

# In-patient treatment of Young People with Anorexia Nervosa

## A survey of common practice in enteral feeding when physical interventions are required



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Children and adolescents who require inpatient admissions for the treatment of anorexia nervosa will often require physical health restoration, i.e. require to gain weight. In extreme cases, when a patient refuses to eat and or drink, naso-gastric tube feeding may be required. If there is resistance to this, and the patient is detained under the Mental Health Act, staff can apply physical interventions (restraint) to ensure the patient and staff's safety during this process. Currently there are no national guidelines or standard practices set out for prescribing fluids and calories in this difficult situation. This paper summarises a short survey of national child and adolescent mental health units and eating disorder units to identify current safe practices.

### Background

When treating anorexia nervosa (AN) in children and adolescents, physical health restoration is a major goal of the treatment.<sup>1</sup> If the young person is not able to manage this in the community, with support from their local Child and Adolescent Mental Health (CAMH) team (**Tier 3**), inpatient admissions may be required.

Within inpatient settings (**Tier 4**), nutrition will be offered as food, if this is not managed, then as a nutritional supplement drink. When the nutritional supplement is not managed, a nasogastric tube (NGT) can be passed to ensure the patient receives their prescribed nutrition and fluids.<sup>2</sup> Many patients will accept NGT feeding with gentle verbal support from staff.<sup>3</sup> In practice, however, the illness will not permit some patients to take in nutrition and/or fluids and they may show resistant behaviours. For example, trying to remove the NGT; pressing against the NGT (to try and prevent the passing of any liquids); trying to bite the NGT; attempting to abscond; self-induced vomiting; verbal aggression and/or physical aggression towards the staff and themselves. In these circumstances, the patient is usually detained under the Mental Health Act as a result and staff will have to apply physical interventions (restraints) to ensure the patient's safety. Examples of physical interventions are: holding the patients hands to holding arms, legs and head in a safe position. This requires a number of specially trained staff to ensure safe practice.

Through peer supervision the dietitians at Ellern Mede and Rhodes Wood have noticed an increase in the number of patients who require NGT feeding over the past few years. Unfortunately, the number of patients who are resistant and require physical restraint during NGT feeds has also risen.

Currently, there are no national guidelines on how to effectively manage the delicate balance between restoring nutritional status,

fluid requirements, patient/staff safety and least restrictive practice.

As a result, a survey was developed to identify how many Specialist Eating Disorder Units (SEDU) and General Adolescent/CAMHS Units were able to offer NGT feeding and, if they were also able to do so, were physical interventions required. The aim of the survey was to try and identify common practice, therefore, allowing a consensus statement to be created.

### Current guidelines

A short survey was developed to ask dietitians/ward managers of both general adolescent inpatient units and SEDUs to identify common practice in this specialist area.

The survey explored the factors that should be considered when a patient requires physical interventions during nasogastric feeds. These included:

- Level of resistance from the patient
- Level of distress from the patient
- Risk of injury to patient
- Risk of injury to staff
- Ensuring there is adequate staffing on the unit to safely facilitate NGT feeds
- The total number of feeds per day on a unit
- Requests from patients.

The survey was distributed via two main routes:

1. Via the British Dietetic Association's CAMH group
2. Via Quality Network of In-patient CAMH (QNIC) to their ward managers list.

The authors were able to identify, with the help of QNIC, all child and adolescent SEDUs. These units were then contacted via telephone to raise the profile of the survey and encourage their participation.

## Results

A total of 60 units responded to the survey across England, Wales, Scotland and Republic of Ireland (no responses from Northern Ireland). Replies were received from a number of professionals: dietitians, unit managers and clinical lead nurses.

Of the 60 responses, 32 units (53%) reported that they were able to facilitate NGT feeding. Of these, 23 units (72%) reported that they could facilitate this with physical interventions (however, two units had no experience of this), four units (12%) reported that they could not, and five units (16%) did not answer the question.

The key concerns shared across all 21 units, who had current experience of tube feeding with physical resistance, were:

- Level of resistance shown by the patient (83% of respondents raised this concern)
- The number of staff required for the physical intervention to be safe (76%)
- The number of physical interventions a young person requires in a day (for NG feeding only) (66%)
- Risk of injury to patients (61%)
- Risk of injury to staff (57%)
- Volume of feed that was needed to be given at any one time (57%)
- Length of time a young person is in a physical intervention (47%).

One unit also reported that they were concerned around nasal trauma caused by having to re-insert an NGT a number of times a day under restraint (when the patient was not safe to have the NGT in place all day, i.e. ligature risk).

The number of feeds offered when no resistance was shown varied from 3-6 a day (depending on the number of meals/snacks on the unit), with the majority of units reporting 3-4 a day. When there was resistance to the feeds, requiring physical interventions, the number of feeds ranged between 1-6 feeds a day, with the majority reporting 2-3 feeds a day – see **Figure 1**.

Some units reported that they would continue to copy their treatment programme, regardless of the level of physical intervention required, as they felt that offering fewer feeds in a day would be counterproductive to their unit's programme.

## Prescribing of NGT feeds when physical interventions are required

The majority of units treating patients who require NGT feeds with physical interventions primarily use:

- Syringe bolus – 13 units (62%)
- Pump feeds – 6 units (29%)
- Did not answer this question – 2 units (9%).

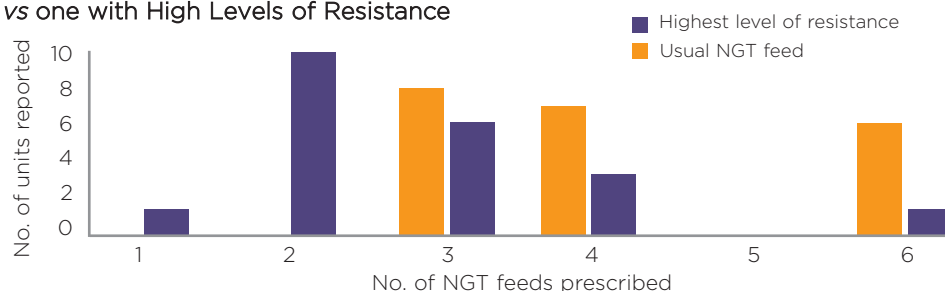
The number of feeds prescribed in a day to meet full nutritional requirements was varied. The majority of units (85%) used the Holliday-Segar formula to

calculate patient's fluid requirements – see **Figure 2**.

## What is the largest volume bolus feed your service would be prepared to prescribe?

On average 621 ml was prescribed per bolus and ranged from 400 ml to 1000 ml per feed – see **Figure 3**.

**Figure 1: Comparison of the Number of Feeds Prescribed for a Usual NGT Feed vs one with High Levels of Resistance**



**Figure 2: Calculating Fluid Requirements in Older Children and Adolescents**

Using the patients actual weight, rather than their expected weight, is important as it would be easy to prescribe too much fluid in very underweight patients. Using an adaptation of the Holliday-Segar formula is recommended.<sup>7</sup>

For children over 10 kg the following can be used:

### Body weight

11 – 20 kg

>20 kg

### Estimated fluid requirement

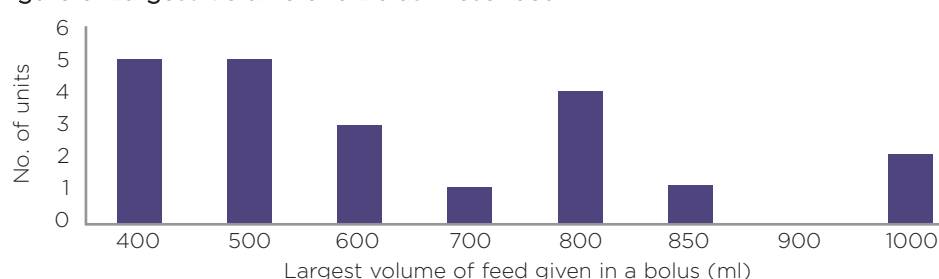
• 100 ml/kg for the first 10 kg • + 50 ml/kg for the next 10 kg

• 100 ml/kg for the first 10 kg • + 50 ml/kg for the next 10 kg

• + 25 ml/kg thereafter • Up to 2,500 ml per day as a maximum

Weight (kg)	Fluid requirement (ml)	Weight (kg)	Fluid requirement (ml)	Weight (kg)	Fluid requirement (ml)
20	1500	40	2000	60	2500
21	1525	41	2025	61	2500
22	1550	42	2050	62	2500
23	1575	43	2075	63	2500
24	1600	44	2100	64	2500
25	1625	45	2125	65	2500
26	1650	46	2150	66	2500
27	1675	47	2175	67	2500
28	1700	48	2200	68	2500
29	1725	49	2225	69	2500
30	1750	50	2250	70	2500
31	1775	51	2275	71	2500
32	1800	52	2300	72	2500
33	1825	53	2325	73	2500
34	1850	54	2350	74	2500
35	1875	55	2375	75	2500
36	1900	56	2400	76	2500
37	1925	57	2425	77	2500
38	1950	58	2450	78	2500
39	1975	59	2475	79	2500

**Figure 3: Largest Volume of a Bolus Prescribed**



It is worth noting that the two units who reported going up to 1000 ml/bolus, stated that they would build up the patient's tolerance to this feed over a number of days or weeks.

### How long would it take to administer your largest bolus feed?

The range of responses gathered depended on the method of feeding. Those units who use syringe bolus NGT feeding reported around 20 mins per feed (with the range being from less than 10 mins to up to 40 mins).

Whereas, units who offer NGT feeds via enteral pump reported the highest rate of 400 ml/hr. Responses varied from 300-600 ml/hr. This implies that the young person could be receiving physical interventions for over an hour a number of times a day – this practice was identified in two units in the survey.

A summary of the enteral pumps available and their highest rates are available in **Figure 4**.

## Further areas of consideration

### The Mental Health Act

The code of practice states that: 'Any restrictions should be the minimum necessary to safely provide the care or treatment required having regard to whether the purpose for the restriction can be achieved in a way that is less restrictive of the person's rights and freedom of action'.<sup>5</sup> Furthermore, 'Restrictive interventions must only be used with great caution on children and young people who are not detained under the Mental Health Act'.

Therefore, if a patient is requiring physical interventions for the NGT feeds, a reduced number of feeds for the shortest possible time should be considered as part of their care plan. This conflicts with general practice, i.e. that feeds should be given after each meal and snack to promote normal eating patterns.<sup>2,4,6</sup>

### A psychiatric perspective

**Dr Hind Al Khairulla**, Consultant Psychiatrist & Clinical Director of Ellern Mede, says: "Patients and staff alike report high levels of anxiety pre and during NGT feeding times and therapeutic alliance is interrupted throughout these periods. It may, therefore, be helpful to reduce the number of feeds given over a 24-hour period to minimise the trauma caused and reduce the high levels of anxiety experienced by patients. Post-feed guilt

*also tends to be extreme immediately following administration of feeds and tends to drop as time passes by. Less number of feeds would therefore allow patients more quality time to interact with others and engage positively in activities unrelated to their eating disorder, thus having a positive impact on mood and eating disorder cognitions."*

### Medical monitoring

**Dr Lee Hudson**, Great Ormond Street, University College London & Ellern Mede Consultant Paediatrician, advises: "When prescribing large volume feeds, e.g. 2 x 800-1000 ml boluses, and they are tolerated by the patient, i.e. no vomiting, the following should also be considered to fully assess the medical stability of the patient:

- 24-hour urine output – as this will help identify if the patient is dehydrated
- Monitoring of blood sugar levels if symptomatic of hypoglycaemia
- Blood biochemistry may be required if the patient is
  - On a small total volume of fluids, i.e. less than 1800 ml/day
  - Shows signs of a poor urine output
  - There is a pre-existing medical condition
  - Other signs of clinical dehydration and or constipation.

*Note: weekly liver function tests may be helpful (especially to monitor the ALT levels) to identify if there is any emerging fatty liver profile. Persistently raised ALTs would indicate further investigation and a liver ultrasound."*

### Nursing perspective

**Sharon Donaldson**, Rhodes Wood Hospital Director, states:

*"There are few nursing interventions that impact on the staff member delivering the care and the patient receiving the care as significantly as the process of NGT feeding under restraint."*

*Whilst it is recognised that in the severely ill patient group this is a lifesaving intervention, the delivery of this intervention can be a traumatic experience for both the patient and the staff member. Both experiencing feelings of guilt and distress once the act is complete.*

*Minimising this intervention to twice daily enables nursing staff to be confident they are delivering the least restrictive option to maintain physical health, whilst optimising the opportunity for therapeutic engagement between feeds – enabling staff to offer support to work towards*

*acceptance of feeding without physical intervention during these periods.*

*Supervision and support of staff, as well as debriefing and motivational enhancement work with patients, is essential in maintaining the standards of clinical care in this challenging area."*

### The patient's perspective

One piece of research has highlighted that there are four broad perceptions of NGT feeding by patients:<sup>3</sup>

- An unpleasant physical experience, e.g. the insertion of the NGT
- A necessary and helpful intervention, e.g. part of the treatment programme
- A physical or psychological signifier of AN
- A focus in a broader struggle for control.

## Summary and recommendations

This survey implies that the provision of NGT feeding is a specialist practice that not all Tier 4 CAMH units or SEDUs are able to offer. Of those that can offer this, the number who can facilitate this when physical interventions are required is fewer still. It appears that this practice is more common in SEDUs (65%) than CAMH units (35%).

The survey indicates that when there is no resistance to an NGT feed, units will prescribe feeds that will often mimic their meal/snack provision, e.g. 3-6 times a day. This reflects normal eating patterns.

**Figure 4: Common Enteral Feeding Pumps and their Highest Rate**

- Nutricia
  - Infinity flow rate up to 400 ml/hr
  - Infinity flow + rate up to 400 ml/hr (bolus option allows up to 600ml/hr)
- Abbott
  - FreeGo rate up to 400 ml/hr
  - Companion ClearStar rate up to 300 ml/hr
  - Flexiflo Patrol Pump rate up to 300 ml/hr
- Fresenius Kabi
  - Applix rate up to 600 ml/hr
  - Amika rate up to 600 ml/hr
- Covidien
  - Kangaroo @ 500 ml/hr



When physical interventions are required many units will then reduce the number of NGT feeds to 1-3 a day to reduce the level of distress to the patient and to reduce risks to the patient and staff.

By reducing the number of NGT feeds a patient is given, the volume of feed may become an issue. However, when a patient is not able to drink water this poses the additional complication of meeting their fluid requirements within a reduced number of feeds. Therefore, giving a mixed bolus of feed and water is required. At Ellern Mede and Rhodes Wood Hospital, patients have been given two mixed bolus feeds 800-1000 ml and this has been tolerated.

Many units are able to offer both syringe boluses and enteral pump feeds. However, when physical interventions were required the majority of units would only give the NGT feed via a syringe bolus as this is the quickest way of delivering a large volume of feed. At Ellern Mede and Rhodes Wood Hospital, a 800-1000 ml bolus can be given in approximately 15-20 minutes.

Adequate medical monitoring is essential for patients whose nutritional and

fluid requirements are met via NGT feeding in a limited number of NGT feeds in a day. Ideally, in the absence of oral intake and restricting to two feeds a day, there should be at least 5-8 hours inbetween NGT feeds to promote stable blood sugars and adequate hydration. Regular monitoring of the patient's urine output and, if available, blood biochemistry will enable the clinical teams to ensure adequate hydration. Monitoring a patient's weight and percentage ideal body weight would ensure that physical health is restored in underweight patients, and that an optimal weight can be maintained in those who do not require to gain further weight.

Based on the above conclusions, we will continue the survey to get an accurate reflection of NGT feeding practice in the treatment on anorexia nervosa across CAMH units and SEDUs in the UK. National guidelines could then be developed to ensure that these highly specialised interventions are prescribed appropriately and are within the scope of least restrictive practice when physical interventions are required.

References: **1.** NICE (2004). Eating disorders: Core interventions in the treatment and management of anorexia nervosa, bulimia nervosa and related eating disorders. Accessed online: [www.ncbi.nlm.nih.gov/pubmedhealth/PMH0051859](http://www.ncbi.nlm.nih.gov/pubmedhealth/PMH0051859) (March 2016). **2.** Royal College of Psychiatrists (2010). MARSIPAN: Management of really sick patients with Anorexia Nervosa. Accessed online: [www.rcpsych.ac.uk/files/pdfversion/CR162.pdf](http://www.rcpsych.ac.uk/files/pdfversion/CR162.pdf) (March 2016). **3.** Halse C, et al (2005). Illuminating multiple perspectives: Meanings of nasogastric feeding in anorexia nervosa. *European Eating Disorders Review*; 13(4): 264-272. **4.** NICE (2015). Violence and aggression: short-term management in mental health, health and community settings. NICE guidelines [NG10]. Accessed online: [www.nice.org.uk/guidance/ng10](http://www.nice.org.uk/guidance/ng10) (March 2016). **5.** Department of Health (2015). Mental Health Act 1983 code of practice. Accessed online: [www.gov.uk/government/publications/code-of-practice-mental-health-act-1983](http://www.gov.uk/government/publications/code-of-practice-mental-health-act-1983) (March 2016). **6.** Royal College of Psychiatrists (2012). Junior MARSIPAN: Management of really sick patients under 18 with Anorexia Nervosa. Accessed online: [www.rcpsych.ac.uk/files/pdfversion/CR168nov14.pdf](http://www.rcpsych.ac.uk/files/pdfversion/CR168nov14.pdf) (March 2016). **7.** Shaw V (2014). *Clinical Paediatric Dietetics*. Wiley-Blackwell; 4th Edition.

# Understanding **quality** over **quantity** for dysphagia patients



Patients that suffer from dysphagia often find mealtimes to be a struggle, the idea of home blending all of their food can be a daunting prospect. In order to ensure that food is totally safe to serve to a patient with dysphagia, and avoid the risk of aspiration, it must be blended to an even consistency. To achieve this, it is often necessary to add water to the food whilst it is being puréed. However, this bulks out the food whilst watering down the nutritional value.

It should come as no surprise that as a result of this issue, malnutrition is a common side effect of dysphagia. Each bite needs to be filled with as much caloric and protein content as possible. For those with reduced appetites, the challenge is to provide the nutrition they need in a manageable portion size.



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