An Evidenced-Based Demand Management Toolkit for Dietetic Services

Framework for Effective & Efficient Dietetic Services

FOOD ALLERGY AND INTOLERANCE
FEEDS Version 3.0

Queensland Government

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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.

FEEDS

Contents

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:

	Why – reason for dietetic intervention	***How***	***Who***	***Where***	***Frequency for intervention***	***Comments/ Evidence***	
Description of Condition or Intervention Type							
	HIGH PRIORITY *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)*	*Describes how the intervention should be conducted* *In some areas, this may also specify instructions or considerations for intervention*	*Nominates individuals responsible for completing interventions*	*Describes the setting in which interventions can safely occur*	*Determines how often the intervention should be conducted*	*References that should consulted for further information or support in delivering intervention.*	
	MEDIUM PRIORITY	*E.g. Individual patient consults*	*E.g. Dietitian*	*E.g. Throughout continuum of care e.g. home, hospital, subacute*	*E.g. As clinically indicated*		
	LOW PRIORITY						
	HIGH PRIORITY AT AN ORGANISATIONAL LEVEL						
Paediatrics							
The paediatric elements within each chapter have not been categorised in priority level. Instead, please refer to the prioritisation guideline (appendix three(3))							

List of Abbreviations

AHA
Allied Health Assistant

APD
Accredited Practising Dietitian

BGL
Blood Glucose Level

BMI
Body Mass Index

BMR
Basal Metabolic Rate

CDE
Credentialed Diabetes Educator

CHO
Carbohydrate

CKD
Chronic Kidney Disease

CVD
Cardiovascular Disease

EN / EEN
Enteral Nutrition / Exclusive Enteral Nutrition

HPHE
High Protein, High Energy (Diet)

IDNT
International Dietetics & Nutrition Terminology

MDT
Multidisciplinary Team

MJ / kJ
Mega-Joule / kilo-Joule

MNT
Medical Nutrition Therapy

MST
Malnutrition Screening Tool

NGT
Nasogastric Tube

NRV
Nutrient Reference Values

PERT
Pancreatic Enzyme Replacement Therapy

PG-SGA
Patient-Generated Subjective Global Assessment

PICU
Paediatric Intensive Care Unit

PN / TPN
Parenteral Nutrition / Total Parenteral Nutrition

Pt
Patient

QOL
Quality of Life

SGA
Subjective Global Assessment

T1DM
Type I Diabetes Mellitus

T2DM Type 2 Diabetes Mellitus

Document Revision History

Version No.	Created/Modified by	Date	Content/Amendments details	Approved by
FEEDS Toolkit				
3.0	Rhiannon Barnes Anna Edwards	03/04/2020	External review and template editing to FEEDS Version 3.0	Rhiannon Barnes
2.0	Rhiannon Barnes Emily Molyneux Melinda Booker	05/07/2016	Reformatting the FEEDS Toolkit into separate evidence areas using Queensland Health approved font in preparation for publishing to NEMO	FEEDS Implementation Steering Group
2.0	Rhiannon Barnes	21/06/2017	Rebranding of the FEEDS Toolkit to the 'purple' watercolour template	FEEDS Implementation Steering Group
2.0	Rhiannon Barnes	07/06/2017	Development and inclusion of Creative Commons section on page 2 of the FEEDS Toolkit	FEEDS Implementation Steering Group
2.0	Rhiannon Barnes	15/03/2017	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	Jan Hill Teresa Brown FEEDS Implementation Steering Group
2.0	Rhiannon Barnes	21/02/2017	Updates to contributors across all FEEDS chapter areas Updates to content across most evidence areas# Update to 'Introduction Evidence Areas'	FEEDS Implementation Steering Group
2.0	Rhiannon Barnes	22/02/2017	Added new FEEDS Sub-Acute Evidence Area developed by Jillian Ross, Zoe Walsh and the Metro North Dietetic CISS team	FEEDS Implementation Steering Group
2.0	Rhiannon Barnes	22/02/2017	Updates to the 'Introduction Evidence Areas' to include a statement on directing dietitians to PEN for additional evidence areas	FEEDS Implementation Steering Group
Diabetes				
1.1	Lindsey Johnson	06/05/2015	Updates to contributors and modifications to include accepted terminologies	Jacqueline Cotungo
Malnutrition				
0.1	Lindsey Johnson	03/03/2015	*Malnutrition in the Frail Elderly* revised and changed to *Malnutrition* with some associated content changes	Jan Hill
Oncology				
0.1	Lindsey Johnson	04/03/2015	Amendment to listed references	Melina de Corte
Renal				
0.1	Lindsey Johnson	06/03/2015	Formatting updated and minor content changes to *Renal*	Kylie Boyce & Simone McCoy
Respiratory Disease				
0.1	Lindsey Johnson	04/03/2015	Phrasing within *Respiratory Disease* changed in order to improve accuracy	Jenna Stonestreet

 # 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: Food Allergy and Food Intolerance

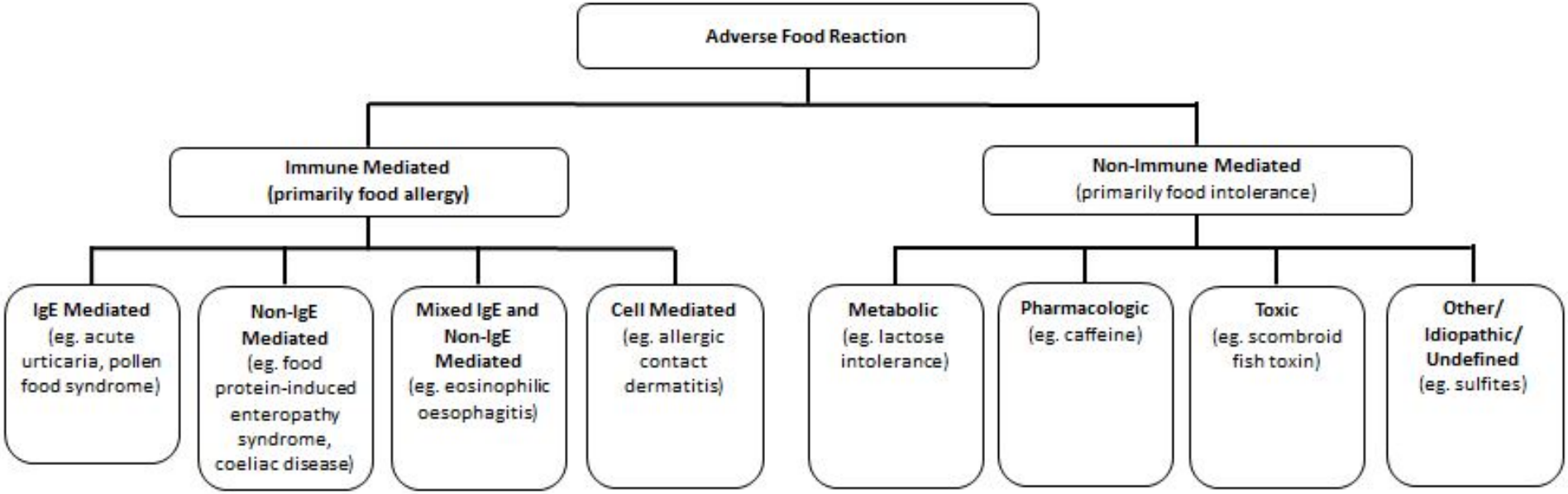
V2.0 Contributors: Amy Nevin, Kathy Beck
V2.1 Contributors: Amy Nevin, Kathy Beck, Melissa De Vaney, Rebecca Angus, Imogen Randall, Jacqui Willcox, Susan Edwards, Kara Daymon.

The role of Accredited Practicing Dietitians (APD) in the management of individuals who have food allergy or food intolerance is to provide medical nutrition therapy in accordance with evidence, where available.
APDs are required to educate food allergic individuals and/or their carers on how to eat a safe, allergen free, nutritionally adequate diet. Food service dietitians also play a vital role in managing food production systems that protect consumers with food allergy from being exposed to specific food allergens. Care facilities, hospitals, schools and restaurants should consult an APD experienced in food allergy to ensure food is safe for consumers.[1]

Food allergy is an adverse immune response that occurs reproducibly on exposure to a given food.[2] Food intolerance does not involve the immune system but symptoms can be similar for some individuals. Further, food intolerance may occur simultaneously with food allergy in some people, so the cause of symptoms may be difficult to ascertain. The difference between food allergy and food intolerance is explained further on the Australasian Society of Clinical Immunology and Allergy (ASCIA) website.[3] The different types of food allergies and intolerances are outlined below in Figure 1.[2]

Food allergy is common in Australia. Prevalence of food allergy is 5-10% in children and 2-4% in adults.[4] The most common foods causing over 90% of food allergies in Australia are peanuts, tree nuts, cow's milk (dairy), egg, soy, fish, shellfish, sesame and wheat.[4] Food allergy can change over the course of a person's life. For example, most children allergic to cow's milk, soy, wheat or egg will outgrow the food allergy. Eighty-five percent of young children outgrow milk or egg allergies by 3-5 years of age, while allergic reactions to peanut, tree nuts, sesame and seafood persist in approximately 75% of children affected.[5] Although rare, food allergy can present for the first time in adulthood.

Figure 1 – Adverse Food Reactions



Diagnosing a food allergy involves assessment by an Allergist or Immunologist who takes a detailed medical history in conjunction with skin prick testing (SPT) and / or serum specific IgE testing. Note that a positive result on a skin prick test or serum specific IgE test in the absence of any reaction when the food is consumed usually means the food ***does not*** need to be removed from the diet. If unsure, contact the individual's treating Allergist or Immunologist.

It is not the dietitian's role to diagnose food allergy but dietitians can assist the treating Allergist or Immunologist by:

- Obtaining a detailed allergy focused diet history
- Supervising restricted diets to ensure optimal growth (paediatrics) and adequate long-term nutrition (adults)
- Providing dietetic support for oral food allergen challenges

Unorthodox methods for 'allergy testing' can lead to unnecessary food exclusion which can lead to nutritional deficiencies, induction of IgE-mediated food allergy and an unnecessary emotional burden. The ASCIA website has a resource to help guide discussions with individuals regarding unorthodox allergy tests.[6]

Food allergy can be IgE or Non-IgE mediated (Figure 1). IgE-mediated food allergy occurs when allergens bind to immunoglobulin E (IgE) antibodies bound to mast cells, causing release of histamine, cytokines and other inflammatory mediators. Symptoms usually occur rapidly within minutes or within 2 hours. Non IgE-mediated food allergy does not involve IgE although the exact mechanism is unknown.

IgE-mediated food allergy can produce a range of symptoms that vary in severity. Mild to moderate symptoms include:

- Swelling of lips, face or eyes
- Urticaria and angioedema
- Tingling mouth
- Abdominal pain and/or vomiting
- Eczema or rashes

Severe reactions such as anaphylaxis can also occur, even when previous reactions have been mild. Severe symptoms include:

- Difficult or noisy breathing
- Tongue swelling
- Swelling / tightness in throat
- Difficulty talking / hoarse voice or hoarse cry in children
- Persistent cough
- Dizziness or collapse
- Infants turning pale and floppy

Death from anaphylaxis does occur and is associated with

- Delayed or no adrenaline (EpiPen)
- Upright posture during anaphylaxis
- Co-existing asthma

The highest risk of fatal anaphylaxis occurs when eating away from home, in those with peanut or tree nut allergy, and in teenagers and young adults due to risk taking behaviour and failure to carry an epipen.

All food allergic individuals should have an individualised action plan. These should be completed by a GP, Allergist or Immunologist.[7]

The most common food allergies are discussed in this FEEDS chapter. This is *not* an exhaustive list of food allergies. While less common food allergies are mentioned, they require management by an Allergist or Immunologist and an APD experienced in food allergy. Links to further reading (PubMed abstracts, where links to full text articles can be found if available) and resources are provided in the comments/evidence column.

Allergy-safe food in hospitals and other health care facilities is essential.
The provision of allergy-safe food is encompassed by the NSQHS (The National Safety and Quality Health Service Standard 2nd Edition)[8]

Some commonly used abbreviations in food allergy and food intolerance

FA Food Allergy

FI Food Intolerance

SPT Skin Prick Test

SCIT Subcutaneous Immunotherapy

SLIT Sublingual Immunotherapy

IgE/IgA E type Immunoglobulins/A type Immunoglobulins

ASCIA Australasian Society of Clinical Immunology and Allergy

	Why – reason for dietetic intervention	*How*	*Who*	*Where*	*Frequency for intervention*	*Comments/ Evidence*	
FOOD ALLERGY IN ADULT POPULATIONS – OVERVIEW OF THE NUTRITION CARE PROCESS							
	A dietitian should conduct a focused nutrition assessment targeting: • Identification of trigger foods • Symptoms • Management plan • Foods avoided and reason • Foods tolerated • Accidental exposure • Allergen substitution strategies • Food label reading knowledge • Nutritional supplement intake • Nutritional adequacy • Cross check of common dietary allergens • Knowledge levels regarding allergen avoidance The dietitian should then provide appropriate nutrition education targeting the following: • Strategies to achieve a nutritionally adequate diet Allergen avoidance such as label reading and cross-contamination awareness.	Individual consults	Dietitian in conjunction with an Allergy Specialist	Inpatient or Outpatient/Community settings (including specialist clinics)	At time of diagnosis, at each review and as clinically indicated	Further reading: • https://www.allergy.org.au/images/pcc/ASCIA_PCC_Food_Allergy_2019.pdf • https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4349299/ Useful resources: • https://www.health.qld.gov.au/__data/assets/pdf_file/0029/662492/allergy_labelreading.pdf	
	Education regarding non-food sources of food allergens such as those found in over the counter supplements or prescribed medications.	Individual consults	Dietitian in conjunction with an Allergy Specialist	Inpatient or Outpatient/Community settings (including specialist clinics)	At time of diagnosis & as clinically indicated		

	Education to facilitate access to safe food for individuals travelling overseas.	Individual consults	Dietitian in conjunction with an Allergy Specialist	Outpatient/Community setting	Several weeks prior to travelling	Useful resources: • https://www.allergyfacts.org.au/allergy-management/risk/travelling-with-allergies • https://www.allergy.org.au/images/stories/anaphylaxis/2016/ASCIA_PCC_Travelling_with_allergy_checklist_2016.pdf • https://allergyfacts.org.au/images/pdf/Airline_comparison_for_food_allergic_passengers.pdf	
MAMMALIAN MEAT ALLERGY (ALPHA GAL ALLERGY)							
	Dietitians should conduct a focused nutrition assessment and provide education aimed at supporting individuals to avoid mammalian meats and its constituents. Mammalian milks (i.e. dairy, goat) may also need to be avoided in selected cases. Education may also be required regarding medications containing meat by-products.	Individual consults	Dietitian	Inpatient or Outpatient/Community settings (including specialist clinics)	At time of diagnosis	Further reading: • https://www.allergy.org.au/images/pcc/ASCIA_PCC_Tick_Allergy_2019.pdf • Tick Induced Allergy Research and Awareness (TIARA) – www.tiara.org Useful resources: • https://allergyfacts.org.au/images/pdf/Mammalian.pdf	
	Dietitians may need to conduct a focused assessment and intervention to reduce the risk of micronutrient deficiencies (in particular iron, vitamin B12 +/- calcium).	Individual consults	Dietitian	Community setting	As clinically indicated		

CHRONIC SPONTANEOUS URTICARIA (CSU)							
	The use of a pseudo-allergen free diet (also known as an elimination diet; i.e. limiting food additives, preservatives, dyes, vasoactive and aromatic compounds such as amines, salicylates, glutamates) may provide additional benefit in CSU as an addition to standard therapy. The dietitian should conduct a focused nutrition assessment and provide appropriate education aimed at: • Completing an elimination diet, tailored to the individual wherever possible • Minimising the risk of nutritional deficiencies.	Individual consults	Dietitian	Community setting	At time of diagnosis, or as clinically indicated	Further reading: • https://www.allergy.org.au/images/pcc/ASCIA_PCC_Hives_Urticaria_2019.pdf • https://www.allergy.org.au/images/stories/pospapers/ASCIA_Guidelines_Chronic_Urticaria_2015.pdf • https://www.allergy.org.au/patients/food-other-adverse-reactions/food-intolerance	
	Dietitians should provide education and guidance regarding safe food re-introduction and challenges, again while minimising the risk of nutritional deficiencies.	Individual consults	Dietitian		Following completion of an elimination diet trial	Further reading: • https://www.slhd.nsw.gov.au/rpa/allergy/resources/foodintol/foodchallenge.html	
	Ideally, dietitians should conduct a final nutrition assessment to determine and facilitate the long-term nutritional adequacy for those requiring ongoing dietary restriction. Goals of MNT are to liberalise the diet as much as possible whilst managing symptoms.	Individual consults	Dietitian		Once all re-introductions and food challenges are completed		

POLLEN-FOOD SYNDROME (PREVIOUSLY ORAL ALLERGY SYNDROME OR OAS)							
	Pollen-food syndrome occurs mainly in adolescents and adults who suffer from allergic rhinitis, and who are sensitised to inhalant allergens (such as birch pollen). The dietitian should conduct a focused nutrition assessment and provide education in cases where: • There are multiple food triggers resulting in a restrictive diet • The reactions are severe, such as those resulting in anaphylaxis.	Individual consults	Dietitian	Community setting	At time of diagnosis, or as clinically indicated	Further reading: • https://www.allergy.org.au/images/stories/pospapers/ASCIA_HP_Clinical_Update_Food_Allergy_2017_dietitian_version.pdf (page18)	
	In individuals with multiple food triggers, nutrition assessment and education should be undertaken aimed at minimising the risk of nutritional deficiency, where relevant.	Individual consults	Dietitian	Community setting	As clinically indicated		
FOOD CHEMICAL SENSITIVITY							
	Some symptoms of food chemical sensitivity may be similar to those of food allergy (i.e. urticaria, angioedema, anaphylaxis) and it is imperative that individuals presenting with these are first assessed by an Allergist or Immunologist prior to nutritional intervention. Once food allergy has been ruled out, the Dietitian should assess for potential food chemical sensitivity and, where indicated: • Conduct a focused nutrition assessment	Individual consults	Dietitian	Community setting	At time of diagnosis, or as clinically indicated	Further reading: • https://www.allergy.org.au/images/pcc/ASCIA_PCC_Food_intolerance_2019.pdf • https://www.slhd.nsw.gov.au/rpa/allergy/resources/foodintol/default.html Useful resources: • https://www.allergy.org.au/images/pcc/ASCIA_PC	

	• Provide education to support the trial of an elimination diet that is tailored to the individual wherever possible, with a focus on minimising the risk of nutritional deficiencies.					C_Sulfite_sensitivity_2019.pdf	
	Dietitians should provide education and guidance regarding safe food re-introduction and challenges, again while minimising the risk of nutritional deficiencies.	Individual consults	Dietitian	Community setting	Following completion of an elimination diet trial	Further reading: • https://www.slhd.nsw.gov.au/rpa/allergy/resources/foodintol/foodchallenge.html	
	Ideally, dietitians should conduct a final nutrition assessment to determine and facilitate long term nutritional adequacy for those requiring ongoing dietary restriction. Goals of MNT are to liberalise the diet as much as possible, whilst managing symptoms.	Individual consults	Dietitian	Community setting	Once all re-introductions and food challenges are completed		
LESS COMMON FOOD ALLERGIES							
	A focused nutrition assessment and education by an experienced dietitian is recommended for conditions including but not limited to: • Systemic mastocytosis • Food dependent exercise induced anaphylaxis (see paediatric section) • Latex-food allergy.	Individual consults	Dietitian with experience in food allergies in conjunction with an Allergist or Immunologist	Inpatient or Outpatient/Community settings (including specialist clinics)	At time of diagnosis and ongoing reviews as clinically indicated	Useful resources: • https://www.anaphylaxis.org.uk/wp-content/uploads/2015/06/Exercise-induced-anaphylaxis-V7-formatted.pdf • https://www.betterhealth.vic.gov.au/health/conditionsandtreatments/latex-allergy	

FOODSERVICE MANAGEMENT OF ALLERGIES AND INTOLERANCES							
	All food allergies and intolerances should be correctly identified on admission and: • Documented clearly in the medical chart • Communicated to the nursing staff • Recorded within the menu management system and/or relayed to the relevant foodservice staff.	As part of routine admission procedure	As per local facility protocol e.g. Dietitian, Dietetic/Nutrition Assistant in conjunction with nursing and foodservice Staff	Any facility that provides a foodservice system to patients for example acute, subacute or residential aged care facilities	As clinically indicated; However long stay patients with multiple allergies on restrictive diets may need more frequent review.	Further reading: • https://www.nationalallergystrategy.org.au/images/doc/Food_Allergen_Best_Practice_Guideline.pdf • http://www.foodallergytraining.org.au/	
	Organisational approaches to ensure the foodservice system continues to meet the concerns and needs of consumers with food allergies. These approaches can greatly benefit from extensive Dietitian involvement and advocacy.	May include activities such as meal accuracy audits or ingredient / product checking	Dietitian in conjunction with foodservices and other stakeholders	Any facility that provides a foodservice system to patients for example acute, subacute or residential aged care facilities	Per local organisation procedures	See FEEDS Foodservice chapter for more information	
FOOD ALLERGY IN PAEDIATRIC POPULATIONS – GENERAL OVERVIEW OF THE NUTRITION CARE PROCESS							
	A dietitian should conduct a focused nutrition assessment targeting: • Identification of allergic triggers • Common symptoms and warning signs • Sources of hidden allergens • Assessing nutritional adequacy via 24-hour recall or a 3-day food diary • Foods currently avoided and why	Individual consults	Dietitian with experience in food allergies in conjunction the MDT (Paediatric allergist or paediatrician)	Inpatient, Outpatient or Community settings (including specialist clinics)	As clinically indicated Initial consultation and every review	Further reading: • https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4349299/ • https://www.ncbi.nlm.nih.gov/pubmed/29315948	

	• Allergen substitution strategies • Food label reading knowledge • Plan to effectively manage accidental exposures to known allergens • Nutritional supplement intake • Cross check common sources of trigger allergen/s • Cross check common allergens in current diet • Formula changes • Current foods tolerated and mealtime environment • Feeding development. The dietitian should then provide appropriate education to parents/carers targeting the following: • Strategies to achieve a nutritionally adequate diet • Allergen avoidance such as label reading and cross-contamination awareness.						
FOOD ALLERGY PREVENTION							
	Introduction of common food allergens is recommended to all infants, especially those who have eczema and/or egg allergy. It is now known that sensitisation to allergens occurs via the skin and consumption of a particular food induces oral tolerance to that food.	Individual consults and group settings	All healthcare workers	All settings	As indicated	Further reading: • https://www.allergy.org.au/images/pcc/ASCIA_Guidelines_infant_feeding_and_allergy_prevention.pdf	

	The dietitian should conduct a focused nutrition assessment and provide counselling recommending that: • The introduction of solid foods should occur at around six months (but not before four months, and only when the infant is ready) starting with a variety of solid foods and prioritising iron rich foods, whilst breastfeeding continues • All infants be given allergenic solid foods including peanut butter, cooked egg, dairy and wheat products within the first year of life.					• https://www.allergy.org.au/images/stories/pospapers/ASCIA_HP_Clinical_Update_Infant_Feeding_and_Allergy_Prevention_July2018.pdf • https://www.allergy.org.au/images/stories/pospapers/ASCIA_HP_guide_introduction_peanut_infants_2017.pdf • https://www.allergy.org.au/images/pcc/ASCIA_PCC_How_to_introduce_solid_foods_FAQ_2018.pdf • https://www.ncbi.nlm.nih.gov/pubmed/25705822 • https://www.ncbi.nlm.nih.gov/pubmed/28499774	
COW'S MILK ALLERGY (CMA)							
	The prevalence of CMA in 12-month-old infants in Australia is approximately 2 – 3%. While there are different phenotypes of CMA, most resolve by 2-3 years of age. As cow's milk is the main source of nutrients in the absence of breast milk in infants, exclusion increases the risk of inadequate growth and nutritional intake; reduced bone mineral density; and poor long-term health, all of which can be prevented with appropriate dietary intervention by an experienced dietitian.	Individual consults	Dietitian with experience in food allergies in conjunction with the MDT (Paediatric allergist or paediatrician)	Inpatient, Outpatient or Community settings (including specialist clinics)	As clinically indicated Infants: 1–2 monthly Children: 3–12 monthly	Further reading: • https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5567723/ • https://www.ncbi.nlm.nih.gov/pubmed/21377036 • https://www.ncbi.nlm.nih.gov/pubmed/12449289 • https://www.ncbi.nlm.nih.gov/pubmed/27244780 • https://www.ncbi.nlm.nih.gov/pubmed/25039044	

	The dietitian should complete a focused nutrition assessment targeting nutritional adequacy of the diet including at-risk nutrients including but not limited to energy, protein, fat, essential fatty acids, calcium and vitamin D. Counselling should also be provided regarding: • Strategies to achieve a nutritionally adequate diet • Allergen avoidance and appropriate substitutions. Note that alternatives to cow's milk-based formula require specialist assessment and prescription for infants aged <6 months.					• https://www.ncbi.nlm.nih.gov/pubmed/23937486 • https://www.ncbi.nlm.nih.gov/pubmed/28707418 • https://www.ncbi.nlm.nih.gov/pubmed/24933388 Useful resources: • https://www.allergy.org.au/patients/food-allergy/cows-milk-dairy-allergy • https://www.allergy.org.au/patients/food-allergy/ascia-dietary-avoidance-for-food-allergy/cows-milk-dairy	
INTRODUCTION OF BAKED COW'S MILK FOR CMA							
	For individuals with CMA, introduction of baked milk may be recommended after an allergist assessment. Note that baked milk ***should not*** be introduced in children with: • A history of severe reactions • No reduction in SPT diameter • Asthma requiring an inhaled steroid • IgE-mediated allergies to >3 foods Introduction of baked milk can improve nutritional intake in children with CMA. It is the dietitians role to provide education on safe introduction of baked cow's milk (CM). Following a successful oral food challenge with baked milk, allowed foods include:	Individual consults	Dietitian with experience in food allergies in conjunction with the MDT (Paediatric allergist or paediatrician)	Inpatient, Outpatient or Community settings (including specialist clinics)	As clinically indicated Initial consultation and every review	Further reading: • https://www.ncbi.nlm.nih.gov/pubmed/28852472 • https://www.ncbi.nlm.nih.gov/pubmed/23510952 See below paper for a suitable cake recipe containing baked cow's milk: • https://www.ncbi.nlm.nih.gov/pubmed/25577613 Advise cake with 1 cup milk baked at 180°C for	

	• Commercial **baked** products with CM listed as the 3rd ingredient or further down ingredient list • Home-baked products with ≤1/6 cup of CM/serve. Ongoing avoidance of baked products with CM as the 1st or 2nd ingredient is recommended, along with any product that contains CM that has not been baked.					30 mins (must be baked until not soggy in middle)	
EGG ALLERGY							
	The prevalence of egg allergy in 12-month-old infants in Australia is approximately 9% which reduces to 1 – 2% by school age. The dietitian should conduct a focused nutrition assessment and provide counselling regarding the following: • Avoidance of the whole egg • Avoiding duck and quail eggs as these contain similar proteins to a chicken egg • Reassurance that all routine vaccinations including MMR and the Influenza vaccination can be safely given to children with a known egg allergy • Egg lecithin and egg emulsifier are based on the fat component of the egg and are very unlikely to cause a reaction.	Individual consults	Dietitian with experience in food allergies in conjunction with the MDT (Paediatric allergist or paediatrician)	Inpatient, Outpatient or Community settings (including specialist clinics)	As clinically indicated Initial consultation and every review	Useful resources: • https://www.allergy.org.au/images/pcc/ASCIA_PCC_Dietary_avoidance_egg_2019.pdf	

PEANUT AND TREE NUT ALLERGY							
	The prevalence of peanut and tree nut allergy in 12-month-old infants in Australia is approximately 3% and 2% respectively. Peanut and tree nut allergy generally result in more severe symptoms, with peanut and cashew nut the most likely allergies to result in an anaphylactic reaction. The dietitian should conduct a focused nutrition assessment and provide counselling that aims to facilitate the strict avoidance of peanut (recommended for all peanut allergic children). Tree nut allergy coexists in approximately 20-30% of children also allergic to peanuts. Previously, all children allergic to peanuts were also advised to also avoid tree nuts; however, research demonstrates that tree nuts may be tolerated in approximately 30-40% of peanut allergic children. Pending allergist assessment and recommendation, active introduction of tree nuts (ensure to use a nut paste in young children) is recommended for up to 50% of children. This has been associated with improved quality of life and provides an additional high-quality protein source for vegetarians.	Individual consults	Dietitian with experience in food allergies in conjunction with the MDT (Paediatric allergist or paediatrician)	Inpatient, Outpatient or Community settings (including specialist clinics)	As clinically indicated Initial consultation and every review	Further reading: • https://www.ncbi.nlm.nih.gov/pubmed/28710890 • https://www.ncbi.nlm.nih.gov/pubmed/29315948 Useful resources: • https://www.allergy.org.au/patients/food-allergy/peanut-tree-nut-and-seed-allergy • https://www.allergy.org.au/patients/food-allergy/ascia-dietary-avoidance-for-food-allergy/peanut	

FISH AND SHELLFISH ALLERGY							
	The dietitian should conduct a focused nutrition assessment and provide counselling regarding the avoidance of fish and/or shellfish. Allergist assessment may recommend the gradual introduction of alternative fish sources, such as tuna or salmon. In this situation the dietitian may be required to support individuals in this process. Note that an allergy to both fish and shellfish is unusual.	Individual consults	Dietitian with experience in food allergies in conjunction with the MDT (Paediatric allergist or paediatrician)	Inpatient, Outpatient or Community settings (including specialist clinics)	As clinically indicated Initial consultation and every review	Further reading: • https://www.ncbi.nlm.nih.gov/pubmed/29315948 Useful resources: • https://www.allergy.org.au/patients/food-allergy/allergic-and-toxic-reactions-to-seafood • https://www.allergy.org.au/patients/food-allergy/ascia-dietary-avoidance-for-food-allergy/fish https://www.allergy.org.au/patients/food-allergy/ascia-dietary-avoidance-for-food-allergy/shellfish	
WHEAT ALLERGY							
	Avoidance of wheat in children can result in a poor intake if not adequately replaced with wheat-free grains. The Dietitian is responsible for conducting a focused nutrition assessment and providing counselling regarding strict avoidance and appropriate foods to substitute. Note that the following ingredients made from wheat are tolerated by most individuals with a wheat allergy: • Dextrose (from wheat)	Individual consults	Dietitian with experience in food allergies in conjunction with the MDT (Paediatric allergist or paediatrician)	Inpatient, Outpatient or Community settings (including specialist clinics)	As clinically indicated Initial consultation and every review	Useful resources: • https://www.allergy.org.au/patients/food-allergy/ascia-dietary-avoidance-for-food-allergy/wheat	

	• Glucose powder (from wheat) • Glucose syrup (from wheat).						
SOY ALLERGY							
	Soy is abundant in the food supply, as it is often used as a food additive. The dietitian is responsible for conducting a focused nutrition assessment and providing counselling regarding strict avoidance and appropriate foods to substitute. The following ingredients made from soy are tolerated by most soy allergic individuals: • Soy lecithin (additive 322) • Soy bean oil • Soy free breads include flat breads and sourdough, but labels should still be checked. The potential presence of a soy allergy and use of soymilk in a child with a cow's milk allergy requires close supervision. However, if tolerated soymilk use is recommended, as most other milk alternatives (such as rice, oat, almond) are not equivalent substitutes nutritionally for cow's milk as they are low in energy, protein and fat. Note that a prescription for an elemental or extensively hydrolysed formula may be required to supplement an oral diet if allergies persist after 2 years of age.	Individual consults	Dietitian with experience in food allergies in conjunction with the MDT (Paediatric allergist or paediatrician)	Inpatient, Outpatient or Community settings (including specialist clinics)	As clinically indicated Initial consultation and every review	Useful resources: • https://www.allergy.org.au/patients/food-allergy/ascia-dietary-avoidance-for-food-allergy/soy	

MULTIPLE FOOD ALLERGIES							
	Exclusion of multiple foods (≥3) can lead to inadequate macro- and micronutrient intake and thus may risk growth impairment. The dietitian should conduct a focused nutrition assessment, including close monitoring of growth (height/length). The dietitian is responsible for providing counselling and support regarding: • Elimination of multiple foods and appropriate substitutions • Prevention of feeding difficulties • Whether vitamin and mineral supplementation may be required.	Individual consults	Dietitian with experience in food allergies in conjunction with the MDT (Paediatric allergist or paediatrician)	Inpatient, Outpatient or Community settings (including specialist clinics)	As clinically indicated Initial consultation and every review	Further reading: • https://www.ncbi.nlm.nih.gov/pubmed/28707418 • https://www.ncbi.nlm.nih.gov/pubmed/23937486	
ANAPHYLAXIS							
	In infants and children with a history of anaphylaxis, maternal allergen avoidance may be necessary if breastfeeding, with consideration given to the potential need for nutritional supplementation. The dietitian should conduct a focused nutrition assessment including close monitoring of child growth. Counselling should also be provided on the following: • Alternative formula use (if under 12- 24 months) • Allergen avoidance (including trace and small amounts) and appropriate substitutions	Individual consults	Dietitian with experience in food allergies in conjunction with the MDT (Paediatric allergist or paediatrician)	Inpatient, Outpatient or Community settings (including specialist clinics)	As clinically indicated Initial consultation and every review		

	• Strategies to ensure adequate intake and optimal growth.						
ECZEMA							
	As good skin care is the most important way to manage eczema, it is important that foods are only excluded if proven to be a trigger. Unnecessary food exclusion can risk food allergy development, nutritional deficiencies, and faltering growth. Note that infants and children with eczema may have increased energy requirements, further increasing risk of suboptimal growth. After assessment by an allergist, the dietitian should conduct a focused nutrition assessment and provide counselling regarding the following: • Allergen avoidance and appropriate substitutions • Strategies to ensure adequate intake and optimal growth (including the use of high energy / high protein dietary modifications if relevant).	Individual consults	Dietitian with experience in food allergies in conjunction with the MDT (Paediatric allergist or paediatrician)	Inpatient, Outpatient or Community settings (including specialist clinics)	As clinically indicated	Further reading: • https://preventallergies.org.au/eczema/ • https://preventallergies.org.au/eczema/eczema-and-food-allergy/	
ORAL FOOD CHALLENGES							
	Oral food challenges (OFC) are used as a **diagnostic tool** to establish or exclude a diagnosis of food allergy. They may also be used as a **management tool** for assessment of tolerance in individuals with	Individual consults undertaken under close	Allergist, Nurse and Dietitian with experience in OFC	All settings	As clinically indicated		

	known food allergy. The timing of an OFC is a clinical decision made by the allergist and depends on the clinical history and specific allergen. An OFC starts with minute doses of an allergen (below the estimated threshold dose), followed by escalating amounts of allergen given at regular intervals: • Usually 15-30 minutes between doses • 2 hour waiting period after the final dose	medical supervision Unsupervised at home with appropriate guidance					
GROWTH FAILURE AND FOOD ALLERGY							
	Children with food allergies are at increased risk of growth failure. Dietitians are responsible for conducting a focused nutrition assessment including growth assessment and close monitoring. The dietitian should provide counselling regarding: • An allergen free, high energy high protein diet • Meal plans and recipe ideas • Supplementation, if indicated.	Individual consults	Dietitian with experience in food allergies in conjunction with the MDT (Paediatric allergist or paediatrician)	Inpatient, Outpatient or Community settings (including specialist clinics)	As clinically indicated		
FOOD DEPENDENT EXERCISE INDUCED ANAPHYLAXIS (FDEIA)							
	FDEIA is an anaphylactic reaction that occurs after any form of exercise (can occur after both light and heavy exertion). The most common food implicated in FDEIA is	Individual consults	Dietitian with experience in food allergies in conjunction with	Inpatient, Outpatient or Community settings (including specialist clinics)	As clinically indicated		

	wheat, where ingestion of foods containing wheat 1–4hrs prior to exercise and/or straight after exercise results in an anaphylactic reaction. Strict avoidance of wheat for 4-6 hours prior to exercise and immediately after is recommended, but some individuals must avoid it completely. For individuals with FDEIA, dietitians are responsible for conducting a focused nutrition assessment and providing counselling regarding appropriate avoidance of the trigger food, when known.		the MDT (Paediatric allergist or paediatrician)				
FOOD PROTEIN INDUCED ENTEROCOLITIS SYNDROME (FPIES)							
	FPIES is characterised by profuse vomiting, diarrhoea, lethargy, and in severe cases, shock. Cow's milk protein and soy are the most common triggers, but a wide range of other foods have also been shown to be implicated in the development of FPIES. Children with FPIES are at an increased risk of nutrient deficiencies, faltering growth and feeding difficulties, with an elevated risk in those with more than one trigger food. The dietitian is responsible for conducting a focused nutrition assessment, including assessment and monitoring of growth. Counselling should be provided regarding:	Individual consults	Dietitian with experience in paediatrics	All care settings	As clinically indicated	Further reading: • https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4405595/ • https://www.ncbi.nlm.nih.gov/pubmed/29315948	

	• Allergen avoidance, including level of avoidance and appropriate substitutions • Label reading – especially where the causal food in not a declarable allergen, for example rice • Strategies to ensure adequate intake and to manage the complementary feeding period.						
EOSINOPHILIC OESOPHAGITIS (EOE)							
	Treatment of EoE using dietary manipulation and strategies includes the following options: • Elimination diets (for example: six protein elimination diet) • Elemental formula Children with EoE are at an increased risk of nutrient deficiencies, faltering growth and feeding difficulties. The Dietitian should work closely with the Gastroenterologist regarding choice of an appropriate diet and schedule for repeat endoscopies. In addition to conducting a focused nutrition assessment including growth assessment and monitoring, the Dietitian should screen patients/carers for potential barriers to undertaking an elimination diet. Counselling should include: • Strategies to achieve a nutritionally adequate diet, including in the	Individual consults	Dietitian with experience in paediatrics in conjunction with the MDT (Nursing and Gastroenterology)	All care settings	4-6 weekly or as clinically indicated	Further reading: • https://www.ncbi.nlm.nih.gov/pubmed/29549437 • https://www.ncbi.nlm.nih.gov/pubmed/28283156	

	complementary feeding period, if relevant • Education regarding allergen avoidance, including level of avoidance and appropriate substitutions • Education regarding reintroduction of allergens and timing, in partnership with the gastroenterologist.						
FOOD PROTEIN INDUCED ENTEROPATHY (FPE)							
	FPE is characterised by diarrhoea, resulting in malabsorption, nutrient deficiencies and faltering growth. Cow's milk protein and soy are the most common triggers. The Dietitian should conduct a focused nutrition assessment including assessment and monitoring of growth, and provide counselling regarding: • Strategies to achieve nutritionally adequate intake, including in the complementary feeding period • Allergen avoidance, including level of avoidance and appropriate substitutions.	Individual consults	Dietitian with experience in paediatrics	All care settings	As clinically indicated	Further reading: • https://www.ncbi.nlm.nih.gov/pubmed/26174434	
FOOD PROTEIN INDUCED ALLERGIC PROCTOCOLITIS (FPIAP)							
	FPIAP is characterised by diarrhoea and bloody stools. Children with FPIAP are a medium priority as they are at less risk of	Individual consults	Dietitian with experience in paediatrics	All care settings	As clinically indicated	Further reading: • https://www.ncbi.nlm.nih.gov/pubmed/26174434	

	faltering growth and feeding difficulties. Like FPE and FPIES, cow's milk protein and soy are the most common food triggers and can be transferred from breastmilk. The dietitian may be required to conduct a structured nutrition assessment and provide education on the following: • Strategies to achieve a nutritionally adequate intake, for both mother and infant • Allergen avoidance, including level of avoidance and appropriate substitutions • In some cases, an elimination diet followed by allergen reintroduction may be required.					• https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4405595/ • https://www.ncbi.nlm.nih.gov/pubmed/22050274	
NUTRITIONAL MANAGEMENT OF MILD-TO-MODERATE NON-IGE MEDIATED COW'S MILK ALLERGY INCLUDING FPE AND FPIAP							
	Exclusion of cow's milk protein and subsequent reintroduction is essential for diagnosis of FPE and FPIAP. The dietitian is responsible for supervising cow's milk protein exclusion in the maternal and infant diet, and providing counselling regarding: • Strategies to ensure a nutritionally adequate diet • Allergen avoidance and appropriate substitutions • Reintroduction of cow's milk protein using the iMAP milk ladder.	Individual consults	Dietitian with experience in paediatrics	All care settings	As clinically indicated	Further reading: • https://www.allergyuk.org/health-professionals/mapguideline • https://www.ncbi.nlm.nih.gov/pubmed/29315948	

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Appendix One: Summary of Edits

Changes to the FEEDS chapter as per the *adult* review teams	Changes to the FEEDS chapter as per the *paediatric* review teams
Added Nil **Changed** Nil **Removed** Nil	**Added** Nil **Changed** Nil **Removed** Nil

Appendix Two: Members of the FEEDS Implementation Steering Group

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FEEDS

Appendix Three: Prioritisation Guidelines for Nutrition Management for Paediatric Patients

Prioritisation Guidelines