Cow's Milk Protein Allergy (CMPA) in Infants: Healthcare Professional Guidance

This guidance is intended to assist healthcare professionals in the choice of therapeutic options for patientcentred care. Clinical judgement should be exercised on the applicability of any guideline, influenced by individual patient characteristics. If, after discussion with the patient or carer, there are good reasons for not following preferred choices, it is good practice to record these and communicate them to others involved in the care of the patient.

Title:	Cow's milk protein allergy (CMPA) in infants: Healthcare professional guidance				
Status:	Approved and published.				
Version No:	2				
Date Approved by	May 2025				
Next Review:	May 2028				
Authors:	Nottingham CityCare Paediatric Dietitians Sherwood Forest Hospital Paediatric Dietitians Nottingham Allergy Service Nottingham County Paediatric Dietitians Nottingham ICB Medicines Optimisation Dietetics				

Pathway for diagnosing cow's milk protein allergy.





GPs' quick prescribing reference guide for CMPA formula

Nottinghamshire Area Prescribing Committee

Feed type	Formulary status	Formula To check suitability for different dietary restrictions, see <u>appendix 1</u>	Age range*	Price per tin	Key Points		
Extensively Hydrolysed formula (EHF) Second	First Line	Nutramigen 1 with LGG [®] **▲	0-6 months	£12.92	 <u>EHF:</u> Indicated if: Mild to moderate IgE-mediated CMPA 		
	400g Second	Nutramigen 2 with LGG [®] **▲ (It is not essential to change, and the child can remain on 1 with no significant nutritional consequences) • SMA [®] Althera [®] 400g (1 st line if Halal option required) – <u>see</u>	6-12 months 0-12 months	£12.92 £11.04	 Mild-moderate non-IgE-mediated CMPA Mild to moderate non-IgE-mediated (DELAYED): Confirm diagnosis with home milk challenge 4 weeks after starting EHF – only complete if symptoms resolve. Maintain CMPA elimination diet until 9-12 		
	400g — only use if first	Aptamil Pepti [®] 1	0-6 months	£10.98	 months old, and <u>for at least for 6 months</u> after diagnosis. Refer to <u>Community Paediatric Dietitian</u> 		
line not available or not accepted; If symptoms persist on first line proceed to AA formula first line		• Aptamil Pepti [®] 2 (It is not essential to change, and the child can remain on 1 with no significant nutritional consequences)	6-12 months	£10.98	 IMMEDIATE IgE-mediated CMPA symptoms → Refer to Secondary Care ** Instructions for making up Nutramigen 1/2 with LGG® are different to standard formula as probiotics are inactivated by hot water, advise to follow instructions on the tin. 		
	First Line 400g	• SMA [®] Alfamino [®]		£25.73	AAF: First line indicated if anaphylactic reaction/ SEVERE IgE or SEVERE non-IgE-		
Amino acid Formula (AAF)	Second Line 400g- only use if first line not available or not accepted; if symptoms persist on second line consider alternative diagnosis	• Neocate LCP	0-12 months	£22.56	 mediated including blood in stools SEVERE IMMEDIATE IgE-mediated → Refer urgently to Secondary Care without completing milk challenge. SEVERE DELAYED non-IgE-mediated Confirm diagnosis with home milk challenge 4 weeks after starting AA – only complete if symptoms resolve. Maintain CMPA elimination diet until 9-12 months old, and for at least for 6 months after diagnosis. → Refer to Community Paediatric Dietitian 		
Supermarket dairy milk alternatives	отс	 Fortified soya milk Fortified oat milk Fortified coconut milk Fortified Almond milk – Only should be used if cannot tolerate other milk alternatives. 	12+ months	Approx £2 per carton	If infant > 1 year: can be purchased and used as main milk drink, can be used in food/cooking from 6 months. Ensure milk alternative is fortified with iodine, B12 and calcium.		

Please note:

* Age range listed as per ICB guidance. Individual products may have a broader license. See <u>quantities of formula to prescribe</u>

▲ Formula not suitable for premature or immunocompromised infant

Soya formula has now been discontinued.

Nottinghamshire Area Prescribing Committee

Initially prescribe 4 tins of formula to check tolerance. If tolerated, prescribe more to support trial of 4 weeks. For infants with suspected mild to moderate non-IgE CMPA: if diagnosis confirmed following home challenge then prescribe the following thereafter:

Age	Royal College Nursing		Suggested volume per	Quantity of	Equivalent in	
Category	feed guidance per day		day	powder per day	Tins per 28 days	
Up to 2	7-8 feeds	150ml/kg	120-560mls	70-90g	5-6 v 400g	
weeks	60-70mls/feed	130111/ Kg	420-5001115	70-90g	5-0 X 400g	
2 weeks	6-7 feeds	150ml/kg	150-725mlc	70-110g	5-8 x 400g	
- 2 months	75-105mls/feed	TOOLINKS	450-7551115	70-110g		
2-3	5-6 feeds	150ml/kg	525-1080mlc	80-160g	6-12 x 400g	
months	105-180mls/feed	130111/ Kg	525-10801115	80-100g		
	5 feeds					
3-5	180-210mls/feed		900-1050mls	140-160g	10-12 x 400g	
Months	3-4 months	150ml/kg				
	4-5 months	120ml/kg				
About 6	4 feeds	120ml/kg	840-960mlc	120-150g	9-11 x 400g	
Months	210-240mls/feed	120111/ Kg	840-9001113	130-130g		
7-9	4 feeds		About 600mls	90g	7 x 400g	
Months	150mls/feed		About oooniis	308	or 3 x 800g	
10-12	3 feeds		About 600mls	00a	7 x 400g	
Months	e.g. 2 x 100ml + 1 x 200ml feed		About 600mis	90g	or 3 x 800g	

Adapted from the First Steps Nutrition Trust: A simple guide to Infant Milks. Jan 2025

- Specialist infant formulae are for age 0-12 months. *Infants over 1 year should be advised to change over to <u>fortified milk alternatives</u> unless Paediatric Dietitian or Paediatrician has given specific reason for formula to be continued beyond 1 year of age.
- For breastfed and mixed fed babies please discuss required formula quantities with guardians.

Top tips if CMPA formula refused

- Try a formula for a minimum of 4 weeks and avoid product switching. Prescribe 4 tins initially until tolerance is established, then give additional prescriptions.
- If infant does not have immediate symptoms to cow's milk, advise parents to 'titrate' hypoallergenic formula with original milk-containing formula in increasing amounts until tolerated.
- Advise that stools often change in consistency and colour (greener), and this is acceptable.

HOME REINTRODUCTION of cow's milk should only be undertaken for those infants with suspected. <u>non-lgE cow's milk allergy.</u>

- After a 4-week trial of cow's milk protein exclusion has resulted in a clear improvement in symptoms, a home reintroduction of cow's milk protein is needed to confirm or exclude the diagnosis of cow's milk allergy.
- Advise parents/carers to carry out home reintroduction using <u>iMAP home reintroduction guidance sheet.</u>
- If CMPA diagnosis confirmed: Refer to Community Paediatric Dietitian. Parents will be provided with
 information on milk-free weaning, calcium requirements, reintroducing cow's milk using the milk ladder and the duration of prescribed formula. Written information is provided to support parents.
- If symptoms do not return on the reintroduction of cow's milk, it is unlikely the infant has CMPA. GP to explore alternative diagnosis or refer to Paediatrician if infant has faltering growth and/or severe skin issues.

If an immediate reaction is suspected or a mix between severe non-IgE and IgE symptoms; please refer to secondary care

Review of CMPA formula

6 months old: Remember that breastmilk or 600ml/day of hypoallergenic formula should be used as main milk drink until the infant reaches 1 year of age. To reduce the quantity of prescription formula, encourage the use of calcium-enriched alternative milks in cereals and cooking:

- Soya Milk
- Oat Milk
- Coconut Milk
- Pea Milk
- Almond Milk only to be used if other milks not tolerated

From <u>6 months old</u>: Infants on Aptamil[®] Pepti 1 or Nutramigen[®] 1 with LGG do not have to change to Aptamil[®] Pepti 2 and Nutramigen[®] 2 with LGG.

- Quantities of formula required will change with age see <u>guide to quantities</u> required and adjust accordingly. Refer to the most recent correspondence from the Paediatric Dietitian.
- <u>At 1 year old</u>: STOP FORMULA PRESCRIPTION unless paediatrician/Paediatric Dietitian has advised otherwise *e.g. infant has multiple and/or severe allergies or faltering growth.*
- Review the need for the prescription if:
 - \rightarrow Infant is over 1 year of age (see next page)
 - \rightarrow The formula been prescribed for more than 1 year.
 - \rightarrow Infant is prescribed more than the suggested formula quantities according to their age/weight.

 \rightarrow Infant can drink cow's milk or eats yoghurts/cheese or foods containing cow's milk e.g. chocolate, biscuits



Cow's Milk Protein Allergy (CMPA) in Infants: Healthcare Professional Guidance. Version 2.

Reviewed May 2025. Next review date May 2028. Accessibility checked. Contains flow charts and tables which may not be accessible to screen readers.

Community Dietitian Contact Details

Nottingham City Care Partnership – Community Paediatric Dietitians
 Tel: 0115 883 4327 Option 1
 Email: ncp.communitydietetics@nhs.net
 How to refer

 Nottingham County - Community Paediatric Dietitians: Tel: 01623 484836
 Email: communitydietitians@nottshc.nhs.uk

Allergy Contact Details

Refer to secondary care via F12

Useful resources for parents/carers and health professionals

Breastfeeding

For breastfeeding and bottle-feeding advice:

- UNICEF: <u>www.unicef.org.uk/BabyFriendly/</u>
- NHS: <u>http://www.nhs.uk/start4life</u>
- First Step Nutrition:<u>https://www.firststepsnutrition.org/eating-well-infants-new-mums</u>
- iMAP: imap-supporting-breastfeeding-factsheet.pdf (wordpress.com)
- GP Infant Feeding Network: <u>Breastfeeding a Baby with CMA | The GP Infant Feeding Network (UK)</u> (gpifn.org.uk)

Cow's Milk Protein Allergy

- British Dietetic Association: Milk allergy British Dietetic Association (BDA)
- Allergy UK: <u>https://www.allergyuk.org/information-and-advice/conditions-and-symptoms/469-cows-milk-allergy</u>
- The Milk Allergy in Primary Care (iMAP) Guideline 2019: <u>https://gpifn.org.uk/imap/</u>
- iMAP Initial Fact Sheet for Parents: imap patient factsheet original.pdf (wordpress.com)

For Health Professionals

- NICE Cow's Milk Allergy in Children Cow's milk allergy in children Health topics A to Z | CKS | NICE
- BSCACI (British Society for Allergy and Clinical Immunology):
- Guideline for the diagnosis and management of cow's milk allergy, July 2014 BSACI guideline for the diagnosis and management of cow's milk allergy
 - Ci guideline for the diagnosis and management of cow's milk allergy
 - FPIES FPIES (Food Protein Induced Enterocolitis Syndrome) | Allergy UK | National Charity
 - Early Introduction of Allergents Infant feeding and allergy prevention PARENTS FINAL

Appendix 1 -Non-IgE and IgE CMPA

Mild-Moderate non-IgE CMPA	Severe non-IgE CMPA	IgE CMPA		
Mostly 2-72 hours after ingestion of cow's milk protein (CMP) Formula fed, exclusively breast-fed or at the onset of mixed feeding. Treatment resistance- Eg atopic dermatitis or reflux, increases the likelihood of allergy.	Mostly 2-72 hours after ingestion of cow's milk protein (CMP). Mostly formula fed, exclusively breastfed or at the onset of mixed feeding. Treatment resistance example atopic dermatitis or reflux, increases the likelihood of allergy	Mostly within minutes (maybe up to 2 hours) after ingestion of cow's milk protein (CMP) Mostly formula fed or at the onset of mixed feeding		
(Usually several of the following symptoms) Gastrointestinal: • Irritability – colic • Vomiting – reflux – GORD	Severe persisting symptoms of one or more of the following) Gastrointestinal: • Diarrhoea, • Vomiting - consider FPIES and	One or more of the following symptoms) Gastrointestinal • Acute vomiting or diarrhoea, abdominal pain/colic.		
 Food refusal or aversion Diarrhoea like stools – loose and or more frequent Constipation – especially soft stools with excessive straining, abdominal discomfort, painful flutters Blood and/or mucus in stool in other otherwise well infant 	 referral to secondary care Abdominal pain Food refusal or aversion Significant blood or mucus in stools Irregular or uncomfortable stools +/- faltering growth Skin: 	 Skin: Acute pruritus, erythema urticaria angioedema Acute flaring of persisting atopic dermatitis Acute worsening of eczema, Respiratory: 		
Skin: • Pruritus (itching) • Erythema(flushing) • Nonspecific rashes • Moderate persistent atopic dermatitis	• Severe atopic dermatitis +/- faltering growth	 acute rhinitis Difficulty breathing Swelling -inc facial Collapse/pallor 		

Anaphylaxis

Anaphylaxis is the term used to describe a severe and potentially life-threatening reaction to a trigger such as a food allergy. This type of reaction occurs immediately. Symptoms can include but are not limited to, swelling of the throat and tongue, difficulty breathing or breathing very fast, tightness in the throat or wheezing.

FPIES

Food Protein Induced Enterocolitis Syndrome is severe non-IgE form of food allergy. It presents in infants with repetitive continuous vomiting that begin approximately 2-4 hours after consumption of the allergenic foods. Other symptoms include

- Paleness, lethargic, floppy
- Diarrhoea
- Dehydration

Please note * there can be crossover between IgE and non-IgE mediated symptoms. If you are concerned, please contact secondary care for advice.

Nottinghamshire Area Prescribing Committee

Appendix 2: Formula suitability for different dietary restrictions

Feed type	Formulary status	Formula	Gluten Free	Lactose Free	Suitable for vegetarians	Halal certified	Kosher certified	Vegan
	Green 1 st choice	Nutramigen [®] 1 with LGG [®]	~	~	х	х	х	x
		Nutramigen 2 [®] with LGG	~	✓	x	x	x	x
Hydrolysed	Green 2 nd choice	SMA Althera®	✓	х	\checkmark	~	Х ³	x ⁴
formula (EHF)		Aptamil Pepti® 1	~	x	х	х	√1	x
		Aptamil Pepti [®] 2	✓	x	x ²	x	√1	x
	Green 1 st choice	SMA [®] Alfamino	√	√	√	√	√	X4
Amino Acid formula (AAF)	Green 2 nd Choice	Neocate LCP	√	✓	X ⁷	✓	Х ³	X ⁸
Supermarket dairy milk alternatives		Alpro Soya Growing Up Drink 1-3 + Years	✓	•	✓	~	~	~
		Alpro Oat Growing Up Drink 1-3 + Years	x	v	✓	~	~	~
		Oatly Oat Drink Barista Edition	x	~	V	Х ⁶	Х ⁶	✓
		Oatly Oat Drink Whole	x	\checkmark	\checkmark	Х ⁶	Х ⁶	\checkmark

¹ = UK kosher approval notes Aptamil Pepti 1 is processed using pork trypsin enzyme, which is not present in the final product

² = Contains long-chain polyunsaturated fatty acids sourced from fish

³ = Although it is not certified Kosher, the ingredients used are not contraindicated for patients following a Kosher diet.

⁴ = The source of vitamin D is lanolin which comes from the wool of sheep.

⁵ = Vitamin D is synthesised from cholesterol, extracted from the grease in wool sheared from live sheep. Protein hydrolysate is obtained using enzymes from animal source.

⁶ = Product does not contain cow's milk and is plant-based.

⁷ = Generally considered vegetarian, however at the consumers discretion as Cystine, Leucine and Tyrosine are derived from poultry feathers and vitamin D is sourced from cholesterol extracted and purified from sheep wool lanolin from healthy living sheep.

⁸ = Product not suitable as vitamin D is sourced from cholesterol extracted and purified from sheep wool lanolin from healthy living sheep, and Cystine, Leucine and Tyrosine are derived from poultry feathers.

(correct as of May 2025)

References

- NICE. (2011). Food allergy in under 19's: assessment and diagnosis. [Online]. National Institute for Health and Care Excellence. Last Updated: 23 February 2011. Available at: https://www.nice.org.uk/guidance/cg116 [Accessed 7 April 2025].
- Professor Fox, A and Dr Lovis, M. (2019). The Milk Allergy in Primary Care (MAP) Guideline 2019. [Online]. The GP Infant Feeding Network. Last Updated: 7th October 2019. Available at: https://gpifn.org.uk/imap/ [Accessed 7 April 2025].
- Royal College of Paediatrics and Child Health. (2011). Allergy Care Pathways for Children Food Allergy. [Online]. Royal College of Paediatrics and Child Health. Available at: https://www.rcpch.ac.uk/sites/default/files/RCPCH_Care_Pathway_for_Children_with_Food_Allergy.pdf [Accessed 7 April 2025].
- Walsh, J. O'Flynn, N. (2011). Diagnosis and assessment of food allergy in children and young people in primary care and community settings: NICE clinical guideline. *The British journal of general practice: the journal of the Royal College of General Practitioners*, *61*(588), p473–475.
- Vandenplas, Y., Koletzko, S., Isolauri, E., Hill, D., Oranje, A. P., Brueton, M., Staiano, A. Dupont, C. (2007). Guidelines for the diagnosis and management of cow's milk protein allergy in infants. *Archives of disease in childhood*, *92*(10), p902–908.
- Fiocchi, A., Brozek, J., Schünemann, H., Bahna, S. L., von Berg, A., Beyer, K., Bozzola, M., Bradsher, J., Compalati, E., Ebisawa, M., Guzman, M. A., Li, H., Heine, R. G., Keith, P., Lack, G., Landi, M., Martelli, A., Rancé, F., Sampson, H., Stein, A. Vieths, S. (2010). World Allergy Organization (WAO) Diagnosis and Rationale for Action against Cow's Milk Allergy (DRACMA) Guidelines. *The World Allergy Organization journal*, *3*(4), p57–161.
- Food Standards Agency. (2018). Arsenic in Rice. [Online]. Food Standards Agency. Last Updated: 11 September 2023. Available at: https://www.food.gov.uk/safety-hygiene/arsenic-in-rice [Accessed 7 April 2025].
- Luyt, D., Ball, H., Makwana, N., Green, M. R., Bravin, K., Nasser, S. M., Clark, A. T., & Standards of Care Committee (SOCC) of the British Society for Allergy and Clinical Immunology (BSACI) (2014). BSACI guideline for the diagnosis and management of cow's milk allergy. *Clinical and experimental allergy: journal of the British Society for Allergy and Clinical Immunology*, 44(5), p642–672.
- British Dietetic Association. British Society for Allergy & Clinical Immunology. (2018). *Preventing food allergy in your baby: A summary for parents*. [Online]. BSACI. Last Updated: May 2020. Available at: https://www.bsaci.org/wp-content/uploads/2020/02/pdf_Infant-feeding-and-allergy-prevention-PARENTS-F [Accessed 7 April 2025].
- Scientific Advisory Committee on Nutrition. (2016). SACN vitamin D and health report. [Online]. The Department of Health. Last Updated: 11 December 2023. Available at: https://www.gov.uk/government/publications/sacn-vitamin-d-and-health-report [Accessed 7 April 2025].
- First Steps Nutrition Trust. (2021). Infant Milks: A simple guide to infant formula, follow on formula and other infant formulas. [Online]. First Steps Nutrition Trust. Available at: https://static1.squarespace.com/static/59f75004f09ca48694070f3b/t/6011867a17a3582de4282ee9/161176127470 1/Infant%2Bmilks_ [Accessed 7 April 2025].
- NHS. (03 August 2020). *Vitamin D*. [Online]. NHS. Last Updated: 03 August 2023. Available at: https://www.nhs.uk/conditions/vitamins-and-minerals/vitamin-d/ [Accessed 28 April 2025].