

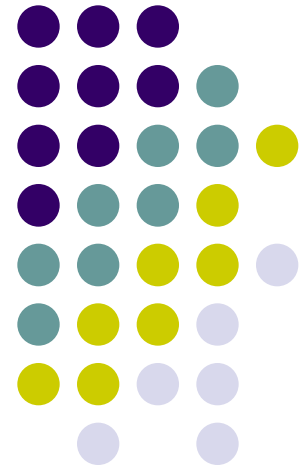
An Evidence-Based, Cost-Sensitive Infant Formula Algorithm for the Infant on Georgia's WIC

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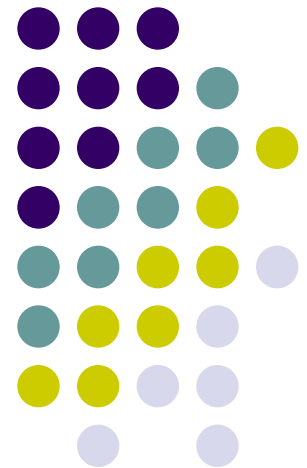
Atlanta, GA



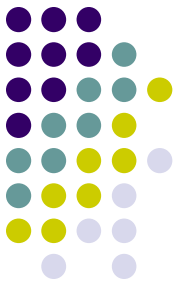
Faculty Disclosure

- Centocor- Grant/Honorarium/ Consultant
- Given- Grant / Consultant
- Berlex- Grant

- Mead Johnson- Consultant
- Prometheus- Honorarium
- UCB- Grant
- SHIRE- Honorarium
- Abbott- Grant
- Nestle-Consultant
- Nutricia- Honorarium
- Astra Zeneca- Honorarium/Grant
- QOL – Grant / Consultant



Optimal Infant Nutrition

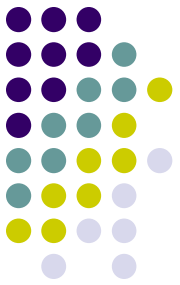


- BREAST IS BEST!
- Composition of breastmilk serves as basis for formula, but **cannot** be duplicated
- Casein to whey ratios can be adjusted to be similar to breastmilk, but types of casein and whey in cow's milk are different
- Formula Manufacturers focus is to duplicate outcomes

AAP's Indications for Infant Formulas



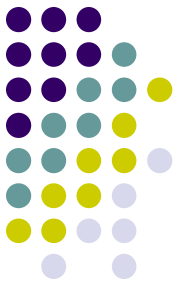
- As a substitute (or supplement) for human milk in infants whose mothers choose not to breastfeed (or not to do so exclusively),
- As a substitute for human milk in infants for whom breastfeeding is medically contraindicated
- As a supplement for breastfed infants that do not gain adequate weight



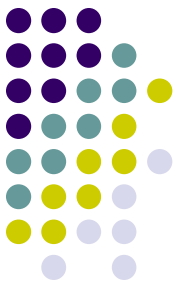
Need for Guidance

- Overabundance of types of formulas
- Manufacturer/Product name changes
- “Boutique” specialty formulas prescribed more often than expected
- Confusion/lack of understanding of “additives” with families and physicians

Basis for Infant Formula Algorithm



- Formula prescription should be medically indicated
- Decision should not be manufacturer biased
- Decrease parental influence
- Evidence based
- Specialty formulas used more often than expected
- Provides guidance for common conditions such as gastroesophageal reflux, infantile colic or irritability, allergies, rectal bleeding/colitis, malabsorption, and decreased weight gain
- Note- lactose reduced formulas are not covered due to extremely low incidence of true lactose intolerance in infants

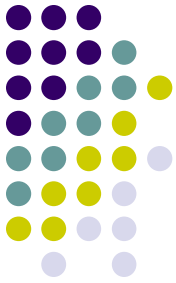


Basis of Algorithm

- Cost sensitive
- Substantial cost difference between “routine” cow’s milk based formulas & “boutique” specialty formulas
- For WIC approved formulas, this translates into approximately \$150 versus \$510 or more per month for a single infant consuming 32 ounces of formula per day
- Our previous assistance to WIC GA credited with 52 million in savings. Since the algorithm adopted, 1% non-formulary use

Average Monthly Cost of Georgia's WIC-Approved Infant Formulas*

Breastmilk with Vitamin D 400 i.u. daily supplement	Vitamin D 50 ml container = \$8.33 (1 ml per day = .16 per ml x 30 days) = \$4.80 \$4.80	
Tier 1 Formula	<i>Powdered (12 oz.)</i>	<i>RTF (1 qt)</i>
"Routine" Cow's Milk Based (Partially Hydrolyzed 100% Whey)	Yield 85 oz./32oz=2.65 30 days/2.65=11.32 cans a mo 12 cans x price \$12.49=\$149.88 \$149.88	Price \$6.38 x 30 days= \$191.40 \$191.40
Tier 2 Formulas	<i>Powdered (12.3-12.9 oz.)</i>	<i>RTF (1 qt)</i>
Soy Protein	Yield 90 oz/32 oz=2.81 30 days/2.81=10.67 cans a mo 11 cans x price \$13.96= \$153.56 \$153.56	Price \$6.55 x 30 days= \$196.50 \$196.50
Cow's Milk Based with Rice Starch	Avg. yield 91.5 oz/32 oz=2.85 30 days/2.85=10.52 cans a mo 11 cans x price \$14.49= \$159.39 \$159.39	Price \$6.16 x 30 days= \$184.80 \$184.80
Partially Hydrolyzed Casein & Whey (60% whey: 40% casein)	Avg. yield 87 oz/32 oz= 2.71 30 days /8.71= 11.07 cans a mo 12 cans x price \$14.99= \$179.88 \$179.88	Price \$6.99 x 30 days= \$209.70 \$209.70
Tier 3 Formulas	<i>Powdered (16 oz.)</i>	<i>RTF (1 qt)</i>
Extensively Hydrolyzed Casein (100% casein)	Avg. yield 114 oz/32 oz=3.56 30 days/3.56=8.42 cans a mo 9 cans x price \$24.84= \$223.56 \$223.56	Price \$9.17 x 30 days= \$275.10 \$275.10
Extensively Hydrolyzed Casein with MCT oil (100% casein)	Avg. yield 112 oz/32 oz=3.50 30 days/3.50=8.57 cans a mo 9 cans x price \$28.71= \$258.39 \$258.39	-
Tier 4 Formula	<i>Powdered (14.1 oz.)</i>	<i>RTF (1 qt)</i>
Amino Acid Elemental	Avg. yield 90 oz/32 oz=2.81 30 days/2.81=10.67 cans a mo 11 cans x price \$46.53= \$511.83 \$511.83	-



WIC...Supplemental Formula



- Maximum daily allowance of reconstituted formula
 - 6-11 Month fully formula fed yields 21.0 oz per day
 - Due to decreased amounts more formula, significant time WIC participant will have to buy formula. A cost effective formula would be beneficial.

Formula Algorithm for Infants on Georgia WIC

Stanley Cohen, MD, FAAP & Kylie Crane, RD, LD

Term Infant

Breastmilk¹

Supplementing or Not Breastfeeding

"Routine" Cow's Milk Based Protein Formula

Tier 1

Breastmilk¹
"Routine" Cow's Milk Based Protein Formula

Tier 2

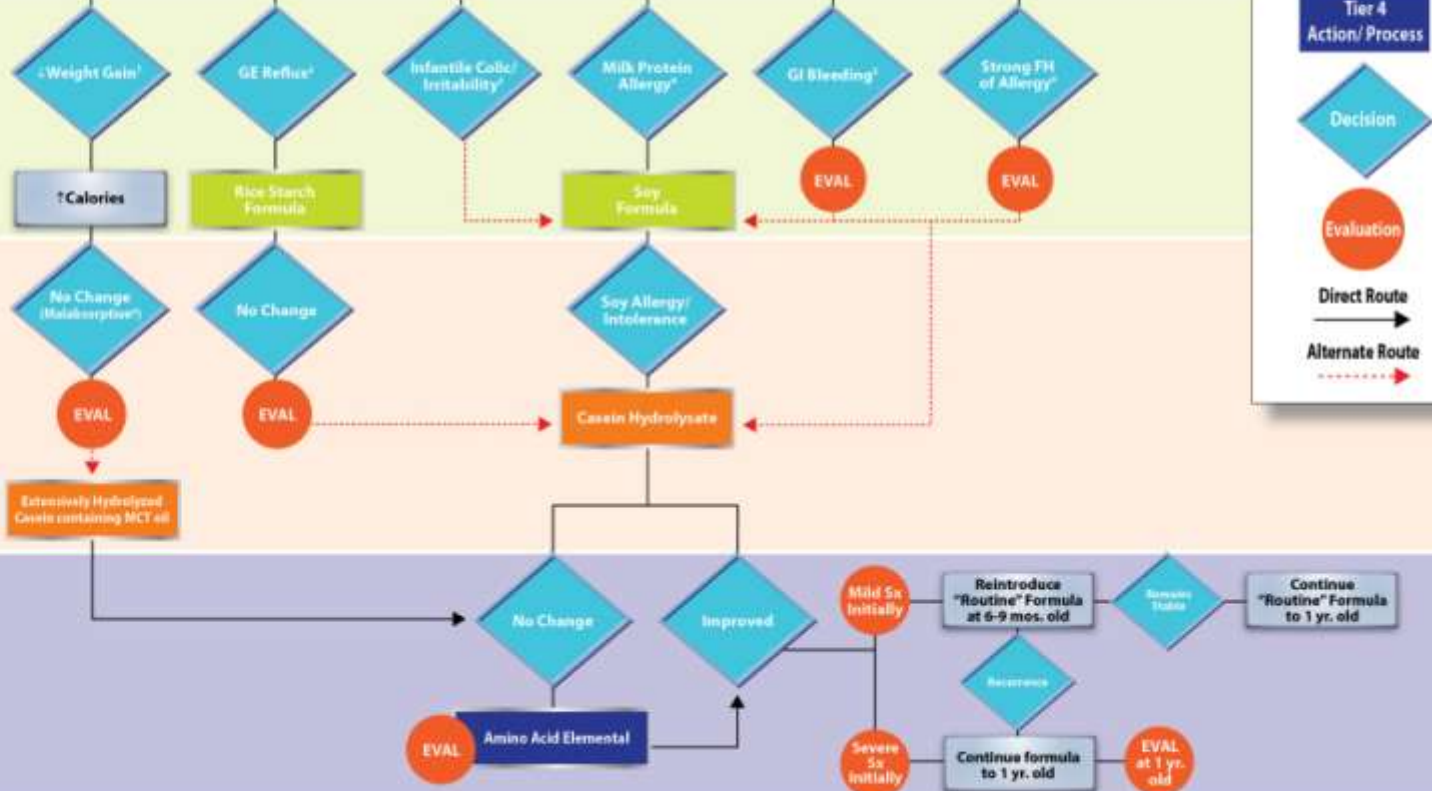
Rice Starch Formula
Soy Formula

Tier 3

Extensively Hydrolysed Casein containing MCT oil
Casein Hydrolysate

Tier 4

Amino Acid Elemental



Legend

Start/ Finish

Pre-Term Start

Tier 1
Action/ Process

Tier 2
Action/ Process

Tier 3
Action/ Process

Tier 4
Action/ Process

Decision

Evaluation

Direct Route

Alternate Route

Whole Vitamin D Cow's Milk should be started at 1 year of age unless formula is indicated.

Legend

Start/ Finish

Pre-Term Start

Tier 1
Action/ Process

Tier 2
Action/ Process

Tier 3
Action/ Process

Tier 4
Action/ Process

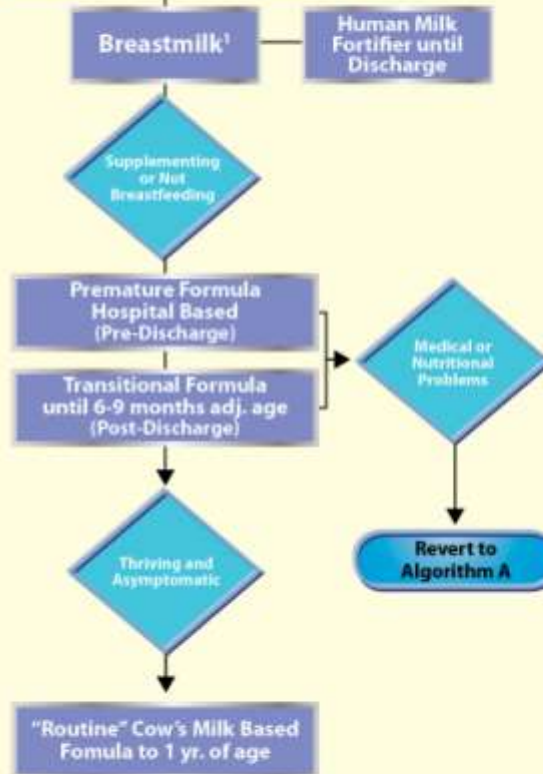
Decision

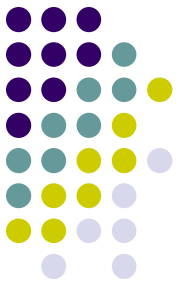
Evaluation

Direct Route
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Alternate Route
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Pre Term Infant (<37 weeks)



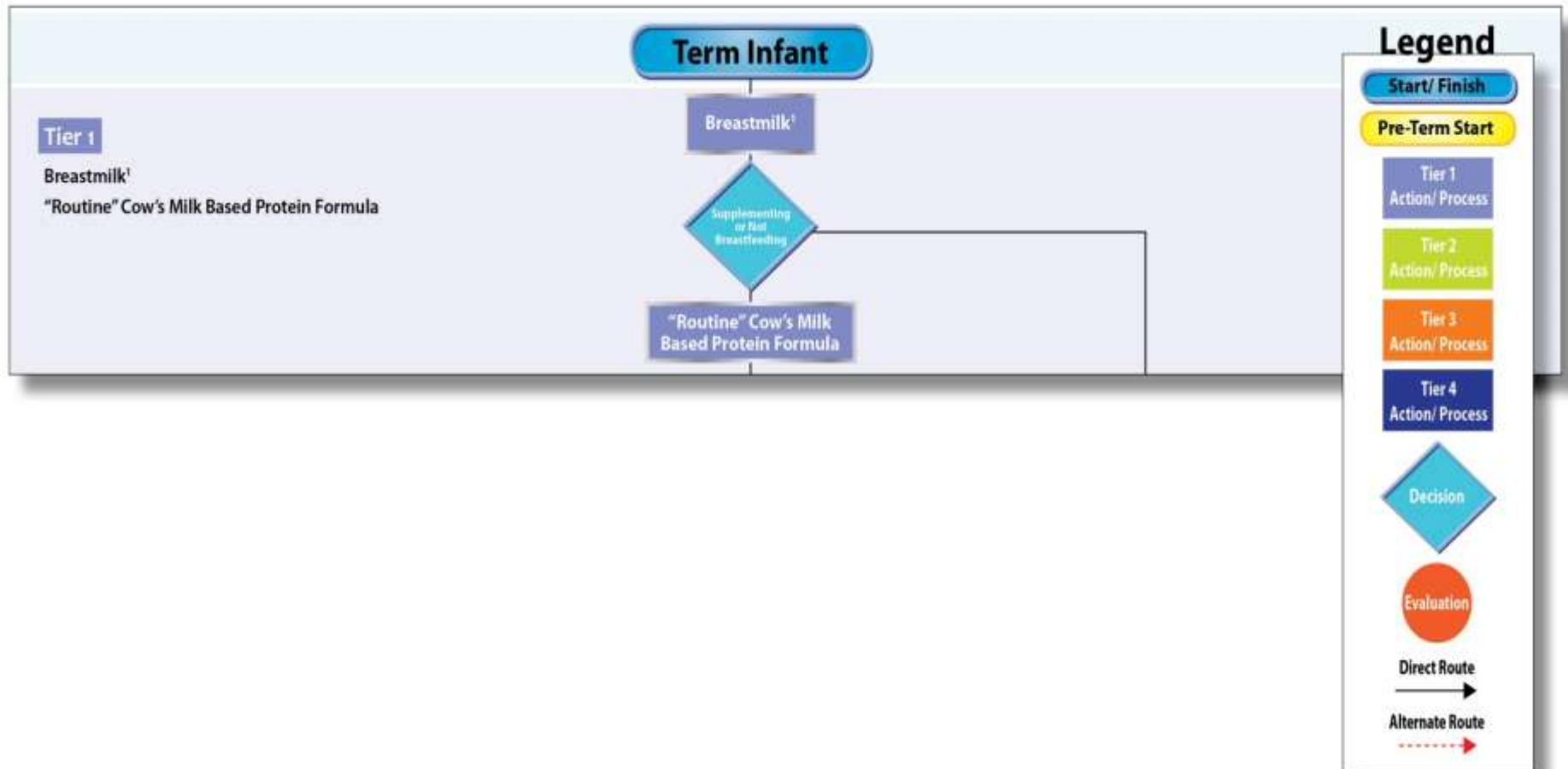


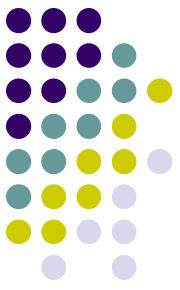
Tier 1 Infant Formula

- “Routine” Cow’s Milk Based Protein Formula
- Due to Georgia’s WIC rebate contract- Gerber Good Start Gentle (Nestle) is considered a “routine formula” in this algorithm even though it is partially hydrolyzed whey

Breastfeeding or Tier 1 Infant Formula

To breastfeed or not to breastfeed...

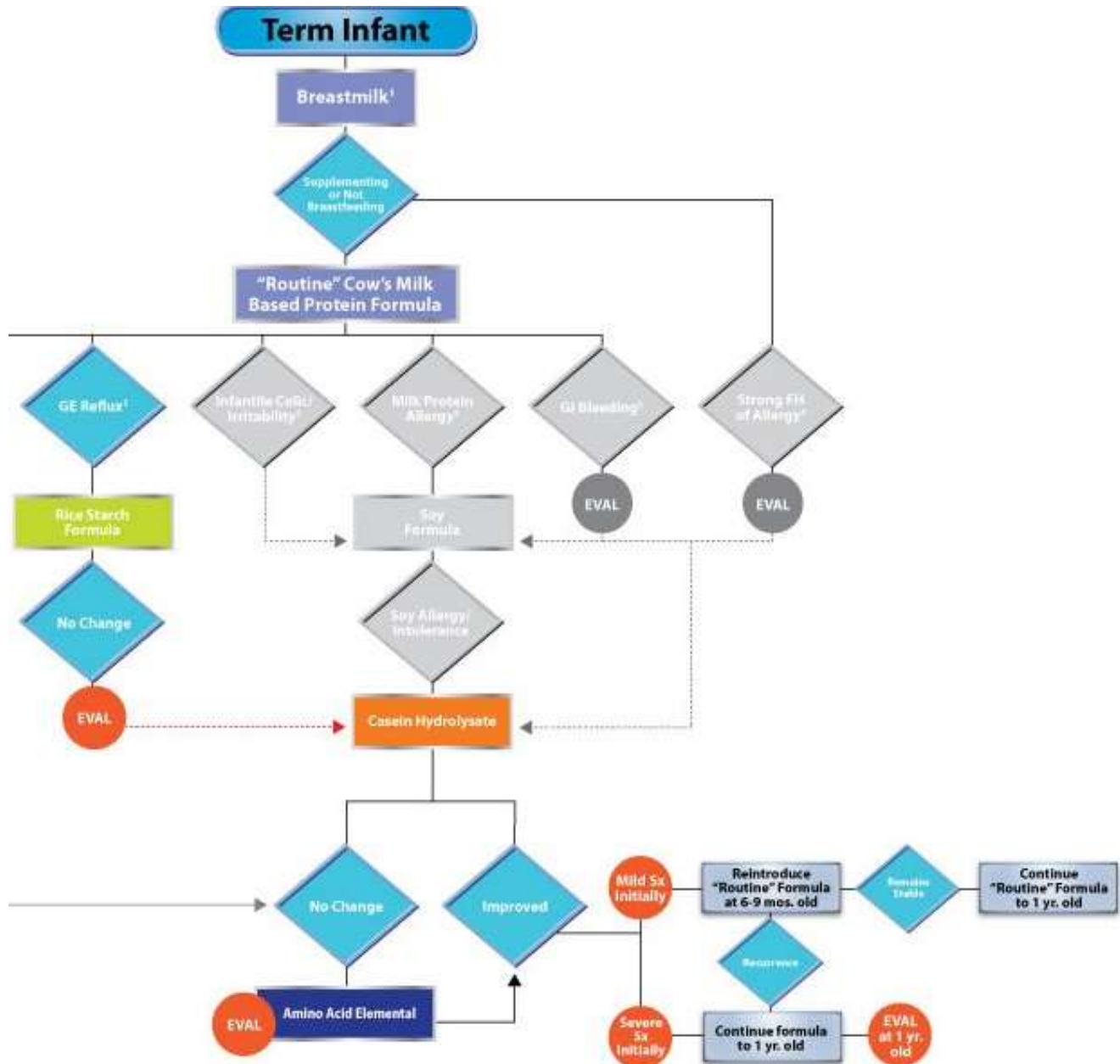




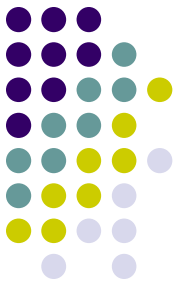
Tier 2 Infant Formula

- Common condition- Gastroesophageal Reflux
- Characterized by the upward movement of stomach content, including acid, into the esophagus and sometimes into or out of the mouth.
- Concern arises with weight loss, FTT, feeding difficulties, intermittent torticollis, or respiratory symptoms
- Concern with Gastric Acid Blockers with Rice Starch Formulas

Tier 2 Infant Formula: Gastroesophageal reflux

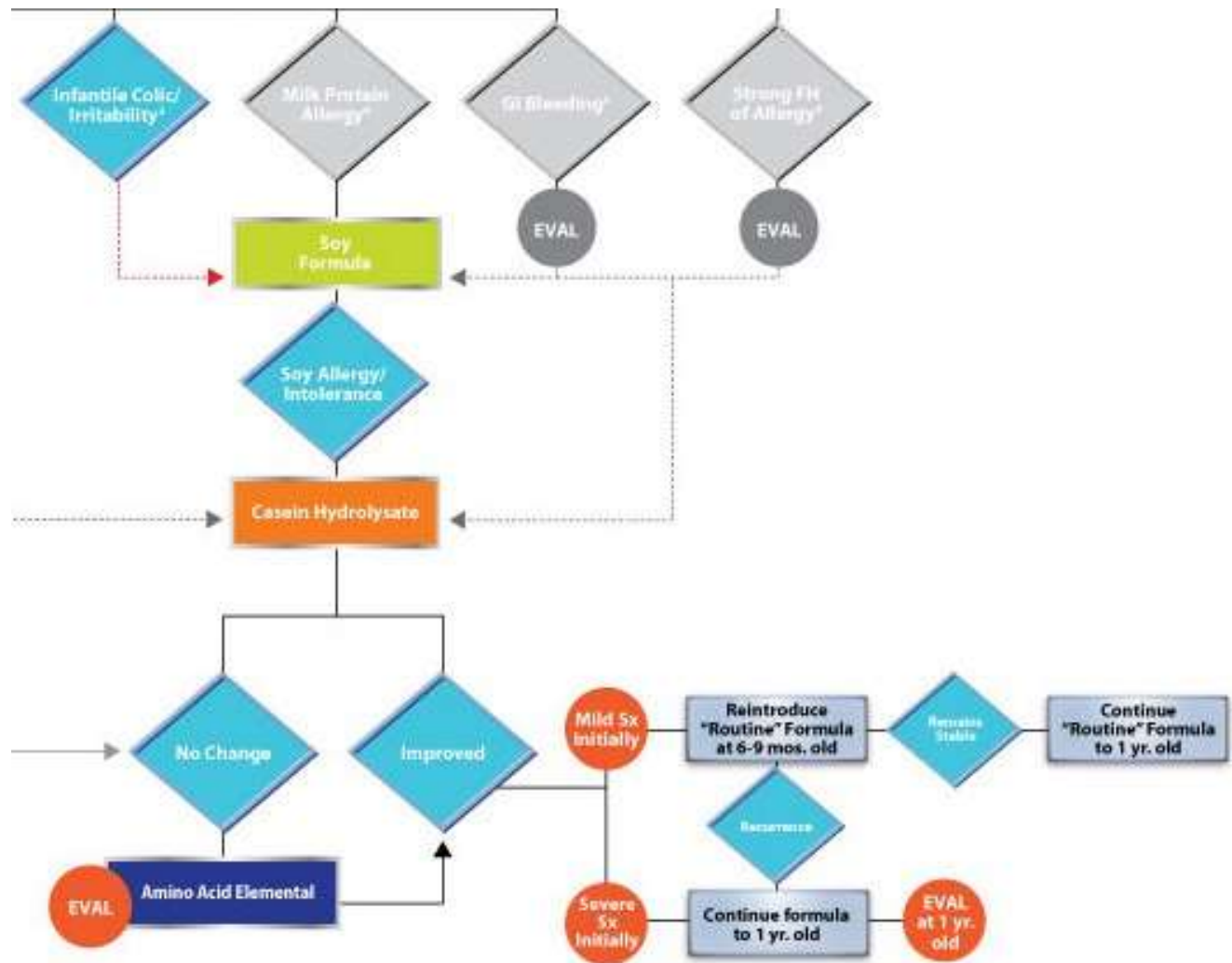


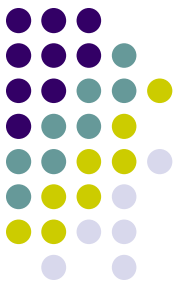
Tier 2 Infant Formula



- Common condition- Infantile Colic
- Characterized by inconsolable irritability for a period of approximately 2-4 hours per day between 3 weeks and 4 months of age.
- When irritability is more prolonged or occurs outside those time parameters, other conditions including allergies, Gastroesophageal reflux, or infection should be considered.
- Non-specific may be non GI cause

Tier 2 Infant Formula: Infantile Colic/Irritability

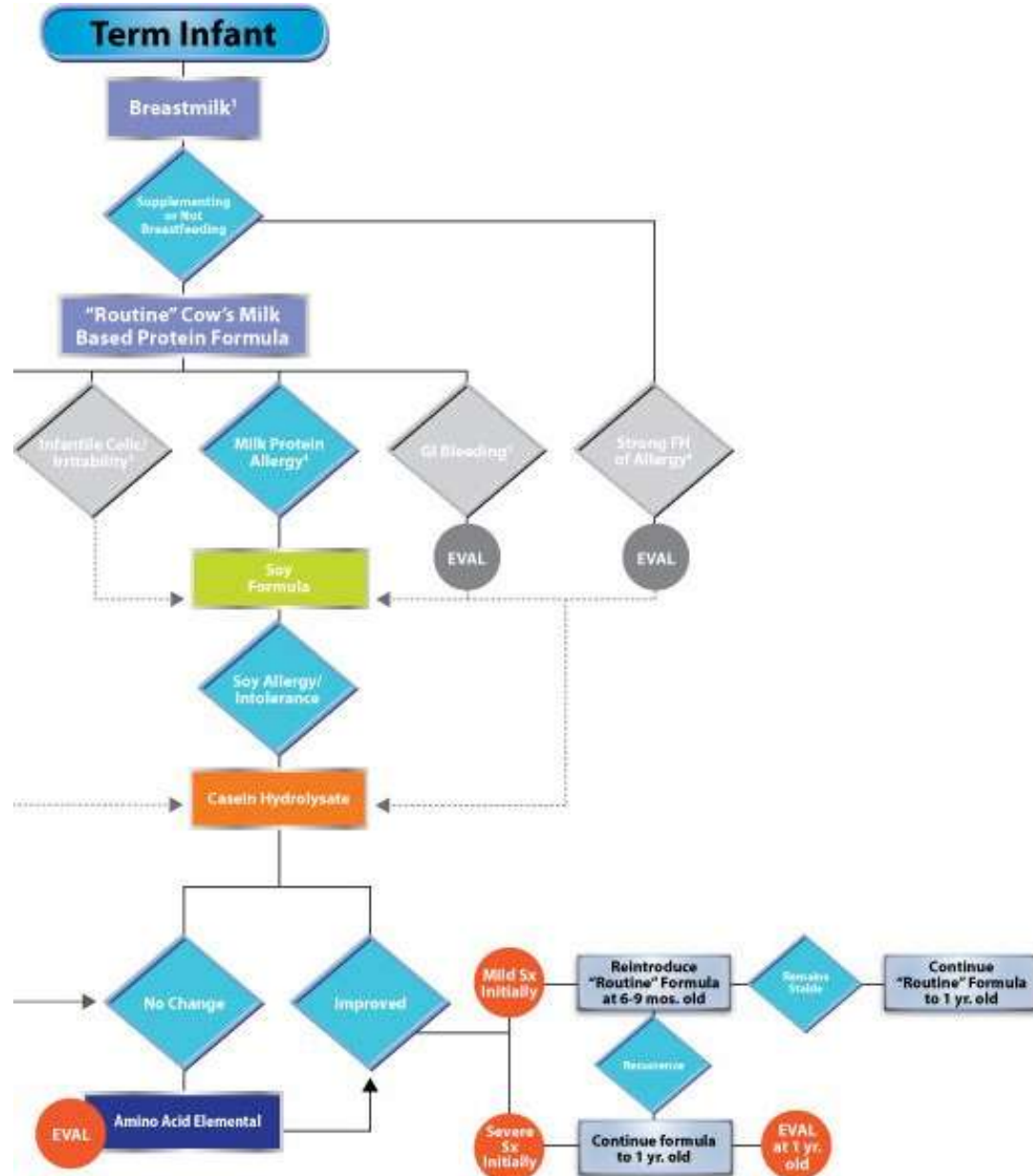




Tier 2 Infant Formulas

- Common condition- Milk Protein Allergy
- May present with rash (atopic dermatitis/eczema), vomiting, wheezing, and/or cough.
- Studies demonstrate that 10-14 % of infants with cow's milk allergy also have reactions to soy.
- Those who have non-IgE reactions to milk may have a 40% cross reactivity to soy.
- Thus, the majority of infants are likely to tolerate soy and this allows most to use soy formulas safely and with less expense than an extensively hydrolyzed casein formula

Tier 2 Infant Formulas: Milk Protein Allergy

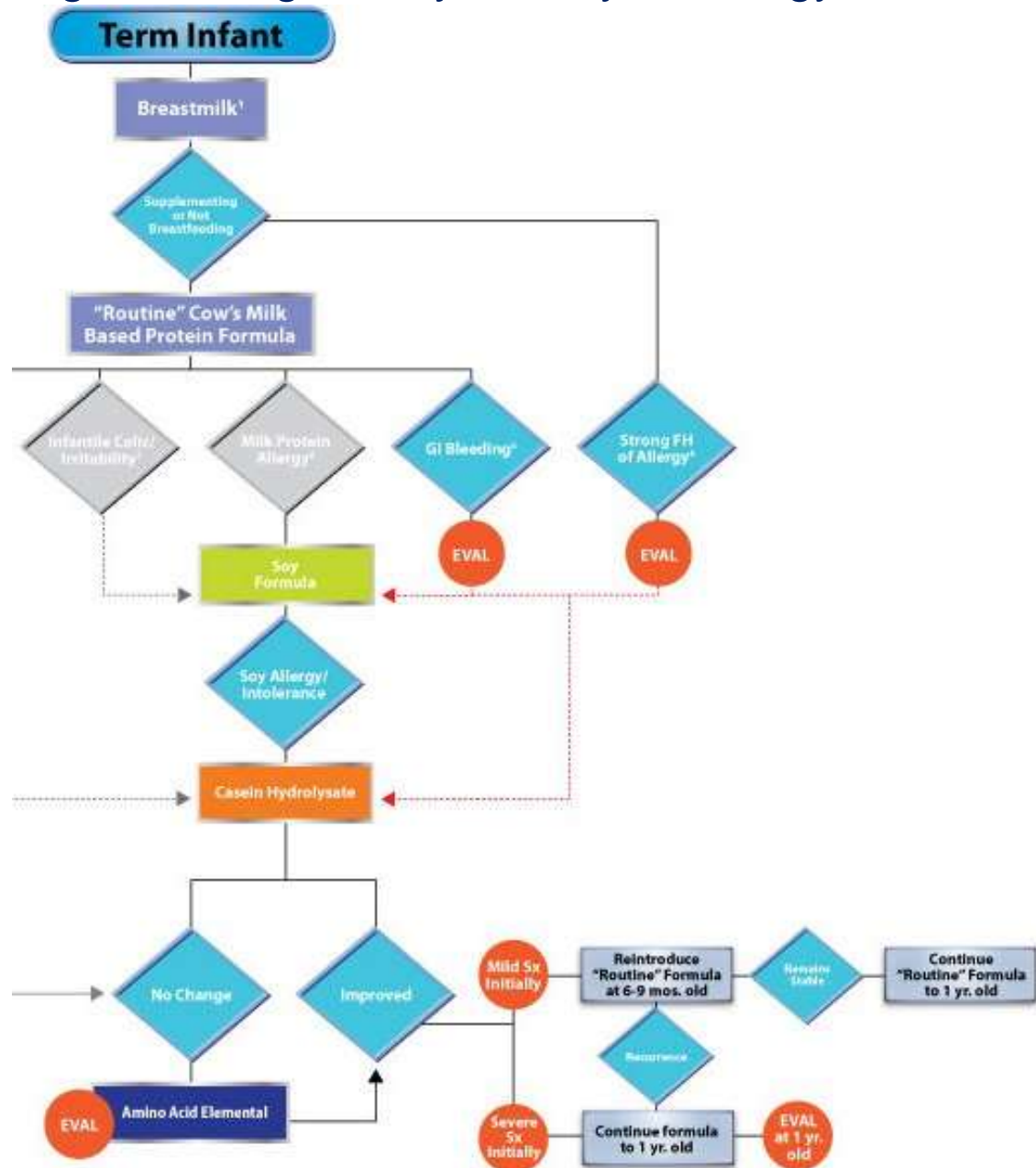


Tier 2 & Tier 3 Infant Formulas



- Common condition: strong family history of allergy
- Evidence of atopy marked by asthma, eczema, allergic rhinitis or food allergy in a first degree relative), elimination of cow's milk products with the use of an extensively hydrolyzed formula may lessen the development of atopic dermatitis and childhood food allergies.
- Alternatively, an extensively hydrolyzed casein formula can be employed initially or after a soy trial. This remains an area of controversy as noted above—and as a result either option is warranted.

GI Bleeding or Strong Family History of Allergy

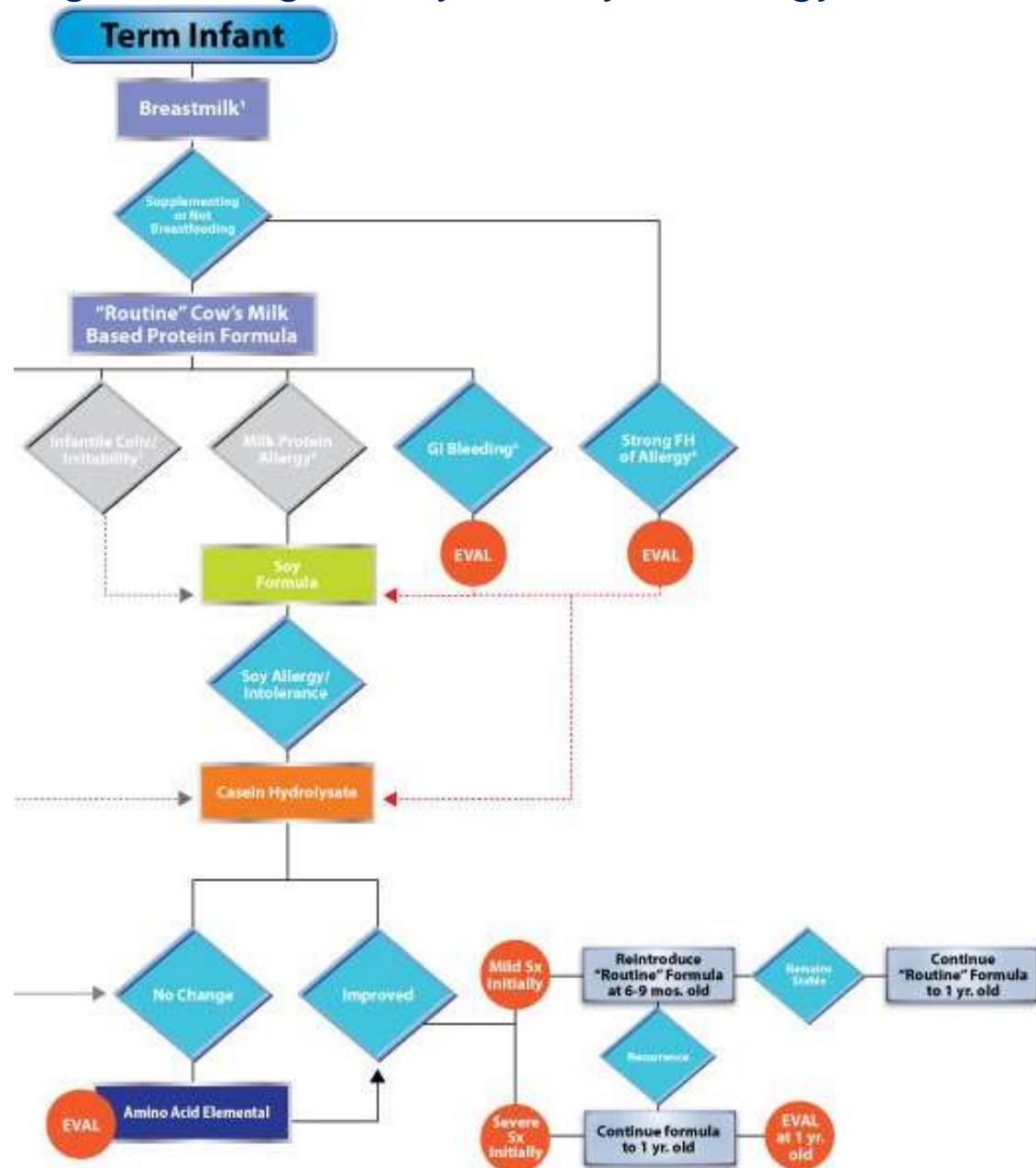


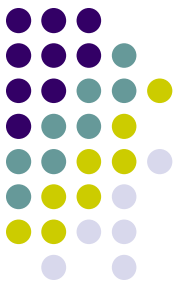
Tier 3 & Tier 4 Infant Formulas



- Common condition: GI Bleeding
- When infection is not the cause, can be the result of infant formula/food or a food in the mother's diet (usually milk or dairy products).
- Can be benign to life-threatening
- Milk is often the offending agent. The greater cross-reactivity to soy (30-64%) necessitates prompt transition to an extensively hydrolyzed casein formula.

GI Bleeding or Strong Family History of Allergy

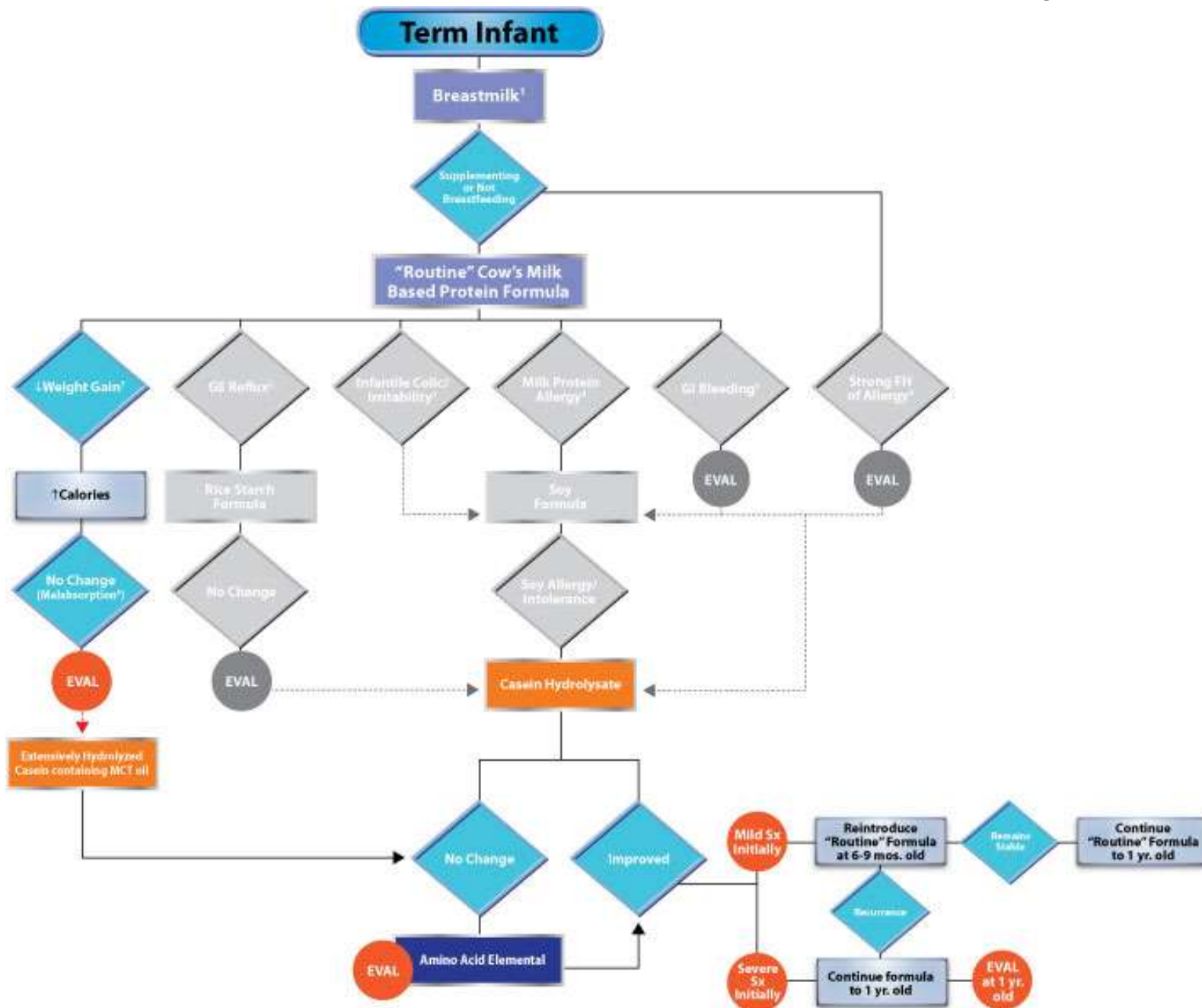




Tier 3 & 4 Infant Formulas

- Common Conditions: Malabsorption
- Results in partially digested fat in the stool and often in distention, weight loss, a lack of weight gain and/or failure to thrive.
- Changing the formula is often only a temporary measure, but until evaluation can occur, an extensively hydrolyzed casein formula with medium chain triglycerides (MCT) would be indicated.
- The presence of failure to thrive may implicate other factors or conditions
- if they do not respond to a formula change within days, an amino acid formula may be indicated.

Tier 3 & 4 Infant Formulas: Malabsorption



Legend

Start/ Finish

Pre-Term Start

Tier 1
Action/ Process

Tier 2
Action/ Process

Tier 3
Action/ Process

Tier 4
Action/ Process

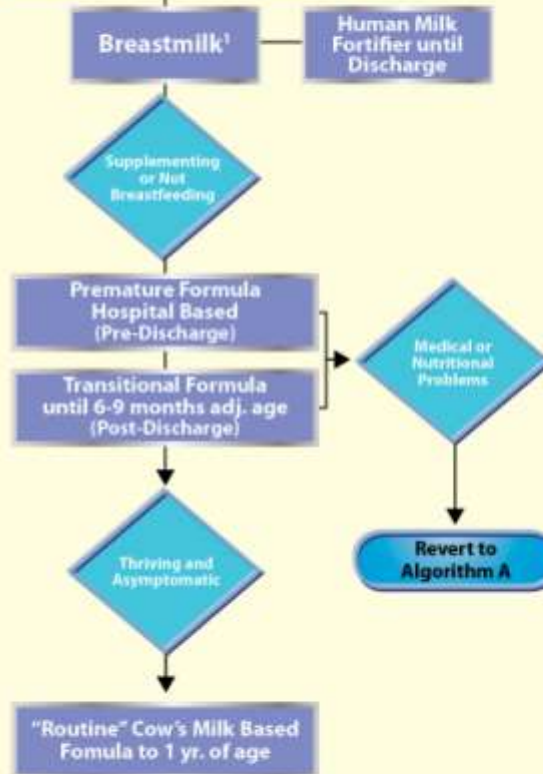
Decision

Evaluation

Direct Route
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Alternate Route
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Pre Term Infant (<37 weeks)



Resources

- GA Chapter AAP-Special Edition Newsletter
- Infant Formula Algorithm Poster
- Resource Guide
- Georgia WIC Program- WIC.GA.GOV
- AAP Coordinator- Kyla Crane RD

- *What to Feed Your Baby (2013)*
- What2FeedYourBaby.com

New Best Friend?

Blog and Articles

- Breastfeeding questions
- Infant Feeding / Solids
- Nutrients in different “milks”
- Reflux / Rectal Bleeding
- Celiac / Food Allergies
- Lactose Intolerance vs Allergies
- Obesity / Eating Disorders

Nutrient Levels / RDAs

- % by Age, Pregnancy, Lactating
- Calorie Counter / Nutrients

Parent Communities

- Products and Restaurants
- Personalized

Advisory Board



And that's just the start