

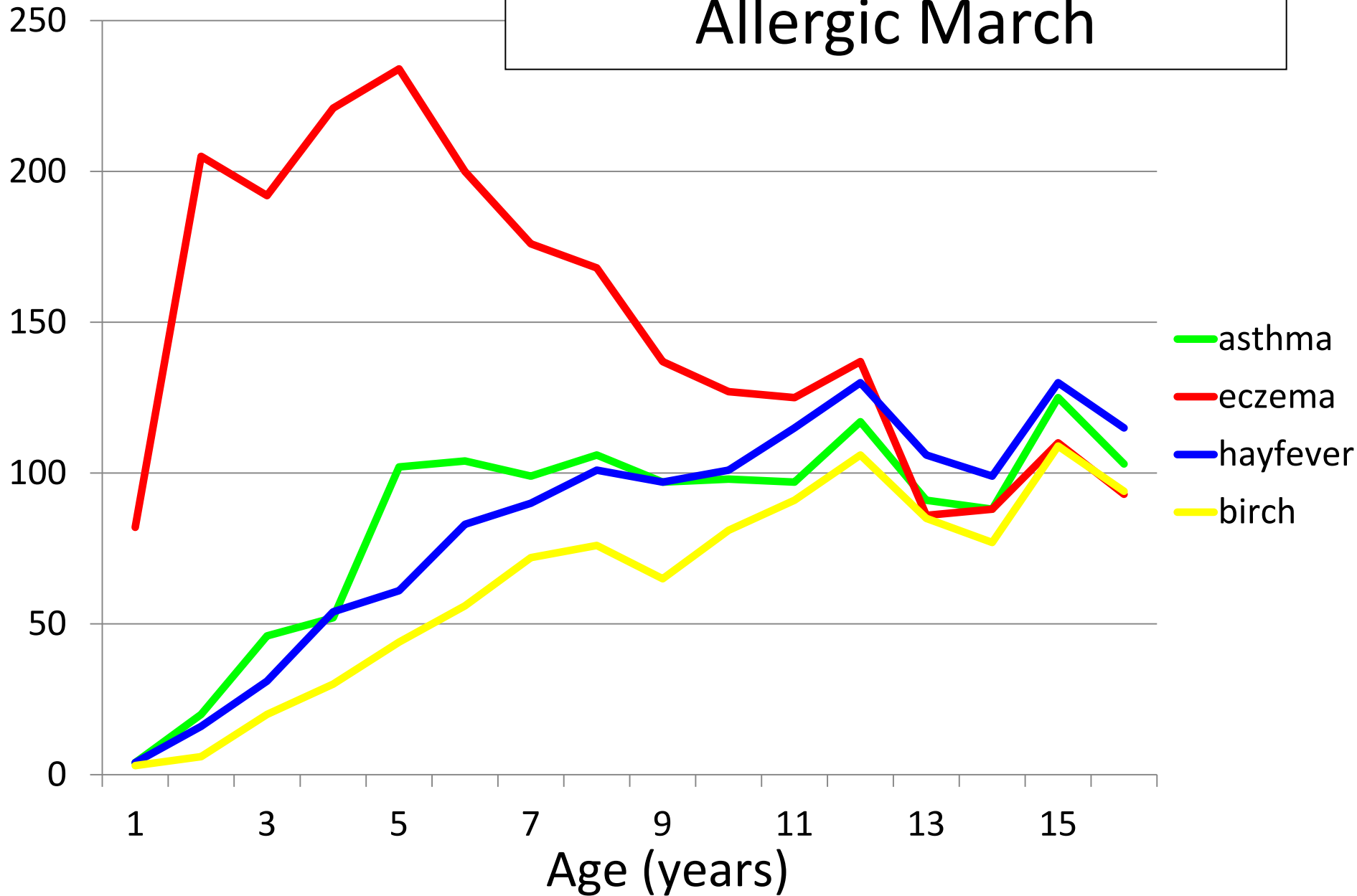
Cows Milk Protein Allergy CMPA

Scott Hackett

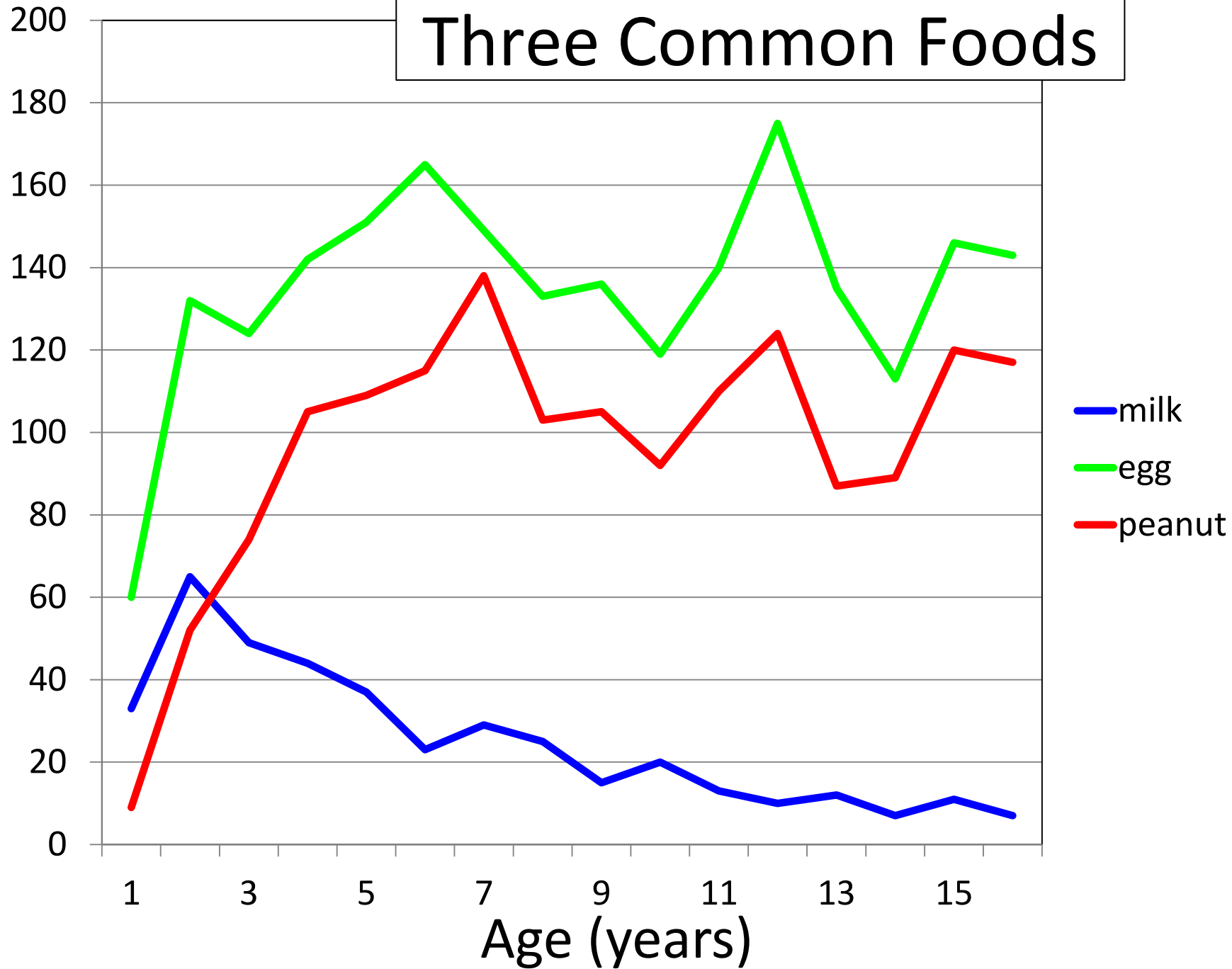
Consultant Paediatric Immunologist

Birmingham Heartlands Hospital

Allergic March



Three Common Foods



History is everything

Severe allergy

- ~~Angioedema~~
- ~~Bronchospasm, throat or chest tightness, hoarseness, wheezing, shortness of breath, cough~~
- Bradycardia, hypotension/shock, arrhythmias, (ischemia, chest pain)
- Collapse, decreased conscious level

- Approximately 10%-20% of allergy cases do not present with rash
- 80% of food-induced, fatal anaphylaxis cases were not associated with a rash

Clinical Course

- Uniphasic
 - Virtually instantaneous
- Rarely Biphasic
 - Recurrence up to 8 hours later
- Not protracted
 - Hours to days

Non-Type 1 causes

- Clue is the fact that reaction is not always consistent and may be dose related
- Occurs > 1 hour

Difficult Diagnoses

- Vasovagal syncope
- Scombroid poisoning
- Systemic mastocytosis
- Tyramine, sulphite, MSG reactions
- Oral allergy syndrome

Common Causes of Allergy

- Foods
- Aero-allergens
- Medications
- Latex
- Insect venoms

Foods Most Frequently Causing Allergy

- Egg

 - white

- Cow's milk

- Peanut

- Tree nuts

- Shellfish

- White fish

- Wheat

- Soya

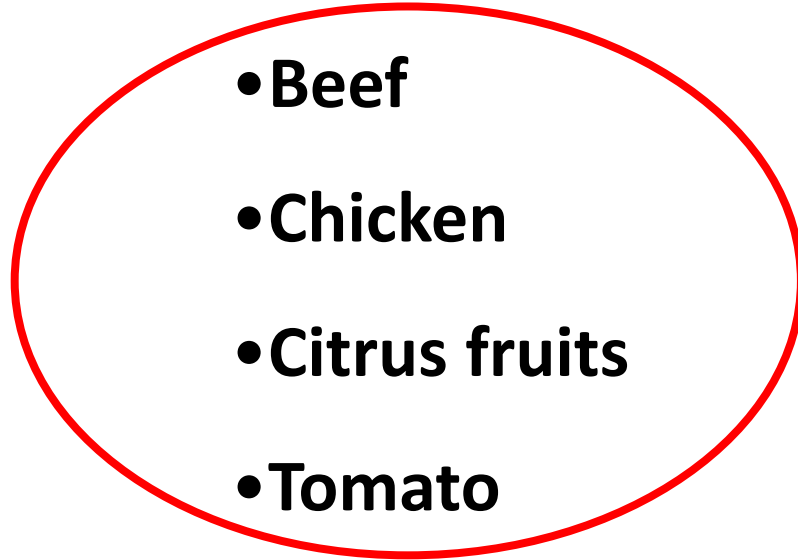
 - Legumes

- Beef

- Chicken

- Citrus fruits

- Tomato



Cows Milk Protein Allergy

CMPA

What is CMPA?

- 50% cutaneous symptoms,
- 50% gastrointestinal symptoms
- approx 20 - 30% respiratory symptoms

Type 1 and IV reactions

- A lot of confusion
 - Parents
 - Consensus guidelines

CMPA - Type I reactions

- Immediate
- Consistent
- Often early onset
- Weaning
- Other allergies
- Atopy

CMPA - Type IV reactions

- Majority of following not related to food.
- If severe, FTT or not responding to treatment consider
 - 4 week exclusion diet and then reintroduce

- 50% GORD due to CMPA?

Salvatore, Pediatr 2002

Natural history?

- Resolution
 - 56% at 1 year,
 - 77% at 2 years,
 - 87% at 3 years,
 - 92% at 5 and 10 years
 - 97% at 15 years

Can primary care manage CMPA in children

- Diagnosis
 - Yes
 - Spt?
- Reintroduction
 - No

[Meyer R.](#) New guidelines for managing cow's milk allergy in infants. [J Fam Health Care.](#) 2008

Type 1 and IV reactions

- A lot of confusion
 - Parents
 - Consensus guidelines
 - Improved

MAP guidelines

**Mild to Moderate
Non-IgE-mediated CMA
'Delayed' Onset Symptoms**

Mostly 2-72 hrs. after ingestion of CMP

Formula fed, exclusively breast fed
or at onset of mixed feeding

One, or often, more than one
of these symptoms:

Gastrointestinal

'Colic'
Vomiting - 'Reflux' - GORD
Food refusal or aversion
Loose or frequent stools
Perianal redness
Constipation
Abdominal discomfort,
Blood and/or mucus in stools in an
otherwise well infant

Skin

Pruritus, erythema
Significant atopic eczema

Respiratory

'Catarrhal' airway symptoms
(usually in combination with one
or more of the above symptoms)



**Can be managed in
Primary Care
See
Management Algorithm**

**Severe
Non-IgE-mediated CMA
'Delayed' Onset Symptoms**

Mostly 2-72 hrs. after ingestion of CMP

Formula fed, exclusively breast fed
or at onset of mixed feeding

Severe persisting symptoms of one or more of:

Gastrointestinal

Diarrhoea, vomiting, abdominal pain, food refusal
or food aversion, significant blood and/or mucus
in stools, irregular or uncomfortable stools.
+/- Faltering growth

Skin

Severe Atopic Eczema +/- Faltering Growth



**Cow's Milk Free Diet
Amino Acid Formula
AAF**

Advise breast feeding
mother to exclude all CMP
from her own diet and to
take daily Calcium (1000mg)
and Vitamin D (10mcg)
supplements

Ensure:

Urgent referral to a
paediatrician with an
interest in allergy

Urgent dietetic referral



**Severe
IgE CMA**

ANAPHYLAXIS

Immediate reaction
with severe respiratory
and/or CVS signs and
symptoms.

(Rarely a severe
gastrointestinal
presentation)

**Emergency
Treatment
and
Admission**

**Mild to Moderate
IgE-mediated CMA
'Acute' Onset Symptoms**

Mostly within minutes of ingestion of CMP
Mostly formula fed or at onset of mixed feeding

One or more of these symptoms:

Skin

Acute pruritus, erythema, urticaria,
angioedema
Acute 'flaring' of atopic eczema

Gastrointestinal

Vomiting, diarrhoea, abdominal pain/colic

Respiratory

Acute rhinitis and/or conjunctivitis



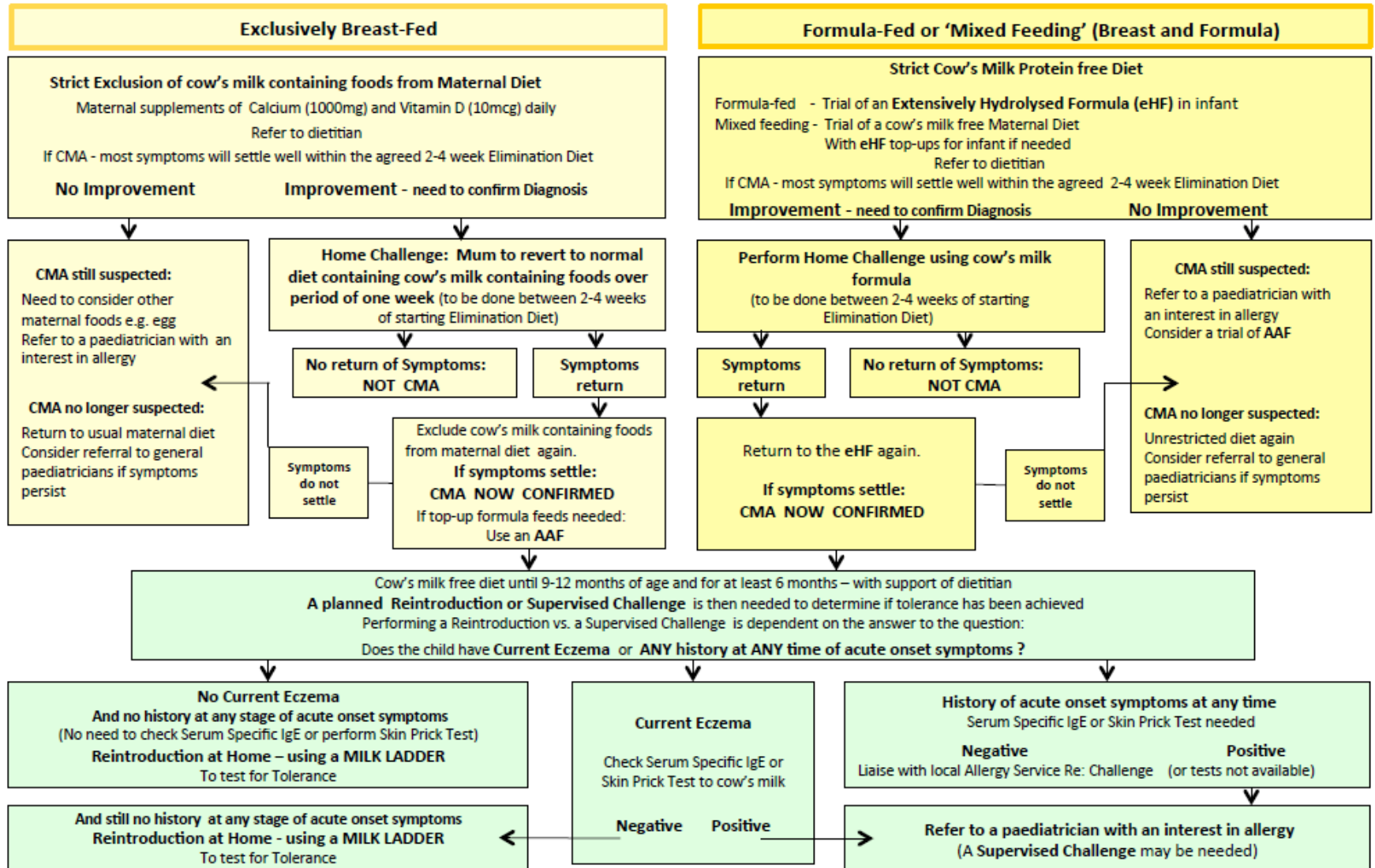
**Cow's Milk Free Diet
Extensively Hydrolysed Formula - eHF**
(Initial choice, but some infants may then need an
Amino Acid Formula - AAF trial if not settling)

Advise breast feeding mother to exclude all CMP from
her own diet and to take daily Calcium (1000mg) and Vit
D (10mcg) supplements
IgE testing needed.

**If diagnosis confirmed (which may require a Supervised
Challenge)** – Follow-up with serial IgE testing and later
planned and Supervised Challenge to test for acquired
tolerance

Dietetic referral required

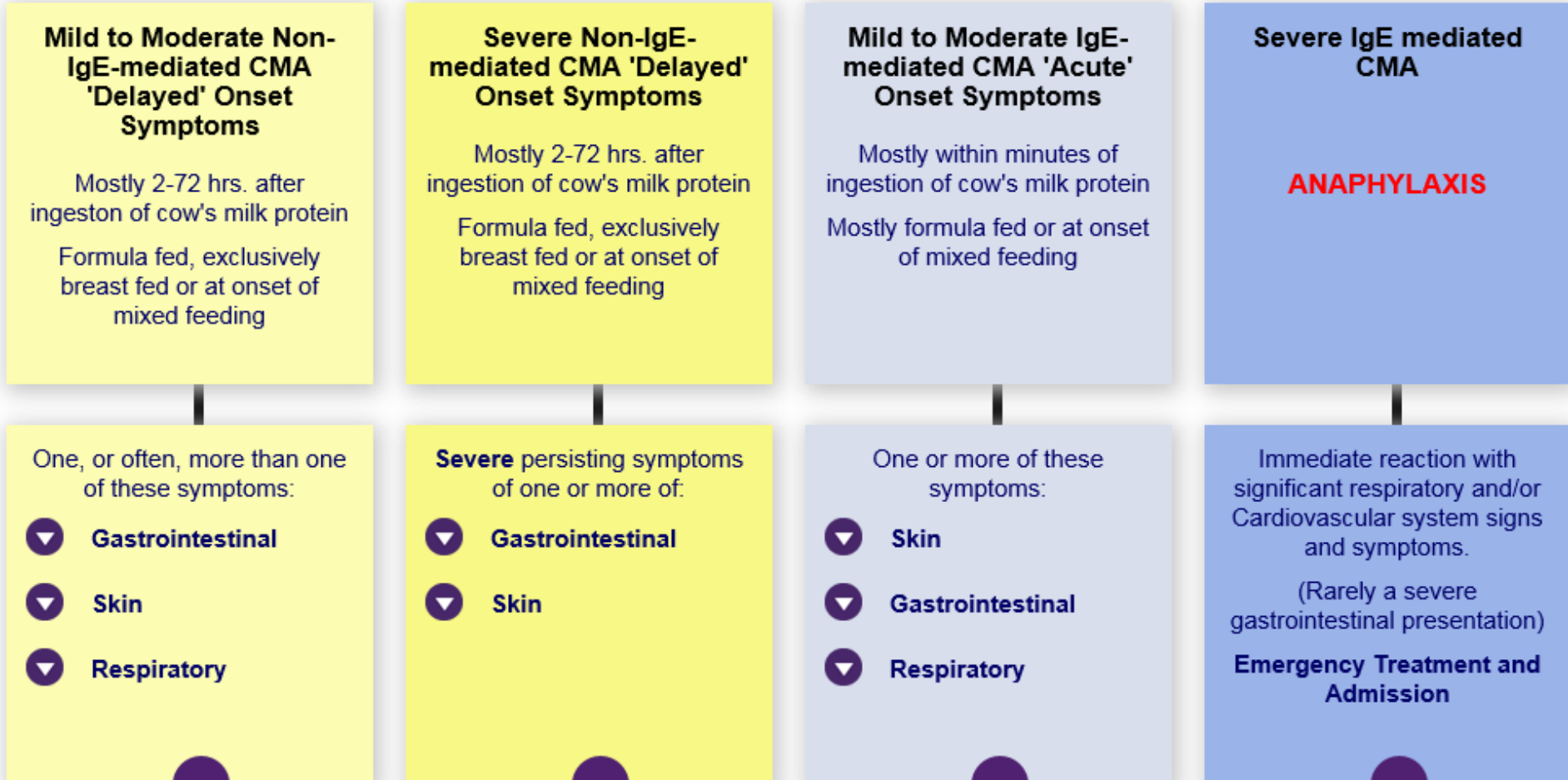
**If competencies to arrange and interpret testing are not
in place - early referral to a paediatrician with an
interest in allergy - advised**



<http://cowsmilkallergyguidelines.co.uk/interactive-algorithm/#div8>

Suspected Cow's Milk Allergy (CMA) in the 1st Year of Life - having taken an Allergy-focused Clinical History

TB/AF/NS/CV/JW | Oct 2013



Case 1

- Breast fed 6/12 old with eczema
- First bottle rash and swelling only within 15 minutes.
- Diagnosis?
- What would you do?

Severe Non-IgE-mediated CMA 'Delayed' Onset Symptoms

Mostly 2-72 hrs. after ingestion of cow's milk protein

Formula fed, exclusively breast fed or at onset of mixed feeding

Severe persisting symptoms of one or more of:

- ▼ **Gastrointestinal**
- ▼ **Skin**

Mild to Moderate IgE-mediated CMA 'Acute' Onset Symptoms

Mostly within minutes of ingestion of cow's milk protein

Mostly formula fed or at onset of mixed feeding

One or more of these symptoms:

- ▼ **Skin**
- ▼ **Gastrointestinal**
- ▼ **Respiratory**

Severe IgE mediated CMA

ANAPHYLAXIS

Immediate reaction with significant respiratory, Cardiovascular system and symptoms

(Rarely a severe gastrointestinal presentation)

Emergency Treatment Admission

One or more of these symptoms:

▼ **Skin**

Acute pruritus, erythema, urticaria, angioedema

Acute 'flaring' of atopic eczema

▼ **Gastrointestinal**

Vomiting, diarrhoea, abdominal pain/colic

▼ **Respiratory**

Acute rhinitis and/or conjunctivitis



Cow's Milk Free Diet

Extensively Hydrolysed Formula - eHF

(Initial choice, but some infants may then need an **Amino Acid Formula - AAF** trial if not settling)

Advise breast feeding mother to exclude all CMP from her own diet and to take daily Calcium (1000mg) and Vit D (10mcg) supplements

IgE testing needed.

If diagnosis confirmed (which may require a Supervised Challenge) – Follow-up with serial IgE testing and later planned and Supervised Challenge to test for acquired tolerance

Dietetic referral required

If competencies to arrange and interpret testing are not in place - early referral to a paediatrician with an interest in allergy - advised

Severe persisting symptoms
of one or more of:

▼ **Gastrointestinal**

▼ **Skin**



One or more of these
symptoms:

▼ **Skin**

▼ **Gastrointestinal**

▼ **Respiratory**



Immediate reaction with
significant respiratory and/or
Cardiovascular system signs
and symptoms.

(Rarely a severe
gastrointestinal presentation)

**Emergency Treatment and
Admission**



Cow's Milk Free Diet

Amino Acid Formula AAF

Advise breast feeding mother to exclude all CMP from her own diet
and to take daily Calcium (1000mg) and Vitamin D (10mcg)
supplements

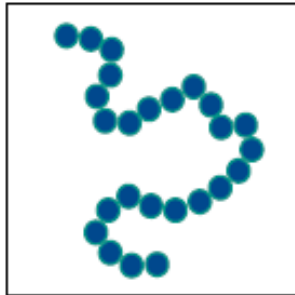
Ensure:

Urgent referral to a paediatrician with an interest in allergy

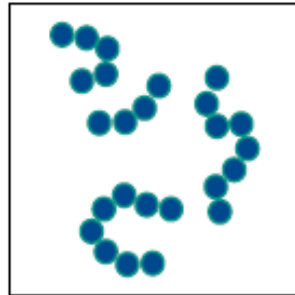
Urgent dietetic referral

Cows Milk Substitutes

(Hypoallergenic) infant formulas



Intact milk protein
formula



Partially hydrolyzed
formula



Extensively hydrolyzed
formula



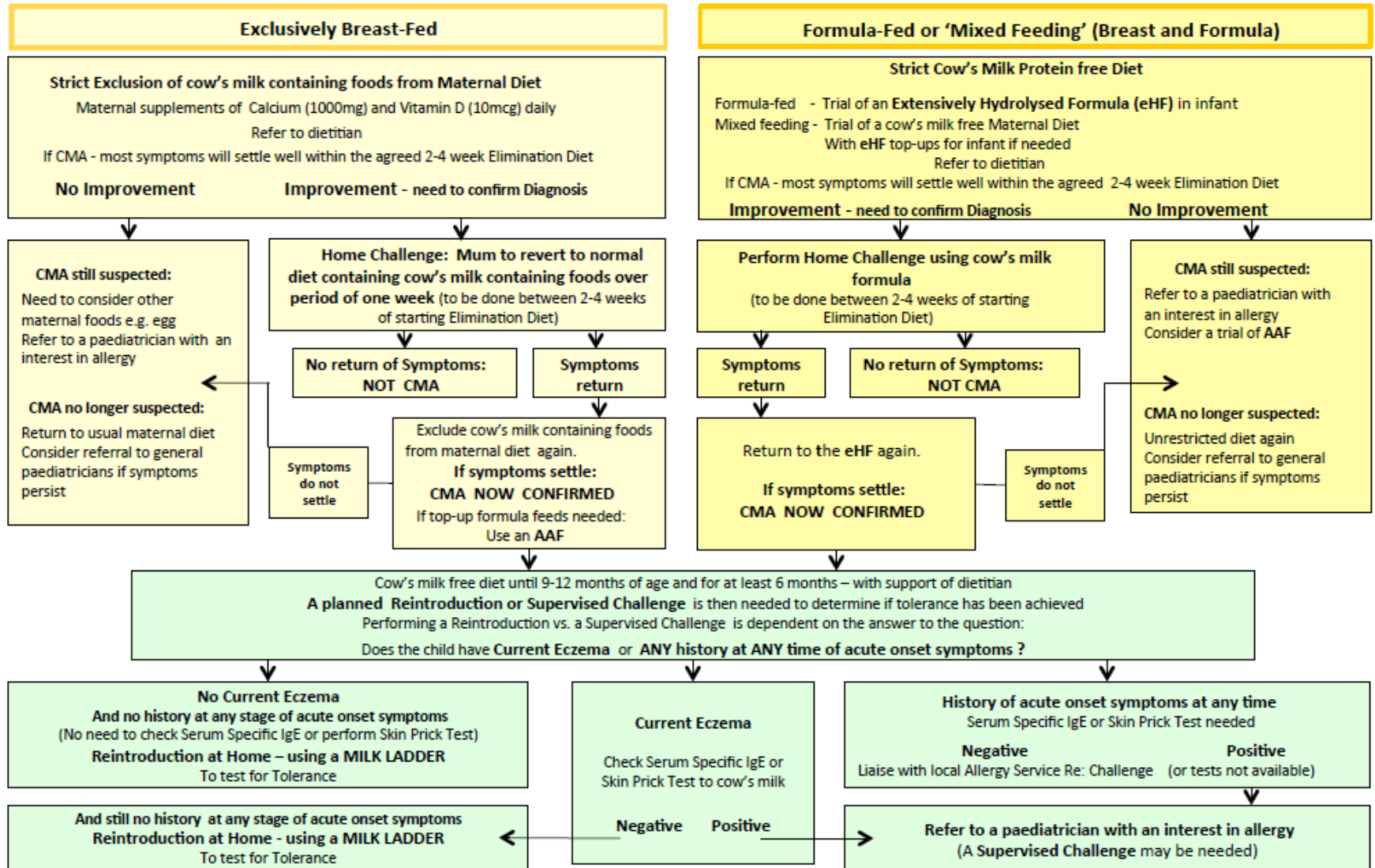
Amino acid-based
formula

Allergenicity

- Need dietician

Case 2

- Breast fed 6/12 old with eczema
- Formula fed, rash and swelling 4 hours after; also diarrhoea and colic next day
- Diagnosis?
- What would you do?



Non-IgE-mediated, after 2-72 hrs

- **Gastrointestinal**

- ‘Colic’
- Vomiting - ‘Reflux’ - GORD
- Food refusal or aversion
- Loose or frequent stools
- Perianal redness
- Constipation
- Abdominal discomfort,
- Blood and/or mucus in stools in an otherwise well infant

Non-IgE-mediated, after 2-72 hrs

- **Skin**

- Pruritus, erythema
- Significant atopic eczema

- **Respiratory**

- ‘Catarrhal’ airway symptoms (usually in combination with one or more of the above symptoms)

Non-IgE-mediated, after 2-72 hrs

Severe persisting Gastrointestinal symptoms

Or

Severe Atopic Eczema

+/- Faltering Growth

Non-IgE-mediated, management

- Complex
- Is the diagnosis correct
- Most primary care unless severe
- Different formula versus breast fed

Non-IgE-mediated, management

- Mild try hydrolysed or soya or maternal exclusion
 - Might need AAF
 - Keep primary care
 - Reintroduce to see if recurs
- Severe try AAF or maternal exclusion
 - Needs referral

Cases

- Breast fed child – marked eczema, loose stools, mum thinks related to milk
- 6/12 old, bottle fed, severe GORD, not responding to treatment
- 4/12 old, mixed feeding, bad constipation, ‘is it the milk doc?, nan says it is’

Summary

- Immediate versus delayed reactions
- Mild versus severe
- Mild primary care
- Severe secondary care
- Majority resolve

Thank you

Any questions?