	>170	>250	
	Glucose		<2.5	

Brighton and Sussex University Hospitals NHS Trust

MARSIPAN RISK ASSESSMENT

Patient Details (affix sticker)

Name: ……..

Date of Birth: ……

Trust ID Number: ……

NHS number: ……

	Stand up from squat (SUSS)Sit up from lying flat (SUF) **SEE FIG. 1 in full guideline for explanation**	Only if levers up with arms	Can't get up at all Unable to sit up at all from flat	
BEHAVIOUR	Disordered eating behaviours	Severe restriction, vomiting, purging, laxatives	Acute food refusal or 400-600kcal/d	
	Engagement with treatment plan	Poor insight & resistance to intervention	Violent behaviour	
	Activity & exercise	Moderate exercise >1h/day	High levels of exercise >2h/day	
	Self-harm & suicide	DSH with low suicide risk	Self-poisoning with moderate-high suicide risk	
	Other mental health diagnosis	Yes		

Calculating % Median BMI (Weight for Height or W4H)

Look at table below: you need to find their age, read off the 50th centile value and use it to **calculate the % Median BMI**.

50th Centile BMI values

age	boys	girls
years	Kg/m2	
9	16.037	16.399
9.25	16.125	16.515
9.5	16.219	16.637
9.75	16.318	16.765
10	16.423	16.898
10.25	16.533	17.036
10.5	16.648	17.179
10.75	16.768	17.327
11	16.892	17.478
11.25	17.02	17.634
11.5	17.154	17.793
11.75	17.291	17.954
12	17.433	18.117
12.25	17.579	18.281
12.5	17.729	18.446
12.75	17.881	18.61
13	18.037	18.772
13.25	18.194	18.932
13.5	18.354	19.09
13.75	18.514	19.244
14	18.675	19.395
14.25	18.836	19.542
14.5	18.997	19.684
14.75	19.158	19.822

age	boys	girls
years	Kg/m2	
15	19.317	19.955
15.25	19.475	20.083
15.5	19.632	20.206
15.75	19.786	20.324
16	19.938	20.438
16.25	20.087	20.547
16.5	20.234	20.652
16.75	20.378	20.751
17	20.519	20.847
17.25	20.656	20.938
17.5	20.791	21.026
17.75	20.923	21.11
18	21.052	21.19
18.25	21.178	21.267
18.5	21.301	21.342
18.75	21.422	21.413
19	21.54	21.482
19.25	21.655	21.548
19.5	21.768	21.612
19.75	21.878	21.674
20	21.986	21.735

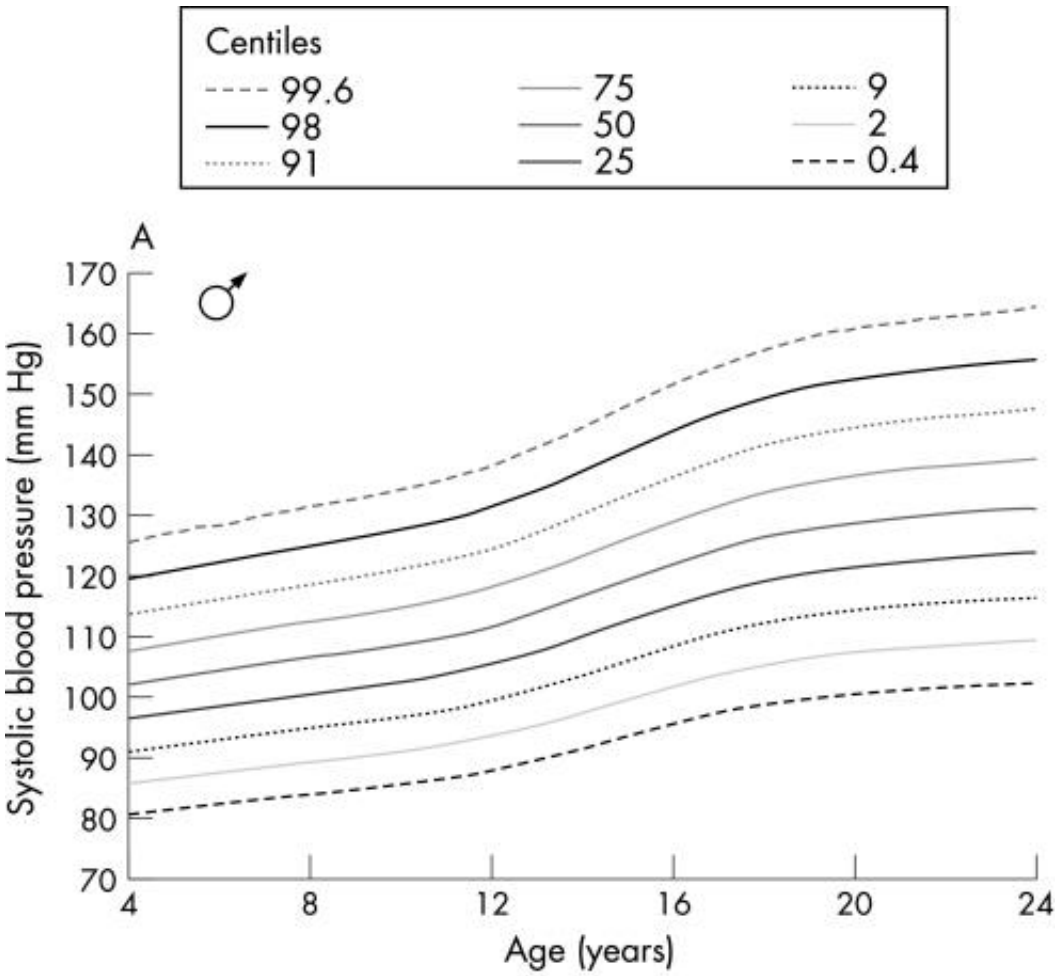
BMI = weight in kg ÷ (height in metres)^2

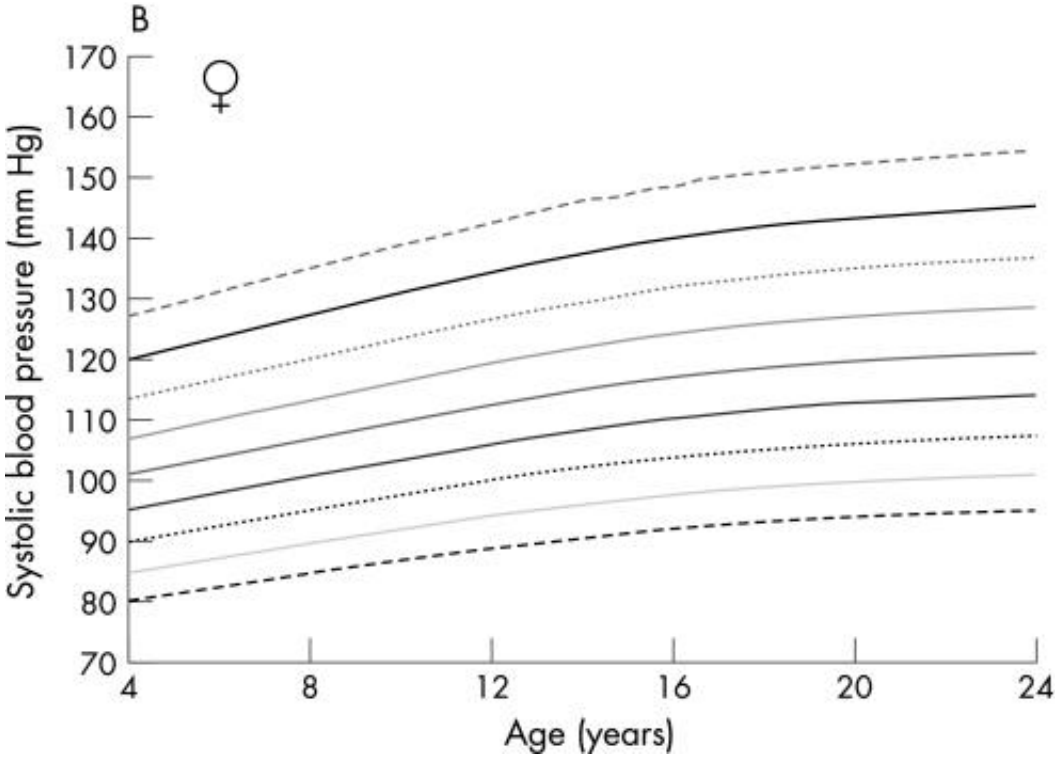
%mBMI = (actual BMI ÷ 50th centile BMI) x 100 [see chart]

Example
14.5 year old girl,
Weight: **30kg**
Height: **158cm**
BMI: 30/(1.58x1.58) =
12kg/m²
50th Centile BMI: **19.684 kg/m²**
%mBMI = (12/19.684 x100)
= 61%

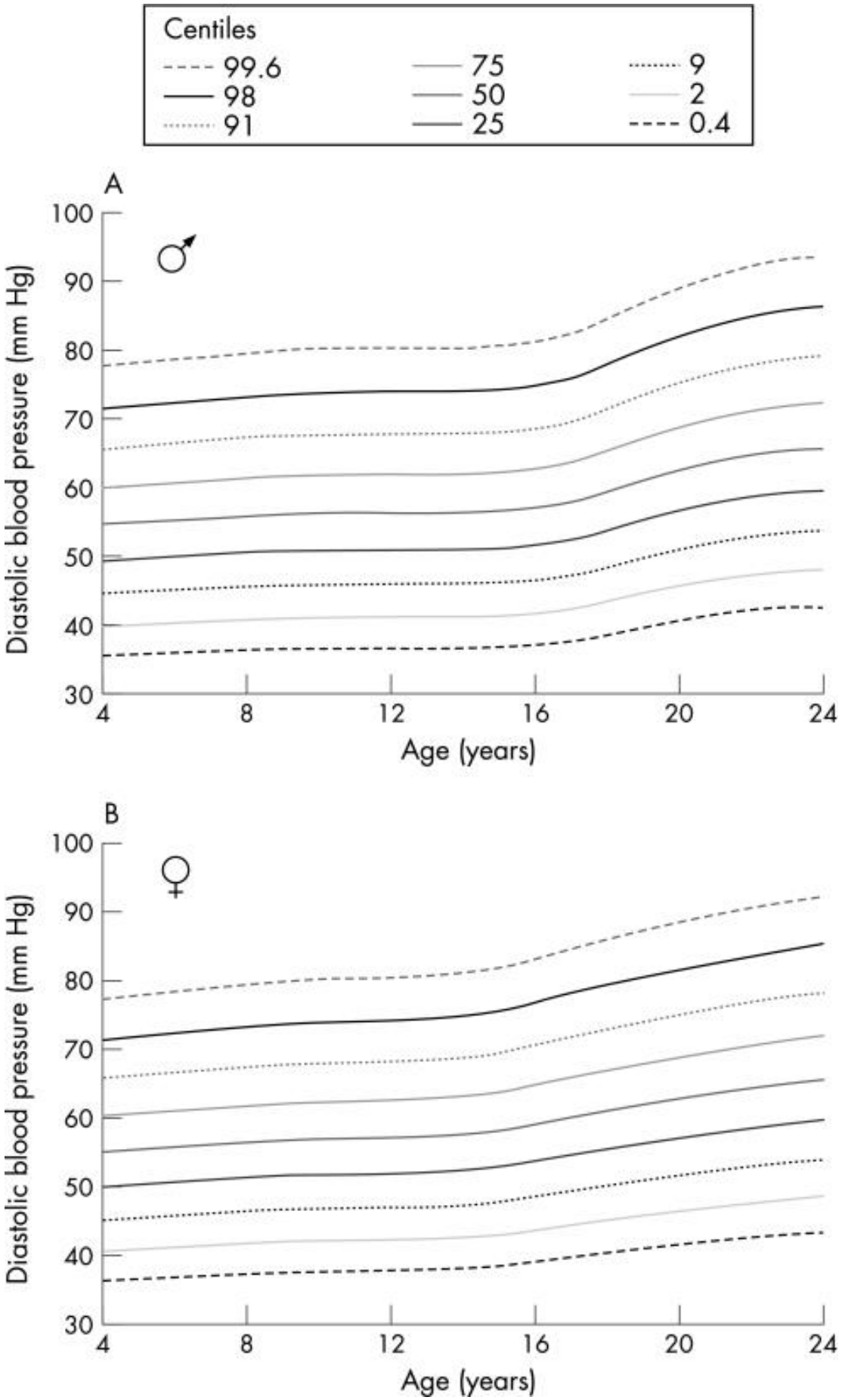
BLOOD PRESSURE CENTILE CHARTS FOR UK CHILDREN
Jackson et al. Arch Dis Chil 2007;92

SYSTOLIC A= male B = girls

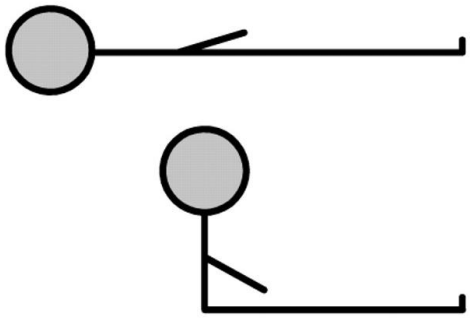




DIASTOLIC A= male B = girls

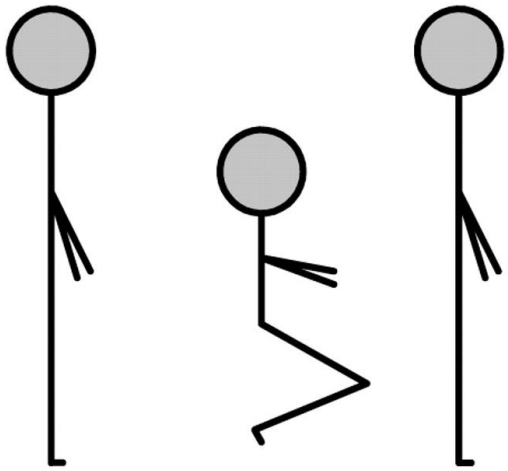


Sit Up-Squat-Stand Test (SUSS) Test



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

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



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

NURSING INFORMATION

Please familiarise yourself with the **YP's Care Plan** that should be printed off- it sets expectations for the child and their family and reminds the staff/families about no negotiations.

Bedrest- see the YP's care plan from FEDS- most will be on complete bed rest (the care plan indicates level of activity allowed)

Meal Time Support

It is anticipated that meal times can be a very difficult and highly distressing time for young people, families and staff. There is potential for Young People to be highly resistive to any dietary intake and YP will often exhibit high levels of animosity towards those around them, particularly those implementing the meal/treatment plan. This is a well-known and painful symptom of their illness and not a reflection of their character.

- **Provide a firm but calm and kind, supportive approach to meal times.**

Determine with the YP: **their preferences for approach following completion of food e.g. acknowledgement/praise, or no response/acknowledgement.**

- A consistent approach from all of the care team, including staff and family members, emphasising the full expectation that the young person will complete the prescribed meal plan is essential. This is likely to be met with a high level of resistance but consistency in expectation can be very helpful in breaking down resistance associated with the illness.

- Staff and families need to present a united front to support the Young Person in the treatment of their illness, using each other's strengths and discussing any concerns away from the dinner table and outside of meal times.

- The supporting family member/member of staff should gently remind the young person to use the toilet prior to the meal if needed. **They will not be allowed to access bathroom until 30 minutes after snacks and 1 hour after meals**. Cannot go to the toilet more than 2 hrly (this is to help resist the urge to purge or exercise).

- Young people have 30 minutes to complete main meals. Snacks are limited to 20 minutes.

- Time is started from when the meal/snack is put in front of the young person and there is no negotiation around this.

- At the start of a meal/snack, if the young person hasn't started eating after a couple of minutes, gentle clear prompting/kind encouragement can help. If further prompting is need, it needs to be firm but nurturing.

- If a Young Person has not eaten their meal entirely in allocated time, the food should be removed and oral supplement replacement provided (See Meal plans incl. equivalents in supplement drinks) e.g. 50% eaten

- Fizzy/Carbonated drinks are not allowed as they can leach vital Calcium from Young People's bones when they are malnourished.

- Napkins and tissues should be avoided as they can be used to hide food and staff/family members should closely observe for food that may disappear up the sleeve, or into pockets or boots.

- The illness may drive normally very honest young people to act in deceptive ways, such as hiding/secreting food. This can be very distressing for the young person and their parents. It is important that a view is maintained that this is a behaviour associated with and driven by illness and not indicative of the character of the young person themselves.

- Some young people find praise for completing food an important acknowledgment of the painful experience they have just battled through, whereas some young people find any praise or acknowledgement very painful. It is useful to have a conversation with the young person, calmly outside of a meal time, around which approach is most supportive/preferable to them. They initially may not know and it may be something that is re-visited and or changes over time.

- The time prior to and following meals can be anxiety provoking for Young People and it can be supportive to engage them in restful distraction techniques e.g. colouring, watching a film, playing a board/card game.

- All meals/ snacks need to be supported and supervised by a parent/guardian or member of staff. Dietary intake needs to be recorded accurately at each meal/snack time (only record food which the supervising adult has observed actually being consumed). **A meal/snack is only considered to be complete if the entire content has been consumed w**ith no crumbs left on the plate.

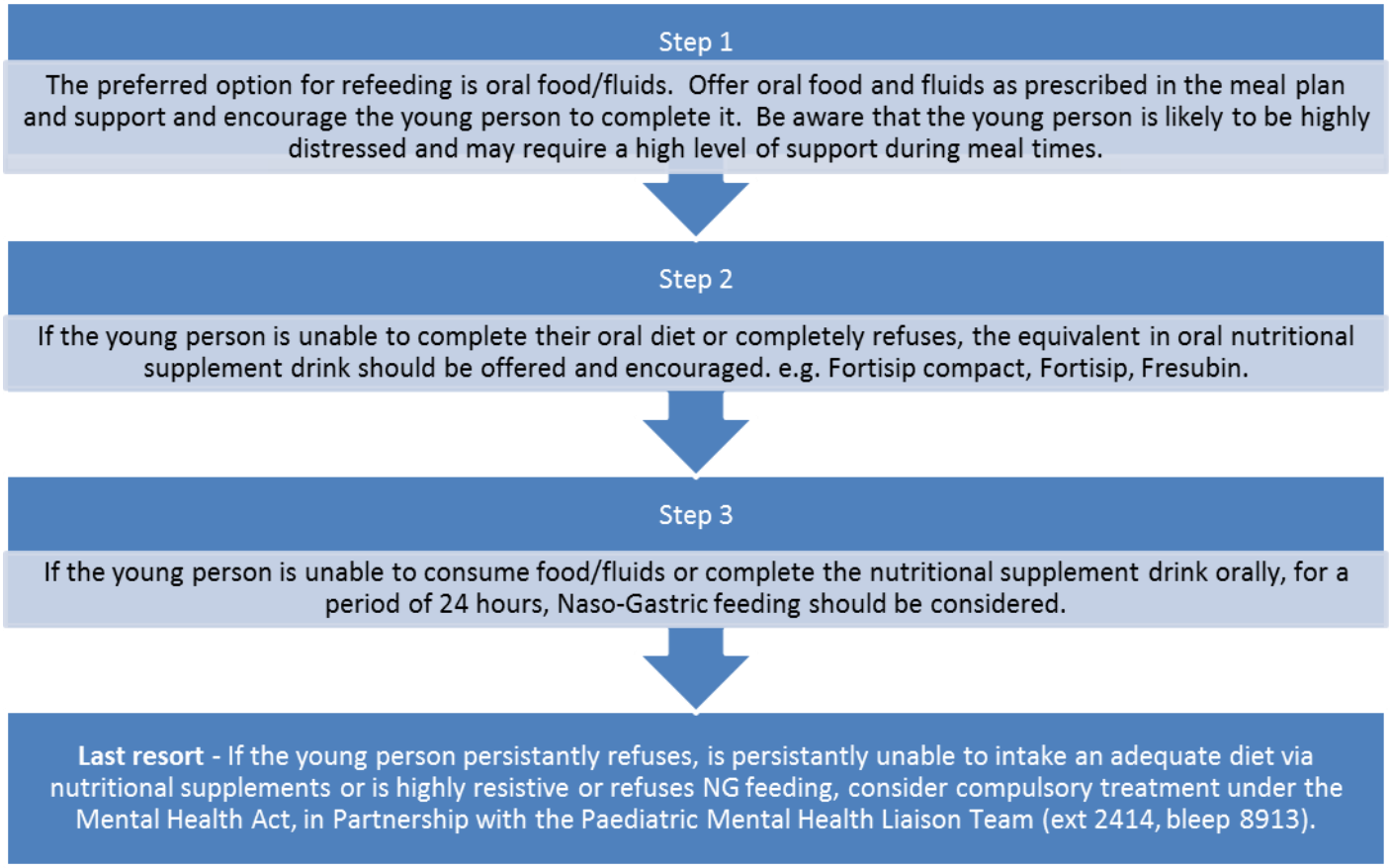
Some examples of staff approaches that young people have told us they have found helpful during meal times are:

Prompting: "*You need to pick up your knife and fork and start to eat". "You've got 10 minutes left to finish your mea*l".

Approaching food as medicine (Which it is!): "*I understand that this is very difficult for you but it is a part of your prescribed treatment plan, as with any other medicine young people would need to take if they were prescribed it in hospital*".

Taking responsibility for defying the illness away from the Young Person and holding a position that they have no choice: "I know that you really don't want to eat this but as part of your treatment I am telling you that you need to eat this, you do not have a choice. I/your care team are telling you that you have to eat this". Young people often explain that the drive of the illness is so strong that they feel they have no choice but to obey it. Therefore it can be helpful to remind the young person that eating is not a choice to be made by them and that they have no choice as the member of staff/family/doctor/care team is saying that they have to eat it.

Management of refusal of dietary intake, Compliance, Legislation



- Indications for referral to a Special Eating Disorder Bed (SEDB) include- unable to sustain sufficient calorie intake for physical health to be maintained. The responsibility a referral to a SEDB (EDU) sits with FEDS.

- Non-compliance will involve utilization of the Mental Health Act (MHA). This is generally a last resort. Decision for this should be led by FEDS/CAMHS. The PMHLT at RACH may help facilitate this via local AHMP.

As in all other cases where the MHA is being considered, the least restrictive alternative should be used when providing compulsory treatment to a patient with a mental health disorder. The AMHP is contactable via Millview Hospital 0300 304 0075. AMHP will facilitate Sectioning of patient under MHA requiring presence of a Section 12 approved CAMHS Consultant **and** another Doctor (this might be a paediatrician)

1200 kcal Meal Plan – Day 1-3

Name:		DOB:	
	Meal	**Total needed if 100% of meal refused:**	**Total needed if 50% of meal refused**
Breakfast **08:30** **30 Minutes to complete**	1 small box serving breakfast cereal or 2 weetabix + 200ml semi skimmed milk	200mls Fortisip OR 125mls Fortisip Compact	100 ml Fortisip OR 65ml Fortisip Compact
Snack **10:30** **20 minutes to complete**	1 piece fruit (apple/ banana/ orange)	100ml Fortisip OR 65ml Fortisip Compact	50 ml Fortisip OR 30ml Fortisip Compact
Lunch **12:30** **30 Minutes to complete**	2 slice bread sandwich with butter/margarine and protein filling e.g. ham/tuna/cheese/egg	200mls Fortisip OR 125mls Fortisip Compact	100 ml Fortisip OR 65ml Fortisip Compact
Snack **15:00** **20 minutes to complete**	2 digestive biscuit OR X1 yoghurt pot	100ml Fortisip OR 65ml Fortisip Compact	50 ml Fortisip OR 30ml Fortisip Compact
Evening Meal **17:30** **30 Minutes to complete**	1 portion cooked dinner containing carbohydrate and protein e.g. baked potato and cheese, pasta bolognase, omelette + 2 slices bread	200mls Fortisip OR 125mls Fortisip Compact	100 ml Fortisip OR 65ml Fortisip Compact

There is NO option of substituting anything else for items on the above Menu - Nursing staff will NOT engage in any negotiation at all around items or timing of meals, snacks, etc.

Only CAMHS, FEDS or Dieticians can amend your plan.

Ward Nursing staff will only comply with instructions they have direct from FEDS. They cannot and WILL NOT negotiate on anything.

FEDS team: 01444472670 Paediatric Dietitian: ext: 63433

1500 meal plan

Name:		DOB:	
	Meal	**Total needed if 100% of meal refused:**	**Total needed if 50% of meal refused**
Breakfast **08:30** **30 Minutes to complete**	1 small box serving breakfast cereal OR 2 weetabix + 200ml semi skimmed milk	200mls Fortisip OR 125mls Fortisip Compact	100 ml Fortisip OR 65ml Fortisip Compact
Snack **10:30** **20 minutes to complete**	2 digestive biscuit OR Cheese and crackers	125ml Fortisip OR 75ml Fortisip Compact	65 ml Fortisip OR 35ml Fortisip Compact
Lunch **12:30** **30 Minutes to complete**	2 slice bread sandwich with butter/margarine and protein filling e.g. ham/tuna/cheese/egg + 1 piece fruit (apple/banana/orange)	200mls Fortisip OR 125mls Fortisip Compact	100 ml Fortisip OR 65ml Fortisip Compact
Snack **15:00** **20 minutes to complete**	200ml semi skimmed milk + 2 digestive biscuit	125ml Fortisip OR 75ml Fortisip Compact	65 ml Fortisip OR 35ml Fortisip Compact
Evening Meal **17:30** **30 Minutes to complete**	1 portion cooked dinner containing carbohydrate and protein (e.g. baked potato and cheese, pasta bolognaise, omelette) + 2 slices of bread	200mls Fortisip OR 125mls Fortisip Compact	100 ml Fortisip OR 65ml Fortisip Compact
Snack **20 minutes to complete**	2 digestive biscuit OR 1 Cheese and 1 packet crackers	125ml Fortisip OR 75ml Fortisip Compact	65 ml Fortisip OR 35ml Fortisip Compact

There is NO option of substituting anything else for items on the above Menu - Nursing staff will NOT engage in any negotiation at all around items or timing of meals, snacks, etc.

Only CAMHS, FEDS or Dieticians can amend your plan. Ward Nursing staff will only comply with instructions from FEDS. They cannot and will not negotiate on anything.

FEDS team: 01444472670 Paediatric Dietitian: ext: 63433

Nutrition & Dietetic Services
Brighton & Sussex University Hospitals

1800 meal plan

Name:		DOB:	
	Meal	**Total needed if 100% of meal refused:**	**Total needed if 50% of meal refused**
Breakfast **08:30** **30 Minutes to complete**	1 small box serving breakfast cereal OR 2 weetabix + 200ml semi skimmed milk + 1 x 100ml small carton fruit juice	200mls Fortisip **OR** 125mls Fortisip Compact	100 ml Fortisip **OR** 65ml Fortisip Compact
Snack **10:30** **20 minutes to complete**	1 piece fruit (apple/banana/orange)	200mls Fortisip **OR** 125mls Fortisip Compact	100 ml Fortisip **OR** 65ml Fortisip Compact
Lunch **12:30** **30 Minutes to complete**	2 slice bread sandwich with butter/margarine and protein filling e.g. ham/tuna/cheese/egg + 1 yoghurt	200mls Fortisip **OR** 125mls Fortisip Compact	100 ml Fortisip **OR** 65ml Fortisip Compact
Snack **15:00** **20 minutes to complete**	2 digestive biscuit	200mls Fortisip **OR** 125mls Fortisip Compact	100 ml Fortisip **OR** 65ml Fortisip Compact
Evening Meal **17:30** **30 Minutes to complete**	1 portion cooked dinner containing carbohydrate and protein (e.g. baked potato and cheese, pasta bolognaise, omelette) + 2 slices of bread + 1 piece fruit (apple/banana/orange)	200mls Fortisip **OR** 125mls Fortisip Compact	100 ml Fortisip **OR** 65ml Fortisip Compact
Snack **20 minutes to complete**	200ml semi skimmed milk + 2 digestive biscuit	200mls Fortisip **OR** 125mls Fortisip Compact	100 ml Fortisip **OR** 65ml Fortisip Compact

There is NO option of substituting anything else for items on the above Menu - Nursing staff will NOT engage in any negotiation at all around items or timing of meals, snacks, etc. Only CAMHS, FEDS or Dieticians can amend your plan. Ward Nursing staff will only comply with instructions from FEDS. They cannot and will not negotiate on anything.

FEDS team: 01444472670 Paediatric Dietitian: ext: 63433

Nutrition & Dietetic Services
Brighton & Sussex University Hospital