Tees, Esk and Wear Valleys
NHS Foundation Trust

Refeeding Syndrome Procedure

Ref CLIN-0052-001-v2

Status: Approved
Document type: Procedure

Contents

1 Purpose

Refeeding Syndrome is a condition involving the severe fluid and electrolyte shifts and related metabolic implications that can occur in malnourished patients undergoing refeeding.

This can lead to low levels of phosphate, potassium and magnesium in the blood even when initial levels are within the normal range before feeding commences. These can result in cardiac, respiratory, neuromuscular, renal, metabolic, hematologic, hepatic and gastrointestinal problems (Parenteral and Enteral Nutrition Group of the British Dietetic Association 2019).

It is estimated that 18-20% of patients admitted to mental health units are at risk of malnutrition (BAPEN 2018). It is therefore vital that refeeding is managed safely and appropriately within Tees, Esk and Wear Valley NHS Foundation Trust.

The scope of this document is for the management of all service users aged 12 and above who are at risk of Refeeding Syndrome, **with the exception of service users admitted to specialist eating disorders inpatient services (Birch Ward and Evergreen Centre).**

Following this procedure will help the Trust to:-

- support staff in identifying service users who are at risk of Refeeding Syndrome
- provide guidance on the management of this condition

2 Related documents

This procedure describes what you need to do to implement the Responsibilities section of the Physical Healthcare and Wellbeing Policy [ref: CLIN-0084-v2)

The Physical Healthcare Assessment of Patients Policy defines the responsibility of the Trust and its clinical staff in promoting meeting the physical health care needs of their patients which you must read, understand and be trained in before carrying out the procedures described in this document.

There are separate protocols for the management of Refeeding Syndrome in patients accessing specialist eating disorders services and wards. Service specific agreed practice exists within the Trust's Eating Disorder Services for CYPS and Adults. Please refer to this guidance for patients who are accessing specialist eating disorders services.

This procedure also refers to:-

- ✓ Enteral Feeding (PEG) Procedure Adults Policy Ref: CLIN/0077/v2
- ✓ Nasogastric Insertion and Management Procedure Policy Ref: CLIN/0078/v2
- ✓ Physiological Assessment Procedure Ref: CLIN-0059.v2 TEWV
- ✓ Nutrition and Body Mass Index Clinical Link Pathway TEWV
- ✓ The St Andrew's Healthcare Nutrition Screening Instrument (SANSI) (2011) Modified for use in TEWV with kind permission of St Andrew's Healthcare www.stah.org
- ✓ Consent to Examination or Treatment Policy Ref: CLIN-0001-v5 TEWV

3 Procedure

3.1 Criteria for determining service users at risk of Refeeding Syndrome

At risk:

- Any service user who has had very little* or no food intake for more than 5 days.

High Risk:

Any service user in a starved state is at higher risk of re-feeding syndrome if they also have **any one** of the following:

- BMI < 16 kg/m^2
- Unintentional weight loss >15% within the last 3-6 months
- Very little or no nutrition for >10 days
- Low levels of potassium, magnesium or phosphate prior to feeding.

OR if a service user has **2 or more** of the following:

- BMI <18.5Kg/m^2
- Unintentional weight loss >10% within the last 3-6 months
- Very little or no nutrition for >5 days
- A history of alcohol abuse or some drugs including insulin, chemotherapy, antacids or diuretics.

Extremely High Risk:

Service users are at extremely high risk if they have **any one** of the following:

- Patients in a starved state with a BMI <14 kg/m^2
- Very little or no nutrition for >15 days.

(Parenteral and Enteral Nutrition Group of the British Dietetic Association 2019).

*Little nutritional intake will be different for each service user and should be assessed in comparison to their usual nutritional intake.

3.2 The calculation of Body Mass Index

Body Mass Index (BMI) is defined as a person's weight (in kilograms) divided by the square of the person's height (in metres).

BMI is calculated by using the following formula:

$$\text{Body Mass Index (Kg/m}^2\text{)} = \frac{\text{Weight (Kg)}}{\text{Height (m) x Height (m)}}$$

BMI is calculated for all inpatients using the Physical Examination Sheet on PARIS. It is also included in the St Andrew's Healthcare Nutrition Screening Instrument (SANSI). Underweight individuals have a BMI less than 20Kg/m^2.

3.3 The interpretation of unintentional weight loss

A further factor that should be taken into consideration when screening for malnutrition is percentage weight loss. This is calculated using the following formula:

$$\%\text{ weight loss} = \frac{\text{Usual weight (kg)} - \text{Current weight (kg)} \times 100}{\text{Usual weight (kg)}}$$

The interpretation of % weight loss is as follows:

% Weight loss	Interpretation
< 5%	Not significant (unless likely to be ongoing)
5-9%	Not serious (unless rapid/already malnourished)
10-20%	Clinically significant: nutritional support
> 20%	Severe: long-term nutritional support

Rapid weight loss is more significant. For example a 10% weight loss in 3 months is clinically significant for nutrition support (Parenteral and Enteral Nutrition Group of the British Dietetic Association, 2019).

3.4 The management of Refeeding Syndrome

- People at high risk of developing refeeding problems (section 3.1) should be cared for by healthcare professionals who are appropriately skilled and trained and have expert knowledge of nutritional requirements and nutrition support (NICE, 2006, 2012). In Tees, Esk and Wear Valleys NHS Foundation Trust service users identified at risk of Refeeding Syndrome on admission or during an episode of care should be referred immediately to a Registered Dietitian employed by TEWV. Initial referral should be made by telephone in the first instance and followed up by a written referral via email (see appendix 2 for the contact details)

- The management of service users at high risk of developing refeeding problems should consider:

- At risk
  - Starting nutrition support at a maximum of 50% of requirements for the first 2 days before increasing to meet full requirements if clinical and biochemical monitoring show no problems

- High risk and extremely high risk
  - Starting nutrition support at a maximum of 10-20 kcal/kg/day.
  - Dietitian to review and provide advice regarding appropriate increases in energy intake.

- In the event of a Dietitian being unavailable (e.g. evenings, weekends or bank holidays), a first line meal plan (Section 9.3) should be commenced.

- Providing immediately before and during the first 10 days of feeding: oral thiamine 50mg four times daily, vitamin B co strong 1 or 2 tablets, three times a day and a balanced multivitamin/ trace element supplement once daily (e.g. 1 Adult Forceval Capsule once daily). Doses of these medications should be determined by a member of medical or Non-Medical Prescriber staff only.

- Providing oral or enteral supplements of potassium (likely requirement 2–4 mmol/kg/day), phosphate (likely requirement 0.3–0.6 mmol/kg/day) and magnesium (likely requirement 0.4 mmol/kg/day) unless pre-feeding plasma levels are high. Doses of these medications should be determined by a member of medical staff only.

- Admission to an acute medical unit if intravenous supplementation of electrolytes or fluids or restoration of circulatory volume is required. Service users may require monitoring cardiac rhythm continually if they already have or develop any cardiac arrhythmias.

- Monitoring of physical observations including blood pressure, pulse, oxygen saturation and blood glucose in line with the Trust Physiological Assessment Procedure.

- Monitoring of weight daily if there are concerns regarding fluid balance, otherwise weekly reducing to fortnightly.

- Only sugar free drinks should be encouraged e.g. no added sugar squash, sugar free / diet fizzy drinks, water (unless otherwise advised by Dietitian).

- All food and fluids consumed should be accurately recorded on food record charts.

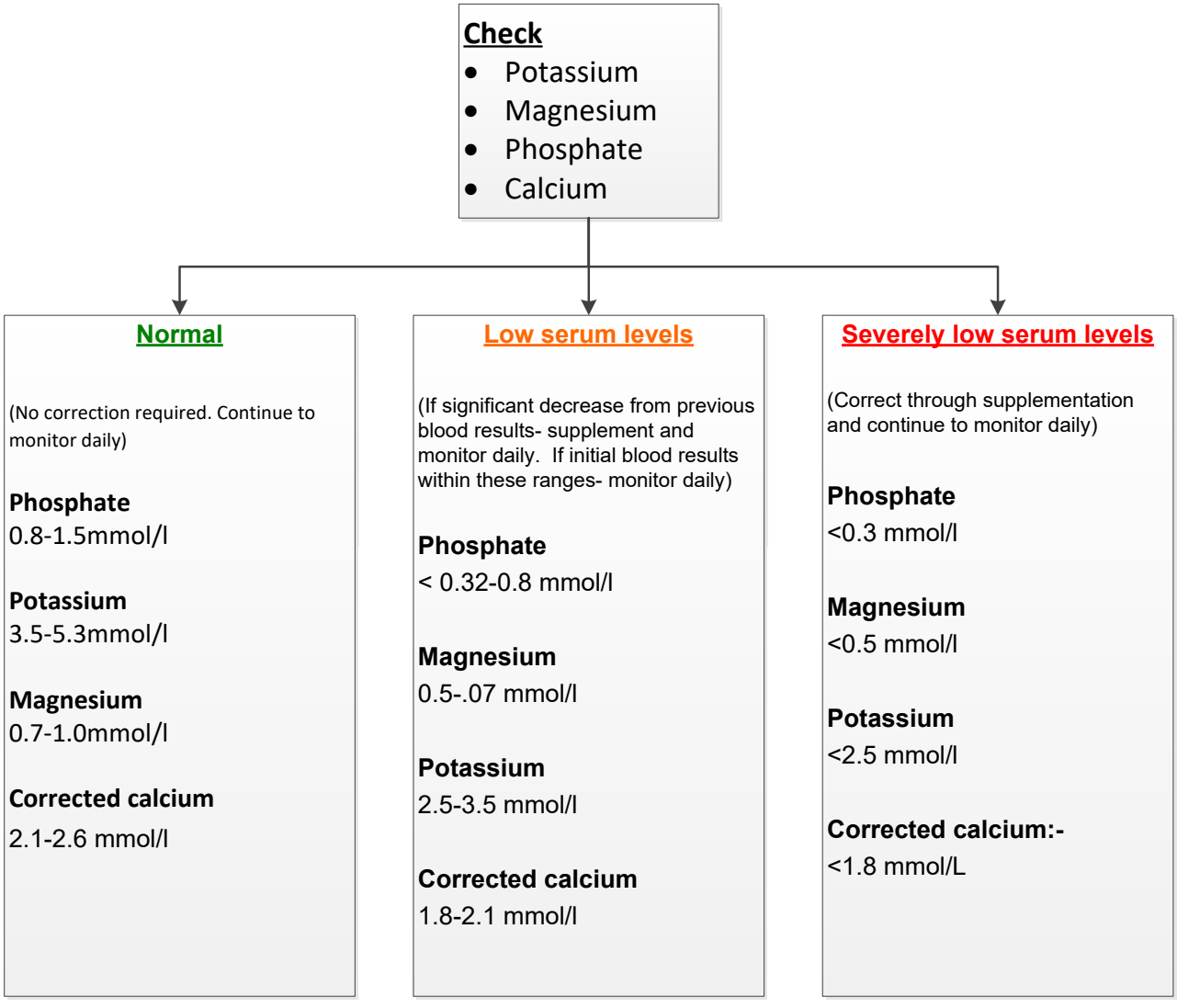
- If staff have any concerns about a service user they should contact the local medical ward or local physical health team for advice.

3.5 Guidelines for replacing electrolytes

Bloods should be checked daily until patient is receiving their full dietary requirements and bloods are stable without supplementation

These are guidelines only, and blood results should be compared to patient's normal and/or previous blood results.

Be aware that there may be significant changes within the 'normal range' and supplements may still be required.



Parenteral and Enteral Nutrition Group of the British Dietetic Association 2019

4 Definitions

Refeeding Syndrome is a potentially fatal syndrome and can occur after the refeeding of starved individuals. It relates to severe electrolyte and fluid shifts which can lead to low levels of potassium, magnesium and phosphate in the blood (Mallet, 2002). This can cause subsequent metabolic implications including cardiac, respiratory, neuromuscular, renal, metabolic, hematologic, hepatic and gastrointestinal problems which could result in death. (Parenteral and Enteral Nutrition Group of the British Dietetic Association, 2019).

4.1 Pathology of Refeeding Syndrome and starvation:

In 'normal' eating:

When the body is supplied with regular energy (food), glucose is used as the main energy source.

In starvation (little or no nutrition for three to five days)

The body tries to save energy and starts to breakdown protein and fat, turning them into energy. This causes loss of muscle, water and minerals.

In refeeding

The body switches back to using glucose from food for energy. This causes increased insulin production which can lead to hypoglycaemia (low blood sugar). More glucose, phosphate, potassium and water are taken out of the blood to be put into the muscles and cells.

This causes the clinical symptoms (or 'metabolic implications') of Refeeding Syndrome.

In starvation, the loss of minerals can be hidden by the body, but on refeeding, this is unmasked and there are significant reductions in blood levels of phosphate, potassium and magnesium. It is therefore very important to monitor bloods (electrolytes) during the early stages of refeeding.

4.2 Symptoms of Refeeding Syndrome

- Hypoglyceamia (low blood sugar)
- Confusion
- Rapid changes in body weight
- Oedema (swelling, usually in ankles/legs)
- Stomach complaints: nausea, vomiting
- Cardiac arrhythmia (irregular heartbeat)
- Increased blood pressure

5 How this procedure will be implemented

- This procedure will be published on the Trust's intranet and external website.
- Line managers will disseminate this procedure to all Trust employees through a line management briefing.
- Modern Matrons/Ward Managers will be responsible for adhering to this procedure and raising awareness of the Refeeding Syndrome
- All health care professionals in contact with service users as part of their holistic approach regardless of whether their contact is planned or incidental should be aware of the procedure and what to look out for in regards to patients being at risk of Refeeding Syndrome. They should be aware of the limits of their skills and call in other health care professionals as required.

5.1 Training needs analysis

Staff/Professional Group	Type of Training	Duration	Frequency of Training
Inpatient Nursing, Medical and AHP Staff	The Nutrition and Body Mass Index Clinical Link Pathway Training	1 hour	One off

6 How the implementation of this procedure will be monitored

The Trust carries out an annual audit of Nutrition Screening for inpatients in line with the requirements of the PLACE Audit. The Dietetic Team also carry out monthly compliance checks on the Nutrition and BMI Clinical Link Pathway that would identify any non-compliance with the Refeeding Syndrome Procedure.

7 References

BAPEN (2018) website - http://www.bapen.org.uk/

Elia M. (2003) **The 'MUST' Report: Nutritional Screening of Adults: A Multidisciplinary Responsibility. Development and Use of a 'Malnutrition Universal Screening Tool' ('MUST') for Adults. A Report by the Malnutrition Advisory Group of the British Association for Parenteral and Enteral Nutrition.** Redditch: British Association for Parenteral and Enteral Nutrition.

Parenteral and Enteral Nutrition Group of the British Dietetic Association (2019). **A Pocket Guide to Clinical Nutrition.** Fifth Edition. Birmingham: The British Dietetic Association.

National Institute for Health and Clinical Excellence (2006). **Nutrition Support for Adults. Oral Nutrition, Enteral Tube Feeds and Parenteral Nutrition.** London: National Collaborating Centre for Acute Care.

National Institute for Health and Clinical Excellence (2012). **Quality Standard for Nutrition Support in Adults (QS24).** London: National Collaborating Centre for Acute Care.

8 Document control

Date of approval:	23 September 2019	
Next review date:	30 September 2023	
This document replaces:	CLIN-0052-001-v1	
Lead:	Name	Title
	Jo Smith	Professional Head of Dietetic Services
Members of working party:	Name	Title
	Laura Passman	Lead Dietitian for CYPS Eating Disorders
	Sarah Elder	Lead Dietitian for Adult Eating Disorders
	Karen Blakemore	Lead Nurse for Physical Healthcare
This document has been agreed and accepted by: (Director)	Name	Title
	Elizabeth Moody	Director of Nursing and Governance
This document was approved by:	Name of committee/group	Date
	Physical Health and Wellbeing Group	23 September 2019
This document was ratified by:	Name of committee/group	Date
An equality analysis was completed on this document on:	29 August 2019	

Change record

Version	Date	Amendment details	Status
1	11 December 2018	Document under review, review date extended to allow review work to be done. Review date extended from 2 October 2018 to 31 March 2019.	withdrawn
2	29 August 2019	Document reviewed and updated. References and format updated. Clarification regarding which eating disorders patients this procedure doesn't apply to. Changed the age requirement to 12 and above (from 18) to fit in with the Nutrition and BMI CLiP ages.	published
2	30 Mar 2022	Review date extended to 23 March 2023	Published
2	May 2023	Review date extended to 30 September 2023	Published

9 Appendix

9.1 Appendix 1 Dietetic Referral Form (example)

Not all Dietetic services use this form; please use referral form appropriate to your service

REFERRAL TO NUTRITION & DIETETIC SERVICE

1. Client Details:

Client Name: **Preferred Name:**	**DOB:**	**NHS No:** **Paris No:**
Address: **Tel No:**	**Main Parent/Carer Details:**	
Current Location (if different to above):	**Current Tel No (if different to above):**	
GP: **Address:** **Tel No:**		

2. Referrer Details:

Name:	**Designation:**
Location:	**Tel No:**

3. Alerts and Other Relevant Information (please delete as appropriate)

Safeguarding Children/Adult Issues: yes/no
Lone Working Issues: yes/no
Any Other Relevant or Additional Information:

4. Detailed Reason for referral:

Include weight history, SANSI, recent blood tests or any other relevant information

Mental Health & Medical History:	Current Medication:
	Include nutritional supplements, vitamins and herbal remedies

5. Type of Appointment required

Ward Visit:
Other - Please Give Details:
Please give current: **Weight: _____kg Height: _____m BMI: _____kg/m2 Date Taken: _____**

Care Co-ordinator/Key Worker: **Other Persons Involved:**

Signature of Referrer:	**Date:**

FOR COMPLETION BY ADMINISTRATION ONLY	
Name of Team Member who received Referral Form:	
Date:	
Referral has been: Accepted/ Rejected / More information required	
Registered on PARIS: □	**Date:**
Allocated to: **Date:**	**Screen completed by:** **Date:**
Initial Appointment booked:	
Discharge Date:	

9.2 Appendix 2 Directory of Dietetic Services within Tees, Esk and Wear Valley NHS Foundation Trust

This list excludes dietitians working in the Specialist Eating Disorders Teams and Wards

Adult Mental Health

Teesside
Phone: 01642 837361
Email: tewv.amhdieteticsteesside@nhs.net

Durham and Darlington
Phone: 01325 552102
Email: tewv.amhlddieteticsdd@nhs.net

York and Selby
Phone: 01904 717774
Email: tewv.dieteticsyorkselby@nhs.net

Mental Health Services for Older People

Teesside, Darlington and Durham
Phone: 01325 552156
Email: tewv.mhsopnutritiondysphagiareferrals@nhs.net

North Yorkshire
Email: tewv.nydieteticreferrals@nhs.net

York and Selby
Phone: 01904 717774
Email: tewv.dieteticsyorkselby@nhs.net

Forensic Services

Phone: 01642 837540
Email: tewv.forensicdietetics@nhs.net

Adult Learning Disabilities

South Tees Only
Phone: 01642 283721

9.3 Appendix 3 First Line Meal Plan

Below to be used unless service user is at extremely high risk. If so, please consider admission to a medical ward.

Breakfast:	½ bowl of cereal e.g. 1 Weetabix / 20grams of branflakes with 100mls of semi-skimmed milk	OR ½ Fortisip
Lunch:	Sandwich (made with 1 slice of medium thick bread and filling) And 100mls semi-skimmed milk	OR ¾ Fortisip
Evening meal:	½ main meal (including meat or fish, potato or pasta or rice, and vegetables)	OR ¾ Fortisip

This meal plan is only to be commenced if a Dietitian is not available and should be followed until a Dietitian is able to assess the service user.

(Approximately 600kcals)

No snacks between meals should be offered.

Minimum fluid requirements: 1200mls/day. Only sugar free drinks should be offered until service user can be assessed by a Dietitian.

9.4 Appendix 4 - Equality Analysis Screening Form

Please note; The Equality Analysis Policy and Equality Analysis Guidance can be found on InTouch on the policies page

Name of Service area, Directorate/Department i.e. substance misuse, corporate, finance etc.	Trustwide					
Name of responsible person and job title	Jo Smith, Professional Head of Dietetic Services					
Name of working party, to include any other individuals, agencies or groups involved in this analysis	Laura Passman (Lead Dietitian for CYPS Eating Disorders), Sarah Elder (Lead Dietitian for Adult Eating Disorders), Karen Blakemore (Lead Nurse for Physical Healthcare)					
Policy (document/service) name	Refeeding Syndrome Procedure					
Is the area being assessed a…	Policy/Strategy		Service/Business plan		Project	
	Procedure/Guidance			X	Code of practice	
	Other – Please state					
Geographical area covered	Trustwide					
Aims and objectives	To support staff in identifying service users who are at risk of Refeeding Syndrome. To provide guidance on the management of this condition.					
Start date of Equality Analysis Screening (This is the date you are asked to write or review the document/service etc.)	9th May 2019					
End date of Equality Analysis Screening (This is when you have completed the equality analysis and it is ready to go to EMT to be	29th August 2019					

approved)	

You must contact the EDHR team if you identify a negative impact. Please ring Sarah Jay on 0191 3336267/3046

1. Who does the Policy, Service, Function, Strategy, Code of practice, Guidance, Project or Business plan benefit?					
Service users, carers and staff.					
2. Will the Policy, Service, Function, Strategy, Code of practice, Guidance, Project or Business plan impact negatively on any of the protected characteristic groups below?					
Race (including Gypsy and Traveller)	No	**Disability** (includes physical, learning, mental health, sensory and medical disabilities)	No	**Sex** (Men, women and gender neutral etc.)	No
Gender reassignment (Transgender and gender identity)	No	**Sexual Orientation** (Lesbian, Gay, Bisexual and Heterosexual etc.)	No	**Age** (includes, young people, older people – people of all ages)	No
Religion or Belief (includes faith groups, atheism and philosophical belief's)	No	**Pregnancy and Maternity** (includes pregnancy, women who are breastfeeding and women on maternity leave)	No	**Marriage and Civil Partnership** (includes opposite and same sex couples who are married or civil partners)	No

Yes – Please describe anticipated negative impact/s

No – Please describe any positive impacts/s

Positive Outcome: Improved clinical care in the event of a risk of Refeeding Syndrome being an identified risk.

3. Have you considered other sources of information such as; legislation, codes of practice, best practice, nice guidelines, CQC reports or feedback etc.? **If 'No', why not?**	**Yes**	**X**	**No**	

Sources of Information may include: • Feedback from equality bodies, Care Quality Commission, Equality and Human Rights Commission, etc. • Investigation findings • Trust Strategic Direction • Data collection/analysis • National Guidance/Reports	• Staff grievances • Media • Community Consultation/Consultation Groups • Internal Consultation • Research • Other (Please state below)

4. Have you engaged or consulted with service users, carers, staff and other stakeholders including people from the following protected groups?: Race, Disability, Sex, Gender reassignment (Trans), Sexual Orientation (LGB), Religion or Belief, Age, Pregnancy and Maternity or Marriage and Civil Partnership

Yes – Please describe the engagement and involvement that has taken place

The procedure involved consultation with members of the Physical Healthcare and Physical Wellbeing Group. It was also circulated for staff consultation by the Trust.

No – Please describe future plans that you may have to engage and involve people from different groups

5. As part of this equality analysis have any training needs/service needs been identified?					
No	Please describe the identified training needs/service needs below				
A training need has been identified for;					
Trust staff	No	Service users	No	Contractors or other outside agencies	No
Make sure that you have checked the information and that you are comfortable that additional evidence can provided if you are required to do so					
The completed EA has been signed off by: You the Policy owner/manager: Type name: Jo Smith					Date: 29.8.19
Your reporting (line) manager: Type name: Dr Sarah Dexter-Smith					Date: 29.8.19

If you need further advice or information on equality analysis, the EDHR team host surgeries to support you in this process, to book on and find out more please call: 0191 3336267/3046