Framework for Effective & Efficient Dietetic Services

An Evidenced-Based Demand Management Toolkit for Dietetic Services

MALNUTRITION
FEEDS Version 3.0
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Queensland Health would like to acknowledge the contributions to the FEEDS Toolkit from Allied Health Professions Office Queensland (AHPOQ) and members of the Dietitians Nutritionist Strategic Coalition (DNSC) network. The DNSC membership includes Queensland Health Nutrition & Dietetic Directors and Heads of Department, Mater Health Services Nutrition & Dietetics Department, Non-Government Organisations, Private and University Sectors.
Contents

INTRODUCTION TO EVIDENCE AREAS ........................................................................................................................................... 4
LIST OF ABBREVIATIONS ................................................................................................................................................................. 6
DOCUMENT REVISION HISTORY ...................................................................................................................................................... 7
EVIDENCE AREA: MALNUTRITION .................................................................................................................................................. 8
APPENDIX ONE: SUMMARY OF EDITS .......................................................................................................................................... 24
APPENDIX TWO: MEMBERS OF THE FEEDS IMPLEMENTATION STEERING GROUP .............................................................................. 25
APPENDIX THREE: PRIORITISATION GUIDELINES FOR NUTRITION MANAGEMENT FOR PAEDIATRIC PATIENTS ............ 26
Introduction to Evidence Areas

The following Evidence Areas have been compiled by dietitians across Health and Hospital Services (HHS) from within Queensland Health in 2015 and updated in 2017. Details of each chapter update can be found in appendix one (1). These pages represent a combination of up to date evidence and expert clinician opinion in order to inform priorities for dietitians working in clinical settings. The toolkit was endorsed by members of the FEEDS Implementation Steering Group (see appendix two(2)) in March 2017.

It is widely acknowledged that demand on Queensland dietetics services is increasing; collaboration across sectors and innovative thinking are essential in order for clinical dietetics to match increasing demand. Whilst these challenges are by no means new, the impact of a changing workforce through the recent restructuring of public health nutrition services, and the continued uncertainty around the provision of some services, has applied considerable pressure to the existent clinical dietetics workforce. Allied Health Professions Office Queensland (AHPOQ) is committed to expanding the scope of practice for allied health professionals. The Ministerial Taskforce on Expanded Scope recognises if allied health professionals, dietetics included, work to full scope and utilises allied health support staff, then this paves the way for expanding the scope of practice and adding high value services to meet Key Performance Indicators of HHS’s across the state.

Given this current climate, it is imperative that local dietetics services are able to determine clinical priorities and align these with the broader priorities of their local health services, the state and the federal governments. This toolkit cannot displace local guidelines or prioritisation procedures due to the differences that exist between services in their size and complexity. It should be utilised to inform the development and review of these documents in order to ensure that dietetics services provided across the state are evidence-based, safe, equitable and provide a high value to the HHS. It should be used as a tool to assess your local service, and/or models of care against the evidence to enable a realignment of resources from low value priority areas (disinvestment), to high value priority areas (reinvestment). For additional evidence-based recommendations, dietitians are encouraged to consult practice-based evidence in nutrition at www.pennutrition.com

This toolkit is broken up into areas that represent clinical dietitians’ core business, listed out in alphabetical order. The intent is that it contains useful information for dietitians working across the continuum of care; however, some evidence areas may have a larger focus on interventions designed for the acute care setting than others. It is recommended that FEEDS be used in conjunction with a Dietitian and/or the Dietitian Nutritionist Strategic Coalition (DNSC) in determining opportunities, resource advocacy, and service delivery for the nutritional management of clinical conditions, across all areas of practice. This should not be limited to the areas included in this version of the FEEDS Toolkit.
To enable quick referencing, evidence areas have been sub-divided – where relevant – with use of blue rows to communicate evidence that relates to a particular condition or intervention type; paediatrics is identifiable through use of a pink row. Within each evidence area, common interventions requiring the attention of a Dietitian have been prioritised in accordance with a three-tranche scale; where high priorities have a red banner, medium priorities have an orange banner, and low priorities have a green banner. Some interventions require an organisational approach; these are distinguished with use of a purple banner. Given the differences that are likely to exist between services and their available resources, a timeframe for response to referral has not been included.

Below is an example of how the evidence areas are set-up:

<table>
<thead>
<tr>
<th>Why – reason for dietetic intervention</th>
<th>How</th>
<th>Who</th>
<th>Where</th>
<th>Frequency for intervention</th>
<th>Comments/Evidence</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Description of Condition or Intervention Type</strong></td>
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</tr>
<tr>
<td><strong>HIGH PRIORITY</strong></td>
<td>Describes how the intervention should be conducted</td>
<td>Nominates individuals responsible for completing interventions</td>
<td>Describes the setting in which interventions can safely occur</td>
<td>Determines how often the intervention should be conducted</td>
<td>References that should consulted for further information or support in delivering intervention.</td>
</tr>
<tr>
<td>The “Why” section describes the requirement for Dietitian involvement. At times this may describe other activities that impact on clinical dietetics, but do not directly require a Dietitian to initiate or complete the activity (e.g. malnutrition screening)</td>
<td></td>
<td></td>
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</tr>
<tr>
<td><strong>MEDIUM PRIORITY</strong></td>
<td>E.g. Individual patient consults</td>
<td>E.g. Dietitian</td>
<td>E.g. Throughout continuum of care e.g. home, hospital, subacute</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>LOW PRIORITY</strong></td>
<td></td>
<td></td>
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<td></td>
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<tr>
<td><strong>HIGH PRIORITY AT AN ORGANISATIONAL LEVEL</strong></td>
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<td></td>
</tr>
</tbody>
</table>

Paediatrics

The paediatric elements within each chapter have not been categorised in priority level. Instead, please refer to the prioritisation guideline (appendix 3)
### List of Abbreviations

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>AHA</strong></td>
<td>Allied Health Assistant</td>
</tr>
<tr>
<td><strong>AH-TRIP</strong></td>
<td>Allied Health – Translation Research into Practice</td>
</tr>
<tr>
<td><strong>BMI</strong></td>
<td>Body Mass Index</td>
</tr>
<tr>
<td><strong>ESPEN</strong></td>
<td>European Society for Clinical Nutrition and Metabolism</td>
</tr>
<tr>
<td><strong>GLIM</strong></td>
<td>Global Leadership Initiative on Malnutrition</td>
</tr>
<tr>
<td><strong>MNA-SF</strong></td>
<td>Mini Nutritional Assessment – Short Form</td>
</tr>
<tr>
<td><strong>NCPT</strong></td>
<td>Nutrition Care Process Terminology</td>
</tr>
<tr>
<td><strong>NRS2002</strong></td>
<td>Nutritional Risk Screening 2002</td>
</tr>
<tr>
<td><strong>PG-SGA</strong></td>
<td>Patient-Generated Subjective Global Assessment</td>
</tr>
<tr>
<td><strong>SGA</strong></td>
<td>Subjective Global Assessment</td>
</tr>
<tr>
<td><strong>SNAQ-RC</strong></td>
<td>Short Nutritional Assessment Questionnaire for Residential Care</td>
</tr>
</tbody>
</table>
## Document Revision History

<table>
<thead>
<tr>
<th>Version No.</th>
<th>Created/Modified by</th>
<th>Date</th>
<th>Content/Amendments details</th>
<th>Approved by</th>
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<tr>
<td>3.0</td>
<td>Jane Musial, Anna Edwards</td>
<td>13/07/2020</td>
<td>External review and template editing to FEEDS Version 3.0</td>
<td>Jane Musial</td>
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<tr>
<td>2.0</td>
<td>Rhiannon Barnes, Emily Molyneux, Melinda Booker</td>
<td>05/07/2016</td>
<td>Reformatting the FEEDS Toolkit into separate evidence areas using Queensland Health approved font in preparation for publishing to NEMO</td>
<td>FEEDS Implementation Steering Group</td>
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<td>2.0</td>
<td>Rhiannon Barnes</td>
<td>21/06/2017</td>
<td>Rebranding of the FEEDS Toolkit to the ‘purple’ watercolour template</td>
<td>FEEDS Implementation Steering Group</td>
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<tr>
<td>2.0</td>
<td>Rhiannon Barnes</td>
<td>07/06/2017</td>
<td>Development and inclusion of Creative Commons section on page 2 of the FEEDS Toolkit</td>
<td>FEEDS Implementation Steering Group</td>
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<td>2.0</td>
<td>Rhiannon Barnes</td>
<td>15/03/2017</td>
<td>Changed evidence area title from Cardiology to Cardiovascular Disease to align with Nutrition Education Materials Online terminology Changed evidence area title from Oncology to Cancer Services to align with Nutrition Education Materials Online terminology Updated chapter areas based on feedback from FEEDS Implementation Steering Group Members</td>
<td>Jan Hill, Teresa Brown, FEEDS Implementation Steering Group</td>
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<tr>
<td>2.0</td>
<td>Rhiannon Barnes</td>
<td>21/02/2017</td>
<td>Updates to contributors across all FEEDS chapter areas Updates to content across most evidence areas Update to ‘Introduction Evidence Areas’</td>
<td>FEEDS Implementation Steering Group</td>
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<td>2.0</td>
<td>Rhiannon Barnes</td>
<td>22/02/2017</td>
<td>Added new FEEDS Sub-Acute Evidence Area developed by Jillian Ross, Zoe Walsh and the Metro North Dietetic CISS team</td>
<td>FEEDS Implementation Steering Group</td>
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<td>22/02/2017</td>
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<td>FEEDS Implementation Steering Group</td>
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<td>06/05/2015</td>
<td>Updates to contributors and modifications to include accepted terminologies</td>
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<td>03/03/2015</td>
<td><em>Malnutrition in the Frail Elderly</em> revised and changed to <em>Malnutrition</em> with some associated content changes</td>
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<td>04/03/2015</td>
<td>Amendment to listed references</td>
<td>Melina de Corte</td>
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<td>Lindsey Johnson</td>
<td>06/03/2015</td>
<td>Formatting updated and minor content changes to <em>Renal</em></td>
<td>Kylie Boyce &amp; Simone McCoy</td>
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<tr>
<td>0.1</td>
<td>Lindsey Johnson</td>
<td>04/03/2015</td>
<td>Phrasing within <em>Respiratory Disease</em> changed in order to improve accuracy</td>
<td>Jenna Stonestreet</td>
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</tbody>
</table>

# the details on content changes/additions between FEEDS Toolkit version 1.2 and version 2.0 can be found in appendix 1 with names of the evidence area review team members
Evidence Area: Malnutrition

Malnutrition is a key area of dietetics practice across the continuum of care (1). There is strong evidence that malnutrition significantly negatively influences morbidity and mortality. Malnutrition at least doubles the odds of developing a pressure injury and having a more severe pressure injury (higher stage pressure injury and/or a higher number), increased risk of surgical site infection, increased catheter-associated urinary tract infections, and increased risk of hospital-acquired infection (2-5). In addition to increasing infection risk and delaying wound healing, paediatric malnutrition also contributes to immune dysfunction and negatively impacts on physical and cognitive development (6). Malnutrition increases the length of hospital stay and the likelihood of unplanned readmissions, as well as the odds of both in-hospital mortality and mortality up to three years following discharge from hospital (5, 7, 8).

It has been proven that proactive nutrition interventions demonstrate improved outcomes (including cost-effectiveness) for both hospital and community patients (9-11). However increased numbers of patients screened at risk of malnutrition (due to better screening, population ageing, increased acuity, increased throughput) and decreased opportunity to intervene (reduced hospital length of stay, community and home-based care models, finite dietetic resources) means that traditional dietetic models of care (i.e. individualised dietetic assessment and counselling) is often not feasible (1).

The role of the Dietitian in the prevention, treatment and management of malnutrition needs to focus on enabling systems and interdisciplinary approaches (e.g. nutrition policies, foodservice and mealt ime interventions, MDT-led nutrition support pathways, delegation to assistants), with individualised dietetic assessment and care reserved for those patients with complex needs and/or requiring long-term support. It is proposed that nutrition intervention can be triaged into three categories to assist with improved nutrition delivery and coordination of care: Standard, Supportive, or Specialised (1).

Malnutrition care needs to extend across the continuum of care, with dietitians ensuring that systems are in place to enable communication between hospitals and community; referrals to appropriate community service providers; and ongoing dietetic input where required. Involving patients, families and carers in all aspects of the nutrition care process is critical.

Note this evidence area does not include sarcopenia (muscle wasting caused by ageing and/or immobility, which requires both nutritional support and exercise training to manage) or cachexia (muscle wasting caused by an underlying illness, not entirely reversible with adequate nutritional support).
## Nutrition Risk Screening

Nutrition risk screening should be incorporated into standard processes (i.e. hospital admission risk assessment forms).

An ESPEN consensus process suggests that any screening tool can be used as long as it is validated and shows good sensitivity in the setting for which it is being applied.

Dietitians must be involved in developing and monitoring nutrition screening processes to ensure that it is completed in an accurate and timely manner. This includes advising on the selection of screening tools, frequency of screening, referral and intervention pathways, and training of staff completing the screening.

Depending on the clinical area, consideration should also be given to the feasibility of patient-led malnutrition screening and blanket nutrition assessment/intervention where there is a known high risk of malnutrition (e.g. hip fracture, eating disorders).

Multidisciplinary critical thinking and clinical judgement should be encouraged to ensure patients perceived at malnutrition risk are referred appropriately.

### NUTRITION RISK SCREENING

<table>
<thead>
<tr>
<th>Why – reason for dietetic intervention</th>
<th>How</th>
<th>Who</th>
<th>Where</th>
<th>Frequency for intervention</th>
<th>Comments/Evidence</th>
</tr>
</thead>
</table>
| Nutrition risk screening should be incorporated into standard processes (i.e. hospital admission risk assessment forms). | Acute Care/Sub-Acute | Who performs the screening depends on the setting or specific facility and can include:  
- nursing staff  
- trained healthcare staff (i.e. allied health)  
- allied health assistants (AHA)*  
- administration staff  
- medical officers  
- directly by patients/carers  
  *this includes nutrition assistants, dietetic assistants and allied health assistants | Acute/Sub-acute: On admission, then weekly. | | |
| An ESPEN consensus process suggests that any screening tool can be used as long as it is validated and shows good sensitivity in the setting for which it is being applied. | | | | | |
| Dietitians must be involved in developing and monitoring nutrition screening processes to ensure that it is completed in an accurate and timely manner. This includes advising on the selection of screening tools, frequency of screening, referral and intervention pathways, and training of staff completing the screening. | | | | | |
| Depending on the clinical area, consideration should also be given to the feasibility of patient-led malnutrition screening and blanket nutrition assessment/intervention where there is a known high risk of malnutrition (e.g. hip fracture, eating disorders). | | | | | |
| Multidisciplinary critical thinking and clinical judgement should be encouraged to ensure patients perceived at malnutrition risk are referred appropriately. | | | | | |
| | Residential care | | | | |
| | - MST  
- SNAQ-RC  
- MNA-SF | Who performs the screening depends on the setting or specific facility and can include:  
- nursing staff  
- trained healthcare staff (i.e. allied health)  
- allied health assistants (AHA)*  
- administration staff  
- medical officers  
- directly by patients/carers  
  *this includes nutrition assistants, dietetic assistants and allied health assistants | | | |
| | Community | | | | |
| | - MST  
- MNA-SF | Who performs the screening depends on the setting or specific facility and can include:  
- nursing staff  
- trained healthcare staff (i.e. allied health)  
- allied health assistants (AHA)*  
- administration staff  
- medical officers  
- directly by patients/carers  
  *this includes nutrition assistants, dietetic assistants and allied health assistants | | | |
| | All | | | | |
| | - BMI | Who performs the screening depends on the setting or specific facility and can include:  
- nursing staff  
- trained healthcare staff (i.e. allied health)  
- allied health assistants (AHA)*  
- administration staff  
- medical officers  
- directly by patients/carers  
  *this includes nutrition assistants, dietetic assistants and allied health assistants | | | |
| | | Pre-admission clinics  
- Hospital/sub-acute/residential care  
- GPs/community settings | | | |
| | | Exclude areas that have pathways for blanket nutrition intervention:  
- ICU  
- patient groups with high prevalence of malnutrition (e.g. patients/clients with eating disorders)  
- patient groups with cumulative inadequate intake (e.g. hip fracture) | | | |
| | | Exclude groups unlikely to benefit from intervention (e.g. terminal care patients/residents) | | | |
| | | | | (2, 12-20) | |
### NUTRITION RISK SCREENING - REFEEDING SYNDROME

<table>
<thead>
<tr>
<th>Screening for the risk of refeeding syndrome should be undertaken prior to the commencement of nutritional support. However, there are currently no validated tools for the assessment of risk of refeeding syndrome.</th>
<th>Tools for screening for refeeding syndrome are not specific and should be used with caution. Criteria in the National Collaborating Centre for Acute Care (21) (NICE) guidelines are most commonly used to screen for risk of refeeding syndrome.</th>
<th>Medical officers; Nursing staff; Dietitians</th>
<th>Refeeding syndrome is rare, and interventions should be focussed on preventative measures, and not on restricting intake.</th>
<th>All facilities providing nutritional support.</th>
<th>Prior to the commencement of nutritional support.</th>
<th>(21, 22)</th>
</tr>
</thead>
</table>
**NUTRITION ASSESSMENT AND DIAGNOSIS**

| All patients identified as at risk of malnutrition should have a nutrition assessment conducted. | Dietitians; Medical Officers; AHAs* *with training (i.e. CTIs) and/or supervision. The supervising Dietitian is required to counter-sign the AHA malnutrition diagnosis in medical records. | Throughout continuum of care:  
• Hospital  
• Subacute  
• Residential Care  
• Community  
On initial assessment & repeated fortnightly or monthly (depending on the patient’s clinical condition). |
| --- | --- | --- |
| The accurate diagnosis of malnutrition is required for clinical coding purposes under an activity-based funding model of care as well as supporting best practice. | Tools should include anthropometric measures (e.g. % weight loss, fat & muscle stores, BMI) and dietary intake. However, if time restricted, an abbreviated assessment can be conducted. Documentation must include:  
• severity (i.e. mild, moderate or severe)  
• present on admission or hospital-acquired. Apply NCPT & ensure root causes of nutrition diagnoses (aetiologies) are adequately investigated, treated and documented. | (23-28) [Visit website](https://www.pennnutrition.com/KnowledgePathway.aspx?kpid=24802&pcatid=144&pqid=25818)  
SGA training DVD available via the RBWH Foundation. |
| There is no validated gold standard for the assessment of nutritional status; however international consensus guidelines (GLIM) recommend that a range of parameters (i.e. physical examination, anthropometry, dietary intake) are considered. Using standardised assessment tools may promote consistency in the diagnosis. | |  |
| There is no single validated tool that can be implemented for the simultaneous assessment of cachexia, sarcopenia, and malnutrition. However, consideration should be given to the possibility of these independent of nutrition status. | |  |
| Diagnosis of hospital acquired malnutrition should be considered for those patients with lengths of stay >14 days and who have demonstrated nutritional decline from being well-nourished to being malnourished whilst admitted as a hospital inpatient. | |  |
### NUTRITION ASSESSMENT AND DIAGNOSIS - REFEEDING SYNDROME

**Diagnosis** is at the discretion of the treating team. There are currently no validated tools to diagnose refeeding syndrome. Refeeding syndrome entails more than just electrolyte disturbances; therefore, the entire clinical presentation must be considered. Refeeding syndrome is extremely rare, with a 0-2% incidence rate in studied at risk population groups.

The Dietitian may play a role in educating staff about refeeding syndrome diagnosis.

A full assessment of clinical presentation i.e. as per Rio et al. (2013) (29) criteria below:

a) A severe decrease in at least one serum electrolyte, and
b) Peripheral oedema or acute circulatory overload, and
c) A severe disturbance to organ function.

Medical Officers (with potential input from Dietitians)

All facilities providing nutrition support.

Medical officers should review daily for the initial five days after commencing feeding.

### ASSESSMENT - MICRONUTRIENTS

Micronutrient testing should only be ordered if clinically indicated. This should be interpreted carefully in the acute care setting given the high prevalence of acute inflammatory processes (and corresponding high C-Reactive Protein levels) affecting the reading of some serum micronutrient levels. Treatment of malnutrition (with a well-balanced diet/supplement drinks/parenteral or enteral nutrition) has the added benefit of improving micronutrient intake.

If clinically indicated, and there is no acute inflammatory response, micronutrient testing can be undertaken in the sub-acute, residential and/or community settings.

Assessment of risk factors (e.g. dietary intake, absorption or lifestyle) to determine risk of micronutrient deficiencies.

Medical officers (in conjunction with Dietitians)

Throughout the continuum of care:
- Subacute
- Residential Care
- Community

As clinically indicated and where no acute inflammation (i.e. CRP within normal limits).

(30, 31)
### NUTRITION INTERVENTION

#### STANDARD NUTRITION CARE (MDT AND CARERS)

| A systems approach should be undertaken by all facilities providing meals in order to support nutritional care for all patients to prevent nutritional decline and provide patient-centred care. Dietitians should ensure that | Whole of team approach to nutrition and mealtimes. Implementation should use an AH-TRIP approach i.e. define and understand the problem (audits, patient and staff feedback), engage the MDT in creating and testing solutions, and measure whether care is improved (or needs further improvement). | All staff, as this level of nutrition care requires an organisational approach. Family members, carers and the patient themselves should also be involved in this level of nutritional care. | All facilities where meals are provided to patients. Processes should be reviewed annually or as clinically required. Approaches such as assistance with menu selection should be undertaken for every meal selection, as able. | (1, 9, 32-43) Toolkit for resources: https://tpch.qld.libguides.com/simple/toolkit |
| - menu systems allow for the provision of appropriate, safe and nutritionally adequate food and meals, - unnecessary dietary restrictions and prolonged fasting are avoided (including adequate access to meals out of hours), - adequate encouragement and assistance is provided with mealt ime positioning and eating; communal dining may also be beneficial, - the MDT receives regular education about importance of nutrition and how they can contribute to nutrition care (i.e. promote consistent nutrition messages, identify potential barriers e.g. food insecurity, nutrition impact symptoms), - nutrition care procedures or guidelines are developed and implemented to support delivery of good nutrition care. | | | | |
### SUPPORTIVE NUTRITION CARE (MDT AND CARERS)

| This level of nutritional care also requires a systems approach to prevent further nutritional decline, provide patient-centred care, and automatically provide patients with poor nutritional status/high risk of decline in nutrition status with supportive care. In addition to above “standard nutrition care” interventions, the Dietitian is responsible for ensuring that: - interdisciplinary and delegated care models and pathways are used wherever possible to support assessment, intervention, education monitoring and/or discharge planning, - clear delegation and escalation criteria and nutrition care procedures or guidelines are developed and implemented to support safe and appropriate delivery of interdisciplinary and/or delegated nutrition care. - improving the profile of nutrition care and consideration of nutrition as integral to patient management. | Interdisciplinary and/or delegated models of care wherever possible, to release dietetic time and expertise for “specialised nutrition care”. e.g. MDT-led feeding pathways, blanket HPHE menus, routine provision of Supplements as Medicine/ Medpass or dedicated feeding roles for specific high-risk patient groups (i.e. patients with medically unstable eating disorders, patients with acute strokes). Implementation should use an AH-TRIP approach as per “supportive nutrition care.” | All staff as this level of nutrition care requires an organisational approach. Key staff include: • Dietitians, • Medical Officers, • Nursing staff • AHAs* *with training and/or supervision Family members, carers and the patient themselves should also be involved in this level of nutritional care. Throughout continuum of care: • Hospital • Subacute • Residential Care • Community Supportive nutrition care should commence without delay (e.g. immediately after positive malnutrition screen, on admission). |
### SPECIALISED NUTRITION CARE (DIETITIAN-SPECIFIC)

To ensure provision of value-based care, individualised nutritional support and dietary counselling should be targeted to those patients at high nutritional risk (i.e. ongoing weight loss despite maximisation of standard or supportive nutrition care systems) or those with complex nutritional needs.

Dietitians and/or trained AHAs should be involved in educating patients about managing enteral tube feeding in the community. Expanded scope roles may be used to manage enteral tube complications and replacement.

Discharge planning to ensure appropriate ongoing support if required should be given a high priority at this level of nutrition care. Consider referrals to community services.

Psychosocial barriers to nutritional intake should always be considered when providing individualised nutrition support and counselling, particularly in the community setting (e.g. lack of cooking equipment/skills, money, supports).

In the community setting, Dietitians have a key role in avoiding hospital admissions while also supporting patient’s quality of life.

| Individual consults | Escalation plans should be considered for those patients that may require enteral/parental nutrition (i.e. if consuming <50% of meals for # number of days). Once nutritional intake improves, patients may be appropriate for delegation for ongoing intervention and monitoring. | Dietitians; Medical Officers; AHAs.* | Throughout continuum of care:  
- Hospital  
- Subacute  
- Residential Care  
- Community | As clinically indicated (e.g. hospital settings within 24-48 hours). |
|---------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------|
## NUTRITION INTERVENTIONS – REFEEDING SYNDROME

<table>
<thead>
<tr>
<th>For patients at risk of refeeding syndrome, Dietitians should</th>
<th>Supplement thiamine and multivitamins; monitor electrolytes daily with assertive supplementation as required; and regular clinical monitoring (i.e. fluid balance).</th>
<th>Medical Officers; Dietitians; Nursing staff</th>
<th>Medical Officers; Dietitians; Nursing staff</th>
<th>Hospital</th>
</tr>
</thead>
<tbody>
<tr>
<td>- focus on preventative measures (i.e. supplementation and monitoring),</td>
<td></td>
<td>• Hospital</td>
<td>For those patients deemed at risk in the community setting, it is recommended that the GP is involved in daily monitoring, with referral to hospital if high risk.</td>
<td>(22, 44)</td>
</tr>
<tr>
<td>- balance risk of refeeding syndrome versus providing restricted nutrition to</td>
<td></td>
<td>As clinically indicated.</td>
<td>(22, 44)</td>
<td></td>
</tr>
<tr>
<td>already malnourished patients when creating nutritional care plans.</td>
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<td></td>
<td>Research suggests that preventative measures are more important than slowly advancing nutritional intake for those patients at risk.</td>
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<tr>
<td>For patients with diagnosed refeeding syndrome, the Dietitian should advise on</td>
<td></td>
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</tr>
<tr>
<td>advancing nutrition.</td>
<td>For patients at risk: Oral nutrition should not be restricted. Parenteral and enteral nutrition should commence at a minimum of 50% of requirements and advance after 24 hours if there are no severe serum electrolyte decreases. Care should be taken with IV dextrose or similar.</td>
<td></td>
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<tr>
<td></td>
<td>For patients with diagnosed refeeding syndrome: Consider reducing enteral/parental nutrition, or stalling advancements while supplementing electrolytes assertively.</td>
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<tr>
<td></td>
<td>As clinically indicated.</td>
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</tbody>
</table>
Dietitians should implement systems for monitoring the effectiveness of nutritional interventions (supportive and specialised nutrition care). This may involve all members of the MDT.

Attention should also be paid to implementing systems to commence supportive or specialised nutrition care interventions if monitoring identifies poor intake or nutritional deterioration.

Dietitians should also be active in monitoring, reviewing and benchmarking the delivery of nutrition and mealtime care at a systems-level. This may involve review of both individual practice and systems reviews.

### Clinical care:
- Mealtime monitoring, weekly weights and nutrition screening, delegated AHA monitoring, [food charts](#), and malnutrition reassessments.

### Service Delivery:
- Nutrition audits (i.e. point prevalence malnutrition, nutrition screening and care processes, mealtime care, [meal quality](#), plate waste & meal intake), patient surveys/interviews ([foodservice satisfaction](#), satisfaction with dietetic service, patient-reported experience measures).

An [AH-TRIP](#) approach should be used to implement improvements where indicated by audits/interviews.

### For clinical care:
- **Mealtime monitoring/meal rounds, and weight:** Weekly
- **Malnutrition reassessments:** Fortnightly in acute care or as clinically indicated dependent on the patient's clinical condition and/or facility.

### For service delivery:
- At least annually or pre/post service changes

### Toolkit for audit resources:
https://tpch.qld.libguides.com/simple/toolkit
**POST-ACUTE CARE AND CARE ACROSS THE CONTINUUM**

<table>
<thead>
<tr>
<th>Discharge planning has been shown to improve patient outcomes; but rarely considers nutrition.</th>
<th>Provide brief &amp; individualised nutrition education, with simple accompanying written information for patients and families/carers (<a href="#">Nutrition Education Materials Online examples</a>).</th>
<th>Dietitian; Nursing &amp; Medical staff; AHAs; MDT</th>
<th>Throughout the continuum of care: • Hospital • Subacute • Residential Care • Community</th>
<th>Dependent on case complexity and patient consent. Ideally some community follow-up (i.e. community nurses, GP) should be received within a week post-discharge from hospital.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dietitians should: - commence (or delegate) discharge planning from initial assessment, - advice should be provided regarding use of food as supplements, - consider recommendation for oral nutrition supplements, in consideration of common barriers to compliance e.g. supplement fatigue (especially if taken during the hospital admission), cost, access, cognition/memory, - advocate for appropriate nutrition monitoring and follow-up in the community to prevent malnutrition; for example referrals to nutrition-related services ( domiciliary agency supports: shopping assistance, meal preparation; home delivered meals options, welfare services for emergency meal packs), other AH professionals (i.e. social workers for welfare support, exercise physiologists for muscle repletion), - ensure that adequate information is provided to GPs/community services.</td>
<td>Communicate nutrition care plans to carers, community dietitians, GPs and community services through discharge summary or letter.</td>
<td>Family members, carers and the patient themselves should be involved in discharge planning</td>
<td>Post-acute dietetic follow-up shows promise; improvements seen in nutritional status, function and mortality.</td>
<td>(11, 46-48)</td>
</tr>
</tbody>
</table>

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*Note: The table continues with additional information on post-discharge follow-up and community services.*
References:


### Appendix One: Summary of Edits

**Summary malnutrition evidence chapter review edits from the update to volume 2.0**

<table>
<thead>
<tr>
<th>Changes to the FEEDS chapter as per the <em>adult</em> review teams</th>
<th>Changes to the FEEDS chapter as per the <em>paediatric</em> review teams</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Added</strong></td>
<td><strong>Added</strong></td>
</tr>
<tr>
<td><em>Introduction</em></td>
<td><em>Introduction</em></td>
</tr>
<tr>
<td>Added text re: triaging categories for nutrition care</td>
<td>Added text: <em>In addition to increasing infection risk and delaying wound health, paediatrics malnutrition also contributes to immune dysfunction and negatively impacts on physical and cognitive development (Mehta et al 2013).</em></td>
</tr>
<tr>
<td><strong>Screening and Assessment:</strong></td>
<td><strong>Why – reason for dietetic intervention</strong></td>
</tr>
<tr>
<td>Screening tools specific for sub-acute and community.</td>
<td>Added text: Standardised language, diagnostic criteria, medical chart coding, and reimbursement of paediatric malnutrition is crucial to measure process improvements. Malnutrition diagnosis should be based on recommended international indicators using anthropometric Z-scores.</td>
</tr>
<tr>
<td>Refeeding syndrome screening, assessment/diagnosis and intervention sections.</td>
<td><strong>How:</strong></td>
</tr>
<tr>
<td>Additional information within nutritional interventions sections including practical examples</td>
<td>Added text: Documentation should include anthropometric indicators of growth including weight, length/height, BMI percentiles and BMI Z-score at minimum. Severity of malnutrition (mild, moderate, severe) should be included</td>
</tr>
<tr>
<td><strong>Changed</strong></td>
<td><strong>Frequency for intervention</strong> –</td>
</tr>
<tr>
<td>Micronutrient section based on updated literature.</td>
<td>Added text: Baseline nutrition screening and assessment completed on admission</td>
</tr>
<tr>
<td>Broken links updated where required</td>
<td>Ongoing care dependent of severity of malnutrition.</td>
</tr>
<tr>
<td>List of references updated and formatted</td>
<td><strong>Changed</strong></td>
</tr>
<tr>
<td></td>
<td>Links to NEMO HPHE resources changed to link to NEMO paediatric page</td>
</tr>
<tr>
<td><strong>Removed</strong></td>
<td>Becker et al, 2014 – referencing updated for consistency</td>
</tr>
<tr>
<td>Nil</td>
<td><strong>Removed</strong></td>
</tr>
<tr>
<td></td>
<td>Nil</td>
</tr>
</tbody>
</table>
Appendix Two: Members of the FEEDS Implementation Steering Group

Chair:  
Jan Hill, Director Nutrition & Dietetics, Princess Alexandra Hospital, Metro South Hospital & Health Service

Secretary & Project Officer:  
Rhiannon Barnes, Statewide Program Manager Clinical Education & Training, Nutrition & Dietetics, Royal Brisbane & Women’s Hospital, Metro North Hospital & Health Service

Members:  
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Alan Spencer, Director Nutrition & Dietetics Gold Coast University Hospital, Gold Coast Hospital & Health Service
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Cristal Newman, Senior Dietitian, Roma Hospital, South West Hospital & Health Service
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Katie Barwick, Senior Dietitian, Lady Cilento Children’s Hospital, Children’s Health Queensland Hospital & Health Service
Liza-Jane McBride, Team Leader, Allied Health Professions’ Office Queensland
Sally McCray, Director Nutrition & Dietetics, Mater Group
Dr Merrilyn Banks, Director Nutrition & Dietetics, Royal Brisbane & Women’s Hospital, Metro North Hospital & Health Service
Mia Hemingbrough, Director Nutrition & Dietetics Central Queensland Hospital & Health Service
Dr Rachel Stoney, Director Nutrition & Dietetics, Redland Hospital & Wynnum Health Service, Metro South Hospital & Health Service
Rosemary Sander, Professional Lead Nutrition & Dietetics, Sunshine Coast Hospital & Health Service
Sally Courtice, Director Nutrition & Dietetics, QEII Hospital, Metro South Hospital & Health Service
Zoe Walsh, Team Leader, Community Indigenous & Subacute Services, Metro North Hospital & Health Service
Appendix Three: Prioritisation Guidelines for Nutrition Management for Paediatric Patients

<table>
<thead>
<tr>
<th>Author/custodian</th>
<th>Department of Dietetics &amp; Foodservices QCH</th>
</tr>
</thead>
<tbody>
<tr>
<td>Supersedes</td>
<td>nil</td>
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<tr>
<td>Applicable to</td>
<td>Dietitians involved in the care of paediatric patients</td>
</tr>
<tr>
<td>Authorisation</td>
<td>Chair, Paediatric Working Group, Dietitians and Nutritionists Strategic Coalition.</td>
</tr>
<tr>
<td>Approved date</td>
<td>08/08/2019</td>
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</tbody>
</table>

**Purpose**
To ensure that all dietetics referrals are prioritised according to clinical need and safety.

**Scope**
This guideline can be utilised by paediatric hospital services throughout Queensland.

**Related documents**
*Policy and standard(s)*
- The NSQHS Standards (second edition), Standard 5 Comprehensive Care, Actions 5.27 and 5.28 Nutrition and Hydration.
## Guidelines

### 1. Inpatients

<table>
<thead>
<tr>
<th>Acuity</th>
<th>Reason for Intervention</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Priority 1 A</strong></td>
<td>- To be seen on day of referral (business day)</td>
</tr>
</tbody>
</table>
|                        | • Nutrition review to facilitate imminent discharge  
|                        | • Severe/moderate malnutrition (infant)  
|                        | • Severe malnutrition (child)  
|                        | • Inborn error of metabolism requiring a therapeutic diet  
|                        | • Commencement/ charting/ ordering of parenteral nutrition  
|                        | • Commencement and ordering of enteral nutrition (where feeds have not previously been started))  
|                        | • Burns patient requiring nutrition support  
|                        | • New chylothorax  
|                        | • Therapeutic diet provision where diet impacts on clinical care (e.g. renal, diabetes, allergies, metabolic, ketogenic diets)  
|                        | • Provision of feeding plan or special formula for new admission of complex/multiple food allergies                                                                                                                                 |
| **Priority 1B**         | - To be seen within 24 hour of referral (business day)  
|                        | - Conditions where delaying the commencement of nutrition intervention will significantly disadvantage patient outcome and/or delay discharge                                                                                                                                 |
|                        | • Cardiac patient with feed intolerance  
|                        | • Newly diagnosed Crohn's disease for exclusive enteral nutrition  
|                        | • Newly diagnosed Coeliac disease for gluten free diet education  
|                        | • Severe intolerance of enteral nutrition  
|                        | • Eating disorder (new admission)  
|                        | • Newly diagnosed patient with Type 1 Diabetes
### Priority 2
- To be seen within 2 business days of referral
- Patients who are likely to remain admitted the following day but would not be significantly disadvantaged by delaying nutritional intervention for >24 hours

- Nutrition review to prepare for safe and timely discharge where discharge is not imminent
- Mild mainutrition (infant)
- Moderate/mild malnutrition (child)
- Review of established enteral nutrition
- Perform nutrition assessment/organise food services for Cystic Fibrosis, Prader-Willi Syndrome (new admission/diagnosis)

### Priority 3
- To be seen within 3-5 business days of referral
- Patient may be about to be discharged but conditions are not urgent, and patient may be seen as an outpatient
- Refer to relevant outpatient clinic if unable to see as an inpatient
- Note for family centred care best practice is to see these patients if possible while an inpatient

- General dietary education
- Fussy eating
- Introduction of solids for typically developing infants
- Poor appetite in children
- Iron deficiency (new diagnosis)
- Weight management (including type 2 diabetes unless specific meal plan required for insulin dosing; refer to Priority 1B)
- Constipation (new diagnosis)
- Simple food allergies
- Food preferences where clinical care is not impacted (refer to nutrition assistant)
- Irritable bowel syndrome
- Renewal of HENS (not expired/with adequate feed supply at home)
Frequency of review – clinical judgement is required; recommendations below are a guide only

<table>
<thead>
<tr>
<th>Condition</th>
<th>Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type 1 Diabetes</td>
<td>Daily review as required until education completed, to assist in timely discharge (usually 1 x initial and 1 x review required).</td>
</tr>
<tr>
<td>Eating disorder</td>
<td>Daily review until meal plan is established</td>
</tr>
</tbody>
</table>
| Initiating enteral/parenteral nutrition | 2-3 times per week.  
                                          Daily if re-feeding risk or otherwise indicated. |
| Stable enteral/parenteral nutrition | Once/twice per week                |
| Therapeutic diet                  | Once per week                      |
| Oral nutrition support            | Once/twice per week                |
| Bone Marrow Transplant            | 2-3 times per week                 |
| Critical Care                     | 2-3 times per week                 |

Consultation

Key stakeholders who reviewed this version:

- Melinda White – Chair, Paediatric Working Group, Dietitians and Nutritionists Strategic Coalition; Acting Director, Department of Dietetics & Foodservices, Queensland Children’s Hospital (QCH)
- Kristie Bell – Acting Dietitian Consultant, Department of Dietetics & Foodservices, QCH
- Nicole Ross – Senior Paediatric Dietitian, Nutrition Department, Gold Coast University Hospital
- Justin Wright – Senior Dietitian, Allied Health Womens’ and Family Service, Sunshine Coast University Hospital.
## Definition of terms

<table>
<thead>
<tr>
<th>Term</th>
<th>Definition</th>
<th>Source</th>
</tr>
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<tbody>
<tr>
<td>HENS</td>
<td>Home Enteral Nutrition</td>
<td></td>
</tr>
</tbody>
</table>

## Guideline revision and approval history

<table>
<thead>
<tr>
<th>Version No.</th>
<th>Modified by</th>
<th>Amendments authorised by</th>
<th>Approved by</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.0</td>
<td>Michelle Fuery, Jemma Woodgate, Katie Barwick, Eimear Mahon</td>
<td>Dr. Melinda White</td>
<td>Chair, Paediatric Working Group, Dietitians and Nutritionists Strategic Coalition.</td>
</tr>
</tbody>
</table>

### Keywords
- Prioritisation, nutrition, paediatric inpatients

### Accreditation references
- NSQHS Standards (1-10): 5. Comprehensive Care