

Supporting the partially/completely formula fed Infant

Kathy O'Grady RN.BCLC.

I have no conflicts of interest to declare

Core Session Objectives

- Optimize responsive, cue-based infant feeding regardless of the feeding method.
- Support and maximize the provision of human milk
- Protect maternal milk production whenever clinical supplementation is required.
- Facilitate fully informed, unbiased decision-making concerning infant formula alternatives.

The Prenatal Foundation

- Knowledge: Providing unbiased, scientific, and factual information early.
- Attitude: Fostering a non-judgmental, collaborative environment for parental autonomy.
- Skills: Building practical confidence before labor and immediate postpartum discharge.
- Objective: Shift information delivery 'upstream' to eliminate avoidable barriers before crisis points occur.



Facilitating Informed Decisions:

B.R.A.I.N.

- B** - Benefits: What are the explicit clinical or personal advantages?
- R** - Risks: What are the health, economic, or logistical complications?
- A** - Alternatives: Are there alternative options available to consider?
- I** - Intuition: What does the family's internal guidance suggest feels right?
- N** - Nothing: What if we maintain the current status quo or do nothing?

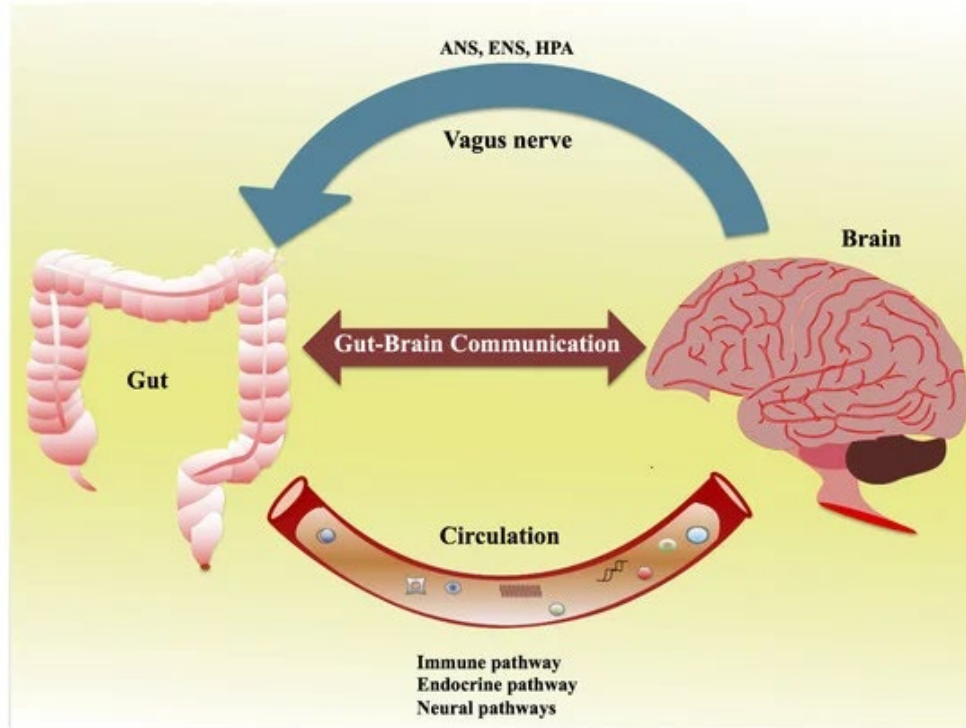


Biochemical Reality

- Human Milk as a Live Bio-Fluid: Contains growth factors, cytokines, stem cells, and probiotic bacteria.
- The HAMLET Complex: Human Alpha-lactalbumin Made Lethal to Tumor cells provides immunological defense.
- Dynamic Bio-Adaptation: The milk 'recipe' dynamically mutates daily, weekly, and across single feeds.
- Formula Realities: Formula serves as functional nutrition, but remains a static human milk substitute lacking live cellular structures.



The Neonatal Microbiome & Gut-Brain Communication



- Microbiome Seeding: Early nutrition populates the infant gut, shaping long-term immune expression.
- The Gut-Brain Axis: Bidirectional signaling via the Vagus Nerve connects enteric pathways to the Hypothalamus.
- Systemic Impact: Regulates metabolic pathways, endocrine function, and emotional behavior development.
- Clinical Mitigation: Introducing any amount of breastmilk helps mitigate the high epidemiological risks of absolute formula exposure.

Protecting Milk Volume

- The Postpartum Window: **The first 14 days** are critical for establishing long-term mammary gland up-regulation.
- Immediate Intervention: Initiate hand expression immediately postpartum if direct latching is absent.
- Pumping Frequency: Maintain a rigorous schedule of at least 8 breast expression sessions per 24 hours if supplementation is happening.
- Sequence Discipline: Always offer the baby the breast first to build positive pathways before providing supplements.

A protective plan

- Drops count
- Work hard in the first 2 weeks to have more options available
- Always breast/breastmilk first
- Small frequent feeds (appropriate volumes of supplement if needed)
- INFANT Feeding CUES – responsive parenting

- Encourage and focus on Skin-Skin contact
- Initiate & protect milk supply - Pump or/and breastfeed 8 x 24 hours in the first 4-6 weeks to build milk production
- If any feeding directly from the breast is intended - breast first before supplementing at every feed
- Lots of tummy time from birth – core strength, reflexive sequential feeding behaviours
- Cue-based/responsive feeding – respond to early signs of readiness to feed
- Feeding is a social, nurturing and trust-building interaction: rewarding for parent and baby!
- Alternative feeding methods: bottles and teats: shape and flow, cups, lactation aids
- Careful pacifier use if needed
- Identify experts when concerned (Pediatrician, dietician, family GP / NP, LC etc.)

Its not ALL about the milk



This baby received formula at the breast exclusively for 6 months and then with the addition of complementary foods up to one year.

(Approximately 10% breastmilk + 90% Formula)

Institutional Strategies: The Ten Steps Framework

- **Skin-to-Skin Priority:** Facilitate immediate, uninterrupted contact for both parents from birth.
- **Discharge Readiness:** Ensure core manual skills (such as hand expression, recognising feeding cues and latching) are verified prior to hospital discharge.
- **Individualized Strategy:** Deliver one-on-one, custom formula preparation teaching when needed rather than group demonstrations.
- **Peer Integration:** Establish a warm handoff to local public health and community peer support networks immediately.



The Mechanical Architecture of Tummy Time

- Musculoskeletal Foundation: Builds essential strength in the abdominal, chest, shoulder, and neck complexes.
- Feeding Coordination: Promotes midline arm positioning and structural support for coordinated suckle-swallow patterns.
- Clinical Correction: Mitigates structural asymmetries like torticollis, plagiocephaly, and oral motor imbalances.
- Autonomic Support: Calms nervous system dysregulation, providing relief for unsettled or colicky infants.



Anatomy of Gastric Capacity & Self-Regulation

- Day 1 Capacity: 5 to 7 mL (approx. the size of a single cherry); matches tiny colostrum volumes.
- Day 3 Capacity: 22 to 27 mL (approx. the size of a walnut).
- Day 7 Capacity: 45 to 60 mL (approx. the size of an apricot).
- Month 1 Capacity: 80 to 150 mL (approx. the size of a large chicken egg).

Clinical Concept: Textbooks provide baseline averages; actual volume must always be driven by baby's individual cues.

Stomach capacity and self-regulation – is about anatomy and physiology

After about 4-6 weeks exclusively formula fed babies require bigger volumes of milk to get the nutritional value they need to grow.



Assessing Nutritional Adequacy: Intake Indicators

- Feeding Frequency: Expect a baseline norm of 8 or more responsive feeding episodes every 24 hours.
- Behavioral Cues: The infant is alert, exhibits good resting muscle tone, and presents healthy skin turgor.
- Satiety Patterns: The infant demonstrates clear contentment between feeds, falling into relaxed sleep states.
- Weight Trajectory: Expect a consistent daily weight gain of 25 to 35 grams once birthweight is recovered (Day 10-14).

Assessing Nutritional Adequacy: Elimination Metrics



- Urinary Output Timeline: Progressing to 6 or more pale, straw-colored wet diapers every 24 hours by Day 7.
- Stooling Patterns (Early Weeks): 3 to 8 distinct bowel movements per day by the conclusion of week one.
- Stool Progression: Transitioning rapidly from dark meconium to mustard yellow (breastmilk) or pale brown/yellow (formula) by day 3/4.
- Urate crystals (brick dust powder) or highly concentrated, dark urine require clinical review.

Defining Combination Feeding Modalities

- **Direct Breastfeeding + Formula:** Alternating direct nursing with supplemental formula bottles.
- **Expressed Breast Milk (EBM) + Formula:** Utilizing bottles, spoons, cups, or tubes to deliver both fluids.
- **Donor Human Milk + Formula:** Supplementing with pasteurized donor milk when maternal milk is unavailable.
- **Clinical Realities:** Driven by distinct medical indications, social factors, or personal family preferences.

Digital determinants of health are factors rooted in digital technologies

- internet access,
- device availability,
- digital literacy,
- data governance,
- algorithmic transparency,
- online content moderation



These determinants shape how individuals access care, navigate health systems, and experience digital inequalities.

- The Regional digital health action plan for the WHO European Region 2023–2030
- The WHO Global strategy on digital health 2020–2025.

Van Kessel, R, Seghers, LE, Anderson, M, Schutte, NM, Monti, G et al. (2025). A scoping review and expert consensus on digital determinants of health. *Bulletin of the World Health Organization*, 103(2), 110 - 125H. World Health Organization. <https://doi.org/10.2471/BLT.24.292057>

Is doing both worth the effort?

Some things to consider

- Family history – increased risk of allergy, atopic and endocrine conditions
- Increased risk of hospitalization due to infections
- The cost/affordability/accessibility/safety of formula and equipment
- There are benefits to the breastfeeding/lactating parent – endocrine and adaption and attachment processes.



How It Should Be For Baby

- Cue based , responsive feeding, a pleasure – sociable
- Small meals frequently
- Satiety and output
- Growth monitoring based on the normative model
- Comfort measures - other than just pacifiers



Infant Formula Classification

- Standard Cow's Milk Formula: Intact proteins; suitable for the vast majority of healthy, full-term infants.
- Whey-Adapted Formula: Enriched whey-to-casein ratio; designed to reduce allergic risk profile.
- Extensively Hydrolyzed: Broken-down proteins; the primary clinical choice for diagnosed Cow's Milk Protein Allergy (CMPA).
- Soy Protein Formulas: Soy isolate base; reserved for galactosemia or strict cultural/religious exclusions.
- Specialized (Elemental/AR): Free amino acids for extreme allergies; thickened starches for severe GERD/regurgitation.

Clinical Realities

- Soy Formula for Colic: Highly discouraged.
High-level evidence shows zero efficacy for resolving colic, wind, or crying.
- Thickened Formulas for Reflux: Does not reduce the actual physiological frequency of internal acid reflux episodes.
- Thickened Formula Utility: Simply reduces visible regurgitation (spitting up), primarily improving caregiver quality of life.
- Constipation Triggers: Formulas containing high concentrations of Palm Oil can bind calcium, resulting in firm, hard stools.



Identifying Clinical Stress Indicators

- **Flow Stress:** Coughing, choking, sputtering, or structural panic while swallowing from a nipple.
- **Gastrointestinal Distress:** Excessive, painful gas, screaming, severe abdominal cramping, or forceful projectile vomiting.
- **Elimination Struggles:** Painful constipation, hard pellet-like stools, or mucus/blood mixed in the stool diaper.
- **Systemic Sensitivities:** Eczematous skin rashes, persistent wheezing, poor weight tracking, or clear signs of systemic intolerance.

The “Science” of Paced Bottle Feeding

- Core Objective: Mimic the physiological pace, effort, and continuous pause patterns of direct breastfeeding.
- Positioning: Hold the infant in an upright or semi-upright posture; never lay them completely flat.
- Nipple Engagement: Stroke the upper lip to trigger an active, wide open mouth extension; do not force the plastic in.
- Horizontal Bottle Angle: Keep the bottle level with the floor, allowing the baby to actively pull milk via negative pressure.



Nipple Flow Disparities:

- The Pados Study (375 Nipples Tested): Revealed massive empirical flow rate variations ranging from 0.86 to 37.61 mL/min.
- Packaging Inaccuracy: Commercially printed label classifications ('Slow', 'Level 1') do not accurately reflect actual flow speed.
- Extra Slow feeders: Philips Avent Natural First Flow (0.86) and Dr. Brown's UltraPreemie (4.92).
- Clinical Application: Select specific brands based on empirical data to support infants with medical complexity or flow sensitivities.

How much? Texts and directions provide guidelines only and based on the exclusively FF historical teachings re volumes: be guided by common sense and Baby's cues

This table is ONLY A GUIDE for the amount of formula to prepare.

Remember that every baby is different. Follow your baby's hunger cues and feed whenever your baby is hungry.

Baby's Age	Approximate number of bottles each day	Amount in each bottle milliliters (ounces)
1 – 2 weeks	6–10	60–100 ml (2-3 oz)
3 – 8 weeks	6–8	90–150 ml (3-5 oz)
2 – 3 months	5–7	150–180 ml (5-6 oz)
3 – 6 months	5–7	150–180 ml (5-6 oz)
6 – 9 months	4–5	120–210 ml (4-7 oz)
9 – 12 months	3–4	90–240 ml (3-8 oz)
1 – 2 years		Whole milk: offer between 500–750 ml (16–24 oz) each day 1 ounce = 28.4 ml



This table was prepared based on information from Dietitians of Canada Practice Based Evidence in Nutrition (accessed July 2009) which used the following evidence-based or consensus-based guidelines: Dietary Reference Intakes, the WHO Growth Standards and WHO guidelines for complementary feeding energy intake.

Infant Communication

- Early Hunger Signals: Increased generalized movements, bringing arms/legs to midline, hands to mouth, side-to-side head rooting.
- Late Hunger Signals: Agitation, facial flushing, frantic movements, and sustained crying.
- Early Satiety (Full) Signals: Turning head away from the nipple, closing mouth firmly, relaxing limbs, dropping hands down.
- Late Satiety Signals: Arching the spine, pushing the bottle or caregiver away, becoming visibly upset, or falling into deep sleep.

GET HELP IF BABY IS NOT COPING WELL

- coughing or choking or not able to breathe comfortably- may be the flow rate
- excessive crying or excessive gas - may be from drinking too fast/too much at once or it may be the type of formula
- struggles with sensitivities, skin rashes, wheezy chest etc.
- struggles to pass stools – constipation or abnormal stools

Looking for cues – infant communication of hunger and satiation during milk feeding. N. Shloim, C.M.J.L. Vereijken, P. Blundell, M.M. Hetherington, Appetite, Volume 108, 2017, Pages 74-82, ISSN 0195-6663, <https://doi.org/10.1016/j.appet.2016.09.020>. (<https://www.sciencedirect.com/science/article/pii/S0195666316304688>)

Development of the Responsiveness to Child Feeding Cues Scale Eric A. Hodges, PhD, FNP-BC1, Susan L. Johnson, PhD2, Sheryl O. Hughes, PhD3, Judy M. Hopkinson, PhD4, Nancy F. Butte, PhD3, and Jennifer O. Fisher, PhD5 Appetite. 2013 June ; 65: 210–219. doi:10.1016/j.appet.2013.02.010.

NCAST
Feeding Scale
Birth to One Year Only

Person Observed ☐ Mother ☐ Father ☐ Other ☐	Age ☐ 0-12 months ☐ 13-24 months ☐ 25-36 months ☐ 37-48 months ☐ 49-60 months ☐ 61-72 months ☐ 73-84 months ☐ 85-96 months ☐ 97-108 months ☐ 109-120 months	Educ. ☐ Less than high school ☐ High school ☐ Some college ☐ College ☐ Graduate school	Setting ☐ Home ☐ Other ☐	Child's Name _____
Major Caregiver ☐ Yes ☐ No	Type of Feeding ☐ Breast ☐ Bottle ☐ Solid	Length of Time Feeding (minutes) ☐ less than 10 ☐ 10-20 ☐ 21-30 ☐ more than 30	Were Others Present? ☐ Yes ☐ No	Child's Age (months) _____ Child's Sex _____
			If yes, specify _____	Child's State at Beginning of Feeding (circle) Quiet Sleep ☐ Active Sleep ☐ Drowsy ☐ Quiet Alert ☐ Active Alert ☐ Crying ☐

I. SENSITIVITY TO CUES		YES	NO	III. SOCIAL-EMOTIONAL GROWTH FOSTERING		YES	NO
1. Caregiver positions child so that child is safe but can move his/her arm(s).				28. Caregiver pays more attention to the child during feeding than to other people or things in the environment.			
2. Caregiver positions child so that the child's head is higher than hips.				29. Caregiver is in the "en face" position for more than half of the feeding (>50%).			
3. Caregiver positions child so that trunk-to-trunk contact is maintained during more than half of the feeding (>50%).				30. Caregiver succeeds in making eye contact with the child once during the feeding.			
4. Caregiver positions child so that eye-to-eye contact is possible.				31. Caregiver's facial expression changes at least twice during the feeding.			
5. Caregiver's face is at least 7-8 inches or more from the child's face during feeding except when kissing, caressing, hugging, or burping the child.				32. Caregiver engages in social forms of interaction (plays games with child) at least once during the feeding.			
6. Caregiver smiles, verbalizes, or makes eye contact with child when child is in open-face-gaze position.				33. Caregiver uses positive statements in talking to child during the feeding.			
7. Caregiver comments verbally on child's hunger cues prior to or up to the first minute of the feeding.				34. Caregiver praises child or some quality of the child's behavior during the feeding.			
8. Caregiver comments verbally on child's satiation cues before terminating feeding.				35. Caregiver hums, croons, sings, or changes the pitch of his/her voice during the feeding.			
9. Caregiver varies the intensity of verbal stimulation during the feeding.				36. Caregiver laughs or smiles during the feeding.			
10. Caregiver varies intensity of rocking or moving the child during the feeding.				37. Caregiver uses gentle forms of touching during the feeding.			
11. Caregiver varies the intensity or form of touch during the feeding.				38. Caregiver smiles, verbalizes or touches child within five seconds of child smiling or vocalizing at caregiver.			
12. Caregiver allows pauses in feeding when the child shows potent disengagement cues or is in the pause phase of the suck-pause sequence of sucking.				39. Caregiver avoids compressing lips, grimacing, or frowning while making eye contact with child.			
13. Caregiver slows the pace of feeding or pauses when the child shows subtle disengagement cues.				40. Caregiver avoids slapping, hitting, shaking, or grabbing the child or child's extremities during the feeding.			
14. Caregiver terminates the feeding when the child shows satiation cues or after other methods have proven unsuccessful.				41. Caregiver avoids making negative comments or uncomplimentary remarks to the child or home visitor about the child or child's behavior.			
15. Caregiver allows the child to suck and/or chew without interruption.				TOTAL YES ANSWERS			
16. Caregiver only offers food when the child is attending.							
TOTAL YES ANSWERS							
II. RESPONSE TO CHILD'S DISTRESS				IV. COGNITIVE GROWTH FOSTERING			
☐ Yes ☐ No (Potent Disengagement Cues Observed)							
17. Caregiver stops or starts feeding.				42. Caregiver provides child with objects, finger foods, toys, and/or utensils.			
18. Caregiver changes the child's position.				43. Caregiver encourages and/or allows the child to explore the breast, bottle, food, cup, bowl, utensils, or the caregiver during the feeding.			
19. Caregiver makes positive or sympathetic verbalization.				44. Caregiver talks to the child using two words at least three separate times during the feeding.			
20. Caregiver changes voice volume to softer or higher pitch.				45. Caregiver verbally describes food or feeding situation to child during the feeding.			
21. Caregiver makes soothing non-verbal efforts.				46. Caregiver talks to child about things other than food, eating, or things related to feeding.			
22. Caregiver diverts the child's attention by playing games, introducing toy, or making faces.				47. Caregiver uses statements that describe, ask questions, or explain consequences of behavior, more than commands, in talking to child.			
23. Caregiver avoids making negative verbal responses.				48. Caregiver verbally responds to child's sound within five seconds after child has vocalized.			
24. Caregiver avoids making negative comments to home visitor about the child.				49. Caregiver verbally responds to child's movement within five seconds of child's movement of arms, legs, hands, head, trunk.			
25. Caregiver avoids yelling at the child.				50. Caregiver avoids consistent use of baby talk during the feeding.			
26. Caregiver avoids using abrupt movements or rough handling.				TOTAL YES ANSWERS			
27. Caregiver avoids slapping, hitting, or spanking the child.							
TOTAL YES ANSWERS							

Babies communicate in many ways – crying is the latest cue

Responding to Baby is vital:

Attachment strategy / neurodevelopment

Social and emotional intelligence



Practical help

Expert Network

Establish referral pathways to Doctors, Pediatricians, Registered Dietitians, Public Health Nurses/NPs, Lactation Consultants.

Social Network

Family and friends, breastfeeding peers, parent support resources

How to practice responsive breastfeeding

Responsive breastfeeding involves **recognizing and responding** to your baby's **hunger** and **fullness** cues.

Babies show they're **hungry** by:

- increasing their movements
- bringing their arms and legs close to their body
- turning their head from side to side
- sucking on their hands



Babies show they're **full** by:

- turning their head away from the breast
- closing their mouth
- relaxing their arms and legs
- falling asleep



If babies are **very hungry**, they may:

- become agitated
- start crying



Feeding babies before these cues can help avoid a frantic or fussy feed

If babies are **offered the breast when they are full**, they may:

- push their caregiver away
- arch their back
- become upset
- start crying



To practice responsive breastfeeding, **feed your baby when they show signs of hunger**, and **allow your baby to stop eating when they signal they are full**.

Another part of responsive breastfeeding is providing a **comfortable feeding environment** and **nurturing behaviours** for your baby. This includes:

- making eye contact with your baby
- smiling and changing facial expressions
- talking to your baby
- using gentle touch
- humming or singing to your baby



Responsive feeding can **promote bonding** between baby and caregivers, ensure baby eats to satisfy their ever-changing **growth** needs, and help baby **develop healthy eating patterns**.

References:

1. Black, M. M., & Aboud, F. E. (2011). Responsive feeding is embedded in a theoretical framework of responsive parenting. *The Journal of Nutrition*, 141(3), 490-494.
2. Pérez-Escamilla, R., Jiménez, E. Y., & Dewey, K. G. (2021). Responsive feeding recommendations: Harmonizing integration into dietary guidelines for infants and young children. *Current Developments in Nutrition*, 5(6), nzab076.
3. Ventura, A. (2022). Promoting responsive feeding during breastfeeding, bottle-

Created by Jocelyne Labonté, RD, MSc

BFI Quality Indicators

Appendix 2.3: Support for Non-breastfeeding Mothers Checklist (BFI Indicators)

Mothers using human milk substitutes confirm they have received sufficient information and support:

- to make informed decisions about feeding their babies AFASS
- to safely prepare, store and feed human milk substitutes in appropriate volumes
- Cue based feeding
- if they are using human milk substitutes as a supplement to breastfeeding, on preserving and improving the breastfeeding relationship

Resources

Infant Formulas for Healthy Term Infants Compendium For Professional Reference Only ©2018
Alberta Health Services, Nutrition <https://www.albertahealthservices.ca/assets/info/nutrition/if-nfs-ng-healthy-infants-infant-formula-compendium.pdf>

Infant formula and allergy . M. Guo, @ 2014
(<https://www.sciencedirect.com/science/article/pii/B9781845697242500138>)

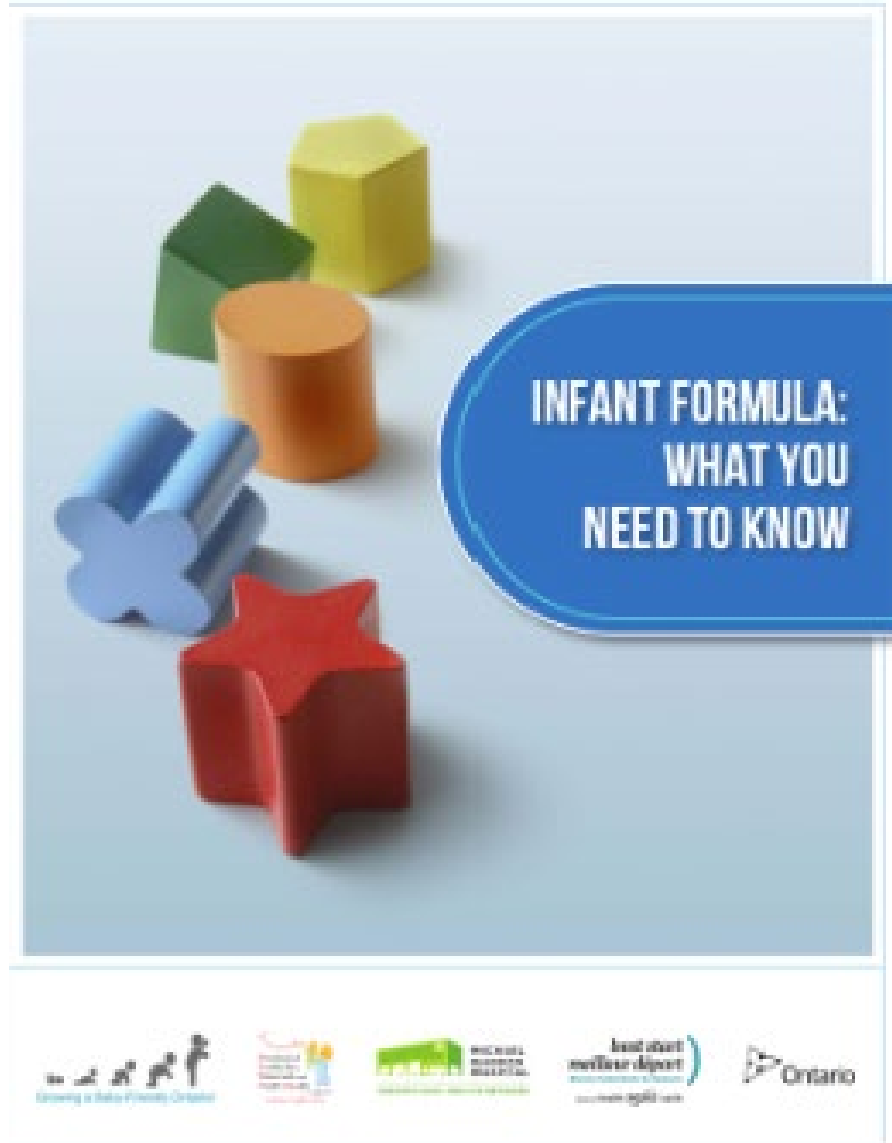
Nutrition for healthy term infants: Recommendations from birth to six months
file:///D:/Downloads/Nutrition%20for%20Healthy%20Term%20Infants_%20Recommendations%20from%20Birth%20to%20Six%20Months%20-%20Canada.ca.html

UNICEF UK
<https://www.unicef.org.uk/babyfriendly/news-and-research/baby-friendly-research/infant-health-research/>

Know the Flow. Milk Flow Rates From Bottle Nipples Used in the Hospital and After Discharge. Britt Frisk Pados , PhD, RN, NNP-BC ; Jinhee Park , PhD, RN ; Pamela Dodrill , PhD, CCC-SLP
https://r.search.yahoo.com/_ylt=AwrEa8v_R0ll7P894ePrFAx.;_ylu=Y29sbwNiZjEEcG9zAzEEdnRpZAMec2VjA3Ny/RV=2/RE=1699330175/RO=10/RU=https%3a%2f%2fpubmed.ncbi.nlm.nih.gov%2f30028734%2f/RK=2/RS=rQmbfCCILbRk_knQtowLzWSHSBM-

Infant Formula: What You Need To Know
<https://resources.beststart.org/product/b19e-infant-formula-booklet>

<https://resources.beststart.org/product/b19e-infant-formula-booklet>



WHAT INFANT FORMULA TO CHOOSE

If you are giving your baby infant formula,
FIRST INFANT FORMULA (whey-based)
is the only formula they will need in the first year of life

1

What infant formula should I use?

It doesn't matter which brand you use, they are all very similar. It doesn't matter if you choose cows' or goats' milk based formula, but talk to your midwife or health visitor before choosing a soya based formula.

2

What about all the other milks that claim to help hungry babies, prevent colic, wind, reflux or allergies?

There is no evidence that most of these "special" milks do any good, and they might not be safe for your baby. Ask your GP or other health professional if you think your baby might need a different milk.

3

Should I move on to follow-on formula when my baby is six months old?

There is no need for follow-on formula. Stick to a first infant formula throughout the first year.

4

How long do I need to use infant formula for?

When your baby is one year old, they will be getting more of their energy, vitamins and minerals from food, and full fat cows' milk can be their main milk drink. If you have any concerns, or want to know about other milks, ask your health visitor.

5

Want to know more?

A simple, up to date guide on infant milks can be downloaded at firststepsnutrition.org

Unicef UK provides a guide on different types of infant milks, available for download at babyfriendly.org.uk

Breastfeeding is the healthiest way to feed your baby. Giving infant formula to a breastfed baby will reduce your breastmilk supply.

FIRST STEPS NUTRITION TRUST



Thankyou for sharing your time

Post-Test link:

Supporting the Formula-Feeding Parent

<https://kahoot.it/challenge/0022480939>

'Making a Difference' Breastfeeding Updates Evaluation October 2026 – Fill out form

kathy.ogradey@outlook.com



'Making a Difference'
Breastfeeding Updates Evaluation
October 2026





Supporting the Formula Fed Infant

Part One

A brief History of Breastmilk
Substitutes

2025 © Kathy O'Grady RN.IBCLC

The information and images in this presentation are not intended to promote formula feeding or to support any brand, only to provide information for health workers and to consider the safe and appropriate use of formula for those families using it.

I have no conflict of interest.
Kathy O'Grady.

Review the development of commercial breastmilk substitutes.

Understand what breastmilk substitutes are.

Empower informed decision making.

Objectives

A Brief History Of Infant Feeding

- A look at infant foods and feeding equipment

What Is Infant Formula

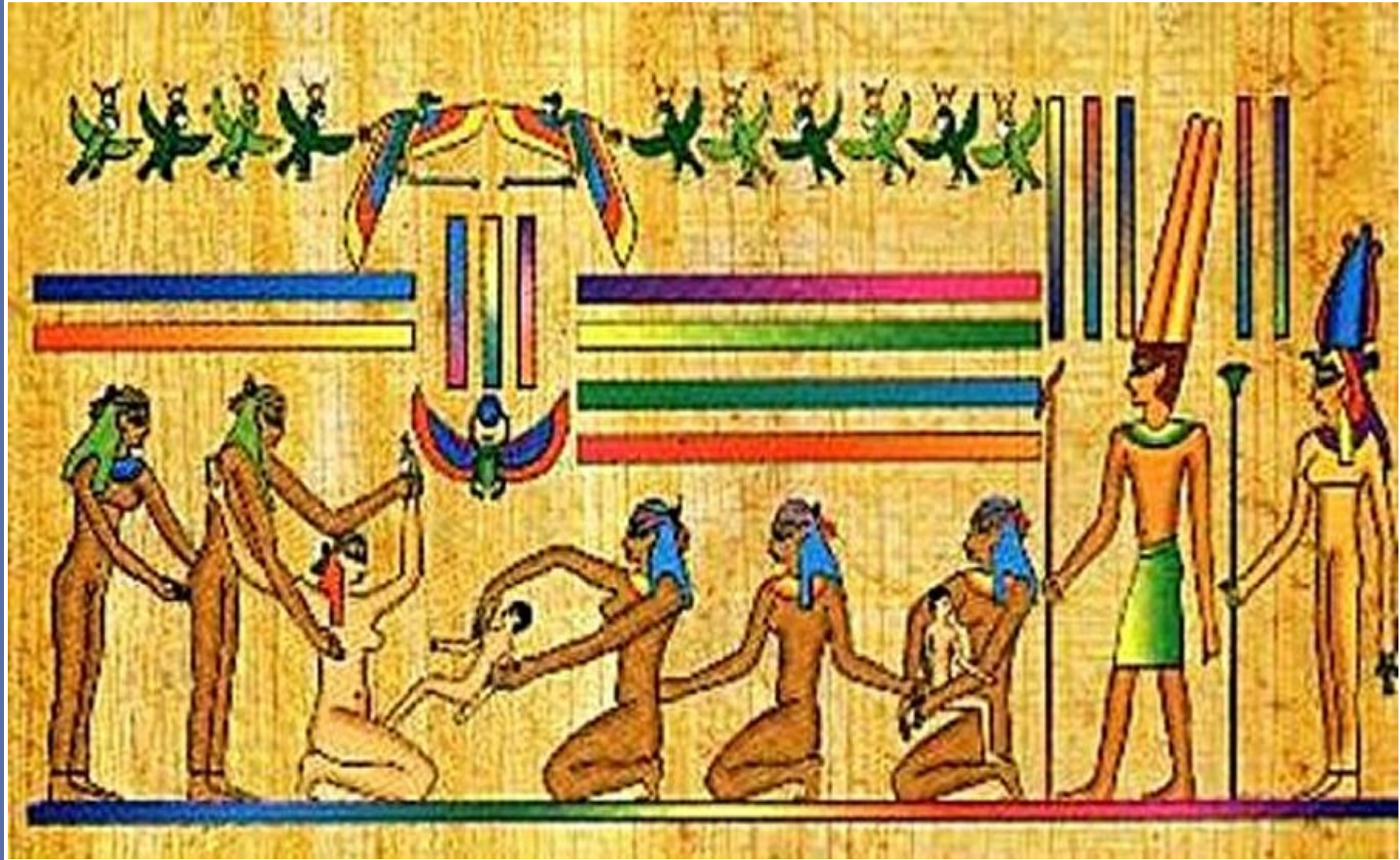
- Formula composition and the manufacturing process
- Types of formula and Health Canada recommendations

Outline

History of infant feeding

Traditionally, breast milk was the only nourishment given to babies until they were old enough to move on to solid food.

The Papyrus
Ebers - idea
of alternative
feeding as far
back as 1550
BC – survival
very low



Wet nursing



Louis XIV as an infant, with his wet nurse Longuet de la Giraudière



Gingi Freeman. A History of Baby Formula – How Emergency Baby Food Became an Everyday Meal For Babies In America. 2014



Statuette of
a parclose representing
a woman who presses
her breast to collect
milk in a bowl (a
satire nourrice). - Stalls
of the Basilica of Saint
Materne (XVIth century)
- Walcourt (Belgium).

Jean-Pol GRANDMONT

Alternatives?

Another
Mammals milk

or

pap/gruel



The Capitoline Wolf



Milk banking 1939

<https://www.gettyimages.ie/photos/baby-milk-vintage>

Scientific child rearing

Jean Charles Des-Essartz published his *Treatise of Physical Upbringing of Children* in 1760, which discussed and compared the composition of human milk to that of the cow, sheep, ass, mare, and goat.

1838 .. The German scientist Johann Simon carried out the first extensive milk analyses comparing the constituents of human and cows' milk (Cone. 1981).



Medical developments

Nineteenth and twentieth centuries: medical and government groups take an interest in infant feeding practises & scientists became interested in the nutritional aspects of breast milk



1890 - 1907
Home made
baby formulae
introduced

Thomas Morgan Rotch's
"percentage method"
(published in 1890)

Ingredients such as:

milk based:

whole cows or goats milk / evaporated
or condensed milks
corn syrup /sugar /honey
water

broth based:

chicken
bovine liver
vegetable oil / cod liver oil / butter

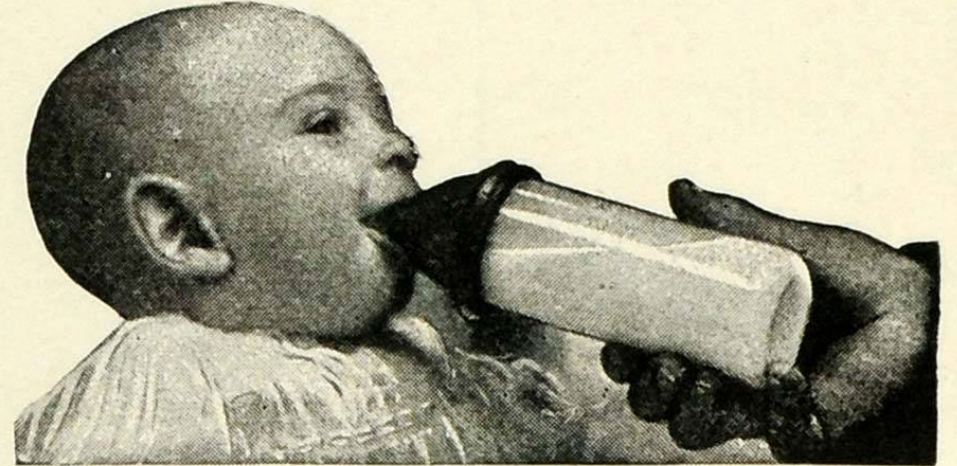
Teats or nipples introduced in the 19th century

Originally made from leather

In 1845, the first Indian rubber nipple was introduced



Just Like Mother



That's Why Baby Likes the Hygeia Nursing Bottle

The rubber part is so like the human breast in size and shape that in weaning or when natural supply is low, baby will go from breast to the Hygeia bottle without noticing the difference. The Hygeia is without a neck or angle; needs no funnel to fill, nor brush to clean the interior which is wiped out like a tumbler. The rubber breast is yielding, yet not collapsible; seamless can be turned inside out to clean thoroughly. It has no crack or crevice where dirt can gather or germs can propagate. The Hygeia is used and endorsed by every children's hospital in the country, because it fills every requirement of a perfect, ideal sanitary nursing bottle. If your druggist don't keep the Hygeia, send us his name and 38c. and we will mail you a bottle at once.



Breast for Baby



Cell for Food

HYGEIA NURSING BOTTLE CO., Dept. P, Buffalo, N. Y.

Bottles and teats



THREE STAR NURSER.

FOR NIPPLES.

Graduated in Fluid Ounces.

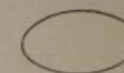
PATENTED JUNE 19, 1894.

Oval, with sloping sides. No shoulder and no corners; consequently easy to clean. Having a broad base, the bottle is not readily overturned.



8-ounce, Flint Glass..... Per Gross. \$6 00

One Gross in Original Package.



BARCLAY NIPPLE NO. 20.



Having had numerous requests to reduce the price of our Home Nipple to meet price at which Nipples of similar shape are being sold by other parties, and being unable to do so, and at the same time maintain the superior quality of these goods, we have placed on the market a Nipple of similar shape which we call the BARCLAY NIPPLE No. 20.

This Nipple is made of Pure Gum, and will be found in every respect a serviceable article. It is packed 3 Dozen in a Box, and 4 Boxes in a Carton.

Per Gross, Net Price.....\$2 00

Sold only in Boxes of 3 Dozen.

HOME NIPPLES.

Superior Quality and Weight.

One Dozen in Box.



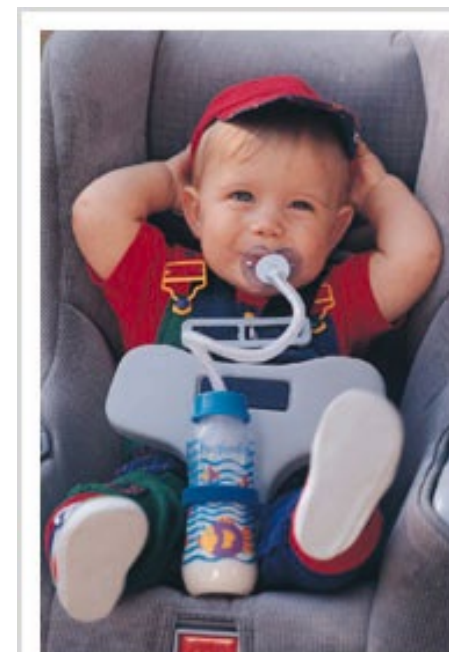
Per Gross, Net.
White.....\$2 65
Black.....3 00
Maroon.....3 25



xvi *Supplement to the Pharmaceutical Journal and Transactions Abstracts.* (December 15, 1880)

S. MAW, SON & THOMPSON'S Improvement in Feeding Bottles

Patented in England, December 4, 1879;
Patented in the United States, April 27, 1880.



The TIME
TUNNEL museum



The growth of the
infant formula
industry ...

commercial
interests

1865 'Liebig's formula,'
based on cow's milk with
additional wheat and malt
flour plus potassium
bicarbonate.

1883 there were 27
patented brands of infant
food, usually powders



1908 to 1950 — evaporated milk



HOW TO BE A GIRL

[Continued from Page 37]

The older you get the more you will achieve. You have achieved a lot already. As a person, in your mind and in the minds of others, you have a certain standing, a certain worth. Dignity protects that worth. You've made a record which it preserves for you. You are a girl who has never cheated on an exam. (That's good!) Your own dignity keeps you from doing it now. You have never, in a row with someone, resorted to scratching or hair-pulling — anyway not since your fourth birthday. You wouldn't stoop to doing it now. You believe that families should stick up for each other and you wouldn't complain about yours to outsiders. Your own feeling that you've made friends easily and gotten along well with most of them gives you a certain dignity: you aren't going around banging on the doors of snobby little socials begging to be let in.

Pride, as it is most commonly called upon in despair, is a last straw to grasp. But an appreciation of the nice kind of girl you've been brought up and trained yourself to be is a sturdy rock-bottom foundation which leaves you free from small injuries and imagined attacks.

You don't need vainglory. You've got stuff! Stuff that speaks for itself with no yacketing from you!

SEEMS to us the radio boys have overlooked a great point in their favor in their competition with television. You can't do anything to television. You just have to look at it. But to radio—you can put polish on your nails, decrease the neckline in your half-knitted evening sweater, write a long, long, lovely letter to your guy. Hard things that take your eyes, and soft music in the background—you can't do those to television.

A simple yes or no will do. One of the things that make parents come up screaming is a special vagueness peculiar to the young as a teep. Teen-agers have an impediment in their speech. They can't say yes or no. According to parents, their dialogues run something like this:

Mother: Dear, would you take down your curtains so I can put them in the wash this week?

Teen-ager: Do I have to do it now?

Father: You'll have to step on it, toots, if you want me to drop you off at the doctor's because I have to get to work early this morning and I need the car. Will you be ready at 7:45?

Teen-ager: Got a coupla items to do.

Mother: Will you need your white formal shortened for this Saturday or is that

No Doctor Can Recommend Any Better Evaporated Milk For Infant Feeding[†]



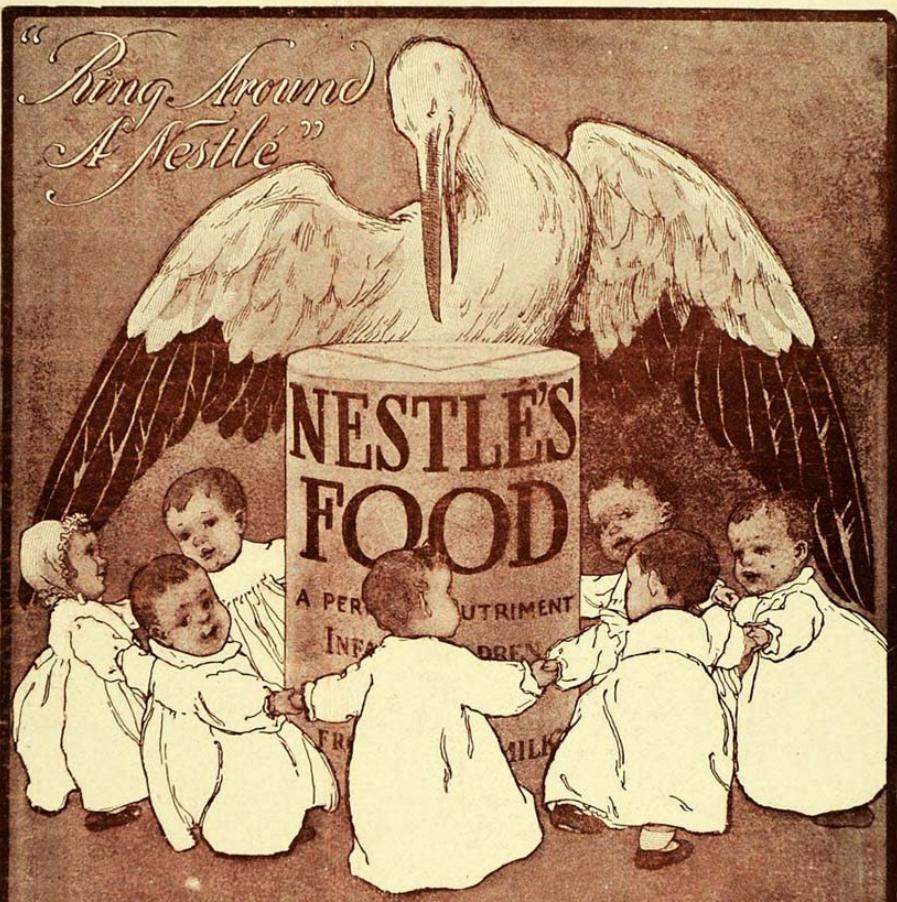
400 U.S.P. UNITS OF PURE CRYSTALLINE VITAMIN D₃ PER PINT
Satisfaction Guaranteed by A&P, or Your Money Back.
*Not connected with any company using a similar name or brand.

74

WOMAN'S DAY

The corporate interest

"Ring Around A Nestlé"



NESTLÉ'S FOOD
A PERFECT NUTRIMENT
INFANTS' FOOD
FRESH MILK

NESTLÉ'S FOOD FOR HAPPY BABIES
Nestlé babies have rosy cheeks, bright eyes, and the brain, brawn, and sinew to develop the helpful men and women of the future.

Nine-tenths of the trouble with fretful, peevish infants can be directly traced to unsuitable food. Let us send you, free of charge, a half-pound package of Nestlé's Food for trial and our "Book for Mothers," which is full of helpful hints for the care of babies and young children. Write a postal card to-day to

HENRI NESTLÉ, 73 WARREN STREET, NEW YORK

L'ILLUSTRATION

Nestlé



FARINE LACTÉE NESTLÉ
ALIMENT COMPLET POUR
NOURRISSONS, CONValescents & VIEUX
MÈRE L'EXCELLENT LAIT MATERNEL
DÉPOSÉ EN FRANCE - DÉPOSÉ EN SUISSE
No. 204

"Le Trésor des Mamans .."

DECAUVILLE & CO. Paris - 1907

'Special' Formulae



1920s, soy flour-based formulas were commercially available for infants with a cow's milk allergy
(Stevens et al 2009).



Big business since 1895

"I'd like to *shout* this good news..



... to the world of worried mothers"

Read what happened when the doctor prescribed Carnation Milk

"After I stopped nursing my baby," writes "Mrs. Henry Buerle, of Westfield, N.J.," "he" "developed an alarming eczematous rash all" "over his body. We consulted a baby specialist" "who said our little boy had a skin sensitivity" "to the protein in raw milk. He recommended" "a Carnation formula — and the rash was" "gone in two days. Our baby is now twenty" "months old and, thanks to your product, is" "a wonderfully sturdy boy, 'way beyond his" "age in stature.... As a graduate (registered)" "nurse I know that this condition of his is not" "so uncommon as it might seem, and I should" "like to shout this good news to the world" "of worried mothers."

"Better for babies," mothers write;
"better for cooking, too"

DAILY we read this story of healthy, happy babies. It's borne on a steady stream of mothers' letters. These letters are astonishingly alike. Over and over they say: "Nothing agreed with our baby.... Then our doctor prescribed Carnation Milk.... Now baby is strong and sturdy, gaining all the time." That is how it happens. Famous specialists have found that when babies fail to digest ordinary formulas, when they are tormented by eczema, colic, diarrhea, a change to Carnation Milk very often benefits them wonderfully. For Carnation — the fine unsweetened evaporated milk that you have always known — is far easier to digest than raw or pasteurized milk. It is *heat-treated* — forming soft, flaky curds resembling mother's milk. It is *homogenized*, "making tiny fat globules, readily assimilated. It is *uniform*, preventing digestive upsets. It is *safe* — protected at the source, sealed air tight and sterilized. And it contains the same vitamins that any milk is

depended on to supply — the same minerals. It builds sturdy bones and solid flesh.

Smooth and rich for cooking

Expert cooks too are enthusiastic about Carnation. They have learned that the evenly distributed, fine-grained butter-fat makes foods smoother and richer, especially cream soups, sauces, custards, ice cream, cocoa and candy. They use this double-rich milk for creaming coffee, fruits, and cereals. And they cut their milk bills decidedly — and their cream bills right in two! There are two Carnation booklets which you should have — "Baby Feeding Simplified" and "100 Glorified Recipes." Both are free. Write to Carnation Company, 826 Carnation Bldg., Oconomowoc, Wis.; or 926 Stuart Bldg., Seattle; or Ajinomoto, Ont.

Carnation Milk

"From Contented Cows"

WORLD'S LARGEST-SELLING BRAND OF EVAPORATED MILK
August 1931 Good Housekeeping

Copyright, 1931, by Carnation Co.

1895 - Edward Mead Johnson, one of the co-founders of Johnson & Johnson, created his own business

1919, milkfats were replaced with a blend of animal and vegetable fats - "simulated milk adapted."

1959 - marketing campaigns provided inexpensive formula to hospitals and pediatricians.

Hospital
became the
place where
most women
gave birth



1929 the American Medical Association formed Committee on Foods to approve the safety and quality of formula composition.

By the 1940s and 1950s, physicians and consumers had come to regard formula as a substitute for breast milk. Women in hospitals were given, and encouraged to use, free samples of formula.



C O D E X

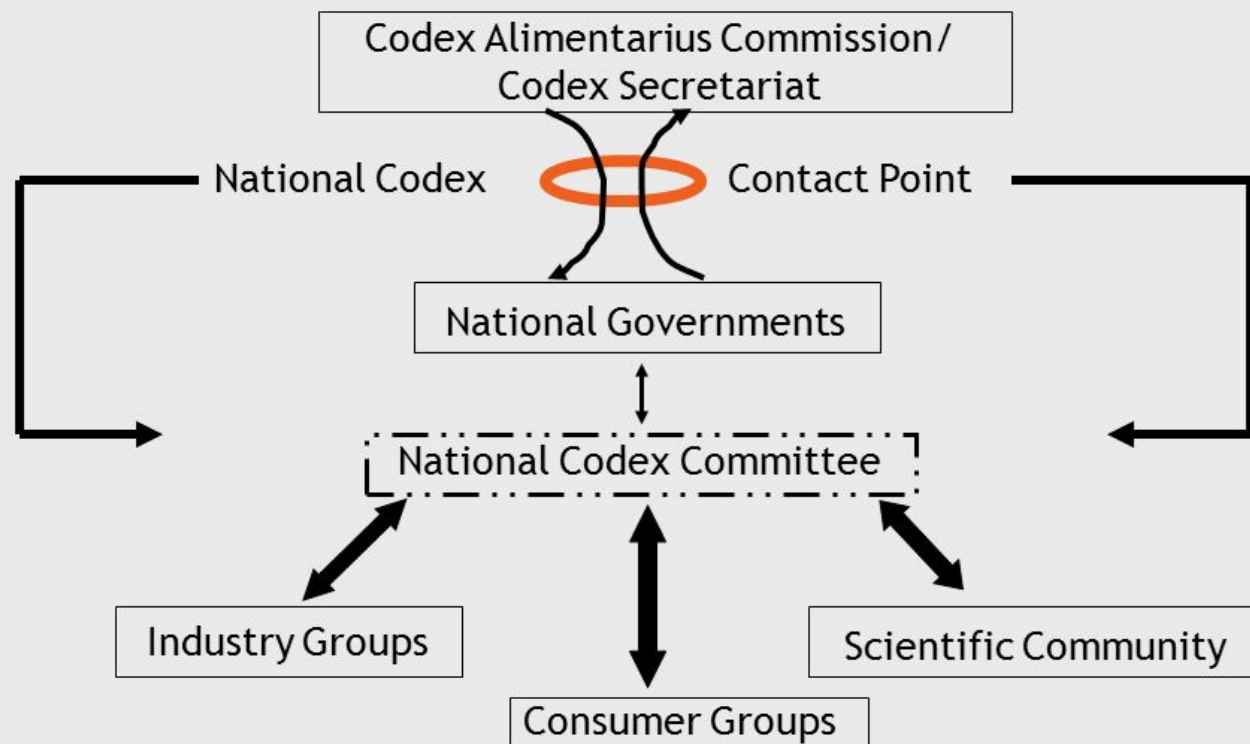
A L I M E N T A R I U S

International Food Standards



1961

National Codex structures



1981
+
Subsequent
Relevant
WHA
Resolutions

*International Code
of Marketing
of Breast-milk Substitutes*



World Health Organization
Geneva

The need for
regulation to
protect infant
health

1988 legislation was introduced
permitting the formula industry to
advertise directly to the USA
public,

1990 the American Academy of
Pediatrics (AAP) objected to the
practice of publicly advertising
infant formula. Due to declining
breastfeeding rates

Modern infant formula

- An industrially produced, human milk substitute,
- It is based on either cow or soy milk.
- Attempts to mimic the nutrient profile of human breast milk
- The medical community considers it nutritionally acceptable for children under 1 year.

Industry Map

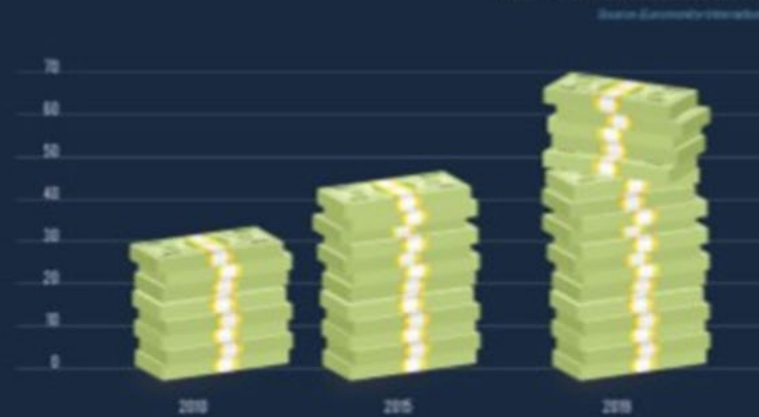
A HIGHLY CONCENTRATED INDUSTRY

Brands that come under the 4 biggest companies

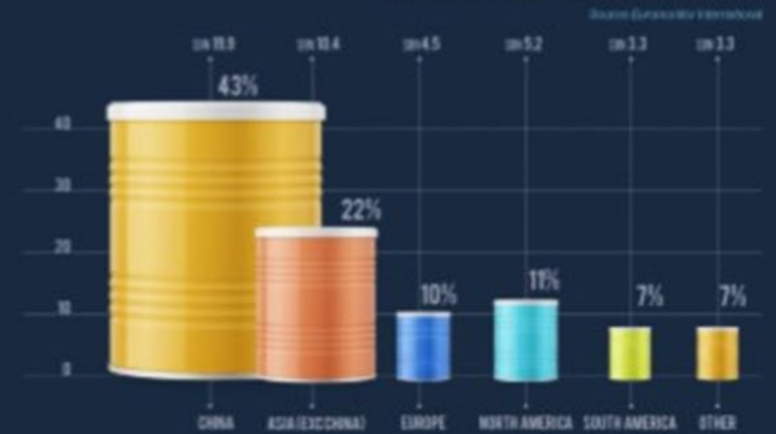


MILK FORMULA SALES

MILK FORMULA SALES (USD BILLIONS)



% MILK FORMULA SALES BY REGION (2015)



Milking it. Changing Markets Foundation, 2017

Today

Recent developments have been aimed at reducing or removing potential allergens

Research & Development

New formulas must be compared to both older versions of the formula and to human breast milk to determine their effectiveness.