### ANOREXIA / EATING DISORDERS - INPATIENT MANAGEMENT

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### Introduction

This guideline is intended to assist in the appropriate assessment and management of children/adolescents admitted to Starship with anorexia nervosa and other eating disorders.

Outpatient family-based treatment is the treatment of choice for children and adolescents with eating disorders. However some will need a period of management as an inpatient.

The outcome for the majority of young people with eating disorders is good.

In Auckland, treatment is coordinated by the Regional Eating Disorders Service (REDS) based at Greenlane (information available on Healthpoint – www.healthpoint.co.nz, under ‘Mental Health’ – Eating Disorders Service). Children and younger adolescents with eating disorders have a higher risk of rapid medical deterioration compared with older adolescents and adults. Young people are also at risk of potentially irreversible effects of physical and emotional development. Early and aggressive management has been shown to improve outcomes.

Medical and nutritional stabilisation is the first and most important goal of inpatient treatment. This is usually necessary before psychological therapy can be effective. For adolescents the attainment of as close to healthy weight as possible is necessary before psychological therapy is optimally effective.

The aims of an inpatient admission are to:
- Attain physiological stability
- Commence appropriate refeeding
- Initiate nutritional recovery
- Undertake psychiatric assessment
- Engage young person & family in regular family sessions

Most patients admitted with an eating disorder stay in hospital for 2-3 weeks.
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Initial Assessment

The assessment of a child presenting to CED with a diagnosed or suspected eating disorder should include the following:

History: Careful eating/dieting behaviour history including
- amount of weight lost (maximum and minimum weight with dates)
- rate of weight loss
- dietary intake
- purging / vomiting / laxatives / diuretics
- exercise
- body image distortion / fear of weight gain
- co-morbid conditions (depression, anxiety, OCD)
- primary or secondary amenorrhoea, and weight at which periods ceased (menstrual threshold weight)
- Family composition
- Family hx of eating disorders

Examination: Height, weight, BMI, BMI centile
HR, body temperature, lying and standing BP
Capillary refill
Peripheral cyanosis
Pubertal status
Assessment of mental state / HEADSS assessment
Stigmata of binging/purging/self harm (roughness on knuckle of index finger, enlargement parotid glands, cutting etc on arms)
Peripheral or sacral oedema

Investigations:
Bloods FBC + reticulocyte count, ESR
U & E, Creat, Calcium, Phosphate, Magnesium
Bicarb & pH on venous gas (metabolic alkalosis may indicate vomiting)
LFTs
Zinc
TFTs (including T3)
LH, FSH, oestradiol (or testosterone if male)
Vitamin D

ECG – QT & PR interval (identify risk of sudden death)
Urinalysis including pH, specific gravity and ketones (pH high and specific gravity low if water loaded)

Psychiatric Assessment
All children (whether admitted or not) who are not already known to REDS or have not seen a psychiatrist or psychologist recently need a psychiatric assessment. They should be referred to the Consult Liaison team or the psychiatric registrar on call (if after hours).
Admission Criteria

Children who are admitted to Starship under General Paediatrics with anorexia or similar eating disorders will fall into at least one of the following categories:

- Medically unstable
- Co-morbid medical problems (e.g. diabetes)
- Rapid weight loss and exhibiting some physical signs
- Exhausted families
- Continuing to deteriorate despite maximal outpatient therapy

Admission Criteria will be met if patient has ANY of the following:

1. **Life-threatening weight loss**
   - Total body weight < 75% expected (for height)
   - Acute weight loss of 15-20% in 3 months

2. **Acute medical complications of malnutrition**
   - Syncope
   - Seizures
   - Pancreatitis
   - Cardiac failure
   - Gastric dilatation

3. **Complete food or fluid refusal**

4. **Significant dehydration**
   (ketones in urine, creatinine is often normal as muscle mass is decreased)

5. **Hypoglycaemia**

6. **Electrolyte imbalance**
   - Hypokalaemia (<3.0 mmol/L)
   - Hypophosphataemia (anything below normal range)

7. **Physiological instability**
   - Bradycardia - HR < 50/min
     (NB: It is useful to take several measurements as the initial HR is often elevated by anxiety)
   - Hypotension - Systolic BP < 80 mmHg
   - Hypothermia - Temp <35.5 C
   - Significant postural drop in BP (> 20mmHg) or rise in HR (increase by > 30 bpm)

8. **Abnormal ECG**
   - Arrhythmia
   - Diminished amplitude of QRS complex and T waves
   - Prolonged QTC (>0.44) or PR interval – (see ECG guideline)

9. **Significant co-morbid psychiatric states**
   - Depression
   - Anxiety
   - Obsessive Compulsive Disorder

10. **Deterioration or failure to progress during outpatient treatment** (after discussion with REDS)
If a child does not fit the guidelines for admission, but clinicians feel that admission is warranted then clinical judgment and decision-making prevails. The Regional Eating Disorders Service (REDS) needs to be notified about all of these children on the first weekday after admission, if they are not already known to that service.

**Discharge from CED**

The aim is to discharge back to the care of the GP with a prompt referral to REDS (if not already known to them).

If the young person doesn’t have a GP, the family will need to find one and get them to immediately contact REDS. REDS will liaise and provide support for GP’s as required.

**Admission to Ward**

All children will be admitted to the General Paediatrics Ward and will be jointly managed with the Consult Liaison team.

Decisions must be made about the following before the child arrives on the ward.

1. Intensity of nursing (does the patient require special observation or a watch?)
2. Frequency of vital sign recording and parameters for contacting registrar.
3. NG to be inserted in CED if clinically indicated (to avoid delay in starting feeds)

If a child with anorexia in CFU becomes medically unstable, they should be cared for on a General Paediatric ward, according to this guideline, until stabilisation is achieved. This transfer should occur after consultant to consultant discussion.

Early in the admission the family should be referred to the ward social worker, Northern Health Schools and have a Child Disability Allowance application form completed.

Patients who are being readmitted may be able to be admitted directly to the ward after consultation with the Paediatrician on call, Charge Nurse and Duty Manager.

Most patients will be managed according to the flow chart below. This plan requires significant input from the family. This will be discussed at the first family meeting. If the family are not able to participate in the inpatient programme they will be discharged once medically stable and an outpatient follow-up plan is made.
## Inpatient Management Flow Chart (see following pages for details)

### LEVEL ONE - MEDICAL STABILISATION:

| Medical          | Daily medical review.  
|------------------| Daily electrolytes (incl phosphate, magnesium and glucose) first 4-7 days then 1-2 x weekly if normal |
| Nursing          | Daily weight.  
|                  | Continuous heart rate monitoring until HR consistently > 40/min at night |
| Nutrition        | Continuous NG feeding for most.  
|                  | Contact dietitian on day of admission. All intake documented |
| Activity         | Bed or Chair rest. Wheelchair to bathroom.  
|                  | Schoolwork in room at discretion of team |
| Ward Leave       | Nil  
| Home Leave       | Eating Disorder Team to complete referral to Regional Eating Disorders Service if not already done |

### LEVEL TWO - SUPPORTED EATING

| Medical          | Alternate day medical review. 1-2 x weekly bloods (more often if any concerns) |
|------------------| Weight Mon, Wed, Fri. 4-hourly obs (HR, BP, temp). Lying-standing BP once daily. |
| Nursing          | Bolus NG feeds &/or meal plan as per dietitian  
|                  | NG out once not used for 48 hours  
|                  | All intake supervised and documented – parents present at most meals |
| Nutrition        | Home food can be substituted for hospital food under guidance of dietitian, when parents present at meals |
| Activity         | 30 minutes rest after meals and snacks  
|                  | Walk to bathroom, school & teen lounge  
|                  | Physio |
| Ward Leave       | Walk for 20 min a day with parents if NG out (in wheelchair if NG still in)  
|                  | Lunch with parents 4 times per week (on or off the ward)  
| Home Leave       | Half day leaves – eating one meal and snack at home |

### LEVEL THREE – TRANSITION HOME

| Medical          | Medical review Mon, Wed Friday. Weekly bloods |
|------------------| Weight Mon, Wed, Friday. Twice daily obs |
| Nursing          | Parents to bring in and supervise meals |
| Nutrition        | All intake documented & supervised |
| Activity         | 30 minutes rest after meals and snacks  
|                  | Walk to bathroom, school & teen lounge.  
|                  | Physio |
| Ward Leave       | 40 min walk once a day with parent  
|                  | Most meals with parents (on or off ward) |
| Home Leave       | At least 2 full days and overnight leave  
|                  | Outpatient follow-up arrangements established |

### DISCHARGE
**Fluids and Electrolytes**

For patients with shock, severe malnutrition or ECG abnormalities PICU review should be considered.

IV fluid should be given if the patient is shocked (0.9% saline). Bolus IV fluid should not be given without discussion with senior as risk of precipitating heart failure.

If not shocked but the child is dehydrated then they should be rehydrated with NG pedialyte.

NG feeding (see below) can commence as long as electrolytes are normal. Encourage patient to drink fluids while waiting in CED.

Hypoglycaemia can occur post-prandially due to changes in insulin secretion. If the patient is asymptomatic give next feed earlier rather than correcting with intravenous glucose. If IV glucose is needed (unusual) give thiamine first.

In severe malnutrition thiamine infusion is recommended prior to refeeding (discuss with paediatrician)

**Medication**

All patients requiring inpatient admission should be started on:

1. Phosphate Sandoz – 1 tablet twice daily for 3 weeks – must start on day of admission before feeding starts
2. Multivitamin – 1 tablet twice daily for 2 months or more (ensure contains 400 iu vitamin D daily)

Discuss other supplements with Paediatrician and dietitian (e.g. potassium, zinc, calcium).

**Nutrition Plan**

Contact the dietitian on the day of admission.

In the weekend use spare feed on ward 25A/B, follow feeding protocol, and contact dietitian on Monday morning

**Level 1: Medical Stabilisation**

- Most patients are NG fed initially. Insert 8 or 10 French Flexiflo enteral feeding tube. This should be inserted as soon as possible – ideally in CED. It is important to avoid long periods in CED with no food or fluids.
- Start on continuous (24 hour) NG feed at 50 ml per hour as soon as possible, preferably within 6 hours (start feed in CED if in CED for more than 6 hours). Use Nutrison Standard 1.0 (or alternative 1 cal per ml feed).
- Feeds to increase daily after bloods checked. Only increase feeds if blood tests are normal. Day 1 feed can run for less than 24 hours
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Day 1 (starting rate) 50 ml/hour Nutrison Standard.
Day 2 75 ml/hour
Day 3 100 ml/hour
If patient is <30kg they may need rates reduced slightly (discuss with paediatrician or dietitian)

- Patients need to drink 750 ml water daily in addition to NG feed from the time of arrival in CED to meet fluid requirements. This should be prescribed on the fluid balance chart.
- Most young people are admitted because of medical instability and in this situation NG feeding is recommended initially. A patient may be managed without an NG tube if they meet all of the following conditions:
  - Medically stable
  - NOT at high risk of refeeding syndrome (discuss with senior if unsure)
  - Admitted Monday to Wednesday (full specialist support team not available Thursday or weekends)
  - They must consume the full hospital meal provided and a Fortisip at each snack (morning tea, afternoon tea and supper). If they do not manage this for 2 meals or snacks (not necessarily consecutive) a NG tube needs to be placed
- Once full NG rate is achieved, the medical team will assess and document if able to move to bolus feeds. Before changing to bolus feeds there should be:
  - No evidence of physiological instability
  - Normal ECG (if abnormal on admission)
  - Normal biochemistry on blood tests

The dietitian will change administration of feed from continuous to bolus feeds and/or meal plan. This will not happen during weekends or public holidays.

- The dietitian prescribes a meal plan comprising three meals and three snacks. The full meal needs to be eaten.
- If full meal is not eaten a NG bolus of 400ml (2 bottles) of Fortisip (1.5 cal/ml feed) is to be given via NG tube (not to be taken orally). If only part of meal is eaten, full NG top up.
- Snacks are 200 ml Fortisip if taken orally or 250 ml Fortisip if given via NGT. If only part of 200ml is taken orally, top up to 250ml via NG tube.
- NGT removed once not used for 48 hours (only remove on weekdays).
- Readmissions may not need NGT if able to eat full meal plan
- Parents are given a copy of meal plan to use as a guide to the amount of food required. Parents to start providing, and being present for, some meals and snacks from Level 2 and most meals and snacks from Level 3
Food refusal once NGT removed

If full or part of meal or snack refused after time limit (15 minutes for snacks, 30 minutes for meals)
- Bed rest until next meal or snack.
- Return to Level 1 for 24 hours
- If calorie intake is becoming inadequate on the ward (frequent refusal of food) then team need to decide whether NG should be re-inserted

Ongoing Management

All patients will be discussed at a multidisciplinary team meeting once a week and progress will be discussed according to the Flow Chart above. The Level System is a guide to management and can be modified to meet individual needs.
The decision as to when a patient moves from one stage to the next is made by the team and will depend on medical stability, weight gain, eating behaviour, compliance with restrictions on activity and other behaviours.

Medical Issues

Blood tests:
During re-feeding (first 4-7 days) bloods should be checked daily including:
- Na, K, urea, creatinine, glucose, calcium, phosphate, & magnesium. Any abnormalities should be addressed promptly as they may indicate refeeding syndrome which has significant risk. If in doubt it is better to keep the rate of NG feeding the same (i.e. not increase to next step) until the blood tests have normalised. If you are not sure discuss with paediatrician on call.
- Bicarbonate should be checked weekly especially if there is concern about purging
- Full blood count should be checked weekly – neutropenia is common in these patients and takes several weeks to improve.
- In the week of discharge TFTS (including T3) and oestradiol (females) or testosterone (boys) should be checked again.

Investigations:
- Hand X-ray for Bone Age:
  All patients with primary amenorrhoea or who have had regular periods for less than 2 years (and all boys) should have a hand x-ray for bone age performed in the first week of admission.
- Bone density (DEXA) scan:
  All new admissions should have a bone density (Dexa) scan performed as an inpatient, early in the admission.

Constipation:
This is a frequent problem and is due to decreased gut motility. A regular dose of lactulose or movicol is generally safe to use but should be administered by nursing staff and not the patient or family. Other laxatives should only be used after discussion with paediatrician.

Renal impairment:
Urea and creatinine results should be interpreted with caution. Underweight patients should have a relatively low creatinine because of their reduced muscle mass. A creatinine at the upper range of normal probably indicates some renal impairment or muscle breakdown from exercising. A high urea may indicate fluid restriction or inappropriately high proportion of protein in the diet.
Acute Illness during admission:
If a patient with an eating disorder becomes unwell they need prompt medical review. If they are vomiting (more than once) due to an acute illness then they need to come off their meal plan and have fluid replacement with pedialyte. Patients should be managed on Level 1 of plan until they have been eating full meal plan for 24 hours, they can then return to the Level they were on previously.

Criteria for Discharge
- Medically stable.
- Safe eating
- Established relationship with EDS & follow-up appointments made
- Family confident about ability to manage at home

Anorexic Behaviours
Caring for a patient with an Eating Disorder can be very challenging. Young people with significant weight loss have impaired cognitive function which can manifest as; mood disturbance, poor concentration and reasoning, abnormal emotional processing, and irritability. Families & friends often report significant changes in personality and loss of sense of humour. Most of these changes will improve as nutrition and body weight improves.

These young people have an extreme fear of gaining weight. Their behaviour in trying to avoid weight gain can be seen to be secretive, irrational, manipulative and deceitful. It is crucial to recognize that these behaviours are a result of the illness NOT the individual. The behaviours should be challenged, but in a non-judgmental and supportive way. The Consult Liaison Team will be able to provide advice on this.

Remember that the families of these patients have often been dealing with these very challenging behaviours at home for months before the child is admitted.

See also related guidelines and policies:
- Behaviour disturbance (Starship Guidelines)
- Restraint minimisation and safe practice (ADHB only)
- Absent without leave (ADHB only)

Calculating Ideal Body Weight
Determination of ideal body weight (IBW) is a complex process that needs to take into account:
- Previous height and weight centiles
- Mid-parental height
- Bone age
- Anticipated growth
- Average weights of healthy adolescents of the same sex, height and sexual maturity
- Expected catch-up growth after growth arrest
- Ethnicity
- Exercise – young people who exercise a lot will have a lower proportion of body fat and the goal weight may need to be adjusted to allow for this
IBW should be calculated early in the admission by a paediatrician. It is usually the weight which will give a BMI on the 50th centile. A 2kg weight range is usually given. It is advisable to tell the family that the calculated ideal body weight is an estimate and may need to be adjusted depending on other variables (bone density, menstruation, increasing age, increasing height etc).

**Physiotherapy**

**Physiotherapy role:**

1. Address exercise behaviour and motivation.
2. Address breathing pattern and postural dysfunctions.
3. Provide education about relaxation and stress/anxiety management.
4. Provide a graded activity intervention that helps patients experience healthy mindful physical processes. This can be individual or group based.
5. Manage musculoskeletal issues to improve physical function.
6. Provide education on anatomy and physiology, appropriate activities for stage of health, address distorted health beliefs & educate with correct information.
7. Provide guidance on return to activities, exercise and sports in the community.
8. Provide education on constipation management. This may include teaching self administered abdominal massage.

**Physiotherapy aims to provide a supervised programme to assist with the following:**

- To help develop individualised patient goals pertaining to the physiotherapy role above
- To develop a safe and individualised graded physical activity program to help support both physical and mental well being
- To promote a decrease in obligatory exercise drive and an increase healthy exercise behaviour
- To help encourage a more positive and respectful relationship with ones body
- To help develop a healthy balanced lifestyle in conjunction with the multidisciplinary team

**Exercise prescription**

Please note, care must be taken with exercise prescription as compulsive exercise habits can be further exacerbated if obligatory exercise patterns are reinforced with a rigid programme (i.e. fixed sets and repetitions). Some gym equipment use can be detrimental to encouraging a mindful body oriented programme thus the use of treadmills, weights, static bikes and rowing machines are not advised during an inpatient admission. The use of such equipment as an outpatient should be carefully assessed.
Normal Activity Guidelines
SPARC recommends 60 minutes of moderate to vigorous activity per day for 5-18 year olds. This is based on children that have a normal calorie intake, BMI and are medically stable. This includes activities such as walking, playing games, running, biking, sport, recreational activities, cultural activities such as kapa haka, working, and dancing. A return to “normal activity” with respect to the guideline above is not recommended directly following an inpatient admission. This return needs to be carefully managed by the medical team and outpatient physiotherapist.

Children & Adolescents with Eating Disorders are Different from Adults
In children and adolescents, the potential for significant growth retardation, pubertal delay or interruption, and peak bone-mass reduction means that treatment needs to occur early. While the presence of amenorrhea is an important diagnostic feature for anorexia nervosa in post-menarcheal girls, it may be a developmentally inappropriate criterion in young girls, in whom a history of delay in onset of puberty (or pubertal arrest) may be important. Approximately 10% of young people with eating disorders are male.

It is important to realize that a normal BMI does not exclude a serious eating disorder. An individual who has previously been overweight and then lost weight rapidly, may have dangerous nutritional and physiological deficiencies despite having a normal BMI.

On the other hand, weight loss is not necessarily present in younger adolescents with the disorder. They can instead have failure to achieve expected weight gain during a period of growth. The DSM-IV criteria specifies that weight should be <85% of expected weight for height, however, this may lead to an underestimate of the severity of low weight in younger children in whom linear growth has also been affected.

Adolescents with anorexia nervosa generally have a better prognosis than adults. Poorer outcomes are associated with later onset and longer duration of illness, lower minimum weight, failed previous treatment, more disturbed premorbid personality, greater social difficulties, more difficult family relationships, increased somatic or obsessional concerns, and premorbid history of obesity, bulimia, vomiting or laxative abuse. Early intervention is associated with improved prognosis.

Young children may not report fear of weight gain while at a low weight but may do so only when weight has been restored to a more healthy level. Children may be unable to express distress in terms of body shape and self-perception but may instead describe somatic symptoms such as abdominal pain or discomfort once re-feeding commences.
Patients older than 15 years of age

Starship will accept all referrals for patients under 15 residing in the Auckland region. Patients between 15 and 16 can be accepted if beds are available. Young people over 16 may be considered on a case-by-case basis if they are medically unstable and:

- There is a bed available (patients under 15 take priority)
- The young person is under 18 years of age
- The young person is enrolled in school
- The young person lives at home
- Provision of outpatient management on discharge has been arranged
- Some patients may be transferred to CFU or Thrive once they are medically stable

Referrals from Outside Auckland

Referrals from Northland & Midland may be considered in the following circumstances:

- Referral is received from the local Eating Disorder Service or via Auckland EDS.
- There is a medical referral from a local paediatrician to Starship paediatrician (i.e. the patient has been medically assessed)
- A transition plan must be in place at the time of admission. The referring DHB must be willing to take the patient back for Transition (Level 3) and provide outpatient management
- The parents / caregivers must be willing to come and stay in Auckland
- Transfer should not happen out of hours. The patient should be medically stabilised prior to transfer.

References / Further Reading


