1. Introduction and Who Guideline applies to

1.1 Malnutrition in the United Kingdom is a widespread problem with recent figures estimating more than 3 million adults are affected (BAPEN, 2008). In addition to malnourished individuals having an increased risk of mortality (Charlton et al. 2013), risk of refeeding syndrome would also need to be considered.

1.2 Refeeding syndrome has no worldwide accepted definition, but can be defined as 'the metabolic and physiological consequences of the depletion, repletion, compartmental shifts and interrelationships of the following: phosphate, potassium, magnesium, glucose metabolism, vitamin deficiency and fluid restriction' (Solomon and Kirby, 1990).

1.3 National Institute for Health and Care Excellence (NICE) guideline CG32 (NICE, 2006; updated August 2017) provides criteria to determine level of refeeding risk. Guidance is also provided in A Pocket Guide to Clinical Nutrition (Todorovic and Micklewright, 2011).

   At risk if …
   - Little or no nutritional intake for 5 days

   At high risk if one of the following parameters …
   - Body Mass Index (BMI) <16Kg/m²
   - Unintentional weight loss >15% in 3-6 months
   - Little or no nutritional intake for >10 days
   - Low levels of blood potassium, phosphate or magnesium prior to feeding

   At high risk if two of the following parameters …
   - BMI <18.5Kg/m²
   - Unintentional weight loss >10% in 3-6 months
   - Little or no nutritional intake >5 days
   - History of alcohol abuse or drugs taken including insulin, chemotherapy, antacids or diuretics

   At very high risk if …
   - BMI <14Kg/m²
   - Negligible intake >15 days

1.4 The guideline (NICE, 2006; updated August 2017) also makes suggestions regarding how to commence nutrition, dependent on level of risk, and parameters to monitor.

1.5 From a previous clinical audit (audit number 7273) it was clear that, although from a small sample size, dietetic practice is not consistent with national guidelines or between Dietitians.

1.6 The aim of this guideline is to improve dietetic practice to comply with national guidelines and minimise inconsistencies between Dietitians to improve nutritional care.

1.7 The Dietitian plays an essential role in assessing inpatients under their care for risk of
refeeding syndrome and highlighting this to the wider multidisciplinary team.

1.8 It is vital that the Dietitian is able to assess the level of refeeding risk accurately and interpret this correctly for a safe nutritional care plan to be implemented.

1.9 Appropriate dietetic monitoring and communication with the multidisciplinary team regarding their responsibilities provides the inpatient with a level of care which does not precipitate refeeding syndrome, minimises risk and ensures a team which is proactive.

1.10 This clinical guideline is for the use of Dietitians across University Hospitals of Leicester NHS Trust. The clinical guideline can also be used by Dietitians in the training of undergraduate Dietitians on clinical placement. Any Dietetic Assistants and Dietetic Assistant Practitioners can be requested by the Dietitian to collect patient clinical data to inform refeeding risk.

1.11 It applies to all adult inpatients that are to commence enteral tube feeding as well as those who are on oral diet where there is concern of refeeding risk who, on assessment, will commence first line oral nutrition support and/or prescribed oral nutritional supplements.

1.12 This does not apply to adult inpatients that are:
- commenced on pre-existing enteral feeding regimes e.g. jejunostomy
- admitted to clinical areas with their own enteral protocols e.g. critical care Guideline for commencing nasogastric feeding in adult patients on Critical Care. Trust reference C32/2013.
- receiving parenteral nutrition

2. Guideline Standards and Procedures

2.1 The Dietitian, after completing their nutritional assessment must document in the patients' health records as per the Policy for Documenting in Patients' Health Records (in all media), Trust reference B30/2006.

2.2 To assist in the identification of refeeding risk the Dietitian may use Appendix 1a.

2.3 Assessment must include reviewing previous nutritional intake including food, oral fluids, supplements and Intravenous (IV) or Subcutaneous (SC) fluids (details of commonly used IV/SC fluids provided in Appendix 1a. Specialist areas may have additional fluids that need to be accounted for.

2.4 Once identified, the Dietitian must implement an appropriate nutritional care plan which does not place the inpatient at risk of developing refeeding syndrome. The Dietitian may use Appendix 1b to facilitate this.

2.5 The Dietitian must be aware that this guideline and associated Appendices are guidance only – the Dietitian assessing the inpatient is responsible and accountable for their assessment and nutritional care planning.

2.6 For inpatients where the Dietitian feels that applying the guidance is not appropriate,
clear clinical reasoning must be documented in the medical case notes.

2.7 For inpatients identified to be at high or very high risk of refeeding syndrome, the Dietitian must clearly place Appendix 2 in the medical case notes as part of their documented plan.

2.8 For inpatients identified at risk where the use of Appendix 2 is not indicated, e.g. those identified only at risk of refeeding syndrome, the Dietitian must also note the need for blood biochemistry (potassium, magnesium and phosphate) to be monitored as part of their documented plan.

2.9 The Dietitian, for inpatients receiving enteral tube feeding and/or non-prescribable oral nutritional supplements and/or prescribable oral nutritional supplements must clearly state in their plan the need to monitor the following parameters and review these at each dietetic review:

- Fluid balance
- Anthropometry e.g. body weight, BMI, grip strength, mid-upper arm circumference (if appropriate and including serial trends)
- Nutrient intake (nb. This could be food +/- fluid +/- feed)
- GI function e.g. bowels, nausea, vomiting, abdominal distension

2.10 The Dietitian is responsible and accountable for:
- identifying if the inpatient is at risk of refeeding syndrome
- identifying the level of refeeding risk
- implementing an appropriate and safe oral/enteral nutritional care plan
- using Appendix 1a, 1b and 2, if needed and as appropriate
- documenting in medical notes, documenting into electronic handover systems (as appropriate) and verbal handovers to multidisciplinary team
- ensuring ongoing and appropriate dietetic monitoring/review of the inpatient whilst under dietetic care

3. Education and Training

3.1 No new skills or training are required. This document is to raise awareness of the process Dietitians need to follow.

3.2 Dietetic staff can use this to aid student dietetic training for those who undergo their clinical placements as part of their undergraduate degree to become a registered Dietitian.

4. Monitoring Compliance

<table>
<thead>
<tr>
<th>What will be measured to monitor compliance</th>
<th>How will compliance be monitored</th>
<th>Monitoring Lead</th>
<th>Frequency</th>
<th>Reporting arrangements</th>
</tr>
</thead>
<tbody>
<tr>
<td>Level of refeeding risk must be identified and documented in adult inpatients’ medical notes for inpatients that are to commence enteral feeding or inpatients who are on oral diet where there is concern of refeeding risk</td>
<td>Audit</td>
<td>Chair of the UHL NHS Trust Nutrition and Dietetic Service Adult</td>
<td>Annual</td>
<td>To Nutrition and Dietetic Manager</td>
</tr>
</tbody>
</table>
### 5. Supporting References


6. Key Words
Nutrition, Dietetic, Refeeding, Enteral

<table>
<thead>
<tr>
<th>CONTACT AND REVIEW DETAILS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Guideline Lead (Name and Title)</td>
</tr>
<tr>
<td>Hannah Starling, Senior Specialist Dietitian</td>
</tr>
</tbody>
</table>

Details of Changes made during review:
- Format changed to new Trust guideline format
- Review of NICE guideline CG32, May 2018
- Refeeding stickers revised
Is the patient in a starved state? This would be if they have consumed <10kcal/kg on average for >5 days.

No

Is the patient's nutritional intake <50% of nutritional requirements for >5 days?

No

NO RISK

Dietitian to exert clinical judgement where appropriate, e.g. BMI <16kg/m² or 15% weight loss but not in a starved state

Yes

AT RISK

Do they have 1 of the following?:
- BMI <16kg/m²
- >15% unintentional weight loss in the last 3-6 months
- <10kcal/kg for >10 days
- low potassium, magnesium or phosphate levels prior to feeding

OR

Do they have 2 of the following?:
- BMI <18.5kg/m²
- <10% unintentional weight loss in 3-6 months
- <10kcal/kg for >5 days
- history of alcohol abuse or some drugs including insulin, chemotherapy, antacids or diuretics

Yes

HIGH RISK

No

Do they have 1 of the following?:
- BMI <14kg/m²
- <10kcal/kg for >15 days

Yes

VERY HIGH RISK

No

Do they have 2 of the following?:
- BMI <13kg/m²
- <10% unintentional weight loss in 6-10 months
- <10kcal/kg for >15 days

Yes

Dietitian to exert clinical judgement where appropriate, e.g. BMI >30kg/m², in starved state but does not fit the refeeding risk criteria

No
# Appendix 1b

<table>
<thead>
<tr>
<th></th>
<th><strong>AT RISK</strong></th>
<th><strong>HIGH RISK</strong></th>
<th><strong>VERY HIGH RISK</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>DAY 1</strong></td>
<td>Start nutrition support at a maximum of 50% requirements for first 2 days</td>
<td>If the patient is to receive 100% nutrition via enteral feed: start at 10kcal/kg plus average of previous oral intake for first 24 hours</td>
<td>If the patient is to receive 100% nutrition via enteral feed: start at 5kcal/kg plus average of previous oral intake for first 24 hours</td>
</tr>
<tr>
<td></td>
<td>If the patient to receive supplementary support with enteral feed/ nutritional supplements: start at 10kcal/kg for first 24 hours</td>
<td>If the patient to receive supplementary support with enteral feed/ nutritional supplements: start at 5kcal/kg for first 24 hours</td>
<td>If the patient to receive supplementary support with enteral feed/ nutritional supplements: start at 5kcal/kg for first 24 hours</td>
</tr>
<tr>
<td><strong>DAY 2</strong></td>
<td>Start nutrition support at a maximum of 50% requirements for first 2 days</td>
<td>Increase to 15kcal/kg for 24 hours</td>
<td>Increase to 10kcal/kg for 24 hours</td>
</tr>
<tr>
<td><strong>DAY 3</strong></td>
<td>Increase as tolerated to full requirements</td>
<td>Increase to 20kcal/kg for 24 hours</td>
<td>Increase to 15 kcal/kg for 24 hours</td>
</tr>
<tr>
<td><strong>DAY 4</strong></td>
<td>Increase as tolerated to full requirements</td>
<td>Increase by 5kcal/kg each day until requirements are met</td>
<td>Increase to 20kcal/kg for 24 hours</td>
</tr>
<tr>
<td><strong>DAY 5-7</strong></td>
<td>Increase as tolerated to full requirements</td>
<td>Increase by 5kcal/kg each day until requirements are met</td>
<td>Increase by 5kcal/kg each day until requirements are met</td>
</tr>
</tbody>
</table>
Appendix 2

**MEDICAL TEAM - Please ensure**

- Blood potassium, magnesium & phosphate levels are checked daily until stable. Replace if necessary as per UHL guidance (found on Insite).
- Immediately before and for the first 10 days of feeding the following is prescribed
  - IV Pabrinex ampoules I and II once a day *or*
  - Thiamine 100mg twice a day, Vitamin B complex 1 tablet three times a day and Forceval 1 tablet once a day (or Forceval soluble if NBM/dysphagia/clinical indication)

Please note – Appendix 2 is to be printed as a sticker. Please contact the Nutrition and Dietetic Admin Team for further information.