Document Number: QH-GDL-961:2020

# Assessment and treatment of children and adolescents with eating disorders in Queensland

## 1. Purpose and scope

The aim of this guideline is to assist staff within Queensland Health Child and Youth Mental Health Services (CYMHS), Departments of Emergency Medicine, inpatient mental health units and paediatric medical wards when assessing a child or adolescent with a possible eating disorder, and deciding the most appropriate placement, treatment and care for the child or adolescent where admission to hospital is required. This decision is based on a number of safety issues and will need to be made on a case by case basis.

This guideline is not designed to be a prescriptive model of care, as no single model would cater for the heterogeneity of presentations seen throughout the state. The guideline provides suggested principles and minimum standards to enhance safe service delivery and assist practitioners in their decision making.

It is recommended that this guideline is used to support the formulation of local protocols and work instructions regarding clinical admission options, management of medical risks, governance issues and communication pathways. It is recognised that there are variations in local resources, and each case should be assessed on an individual basis depending on risk.

This guideline is designed to be used in conjunction with information and advice from:

- relevant local services, for example CYMHS, consultation-liaison psychiatry (C/L), dietetic services
- the child/adolescent and their family and/or carers
- the referring service.

If required, specialist advice and support can be sought from:

**CYMHS Eating Disorders Program**

Telephone: (07) 3397 9077 (Monday-Friday 8:30am-5:00pm)

Email: CHQ-CYMHS-eatingdisorders@health.qld.gov.au

Street address: 34 Curd St, Greenslopes, Brisbane, Queensland 4120
https://www.childrens.health.qld.gov.au/service-eating-disorders-team/.

## 2. Background

Eating disorders are associated with significant psychiatric and medical morbidity. Appropriate treatment and care of affected children/adolescents requires close collaboration between clinicians working in psychiatric and medical settings. The overarching principle guiding the treatment of children/adolescents with eating disorders within Queensland Health (QH) is that children/adolescents have access to the level of health service they require as determined by their medical and mental health needs. In practical terms this means that children/adolescents have a right to access medical and mental health services across the continuum of care, including inpatient, outpatient and specialist services.

This guideline specifically addresses assessment for an eating disorder, and those circumstances where a child or adolescent with an eating disorder, or a suspected eating disorder, requires admission to hospital.

## 3. Related documents

### Standards, procedures, guidelines

- National Safety and Quality Health Service Standards, second edition, 2017
- National Standards for Mental Health Services, 2010
- National Practice Standards for the Mental Health Workforce, 2013 (particularly standard 8: Transitions in Care)
- *Mental Health Act 2016* (Qld)
- *Human Rights Act 2019* (Qld)
- *Hospital and Health Boards Act 2011* (Qld)
- Chief Psychiatrist Policies under the *Mental Health Act 2016*
- Less Restrictive Way Guidelines. Queensland Health, 2019
- Guideline: Admission of children and adolescents to Queensland Health acute mental health inpatient units. Queensland Health (pending publication, 2020)
- A guide to admission and inpatient treatment for people with eating disorders in Queensland. Metro North Hospital and Health Service, 2018
- Eating disorders: a guide for community clinicians. Metro North Hospital and Health Service (pending publication, 2020)
- Information sharing between mental health workers, consumers, carers, family and significant others. Queensland Health, 2017
- Guideline: Transition of care for young people receiving child and youth mental health services. Queensland Health, 2019
- Guideline: Nutritional management of children and adolescents with eating disorders – For children aged 6-17 years presenting in the acute care setting. Children's Health Queensland Hospital and Health Service, 2015.

### Forms, templates

- Statewide suite of clinical documentation
- *Mental Health Act 2016* forms.

## 4. Guiding principles

- All treatment decisions should be made in consultation with the parents/carers and the child/adolescent (with due consideration of the child/adolescent's capacity). Clear and open communication of relevant information and support should be provided for the child/adolescent and their family and/or carers. This includes psycho-education, information about admission and inpatient care, collaborative development of care plans, relapse prevention and discharge planning, and providing the child/adolescent and their family and/or carers an opportunity to give feedback.
- Close collaboration is required between all relevant services and clinicians to optimise decision-making and implementation of treatment and care.
- The least restrictive, safe treatment alternative should be provided wherever possible. However, to best meet individual needs, provisions within the *Mental Health Act 2016* (MHA) and other relevant legislation can be used, where the criteria within the legislation are met.
- The cultural and social diversity of the child/adolescent and their family and/or carers is acknowledged, and their needs are considered throughout all phases of care.
- Treatment and care is provided with due consideration of the child/adolescent's human rights.

## 5. Guidelines for assessment of a child/adolescent presenting with possible eating disorder

If the presentation is the child/adolescent's first, other medical causes for malnutrition or disordered eating patterns must be excluded.

### 5.1 History

Recommended areas for exploration in a clinical interview are outlined in **Table 1** below.

**Table 1: Clinical interview**

| **Identifying abnormal thinking about weight, body image, diet and exercise** |
|---|
| Suggested questions to help explore attitudes towards weight control:<br>• What do you think is your healthy weight?<br>• What would you like to weigh?<br>• Do you think you need to lose more weight?<br>• Are you afraid of gaining weight?<br>• Are you unhappy with your body shape?<br>• Is there any part of your body that you are especially unhappy with?<br>• Do you eat in front of others? If not, when did you stop doing this and why?<br>• How frequently do you weigh yourself?<br>• How have you tried to control your weight?<br>• What type of exercises do you do?<br>• How much exercise do you do, how often, level of intensity?<br>• What sorts of foods and drinks do you avoid, and when did you start avoiding them?<br>• Do you have any ritualised eating habits?<br>• Do you prefer to eat alone?<br>• Do you count calories/fat/carbohydrates?<br>• When young people eat large amounts quickly we call this a binge. Do you ever binge on food? If so how often? What do you binge on? How much of that would you eat?<br>• Sometimes when young people are trying to control their weight they use medications 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, enquire about frequency, amount, and timing in relation to meals.) |
| **Family and social history** |
| • Family history: obesity, eating disorders, depression, other mental illness (especially anxiety disorders and obsessive-compulsive disorder), substance abuse by parents or other family members.<br>• Social history: home life, school life, friends, activities, sexual history. |
| **Menstrual history** |
| • Age at menarche, regularity of cycles, last menstrual period. |
| **Additional history** |
| • Use of cigarettes, drugs, alcohol (heavy use of alcohol increases the requirements for B vitamins)<br>• Use of anabolic steroids (especially in boys)<br>• Use of stimulants<br>• Involvement with websites or other forms of social media that are proanorexia ('pro-ana') or probulimia ('pro-mia')<br>• History of trauma<br>• Previous therapies (type, duration and outcomes) |

## 5.2 Examination

Recommended areas of examination are outlined in the **Table 2** below.

**Table 2: Examination**

| **Pubertal development** |
|---|
| • Assessment and documentation of pubertal stage<br>• Signs of delayed or interrupted pubertal development |
| **Signs of recurrent vomiting / purging** |
| • Gingivitis and dental caries (erosion of enamel, gum recession and friable gums)<br>• Hypokalaemia and/or elevated bicarb<br>• Loss of enamel on surfaces of teeth<br>• Callouses on dorsum of the hand (Russell's sign)<br>• Subconjunctival haemorrhage |
| **Mental health** |
| • Flat or anxious affect<br>• Functional decline<br>• Comprehensive risk assessment including suicidality and self-harm<br>• Severe family stress or strain<br>• Symptoms of depression, anxiety and obsessive-compulsive disorder or other co-morbid conditions |
| **Other features of severe malnutrition** |
| • Lanugo hair<br>• Dull thinning scalp hair<br>• Dry skin<br>• Skin breakdown and/or pressure sore<br>• Bruising/abrasions over the spine related to excessive exercises<br>• Muscle wasting (can be proximal and distal)<br>• Muscle weakness on testing<br>• Bones, including carefully assessing for lumber crush fractures<br>• Arrhythmias on Electrocardiogram<br>• Cardiomyopathy, cardiac failure<br>• Postural hypotension<br>• Postural tachycardia<br>• Bradycardia<br>• Peripheral oedema<br>• Hypothermia<br>• Constipation<br>• Amenorrhoea |

## 5.3 Investigations (should be completed as soon as possible)

To some extent, investigations will depend on the need to exclude other diagnoses. Recommended baseline investigations when an eating disorder is suspected or confirmed are:

- Full blood count (FBC)
- Liver function tests (LFTs)

- Vitamin B12 and folate
- Plasma zinc
- Thyroid function tests (TFTs)
- Iron studies
- C-Reactive Protein (CRP)
- Electrocardiogram (ECG)
- Coeliac antibodies
- If amenorrhoeic consider urine pregnancy test after discussion with care giver and child/adolescent
- Additional trace elements – if indicated from history
- Blood gas – if indicated from history
- Bone Mineral Densitometry (BMD)

The determination of whether a child/adolescent is admitted to an inpatient ward (medical or mental health) is often a multi-factorial clinical decision which needs to consider the results of medical investigations and broader psycho-social factors. **Table 3** below outlines the factors to consider when determining whether an inpatient admission should occur.

**Table 3: Physical and psychosocial factors that may indicate need for inpatient admission**

| **Presence of one or more of these symptoms/results may indicate inpatient admission is required urgently. If unclear, seek specialist advice.** | |
|---|---|
| **Anorexia Nervosa** | **Bulimia Nervosa** |
| • Rapid weight loss (>1kg/week avg. over 6 weeks)<br>• Weight loss of >15% of pre-morbid weight in last 3-6 months<br>• Refusal of oral intake<br>• Resting Pulse <50 bpm<br>• Systolic pressure <80mmHg<br>• Orthostatic changes in pulse (>20bpm rise) or BP (>20mmHg drop)<br>• Dehydration/refusing fluid intake<br>• Ketosis<br>• Hypothermia (Temp <35.5° C)<br>• Cold/blue extremities<br>• Presence of any Arrhythmia on ECG<br>• Prolonged QTc interval >450msec<br>• Any electrolyte abnormalities esp. Magnesium ($Mg^{2+}$), Phosphate ($PO4^{3-}$) and Potassium ($K^{+}$)<br>• Hypoglycaemia<br>• Severe family stress and strain and/or behaviours relating to eating disorder impacting on child/adolescent and family functioning<br>• Suicidality/self-harm that is unable to be managed in outpatient setting. | • Syncope<br>• Serum potassium <3.2mmol/L<br>• Serum Chloride <88mmol/L<br>• Oesophageal tears<br>• Cardiac arrhythmias including prolonged QTc interval >450msec<br>• Hypothermia (Temp <35.5$^{0}$C)<br>• Intractable vomiting<br>• Hematemesis (blood in vomit)<br>• Severe family stress and strain and/or behaviours relating to eating disorder impacting on child/adolescent and family functioning<br>• Suicidality/self-harm that is unable to be managed in outpatient setting. |

# 6. Guidelines for management of eating disorders on the medical ward

This section of the guidelines pertains to the child/adolescent in medical crisis where management of the medical risks is paramount. This care should ideally take place on a medical ward. Nutritional resuscitation is the key objective in this phase of treatment. Nutritional resuscitation refers to the re-feeding regime necessary for the child/adolescent when they are in medical crisis.

Criteria – meets any of following:

- Moderate to high risk of re-feeding syndrome (see **Table 4** below)
- In medical crisis as indicated by physical observations (see **Table 3** above).

## 6.1 Assessment and management of re-feeding syndrome

Re-feeding syndrome describes a range of reactions that may occur as the body reacts to the reintroduction of nutrition after an extended period of starvation. It involves a metabolic alteration in serum electrolytes, vitamin deficiencies and sodium retention, along with associated fluid shifts. Whilst these changes generally occur within 3-4 days, they can present in the first two weeks regardless of the route of re-feeding (oral or enteral). The most important aspect of treating re-feeding syndrome is recognising those who are at risk.

Any child/adolescent requiring intensive re-feeding will be at risk of re-feeding syndrome. Treatment should be managed accordingly, with education for the child/adolescent/family about re-feeding options (oral/NG).

### 6.1.1 High risk factors for re-feeding syndrome

A child/adolescent is considered high risk for re-feeding syndrome if (see **Table 4**):

**Table 4: High risk factors for re-feeding syndrome**

| **Child/Adolescent has one or more of:** | **Child/Adolescent has two or more of:** |
|---|---|
| Body mass index (BMI) <5$^{th}$ centile | BMI between 5$^{th}$ and 10$^{th}$ centile |
| Weight loss of >15% within the previous 3-6 months | Weight loss of >10% within previous 3-6 months |
| Insufficient oral nutritional intake to sustain normal functioning for 10 days (use clinical judgement) | Insufficient oral nutritional intake to sustain normal functioning for 5-7 days (use clinical judgement) |
| Hypophosphataemia, hypomagnesaemia, hypocalcaemia or hypokalaemia prior to re-feeding | |

### 6.1.2 Ongoing monitoring for re-feeding syndrome

Hypophosphataemia is the hallmark of re-feeding syndrome. This may be associated with hypokalaemia, hypomagnesaemia, hypoglycaemia, sodium and fluid retention and thiamine deficiency. Monitoring of electrolyte imbalances is crucial – by blood tests but also by a range of physical signs and symptoms that may indicate deficiencies. **Table 5** below outlines critical signs and thresholds.

**Table 5: Critical signs and thresholds**

| **4$^{th}$ hourly observations** | **Critical signs and thresholds → contact medical staff urgently** |
|---|---|
| Blood pressure (lying and standing) | If postural changes of >20mm/Hg |
| Pulse (lying and standing) | If <50 bpm or if postural changes of >20 bpm or if irregular |
| Temperature | If <35.5 (day/evening) or <35 (nights) |
| Respiratory Rate | If any changes / shortness of breath |
| Blood Glucose (four times per day plus 2:00am) | If out of normal ranges (4.0 – 7.8mmol) |

### 6.1.3 Management if child/adolescent at risk of re-feeding syndrome

If child/adolescent is at risk of re-feeding syndrome:

1. Ensure multivitamin (1 tab daily ongoing), Thiamine (100mg daily for 5 days) and Phosphate supplementation (500mg twice per day until on full meal plan and re-feeding risk low)
2. Nasogastric (NG) tube inserted and continuous NG feeding commenced as outlined in **Table 6** below.

Education should be provided to ensure the child/adolescent/family are fully aware of the medical reasoning behind a recommendation of NG feeding. If the child/adolescent/family decline insertion of the NG tube, it is recommended that the child/adolescent is commenced on half meal plan (Appendix A) until dietetic review. If commenced on half meal plan (oral intake only), continue progressing prescribed nutrition in 500kcal/2000kj increments every 2-3 days until full meal plan is reached. Close nursing supervision is highly recommended to ensure child/adolescent is completing all the prescribed intake, and to monitor for compensatory behaviours.

**Table 6: Suggested NG feeding protocol**

| Physical parameters | NG tube feeding regime |
|---|---|
| **Day 1-2 (unless criteria below are met)**<br>• Any medically compromised child/adolescent requiring admission as above<br>• Avoid IV fluid boluses – IV rehydration should occur only after consultant/senior medical officer review to avoid fluid overload and potential cardiac compromise. | 1. Commence continuous NG tube feeds at 80mls/hr (Nutrison Standard 1cal/ml) – equates to 2000kcal/8400kj per day<br>2. Encourage oral intake if possible, prompt dietetic review, can have sips of water. |
| **DAY 1 IF FOLLOWING CRITERIA MET**<br>• If Phosphate <1.0mmol/l<br>• If dehydrated at presentation (tachycardia, dry membranes, high Urine SG, raised urea/creatinine or albumin)<br>• If BMI calculated <14<br>These patients are at higher risk of re-feeding syndrome so are commenced at a lower calorie rate. | 1. Commence continuous Glycolyte at 80mls/hr. (1340kCal/5620kj over 24hrs)<br>2. Encourage oral intake if possible but be aware of possible fluid overload signs. |
| **DAY 2-15 (unless criteria below are met)**<br>• Once HR >50bpm during the day<br>• Electrolytes remain stable on daily bloods (Chem20 including $Ca^{2+}$/$Mg^{2+}$/$PO4^{3-}$). | 1. Cease daytime NG tube feeds<br>2. Commence HALF meal plan (1800kCal/7600kj) – See Appendix A<br>3. Commence overnight NG tube feeds at 100mls/hr over 10 hours (1 cal/ml Nutrison Standard). |
| **Ongoing days (once following criteria are met)**<br>• If HR remains >50bpm overnight<br>• Electrolytes remain stable (Bloods TWICE weekly)<br>• Core Temp stable overnight (>35.5$^0$C). | 1. Cease overnight feeds<br>2. Commence FULL meal plan (3200kcal/13400kj) – See Appendix B<br>3. If weight gain <0.5-1kg/week and no other cause found for lack of weight gain, consider high energy meal plan (3600kcal/15000kj) Appendix C. |

### 6.1.4 Management if child/adolescent not at risk of re-feeding syndrome

If a child/adolescent is not at risk of re-feeding syndrome, the following pathway is recommended:

Suggested half meal plan (see Appendix A) + overnight NG feeds (providing total of 2800kcal/11800kj per day).

When the child/adolescent can achieve 100% of the half meal plan for ≥ 2 consecutive days (i.e. not requiring bolus) they can progress onwards

↓

Full meal plan (see Appendix B). Nil overnight NG feeds required.

## 6.2 Leave arrangements and physical activity on medical ward

Leave is not recommended for children/adolescents in medical wards due to their medically compromised states. If the child/adolescent must leave the ward for medical investigations, they should be transported in a wheelchair with nurse escort. On admission, the child/adolescent should be informed that they will be on bed rest (resting either on their bed or in a chair). This ideally should remain in place while the child/adolescent remains medically compromised (see **Table 3** above). When the child/adolescent's vital signs have improved and there are non-symptomatic orthostatic changes (as determined by the treating medical team), heart rate >50bpm overnight and core temperature stable (>35.50C), bed rest may be lifted at the discretion of the treating team.

## 6.3 Use of the *Mental Health Act 2016* (MHA)

The treatment of eating disorders is a complex process and will involve significant input from both medical and psychiatric teams. The child/adolescent with an eating disorder may become visibly distressed and/or physically agitated/aggressive, especially at meal times. As the primary goal of acute medical inpatient treatment of eating disorders is to ensure nutritional resuscitation of the child/adolescent to achieve medical stability, the administration of food is paramount, whether it be via an oral, bolus or NG route.

### 6.3.1 Ensuring the 'less restrictive way' wherever possible

In determining whether a child/adolescent is to be admitted and treated voluntarily or involuntarily under the MHA, clinicians must consider least restrictive principles in providing treatment and care. The MHA refers to this as 'less restrictive way'. Alternatives to involuntary care are employed wherever possible. This can include using Gillick criteria to determine the capacity of the child/adolescent to provide informed consent, or seeking parental/guardian consent.

If seeking consent from a parent or guardian, the doctor and/or mental health practitioner should be satisfied that the person providing consent is a 'parent' as defined in the MHA (refer to section 9. Terms and abbreviations). If the parent/guardian decides not to consent, the reasons for this decision are taken into consideration. However, an authorised doctor may make a Treatment Authority if treatment is considered necessary and no less restrictive options are appropriate to meet the minor's needs. A parent/guardian cannot consent to the use of seclusion or restraint on a minor, or to the administration of electroconvulsive therapy.

If involuntary treatment or care under the MHA is considered necessary for a child/adolescent in a medical ward, it is advisable to contact the hospital C/L team or local CYMHS team, to seek advice and assistance regarding the use of the MHA to aid in the child/adolescent's treatment and care. The rationale for decisions made must be clearly documented. Any use of the MHA to provide involuntary treatment or care will need to be discussed with the child/adolescent and their parents/carers, preferably beforehand, if clinically appropriate.

'Less restrictive way' resources and forms, including those specific to young people, can be accessed on the Queensland Health MHA internet site: www.health.qld.gov.au/clinical-practice/guidelines-procedures/clinical-staff/mental-health/act.

**Use of restrictive interventions on children and adolescents**

Mental health services aim to reduce and where possible eliminate the use of restrictive interventions such as seclusion, mechanical restraint and physical restraint. Such practices are internationally recognised as non-therapeutic interventions that carry a serious risk of harm to both consumers and staff. As many young people accessing inpatient services have a history of trauma, abuse or neglect, staff need to be mindful of the principles of trauma informed care, and endeavour to use the least restrictive options possible to assist with emotional regulation and behavioural containment.

***Seclusion, mechanical restraint and physical restraint***

Seclusion, mechanical restraint and physical restraint are to be used only as a last resort, where less restrictive interventions have been unsuccessful or are not feasible.

Seclusion, mechanical restraint and physical restraint may only be used according to the provisions of the MHA and the associated Chief Psychiatrist Policies, unless authorised under another law. For further information please refer to the Queensland Health MHA internet site: www.health.qld.gov.au/clinical-practice/guidelines-procedures/clinical-staff/mental-health/act.

***Acute sedation***

Great care must be taken when considering acute sedation for young people and those who are frail or medically compromised, where toxicity is more common. Acute sedation must only be used when clinically indicated, and should only occur after attempts to manage behavioural disturbance with less restrictive options, such as de-escalation techniques and oral medication, have proven unsuccessful. Prior to the initiation of parenteral sedation, the child or adolescent is to be given every opportunity to accept oral sedation.

For more information please refer to the *Guideline for acute behavioural disturbance management (including acute sedation) in Queensland Health Authorised Mental Health Services (children and adolescents)* (*2017)*: www.health.qld.gov.au/__data/assets/pdf_file/0026/665306/qh-gdl-451.pdf.

## 6.4 Role of local CYMHS or hospital C/L team while child/adolescent is in medical ward

Whilst the child/adolescent remains an inpatient on the medical ward, the medical team maintains clinical governance of the treatment and care of the child/adolescent.

The local CYMHS, hospital C/L service or specialist eating disorders service (for example, CYMHS Eating Disorders Program – refer to page 1 of this guideline for contact details) can provide a consultation-liaison role with regards to support, treatment planning and linkages to appropriate outpatient supports. Collaboration must be maintained between all relevant services and stakeholders during the admission period and to facilitate discharge planning.

Throughout the period of admission, the care and treatment of the child/adolescent and the appropriateness of the treatment setting will be monitored. If, after due consideration of the principles outlined within this document, it is deemed that the child/adolescent requires a transfer to a more appropriate setting (e.g. mental health inpatient unit), C/L or CYMHS clinicians will endeavour to facilitate a transfer.

CYMHS or C/L clinicians or specialist eating disorder service can also provide:

- Parental/carer support and psycho-education about the disorder (aetiology, prognosis etc.) and treatment options
- Support and training as required to staff implementing the care, in order to explain the rationale, and assist them in the often emotionally challenging task of re-feeding.

### 6.5 Parameters for ongoing nutritional resuscitation on medical ward

Nutritional resuscitation on the medical ward should continue until the following parameters are met:

- Observations are within acceptable limits for age, sex and height but may be at lower end of ranges
- Electrolytes and blood glucose level (BGL) return to normal ranges without supplementation
- No evidence of cardiac abnormalities (sinus rhythm and without need for cardiac monitoring)
- Assessed as low risk for re-feeding syndrome
- Weight increasing from initial admission weight
- Admission to mental health inpatient unit is arranged OR follow-up appointments with appropriate physicians, mental health clinicians/teams (CYMHS, local mental health case worker, specialist eating disorder service if available in local area, or private clinician/s) are booked no longer than 72 hours after discharge, and earlier if possible. Refer also to the **Flowchart of admission pathways for child/adolescent with eating disorder** at section 8.

### 6.6 Recommended criteria for discharge home without transfer to mental health inpatient unit:

- Consistently completing suggested full meal plan, with or without supplements
- NG feeds are NOT required to sustain or increase weight
- Child/adolescent assessed as physically stable by medical team
- Parents/carers can successfully support their child/adolescent in eating a meal with minimal or no support from hospital staff (will need periods of leave off medical ward for parents/carers to demonstrate)
- Comprehensive outpatient follow-up management plan to be organised with appropriate services or clinicians via CYMHS or C/L team assessment and discussed with the child/adolescent and parents/carers.

Refer also to the **Flowchart of admission pathways for child/adolescent with eating disorder** at section 8.

### 6.7 Recommended criteria for transfer to mental health inpatient unit:

- Tolerating prescribed feeding regime of either oral or NG tube feeding and requiring further prolonged nutritional rehabilitation
- Other mental health issues due to especially low weight/BMI on admission or other psycho-social factors, including need for further parental/carer empowerment to enable minimum oral intake in outpatient setting so child/adolescent does not become medically compromised following discharge.

Refer also to the **Flowchart of admission pathways for child/adolescent with eating disorder** at section 8.

## 7. Guidelines for care of children/adolescents requiring nutritional rehabilitation and transfer to outpatient care

This section of the guideline pertains to the treatment of the child/adolescent once medical crisis is resolved. The setting could be either a paediatric medical ward or mental health inpatient unit depending on local service policy and provision. Nutritional rehabilitation refers to the ongoing feeding and management plan for the child/adolescent once they no longer require nutritional resuscitation.

Refer also to the **Flowchart of admission pathways for child/adolescent with eating disorder** at section 8.

Further advice and support can be sought from the Brisbane-based CYMHS Eating Disorders Program (refer to page 1 of this guideline for contact details).

## 7.1 Nutritional rehabilitation

Criteria which indicate need for nutritional rehabilitation – may meet one or more of following:

- Low risk of re-feeding syndrome (see above section 6.1 'Assessment and management of re-feeding syndrome')
- Nutritionally resuscitated as indicated by physical observations, ECG and/or blood electrolyte levels with deficiencies managed by supplements but remains unwell
- Compensatory behaviours evident and cannot be fully managed on leave by family/carers, or in hospital by staff
- Significant weight gain (>15kgs) still required that may not be achievable in a timely manner in the outpatient setting
- At least 50 per cent of nutritional intake is via NG feeding, supplementation or NG bolus.

## 7.2 Nursing and allied health care

- Physical observations as clinically indicated in **Table 7** (see below)
- Record food and fluid intake
- Twice weekly weighing (as per ward protocol)
- Meals should be in an appropriate dining room where possible with supportive meal therapy intervention
- Where possible provide post meal support and promote child/adolescent's independent use of strategies learnt. Give consideration to an individual's own risks, e.g. if at risk of purging consider supported use of bathrooms immediately after meals
- Negotiate return to schoolwork and attendance at school as per local policy and individual needs.

## 7.3 Medical guidelines

- Blood tests and ECG as clinically indicated in **Table 7** (see below)
- Supplemental thiamine and multivitamins should be prescribed
- Electrolyte supplementation as indicated by blood test results
- Bone Mineral Densitometry (BMD) to be considered if available and not already completed on medical ward
- Consider medication if symptoms of eating disorder are at a level which is interfering with nutritional rehabilitation and other strategies are not proving effective
- Ensure weight chart and latest bloods sent to team responsible for medical monitoring in outpatient treatment.

## 7.4 Recommended medical and nursing observations during nutritional rehabilitation

**Table 7** below lists recommended observations whilst the child/adolescent undergoes nutritional rehabilitation.

**Table 7: Medical and nursing observations during nutritional rehabilitation**

<table>
<tr><th colspan="2">Test / observation</th><th>Frequency</th></tr>
<tr><td colspan="2">Serum electrolytes including $PO4^{3-}$, $K^{+}$, $Ca^{2+}$, $Mg^{2+}$<br>(All children/adolescents receiving $PO4^{3-}$, $K^{+}$, $Ca^{2+}$, $Mg^{2+}$ will require close monitoring for changes in clinical condition such as possible respiratory, muscular and cardiac changes)</td><td>Weekly</td></tr>
<tr><td colspan="2">Urinalysis and fluid balance</td><td>As clinically indicated</td></tr>
<tr><td>BP</td><td rowspan="4">Refer to Children's Early Warning Tool (CEWT) or similar local monitoring form</td><td>Daily</td></tr>
<tr><td>Temperature</td><td>Daily</td></tr>
<tr><td>Pulse</td><td>Daily</td></tr>
<tr><td>Cardiac and respiratory function</td><td>Daily</td></tr>
<tr><td colspan="2">Administration rates fluids (feeds and IV preparations)</td><td>Daily</td></tr>
<tr><td colspan="2">Blood glucose</td><td>Daily</td></tr>
<tr><td colspan="2">Signs of paraesthesia, deterioration of strength or mental state</td><td>Daily</td></tr>
<tr><td colspan="2">Weight (preferably in hospital gown and after void) and specific gravity</td><td>Bi-weekly</td></tr>
<tr><td colspan="2">Calorie intake – all food/drinks/supplements are to be recorded. Nursing staff to document in child/adolescent chart</td><td>Daily</td></tr>
<tr><td colspan="2">Medication administration – Observe carefully that all medications have been taken correctly, and if there is concern about this, notify the treating team</td><td>Upon administration</td></tr>
<tr><td colspan="2">Physical activity</td><td>Daily</td></tr>
<tr><td colspan="2">Monitor signs of binging such as excess amounts of food being requested from family/carers and visitors, food going 'missing' from ward supplies, fridges, other patient's meals etc.</td><td>Daily</td></tr>
<tr><td colspan="2">Monitor mental state and behaviour</td><td>Daily</td></tr>
<tr><td colspan="2">Monitor compensatory behaviours e.g. exercise, purging via self-induced vomiting in toilets after a meal or a snack</td><td>Daily</td></tr>
</table>

## 7.5 Suggested nursing interventions to manage the child/adolescent in nutritional rehabilitation

- Bed rest as indicated by level of medical risk
- Monitor levels of physical activity. If physical activity is interfering with treatment progress of child/adolescent, then physical activity may need to be reduced or ceased until progress resumes
- Encourage appropriate clothing and bedcovers for the climate
- Assess for ripple mattress / sheepskin on bed for pressure area care
- Child/adolescent may require appropriate supervision while showering if there is clinical suspicion of eating disorder behaviours occurring that interfere with treatment progress. NG tube feed should not be taken into shower
- If on NG feed, then disconnect pump before child/adolescent goes into bathroom
- For NG tube feeds: hourly feed checks.

## 7.6 Meal plans

Meal plans are usually prescribed by the dietician and reviewed at least weekly to ensure the child/adolescent is gaining at least 0.5-1kg/week during admission. See Appendices A-C for suggested meal plans.

Meal plan general guidelines include:

- In the initial stages the meal plan should ideally be as specific as possible, as the child/adolescent's eating disorder may try to negotiate the smallest or lowest calorie equivalent if too many options are given
- Whilst the child/adolescent remains on continuous NG feeds, if they report increased appetite, small snacks can be offered throughout the day to allow for monitoring of daily caloric intake and to prevent electrolyte imbalance and fluid shifts.
- Meal plans should ideally contain a combination of meals and supplements. All meal plans are recommended to have bolus options assigned next to each main meal and snack. A bolus option is the equivalent number of calories given as a bolus, if the child/adolescent refuses to eat the prescribed amount of food within the time specifications. Ideally, the bolus option should contain more calories/kilojoules (≥10 per cent) than the oral meal option (full meal plan, high energy meal plan only), to encourage the child/adolescent to eat the food orally.
- Child/adolescent should be given a copy of the meal plan outlining the prescribed foods and feed type of the bolus option, including the potential for the bolus to be delivered via NG tube.
- It is recommended that the child/adolescent not be shown or given meal plans with calories or volumes of bolus options written on them. This may unnecessarily heighten anxiety and also increase resistance to eating.
- For children/adolescents who require increased or decreased calories outside of their half and full meal plans, individual meal plans may need to be prescribed by the dietician.

### 7.7 Meal time support

During consumption of meals and snacks, the following meal time support is recommended, but it is recognised that this may not be possible in all hospital settings depending on resources and training:

- Main meals should aim to be consumed within 30 minutes, and snacks within 15 minutes. Establishing clear timeframes for meals is helpful, as the child/adolescent's eating disorder may try to extend the amount of time to eat a meal, in the hope that the parent/caregiver/nurse will eventually tire in their attempts to get them to eat the full meal.
- It is recommended that staff not enter into any discussion or negotiation around prescribed meal plans to avoid re-enforcement of eating disordered behaviour. The only exception to this is when there is an identified medical/religious/cultural reason for a food not to be given.
- No special dietary requirements (e.g. vegetarian, vegan, gluten free, lactose free) should be approved, unless the family/carers provide medical/appropriate longitudinal history supporting the suggested dietary requirements.
- If treatment is not progressing, or there are other clinical concerns about the child/adolescent's nutritional intake, they may need to be monitored on a 1:1 basis while attempting to eat their meal/snack. This allows for direct observation of the amount consumed and reduces the potential for the child/adolescent to engage in eating disordered behaviours.
- At the end of the above times, if the full meal has not been eaten:
    - Option 1 - the child/adolescent should ideally be given an oral supplement
    - Option 2 - as per the relevant suggested meal plan
    - Option 3 – if relevant suggested meal plan is refused, can utilise NG tube supplement.
- The child/adolescent should be encouraged to go to the toilet prior to their meal or snack. This reduces the likelihood that the child/adolescent will need to go to the toilet soon after a meal, and reduces the likelihood of compensatory behaviours after food has been consumed. The child/adolescent should be monitored if they go to the toilet / bathroom within 30 minutes after a meal.

- The child/adolescent may also require a period of *post-meal support* following each main meal and snack. This is to reduce the potential of the child/adolescent to engage in any compensatory mechanisms to lose weight (e.g. vomiting, exercise) and to also provide support to the child/adolescent in what is usually the most distressing periods of the day for them. The recommended time for post-meal support is for 60 minutes post main meal and 30 minutes post all other snacks/meals for the day.
- Post-meal support does not mean the child/adolescent should be confined to bed rest or immobility. Rather, it refers to supporting the child/adolescent during what is usually a very difficult time, when the eating disorder is likely making the child/adolescent feel multiple powerful emotions, such as guilt over consumption of food and worry about gaining weight. Post-meal support can be delivered via various means (e.g. distracting activities, discussion about what the eating disorder may be saying to the child/adolescent) during this period where the chances of distress and impulsive behaviours can be quite high.
- Check all meals and trays pre- and post-meals. Record intake on a 'food and fluid' chart.

## 7.8 Leave arrangements while on mental health ward

All leave should be planned between the family/carer and ward staff, with focus on meal support, activity management and strategies to help manage compensatory behaviours which may impact on weight restoration. A meeting prior to leave between parents/carers and dietician may be useful so advice on nutrition and other care requirements can be given.

A graduated leave plan should be formulated between the child/adolescent, their family/carer and the treating team. The care plan to support transition home may be different depending on which outpatient service will be accessed by the child/adolescent and family/carer. Consultation with the follow-up service provider is essential prior to discharge.

## 7.9 Goals for transfer to outpatient care

- Normalisation of physical observations and blood electrolytes, indicating safe nutritional status.
- Able to eat sufficient amounts orally so as to maintain medical stability in the outpatient setting.
- Attainment of at least 85% of Expected Body Weight (EBW) (see 7.10 Calculation of Expected Body Weight). This may need to be higher if not going to a specialist eating disorder service or treatment program such as Family Based Therapy for Anorexia Nervosa.
- Mental state of child/adolescent assessed by treating team to be deemed stable enough for discharge.

Refer also to the **Flowchart of admission pathways for child/adolescent with eating disorder** at section 8.

### 7.9.1 Calculation of Expected Body Weight (EBW)

Many eating disorder treatments utilise EBW as one measure of return to health. Unlike in adults, where the body has stopped growing, a child/adolescent is still growing and hence their EBW will change throughout the course of treatment depending on their age, height and gender. Thus, the EBW should not be considered a static number during the treatment of eating disorders. Re-calculation should occur with increasing age and height of the child/adolescent.

The BMI is still used in children/adolescents to calculate EBW, but BMI can be an unreliable method of calculation of EBW, especially in younger children. Wherever possible, information about previous height/weight should be sought, in order to plot the child/adolescent on the gender appropriate percentile height and weight growth charts. This then allows the establishment of which percentile the child/adolescent was tracking on prior to the onset of the eating disorder. EBW can then be easily calculated upon presentation to the hospital by plotting the child/adolescent's weight on the same percentile that they were tracking on previously, taking into account their current age.

If premorbid height/weight measurements are not obtainable, then other measures such as the 50th percentile value for BMI for age/gender can be used to calculate EBW (EBW = 50th percentile BMI x Height(m)$^2$). For very tall or short children/adolescents (>90th percentile or <10th percentile for height), 'matching' of the percentiles may be appropriate, e.g. for a child/adolescent >90th percentile in height, use 75th weight percentile or higher.

Further advice on calculation of EBW can be obtained from:

- Guideline: Calculation of expected body weights in the treatment of eating disorders: https://qheps.health.qld.gov.au/__data/assets/pdf_file/0025/2305366/gdl-50025.pdf (Children's Health Queensland Hospital and Health Service, 2019) (Queensland Health intranet only)
- CYMHS Eating Disorder Program (refer to page 1 of this guideline for contact details).

### 7.10 Additional suggested interventions for preparation for transfer to outpatient care

The child/adolescent and family/carers should have adequate support and preparation for the return home, including education on meal support, signs to look out for which indicate a relapse, and managing family/carer anxiety.

Discharge planning requires organisation of:

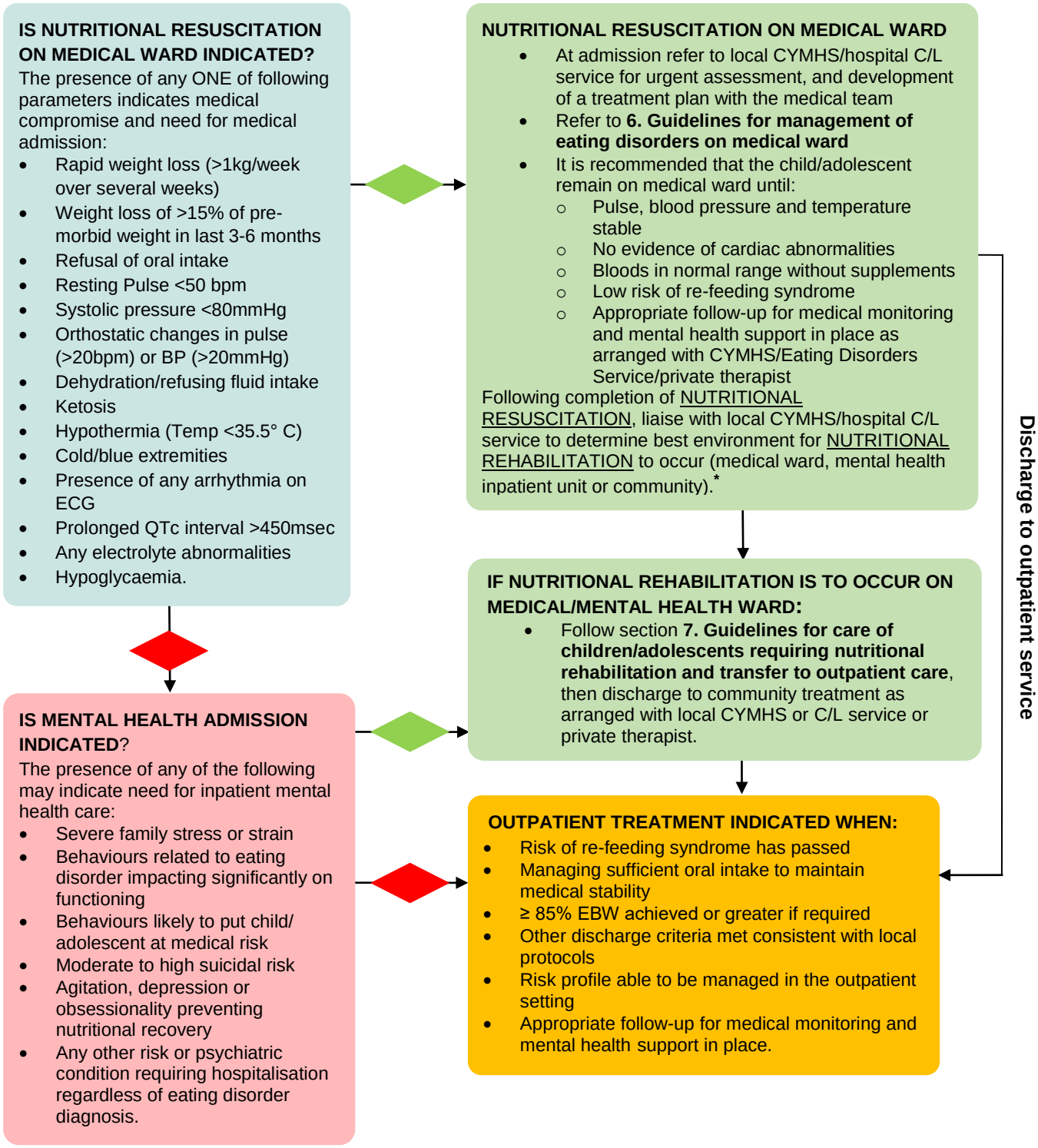
- appropriate medical monitoring
- referral to appropriate outpatient care, which may include family or individual therapy.

Follow-up appointments should be arranged as shortly after discharge as possible to minimise risk of relapse and re-admission.

There should ideally be a joint meeting between inpatient unit and outpatient treatment clinicians prior to discharge and if possible, a meeting between the outpatient treatment team, the child/adolescent and the family/carer prior to discharge to ensure as smooth a transition to outpatient treatment as possible.

Follow-up is essential to ensure the child/adolescent and their family/carers have effectively engaged with the outpatient treatment clinicians. The discharge plan will identify who is responsible for this follow-up and for making alternative arrangements for outpatient treatment if required.

# 8. Flowchart of admission pathways for child/adolescent with eating disorder




NOTE: This is a guideline only and does not replace the need for clinical judgement, taking into account individual circumstances.

*Local service arrangements will determine where nutritional rehabilitation will take place.

## 9. Terms and abbreviations

| Term | Definition / Explanation / Details |
|---|---|
| adolescent | For the purposes of this document the term 'adolescent' refers to those aged 13-17 years |
| child | For the purposes of this document the term 'child' refers to those aged 0-12 years |
| minor | A person under the age of 18 years (*Acts Interpretation Act 1954*) |
| parent | Under the *Mental Health Act 2016*, a parent of a minor includes:<br>• a guardian of the minor<br>• a person who exercises parental responsibility for the minor, other than a person standing in the place of the parent of the minor on a temporary basis<br>• for an Aboriginal minor – a person who, under Aboriginal tradition, is regarded as a parent of the minor<br>• for a Torres Strait Islander minor – a person who, under Island custom, is regarded as a parent of the minor. |
| **Abbreviation** | **Definition / Explanation / Details** |
| AMHS | Authorised Mental Health Service |
| BMD | Bone Mineral Densitometry |
| BGL | Blood Glucose Level |
| BMI | Body Mass Index |
| CIMHA | Consumer Integrated Mental Health Application |
| CRP | C-Reactive Protein |
| CYMHS | Child and Youth Mental Health Service |
| C/L | Consultation-Liaison Psychiatry |
| EBW | Expected Body Weight |
| ECG | Electrocardiogram |
| FBC | Full Blood Count |
| HR | Heart Rate |
| LFTs | Liver Function Tests |
| MHA | *Mental Health Act 2016* (Qld) |
| NG / NGT | Nasogastric / Nasogastric tube |
| TFTs | Thyroid Function Tests |

## 10. Acknowledgements

This guideline is based on the Children's Health Queensland Hospital and Health Service Guideline: *Nutritional management of children and adolescents with eating disorders – For children aged 6-17 years presenting in the acute care setting* (Queensland Health, 2015). Content was reviewed and updated by an expert working group of mental health professionals, including representatives from specialist eating disorder services, child and youth mental health services, paediatric services and dietetic services. The working group was co-established under the statewide Child and Youth Mental Health Alcohol and Other Drugs Clinical Group and the statewide Eating Disorders Advisory Group. In developing this guideline, a review of current literature and broad statewide consultation were undertaken.

## 11. Document approval details

### Document custodian

Clinical Governance Team, Mental Health Alcohol and Other Drugs Branch

### Approval officer

Chief Psychiatrist, Mental Health Alcohol and Other Drugs Branch

**Approval date:** March 2020

**Review date:** March 2020

## 12. Version control

| Version | Date | Prepared by | Comments / reason for update |
|---|---|---|---|
| V1.0 | March 2020 | Mental Health Alcohol and Other Drugs Branch | First publication |

## Appendix A – Suggested half meal plan

<table>
<tr><th colspan="4">HALF MEAL PLAN – 1800kcal</th></tr>
<tr><td colspan="2">Patient details<br>Name:<br>UR:<br>DOB:<br>Ward:</td><td colspan="2">Date:<br><br>Dietitian:<br><br>Allergies:</td></tr>
<tr><td>Meal Plan Assumptions:<br><br>• Main meals must be consumed in 30 mins and snacks in 15 mins<br><br>• Full cup of fluid must be consumed at each meal and snack. If not specified, can choose fluid option<br><br>• Can have an additional cup of water in between meals i.e. 6 x 250mls/day<br><br>• All dairy is full cream.<br><br>• All bread/toast must have butter or margarine.<br><br>• Any meals that come with gravy or sauces need to be consumed.<br><br>• If unable to complete Option 1, an extra 10 mins given to consume Oral supplement drink.<br><br>• If unable to complete Option 2 orally, young person will receive remainder of Oral supplement drink via NGT.<br><br>Food dislikes:<br>1.<br>2.<br><br>• ** Food dislikes cannot be whole food groups and cannot change throughout admission.<br><br>• Additional comments: (Dietitian use only)</td><td>Option 1 – Plated Meal<br>*If 100% NOT completed, in allocated time frame then go to Option 2.</td><td>Option 2 – Oral Supplement Drink</td><td>Option 3 – NGT Bolus</td></tr>
<tr><td></td><td><u>Breakfast</u><br>Cereal (1PC- weet-bix, sultana bran, just right, rice bubbles, cornflakes) + f/c milk 1PC (150mls)<br>+DRINK: 250mls full cream milk</td><td>1 x Resource Plus</td><td>Remainder of Supplement</td></tr>
<tr><td></td><td><u>Morning Tea</u><br>Jatz 1PC (3 biscuits) + cheese 1PC (1 slice)<br>+1 x Fruit<br><u>OR</u><br>1 x tub yoghurt<br>+1 x Fruit<br>+DRINK: 250mls water</td><td>1 x Sustagen</td><td>Remainder of Supplement</td></tr>
<tr><td></td><td><u>Lunch</u><br>4 points sandwich supplied from kitchen<br>(must have meat, chicken, tuna, cheese or egg)<br>+DRINK: 250mls full cream milk</td><td>1 x Resource Plus</td><td>Remainder of Supplement</td></tr>
<tr><td></td><td><u>Afternoon Tea</u><br>Jatz 1PC (3 biscuits) + cheese 1PC (1 slice)<br>+1 x Fruit<br><u>OR</u><br>1 x tub yoghurt<br>+1 x Fruit<br>+DRINK: 250mls water</td><td>1 x Sustagen</td><td>Remainder of Supplement</td></tr>
<tr><td></td><td><u>Dinner</u><br>Full standard serve meal from kitchen which must include portion of meat, chicken, fish (or other protein – cheese/egg) AND potato, rice or pasta AND vegetables<br>+ DRINK: 250mls fruit juice</td><td>1 x Resource Plus</td><td>Remainder of Supplement</td></tr>
<tr><td></td><td><u>Supper</u><br>DRINK: 1 x Sustagen</td><td>1 x Sustagen</td><td>Remainder of Supplement</td></tr>
</table>

## Appendix B – Suggested full meal plan

<table>
<tr><th colspan="4">FULL MEAL PLAN – 3200kcal</th></tr>
<tr><td colspan="2">Patient details<br>Name:<br>UR:<br>DOB:<br>Ward:</td><td colspan="2">Date:<br><br>Dietitian:<br><br>Allergies:</td></tr>
<tr><td>Meal Plan Assumptions:<br><br>• Main meals must be consumed in 30 mins and snacks in 15 mins.<br><br>• Full cup of fluid must be consumed at each meal and snack.<br><br>• Can have an additional cup of water in-between meals – i.e. 6 x 250mls/day<br><br>• All dairy is full cream.<br><br>• All bread/toast must have butter or margarine.<br><br>• Any meals that come with gravy or sauces need to be consumed.<br><br>• If unable to complete Option 1, an extra 10 mins given to consume Oral supplement drink.<br><br>• If unable to complete Option 2 orally, young person will receive remainder of Oral supplement drink via NGT.<br><br>Food dislikes:<br>1.<br>2.<br><br>• ** Food dislikes cannot be whole food groups and cannot change throughout admission.<br><br>Additional comments: (Dietitian use only)</td><td>Option 1 – Plated Meal<br>*If 100% NOT completed, in allocated time frame then go to Option 2.<br>NOTE PC= PORTION CONTROL MENU ITEM</td><td>Option 2 Oral Supplement Drink</td><td>Option 3 NGT Bolus</td></tr>
<tr><td></td><td><u>Breakfast</u><br>Cereal 1PC (weet-bix, sultana bran, just right, rice bubbles, cornflakes) + f/c milk 1PC (150mls)<br>+ 1 slice toast + butter 1PC + spread 1PC (honey/jam/vegemite)<br>+DRINK: 250mls full cream milk + 1 sachet milo</td><td>2 x Resource Plus</td><td>Remainder of Supplement</td></tr>
<tr><td></td><td><u>Morning Tea</u><br>Jatz 1PC (3 biscuits) + cheese 2PC (2 slices)<br>+1 x Fruit<br><u>OR</u><br>2 x tub yoghurt<br>+1 x Fruit<br>+DRINK: 1 x sustagen</td><td>2 x Sustagen</td><td>Remainder of Supplement</td></tr>
<tr><td></td><td><u>Lunch</u><br>6 points sandwich supplied from kitchen<br>(must have meat, chicken, cheese etc)<br>+DRINK: 250mls full cream milk + 1 milo sachet</td><td>2 x Resource Plus</td><td>Remainder of Supplement</td></tr>
<tr><td></td><td><u>Afternoon Tea</u><br>Jatz 1PC (3 biscuits) + cheese 2PC (2 slices)<br>+1 x Fruit<br><u>OR</u><br>2 x tub yoghurt<br>+1 x Fruit<br>+DRINK: 1 x sustagen</td><td>2 x Sustagen</td><td>Remainder of Supplement</td></tr>
<tr><td></td><td><u>Dinner</u><br>Full standard serve meal from kitchen which must include portion of meat, chicken, fish (or other protein – cheese/egg) AND potato, rice or pasta AND vegetables<br>+ DESSERT (no jelly)<br>+ DRINK: 250mls fruit juice</td><td>2 x Resource Plus</td><td>Remainder of Supplement</td></tr>
<tr><td></td><td><u>Supper</u><br>1 x sustagen + 1 pce fruit</td><td>1 x Resource Plus</td><td>Remainder of Supplement</td></tr>
</table>

## Appendix C – Suggested high energy meal plan

<table>
<tr><th colspan="4">HIGH ENERGY MEAL PLAN</th></tr>
<tr><td colspan="2">Patient details<br>Name:<br>UR:<br>DOB:<br>Ward:</td><td colspan="2">Date:<br><br>Dietitian:<br><br>Allergies:</td></tr>
<tr><td rowspan="8">Meal Plan Assumptions:<br>• Main meals must be consumed in 30 mins and snacks in 15 mins.<br>• Full cup of fluid must be consumed at each meal and snack.<br>• Can have an additional cup of water in between meals<br>• All dairy is full cream.<br>• All bread/toast must have butter or margarine.<br>• Any meals that come with gravy or sauces need to be consumed.<br>• If unable to complete Option 1, an extra 10 mins given to consume Oral supplement drink.<br>• If unable to complete Option 2 orally, young person will receive remainder of Oral supplement drink via NGT.<br>Food dislikes:<br>1.<br>2.<br>** Food dislikes cannot be whole food groups and cannot change throughout admission.<br>Additional comments: (Dietitian use only)</td><td>Option 1 – Plated Meal<br>*If 100% NOT completed, in allocated time frame then go to Option 2.<br>NOTE PC= PORTION CONTROL MENU ITEM</td><td>Option 2 Oral Supplement Drink</td><td>Option 3 NGT Bolus</td></tr>
<tr><td><u>Breakfast</u><br>Cereal (1PC- weet-bix, sultana bran, just right, rice bubbles) + f/c milk 1PC (150mls)<br>+ 2 slices toast + butter 2 PC + spread 2PC (honey/jam/vegemite)<br>+DRINK: 250mls full cream milk + 1 sachet milo</td><td>2 x Resource Plus</td><td>Remainder of Supplement</td></tr>
<tr><td><u>Morning Tea</u><br>Jatz 2PC (6 biscuits) + cheese 2PC (2 slices)<br>+1 x Fruit<br><u>OR</u><br>2 x tub yoghurt<br>+1 x Fruit<br>+DRINK: 1 x resource plus</td><td>2 x Resource Plus</td><td>Remainder of Supplement</td></tr>
<tr><td><u>Lunch</u><br>8 points sandwich supplied from kitchen<br>(must have meat, chicken, tuna, cheese or egg)<br>+DRINK: 250mls full cream milk + 1 milo sachet</td><td>2 x Resource Plus</td><td>Remainder of Supplement</td></tr>
<tr><td><u>Afternoon Tea</u><br>Jatz 2PC (6 biscuits) + cheese 2PC (2 slices)<br>+1 x Fruit<br><u>OR</u><br>2 x tub yoghurt<br>+1 x Fruit<br>+DRINK: 1 x resource plus</td><td>2 x Resource Plus</td><td>Remainder of Supplement</td></tr>
<tr><td><u>Dinner</u><br>Full standard serve meal from kitchen which must include portion of meat, chicken, fish (or other protein – cheese/egg) AND potato, rice or pasta AND vegetables<br>+ DESSERT (No Jelly unless with ice cream)<br>+ DRINK: 2 Juice PC (220ml)</td><td>2 x Resource Plus</td><td>Remainder of Supplement</td></tr>
<tr><td><u>Supper</u><br>1 serve fruit<br>+ Jatz 1PC + cheese 1PC (1 slice)<br>+DRINK: 1 x Sustagen</td><td>2 x Sustagen</td><td>Remainder of Supplement</td></tr>
</table>

## Appendix D – Additional key readings


- Fuentebella, J & Kerner, J.A. (2009). Refeeding Syndrome, Pediatric Clinics of North America, 56; 1201 – 1210.

- Garber, A.K., Sawyer, S.M., Golden, Neville, H.M., et. al. (2016), A Systematic Review of Approaches to Refeeding in Patients with Anorexia Nervosa. International Journal of Eating Disorders 49:3, 293-310.

- Katzman, D.K. (2005). Medical Complications in Adolescents with Anorexia Nervosa: A review of the Literature. International Journal of Eating Disorders, 37; S52-S59.

- Kohn, M.R., Madden, S., Clarke, S.D. (2011) Refeeding in anorexia nervosa; increased safety and efficiency through understanding the pathophysiology of protein calorie malnutrition. Curr Opin Pediatr, 23:390-394.

- Le Grange, D. Doyle, P.M., Swanson, S.A., Ludwig K., Glunz C., Kreipe, R.E. (2012) Calculation of Expected Body Weight in Adolescents with Eating Disorders. Paediatrics, 129:e438-46.

- Lock, J. & Litt, I. (2003). What predicts maintenance of weight for adolescents medically hospitalised for anorexia nervosa? Eating Disorders, 11; 1-7.

- Madden, S., Miskovic-Wheatley, J, Clarke, S, Touyz, S, Hay, P & Kohn, M, (2015), Outcomes of a rapid refeeding protocol in Adolescent Anorexia Nervosa. Journal of Eating Disorders. Vol 3 (8).

- Mitchell, J.E. & Crow, S. (2006). Medical Complications of anorexia nervosa and bulimia nervosa. Current Opinion in Psychiatry, 19; 438 – 443.

- Junior MARSIPAN: Management of Really Sick Patients under 18 with Anorexia Nervosa. College Report CR168, Royal College of Psychiatrists (London), 2012.

- Royal Australian and New Zealand College of Psychiatrists: Clinical Practice Guidelines for the Treatment of Eating Disorders (2014). Australian and New Zealand Journal of Psychiatry, Vol 48(11) 1-62.

- Sachs, K, Harnke, B, Mehler, P.S., Krantz, Mori, J, (2016), Cardiovascular Complications of Anorexia Nervosa: A systematic Review. International Journal of Eating Disorders 49:3, 238-248.

- Zipfel, S., Giel K.E., Bulik, C.M., Hay, P., Schmidt, U. (2015). Anorexia Nervosa; aetiology, assessment and treatment. Lancet Psychiatry Online Publication http://dx.doi.org/10.1016/S2215-0366(15)00356-9.