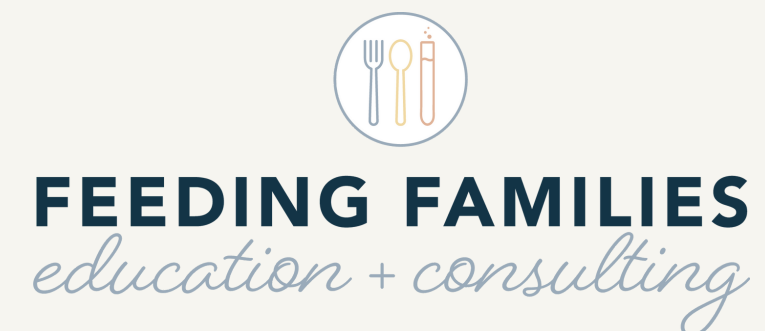


To Wean or Not to Wean?

Cow's Milk Protein Allergy Management in Human Milk-Fed Infants

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Disclosures

- I have no conflicts of interest to disclose related to this presentation topic

About Me



I am an RD, IBCCLC, and self-proclaimed human milk nerd



I received my FARE Certificate in Pediatric Food Allergy in 2022



My research focuses combines bench human milk analysis with clinical observation to inform best practices



Objectives

- List two signs/symptoms that may indicate the need for referral to a dietitian to oversee an elimination diet.
- Describe the difference between an IgE and non-IgE mediated allergic response.
- List diagnostic criteria for FPIAP, FPIES, and GERD.
- Define the basic structure of an elimination diet.
- Describe the possible impacts of unaddressed dietary allergen exposure in the breastfed infant.

Defining the Problem

*Fussy
Baby*



*Inappropriate
Management*



*Unnecessary
Weaning*



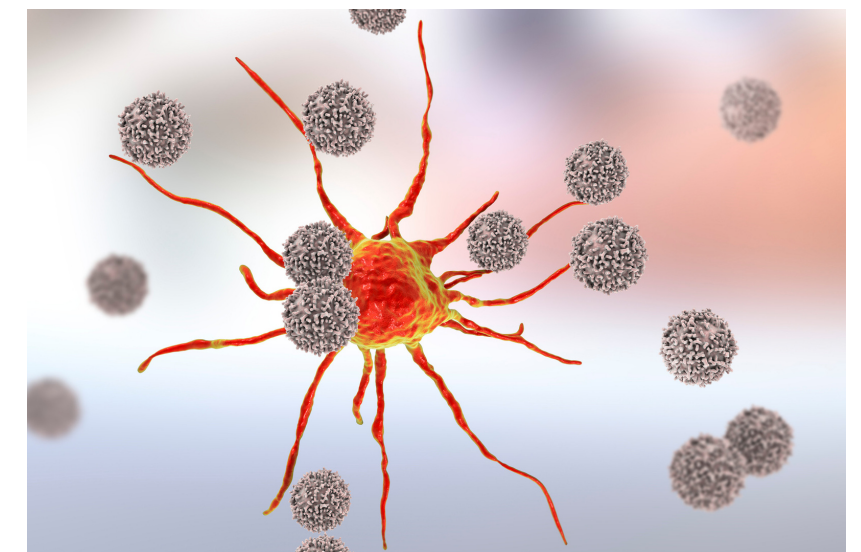
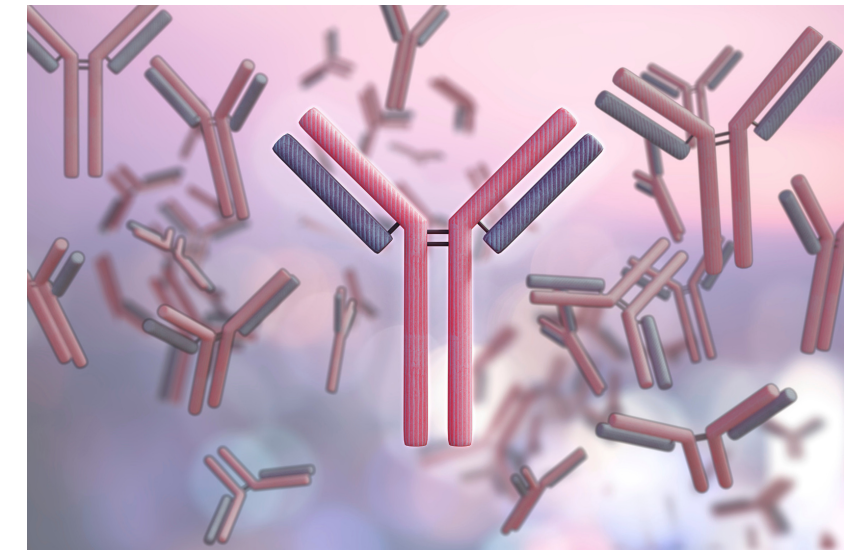
A microscopic image showing several immune cells, likely macrophages or dendritic cells, with a large yellow cell in the center and several blue cells around it. The cells have a bumpy, textured surface and long, thin protrusions. A semi-transparent white rectangular box is centered over the image, containing the text "Allergic Reactions".

Allergic Reactions

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There are two types of allergic reactions.

- IgE and Non-IgE mediated reactions
- Some forms of allergic reactions are a mix of IgE and non-IgE mediated reactions - such as EOE
- Triggers for a mixed reaction can be difficult to identify



Food Allergic Disorders

IgE Mediated

- Anaphylaxis
- Food-dependent exercise-induced anaphylaxis (FDEIA)
- Pollen Food Syndrome (PFAS)
- Oral Allergy Syndrome

Mixed

- Eosinophilic Gastrointestinal disorders - namely Eosinophilic Esophagitis (EoE)
- Atopic Dermatitis

Non-IgE Mediated

- Food protein-induced enterocolitis syndrome (FPIES)
- Food protein-induced allergic proctocolitis (FPIAP)
- Food protein-induced enteropathy (FPE)

Non-IgE Mediated Reactions are Issue Specific

T-cells

B-cells

Cytokines

FPIES

Inconclusive,
TH2 skewing

Absent IgE, IgG4, IgA
responses

Decreased TGF-B, increased
TNF-a and IFN-g

FPIAP

Unknown

Unknown

Unknown

FPE

Increased intestinal
intraepithelial
suppressor/cytotoxic
CD8+ T cells

Absent

Increased IFN-g and IL-
4 level in jejunal biopsy
specimens



Food Protein-Induced Allergic Proctocolitis (FPIAP)

"Gut Food Allergy"

Food Protein-Induced Allergic Proctocolitis (FPIAP)

- Generally develops in the first months of life
- There is no accurate diagnostic exam available
- Clinical diagnosis follows resolution of issues following dietary elimination
- Presents as rectal bleeding in otherwise healthy (well nourished) infants
- Does not usually result in growth delay or poor weight gain
- Cow's milk and soy are the common offending foods

Approximately 20%
of breastfed infants
have spontaneous
resolution

Table 2: Response to dietary protein elimination in 95 exclusively breast-fed infants with food-induced eosinophilic proctocolitis

Protein eliminated	Frequency of positive response
Cow's milk	62/95
Egg	18/95
Corn	6/95
Soy	3/95
Multiple (two of above)	5/95
Not identified	11/95
Response only to L-amino acids	4/95

Lake AM J Pediatr Gastroenterol Nutr 2000;30(1):S58-S60 Web Link: https://journals.lww.com/jpgn/Fulltext/2000/01001/Food_Induced_Eosinophilic_Proctocolitis.9.aspx



Management of Elimination Diets

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Elimination diets can be used to determine if maternal diet is causing discomfort in a breastfeeding infant.

Signs and symptoms in the infant:

- Reflux
- Constipation
- Diarrhea
- Vomiting
- Bloody stools
- Rashes
- Rare cases of anaphylaxis



What is usually eliminated?



Cow's Milk Protein (Dairy)

Cow's Milk Protein Allergy (CMPA) occurs in ~2-7.5% of infants. Damage/symptoms can take ~2 weeks to resolve after removal from diet.



Soy Products

Soy protein allergy is less prevalent, with ~1.1% of infants affected. Infant reactions to parent ingestion of large volumes of soy have been seen in as little as 12 hours after ingestion.



Gluten Containing Products

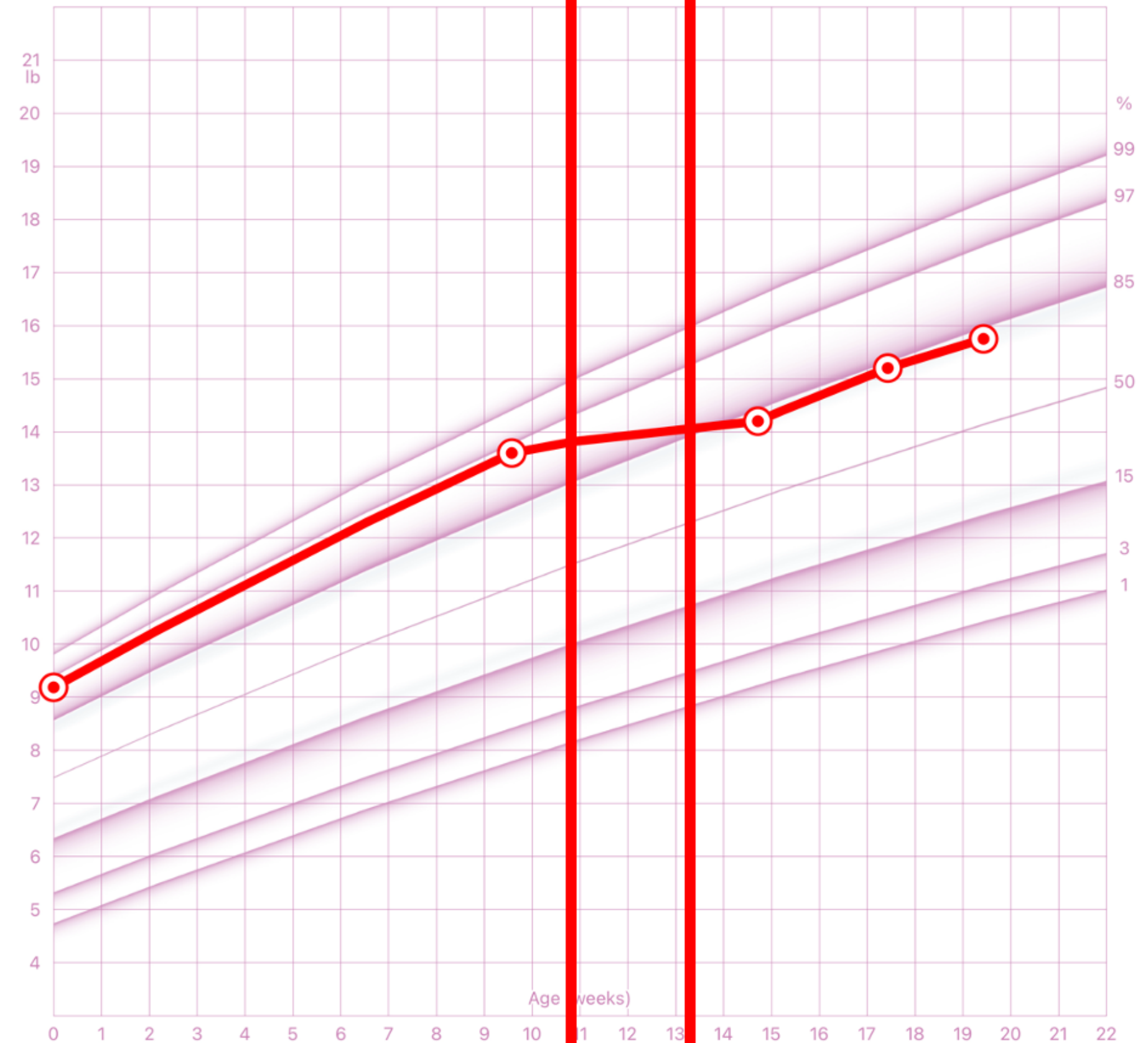
It is estimated that ~1% of the population is affected by celiac disease. Not commonly associated with infant allergic response to breastmilk.

BACKGROUND

- Infant is 12 weeks old and parents have seen blood in stool ~5x over the life of the infant.
- Parent chose to eliminate dairy and did not see a marked improvement in symptoms, just a little less crying or agitation. Parent did see blood in the stool after eliminating dairy.
- Over the past 3 days soy has been eliminated & parent reports marked improvement in infant stooling frequency and stool color, including no visible blood in the stool.
- Infant is recovering from COVID - so unsure if soy has improved infant's output or infant is feeling better.

BACKGROUND

- Infant is 3 months old feeding q 2.5-3 hrs during the daytime
- Hx of green frothy stools d/t oversupply in parent
- S/p TT release, IBCLC was monitoring weight gain
- Stooling 6+ times/day, large watery stools



**STAND
UP**

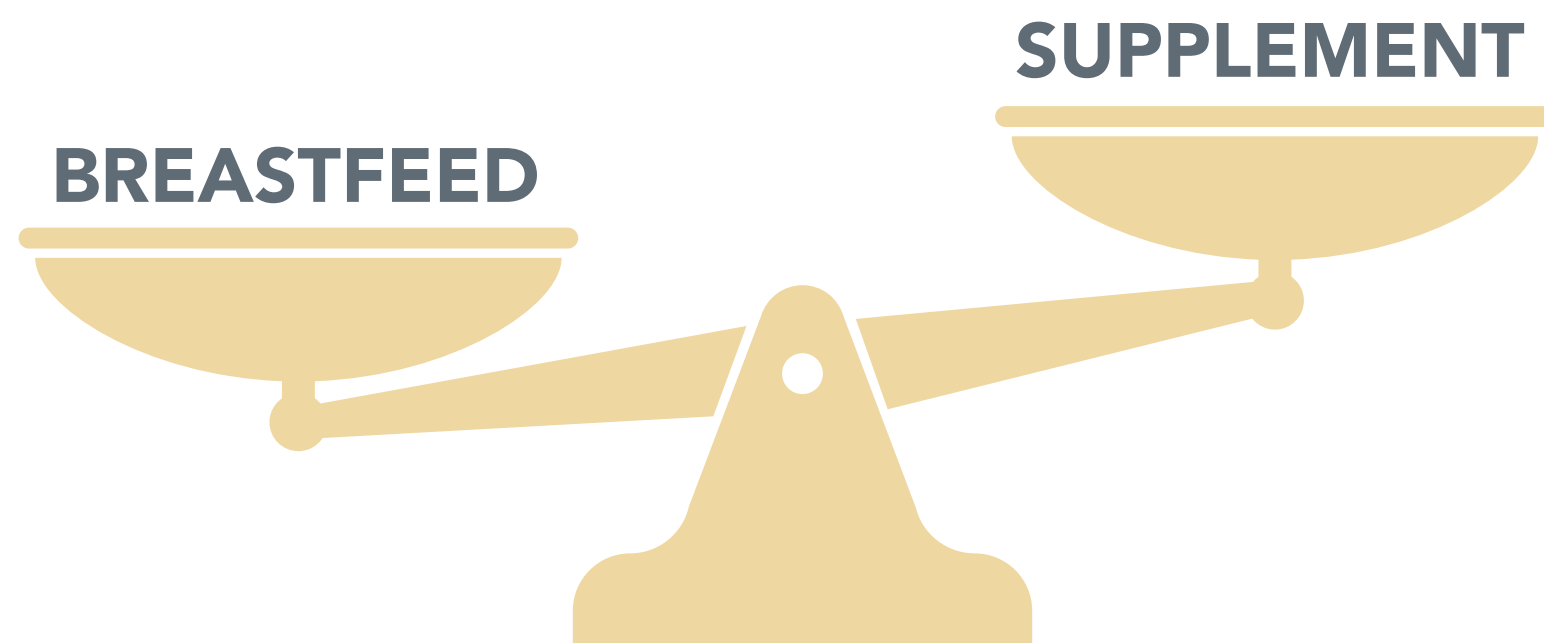
**ADJUST DIET AND
BREASTFEED**

**SUPPLEMENT BABY
WITH FORMULA**

**STAY
SEATED**



MOVING FORWARD



- Parent is feeling confident with choosing foods
- Infant is showing some improvement in s/s per parent report

BLOOD IN THE STOOL



- Mother messaged because she saw blood in the stool and stools became green/frothy
- Informed me that she would like to move forward with removing gluten from her diet

Patient reports blood in stool

Dairy is not a trigger

Soy is not a trigger

Another food item is the trigger

Allergies aren't causing the problem

Infant then got RSV, so we ended up following up in 2 weeks

Since our last appointment...

- Infant has had frequent, short feedings during the day
- Parent is seeing mucous in the stool and saw blood in the stool twice
- Infant has been arching her back after feedings
- Infant is not sleeping longer than 30-minute stretches during the day



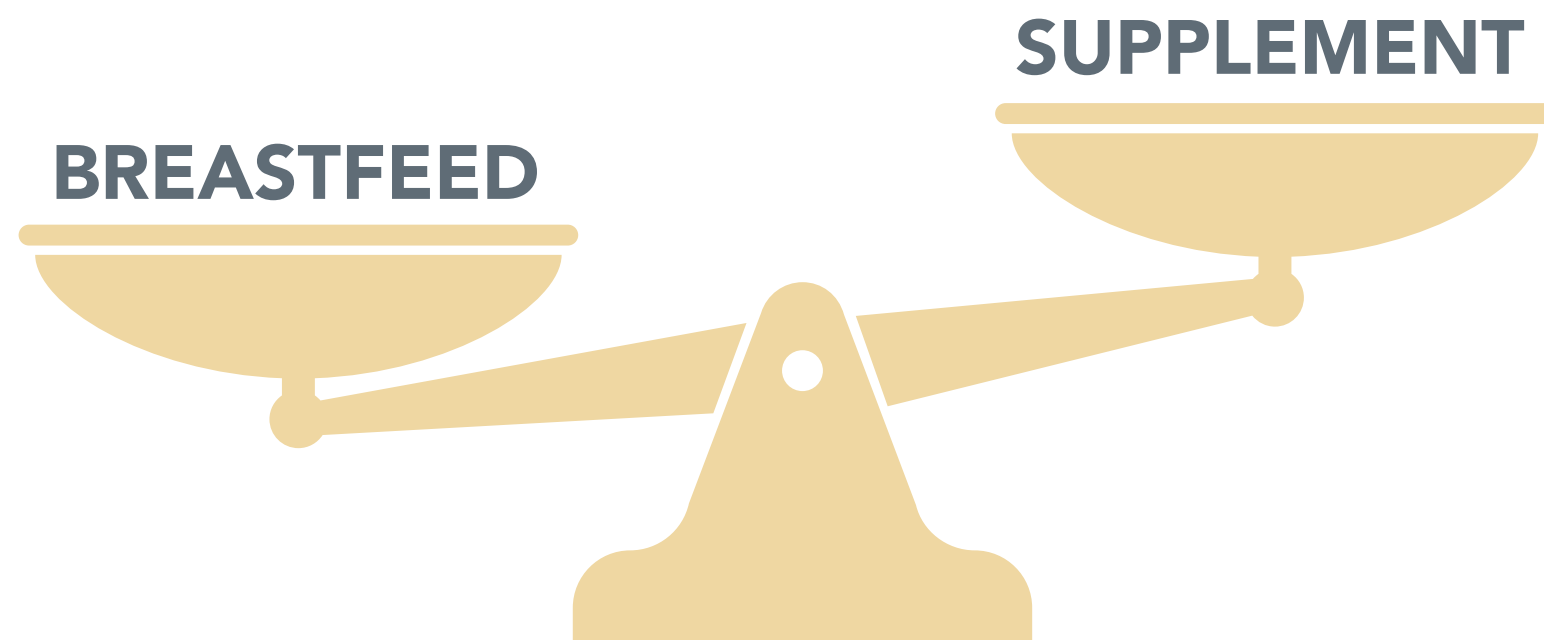
**STAND
UP**

**ADJUST DIET AND
BREASTFEED**

**SUPPLEMENT BABY
WITH FORMULA**

**STAY
SEATED**

MOVING FORWARD



- Parent unsure if removing gluten was helpful overall
- Parent felt confident choosing foods to feed herself, beginning to feel frustrated though
- Also curious about GERD
- I-GERQ-R available for screening, but it does take 7 days to complete

THE NEXT WEEK

- Parent was served scrambled eggs at her mom's and saw bloody stools, increased mucous, and increased frequency of stooling
- We went back in her food diary and wondered if the decrease in dairy-containing products was reducing exposure to egg [she didn't eat plain eggs much]
- Parent completed GERD screener, was at a 16 (> 16 suggests GERD may be an issue)
- Discussed pros and cons of doing a soy or gluten challenge (reintroduction) at this point

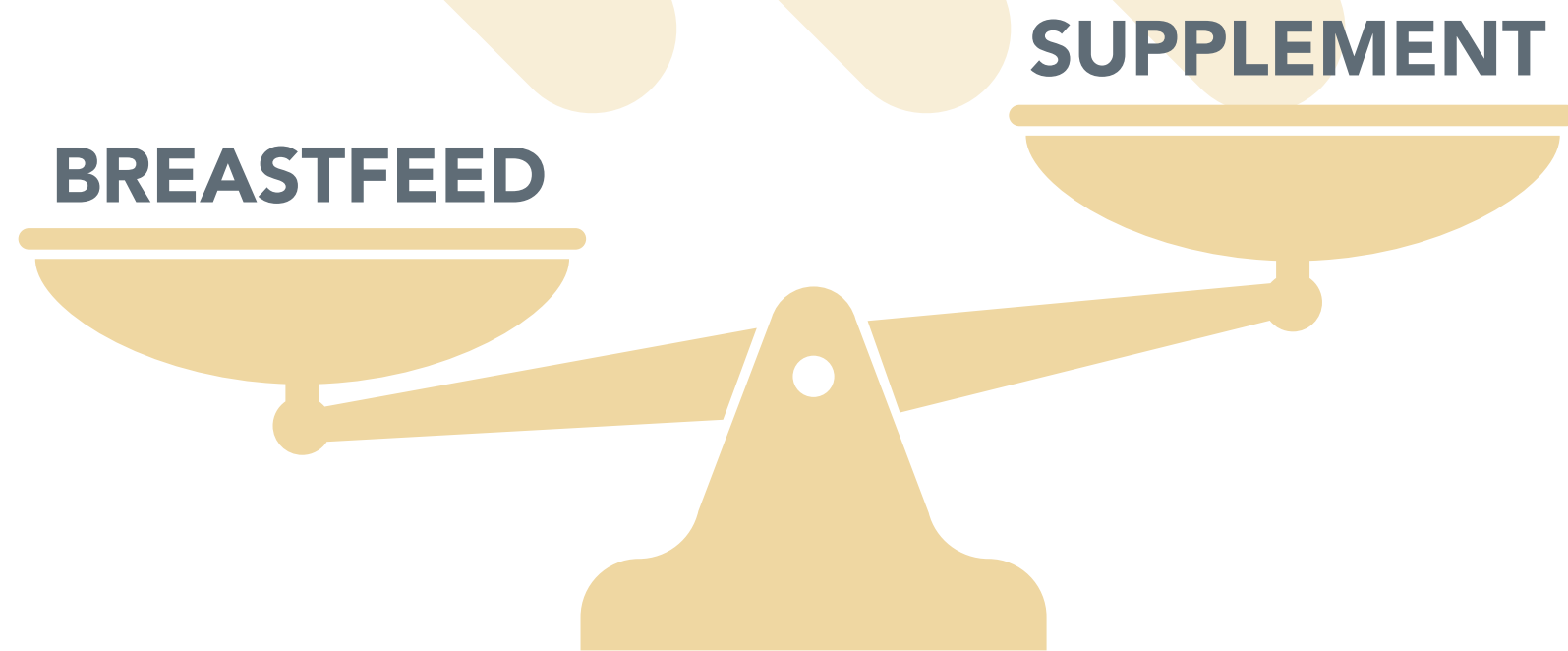
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MOVING FORWARD?

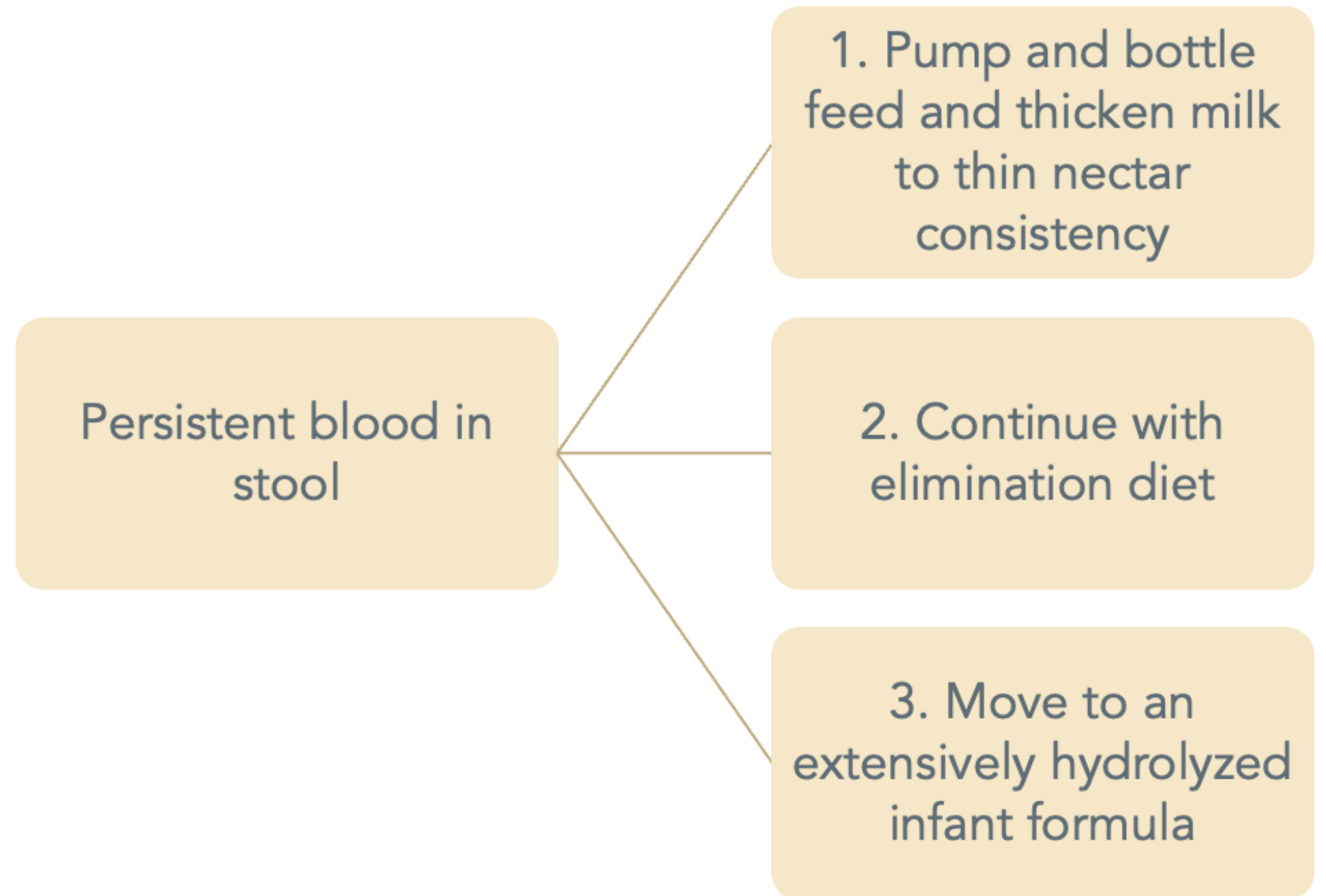


At this point, I was beginning to become concerned about maternal overwhelm, confidence in choosing foods, and food variety that would meet her restrictions.

- Referral to ped for further eval of GERD
- Continue dairy, soy, and gluten elimination
- Parent chose to expand elimination diet to include eggs
- Parent chose not to challenge soy or gluten

AT THE NEXT APPOINTMENT

- Blood in the stool
- Stooling back up to > 6
- Mucous in stool
- Parent ate out and thought she had done enough research, but could have had accidental exposure
- Parent was feeling really defeated especially with having to return to work in 3 weeks [occupation: school teacher]



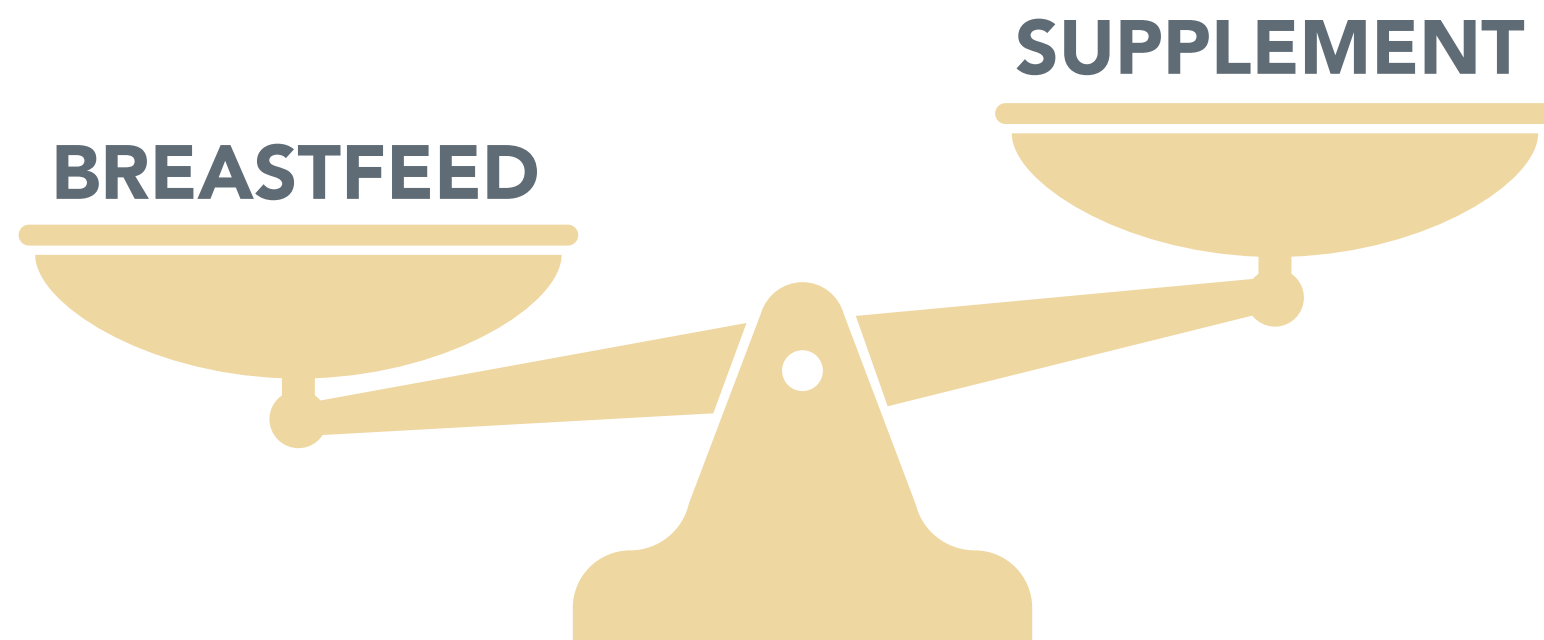
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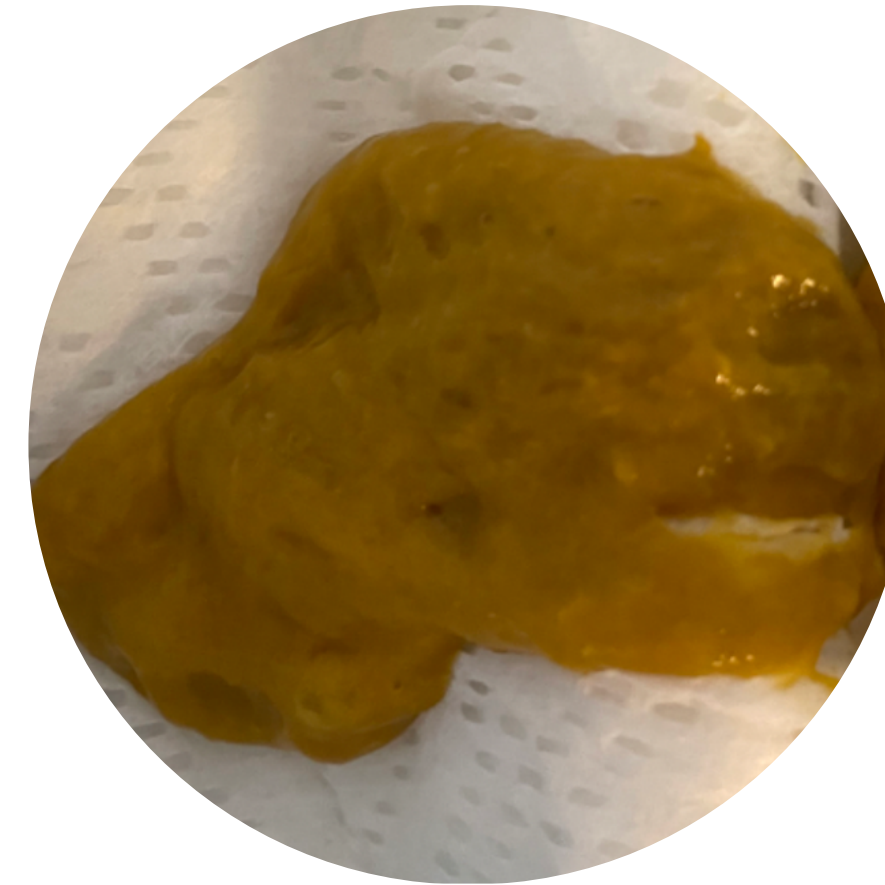


- Family wanted to pump and bottle feed > ordered GelMix to thicken bottles to thin nectar consistency
- No diet changes
- Family chose this option because it would give them quick insight into if GERD was a contributing factor before supplementing

How Baby Responded

Over two appointments...

- Infant has had improvement with behavior
- Stooling frequency had decreased
- Thickening 4 feeds was causing difficulty stooling, so reduced to thickening 2 feeds
- Stool consistency improved & frequency remained at 1-3/day
- Discussed hydrolyzed formula options in the event freezer stash did not cover human milk needs when returning to work
 - Family chose HiPP HA1



**INITIAL
GELMIX
STOOL
RESPONSE**

**AFTER
REDUCING
TO 2
THICKENED
FEEDS**



THE BLOOD RETURNED



STAND
UP

ADJUST DIET AND
BREASTFEED

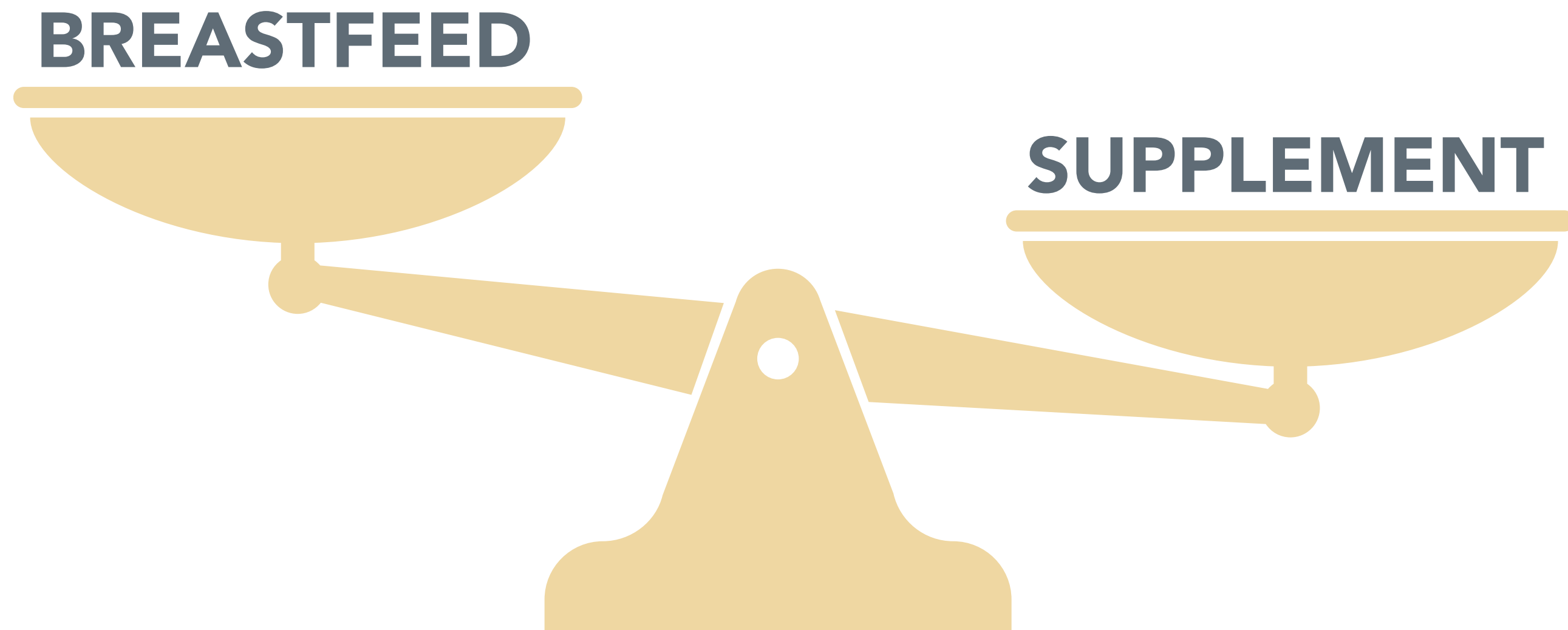
SUPPLEMENT BABY
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STAY
SEATED



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At this point the family agreed that we should utilize HiPP HA1, which is amino-acid based, to confirm a protein was triggering the response



Finally, normal stools!

- The family still felt strongly about the benefits of human milk
- We all agreed that the mother needed more flexibility in her diet if this was going to be sustainable



Supporting Reintroduction

*Add gluten back to
diet & pump*

(soy, egg, and dairy-free milk)



*Challenge &
assess for s/s*



*Add soy back to
diet & pump*

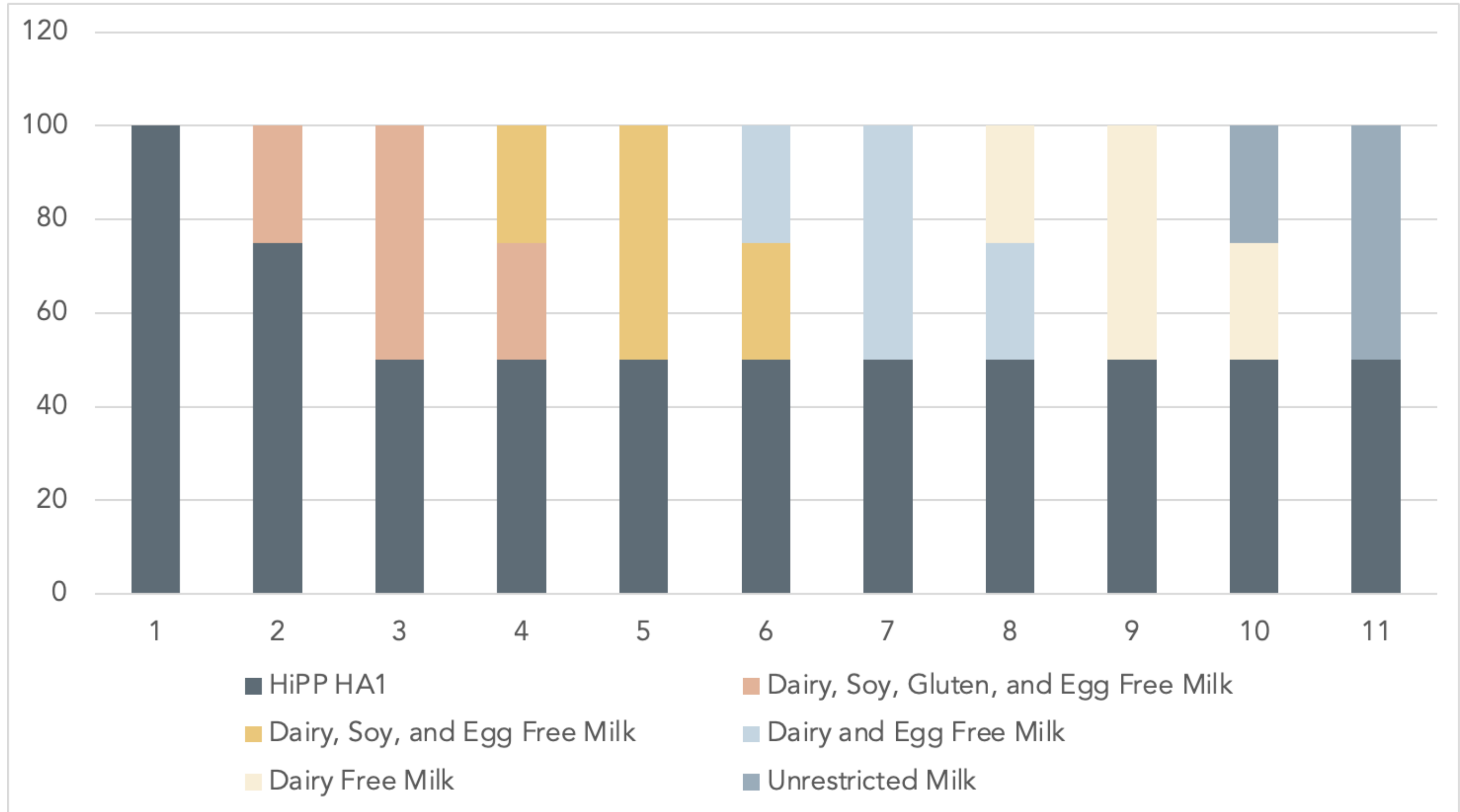


*Challenge &
assess for s/s*



...and so on

REINTRODUCTION



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Assessing Harm



Keep Breastfeeding

Human milk is the optimal nutrition source for infants and elimination diets should be the first option rather than discontinuing breastfeeding.



FPIAP - A Concern?

20% of FAIAP infants have spontaneous resolution and almost all become tolerant to the trigger food by 3 years old. More than 1/3 of healthy infants test positive for occult blood in stools.




Maternal Goals & Mental Health

If parents feel strongly about keeping human milk in the diet, remember that any human milk has benefits. When maternal mental health is struggling, we should explore other options

TAKEAWAYS

- It's not a straight line
- Let the family guide the journey
- Remember that blood in the stool can be for many reasons and you don't always need to eliminate more foods for a small sighting
- Use all your assessment skills to inform choices – baby behavior, sleep patterns, skin responses, etc.
- Elimination diets can be stressful for parents, we can use our knowledge of food to help make it less stressful
- It's important to balance advocating for human milk feeding and parental mental health



*Together we can
normalize breastfeeding.*

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