Breastfeeding: A Foundation for Better Health in West Virginia Children

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WVBA

West Virginia **Breastfeeding Alliance**

for healthier moms & babies

OBJECTIVES

- Recognize that breastfeeding is a normal and biologically important physiologic process that is critical to infant and maternal health.
- Define Exclusive Breastfeeding
- Review West Virginia's current breastfeeding rates in relation to 2020 Healthy People Objectives
- Discuss barriers to breastfeeding and clear action steps that communities, health care systems, health care providers, employers, public health professionals and other organizations and individuals can take to support mothers and make breastfeeding easier

Poll

- How many participants have experience with breastfeeding from a personal perspective (nursed own children or family members)?
- How many have experience counseling nursing mothers?
- Do you work in a hospital or in the community?
- Breastfeeding is a public health issue - yes or no?

AAP Policy Statement

- Human milk is the normative standard for infant feeding and nutrition
- Breastfeeding should be considered a ***public health issue*** and not a lifestyle choice
- Hospital routines to encourage and support the initiation and sustaining of exclusive breastfeeding should be based on the American Academy of Pediatrics-endorsed WHO/UNICEF “Ten Steps to Successful Breastfeeding”

AAP *Pediatrics* 2012;129;e827-41.

Exclusive Breastfeeding

The effect of breast milk is dose-dependent, with exclusivity and longer duration there are increasing benefits.

Sankar MJ, Sinha B, Chowdhury R, et al. Optimal breastfeeding practices and infant and child mortality: a systematic review and meta-analysis. Acta Paediatr. 2015;104(467):3–13 4.

Hauck FR, Thompson JM, Tanabe KO, Moon RY, Vennemann MM. Breastfeeding and reduced risk of sudden infant death syndrome: a meta-analysis. Pediatrics. 2011;128(1):103–110 5.

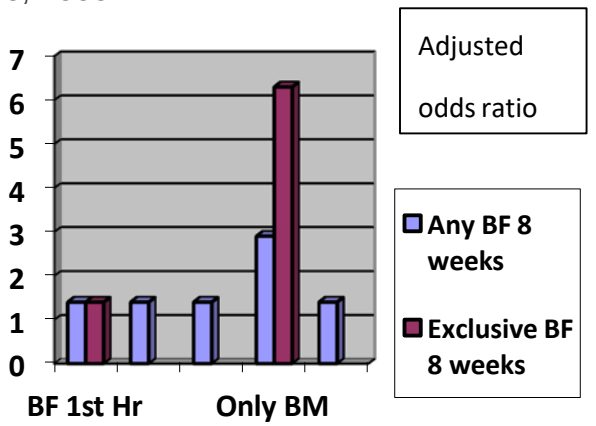
Chowdhury R, Sinha B, Sankar MJ, et al. Breastfeeding and maternal health outcomes: a systematic review and meta-analysis. Acta Paediatr. 2015;104(467):96–113

Why Exclusivity Matters

- The most significant predictor of duration was the receipt of supplemental feedings while in the hospital (P < .0001), Howard, C. R. et al. Pediatrics 2003;111:511-518

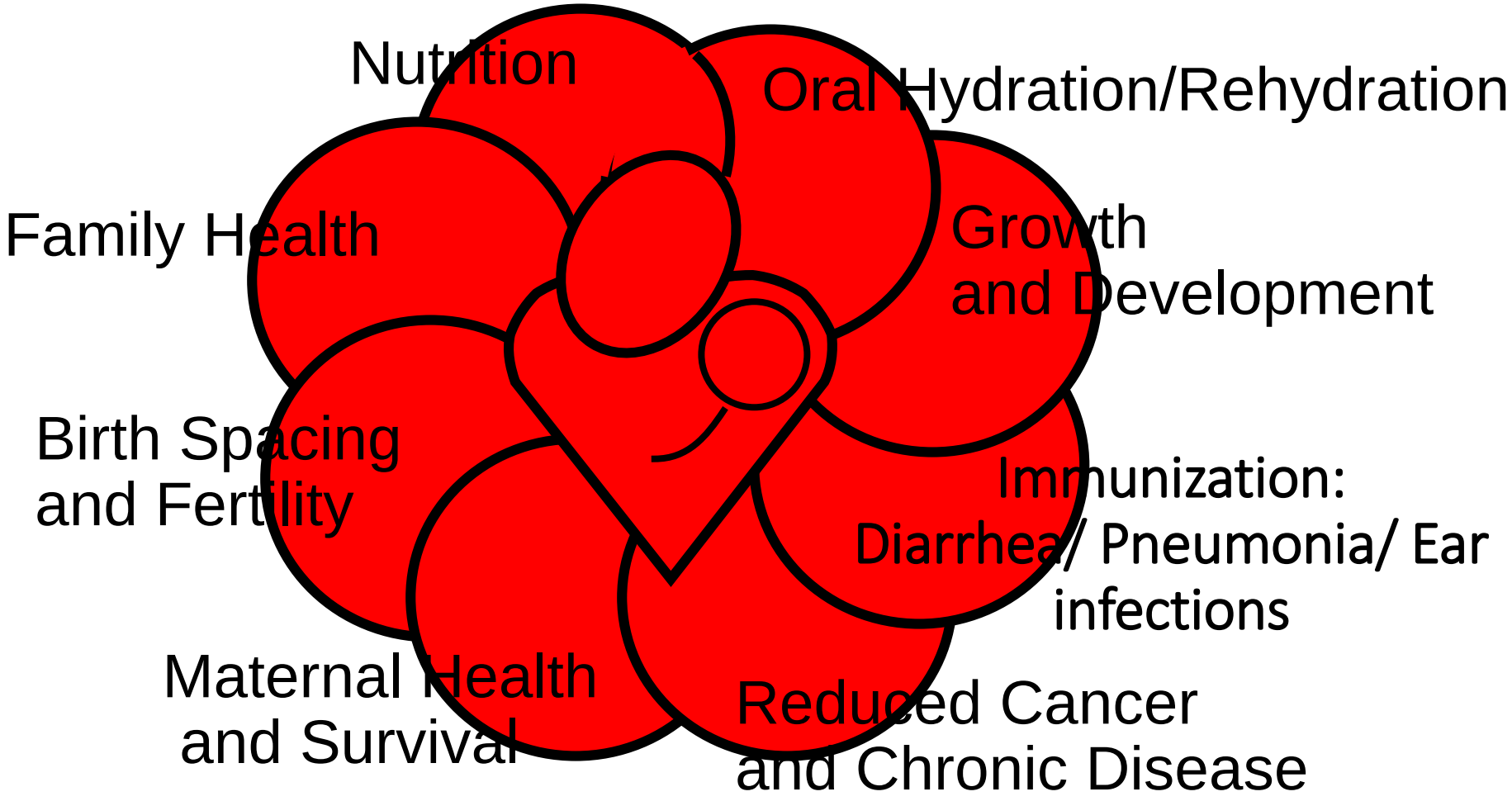
- Shorter duration of breastfeeding if used formula in the first month (2.79, CI 2.05-3.80), Vogel, et al. Acta Pediatr 88: 1320-6, 1999.

- Six times more likely to be exclusively breastfeeding at 8 weeks if not supplemented with formula in the hospital (OR 6.3 Exclusive BF) "Breastfeeding and New Jersey Maternity Hospitals: A Comparative Report, using data from the New Jersey Pregnancy Risk Assessment Monitoring System (NJ-PRAMS)"



- Only not receiving supplemental feedings remained significant for reaching Feeding goals (Adj OR= 2.3, 95% CI 1.8, 3.1), Perrine, et al. Pediatrics, 2012; Jul, 130:1, 54-60

Breastfeeding, the Heartbeat of Maternal/Infant Health, supports:



With permission of the Carolina Global Breastfeeding Institute (CGBI) at UNC Chapel Hill, based on the logo of the Breastfeeding Division, IRH, at Georgetown U & Dr. Miriam Labbok

The Health Benefits of Breastfeeding are Substantial:

- Substantially higher rates of mortality among infants never breastfed compared to those exclusively breastfed in the first six months of life and receiving continued breastfeeding beyond.
- Otitis media occurs nearly twice as frequently among those not exclusively breastfed in the first six months
- Many of the benefits of breastfeeding are experienced well beyond the period that breastfeeding is stopped.
- Children who were breastfed have lower risk of obesity, higher intelligence quotients, reduced malocclusion and less asthma.

Grummer-Strawn, L. M. and Rollins, N. (2015), Summarising the health effects of breastfeeding. Acta Paediatr, 104: 1–2. doi:10.1111/apa.13136

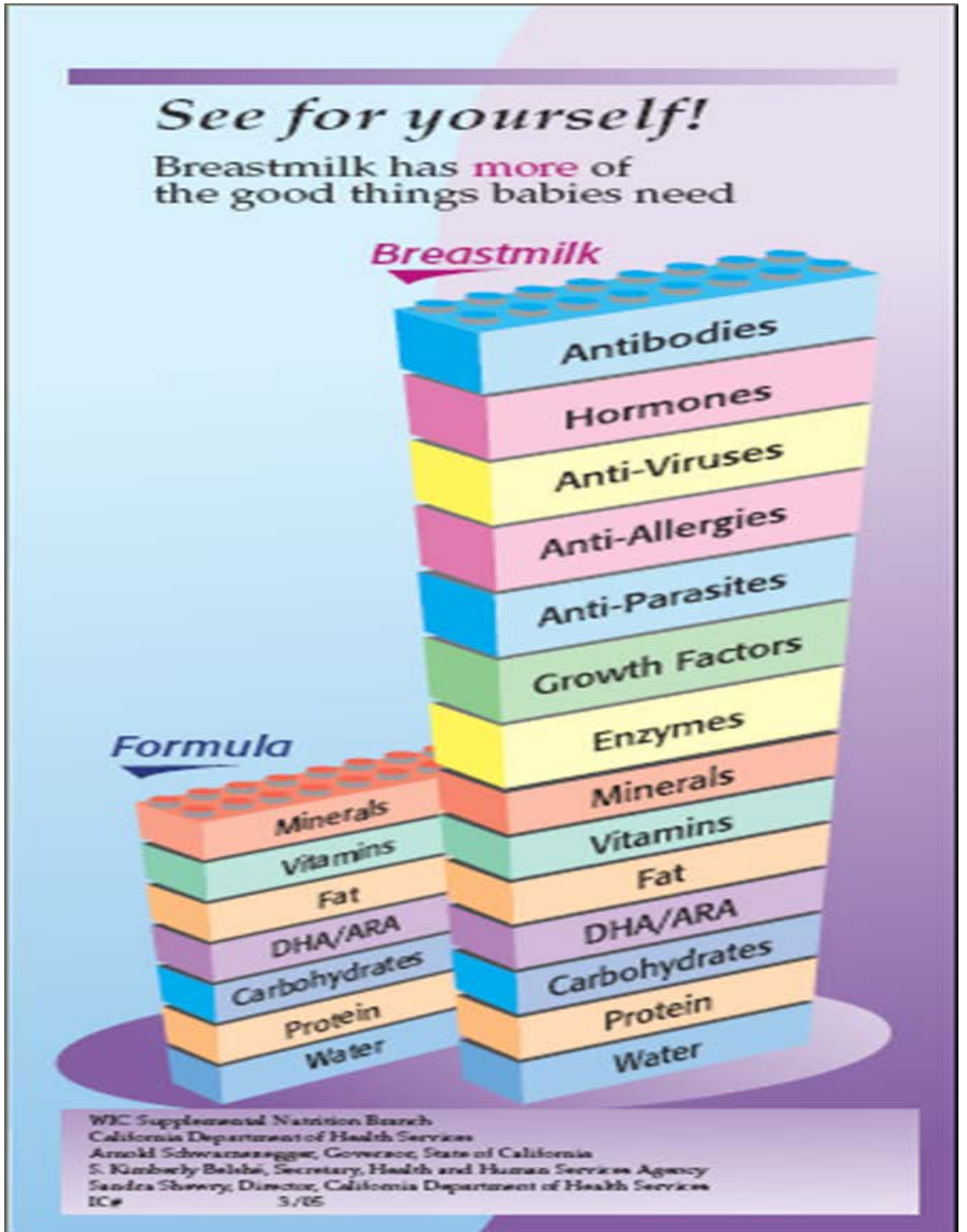
The Health Benefits of Breastfeeding are Substantial:

- Breastfeeding mothers have lower rates of:
  - breast cancer
  - ovarian cancer
  - type 2 diabetes
  - heart disease & hypertension
  - osteoporosis
  - postpartum depression

- These multiple benefits of breastfeeding demonstrate the contribution and relevance of breastfeeding as a global public health issue, for low- and high-income populations alike.

Grummer-Strawn, L. M. and Rollins, N. (2015), Summarising the health effects of breastfeeding. Acta Paediatr, 104: 1–2. doi:10.1111/apa.13136

Which would you pick?



DID YOU EVER WONDER WHAT'S IN... ?

BREASTMILK

WATER

CARBOHYDRATES (energy source)
- Lactose
- **Oligosaccharides (see below)**

CARBOXYLIC ACID
- Alpha hydroxy acid
  - Lactic acid

PROTEINS
(building muscles and bones)
- Whey protein
  - Alpha-lactalbumin
    - HAMLET (Human Alpha-lactalbumin Made Lethal to Tumour cells)
  - Lactoferrin
  - Many antimicrobial factors (see below)
- Casein
- Serum albumin

NON-PROTEIN NITROGENS
- Creatine
- Creatinine
- Urea
- Uric acid
- Peptides (see below)
- Amino Acids (the building blocks of proteins)
  - Alanine
  - Arginine
  - Aspartate
  - Glycine
  - Cystine
  - Glutamate
  - Histidine
  - Isoleucine
  - Leucine
  - Lycine
  - Methionine
  - Phenylalanine
  - Proline
  - Serine
  - Taurine
  - Theronine
  - Tryptophan
  - Tyrosine
  - Valine
  - Carnitine (amino acid compound necessary to make use of fatty acids as an energy source)
- Nucleotides (chemical compounds that are the structural units of RNA and DNA)
  - 5'-Adenosine monophosphate (5"-AMP)
  - 3',5'-Cyclic adenosine monophosphate (3',5'-cyclic AMP)
  - 5'-Cytidine monophosphate (5'-CMP)
  - Cytidine diphosphate choline (CDP choline)
  - Guanosine diphosphate (UDP)
  - Guanosine diphosphate - mannose
  - 3'- Uridine monophosphate (3'-UMP)
  - 5'-Uridine monophosphate (5'-UMP)
  - Uridine diphosphate (UDP)
  - Uridine diphosphate hexose (UDPH)
  - Uridine diphosphate-N-acetyl-hexosamine (UDPAH)
  - Uridine diphosphoglucuronic acid (UDPGA)
  - Several more novel nucleotides of the UDP type

FATS
- Triglycerides
  - Long-chain polyunsaturated fatty acids
    - Docosahexaenoic acid (DHA) (important for brain development)
    - Arachidonic acid (AHA) (important for brain development)
    - Linoleic acid
    - Alpha-linolenic acid (ALA)
    - Eicosapentaenoic acid (EPA)
    - Conjugated linoleic acid (Rumenic acid)
  - Free Fatty Acids
  - Monounsaturated fatty acids
    - Oleic acid
    - Palmitoleic acid
    - Heptadecenoic acid
  - Saturated fatty acids
    - Stearic
    - Palmitic acid
    - Lauric acid
    - Myristic acid
- Phospholipids
  - Phosphatidylcholine
  - Phosphatidylethanolamine
  - Phosphatidylinositol
  - Lysophosphatidylcholine
  - Lysophosphatidylethanolamine
  - Plasmalogens
- Sphingolipids
  - Sphingomyelin
  - Gangliosides
    - GM1
    - GM2
    - GM3
  - Glucosylceramide
  - Glycosphingolipids
  - Galactosylceramide
  - Lactosylceramide
  - Globotriaosylceramide (GB3)
  - Globoside (GB4)
- Sterols
  - Squalene
  - Lanosterol
  - Dimethylsterol
  - Methosterol
  - Lathosterol
  - Desmosterol
  - Triacylglycerol
  - Cholesterol
  - 7-dehydrocholesterol
  - Stigma-and campesterol
  - 7-ketocholesterol
  - Sitosterol
  - β-lathosterol
  - Vitamin D metabolites
  - Steroid hormones

VITAMINS
- Vitamin A
- Beta carotene
- Vitamin B6
- Vitamin B8 (Inositol)
- Vitamin B12
- Vitamin C
- Vitamin D
- Vitamin E
- a-Tocopherol
- Vitamin K
- Thiamine
- Riboflavin
- Niacin
- Folic acid
- Pantothenic acid
- Biotin

MINERALS
- Calcium
- Sodium
- Potassium
- Iron
- Zinc
- Chloride
- Phosphorus
- Magnesium
- Copper
- Manganese
- Iodine
- Selenium
- Choline
- Sulpher
- Chromium
- Cobalt
- Fluorine
- Nickel

METAL
- Molybdenum (essential element in many enzymes)

GROWTH FACTORS
(aid in the maturation of the intestinal lining)
- Cytokines
  - interleukin-1β (IL-1β)
  - IL-2
  - IL-4
  - IL-6
  - IL-8
  - IL-10
  - Granulocyte-colony stimulating factor (G-CSF)
  - Macrophage-colony stimulating factor (M-CSF)
  - Platelet derived growth factors (PDGF)
  - Vascular endothelial growth factor (VEGF)
  - Hepatocyte growth factor -α (HGF-α)
  - HGF-β
  - Tumor necrosis factor-α
  - Interferon-γ
  - Epithelial growth factor (EGF)
  - Transforming growth factor-α (TGF-α)
  - TGF β1
  - TGF-β2
  - Insulin-like growth factor-I (IGF-I) (also known as somatomedin C)
  - Insulin-like growth factor- II
  - Nerve growth factor (NGF)
  - Erythropoietin

PEPTIDES
(combinations of amino acids)
- HMGF I (Human growth factor)
- HMGF II
- HMGF III
- Cholecystokinin (CCK)
- β-endorphins
- Parathyroid hormone (PTH)
- Parathyroid hormone-related peptide (PTHrP)
- β-defensin-1
- Calcitonin
- Gastrin
- Motilin
- Bombesin (gastric releasing peptide, also known as neuromedin B)
- Neurotensin
- Somatostatin

HORMONES
(chemical messengers that carry signals from one cell, or group of cells, to another via the blood)
- Cortisol
- Triiodothyronine (T3)
- Thyroxine (T4)
- Thyroid stimulating hormone (TSH) (also known as thyrotropin)
- Thyroid releasing hormone (TRH)
- Prolactin
- Oxytocin
- Insulin
- Corticosterone
- Thrombopoietin
- Gonadotropin-releasing hormone (GnRH)
- GRH
- Leptin (aids in regulation of food intake)
- Ghrelin (aids in regulation of food intake)
- Adiponectin
- Feedback inhibitor of lactation (FIL)
- Eicosanoids
  - Prostaglandins (enzymatically derived from fatty acids)
    - PG-E1
    - PG-E2
    - PG-F2
  - Leukotrienes
  - Thromboxanes
  - Prostacyclins

ENZYMES
(catalysts that support chemical reactions in the body)
- Amylase
- Arysulfatase
- Catalase
- Histaminase
- Lipase
- Lysozyme
- PAF-acetylhydrolase
- Phosphatase
- Xanthine oxidase

ANTIPROTEASES
(thought to bind themselves to macromolecules such as enzymes and as a result prevent allergic and anaphylactic reactions)
- a-1-antitrypsin
- a-1-antichymotrypsin

ANTIMICROBIAL FACTORS
(are used by the immune system to identify and neutralize foreign objects, such as bacteria and viruses.)
- Leukocytes (white blood cells)
  - Phagocytes
    - Basophils
    - Neutrophils
    - Eosinophils
  - Macrophages
  - Lymphocytes
    - B lymphocytes (also known as B cells)
    - T lymphocytes (also known as C cells)
- sIgA (Secretory immunoglobulin A) (the most important antiinfective factor)
- IgA2
- IgG
- IgD
- IgM
- IgE
- Complement C1
- Complement C2
- Complement C3
- Complement C4
- Complement C5
- Complement C6
- Complement C7
- Complement C8
- Complement C9
- Glycoproteins
  - Mucins (attaches to bacteria and viruses to prevent them from clinging to mucousal tissues)
  - Lactadherin
- Alpha-lactoglobulin
- Alpha-2 macroglobulin
- Lewis antigens
- Ribonudease
- Haemagglutinin inhibitors
- Bifidus Factor (increases growth of Lactobacillus bifidus - which is a good bacteria)
- Lactoferrin (binds to iron which prevents harmful bacteria from using the iron to grow)
- Lactoperoxidase
- B12 binding protein (deprives microorganisms of vitamin B12)
- Fibronectin (makes phagocytes more aggressive, minimizes inflammation, and repairs damage caused by inflammation)
- Oligosaccharides (More Than 200 Different Kinds!)

FORMULA

WATER

CARBOHYDRATES
- Lactose
- Corn maltodextrin

PROTEIN
- Partially hydrolyzed reduced minerals whey protein concentrate (from cow's milk)

FATS
- Palm olein
- Soybean oil
- Coconut oail
- High oleic safflower oil (or sunflower oil)
- M. alpina oil (Fungal DHA)
- C.cohnii oil (Algal ARA)

MINERALS
- Potassium citrate
- Potassium phosphate
- Calcium chloride
- Tricalcium phosphate
- Sodium citrate
- Magnesium chloride
- Ferrous sulphate
- Zinc sulphate
- Sodium chloride
- Copper sulphate
- Potassium iodide
- Manganese sulphate
- Sodium selenate

VITAMINS
- Sodium ascorbate
- Inositol
- Choline bitartrate
- Alpha-Tocopheryl acetate
- Niacinamide
- Calcium pantothenate
- Riboflavin
- Vitamin A acetate
- Pyridoxine hydrochloride
- Thiamine mononitrate
- Folic acid
- Phylloquinone
- Biotin
- Vitamin D3
- Vitamin B12

ENZYME
- Trypsin

AMINO ACID
- Taurine
- L-Camitine (a combination of two different amino acids)

NUCLEOTIDES
- Cytidine 5-monophosphate
- Disodium uridine 5-monophosphate
- Adenosine 5-monophosphate
- Disodium guanosine 5-monophosphate
- Soy Lecithin

Developed as a student project for the Breastfeeding Course for Health Care Providers, Douglas College, New Westminster, BC, Canada - © 2007

Contradindications to Breastfeeding

- Galactosemia
- The infant whose mother:
  - Has HIV (in the US)
  - Is taking antiretroviral medications
  - Has untreated, active tuberculosis
  - Is infected with human T-cell lymphotropic virus type I or type II
  - Is using or is dependent upon an illicit drug
  - Is taking prescribed cancer chemotherapy agents, such as antimetabolites that interfere with DNA replication and cell division
  - Is undergoing radiation therapies; however, such nuclear medicine therapies require only a temporary interruption in breastfeeding

6 magical ways that breastmilk changes to meet baby's needs

Breastmilk changes

1. as baby grows
2. during growth spurts and illnesses
3. from day to night
4. during a feeding
5. color
6. flavor

Personalized Medicine

"Human breastmilk is therefore not only a perfectly adapted nutritional supply for the infant, but probably the most specific personalized medicine that he or she is likely to receive, given at a time when gene expression is being fine-tuned for life. This is an opportunity for health imprinting that should not be missed."

Cesar G Victora, Rajiv Bahl, Aluísio J D Barros, Giovanny V A França, Susan Horton, Julia Krasevec, Simon Murch, Mari Jeeva Sankar, Neff Walker, Nigel C Rollins, for The Lancet Breastfeeding Series Group. Breastfeeding in the 21st century: epidemiology, mechanisms, and lifelong effect Lancet 2016; 387: 475–90

Microbiome

- In the past two decades, the possibility that crucial imprinting events might be modulated during breastfeeding, with potential lifelong effects for the infant, has become apparent.
- These events might be mediated directly or through effects on the infant microbiome.
- The ability of the microbiome to regulate host responses in infancy depends on individual bacterial species, which modulate T-cell polarization and immune regulation, metabolic responses, adipogenesis, and possibly even brain development and cognitive functioning.
- Abnormal colonization patterns have a deleterious long-term effect on immune and metabolic homoeostasis.
- A mother's breastmilk transmits elements of her own microbiome and immune responses, and also provides specific prebiotics to support growth of beneficial bacteria.

Microbiome

- Delivery mode initially established whether the gut flora of the mother (vaginal delivery) or the skin flora of the birth attendants (caesarean section) dominates the initial colonizers, which induce an important immune response in the infant.

- Feeding mode is the second fundamental determinant of the infant microbiome.
  - Breastfed infants maintain persistent microbial differences, independent of delivery mode, owing to the effects of human milk oligosaccharides (HMOs).

- Human milk contains a much wider variety of sugars than other mammalian milks: up to 8% of its calorific value is provided in the form of indigestible HMOs, which function as prebiotics to support growth of specific bacteria.

Microbiome

- There is specificity of the interaction between breastmilk and the infant microbiome, causing different bacterially induced effects on the infant's metabolism and immunity.

- Breastmilk contains a dominance of immune cells of gut-related phenotype cells, that have matured within the mother's intestine.

- Breastmilk cytokines also vary depending on the mother's immunological experiences.

- Animal studies show clear differences in both gut bacterial composition and mucosal immune responses in breastfed compared with formula-fed macaques monkeys, with the responses persisting into adult life

Spit Happens?

- Breastmilk plays an important role in shaping a healthy oral microbiome

- The interaction of neonatal saliva and breast milk releases antibacterial compounds, including hydrogen peroxide.
  activates the 'lactoperoxidase system' which produces additional compounds that also have antibacterial activity

- Hydrogen peroxide can remain active at pH levels similar to that of a baby's stomach, so we think that this antimicrobial activity seen in the mouth may also continue within the baby's stomach and intestines

The effect of breastmilk and saliva combinations on the in vitro growth of oral pathogenic and commensal microorganisms
E. L. Sweeney, S. S. Al-Shehri, D. M. Cowley, H. G. Liley, N. Bansal, B. G. Charles, P. N. Shaw, J. A. Duley & C. L. Knox
Scientific Reports volume 8, Article number: 15112 (2018)

Epigenetics

- In addition to changes mediated through the flora, individual breastmilk components might directly affect epigenetic programming of the infant
- Breast milk has been shown to protect newborns against many diseases commonly experienced during the first year of life

4 main diseases and disorders that breast milk may epigenetically protect against:

#1 Neonatal necrotizing enterocolitis (NEC) Breastfeeding may play a role in preventing NEC by programming sIgA excretion through the influence on gut microbiota composition

#2 Disorders of the Immune System – GI infections, Acute Otitis Media

- Research suggests that breastfeeding may be able to epigenetically provide resistance against disorders of the immune system by influencing the gut microbiota, which influences proinflammatory genes.
- Breastfeeding may play a role in preventing NEC by programming sIgA excretion through the influence on gut microbiota composition.
- Human milk contains oligosaccharides which promote healthier gut bacteria, which plays a leading role in epigenetically programming the infant's immune phenotype and infection susceptibility.

Diseases and disorders that breast milk may epigenetically protect against:

#3 Cancer

- Benefits of breastfeeding are not only limited to the breastfed child. Mothers can have a deep and relevant impact on their own health just by nursing their babies.

- It is not very clear yet, but the evidence so far has shown an inverse correlation between breastfeeding duration and breast cancer risk, even in women who carry deleterious mutations in the BRCA1 gene.

- This has been demonstrated by several studies, where women with BRCA1 mutations who breastfed their kids for more than one year showed a statistically significantly reduced risk of breast cancer than those who did not breastfeed their children. However, no association was found between breast cancer risk and breastfeeding for women with BRCA2 mutations.

- Scientists have proposed several mechanisms
  - hormonal changes
  - the inhibiting effect that DHA, a natural ligand of peroxisome proliferator-activated receptors, exerts on breast cancer cell growth and mammary tumor growth by epigenetically modulating PPAR βmRNA expression.

Epigenetics of Breastfeeding: 4 Diseases and Disorders That Breast Milk Could Protect Against
August 2, 2018 Janeth Santiago Rios

Diseases and disorders that breast milk may epigenetically protect against:

#4 Obesity and Related Disorders

- Babies fed with artificial formula can develop intestinal dysbiosis which leads to an unhealthy epigenetic expression. It is well known that gut microbiota has an important role in human metabolism – an unbalanced microbiota would be a risk factor for a child developing obesity.

- Researchers have also suggested that breastfeeding is negatively associated with methylation of the leptin gene, LEP, in very young children. Leptin is one of the several neuropeptides involve in the regulation of food intake and fat metabolism. When a baby is breastfed, there is less methylation or silencing of the leptin gene, meaning that more leptin is produced. The decrease in LEP methylation could be one of the mechanisms by which breastfeeding contributes to protection against childhood obesity.

- Although more research is needed, obesity risk, which is clearly linked to nutrition and early-life diet, could be epigenetically stifled in children who are breastfed.

Obesity Prevention

- Babies who drink breast milk are more likely to have certain bacteria in their digestive tracts that help prevent obesity.

- But the babies that had the lowest risk of obesity in the study were those that got only breast milk directly from the breast for the □ rst three months of life
  - More likely to be mothers with paid leave (higher income, more education & private insurance
  - also more likely to have access to and be able to a□ ord healthy foods, to live in areas where there are safe places to exercise — and to be able to pay for sports and other forms of exercise as their children grow. It's not just about how these babies are fed, but also about the context in which they are born and raised.

- Babies that got breast milk from a bottle did have lower rates of obesity at 12 months. Some of that bene□ t is thought to be related to the microbiome that breast milk helps create.

Azad et al, on behalf of the CHILD Study Investigators. October 2018, Pediatrics VOLUME 142 / ISSUE 4
Infant Feeding and Weight Gain: Separating Breast Milk From Breastfeeding and Formula From Food

Obesity Prevention

The way in which babies are fed is important.

- Babies who feed directly from the breast are less likely to be overfed. When they are full, they stop sucking, or switch to a “comfort” kind of sucking that doesn’t produce milk.
- When babies are fed from bottles, parents and caregivers are more likely to push them to finish the bottle; feeding becomes a bit less about appetite and more about volume and schedule.
- Learning to eat only when you are hungry and stop when you are full is a really good skill when it comes to preventing obesity. That’s why the American Academy of Pediatrics has encouraged parents to learn and use “**responsive feeding,**” that is, responding to the cues of babies and children of both hunger and being full.
- The motto is, “You provide, your child decides.”

Azad et al, on behalf of the CHILD Study Investigators. October 2018, Pediatrics VOLUME 142 / ISSUE 4
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Obesity Prevention

What this study helps us see is that the link between breastfeeding and obesity prevention is part of a bigger picture we need to pay attention to if we want to fight the obesity epidemic. It shows us that we need to:

- Do everything we can to help mothers stay at home with their babies for at least three months, which will require paid maternity leaves.
  - The United States is way behind the rest of the world in this.
- Help all parents, regardless of how they feed their infants, learn about responsive feeding, and thus help their babies learn to eat when they are hungry and stop when they are full.
- Understand obesity risk as part of a bigger societal issue — truly, as a social justice issue. All children need — and deserve — access to healthy foods and exercise, and there is more we can do to make this happen.

Azad et al, on behalf of the CHILD Study Investigators. October 2018, Pediatrics VOLUME 142 / ISSUE 4
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Different expectations

Formula Feeding

- 4 ounces (120 ml) @1 month)
- 6 to 8 ounces (180–240 ml) at each of four or five feedings in twenty-four hours.
- 2 1⁄2 ounces (75 ml) of formula a day for every pound (453 grams) of body weight

Breastfeeding

- Exclusively breastfed babies take in an average of 25 oz (750 mL) per day between the ages of 1 month and 6 months.
- A typical range of milk intakes is 19-30 oz per day (570-900 mL per day).

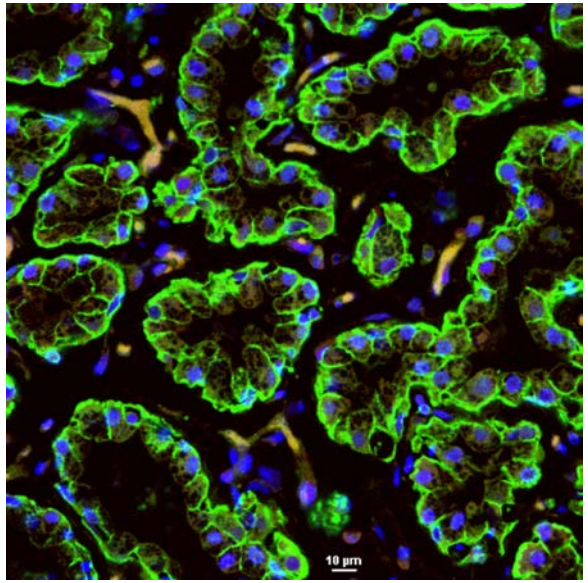

no problem!

Responsive Feeding

AAP Institute for Healthy Childhood Weight

H
U
N
G
E
R

Stem Cells



2007, Professor Peter Hartmann with Dr. Mark Cregan and his team at The University of Western first discovered the presence of stem cells in breast milk (Cregan et al. 2007).

- Dr. Foteini Kakulas --these embryonic-like stem cells found in breast milk can be directed to become other body cell types such as bone, fat, liver, pancreatic and brain cells

  (Hassiotou et al. 2012)

- This raises new possibilities for the sourcing of stem cells for use in regenerative medicine, without the need to destroy any embryos in the process.

Stem Cells

- Dr Kakulas' discovery opened up several avenues to explore for exploration
  - breast cancer research
  - stem cell therapy
  - regenerative medicine

- Babies ingest millions to billions of live cells from their mother's milk daily – was this just by chance? Could they survive the baby's stomach?

- Experiments showed that maternal milk stem cells could be found in the stomach alive – but also in the blood, thymus, liver, pancreas, spleen and even the brain. These cells had also functionally integrated into these organs and were producing organ-specific proteins.

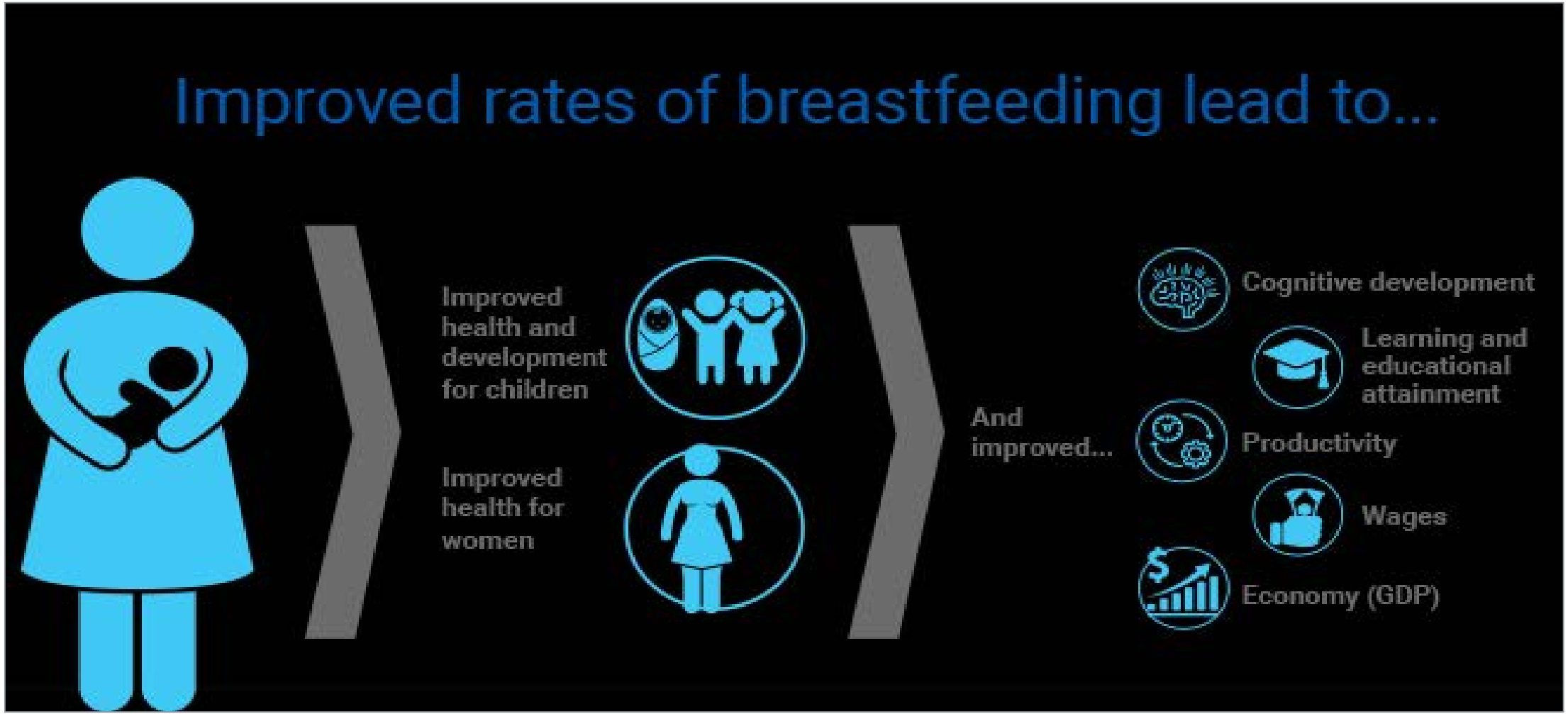
- These findings provide the first evidence of the survival of milk stem cells in the neonate, and indicate that these cells migrate and functionally integrate into the neonates organs, where they may provide developmental benefits to the neonate.

How Very, Very Metabollic!

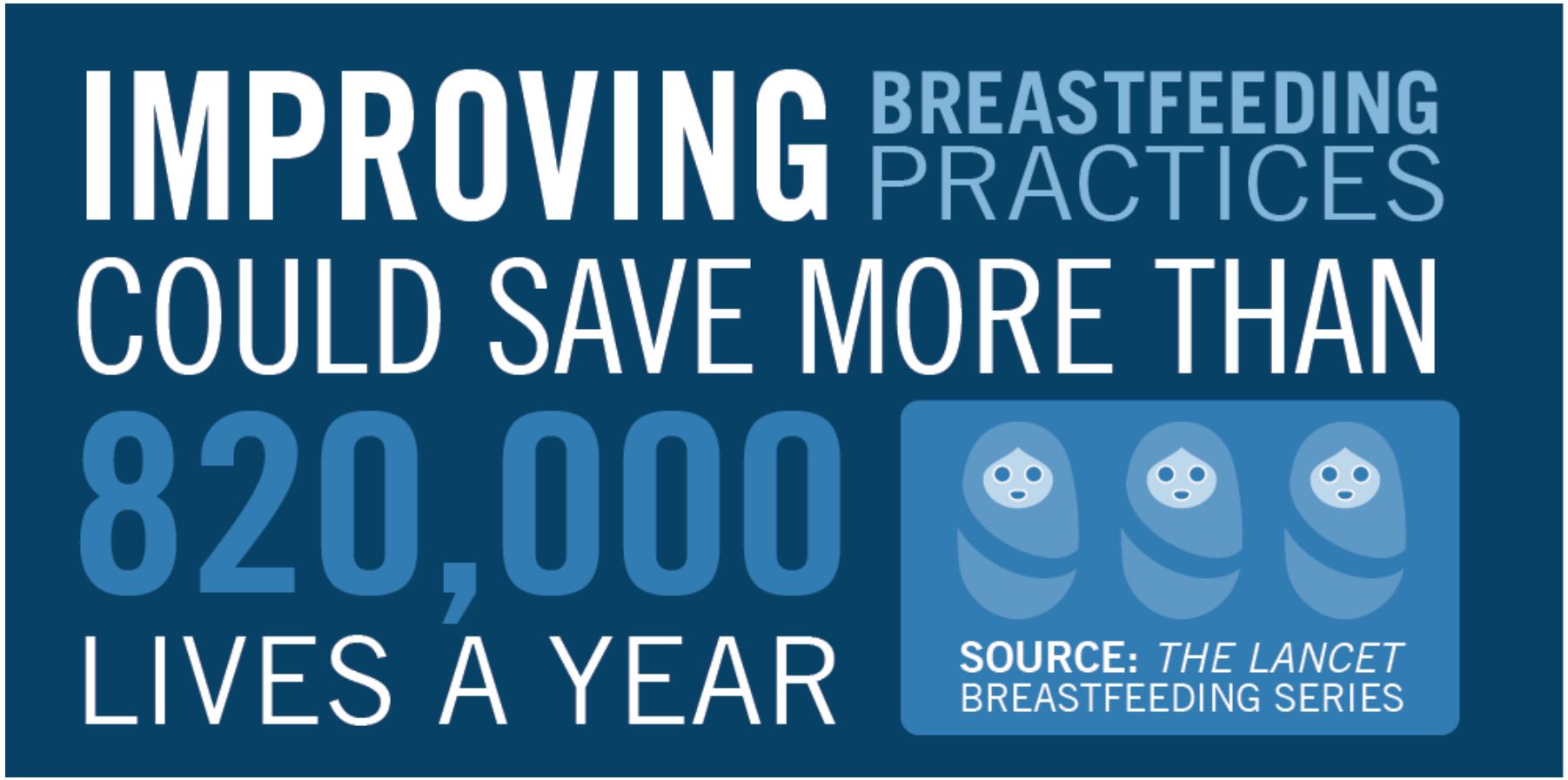
Results suggest that lactation goes beyond returning females back to a non-reproductive baseline and improves their metabolic condition long after reproduction has ended Scientific Reports. volume 7, Article number: 17118 (2017)

Why is it important to promote breastfeeding?

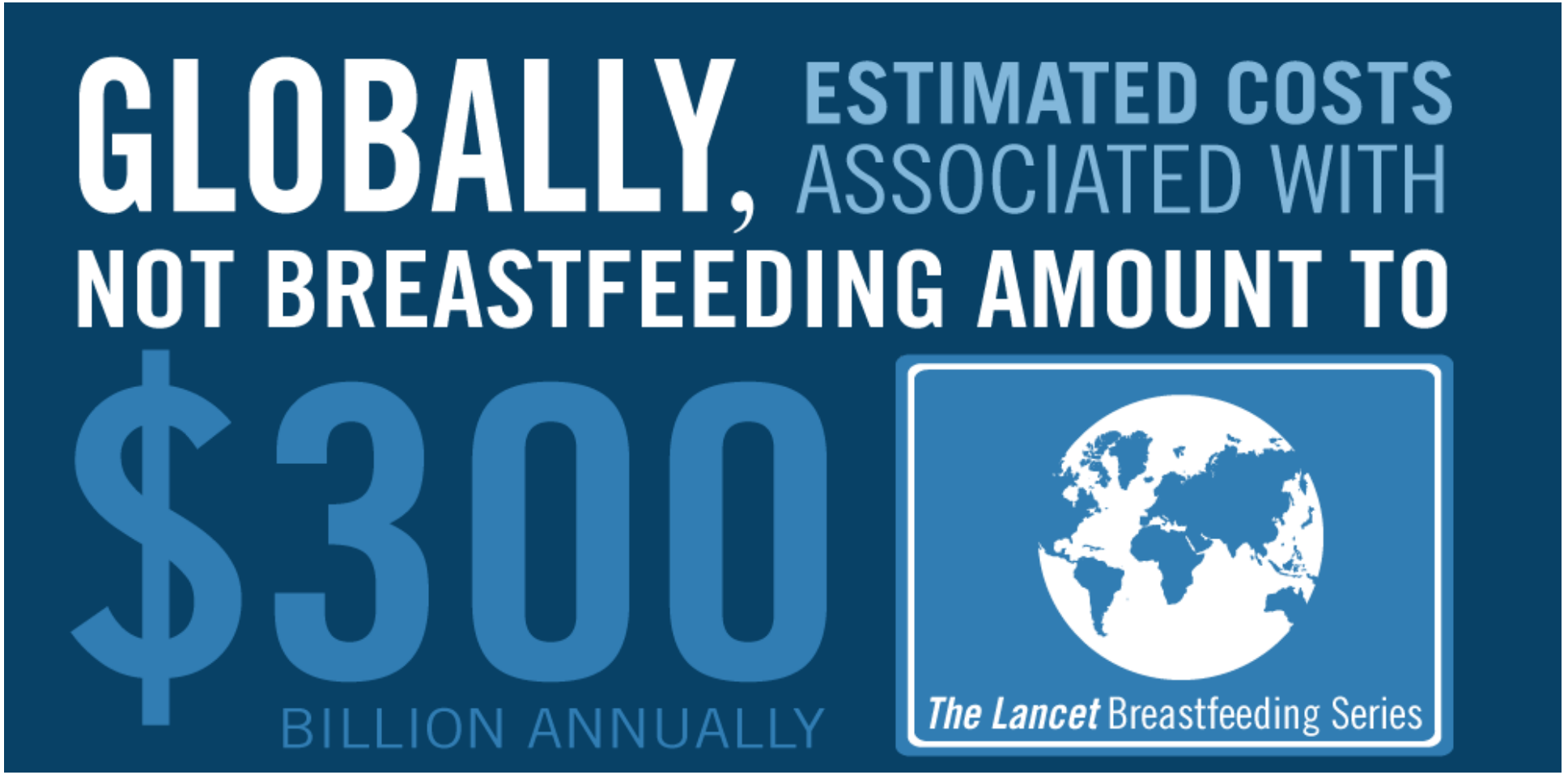
Breastfeeding Can Improve Health and Development for Children and Mothers



Source:Unicef



Victora, Cesar G et al: Breastfeeding in the 21st century: epidemiology, mechanisms, and lifelong effect. *The Lancet* 2016; 387:475-490.



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West Virginia Breastfeeding Alliance
for healthier moms & babies

Impact of Optimized Breastfeeding on the Costs of Necrotizing Enterocolitis in Extremely Low Birthweight Infants

- Incidence of NEC:
  - > 98% human milk, 1.3%
  - Mixed diet, 8.2%
  - Premature formula, 11.1%

Colaizy et al: J Peds 2016; 175:100-105.

- Current feeding accounts for:
  - 928 excess NEC cases
  - 121 excess deaths
  - Costs
    - $27.1 million direct medical costs
    - $563,655 indirect costs
    - $1.5 billion in premature death

Opportunities to Promote Breastfeeding

- **63% of women make the choice to breastfeed before pregnancy**
- **26% during pregnancy**
- **11% after delivery**

Noble L: Factors influencing initiation of breastfeeding among urban women. *Am J Perinatol*. 2003;20(8):477-483.

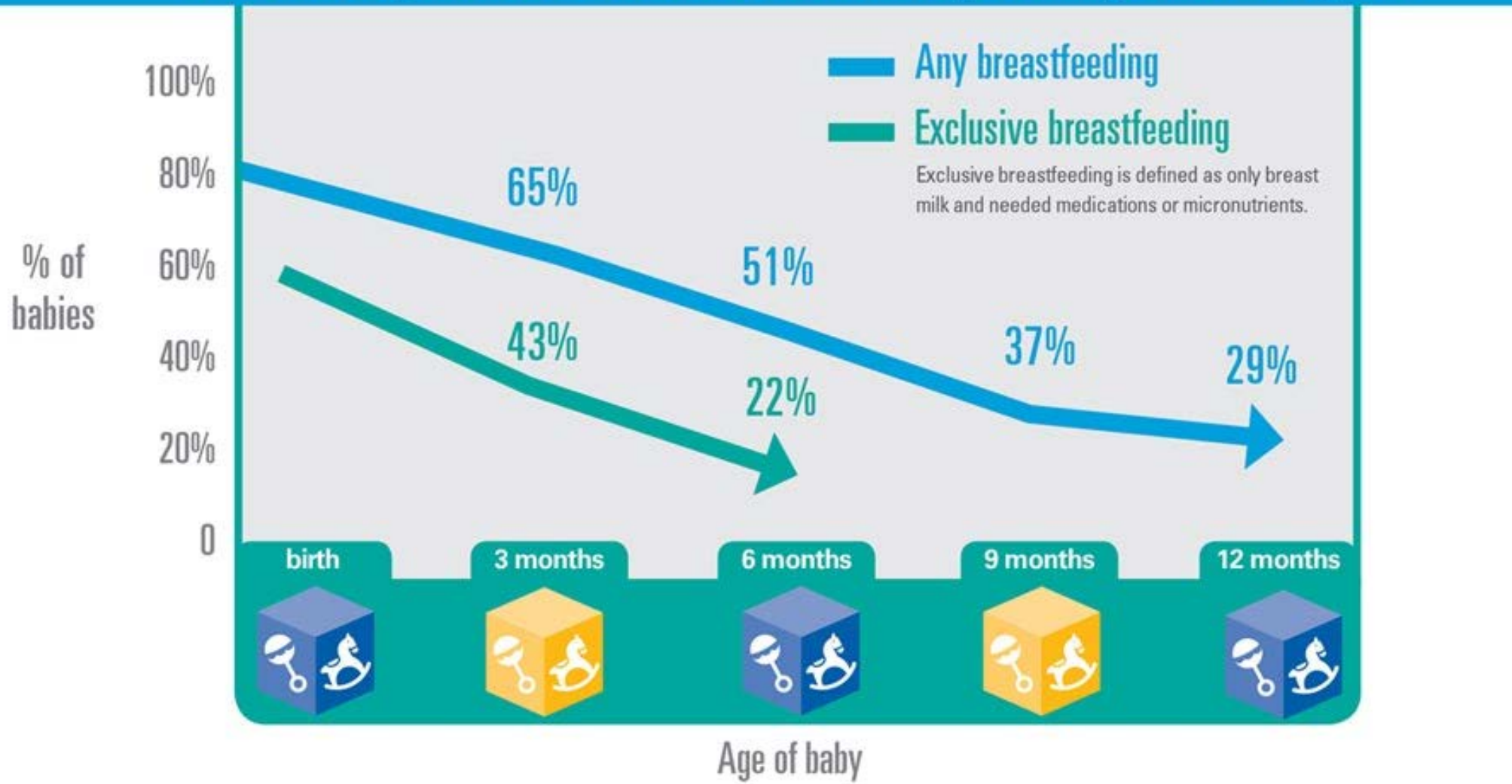
The state of breastfeeding in WV and the U.S.

Mother's Intention to Breastfeed

- 80% of women intend to breastfeed.
- 77% start breastfeeding.
- 16% exclusive breastfeeding at 6 mos.
- **60% of mothers do not breastfeed as long as they intend**
  - Problems with latch
  - Pain
  - Perceived insufficient milk supply
  - Poor weight gain, early supplementation
  - Return to work

Source: Infant Feeding Practices Study II and National Immunization Survey, 2012

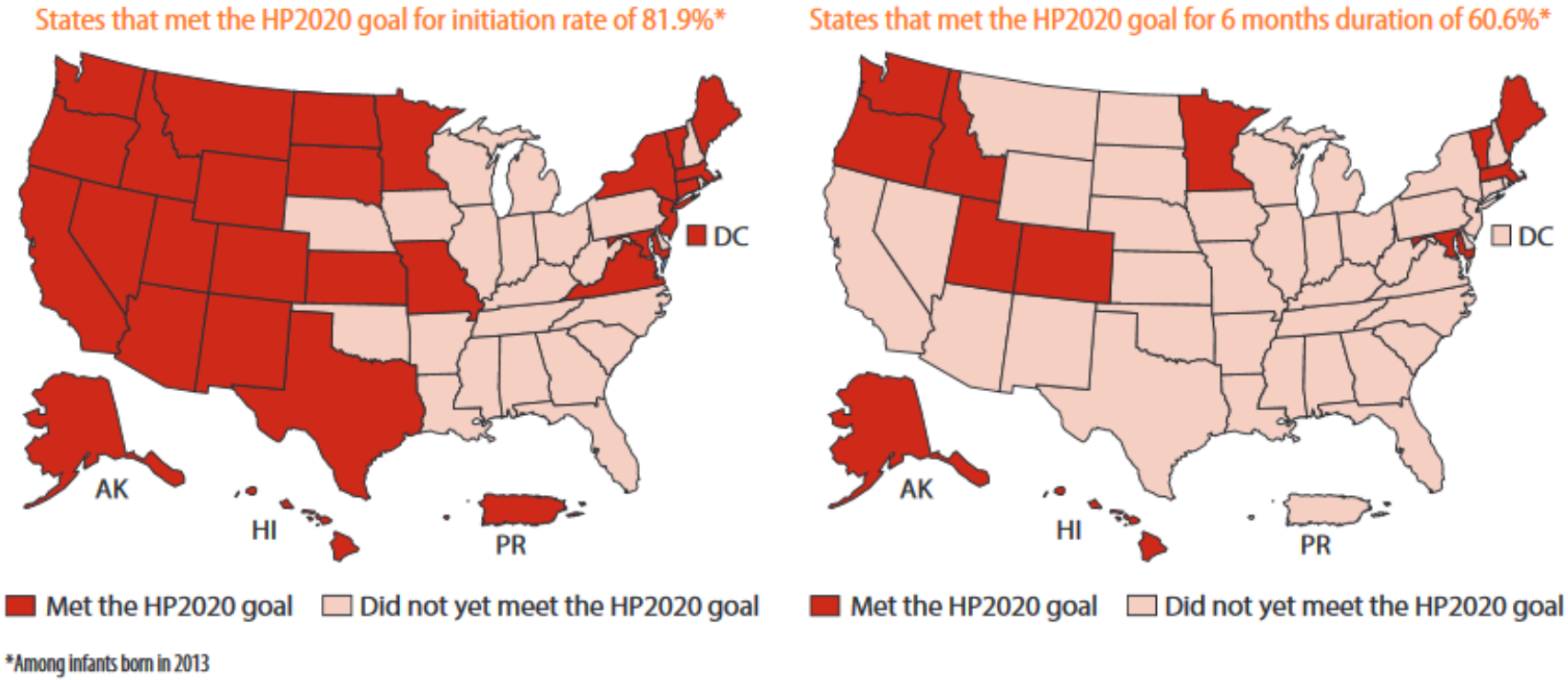
Percentage of babies breastfeeding during the first year



SOURCE: CDC's National Immunization Survey, among babies born in 2012.

Healthy People 2020 Objectives		Target	Current Rates*	WV CURRENT RATES
MICH**-21.1	Increase the proportion of infants who are breastfed: **Ever**	81.9%	83.2% ✓	68.6%
MICH-21.2	Increase the proportion of infants who are breastfed: **At 6 months**	60.6%	57.6%	40.1%
MICH-21.3	Increase the proportion of infants who are breastfed: **At 1 year**	34.1%	35.9% ✓	24.3%
MICH-21.4	Increase the proportion of infants who are breastfed: **Exclusively through 3 months**	46.2%	46.9% ✓	36.3%
MICH-21.5	Increase the proportion of infants who are breastfed: **Exclusively through 6 months**	25.5%	24.9%	20.2%
MICH-22	Increase the proportion of employers that have worksite lactation support programs.	38.0%	49.0% ✓	??
MICH-23	Reduce the proportion of breastfed newborns who receive formula supplementation within the first 2 days of life.	14.2%	17.2%	14.9%
MICH-24	Increase the proportion of live births that occur in facilities that provide recommended care for lactating mothers and their babies.	8.1%	26.1% ✓	8.1%

Initiation & Duration



West Virginia

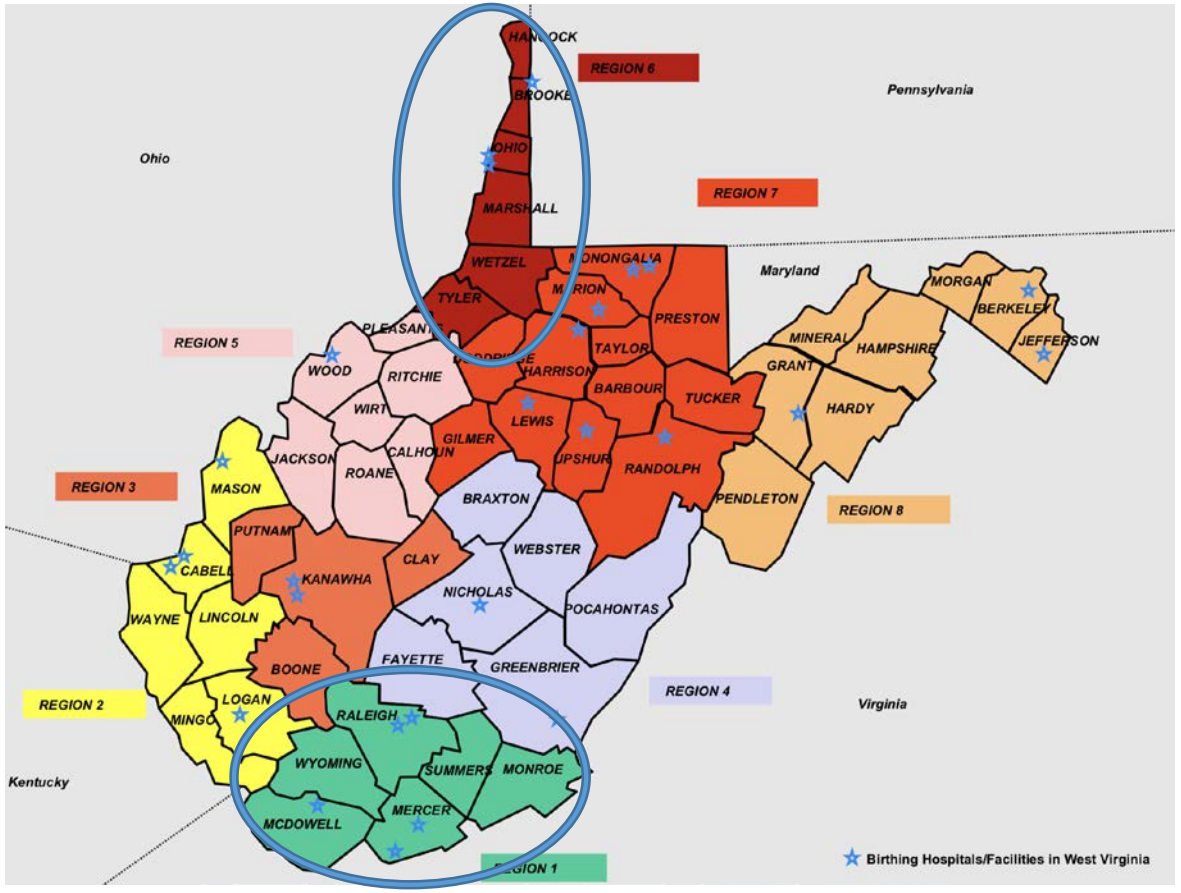
- 57% intend to breastfeed
- 37% are exclusively breastfeeding at discharge

(WV Birthscore 2017)

- Statewide initiatives
  - Ban the Bag (all 24 birthing facilities no longer give formula "gift bags") 7th state to be designated as "Bag Free"
  - Lactation Counselor Training
  - 4 Baby Friendly Hospitals
    - Mon General- Morgantown
    - St Mary's – Huntington
    - Ohio Valley Medical Center – Wheeling
    - Berkeley Medical Center - Martinsburg
    - 4 more actively on pathway for designation

No Exclusive Breastfeeding (Before Discharge) BY RFTS REGIONS

Region Name	EXCLUSIVE BREASTRFEEDING		
	NO	YES	Total
1	1276	395	1671
	76.36	23.64	
2	1297	924	2221
	58.4	41.6	
3	1514	755	2269
	66.73	33.27	
4	681	412	1093
	62.31	37.69	
5	922	500	1422
	64.84	35.16	
6	863	389	1252
	68.93	31.07	
7	2020	1603	3623
	55.75	44.25	
8	911	616	1527
	59.66	40.34	
Unknown or out of state	1695	1088	2783
	60.91	39.09	
Total	11179	6682	17861
Frequency Missing = 303			



No EXCLUSIVE BF before discharge for ALL Births in WV = 62.63%

Health Disparities

- Race or ethnicity, sex, sexual identity, age, disability, **socioeconomic status, and geographic location** all contribute to an individual's ability to achieve good health.

MIAMI (AP) — A new study shows babies born just one mile apart in Miami face up to a 15-year difference in life expectancy.

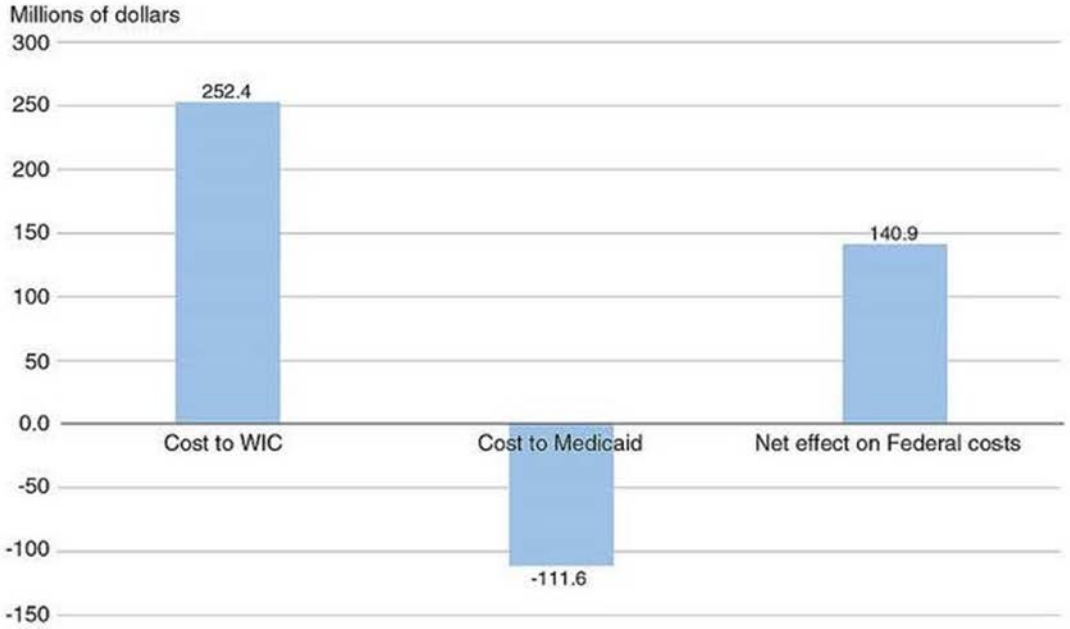
The study by Virginia Commonwealth University Health and the Robert Wood Johnson Foundation notes a complex web of factors impacts the disparities that exist between the impoverished Overtown neighborhood and downtown Miami.

USDA U.S. DEPARTMENT OF AGRICULTURE

Increased Breastfeeding in WIC Would Increase Federal Costs but Lower Health Related Costs for WIC Households

Posted by Victor Oliveira, Food Economics Division, Economic Research Service in Research and Science
Mar 13, 2019

Estimated effect on Federal costs if breastfeeding rates in WIC reached recommended levels, 2016



Note: WIC = Special Supplemental Nutrition Program for Women, Infants, and Children.
Source: USDA, Economic Research Service.

WVBA

- Results from this study indicate that if breastfeeding rates in WIC in 2016 rose to recommended levels:
  - 8-percent increase in total WIC participants
  - Costs to WIC would have increased by $252.4 million
  - BUT - total health-related costs would have been reduced by $9.1 billion

Breastfeeding support indicators

- Hospital mPINC score
- % of births occurring in Baby Friendly designated hospitals
- % of breastfed infants receiving formula before 2 days of age
- Number/availability of Lactation Support Providers
- Pump availability (adequate, efficient pumps)
- Childcare Regulation supporting onsite breastfeeding
- Workplace Breastfeeding Support & Protections

Source: CDC Breastfeeding

Barriers to Exclusive Breastfeeding
"Part of the Problem"

Lack of Support in Hospitals

- Limited provider awareness, knowledge, skills and practices and limited self-awareness
- Excessive use of medical interventions during labor and delivery
- Insufficient attention to immediate skin-to-skin at birth and evidence-based breastfeeding support practices, such as safe co-sleeping
- Insufficient numbers of providers skilled in both clinical and social support for EBF

- Aggressive Marketing by Infant Formula Companies
- Negative Societal Attitudes
- Short Maternity Leave
- Inconvenience at Work

Labbok M, Taylor E. *Achieving Exclusive Breastfeeding in the United States: Findings and Recommendations*. Washington, DC: United States Breastfeeding Committee; 2008.

AAP Policy Statement
Role of the Pediatrician

- Promote breastfeeding as the norm for infant feeding
- Become knowledgeable in the principles and management of lactation and breastfeeding
- Develop skills necessary for assessing the adequacy of breastfeeding
- Support training and education for medical students, residents and postgraduate physicians in breastfeeding and lactation

AAP *Pediatrics* 2012;129;e827-41.

Baby Friendly Hospital Initiative

- World Health Organization/United Nations Children's Fund launched in 1991
- Based on the Ten Steps to Successful Breastfeeding
- Evidence-based guidance shown to increase initiation, continuation, and exclusivity of breastfeeding
- Dose dependent effect—more steps in place, less likely mother will stop breastfeeding*

*DiGirolamo AM, Grummer-Strawn LM, Fein SB. Effect of maternity-care practices on breastfeeding. Pediatrics 2008;122(Suppl 2):S43–9.

However...hospitals are making progress on the Ten Steps

Percentage of hospitals using the Ten Steps to Successful Breastfeeding

SOURCE: CDC's Maternity Practices in Infant Nutrition and Care Survey

Hospital Successes

89 hospitals
in 29 states

With CDC support, the Best Fed Beginnings program helped 89 hospitals in 29 states work towards Baby-Friendly status. As of August 2015, 50 of these hospitals were designated. The other 39 hospitals reached the final phase of designation.

13 hospitals
in Indian Country

Since the Indian Health Service (IHS) launched its Baby-Friendly hospital effort in 2011, all 13 Federal IHS hospitals have achieved Baby-Friendly status.

SOURCE: Vital Signs, September 2015.

Percentage of US babies born in Baby-Friendly *hospitals* increased from 1% in 2005 to 14% in 2015.

SOURCE: CDC and Baby-Friendly, USA.

More hospitals are using a majority of the Ten Steps

SOURCE: CDC's Maternity Practices in Infant Nutrition and Care Survey.

1 HOSPITAL POLICIES

Hospitals **support mothers** to breastfeed by...

- Not promoting infant formula, bottles or teats
- Making breastfeeding care standard practice
- Keeping track of support for breastfeeding

2 STAFF COMPETENCY

Hospitals **support mothers** to breastfeed by...

- Training staff on supporting mothers to breastfeed
- Assessing health workers' knowledge and skills

3 ANTENATAL CARE

Hospitals **support mothers** to breastfeed by...

- Discussing the importance of breastfeeding for babies and mothers
- Preparing women in how to feed their baby

4 CARE RIGHT AFTER BIRTH

Hospitals **support mothers** to breastfeed by...

- Encouraging skin-to-skin contact between mother and baby soon after birth
- Helping mothers to put their baby to the breast right away

World Health Organization unicef

5 SUPPORT MOTHERS WITH BREASTFEEDING

Hospitals **support mothers** to breastfeed by...

- Checking positioning, attachment and suckling
- Giving practical breastfeeding support
- Helping mothers with common breastfeeding problems

World Health Organization unicef

6 SUPPLEMENTING

Hospitals **support mothers** to breastfeed by...

- Giving only breast milk unless there are medical reasons
- Prioritizing donor human milk when a supplement is needed
- Helping mothers who want to formula feed to do so safely

World Health Organization unicef

7 ROOMING-IN

Hospitals **support mothers** to breastfeed by...

Letting mothers and babies stay together day and night

Making sure that mothers of sick babies can stay near their baby

World Health Organization

unicef

8 RESPONSIVE FEEDING

Hospitals **support mothers** to breastfeed by...

Helping mothers know when their baby is hungry

Not limiting breastfeeding times

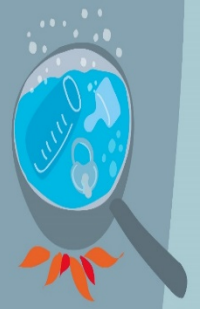
World Health Organization

unicef

9 BOTTLES, TEATS AND PACIFIERS

Hospitals **support mothers** to breastfeed by...

Counsel mothers on the use and risks of feeding bottles, teats, and pacifiers

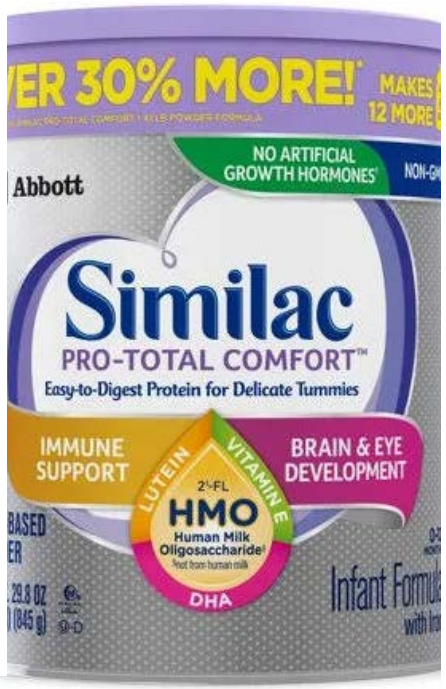


World Health Organization

unicef

- WHO are their community supports?


OVER 30% MORE!
MAKES 13 MORE
NO ARTIFICIAL GROWTH HORMONES
Abbott
Similac
PRO-ADVANCE™
Our Closest Formula to Breast Milk
IMMUNE SUPPORT
LUTEIN
VITAMIN E
2'-FL HMO
Human Milk Oligosaccharide
DHA
BRAIN & EYE DEVELOPMENT
MILK-BASED POWDER
NET WT. 30.8 OZ (1.93 LB) (873 g)
Infant Formula


MAKES 12 MORE
NO ARTIFICIAL GROWTH HORMONES
Abbott
Similac
PRO-TOTAL COMFORT™
Easy-to-Digest Protein for Delicate Tummies
IMMUNE SUPPORT
LUTEIN
VITAMIN E
2'-FL HMO
Human Milk Oligosaccharide
DHA
BRAIN & EYE DEVELOPMENT
Infant Formula


OVER 30% MORE!
MAKES 12 MORE
NO ARTIFICIAL GROWTH HORMONES
NON-GMO
Abbott
Similac
PRO-SENSITIVE™
For Fussiness & Gas Due to Lactose Sensitivity
IMMUNE SUPPORT
LUTEIN
VITAMIN E
2'-FL HMO
Human Milk Oligosaccharide
DHA
BRAIN & EYE DEVELOPMENT
MILK-BASED POWDER
NET WT. 29.8 OZ (1.86 LB) (845 g)
Infant Formula


by Similac
Pure Bliss
THOUGHTFULLY CRAFTED NUTRITION
We start with Fresh Milk from Grass-fed Cows
Infant Formula with Iron
No artificial growth hormones! No antibiotics! Non GMO
for baby's first 12 months
MILK-BASED | POWDER


NO ARTIFICIAL GROWTH HORMONES
Abbott
NON-GMO
Similac
For SUPPLEMENTATION
For Breastfeeding Moms Who Choose to Introduce Formula
OptiGRO
POWDER MILK-BASED
Infant Formula


NO ARTIFICIAL GROWTH HORMONES
Abbott
USDA ORGANIC
Similac
Organic
Complete Nutrition For Your Baby's First Year
OptiGRO
POWDER MILK-BASED
Infant Formula


Abbott
Similac
SOY ISOMIL
OptiGRO
Infant Formula


NON-GMO
NO ARTIFICIAL GROWTH HORMONES
Abbott
Similac
SENSITIVE
For NEURO SUPPORT
BRAIN & EYE DEVELOPMENT
Infant Formula


NO ARTIFICIAL GROWTH HORMONES
Abbott
Similac
SENSITIVE
OptiGRO
Infant Formula


NO ARTIFICIAL GROWTH HORMONES
Abbott
NON-GMO
Similac
For SPIT-UP
OptiGRO
Infant Formula

The next thing

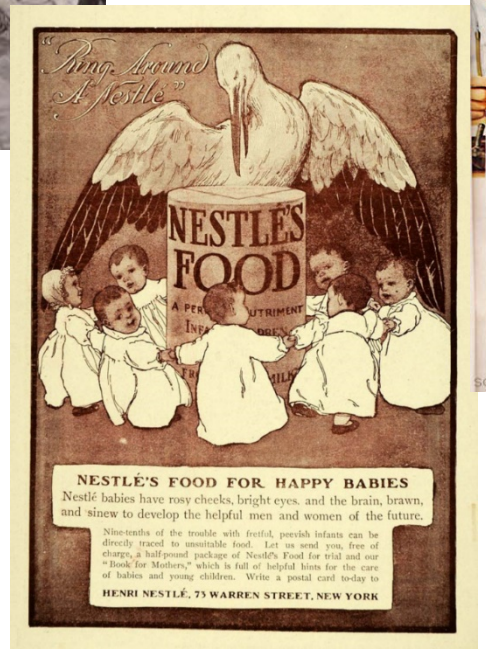
Our Dairy Tale

History of Formula

1800s and earlier

1900-1950's

Late 1800's Advent of Formula



1950's-1970's

http://domesticgeekgirl.com/uncategorized/history-baby-formula-emergency-baby-food-became-everyday-meal-babies-america/

Women's interpretations of infant formula advertising

- Confusion about superiority of human milk
- Formula seen as a treatment or solution
- Expectation of failure with breastfeeding
- Greater influence when from healthcare sites

Formula advertising

- At best, these materials are very concerning, and at worst, they actively mislead for profit
- Women are questioning the integrity of their own body to optimally nourish their baby after viewing the advertisements.
- Women are being misled into believing that supplementing with formula will solve common infant problems when in reality we know that the opposite is true.
- Women are getting the message they will need to look externally for guidance or help when what they need are empowering messages of support.
- This finding is concerning because we know that the healthcare industry is precisely where women turn to for sound and expert advice on infant feeding – are they getting it?
- ***Dieticians have a unique and special role to play in offering an unbiased discussion of infant feeding - one that is not market driven***

Ban the bag

- The campaign grew out of efforts in Massachusetts to stop aggressive formula company marketing tactics in hospitals.
- Massachusetts Public Health Council passed regulations that stopped hospitals from distributing formula company gift bags to new mothers.
- WV did this through work of the WV Breastfeeding Alliance
- We are the 7th BAG FREE state in the country!

In-Hospital Formula Use Increases Early Breastfeeding Cessation

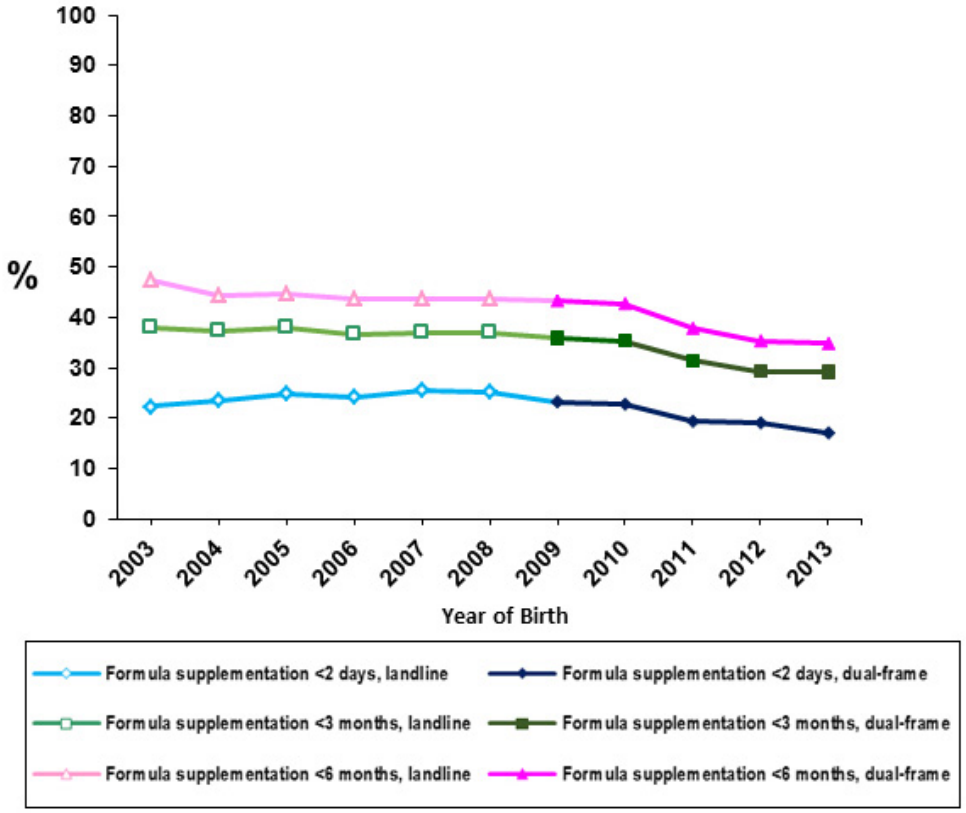
- Cohort study; 210 infants exclusively breastfed vs. 183 that received in-hospital formula supplementation
- Reasons:
  - Perceived insufficient milk supply (18%)
  - Signs of inadequate intake (16%)
  - Poor latch of breastfeeding (14%)
- Among women intending to exclusively breastfeed, in-hospital formula supplementation was associated with a nearly 2-fold greater risk of not fully breastfeeding at days 30-60 and a nearly 3-fold risk of breastfeeding cessation by day 60

Chantry et al, Journal of Pediatrics: http://dx.doi.org/10.1016/j.jpeds.2013.12.035

Supplementation Rates in U.S.

- Within 2 days of birth: 17%
- Within 3 months: 29%
- Within 6 months: 35%

Percentage of Breastfed Children Who Were Supplemented with Infant Formula, by Birth Year, National Immunization Survey, United States[a,b,c]



http://www.cdc.gov/breastfeeding/data/nis_data/index.htm

Supportive Hospital Practices

- **Skin-to-skin contact** – Doctors and midwives place newborns skin-to-skin with their mothers immediately after birth, with no bedding or clothing between them, allowing enough uninterrupted time (at least 30 minutes) for mother and baby to start breastfeeding well.
- **Exclusive breastfeeding** – Hospital staff only disrupt breastfeeding with supplementary feedings in cases of rare medical complications.
- **Rooming-in** – Hospital staff encourage mothers and babies to room together and teach families the benefits of this kind of close contact, including better quality and quantity of sleep for both and more opportunities to practice breastfeeding.

DiGirolamo AM, Grummer-Strawn LM, Fein S. Effect of Maternity care practices on breastfeeding. Pediatrics 2008;122(Supp 2):543-49.

Breastfeeding Advocacy

1. Increase funding to raise the rate of breastfeeding from birth to 2 years

2. Adopt and monitor the International Code of Marketing of Breastmilk Substitutes

3. Enact paid family leave and workplace breastfeeding policies

4. Implement the ‘Ten Steps to Successful Breastfeeding’

5. Improve access to skilled breastfeeding counselling in health facilities

6. Strengthen links between health facilities and communities to support breastfeeding

7. Monitor the progress of policies, programs, and funding for breastfeeding

Role of Health Care Professionals in Protecting, Promoting, and Supporting Breastfeeding

- Promote community resources
- Communicate with lactation support personnel
- Encourage third-party payer coverage for breastfeeding services and supplies
- Encourage child care providers to support breastfeeding and feeding expressed breast milk
- Support breastfeeding in the workplace
- Advocate for supportive legislation

Breastfeeding and Substance Use

- Interventions known to decrease resource utilization include rooming-in, low stimuli environments; gentle handling, swaddling, holding, on demand feeding, breastfeeding (for mothers maintained on methadone or buprenorphine) and standardized weaning protocols" Pediatrics; May 18, 2016; DOI: 10.1542/peds.2015-2929
- "The creation of consistent guidelines for breastfeeding in this population can lead to improved provider harmony, positive partnerships with mothers in recovery from opioid use disorders, and improved NAS outcomes." Revision of Breastfeeding Guidelines in the Setting of Maternal Opioid Use Disorder: One Institution's Experience. Journal of Human Lactation 2016, Vol. 32(2) 382–387

Benefits of breastmilk for the newborn that may be of specific significance to the NAS infant

- Reduction in SIDS
- Significant reduction in infections in childhood
- Improved maternal –child bonding
- Decreased risk of neglect
- Modified NAS symptoms/decreased length of hospital stay

What national metrics are there to support BF in the NAS population?

- Academy of Breastfeeding Medicine
- American Academy of Pediatrics
- Vermont Oxford Network
- LactMed
- MotherRisk
- Thomas Hale (Medications & Mother’s Milk)

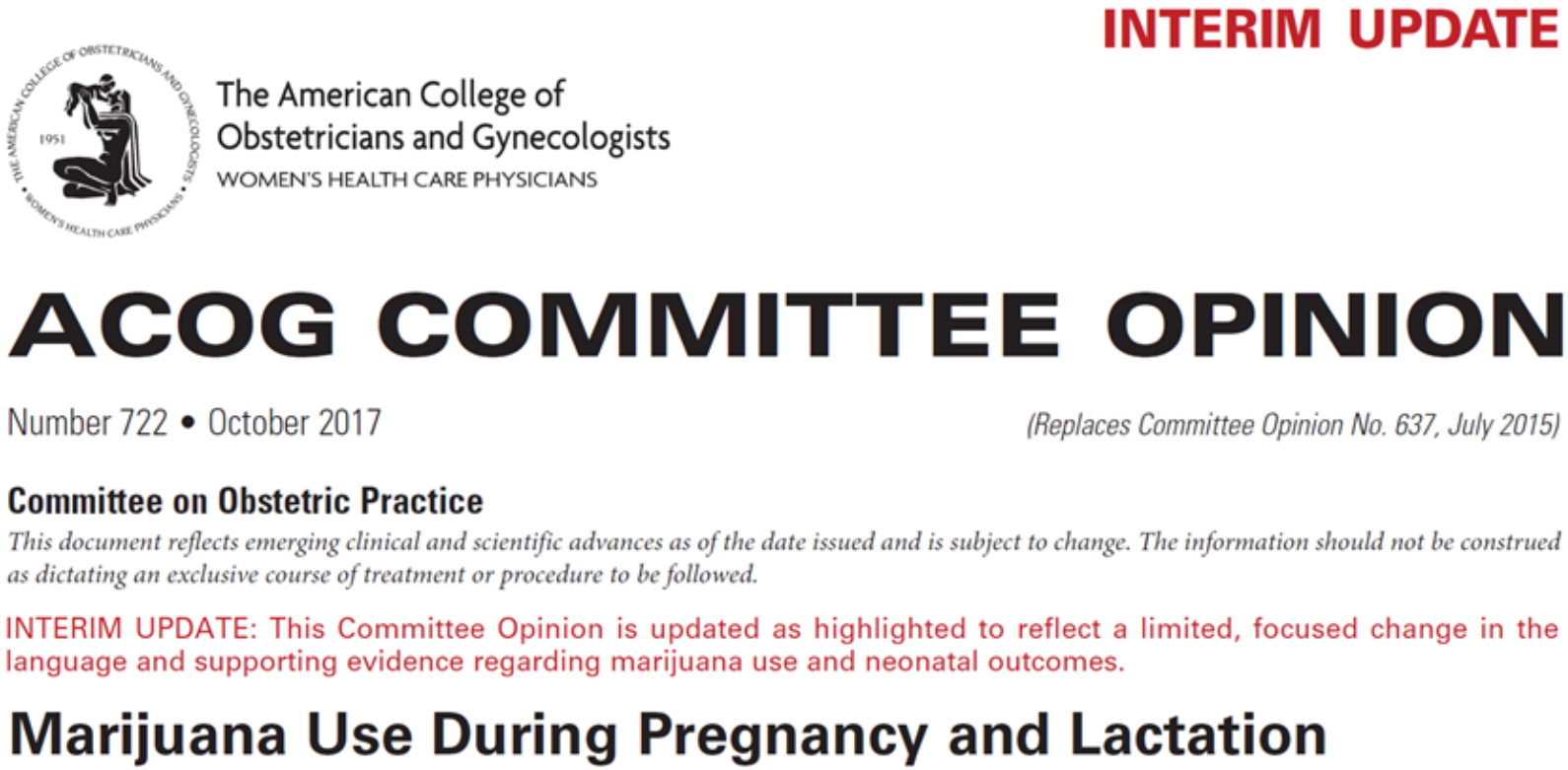
THC and Pregnancy

- National Survey on Drug Use and Health (2016) reported 4.6% of pregnant women reported use of marijuana in the past month
  - 11% of non-pregnant 15-44 years reported use
- Higher rates in 18- 25 year-old pregnant women compared to 26-44 year-old group
  - 8.5% versus 3.3%
- PRAMS data in 2013 showed that 44.6% of women who reported being marijuana smokers prior to pregnancy continued use in pregnancy

Standardized Message

- Due to the changing legal status surrounding marijuana use people may think it is safe in pregnancy.
- Many medications, including medical marijuana, may have harmful side effects such as poor brain growth and potential developmental issues.
- Some natural products can be dangerous or poisonous during pregnancy.
- There is no known safe amount of marijuana (in any form) to use during pregnancy or after delivery while breastfeeding.
- Do not use marijuana or other drugs when caring for your baby.

ACOG Committee Opinion, 2017



INTERIM UPDATE

The American College of Obstetricians and Gynecologists
WOMEN'S HEALTH CARE PHYSICIANS

ACOG COMMITTEE OPINION

Number 722 • October 2017

(Replaces Committee Opinion No. 637, July 2015)

Committee on Obstetric Practice

This document reflects emerging clinical and scientific advances as of the date issued and is subject to change. The information should not be construed as dictating an exclusive course of treatment or procedure to be followed.

INTERIM UPDATE: This Committee Opinion is updated as highlighted to reflect a limited, focused change in the language and supporting evidence regarding marijuana use and neonatal outcomes.

Marijuana Use During Pregnancy and Lactation

Recommendations

- Before and in early pregnancy, all women should be asked about tobacco, alcohol, and other drugs, including marijuana and medications used for non medicinal reasons.
- Women reporting marijuana use should be counseled about concerns regarding potential health consequences of continued use during pregnancy.
- Women should be encouraged to discontinue marijuana use.
- Women should be encouraged to discontinue use of marijuana for medicinal purposes in favor of an alternative therapy with better safety data.
- Insufficient data to evaluate the effects of use on infants during lactation and breast feeding. Marijuana use is discouraged.

In Utero Exposure and Outcomes

- Infants
  - Association with birth weight less than 2500 grams and preterm birth when stratified by amount of use
  - Differences in birth lengths and head circumference have also been described
- Children
  - Lower scores of visual problem solving, visual-motor coordination, and visual analysis
  - Decreased attention span and behavioral problems
- Adolescents
  - Independent predictor of marijuana use by age 14 years

AAP Clinical Report, 2018

CLINICAL REPORT Guidance for the Clinician in Rendering Pediatric Care

American Academy of Pediatrics

DEDICATED TO THE HEALTH OF ALL CHILDREN™

Marijuana Use During Pregnancy and Breastfeeding: Implications for Neonatal and Childhood Outcomes

Sheryl A. Ryan, MD, FAAP,[a] Seth D. Ammerman, MD, FAAP, FSAHM, DABAM,[b] Mary E. O'Connor, MD, MPH, FAAP,[c,d]
COMMITTEE ON SUBSTANCE USE AND PREVENTION, SECTION ON BREASTFEEDING

Recommendations

- Women need to be informed about the lack of definitive research and counseled about the current concerns regarding potential adverse effects of THC use on the woman and on fetal, infant and child development.
- Pregnant women using marijuana to treat a medical condition should be counseled on the lack of safety data and referred for alternative treatment.
- Maternal marijuana use while breastfeeding is discouraged.
- Caution about infant exposure to smoke from marijuana in the environment (passive exposure).
- Encourage to remain abstinent while pregnant and breastfeeding.

Exposure with Breast Milk and Outcomes

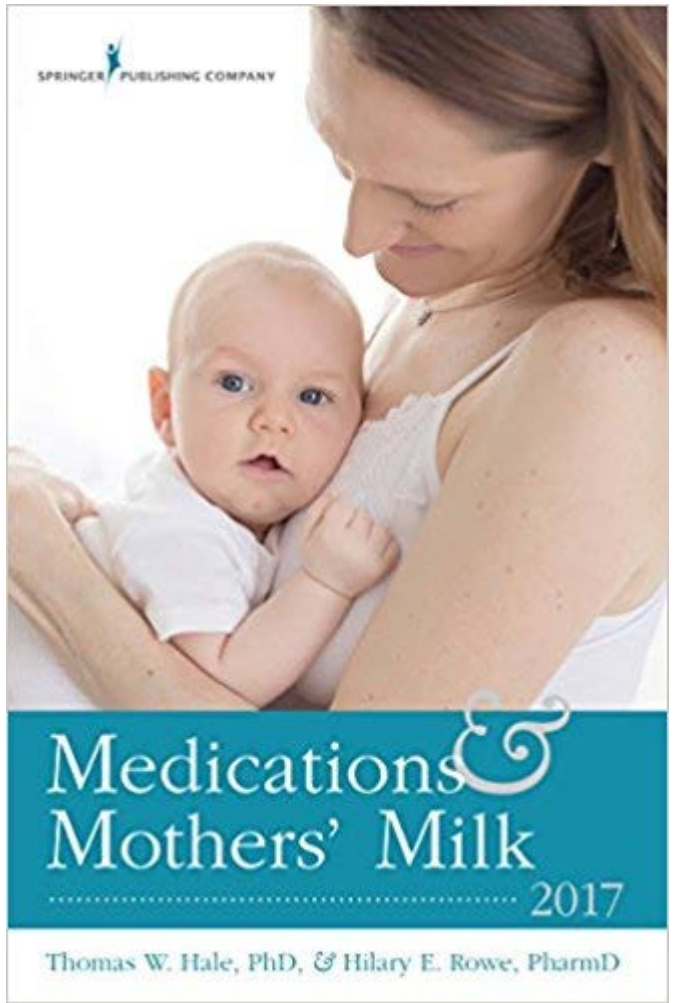
- Limited data on infant outcomes associated with marijuana exposure through breast feeding
- Small study found no difference in 1-year growth and scores on the Bayley Scale
- Another analysis found a decrease in motor scores at one month when controlling for tobacco, alcohol, and cocaine
  - No effect of marijuana use was seen at 3 months

Great References and Tools to Help

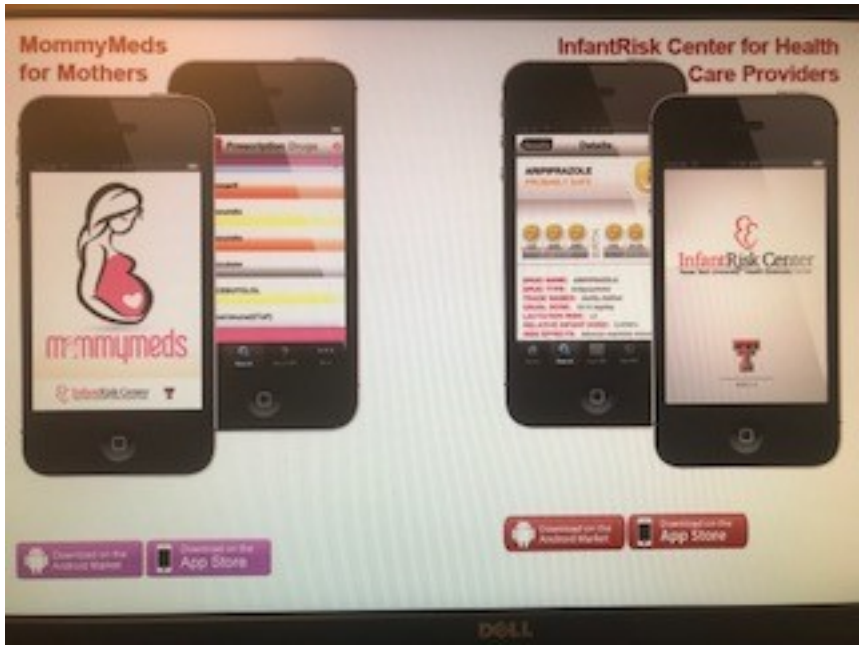
Insert Information Here

Thomas Hale Ph.D.

- Medications & Mothers Milk



- The Infant Risk Center



https://www.halesmeds.com

LactMed

U.S. National Library of Medicine | TOXNET TOXICOLOGY DATA NETWORK

Mobile | Help | FAQs | TOXNET Fact Sheet | Training Manual & Schedule

TOXNET Home > LactMed

Share

LactMed

A TOXNET DATABASE

Drugs and Lactation Database (LactMed)

SEARCH LACTMED | BROWSE LACTMED | ADVANCED SEARCH

e.g. sertraline, SSRIs

Search

Search Term: singular/plural | Records with: all of the words | Include Synonyms and CAS Numbers in Search

About LactMed

What is LactMed?

The LactMed® database contains information on drugs and other chemicals to which breastfeeding mothers may be exposed. It includes information on the levels of such substances in breast milk and infant blood, and the possible adverse effects in the nursing infant. Suggested therapeutic alternatives to those drugs are provided, where appropriate. All data are derived from the scientific literature and fully referenced. A peer review panel reviews the data to assure scientific validity and currency.

Did you know

How do I lease/license the TOXNET databases?

The following TOXNET databases are available for lease: ChemIDplus, DIRLINE, CCRIS, GENE-TOX, HSDB, and TOXLINE.

For further information visit Leasing Data from the National Library of Medicine.

More FAQs

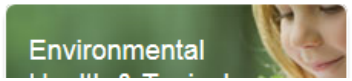
Support

Resources

LactMed App
LactMed Record Format
Database Creation & Peer Review Process
Help
Fact Sheet
Sample Record
TOXNET FAQ
Glossary
About Dietary Supplements
Breastfeeding Links
Get LactMed Widget

Contact Us

Email: tehip@teh.nlm.nih.gov
Telephone: (301) 496-1131
Fax: (301) 480-3537



United States National Library of Medicine | TOXNET Toxicology Data Network

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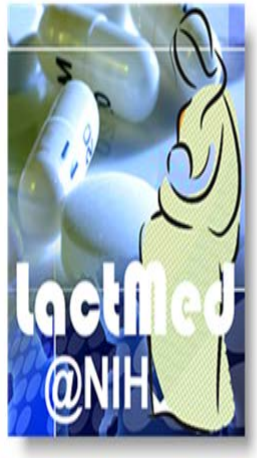
Env. Health & Toxicology > TOXNET > LactMed

LactMed App

Need to know more about drugs/supplements and breastfeeding? LactMed can help. Find information about maternal and infant drug levels, possible effects on lactation and on breastfed infants, and alternative drugs to consider.



LactMed App for iPhone/iPod Touch

- Free App at the Apple App Store
- System requirements: iPhone OS 3.0 or higher

iPhone
Download from iTunes

LactMed App for Android Devices

- Free App at the Android Market
- System requirements: Android 2.1 or higher

Android
Download from Android Market

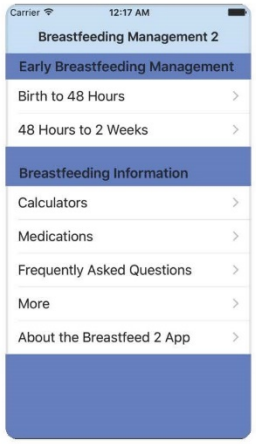
This app is only available on the App Store for iOS devices.

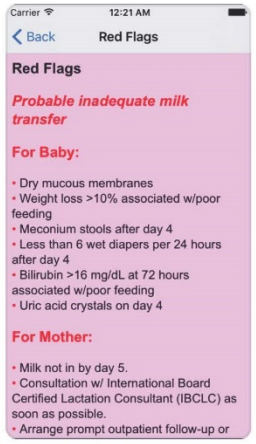
App Store Preview

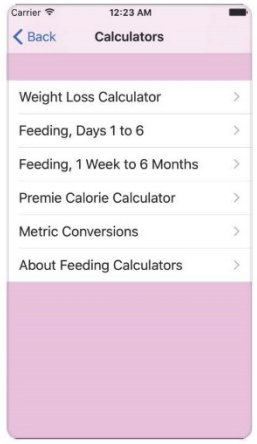
Robert Jen

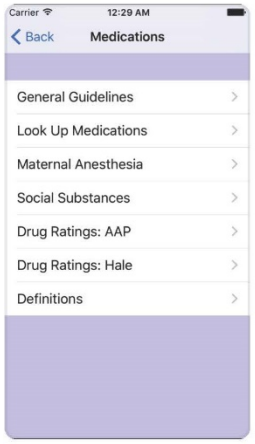
$1.99

Breastfeeding Management App



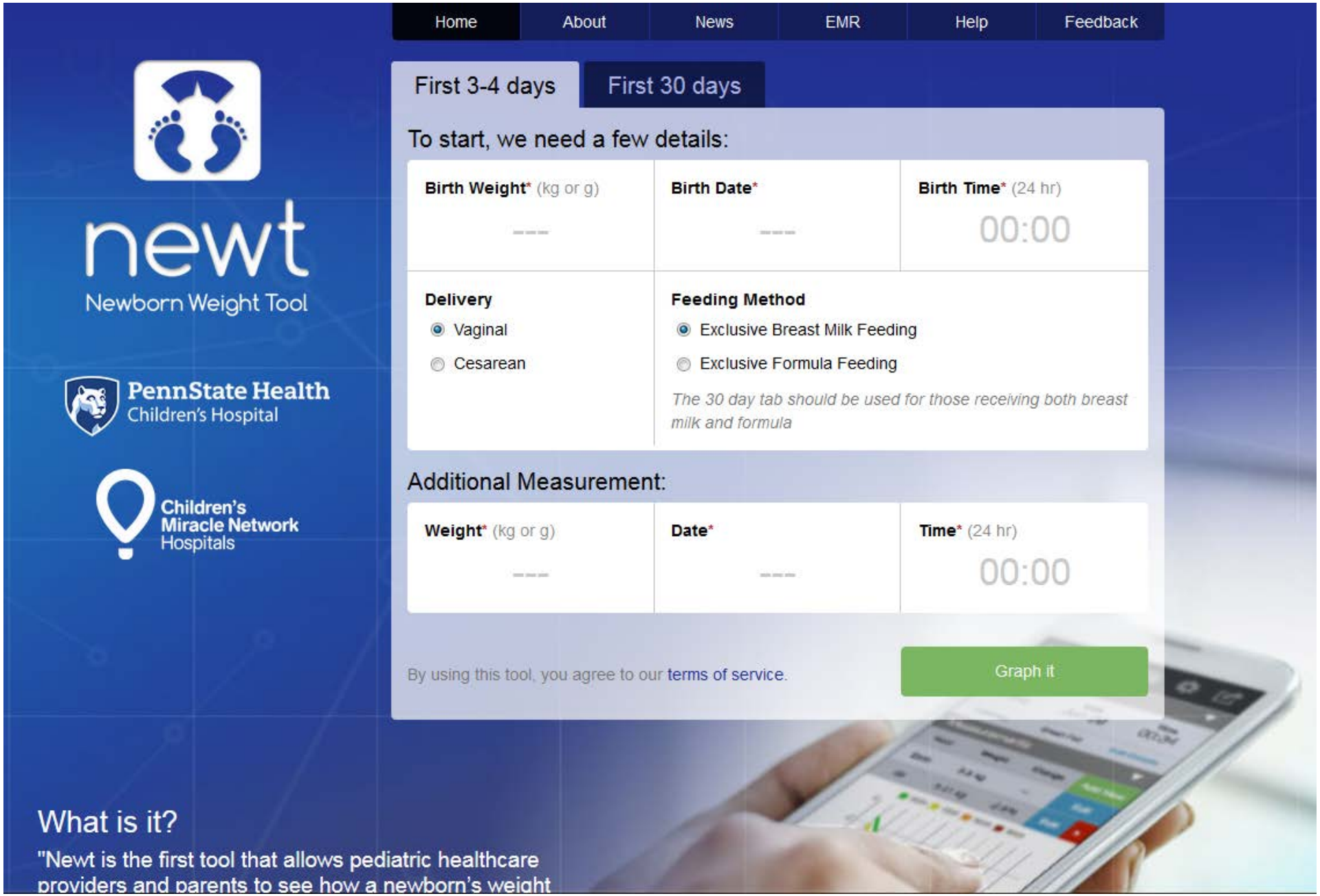




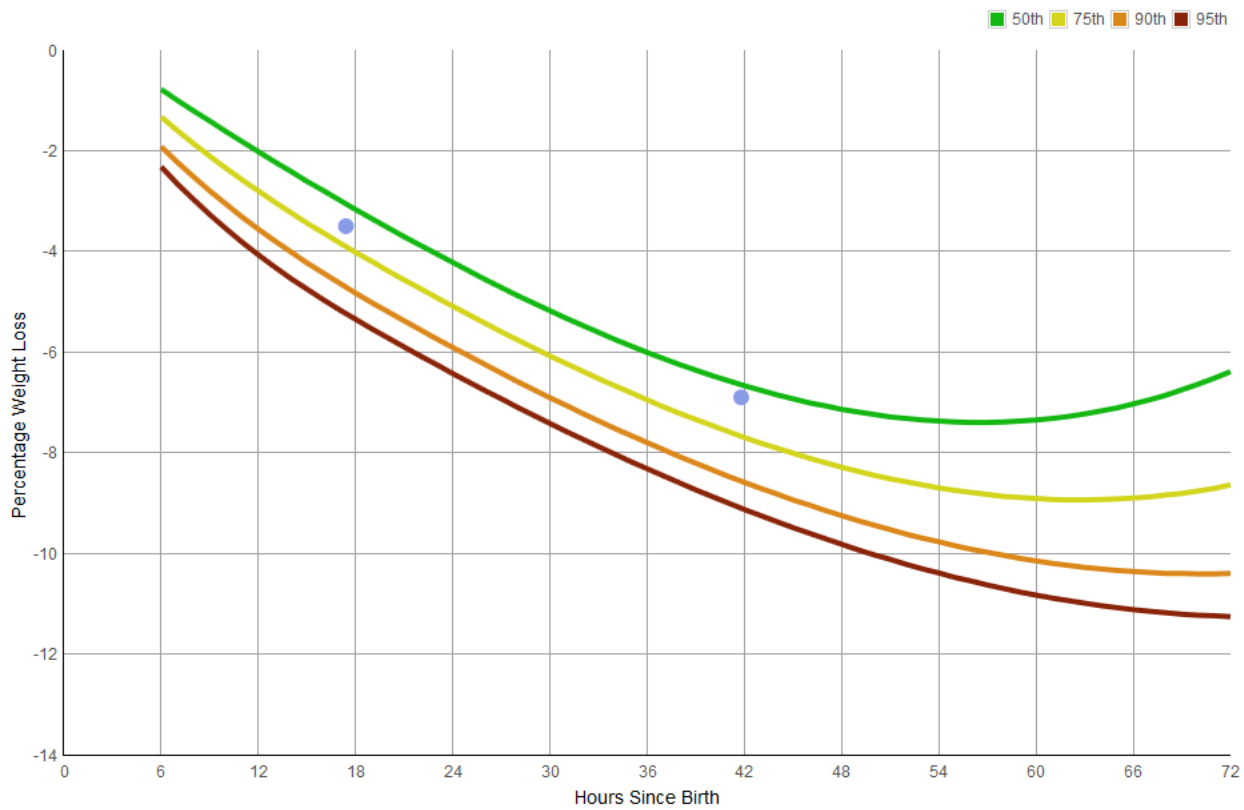


Description

An evidence-based application developed by the renowned Massachusetts Breastfeeding Coalition to help the clinician identify, triage, and manage common breastfeeding problems in the first weeks of life. The Breastfeed App, formerly available for free, now includes 5 calculators, including two feeding calculators and a weight loss calculator. It also includes information on medications as well as a link to LactMed, the comprehensive online resource from the National Library of Medicine.



https://www.newbornweight.org/



newt

Birth Details

Weight	Date	Time
3755 g	Oct 1	12:10

Vaginal | Breast Fed | Edit Details

Measurements

Hour	Weight	Change	
Birth	3755 g	—	Edit
17.4	3625 g	-3.5%	Edit x
41.8	3495 g	-6.9%	Edit x

Add New

PennState Health
Children's Hospital

●●○○○ Verizon 11:56 AM
newbornweight.org

newt Menu

To start, we need a few details:

Birth Weight (kg or g)

Birth Date

Birth Time (24 hr)

00:00

Delivery

- (•) Vaginal
- ( ) Cesarean

Feeding Method

- (•) Breast Fed
- ( ) Formula Fed

Additional Measurement:

Weight (kg or g)

Date

Time (24 hr)

00:00

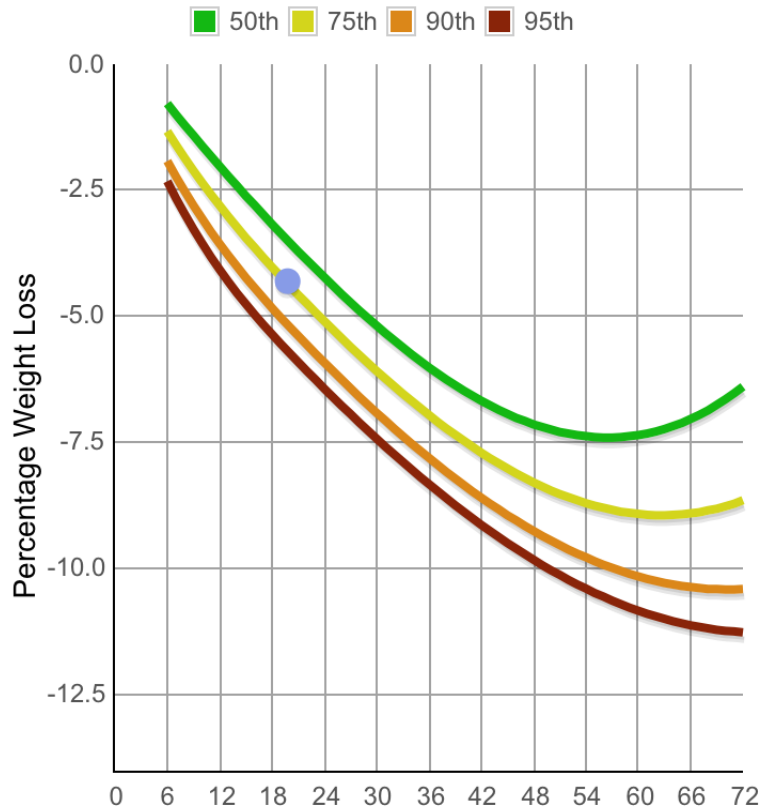
●●○○○ AT&T 9:49 AM 54%
newbornweight.org

3500 g	Nov 6	12:15

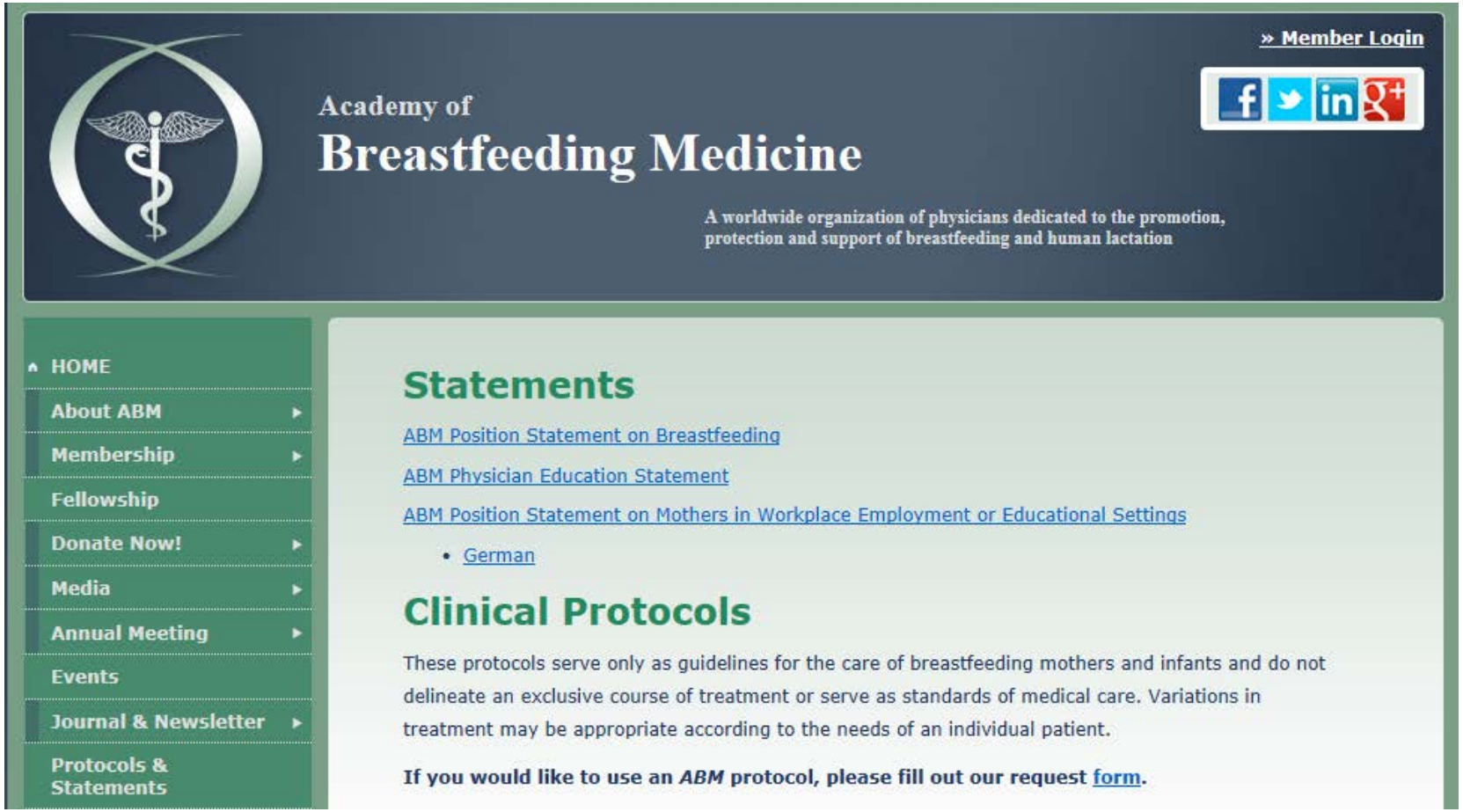
Vaginal | Breast Fed | Edit Details

Measurements

Hour	Weight	Change	Add New
Birth	3500 g	—	Edit
19.8	3350 g	-4.3%	Edit x

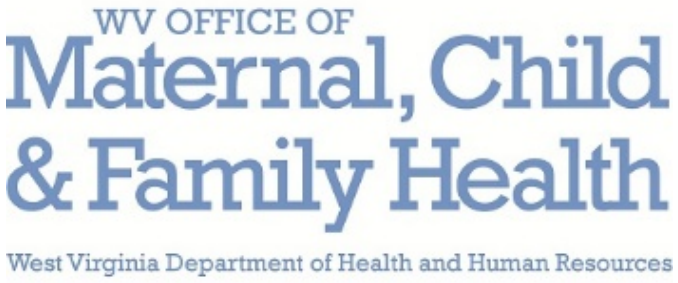


Academy of Breastfeeding Medicine Clinical Protocols



bfmed.org

New “ownership”



West Virginia **Breastfeeding Alliance**

for healthier moms & babies

Our Mission:

To improve the health of West Virginians by working collaboratively to protect, promote, and educate our community about breastfeeding.

Our Vision:

We envision breastfeeding as the normal and preferred method of feeding babies and children.

Our Goals:

- Improve the health and well-being, primarily, of our state's infant and maternal population by increasing the initiation and duration rates of breastfeeding, resulting in residual and lasting health benefits.
- Promote and protect a public environment that is supportive and accepting of breastfeeding.
- Promote communication and collaboration among individuals, professionals and organizations working to support and educate the community about breastfeeding.

WVBA Steering Committee

- **Director: Molly McMillion**, RN, BSN, IBCLC, LCCE, CPST WV Perinatal Partnership & Greenbrier Valley Medical Center
- **Christine Compton**, MPH, CLS, Government Relations Director, American Heart Association Great Rivers Affiliate
- **Charlita Atha**, RN, IBCLC Stonewall Jackson Memorial
- **Anne Banfield**, MD, FACOG --OBGYN Davis Medical Center, Elkins
- **Denise Ferris**, RDN, LD, DrPH, Director, Office of Nutrition Services (WV WIC), WVDHHR
- **Tammy Foley**, RN, BSN, IBCLC, Lactation Consultant WVU Children's Hospital
- **Denise Smith** Director Perinatal Programs, Office of Maternal Child and Family Health, WVDHHR
- **Emma Walters**, MS, RDN, LD Nutrition Services Coordinator, Office of Nutrition Services (WV WIC)
- **Jan Wilkes**, LD, IBCLC -WV WIC

West Virginia **Breastfeeding Alliance**
for healthier moms & babies

TRIVIA:
Are you smarter than a newborn?

Thank you!!

Please check out WVBA's website:
www.wvbreastfeeding.org
and our Facebook page@WVBFA

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WVBA

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