

Guidance On Prescribing Specialist Formulae To Treat Cow's Milk Protein Allergy In Infants And Children

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August 2021	June 2018	Advice change on first presentation from days to weeks to weeks to months	Introduction paragraph 1
August 2021	June 2018	Addition of skin symptoms	Page 2 -definitions and diagnosis
August 2021	June 2018	Change in advice on where to refer suspected IgE mediated allergies	Page 4 - treatment
August 2021	June 2018	Addition of paragraph with advice following clear improvement of symptoms	Page 4 – treatment paragraph 4
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August 2021	June 2018	Ranitidine change to omeprazole	Page 12 – table 4.4.
August 2021	June 2018	Email update	Page 13 – contact details
December 2021	June 2018	Updated Assessment and allergy-focused clinical history link	Page 7 – link
December 2021	June 2018	Email address for Allergy Service referral form / queries	Page 7 - treatment
December 2021	June 2018	Wording change to 'No indication'	Page 9 - algorithm
December 2021	June 2018	Addition of '2-4 week'	Page 9 - algorithm
December 2021	June 2018	Paragraph reworded	Page 10 – 3.1 Breast fed
December 2021	June 2018	Resume milk free diet Ensure adequate calcium – advice link added	Page 12 – 3.2 Supporting Material
December 2021	June 2018	Circulated - Health Visitors names added	Page 17 – Consultation List
April 2023	December 2021	Removed reference to SMA/Aptamil and changed to standard first stage cow's milk formula	P6 Section 3.1 Formula fed

^{*} Changes marked should detail the section(s) of the document that have been amended, i.e. page number and section heading.

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Guidance On Prescribing Specialist Formulae To Treat Cow's Milk Protein Allergy In Infants And Children

1. Introduction

Cow's Milk Protein Allergy (CMPA) currently affects 2 - 4% of all infants in the UK. Most infants will present early - within the first weeks or months of ingesting Cow's Milk Protein (CMP).

Treatment involves complete exclusion of cow's milk protein from the child's diet. If the child is breast fed, the mother should exclude cow's milk. For nonbreast fed children, a specialist formula should be used. If the child is on mixed feeding, i.e. breast and bottle fed, a cow's milk free formula should be used. If symptoms only occur on introduction of top up feeds with formula then the mother does not need to exclude milk from her own diet. The amount of beta lactoglobulin that is present in breast milk is very small so often infants only present with symptoms when formula is introduced or when introducing solids containing milk proteins.

A number of different specialist formulae are available on prescription. They are not identical and choice of product is dependent upon clinical symptoms and diagnosis. Review of prescribing data indicates that spend on the products is increasing and there is local and national evidence of inappropriate prescribing of these products.

The aim of this guidance document is to ensure that those health care professionals who are responsible for recognising and treating CMPA are following current international guidelines, are fully aware of the clinical indications for the use of specialist formula and select the most appropriate formula for the individual.

1.1. **Definitions and Diagnosis**

Cow's Milk Protein Allergy (CMPA) is an allergy to the protein in cow's milk. It is not an intolerance to lactose (milk sugar). It can be;

- IgE- mediated, in which case acute signs or symptoms mostly occur within minutes of ingestion of CMP. Symptoms include immediate reaction with severe respiratory and/or cardiovascular signs and symptoms (rarely a severe gastrointestinal presentation). Skin symptoms tend to be acute urticaria or angioedema
- Non-IgE-mediated where symptoms run a more chronic course.

Symptoms include:

Gastrointestinal

- Irritability -'Colic' and one or more of the symptoms listed or food allergy in a 1st degree relative.
- Vomiting 'Reflux' Gastro-oesophageal Reflux Disease (GORD) unresponsive to thickened feeds and acid suppressive treatment.
- Food refusal or aversion.
- Diarrhoea-like stools loose and/or more frequent.
- Constipation especially soft stools with excessive straining.
- Abdominal discomfort, painful flatus.
- Blood and/or mucus in stools in an otherwise well infant.
- Faltering growth plus one or more GI symptoms.

Skin

- Pruritus (itching), Erythema (flushing).
- Non-specific rashes.
- Moderate persistent atopic dermatitis.

Usually several of these symptoms will be present.

N.B. Non-IgE-mediated CMPA can, in rarer cases, also be severe. Symptoms can occur 2 - 72 hours after ingestion of CMP and usually include one or more of severe and persisting **gastrointestinal symptoms** - diarrhoea, vomiting, abdominal pain, food refusal or food aversion, significant blood and/or mucus in stools, irregular or uncomfortable stools +/- faltering growth or **skin symptoms** - severe atopic dermatitis +/-faltering growth.

Further information can be found at www.allergyuk.org.

An allergy-focused history is crucial in helping determine between IgE-mediated and non-IgE-mediated reactions. Questions should focus on;

- Any family history of atopic disease in parents or siblings.
- Any history of early atopic disease in the infant.
- The infants feeding history including growth.
- Presenting symptoms and signs that may be indicating possible CMA.
- Details of previous management, including any medication and the perceived response to any treatment or dietary change.

Further guidance can be found at <u>Assessment and allergy-focused clinical history</u> (scot.nhs.uk)

2. Evidence Base

This guidance document is based on recent UK and European guidelines. 1,2,3,4

3. Treatment

All infants and children should be commenced on a strict cow's milk free diet immediately. Where IgE mediated or severe Non-IgE-mediated CMPA is suspected a referral should also be made to the allergy service within Royal Aberdeen Children's Hospital – Health care professionals can email the allergy nurses generic email: gram.paedsallergy@nhs.scot for the Allergy service referral form or for a general query

The following guidance on management of CMPA refers to those with mild-moderate non-lgE mediated CMPA.

If the clinical history suggests non-IgE-mediated CMPA and the child 'has not had a severe delayed reaction', it is recommended to offer a **trial elimination** of cow's milk protein. Issue the leaflet <u>Does my child have Cow's Milk Protein Allergy?</u>
The algorithm on <u>pages 5</u> and <u>6</u> provides full guidance on undertaking the initial trial to confirm diagnosis and the later re-introduction of cow's milk for those where diagnosis has been confirmed.

The clinician is looking for a **clear improvement** in symptoms. The diet should be trialled for 4 weeks (a minimum of 2). It is crucial that milk is re-introduced after the trial period in order to confirm diagnosis. It is important not to skip this step as this can lead to the child remaining on a restricted diet for an unnecessary period of time and can delay diagnosis of an alternative underlying cause of the symptoms.

If the child has not had a **clear** improvement on a cow's milk free diet after the appropriate trial, cow's milk should be introduced into the diet again (either via breast milk with mother back on cow's milk or a suitable formula for non-breast fed children). **There is no need to do this gradually.**

(For those with severe reactions, should they still need an early food challenge to confirm or exclude the diagnosis, this will need to be done under the careful supervision of a specialist allergy team).

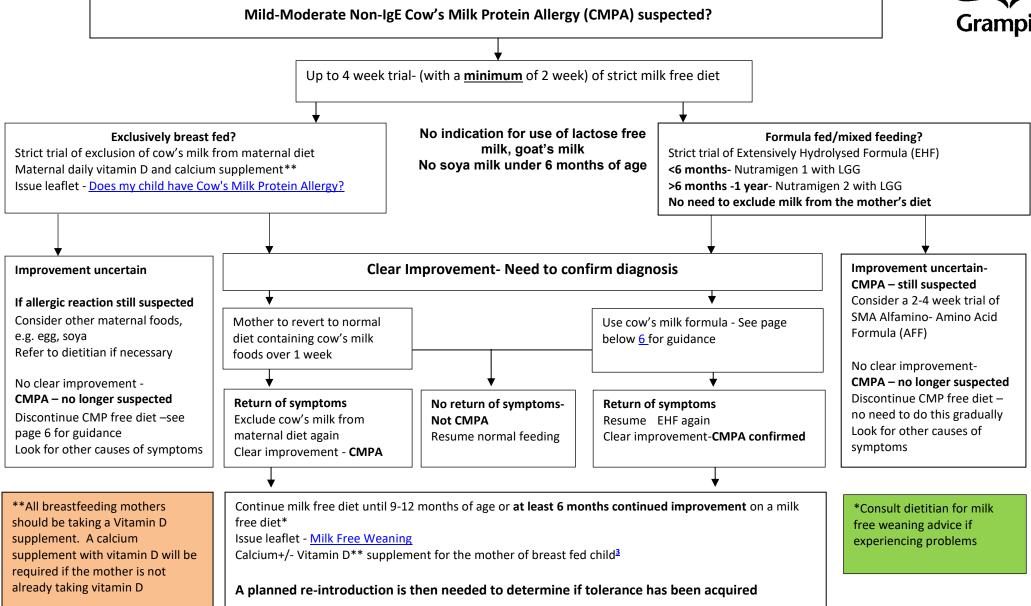
Prescribing Specialist Formulae for formula fed/mixed fed infants

Specialist formulae are those products specifically designed to treat CMPA. They can be Extensively Hydrolysed Formula (EHF) or Amino Acid Formula (AAF).

The constituents differ in different formula, however 90% of infants and children will respond to an EHF, therefore these are the first line product of choice. If symptom improvement is uncertain or if symptoms improve then relapse, an AAF should be trialled.

The treatment algorithm on <u>page 5</u> provides further guidance. Only a small proportion (10%) of children should require an AAF.





3.1. Re-Introducing Milk After the Initial 2 - 4 Week Trial Following Clear Improvement in Symptoms

Breast fed

Complete reintroduction of cow's milk or milk containing products for 1 week. These can be fully introduced on day 1 and symptoms monitored over 1 week period – see flow chart on page 5.

Formula fed

Reintroduction of cow's milk formula gradually over 1 week. See table below for reintroduction example.

The Northern Ireland Region Infant Feeding Guidelines recommend¹;

Day 1 30mL of standard first stage cow's milk formula into ONE morning bottle of cow's milk free formula, e.g. Nutramigen1 with LGG. If the child is ≥1 year old, use cow's milk.

Days 2 - 6 Continue to increase the cow's milk formula and reduce the cow's milk free formula using the following example.

Days	Volume of boiled water (mL)	Cow's milk free formula No. of Scoops	Cow's milk formula No. of Scoops
Day 1	180	5	1
Day 2	180	4	2
Day 3	180	3	3
Day 4	180	2	4
Day 5	180	1	5
Day 6	180	0	6

3.2. Home Introduction of Milk at 1 Year or After 6 Months Exclusion for Infants and Children with Mild-Moderate Non-IgE-Mediated CMPA (Milk Challenge)

By 1 year of age around 50% of <u>infants and children</u> may achieve tolerance to cow's milk protein and can return to a normal diet². This can be a gradual process with some infants and children only achieving partial tolerance of milk that has been cooked.

In general consider introducing milk around 1 year of age or after 6 months on a milk exclusion diet. It is advised that milk protein is gradually reintroduced into the diet as per the iMap milk ladder.

Infants and children with current atopic dermatitis or **any** history at **any** time of immediate onset symptoms such as pruritus, erythema, acute urticaria (localised or generalised), acute angioedema, cough, chest tightness, wheezing or shortness of breath, should be **challenged in a hospital day case setting**. Infants and children where milk has caused symptoms such as eczema, urticaria, vomiting, diarrhoea and poor weight gain may be **safely challenged at home**.

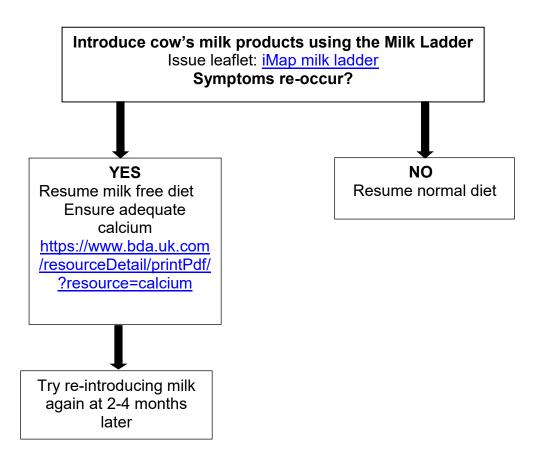
General points

- Do not introduce milk if the infant is unwell; if airways are compromised or if eczema is flared up.
- **Do not** introduce milk if the infant is receiving medication that may adversely affect the gut, e.g. a course of antibiotics.
- **Do not** introduce any other new foods when introducing milk.
- Ask the parents to keep a record of the infant's oral intake, stool pattern and symptoms during the milk introduction. For example, re-occurrence of eczema, diarrhoea, increased stool frequency, vomiting.
- There may be a delayed reaction to the introduction of cow's milk therefore infants must be monitored for symptoms for at least 48 hours.
- Advise parents to choose a time during the week, when they can observe the child for a few hours. Note down any reactions, which may be different from the original symptoms.
- If at any time the child is reacting stop the process. The health care professional involved should continue with whatever was previously tolerated and discuss the next steps with a Dietitian.

Re-introducing milk

- Give each dose all at once; don't spread it out over the day.
- Allow 4-7days on each step before moving onto the next step.
- If the child reacts at any stage continue with what was previously tolerated and discuss with a dietitian.
- Each tolerated food can now be included in the diet.

3.3. Supporting Material



4. Supporting Notes

4.1. Cow's Milk Protein Allergy (CMPA)

Notes ^{1,2}	Treatment	Prescribing Notes
It is an allergy to the protein in cow's milk not the lactose (which is a sugar).	Trial of a Cow's Milk Protein free diet- see CMPA algorithm.	EHF such as Nutramigen 1 and 2 with LGG (first choice). AA formulae such
Currently affects 2-4% of all infants in the UK.		as SMA Alfamino (first choice) and
	10% of children with CMPA either do not	Neocate LCP are significantly more
Most of these infants will present early - within days or the first few weeks of	respond to an Extensively Hydrolysed	expensive than EHF.
ingesting Cow's Milk Protein (CMP).	Formula (EHF) or respond and later	
	relapse. These children require a formula	
It can be:	based on amino acids- see CMPA	AA formulae should only be prescribed;
	algorithm (AFF)	According to the CMPA algorithm or
IgE-antibody-mediated, in which case acute signs or symptoms mostly	In addition to a vitamin D augustament	On recommendation of a
occur within minutes of ingestion of CMP. This should be managed in Acute Care.	In addition to a vitamin D supplement, a calcium supplement is recommended	paediatrician or dietitian.
Acute Gale.	for breast feeding mothers following a	The AA fermands of sheet a time
Non-IgE-antibody-mediated (previously often referred to as Cow's Milk	milk free diet.	The AA formula of choice in NHSG is Alfamino .
Protein Intolerance) where symptoms run a more chronic course.		NASG IS Allamino.
, , , , , , , , , , , , , , , , , , , ,	The calcium requirements for lactating	Lactose free milks (e.g. SMA [®] LF)
Delayed signs or symptoms mostly occur 2 or more hours following ingestion	mothers are approximately 1250mg of	contain cow's milk protein and are
and may be delayed for up to 48 hours or more.	calcium/day.	not suitable.
Over 75% of children with CMPA have more than one of the conditions	If there is no clear improvement cow's	
listed in section 1.1.	milk protein should be re-introduced into	
	the child's diet. A guide on re-	
	introducing cow's milk after initial trial is	
	outlined on page 6.	

4.2. Lactose Intolerance

Post-gastroenteritis infection	There is no support for using a partially hydrolysed, low lactose formula such as
If diarrhoea persists beyond 14 days consider trial of a lactose-free diet (e.g. SMA® LF in children under 2 years of age and a lactose free milk replacement in children over 2 years). A positive response usually occurs within 48 hours. If there is improvement, continue diet for 6 weeks. After 6 weeks re-introduce lactose containing milk. Secondary to cow's milk protein allergy (CMPA) - follow CMPA	If CMPA suspected; Lactose-free formula SMA® LF or Colief® drops must NOT be prescribed as it is likely obscure the correct diagnosis of CMPA.
yearepyear Apwith If the Cor	ars of age and a lactose free milk blacement in children over 2 ars). positive response usually occurs hin 48 hours. mere is improvement, continue diet for weeks. er 6 weeks re-introduce lactose ntaining milk. condary to cow's milk protein

4.3. Colic

Notes ¹	Treatment	Prescribing Notes
Definition:	Where CMPA suspected consider a 2	There is no support for prescribing;
Inconsolable crying with limb flexure in an otherwise healthy, thriving infant, which lasts for more than 3 hours per day, occurs on 3 or more days per week, has persisted for more than 3 weeks starting in the first weeks of life	week diagnostic trial excluding of cow's milk protein.	• Colief [®]
and ceasing around 3 to 4 months of age. It occurs in both formula fed and breast fed infants and affects up to 20% of	Planned reintroduction of cow's milk protein, either into the mother's diet (if breast fed) or as formula (if formula fed)-	A partially hydrolysed, low-lactose formula, e.g. Comfort [®] milks
infants. The causes are poorly understood however there is no good evidence that it	see page 6.	A lactose-free formula, e.g. SMA [®] LF
is caused by either lactose in the diet or excess intestinal gas.	See CMPA algorithm.	Infacol® or Dentinox Colic Drops® (Simplifying)
Approximately 10% of infants with infantile colic may have CMPA particularly when there is a positive history of atopic eczema, allergic rhinitis, asthma or food allergy in a 1st degree relative (mother, father, or siblings) or the symptoms listed on page 2/3.		(Simeticone)

4.4. Gastro - Oesophageal Reflux (GOR)/ Gastro - Oesophageal Reflux Disease (GORD)

Notes¹ GOR

Defined as: 'The effortless passage of gastric contents into the oesophagus with or without **regurgitation** or **vomiting**'.

It is a normal physiological process often occurring several times a day in healthy infants and is not thought to be uncomfortable.

Intercurrent infections will always worsen GOR temporarily.

It occurs in both formula fed and breast fed infants and should resolve spontaneously in most infants by 12 to 14 months of age and often earlier.

Treatment

Check for overfeeding childs 0 - 6 months need around 150mL/kg/day of formula.

Consider a 2 week trial of thickened feeds. Either:

- Child Gaviscon sachets
- Formula milk with added Carobel[®] or
- Anti-regurgitation formulae e.g. Aptamil Anti-Reflux[®] or SMA Staydown[®]

Larger holed teats will be needed.

Prescribing Notes

Do not prescribe Aptamil Anti Reflux[®] or SMA Staydown[®] along with other thickening agents such as Carobel[®] or Gaviscon[®] Child sachets as this could lead to over-thickening of the stomach contents.

Anti-regurgitation child formulas require an acid environment in order to thicken and therefore will not work properly when prescribed along with antacid medications such as omeprazole or ranitidine.

GORD

When the reflux of the gastric contents is thought to cause troublesome symptoms and/or complications in infants:

- Recurrent and significant regurgitation, vomiting +/- with faltering growth.
- Oesophagitis symptoms irritability, back-arching, hiccups, feeding aversion, blood in refluxate.
- Possible associated lower airway signs apnoea, wheezing, recurrent infection, even acute life-threatening events.

A 2 week trial of omeprazole may be considered. Refer to the BNFC for appropriate dose

In a small number of infants CMPA may be considered if not responsive to all other treatments and especially if there is a family history of atopic allergy.

Consider a 4 week trial - 2 minimum of milk free diet. See CMPA algorithm.

5. Resources To Be Used With The Guidance

<u>Does my child have Cow's Milk Protein Allergy?</u>: Advice for parents and carers whose children may have cow's milk protein allergy.

Milk free weaning: Advice for parents and carers whose children have cow's milk protein allergy - Milk Free Weaning.

Milk ladder, Guidance and Recipes- iMap milk ladder.

6. References And Further Information

- 1) T. Brown, et al, (2017) Better recognition, diagnosis and management of non-IgE-mediated cow's milk allergy in infancy; iMAP- an international interpretation of the MAP (Milk Allergy in Primary Care) guideline. Clinical and Translational Allergy 2017 7:26
- 2) CYANS recommendations for the diagnosis and management of food allergy in children and young people <u>Assessment and allergy-focused clinical history (scot.nhs.uk)</u>
- 3) NICE Clinical Guideline 116 Food Allergy in children and young people www.nice.org.uk/guidance/CG116
- 4) S. Koletzko, *et al*, (2012) Diagnostic Approach and Management of Cow's- Milk Protein Allergy in Infants and Children: ESPGHAN GI Committee Practical Guidelines. JPGN 2012;55: 221–229).

7. Key Contacts

Paediatric Dietitians, Aberdeen, 01224 552630 gram.referdietpaeds@nhs.scot

Community Dietitians, Aberdeen, 0345 0990 200 gram.referdietpaeds@nhs.scot

Dietetic Department, Moray, 01343 567350

8. Consultation List

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Julie Donathy, Paediatric Dietitian, Moray
Megan Ley, Health Visitor, Calsayseat Medical Group
Wendy Ratcliffe, Health Visitor, Foresterhill Health Centre

9. Distribution List

General Practitioners
Health Visitor Leads
Midwife Leads
Neonatal Unit Consultant Paediatric
Nursing Leads
NHS Grampian Dietitians