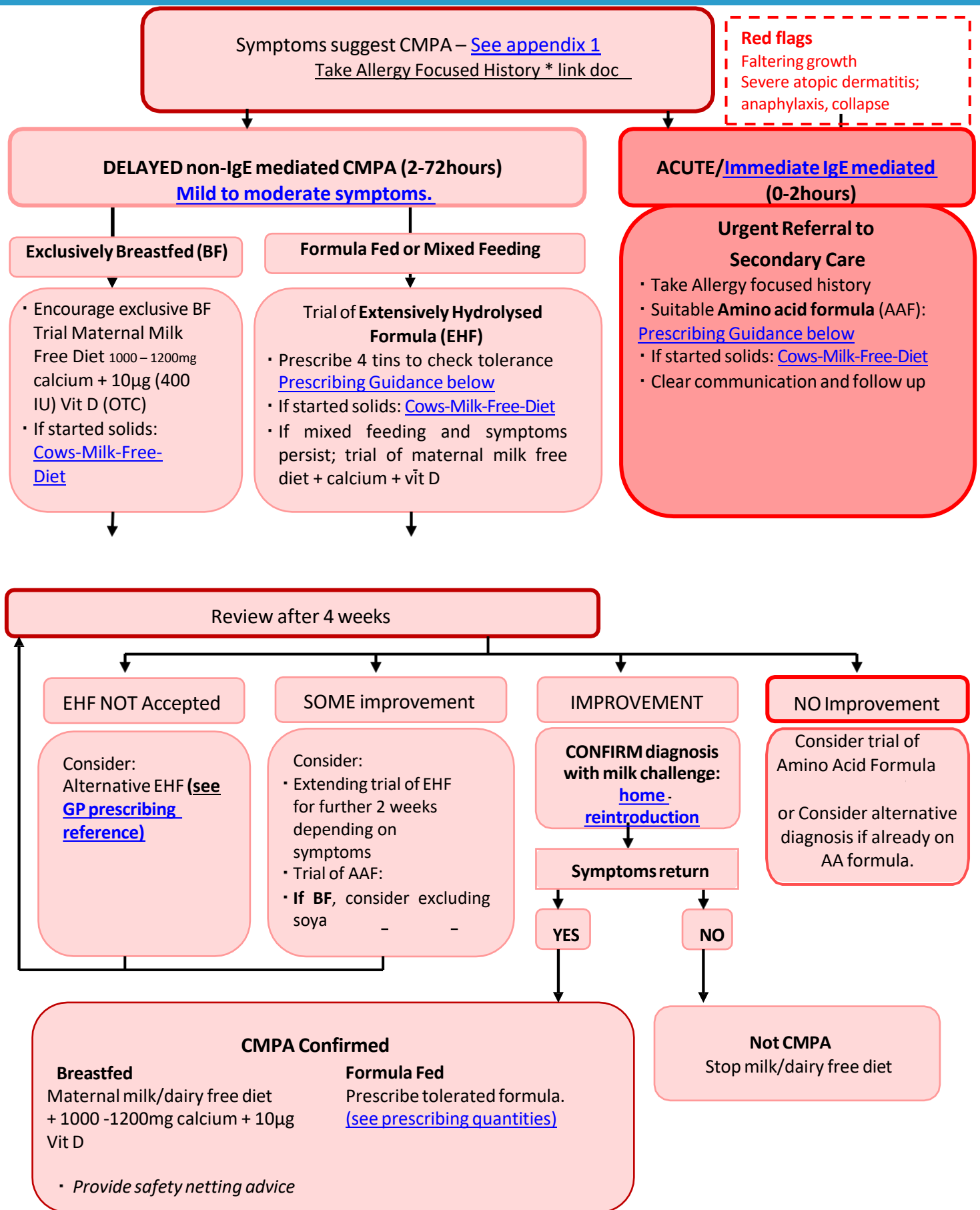


Cow's Milk Protein Allergy (CMPA) in Infants: Healthcare Professional Guidance

This guidance is intended to assist healthcare professionals in the choice of therapeutic options for patient-centred 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.

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Pathway for diagnosing cow's milk protein allergy.



Red flags
Faltering growth
Severe atopic dermatitis;
anaphylaxis, collapse

Continue milk/dairy free diet until about 9-12 months old, or for 6 months after diagnosis.
Non-IgE CMPA: Advise on re-introduction using the [Milk Ladder](#).
IgE immediate allergy: Refer to paediatrician/[allergy clinic](#) for reintroduction advice.

Feed type	Formulary status	Formula <i>To check suitability for different dietary restrictions, see appendix 1</i>	Age range*	Price per tin	Key Points
Extensively Hydrolysed formula (EHF)	First Line 400g	Nutramigen 1 with LGG ^{®***▲} Nutramigen 2 with LGG ^{®***▲} <i>(It is not essential to change, and the child can remain on 1 with no significant nutritional consequences)</i>	0-6 months	£12.92	<p>EHF: Indicated if:</p> <ul style="list-style-type: none"> Mild to moderate IgE-mediated CMPA Mild-moderate non-IgE-mediated CMPA <p>Mild to moderate non-IgE-mediated (DELAYED):</p> <ul style="list-style-type: none"> Confirm diagnosis with home milk challenge 4 weeks after starting EHF – 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 <p>IMMEDIATE IgE-mediated CMPA symptoms → Refer to Secondary Care</p> <p>** 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.</p>
			6-12 months	£12.92	
	Second Line 400g – only use if first line not available or not accepted; if symptoms persist on first line proceed to AA formula first line	<ul style="list-style-type: none"> SMA[®] Althera[®] 400g (1st line if Halal option required) – see appendix 2 Aptamil Pepti[®] 1 	0-12 months	£11.04	
			0-6 months	£10.98	
		<ul style="list-style-type: none"> 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	
Amino acid Formula (AAF)	First Line 400g	<ul style="list-style-type: none"> SMA[®] Alfamino[®] 	0-12 months	£25.73	<p>AAF: First line indicated if anaphylactic reaction/ SEVERE IgE or SEVERE non-IgE-mediated including blood in stools</p> <p>SEVERE IMMEDIATE IgE-mediated → Refer urgently to Secondary Care without completing milk challenge.</p> <p>SEVERE DELAYED non-IgE-mediated</p> <ul style="list-style-type: none"> 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. <p>→ Refer to Community Paediatric Dietitian</p>
	Second Line 420g – only use if first line not available or not accepted; if symptoms persist on second line consider alternative diagnosis	<ul style="list-style-type: none"> Neocate LCP 		£25.56	
Supermarket dairy milk alternatives	OTC	<ul style="list-style-type: none"> Fortified soya milk Fortified oat milk Fortified coconut milk <p>Fortified Almond milk – Should only be used if other milk alternatives cannot be tolerated.</p>	12+ months	Approx £2 per carton	If infant > 1 year: can be purchased and used as the 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 [quantities of formula to prescribe](#)

▲ Formula not suitable for premature or immunocompromised infant

Soya formula has now been discontinued.

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 Category	Royal College Nursing feed guidance per day		Suggested volume per day	Quantity of powder per day	Equivalent in Tins per 28 days
Up to 2 weeks	7-8 feeds 60-70mls/feed	150ml/kg	420-560mls	70-90g	5-6 x 400g
2 weeks - 2 months	6-7 feeds 75-105mls/feed	150ml/kg	450-735mls	70-110g	5-8 x 400g
2-3 months	5-6 feeds 105-180mls/feed	150ml/kg	525-1080mls	80-160g	6-12 x 400g
3-5 Months	5 feeds 180-210mls/feed	150ml/kg 120ml/kg	900-1050mls	140-160g	10-12 x 400g
	3-4 months 4-5 months				
About 6 Months	4 feeds 210-240mls/feed	120ml/kg	840-960mls	130-150g	9-11 x 400g
7-9 Months	4 feeds 150mls/feed		About 600mls	90g	7 x 400g or 3 x 800g
10-12 Months	3 feeds e.g. 2 x 100ml + 1 x 200ml feed		About 600mls	90g	7 x 400g 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 [fortified milk alternatives](#) **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 non-IgE cow's milk allergy.

- 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 [iMAP home reintroduction guidance sheet](#).
- **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 6 months old: *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 [guide to quantities](#) required and adjust accordingly. Refer to the most recent correspondence from the Paediatric Dietitian.
- **At 1 year old:** **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:**
 - Infant is over 1 year of age ([see next page](#))
 - The formula been prescribed for more than 1 year.
 - Infant is prescribed more than the suggested formula quantities according to their age/weight.
 - Infant can drink cow's milk or eats yoghurts/cheese or foods containing cow's milk e.g. chocolate, biscuits

Suspected or diagnosed with non-IgE-mediated CMPA:

→ Follow the below flowchart and ask parent/carer the questions in blue boxes.

Exceptions: Infant is under a specialist and they have requested for hypoallergenic formula to continue beyond 1 year e.g. due to faltering growth, multiple allergies, severe skin issues etc.

Ask: Have you trialed reintroducing cow's milk into the child's diet using the milk ladder?

No

-Advise parents to start using the recommended milk alternatives.

-Emphasise importance of reintroduction, advise to follow the milk ladder;

If infant reacts at any step: stop, keep any foods in the diet that they have tolerated and try the step again in 3 months to see if reaction is reproduced.

-Refer to Community Paediatric Dietitians if need support with milk ladder

Yes

Is the child tolerating cow's milk/milk-containing products?

No

Can the child tolerate a fortified milk alternative?

No

-If infant reacts to soya, use other recommended milk alternatives; advise parents to titrate hypoallergenic formula with milk alternative to build up tolerance.
-Remind parents they must keep trying milk ladder every 3 months.
- Refer to Community Paediatric Dietitians if need support with milk ladder

Yes

-Stop Prescription formula

-Parents should give recommended milk alternatives (see below) until milk ladder is completed and cow's milk is tolerated.
-If 3months since milk ladder attempted, advise parents to retry milk ladder.
-Refer to Community Paediatric Dietitians if need support with milk ladder

Yes

-Stop prescribed formula and switch to whole cow's milk or milk alternative.
-Advise daily Vitamin D

Recommended milk alternatives:

Fortified Oat milk

Fortified coconut milk

Fortified Almond Milk – *Only use if other alternatives not tolerated*

Fortified Soya milk

Fortified pea milk

Infants diagnosed with IgE-mediated CMPA: Ensure infant has been referred to the Allergy team for assessment,

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

* Cow's Milk Protein Allergy

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

- FPIES [FPIES \(Food Protein Induced Enterocolitis Syndrome\) | Allergy UK | National Charity](http://FPIES (Food Protein Induced Enterocolitis Syndrome) | Allergy UK | National Charity)
- Early Introduction of Allergens 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
<p>Mostly 2-72 hours after ingestion of cow's milk protein (CMP) Formula fed, exclusively breast-fed or at the onset of mixed feeding.</p> <p>Treatment resistance- Eg atopic dermatitis or reflux, increases the likelihood of allergy.</p>	<p>Mostly 2-72 hours after ingestion of cow's milk protein (CMP). Mostly formula fed, exclusively breastfed or at the onset of mixed feeding.</p> <p>Treatment resistance example atopic dermatitis or reflux, increases the likelihood of allergy</p>	<p>Mostly within minutes (maybe up to 2 hours) after ingestion of cow's milk protein (CMP)</p> <p>Mostly formula fed or at the onset of mixed feeding</p>
<p><i>(Usually several of the following symptoms)</i></p> <p>Gastrointestinal:</p> <ul style="list-style-type: none"> • Irritability – colic • Vomiting – reflux – GORD • 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 <p>Skin:</p> <ul style="list-style-type: none"> • Pruritus (itching) • Erythema(flushing) • Nonspecific rashes • Moderate persistent atopic dermatitis 	<p><i>Severe persisting symptoms of one or more of the following)</i></p> <p>Gastrointestinal:</p> <ul style="list-style-type: none"> • Diarrhoea, • Vomiting - <i>consider FPIES and referral to secondary care</i> • Abdominal pain • Food refusal or aversion • Significant blood or mucus in stools • Irregular or uncomfortable stools +/- faltering growth <p>Skin:</p> <ul style="list-style-type: none"> • Severe atopic dermatitis +/- faltering growth 	<p><i>One or more of the following symptoms)</i></p> <p>Gastrointestinal</p> <ul style="list-style-type: none"> • Acute vomiting or diarrhoea, abdominal pain/colic. <p>Skin:</p> <ul style="list-style-type: none"> • Acute pruritus, erythema urticaria angioedema • Acute flaring of persisting atopic dermatitis Acute worsening of eczema, <p>Respiratory:</p> <ul style="list-style-type: none"> • 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.

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
Extensively Hydrolysed formula (EHF)	Green 1st choice	Nutramigen® 1 with LGG®	✓	✓	x	x	x	x
		Nutramigen 2® with LGG	✓	✓	x	x	x	x
	Green 2nd choice	SMA Althera®	✓	x	✓	✓	x ³	x ⁴
		Aptamil Pepti® 1	✓	x	x	x	✓ ¹	x
		Aptamil Pepti® 2	✓	x	x ²	x	✓ ¹	x
Amino Acid formula (AAF)	Green 1st choice	SMA® Alfacino	✓	✓	✓	✓	✓	x ⁴
	Green 2nd Choice	Neocate LCP	✓	✓	x ⁷	✓	x ³	x ⁸
Supermarket dairy milk alternatives		Alpro Soya Growing Up Drink 1-3 + Years	✓	✓	✓	✓	✓	✓
		Alpro Oat Growing Up Drink 1-3 + Years	x	✓	✓	✓	✓	✓
		Oatly Oat Drink Barista Edition	x	✓	✓	x ⁶	x ⁶	✓
		Oatly Oat Drink Whole	x	✓	✓	x ⁶	x ⁶	✓

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/6011867a17a3582de4282ee9/1611761274701/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].