

## Diagnosis and Nutritional Management of Non-IgE Mediated Cow's Milk Allergy

Version: 2

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### 1.0 Introduction

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Cow's milk allergy (CMA), also known as cow's milk protein allergy (CMPA), is an immune mediated adverse reaction to proteins found in cow's milk. CMA is the leading cause of food allergy among infants and children under the age of 3 years. However, CMA with gastrointestinal symptoms alone can be diagnosed in any age group. CMA can be IgE-mediated, non-IgE mediated or mixed (1-8), and may involve multiple systems including gastrointestinal, skin, and respiratory (see 2.0 Definitions). Symptoms associated with CMA may range in intensity from mild to severe (1-8, 20). Exclusive breastfeeding is protective against CMA, with fewer than 1% of exclusively breastfed infants having reactions, which are typically mild, to cow's milk protein (CMP) (9, 10). Partial breastfeeding/mixed feeding (receiving partial mother's own milk with formula as supplementation or top-up nutrition) does not appear to have the same risk reduction for CMA (9, 10).

The misuse of elimination diets, such as the unnecessary or longer-than-necessary elimination of foods, can be associated with malnutrition (e.g., growth faltering, compromised bone health), stress, and financial burden (1-8, 20). In addition, lack of timely and appropriate nutritional interventions for non-IgE CMA can lead to delays in diagnosis. Thus, the purpose of this clinical practice guideline is to streamline the diagnosis and nutritional management of non-IgE mediated CMA at SickKids to help minimize these pitfalls.

**If an IgE-mediated reaction to CMP (described below) is suspected, then the patient should avoid all CMP and be referred to an Allergist for an urgent assessment. It is not recommended to eliminate other food proteins until assessed by an Allergist.**

#### **Target Users**

Physicians, Nurse Practitioners, Nurses, Dietitians, Lactation Consultants

#### **Target Patient Population**

Infants, children under 3 years

## **2.0 Definitions**

**CMA** can be classified as IgE-mediated, non-IgE mediated or mixed (1-5, 20). Common clinical signs and symptoms of CMA are listed in **Table 1**.

**IgE-mediated symptoms** associated with CMA typically develop immediately (within minutes to an hour) after CMP ingestion (5). IgE-mediated CMA is more common in children with atopic conditions like eczema, asthma and/or allergic rhinitis. Anaphylaxis is the most severe manifestation of IgE-mediated CMA (3).

**Non-IgE mediated** symptoms associated with CMA are most often delayed or are chronic reactions to CMP. These can include food protein-induced allergic proctocolitis (FPIAP, formerly known as allergic or eosinophilic proctocolitis), food protein-induced enterocolitis syndrome (FPIES) and food protein-induced enteropathy (11-13, 20).

**Non-IgE mediated symptoms associated with CMA** generally occur hours to days (usually 2 to 72 hours) after an exposure but may be delayed up to 7 days (5). Gastrointestinal symptoms are prominent with non-IgE mediated CMA, such as gastroesophageal reflux disease (GERD), vomiting, loose or frequent stools, blood and/or mucus in stools, abdominal pain, food refusal or aversion, and/or growth faltering (5, 20).

**FPIAP** occurs mostly in breastfed infants and in most cases is a benign condition that does not require treatment (20).

- FPIAP often presents with hematochezia and mucus-streaked diarrhea in otherwise healthy infants (20).
- FPIAP is an inflammatory response to one or more food proteins in the distal colon (20).

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- Treatment of FPIAP is debated, depending on the severity and frequency of blood in stools (20).
- In exclusively breastfed infants, management of mild FPIAP in the absence of other atopic symptoms should be reserved to observation. Breastfeeding or feeding with mother's own milk is encouraged and elimination of CMP in mother's diet considered only for cases with chronic and severe hematochezia (20).
- In formula fed or mixed feed infants, if diet therapy is initiated, CMP reintroduction is encouraged 2-4 weeks after elimination secondary to an increased risk of developing IgE mediated CMA with long-term delayed CMP exposure (20).

**FPIES** usually manifests as repetitive vomiting, pallor, hypotonia, +/- diarrhea occurring 1-4 hours after CMP ingestion. Dehydration or progression to shock can occur in severe cases (11-13).

**A food intolerance**, in contrast to CMA, is a non-immune reaction to food. An example of a food intolerance is lactose intolerance. Food intolerance may be reported for any food.

#### **Abbreviations**

- AAF, amino acid formula
- CMP, cow's milk protein
- CMA, cow's milk allergy
- CMPA, cow's milk protein allergy
- eHF, extensively hydrolyzed formula
- FPIAP, food protein-induced allergic proctocolitis.
- FPIES, food protein induced enterocolitis syndrome
- GERD, gastroesophageal reflux disease
- IgE, immunoglobulin E
- ODB, Ontario Drug Benefit
- OFC, Oral food challenge

Table 1. Common clinical signs and symptoms associated with cow’s milk allergy (CMA) among infants and children under 3 years of age.

System	IgE-Mediated Signs and Symptoms (Develop within minutes to an hour)	Non-IgE Mediated Signs and Symptoms (Develop within hours to days)
Gastrointestinal	<ul style="list-style-type: none"> <li>• Acute cramping, abdominal pain</li> <li>• Vomiting</li> <li>• Diarrhea</li> </ul>	<ul style="list-style-type: none"> <li>• Abdominal pain</li> <li>• Vomiting/nausea</li> <li>• Diarrhea +/- protein loss (hypoalbuminemia) +/- blood</li> <li>• Colic</li> <li>• Constipation +/- perianal rash</li> <li>• Dysphagia</li> <li>• Gastroesophageal reflux</li> <li>• Regurgitation</li> <li>• Anorexia (loss of appetite +/- early satiety)</li> <li>• Refusal to feed</li> <li>• Growth faltering</li> <li>• Iron deficiency anemia</li> </ul>
Respiratory	<ul style="list-style-type: none"> <li>• Breathing difficulties</li> <li>• Stridor</li> <li>• Wheezing</li> <li>• Rhino conjunctivitis</li> </ul>	<ul style="list-style-type: none"> <li>• Chronic coughing (unrelated to infections)</li> </ul>
Skin	<ul style="list-style-type: none"> <li>• Urticaria</li> <li>• Angioedema (lips or eyes)</li> <li>• Flushing</li> </ul>	<ul style="list-style-type: none"> <li>• Eczema</li> </ul>
Other	<ul style="list-style-type: none"> <li>• Anaphylaxis</li> <li>• Syncope</li> <li>• Hypotension</li> <li>• Dizziness</li> </ul>	<ul style="list-style-type: none"> <li>• Shock-like symptoms with severe dehydration, metabolic acidosis, vomiting +/- diarrhea (may be FPIES)</li> </ul>

Adapted from reference (1).

### 3.0 Clinical Diagnosis of Cow’s Milk Allergy (CMA)

There is no diagnostic test available for CMA. A detailed summary of symptoms, feeding history, personal and familial history of allergy, as well as a growth assessment are used to facilitate the clinical diagnosis.

#### 3.1 Diagnostic Elimination of CMP

If CMA is suspected, a diagnostic elimination of CMP should be initiated. This includes the infant’s or child’s formula and/or diet, as well as the diet of parent if breastfeeding. However, given that CMA in exclusively breastfed infants is rare, exploring alternate etiologies of the infant’s or child’s symptoms is advisable before eliminating CMP. In addition, **elimination of CMP is not recommended for isolated symptoms of eczema (1-8)**. Refer to **4.0 Nutritional Management of CMA** and **6.0 Appendix** for detailed information about the CMP-free diet for CMA.

The duration of CMP elimination for diagnosis of non-IgE CMA depends on clinical presentation.

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- The timeline ideally balances adequate time to assess resolution of symptoms, but short enough to prevent adverse outcomes such as sensitization to allergen, and/or other considerations such as cost of formula or interruption of breastfeeding (1-5, 20).
- **Table 2** provides a recommended timeline for CMP elimination based on clinical signs and symptoms for suspected CMA. If there is no response to strict elimination of CMP within an appropriate timeline, a diagnosis of CMA is ruled out, and other diagnoses must be considered.

Table 2. Recommended timeline to eliminate cow’s milk protein (CMP) for diagnostic purposes in suspected cow’s milk allergy (CMA)

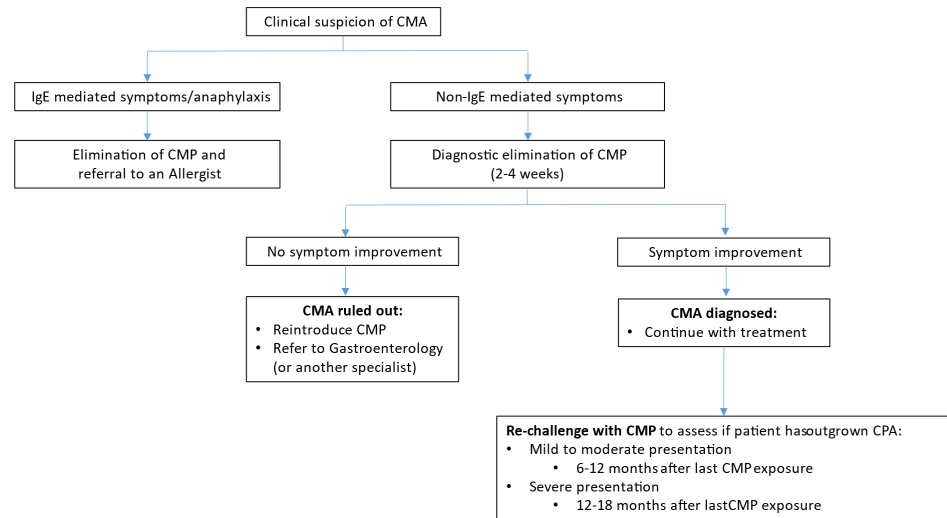
Clinical Signs and Symptoms	Recommended Duration of CMP Elimination to Assess for CMA
<ul style="list-style-type: none"> <li>• IgE mediated (acute) symptoms (e.g., vomiting, angioedema, urticaria, anaphylaxis)</li> </ul>	Avoidance until assessed by an Allergist
<ul style="list-style-type: none"> <li>• Non-IgE mediated (delayed) symptoms (e.g., diarrhea +/- blood, growth faltering, refusal to feed)</li> </ul>	2-4 weeks*

\*Note: CMP may be expressed in breast milk up to 3 days after consumption which may influence time to assess response.

Depending on the type and severity of symptoms, further assessment and management by the primary care provider or referral to a pediatrician or pediatric subspecialty (e.g., gastroenterologist, otolaryngologist, respirologist or allergist) for further investigations should be considered (1-3).

- A severe presentation can include multi-system involvement and/or growth faltering (a fall in weight for age z-score of  $\geq 1.0$  that occurs over a period of 1 month or more and does not include the first 2 weeks after birth) (14).
- **Figure 1** provides a clinical approach to diagnosing non-IgE mediated CMA, as well as guidelines for when to reintroduce CMP and assess if the patient has outgrown CMA (adapted from 5).
- ***If low suspicion for CMA, reintroduce CMP to confirm diagnosis of non-IgE CMA before committing to long-term CMP-free treatment (20).***

Figure 1. Clinical approach to diagnosing CMA



Legend: CMA, cow's milk allergy; IgE, immunoglobulin E; CMP, cow's milk protein

#### 4.0 Nutritional Management of CMA

Strict avoidance of CMP, as well as milk and milk by-products from other mammalian animals (e.g., goat, sheep, buffalo, and camel) is necessary to treat CMA (2, 5).

- Other animal milks are associated with up to 80% cross reactivity and are considered nutritionally inadequate for infants (2, 20).
- Although CMA and soya protein are structurally distinct, approximately 10% of children allergic to CMA have been reported to have a concomitant allergy to soya protein (19).
- Co-allergy between CMP and soy is rare in IgE-mediated CMA, and soy elimination is not warranted.
  - However, soy co-allergy may be more frequent in non-IgE mediated CMA, although there are discrepancies in study outcomes. Soy formula is not recommended for non-IgE mediated CMA among infants less than 6 months of age due to lack of evidence (20).

**A dairy free diet is not a CMP-free diet.** A CMP free diet for management of CMA includes the removal of CMP from all sources including dairy and any food product(s) that may contain CMP.

- Refer to **Table 7** in **6.0 Appendix** for information about ingredients to avoid on the CMP-free diet for CMA.

While most infants and children with CMA will respond to a strict elimination of CMP and/or eHF there is a small subset of infants and children with suspected CMA where amino acid formula (AAF) is indicated.

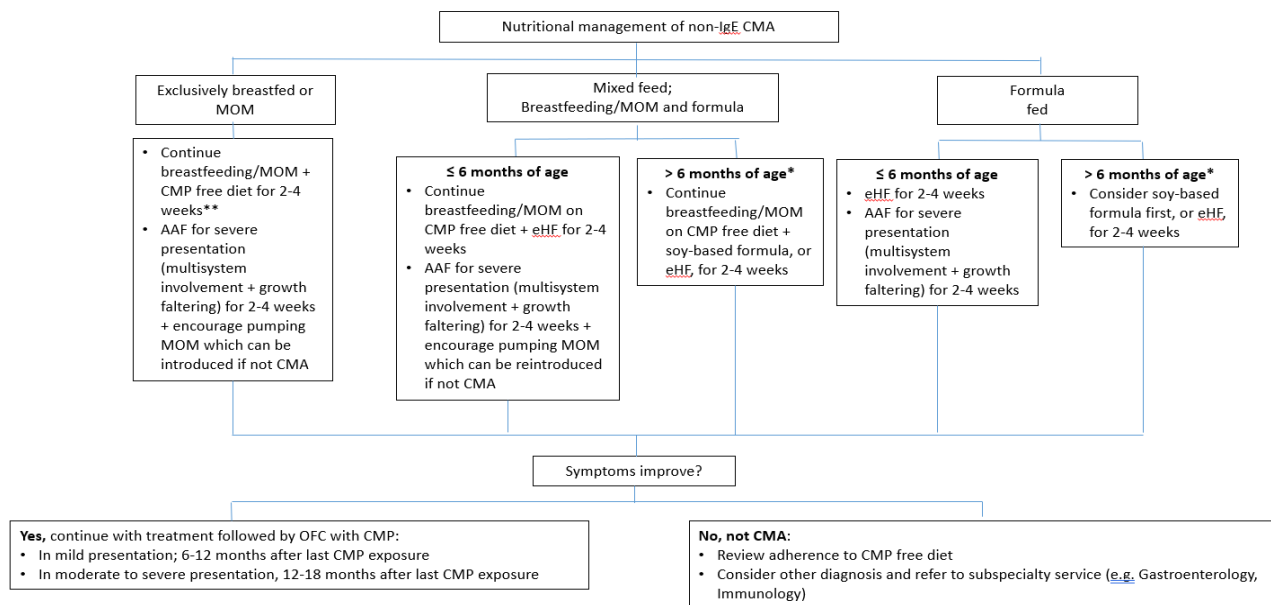
- AAF is indicated in anaphylaxis (20).
- AAF is indicated if there is failure to respond to eHF (16).
- AAF may be indicated as first line therapy in severe non-IgE mediated presentation (including multisystem involvement and growth faltering) (15, 16, 20).

Clinical Pearl for formula recommendations:

- There is no evidence that changing from one brand of therapeutic formula to another brand has treatment benefit in CMA.
- Appropriate time (2-4 weeks) on a therapeutic formula, eHF or AAF, is needed to assess diagnosis and response in non-IgE CMA.
- Read formula labels for appropriateness in managing CMA.
  - The term “hypoallergenic” is inadequate. Read product label to ensure proteins are adequately and extensively hydrolysed to ensure safety of recommendation in managing non-IgE CMA.
- If patient continues to experience symptoms on eHF or AAF, consider another diagnosis.

Refer to **Figure 2** for implementing the clinical practice guideline for management of CMA, including mother’s own milk and/or formula.

Figure 2. Clinical practice guideline for the nutritional management of cow’s milk allergy (CMA)



\*In children > 12 months age + eating a variety foods, consider enriched plant-based milks.

\*\*Limited evidence for use of exclusive eHF but can be considered for 2-4 weeks in some cases based on clinical assessment (20).

Legend: IgE, immunoglobulin E; CMA, cow’s milk allergy; MOM, mother’s own milk; CMP, cow’s milk protein; AAF, amino acid formula; eHF, extensively hydrolyzed formula; OFC, oral food challenge

#### 4.1 Breastmilk Fed Infants

Breastfeeding and/or provision of mother’s own milk is the clinical gold standard for infant feeding and nutrition. Breastfeeding and/or provision of mother’s own milk should be encouraged even in suspected CMA if this aligns with parental feeding preferences.

- Lactation counselor consultation is strongly encouraged in helping manage suspected CMA among infants that have been exclusively or near exclusively fed at the breast or with mother’s own milk to ensure access to a quality pump in a timely manner and to reassure family of likelihood of achieving long-term breastfeeding or mother’s own milk feeding goals.

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**Exclusive breastfeeding:** The time to assess response to CMP free diet among infants exclusively breastfeeding or receiving mother's own milk is no different from formula fed patients. However, studies show that CMP may be expressed in breast milk up to 3 days after mother has consumed CMP, which may influence time to assess response (refer to **Table 2**) (1). In some infants breastfeeding or receiving mother's own milk, mild symptoms may persist despite a strict elimination of CMP and is not necessarily an indication to introduce formula (9, 15-17, 20).

There is limited evidence to remove other foods from the diet of the mother in non-IgE CMA. It is only recommended to advance to other food restrictions in mother's diet if significant symptoms persist after a minimum of 2 weeks of eliminating CMP and family expresses preference to continue with mother's own milk.

- Food eliminations include soya, wheat and egg (5, 9), starting with soya. There is no evidence to restrict other foods in the management of non-IgE CMA (5).
- The recommendation to further eliminate foods beyond CMP is advised only if there is benefit to the infant and dietary restrictions are sustainable for mother. This includes a clinical assessment of ongoing symptoms as further dietary restrictions may not be necessary and some mild symptoms may not be of clinical concern (e.g., mucus in stools) to justify more dietary restrictions to mother.
- If symptoms persist or other clinical concerns are identified, a trial of eHF or soy formula (if age appropriate) can be recommended while mother is encouraged to continue pumping and maintain breastmilk supply.
  - Encourage freezing of mother's own milk which can be reintroduced later, either as part of confirming diagnosis and/or as feed
- If symptoms improve, the infant may be re-challenged with mother's own milk to ascertain long-term feeding plans, which may include therapeutic formula.
- If symptoms do not improve with CMP free diet and trial of formula, consider another diagnosis, refer to appropriate sub-specialty, and advise mother to return to usual diet as tolerated.

**Mixed feeding:** If an infant is receiving partial mother's own milk with formula supplementation but CMA is suspected upon introduction of formula, change to eHF and continue breastfeeding for 2 to 4 weeks.

- If symptoms persist, also initiate a CMP free diet for the parent and continue monitoring response to nutrition intervention.

**Breastmilk with severe presentation:** If an infant is receiving exclusive or partial mother's own milk with severe presentation, multi-system involvement and growth faltering, expert opinion suggests provision of AAF as first line therapy (9, 16, 20).

- The mother should initiate a strict CMP free diet and be encouraged to pump using a double electric pump to sustain adequate breast milk production.
- It is also encouraged that the family freeze any milk produced after a minimum of 3 days on the CMP free diet versus "pumping and dumping" as the milk may be used at a later date.

## 4.2 Formula Fed Infants

In suspected CMA:

- Infants less than 6 months of age should transition to eHF as first line therapy. The use of AAF is indicated as second line formula if CMA remains the primary diagnosis, but symptoms do not improve on eHF (1-8, 16).
  - **Clinical consideration:** *If the infant is unable to consume adequate eHF or AAF orally, the use of nasogastric tube feeding is recommended for the provision of treatment and to rule out CMA.*
- Infants greater than 6 months of age may receive soy formula as first line intervention (1-8).

- Infants near the age of 12 months or toddlers may transition to fortified plant-based milks if the nutritional intake from solids is adequate and meeting needs for growth and development.

## 5.0 Re-introduction of CMP

An oral food challenge (OFC) with CMP can assess if a patient has outgrown non-IgE mediated CMA.

- In cases with mild to moderate presentation, a CMP OFC may occur in the home setting or a medically supervised setting, at least 6 to 12 months after the last CMP exposure or up to the moment when the infant reaches 9 to 12 months, whatever is reached first.
- In cases with severe presentation, any CMP OFC should occur in a medically supervised setting and at least 12 to 18 months after the last CMP exposure.
- If the suspected reaction was FPIES, then a referral should be made to an Allergist.
- Prolonged avoidance to CMP may result in development of IgE-mediated allergy to CMP, thus skin testing may be considered before OFC to assess for sensitization.
- The CMP OFC includes one age-appropriate serving (about 120-240 mL or 4-8 oz) of CMP-containing formula or cow's milk which provides adequate protein to elicit a response.
- If no symptoms recur, CMP consumption can continue daily. If symptoms recur, eliminate all sources of CMP from feed and/or diet and reassess a future OFC with CMP or refer to Allergist (7, 8).

## 6.0 Appendix

This Appendix provides information regarding formula and diet for the nutritional management of CMA. Formula in Canada is regulated by Health Canada. Coverage of formula is regulated provincially. Access to and coverage of formula in Ontario is ever-changing. This resource is a guide and may not contain the most up to date information; consult with a RD for support.

*Table 3. Definitions of therapeutic formula for the management of cow's milk allergy (CMA)*

Type of Formula	Definition & Interpretation
Extensively hydrolyzed formula (eHF)	<ul style="list-style-type: none"> <li>• Intact protein formula can be hydrolyzed into smaller peptides by enzymes, heat, pressure or ultrafiltration to increase tolerance, digestibility and possibly reduce allergenicity (9). <b>The degree of hydrolysis among formula is variable.</b></li> <li>• The American Academy of Pediatrics defines eHF as a formula containing only peptides that have a molecular weight of &lt;3000 Daltons. eHF must have been shown not to provoke an allergic reaction in <math>\geq 90\%</math> of infants or children with confirmed CMA (18).</li> <li>• <b>eHF is not the same as partially hydrolyzed formula (pHF); pHF has not been shown to manage CMA safely and effectively.</b></li> </ul>
Amino acid formula (AAF)	<ul style="list-style-type: none"> <li>• Amino acid formula contains individual amino acids as the source of nitrogen.</li> <li>• Most AAF are considered hypoallergenic, however the term hypoallergenic does not have a consistent definition in the literature and may include partially hydrolyzed formula in some countries (9).</li> </ul>

Note: The term hypoallergenic alone is inadequate for the nutritional management of CMA.

Table 4. Appropriate therapeutic formula available in Ontario for the management of cow's milk allergy (CMA)

Formula Name	Type of Formula	Product Form	2024 Ontario Drug Benefit Coverage
<b>Infant</b>			
Nutramigen® A+® (Mead Johnson)	eHF	Powder	Covered
Nutramigen® A+® with LGG® probiotic (Mead Johnson)	eHF	Powder	Covered
Pregestimil® A+® (Mead Johnson)	eHF	Powder	Not covered
Similac® Alimentum® (Abbott)	eHF	Powder Ready to feed	Covered Covered
PurAmino® A+® (Mead Johnson)	AAF	Powder	Covered
Neocate® Infant (Nutricia)	AAF	Powder	Covered
Elecare® (Abbot)	AAF	Powder	Not covered
<b>Children</b>			
PurAmino A+ Junior (Mead Johnson)	AAF	Powder	Not covered
Neocate® Junior (Nutricia)	AAF	Powder	Covered
Neocate® Splash (Nutricia)	AAF	Ready to feed	Covered
Alfamino® Junior (Nestle)	AAF	Powder	Covered
Elecare® Jr (Abbott)	AAF	Powder	Not covered
Equacare® Jr (Cambrooke-Ajinomoto)	AAF	Powder	Not covered
Essential Care® Jr (Cambrooke-Ajinomoto)	AAF	Powder	Not covered

\*As of May 2024. eHF; extensively hydrolysed formula; AAF, amino acid formula

Refer to Ministry website for most up to date information on Ontario Drug Benefit (ODB) coverage; <https://www.formulary.health.gov.on.ca/formulary/> [updated monthly by the Ministry of Health and Long Term Care]

**Health Canada Notice:** Interim policy on the import and sale of infant formulas, human milk fortifiers and dietary products for the treatment of inborn errors of metabolism to mitigate formula shortages may impact formula choice; <https://www.canada.ca/en/health-canada/services/food-nutrition/legislation-guidelines/policies/interim-policy-importation-sale-infant-formula-human-milk-fortifiers-metabolic-products.html> [accessed August 2024]

Table 5. Appropriate plant-based formula available in Ontario for the management of cow's milk allergy (CMA) in children over the age of 6 months

Formula Name	Type of Formula	Product Form	Ontario Drug Benefit Coverage
<b>Infant</b>			
Enfamil A+ Soy (Mead Johnson)	Soy	Powder	Not covered
Simalac® Isomil® (Abbott)	Soy	Powder Ready to Feed	Not covered
Good Start® Alsoy (Nestle)	Soy	Powder	Not covered
Earth's Best® Non-GMO Plant Based (Earth's Best)	Soy	Powder	Not covered
<b>Children</b>			
Similac® Isomil Step 2 (Abbott)	Soy	Powder	Not covered
Good Start® Alsoy 2 with Omega 3 & 6 (Nestle)	Soy	Powder	Not covered

Note: Ross Carbohydrate Free (RCF®; Abbott) is a carbohydrate-free, soy-based formula with iron. This is a formula that carries a **significant risk of hypoglycemia due to lack of carbohydrate substrate and is indicated only in certain enteropathies under close medical nutrition supervision.**

Refer to Ministry website for most up to date information on ODB coverage;

<https://www.formulary.health.gov.on.ca/formulary/> [updated monthly by the Ministry of Health and Long Term Care]

**Health Canada Notice:** Interim policy on the import and sale of infant formulas, human milk fortifiers and dietary products for the treatment of inborn errors of metabolism to mitigate formula shortages may impact formula choice;

<https://www.canada.ca/en/health-canada/services/food-nutrition/legislation-guidelines/policies/interim-policy-importation-sale-infant-formula-human-milk-fortifiers-metabolic-products.html> [accessed August 2024]

**International Formula:**

- Sprout Organic (Australia & New Zealand; rice and pea based; infants)
- Else Toddler (USA; almond, buckwheat and tapioca based; FDA approved for ages 1-3 years)
- Bebe Mandorle (France; rice based; infants)
- Nature's One Baby's Only (USA; rice and pea based; for ages above 12 months)

Table 6. Formulas that are not appropriate for the management of cow's milk allergy (CMA)

Type of Formula
• Partially hydrolyzed formula (e.g. whey-based)
• Lactose free formula
• Goat's milk formula

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### **Cow's Milk Protein (CMP) Free-Diet:**

In Canada, milk is a priority food allergen. Cow's milk proteins (CMP's) are found in dairy. **All dairy must be eliminated on a CMP-free diet, including lactose-free choices, which still contain CMP.** CMP is also found in packaged/processed foods. Read the ingredient list of all food products, as well as the product monograph of medications, and any labels of natural health products, for any source of CMP's.

#### Food labels in Canada:

- All priority food allergens, like cow's milk, must be included in the *Ingredients List* or as a *Contains Statement* on all packaged products.
- Precautionary allergen statements, however, are voluntary.
  - *The current policy on the use of food allergen precautionary statements was set in 1994 by Health Canada's Food Directorate. When used, precautionary statements aim to: (1) alert the consumer to the possible presence of an allergen in a food, and (2) prevent the consumption of products labelled with a precautionary statement by persons having a food allergy. Health Canada's policy has been non-prescriptive with respect to the wording of precautionary statements, requiring only that such statements be truthful, clear and non-ambiguous, and that they not be a substitute for Good Manufacturing Practices.*

In IgE mediated CMA all products with an Ingredient List, Contains Statement or Precautionary Allergen Statement for cow's milk/dairy must be avoided.

- \*For IgE mediated CMA review Health Canada: Milk A Priority Food Allergen;  
<https://www.canada.ca/en/health-canada/services/food-nutrition/reports-publications/food-safety/milk-priority-food-allergen.html> [accessed May 2024]

**In non-IgE mediated CMA, there is no need to avoid products that contain a Precautionary Allergen Statement for cow's milk/dairy.**

Table 7. Ingredients and foods to avoid on a cow's milk protein (CMP)-free diet.

Other Names for Cow's Milk/Dairy or sources of CMP's	Common Sources of Cow's Milk/Dairy	Examples of Foods and Products that Often Contain Cow's Milk/Dairy or CMP's
<ul style="list-style-type: none"> <li>• Beta-lactoglobulin</li> <li>• Casein, rennet casein</li> <li>• Caseinate (ammonium caseinate, calcium caseinate, magnesium caseinate, potassium caseinate, and sodium caseinate)</li> <li>• De-lactosed or demineralized whey</li> <li>• Hydrolyzed casein</li> <li>• Lactalbumin and lactalbumin phosphate</li> <li>• Lactoferrin, lactoglobulin</li> <li>• Whey and whey protein concentrate</li> </ul>	<ul style="list-style-type: none"> <li>• Butter, Buttermilk</li> <li>• Cheese, curds</li> <li>• Cream</li> <li>• Gelato</li> <li>• Ghee and butter fat</li> <li>• Ice cream</li> <li>• Kefir (fermented drink)</li> <li>• Kumiss (fermented drink)</li> <li>• Sorbets</li> <li>• Sour cream</li> <li>• Yogurt</li> </ul>	<ul style="list-style-type: none"> <li>• Infant formula, cereals</li> <li>• Artificial butter, butter flavour or butter oil</li> <li>• Baked goods (including some type of breads) and baking mixes</li> <li>• Battered and fried foods</li> <li>• Broths and bouillons</li> <li>• Caramel colouring or flavouring</li> <li>• Casseroles, frozen prepared foods</li> <li>• Cereals, crackers</li> <li>• Chocolates; all kinds</li> <li>• Desserts, e.g., custards, puddings</li> <li>• Dips and salad dressings</li> <li>• Egg and fat substitutes</li> <li>• Fat replacers, e.g., Opta™ and Simplese®</li> <li>• Glazes, gravies and sauces</li> <li>• High-protein flour</li> <li>• Malt-drink mixes</li> <li>• Margarine</li> <li>• Pâtés, sausages</li> <li>• Pizza</li> <li>• Potatoes, e.g., instant</li> <li>• Seasonings</li> <li>• Soups, soup mixes, cream soups</li> <li>• Soy cheese</li> </ul>

\*Adapted from Health Canada: Milk A Priority Food Allergen; <https://www.canada.ca/en/health-canada/services/food-nutrition/reports-publications/food-safety/milk-priority-food-allergen.html> [accessed May 2024].

**Ingredients that do not contain CMP's:**

- **Calcium/sodium lactate**
- **Calcium/sodium stearoyl lactylate**
- **Cocoa butter**
- **Cream of tartar**
- **Oleoresin**

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**Calcium and vitamin D supplementation:**

- RDAs for calcium and vitamin D include all sources including food, fortified beverages, and supplementation.
- Infants, children, and nursing mothers should take calcium and vitamin D supplements to meet Recommended Dietary Allowances (RDA's) while on the CMP free diet.

*Table 8. Recommended Dietary Allowances (RDA's) for calcium and vitamin D based on age.*

Age	Calcium (mg)	Vitamin D (IU)**
0-6 months*	200	400
7-12 months*	260	600
1-3 years	700	600
4-8 years	1000	600
9-18 years	1300	600
Pregnant or lactating	1300	600
19-50 years	1000	600
Pregnant or lactating	1000	600

\*AI, adequate intake; mg, milligrams; IU, international units.

\*\* Many countries and some professional societies have guidelines for vitamin D intakes that differ for Recommended Dietary Allowances. For example, the Endocrine Society states that to maintain serum 25(OH) vitamin D levels above 75 nmol/L (30 ng/mL), adults might need at least 37.5 to 50 mcg (1,500–2,000 IU)/day of supplemental vitamin D, and children and adolescents might need at least 25 mcg (1,000 IU)/day. Use clinical judgement to guide vitamin D supplement recommendations.

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