Flowchart for managing Cow’s Milk Protein Allergy (CMPA)

Symptoms suggest CMPA (see diagnosis page) - Commonly:
- History / Family history of atopy
- Symptoms involving 2 or more systems

- Mild to moderate Symptoms
  - No immediate reactions (usually non-IgE mediated)

- Severe Symptoms And/or
  - Acute reaction (Usually IgE mediated)

Exclusively breastfed

- Trial of Maternal strict milk free diet
  (See diet sheet in appendix)

- Review after 2 weeks

Formula Fed or mixed feeding

- Trial of Extensively Hydrolysed Formula (EHF)
  ① Prescribe 2 tins of: Similac Alimentum
  ② Advise milk free diet if started solids

- Review after 2 weeks

Similac Alimentum not accepted

- Consider alternative EHF (see formulary) Or
  Trial of soya formula if >6months
  Advise Wysoy OTC

Some Improvement

- Consider extending trial for a further 2-4 weeks Or
  Consider trial of Amino Acid formula
  SMA Alfamino

Improvement

- Confirm diagnosis with Home Milk Challenge
  (See appendix)

No improvement

- Consider alternative diagnosis Or
  Consider referring to, or seek advice from secondary care

Symptoms return

- YES
  - CMPA diagnosed
    - Formula fed:
      ● Prescribe suitable formula
        (Or advise Wysoy OTC)
    - Breastfed:
      ● Advise mother to take daily 1000 mg Calcium + 10 μg VitD OTC
      ● Provide with resources/signpost to websites
      ● Refer to paediatric dietitian
    - Confirm diagnosis with Home Milk Challenge
      (See appendix)
  - Not CMPA
    - Stop milk free diet

- NO

Some infants with CMPA will also react to soya proteins so they will also need to avoid soya

Some infants with CMPA will also react to soya proteins so they will also need to avoid soya

- Severe Symptoms And/or
  - Acute reaction (Usually IgE mediated)

Referral to secondary care

Secondary Care led

① Maternal milk free diet And/Or
② Suitable formula, e.g.
  SMA Alfamino or Wysoy if >6m
③ Milk free diet if started solids
④ Clear communication and f/up plans
Diagnosing CMPA (from NICE Guideline 116, MAP and BSACI)

Cow’s Milk Protein Allergy (CMPA or CMA) is the most clinically complex individual food allergy and therefore causes significant challenges in both recognising the many different clinical presentation and also the varying approaches to management, both at primary care and specialist level.

Allergy-focused clinical history (adapted from Skypala et al. 2015) – See form in Appendix

- Personal/family history of atopic disease (asthma, eczema or allergic rhinitis) & food allergy
- Presenting symptoms and other symptoms that may be associated with CMPA (see below)
  - Age at first onset and speed of onset
  - Duration, severity and frequency
  - Setting of reaction (home, outside...)
  - Reproducibility of symptoms on repeated exposure
- Feeding history
  - Breast fed/formula fed (if breastfed, consider mother’s diet)
  - Age of introduction to solids
  - If relevant, details of any foods avoided and why
- Details of previous treatment, including medication for presenting symptoms and response to this
- Any response to the elimination and reintroduction of foods

Acute symptoms (minutes) ➔ Refer to secondary care

- Abdominal pain / Colic / excessive crying
- Vomiting (repeated or profuse)
- Diarrhoea (Rarely a severe presentation)

- Urticaria
- Acute pruritus
- Angioedema
- Erythema
- Acute ‘flaring of atopic eczema

- Red/itchy eyes
- Blocked/runny nose, sneezing
- Cough, wheeze, breathlessness

- Drowsiness, dizziness, pallor, collapse
- Anaphylaxis

Delayed symptoms (2-72hrs) ➔ Refer to secondary care only if symptoms severe

- ‘Colic’ / excessive crying
- ‘Reflux’ - GORD
- Blood in stool and/or mucus in otherwise well child
- Vomiting in irritable child with back arching & screaming
- Feed refusal or aversion
- Diarrhoea: often protracted + propensity to faltering growth
- Constipation: straining with defecation but producing soft stools, irregular or uncomfortable stools +/- faltering growth
- Unwell child: delayed onset protracted D&V

Wide range of severity, from well child with bloody stool to shocked child after profuse D&V (FPIES)

- Significat to severe atopic eczema +/- faltering growth

- ‘Catarrhal’ airway symptoms
  (Usually in combination with 1 or more other symptoms)

Respiratory

Red Flags (urgent referral to secondary care):

- Faltering growth
- Severe atopic eczema
- FPIES, Anaphylaxis, collapse
Cow’s Milk Protein Allergy additional notes

Breastfeeding is the optimal way to feed a baby with CMPA, with, if required, individualised maternal elimination of all cow’s milk protein foods (+ Calcium and vitamin D supplementation).

For more detailed directions to diagnose and manage CMA, use the ‘Managing Allergy in Primary care’ (MAP) guidelines (An interactive website developed by a team of specialists in the field of paediatric milk allergy but published by Nutricia).

- CMPA commonly appear when a formula is introduced in a usually breastfed baby. Therefore returning to exclusive breastfeeding should be discussed and encouraged at the earliest opportunity.
- Only about 10% of babies with CMPA will require an AAF (Murano et al., 2014). The remainder should tolerate an EHF.
- 10-14% of infants with CMPA will also react to soya proteins (and up to 50% of those with non-IgE mediated CMPA). But because of better palatability soya formula is worth considering in babies>6months.

Hypoallergenic Infant Formulae (Prices correct as of MIMS January 2017)

### Extensively Hydrolysed Formulae (EHF)

**Indication:** Mild to moderate symptoms/reactions (IgE or non-IgE mediated allergies)

<table>
<thead>
<tr>
<th>Product</th>
<th>Calcium RNI (525mg/d) met in:</th>
<th>Lactose</th>
<th>Tin size</th>
<th>Cost per tin</th>
<th>Cost per 100Kcal</th>
<th>Average requirement / 28d**</th>
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<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Similac Alimentum*</td>
<td></td>
<td>no</td>
<td>400g</td>
<td>£9.10</td>
<td>£0.43</td>
<td>7-12 tins</td>
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<td>SMA Althéra*</td>
<td></td>
<td>yes</td>
<td>450g</td>
<td>£10.68</td>
<td>£0.47</td>
<td>7-12 tins (800g: 6 tins)</td>
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<td>Milupa Aptamil Pepti 1*</td>
<td></td>
<td>yes</td>
<td>400g</td>
<td>£9.87</td>
<td>£0.50</td>
<td>7-12 tins (800g: 6 tins)</td>
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<tr>
<td>Nutramigen LGG 1*</td>
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<td>400g</td>
<td>£10.99</td>
<td>£0.55</td>
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<tr>
<td>Milupa Aptamil Pepti 2*</td>
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<td>yes</td>
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<td>£19.73</td>
<td>£0.50</td>
<td>7-12 tins (800g: 6 tins)</td>
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<td>Nutramigen LGG 2*</td>
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<td>yes</td>
<td>800g</td>
<td>£18.82</td>
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**2nd Line**

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<th>Calcium RNI (525mg/d) met in:</th>
<th>Lactose</th>
<th>Tin size</th>
<th>Cost per tin</th>
<th>Cost per 100Kcal</th>
<th>Average requirement / 28d**</th>
</tr>
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<tbody>
<tr>
<td>Alfamino*</td>
<td></td>
<td>no</td>
<td>400g</td>
<td>£23.00</td>
<td>£1.14</td>
<td>7-12 tins</td>
</tr>
<tr>
<td>Nutramigen Puramino*</td>
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<td>400g</td>
<td>£27.09</td>
<td>£1.35</td>
<td>7-12 tins</td>
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<tr>
<td>Neocate LCP*</td>
<td></td>
<td>no</td>
<td>400g</td>
<td>£28.70</td>
<td>£1.51</td>
<td>7-12 tins</td>
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**Neocate Spoon** is a weaning product usually for children with multiple allergies and should only be prescribed under the supervision of a paediatric dietitian or Paediatrician

**Neocate Advance** and **Neocate Active** (aka Neocate Junior) are high calorie formulas usually for children with multiple allergies and/or tube fed. They will not automatically be required over one year old.

Soy formula

**Indication:** CMPA in infants over 6 months of age, not reacting to soya

<table>
<thead>
<tr>
<th>Product</th>
<th>Calcium RNI (525mg/d) met in:</th>
<th>Lactose</th>
<th>Tin size</th>
<th>Cost per tin</th>
<th>Cost per 100Kcal</th>
<th>Average requirement / 28d**</th>
</tr>
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<tbody>
<tr>
<td>Wysoy*</td>
<td></td>
<td>no</td>
<td>860g</td>
<td>£10.31</td>
<td>£0.23</td>
<td>Not for ≤6months</td>
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**Top Tips**

- **EHF and AA have an unpleasant taste and smell,** which is better tolerated by younger babies. Unless there is anaphylaxis, advise to introduce the new formula gradually by mixing with the usual formula in increasing quantities until the transition is complete. Serving in a closed cup or bottle or with a straw (depending on age) may improve tolerance.
- **Warn parents** that it is quite common for babies to develop green stools on these formulae.
- **Prescribe only 2 tins initially** until compliance/tolerance is established. Only then give a monthly repeat prescription.
Review and discontinuation of treatment (and challenge with cow’s milk)

- 60-75% of children outgrow CMPA by 2 years of age, rising to 85-90% of children at 3 years of age (EuroPrevall study, 2012).

- **Review prescriptions regularly** to check that the formula is appropriate for the child’s age.

- **Quantities of formula** required will change with age – see guide to quantities required. Refer to the most recent correspondence from the paediatric dietitian, or contact your local paediatric dietetic department for clarification.

- **Trial of reintroduction of cow’s milk** – should be supervised by a paediatric dietitian or Paediatrician if symptoms are severe.

- **Prescriptions can be stopped** when the child has outgrown the allergy, or on advice of the dietitian/paediatrician.

- **Review the need for the prescription if:**
  - The patient is over 2 years of age
  - The formula been prescribed for more than 1 year
  - The patient is prescribed more than the suggested formula quantities according to their age/weight
  - The patient is able to drink cow’s milk or eats yoghurts/cheese

- **Children with multiple and/or severe allergies or faltering growth may require prescriptions beyond 2 years.** This should always be on the advice of the paediatric dietitian.

Useful resources for parents and health professionals

- **Breastfeeding**
  For breast feeding and bottle feeding advice, visit the UNICEF baby friendly pages: [www.unicef.org.uk/BabyFriendly/](http://www.unicef.org.uk/BabyFriendly/)
  [NHS health for life](http://www.nhs.uk/HealthA-Z/BabyFriendly/)
  [First Step Nutrition](http://www.nhs.uk/HealthA-Z/BabyFriendly/)

- **Local Breastfeeding support services**
  [www.southernhealth.nhs.uk/services/childrens-services/breastfeeding-service/](http://www.southernhealth.nhs.uk/services/childrens-services/breastfeeding-service/)

- **Cow’s milk protein allergy**
  Allergy UK ([www.allergyuk.org](http://www.allergyuk.org)) or CMPA Support ([www.cmpasupport.org.uk](http://www.cmpasupport.org.uk))

- **For Health professionals**
  Luyt et al. British Society for Allergy and Clinical Immunology (BSCACI) guideline for the diagnosis and management of cow’s milk allergy, July 2014 [www.bsaci.org](http://www.bsaci.org)

  NICE Clinical Guideline 116 Food Allergy in Children and Young People. 2011 [www.nice.org.uk](http://www.nice.org.uk)