

Breastfeeding: Best Practices- What Every Physician needs to know

March 24 2015

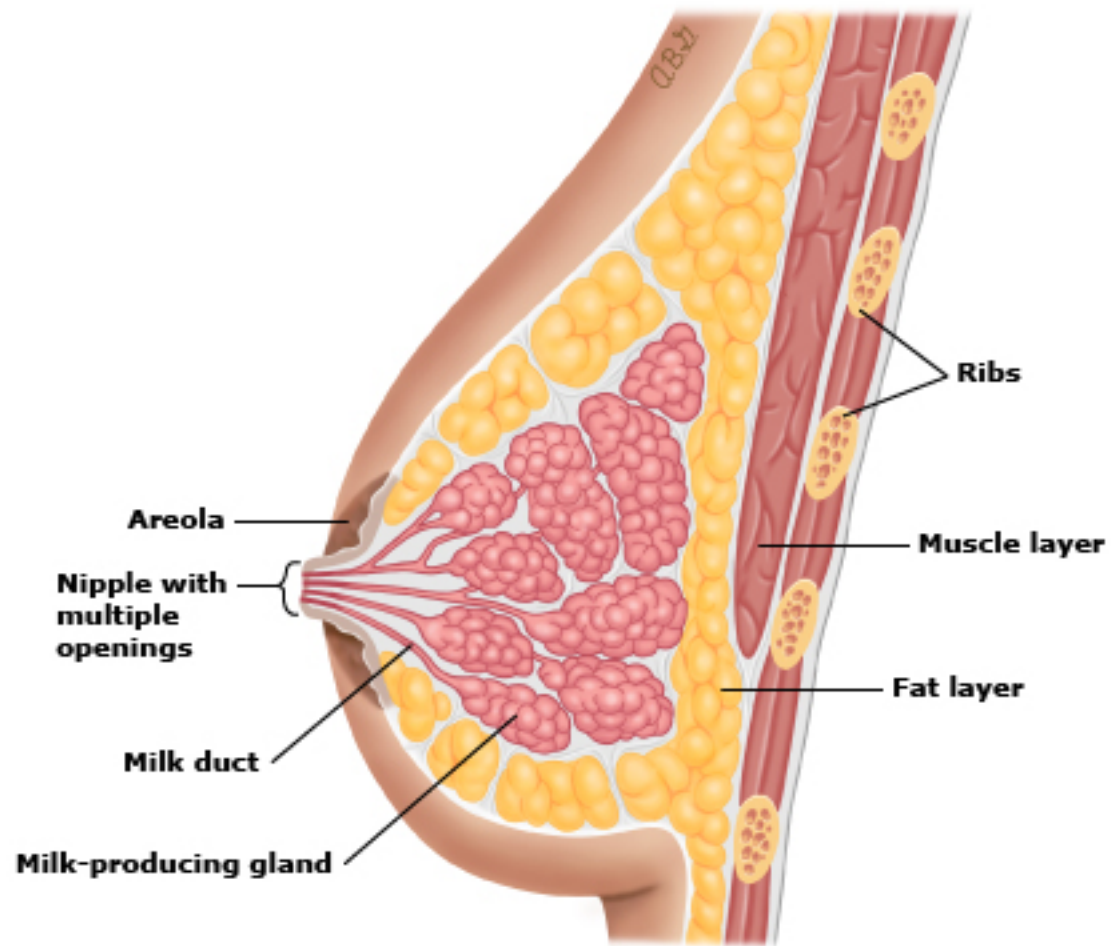
Dr. Elske Hildes-Ripstein- Child Health and Pediatrics

Outline

1. To review the physiology of breast milk production and lactation
2. To understand the nutritional benefits of breastfeeding and the health benefits for both infant and mother
3. To become aware of common barriers to successful breastfeeding
4. To understand how the 10 steps of BFI “Baby Friendly Initiative” supports breastfeeding in hospital settings
5. To acknowledge what can be done in an individual practice

Physiology of Breastfeeding

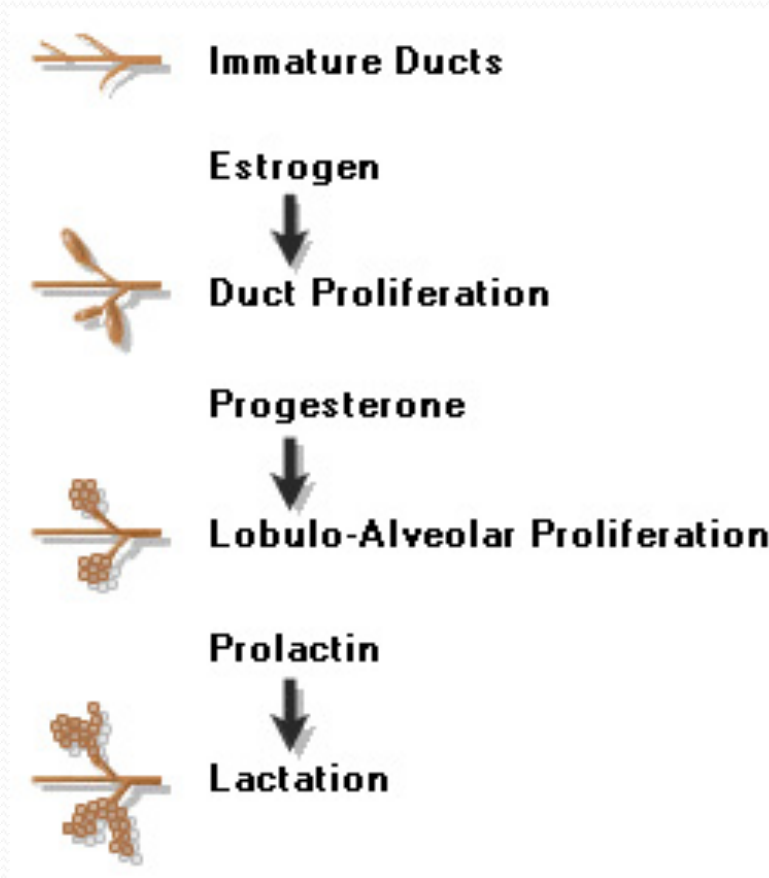
The breast



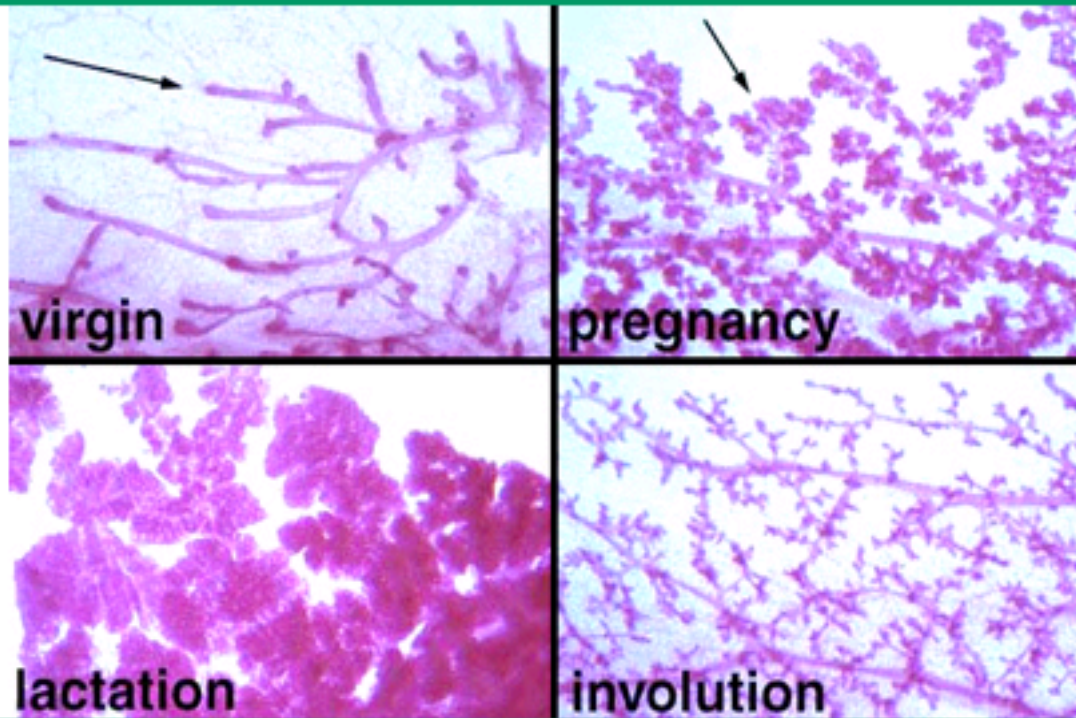
Mammogenesis

- During puberty alveolar budding starts within mammary gland/tissue
- It continues under the influence of menstrual cycle estrogen and progesterone until type 1, 2 and 3 lobules are present.
- Type 4 lobules develop only under the influence of Human Chorionic Gonadatropin during pregnancy

Hormonal influences on Mammogenesis, Lactogenesis I,II and Galactogenesis



Development of mammary gland

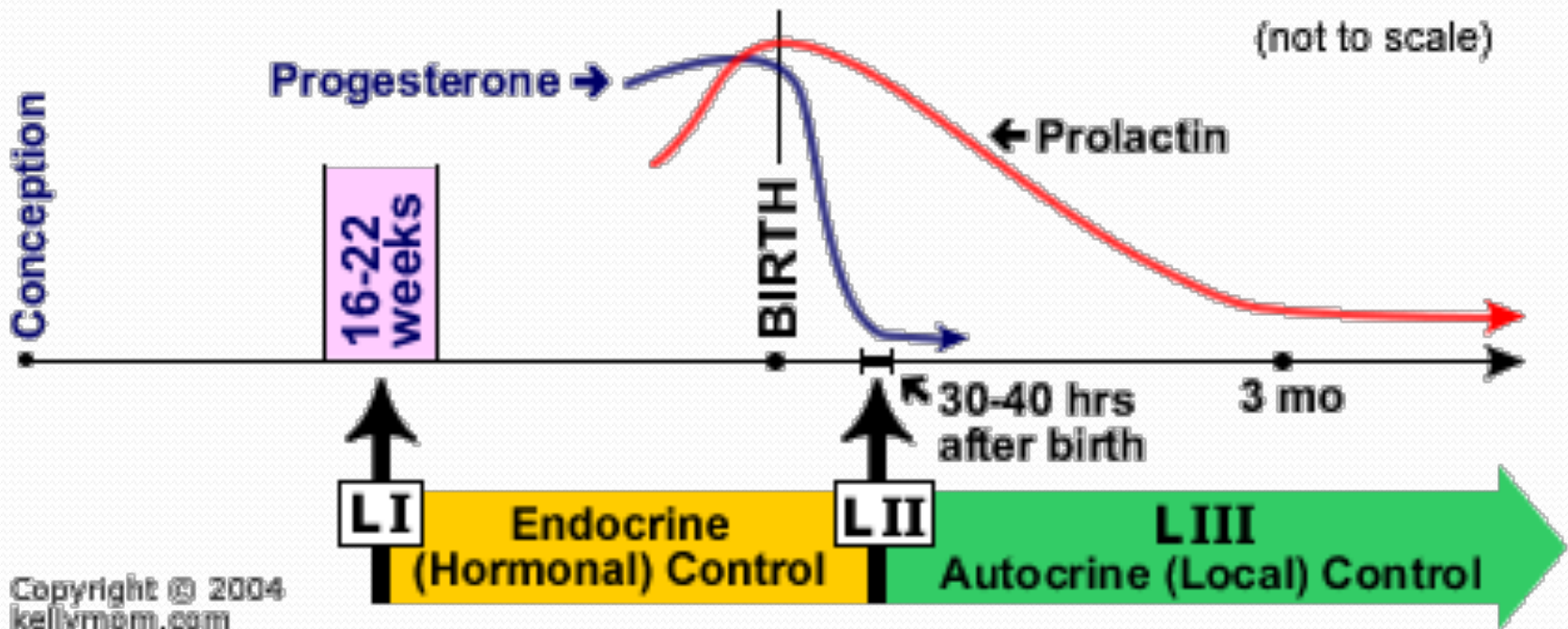


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Lactogenesis I (Secretory initiation; late pregnancy >20 weeks)

- HCG from placenta causes terminal budding (type 4 lobules of breast with secretory acini)
- High Progesterone from placenta influences further differentiation and beginning of secretory activity (colostrum secretion begins and colostrum accumulates within aveoli). Insulin, cortisol, human Placental Lactogen also necessary.
- Colostrum is the “first milk” a yellowish watery substance containing casein and lactose and secretory IgA;
- The high pregnancy levels of Progesterone and Estrogen inhibit prolactin stimulated milk secretion until delivery

Lactogenesis-time line and hormonal influences



Lactogenesis II

- During Labour and delivery there is a peak of cortisol and prolactin which results in a burst of mitotic activity in mammary gland and milk secretion/production.
- The rapid decline of progesterone and estrogen after the placenta is delivered allow the prolactin stimulation of milk supply and secretion.
- The transition between colostrum and “breastmilk” is usual between day 2-3 but may be as late as 7 days.
- This phase can be delayed with diabetes, C-section, placental retention, stressful vaginal birth etc as they affect hormonal feedback loop

Galactogenesis or Lactogenesis III

- This phase is the maintenance phase of lactation extending from the production of mature milk until weaning.
- Local mechanisms for hormonal release and feedback such as infant suckling- mechanical stimulation; infant cry- neuroendocrine receptors brain ; removal of milk- pressure receptors in breast down regulate prolactin receptors etc
- Prolactin is released from anterior pituitary in bursts in response to infant suckling (stimulation of milk supply and production) while oxytocin is released from post pituitary (ejection reflex-myoepithelial cell contraction)

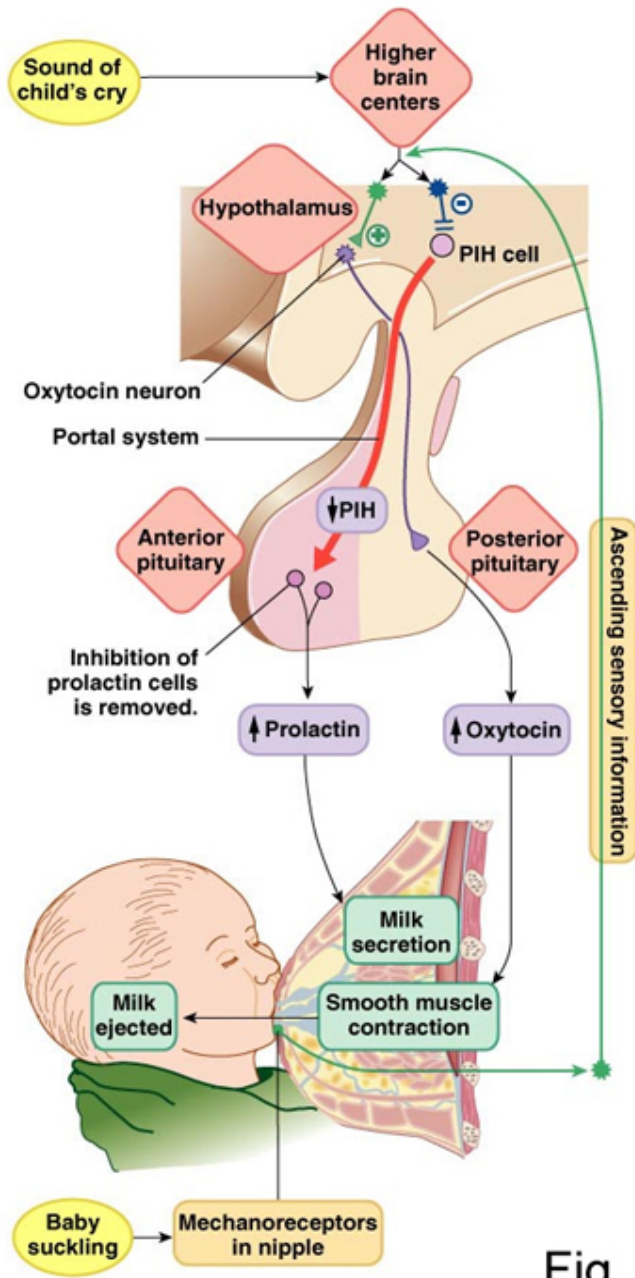


Fig. 26-23

Nutritional and Immunologic Features of Breastmilk- Health Benefits

Human Br Milk Composition

- Nutritional quality is highly conserved across individuals and populations
- Mainly **lactose**, **protein** and **fat**
- 3 sources of major components of Breast Milk; either **synthesized** in lactocyte via **receptor mediated transport** across mammary epithelium from maternal stores occ influenced by maternal diet-eg fatty acids, **produced by cells in Br milk**

Bioactive Factors in Human Milk

Factors	Examples	Role
Immunoglobulins	Ig G, IgM, sIgA	Anti bacterial
Cytokines	TGF-Beta, IF 6- 10, TNF-alpha	Immune activation and anti- inflammatory
Cellular components	Macrophages, stem cells	Anti bacterial
Growth Factors-	Intestinal GF (Epidermal GF and neuronal GF, tissue GF, vascular endoth GF, Erythropoetin)	Promotes Intestinal maturation and healing, vascular and erythrocyte growth/production
Cytokine Inhibitors		Anti-inflammatory
Antimicrobial proteins	lactoferrin, lactadherin	Anti- bacterial properties
Oligosaccharides,	glycans; mucins, Human Milk Oligosaccharide	Anti-infective properties Non-nutritive, promotes probiotic organisms
Hormones,	ghrelin, adiponectin, leptin, calcitonin and	Anti- infant obesity, energy control, appetite

Good For Infant

- **Decrease Infectious Morbidity** (innate immune factors)
 - OM 3.6 fold increase Formula vs Br fed infants
 - GI infections 2.8 x risk Formula vs Br fed
 - NEC in premature infants 2.4x risk Formula vs Br fed
- **Decreases asthma, atopic dermatitis** 1.4 - 1.7x risk Formula vs Br
- **Decreases risk of obesity?** inconclusive studies but Breast milk contains adipokines and may regulate energy intake.
- **Decreases SIDS** 1.6-2.1 x risk Formula vs Br fed.

Good For Mom

- **Decreases Risk Breast Cancer** (Never Br fed **2.4 x** risk premenopausal Br Ca)
- **Decreases Ovarian Ca** (Never Br fed **1.3x** risk)
- Metabolic cost = 500 kcal/day for breastfeeding.
promotes weight loss and favorable glu level, lipid metabolism and BP.
- Differences in metabolism persist- (Never br fed **metabolic syndrome 1.3 x risk, Myocardial infarction 1.3x risk and Type 2 DM 1.7 x risk**)

Canadian Pediatric Society Guidelines

Recommend:

- Exclusive Breast feeding for the first 6 months (plus Vit D supplement)

“however introduction of complementary foods should also be led by infant’s signs of readiness and may occur few weeks before or after 6 months. Beyond 6 months- delay increases risk of iron deficiency”

- Encourage Breastfeeding for 2 years and beyond (while providing appropriate nutritional guidance)

Factors influencing success of lactation (initiation and duration)

- Skin to skin contact at delivery for first hour. (increases prolactin)
- No limit to infant suckling; frequent feeds
- Rooming in and Feeding on demand
- Support Exclusive Br Feeding - no formula marketing packs(volume interferes with freq suckling)
- No artificial nipples until lactation established (bottle or pacifiers- different tongue action and flow)
- Resources (Peer support; lactation consultants in hosp and community- la leche league-midwife)

WHO 1981 International Code of Marketing Breast Milk substitutes

- The Member States voted to approve 118-yes with 1 abstention:

“Conscious that *breast-feeding is an unequalled way of providing ideal food for the healthy growth and development of infants*; protects infants against disease; and that there is an important relationship between breast-feeding and child-spacing;

Recognizing that the *encouragement and protection of breast-feeding is an important part of the health, nutrition and that breastfeeding is an important aspect of primary health care*;

Considering that, *when mothers do not breast-feed, or only do so partially, there is a legitimate market for infant formula..... but that (it) should not be marketed or distributed in ways that may interfere with the protection and promotion of breast-feeding;*”

Baby Friendly Initiative

- Born from the “Innocenti Declaration 1990” - promoting and helping to establish exclusive Breast Feeding as the norm
- In 1991 the Baby Friendly Hospital Initiative was established by WHO and UNICEF; and updated 2009 based on recent evidence
- Canada’s Program is known as the *Baby Friendly Initiative and is composed of 10 steps* that are known to improve Breastfeeding outcomes . For BFI accreditation hospital or community program has to comply with all 10 steps

10 Components/Steps of BFI

“Baby Friendly Initiative”

1. Written Br Feeding Policy in place
 2. Train all Health Care Providers in Br Feeding Support
 3. Inform all pregnant women of the benefits Br feeding
 4. Place infant skin to skin for at least 1 hour immediately after birth
 5. Show how to Br feed and maintain lactation (hand expression)
 6. No food or drink other than breastmilk to Br feeding infant (unless medical indication)
 7. Practice infant and mother rooming-in
 8. Encourage Br feeding on demand-mothers alert to feeding cues
 9. Support mothers to care for and feed with no artificial nipples/ pacifiers
 10. Establish Br feeding support groups for discharged mothers
- BFI supports initiation and duration of Breastfeeding

Manitoba Data

Recent data from Manitoba Hospital discharge abstracts by region

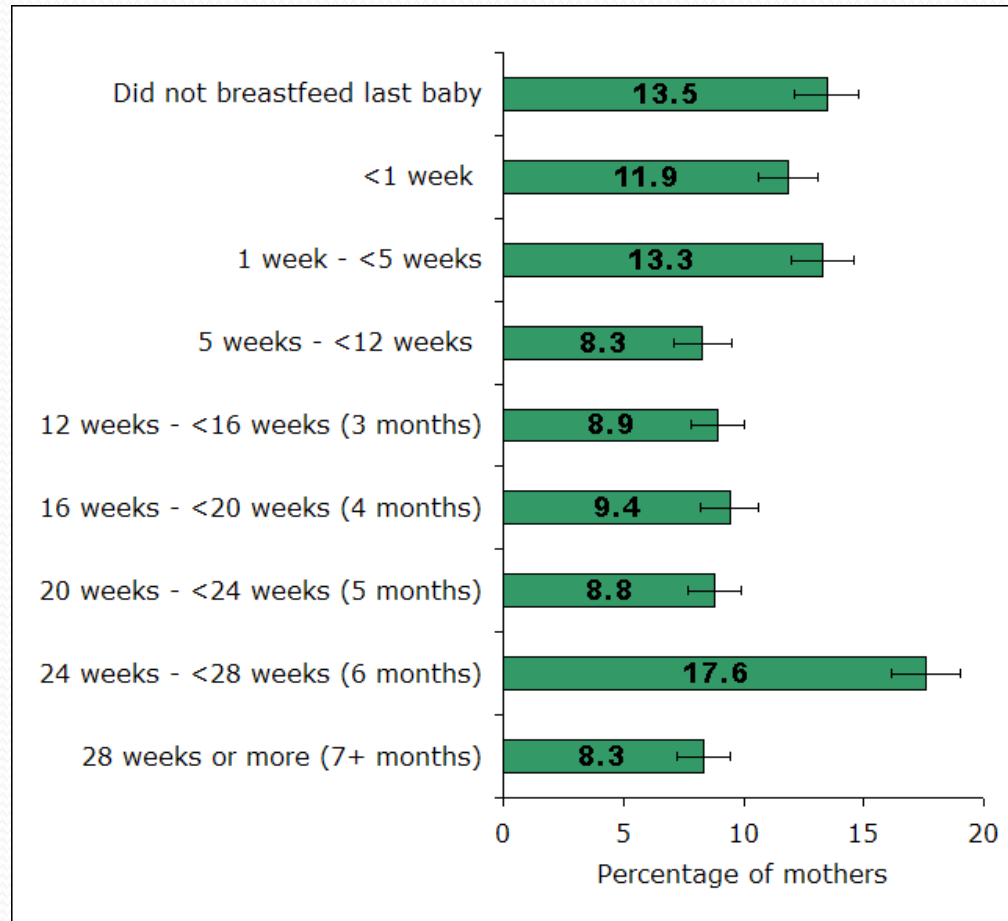
No recent Manitoba Data on Duration of Breast feeding

Breastfeeding at discharge from birth hospitalization (MB 2012/13)*

	Wpg		The Pas	Thompson	Brandon	Boundry Trails
	HSC n= 5400	St B n= 5700	n= 339	n= 806	n= 1666	n= 944
<i>Any</i> Breast feeding	83%	87%	70%	65%	84%	93%
	79%					
<i>Exclusive</i> Breast Feeding	43%	44%	51%	20%	49%	74%
	41%					

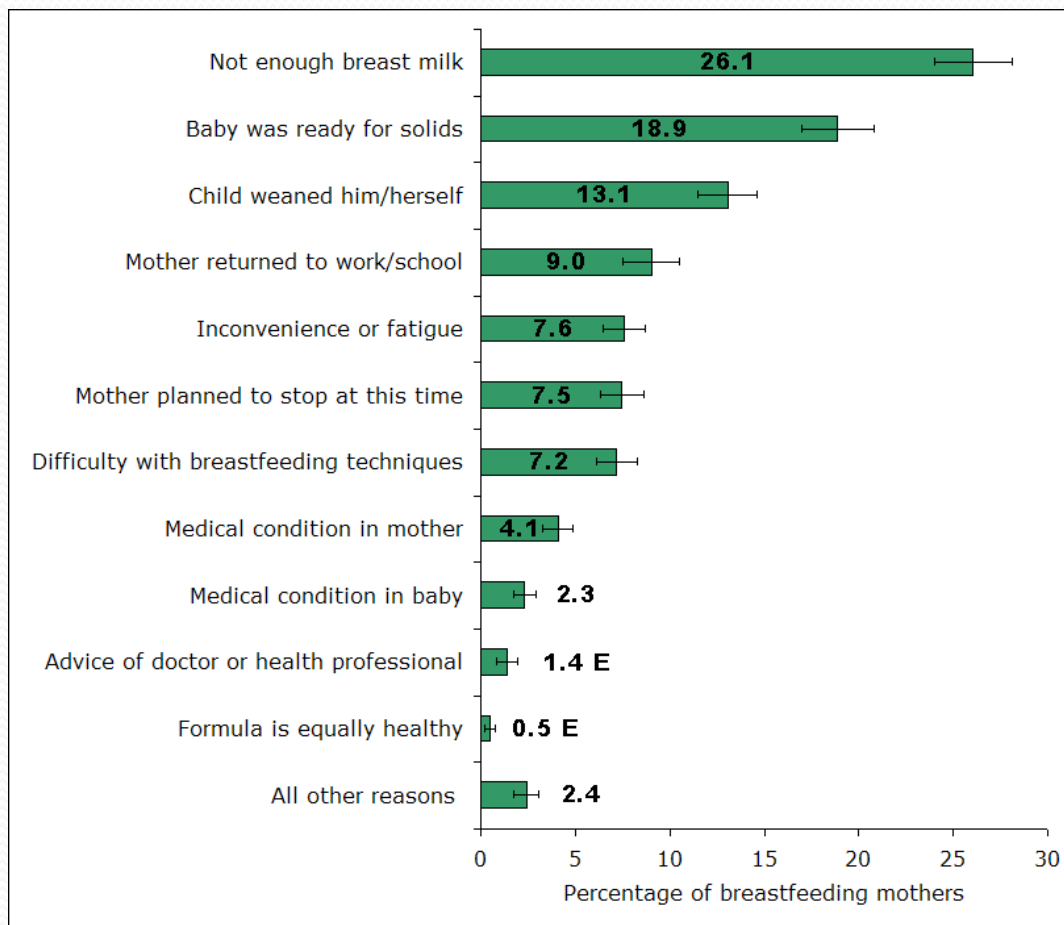
*Source Excel sheet from Linda Romphf (Lactation Consultant and BFI advisor)

2009/10 Canadian Community Health Survey- duration Excl Breast Feeding



2009/10 Canadian Community Health Survey-Mat

Reasons discontinuation Excl Breast Feeding



Opportunities for Promoting/Supporting Breastfeeding – a Physician's role

- 1. During Pregnancy or at delivery**
- 2. During Birth Hospitalisation**
- 3. During Health Visits within 1st yr**
- 4. Community Advocacy**

1. During Pregnancy or delivery

- explore **mother's knowledge** level about Br feeding and Dispel myths,
- **Ensure skin to skin time and first feed within 1 hour.**
- **Support colostrum transport** as necessary for prems/
IDM
- **Ensure no physical/medical barriers** to br feeding-
hypotonia, cleft palate etc

2. During Birth Hospitalisation

- Impart **knowledge** and correct misconceptions; (not enough milk, want others to be able to feed baby,)
- **Support and reassure-** go over normal weight patterns (10-15% loss not uncommon)
- **Ensure safe feeding plan** for infant. Adequate calories provided to each infant for growth (can use cup or supplemental system for EBM or formula.)
Avoid hypoglycemia-but can trial glucose gel rather than formula
- Ensure **access to community supports/resources** (Public Health, Breastfeeding hotline and clinics, la leche league)

3. Health Visits within 1st yr

- Ask about and Support Sustained Br Feeding every visit. Answer questions and trouble shoot or give mother adequate resources for info/help.
- Support Exclusive Breast feeding until 6 months age
- Remind any amount of breast is beneficial!; (prevents infection; many benefits and conveniences-always warm, never run out, no need to sterilize items)
- Discuss the amazing capacity and flexibility of milk production (right amount at the right time for the right age)

4. Community Advocacy

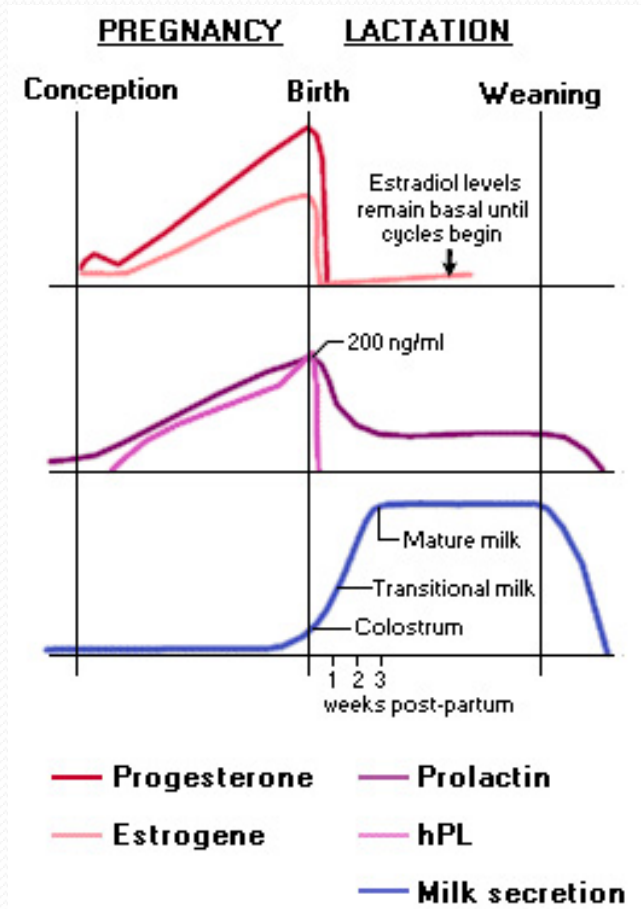
Aside from individual patient advocacy:

- Support your hospital to become **BFI certified**
- Be aware of and **avoid formula company marketing**
- Advocate for **Human Milk Banking**;
- Provide Public and Society with current **knowledge to support normalization of breast feeding** for 2 yrs and beyond (work place accommodations for Br feeding moms; roots of empathy program in schools etc, public health benefits education etc).

Working with Healthcare team, Nursing Lactation consultants, Public health

- Proud and grateful for the team approach!
- Depend on nurses/midwives *skin to skin; first colostrum and feed at 30 minutes age; teach how to position and latch a newborn.*
- Grateful for the LC team *medications in breast milk, helping premature infants, or unique or difficult cases*
- Public Health *early home visit, weigh, monitor jaundice and trouble shoot feeding issues*

Lactogenesis- hormonal influences

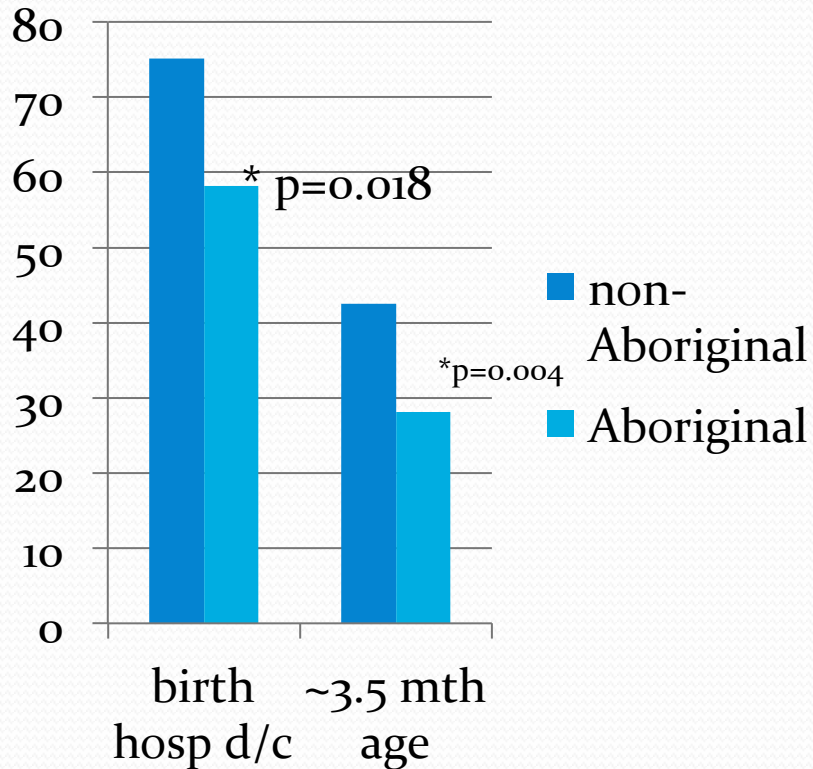


Human Milk Composition (Ped Clinics N America Feb 2013)

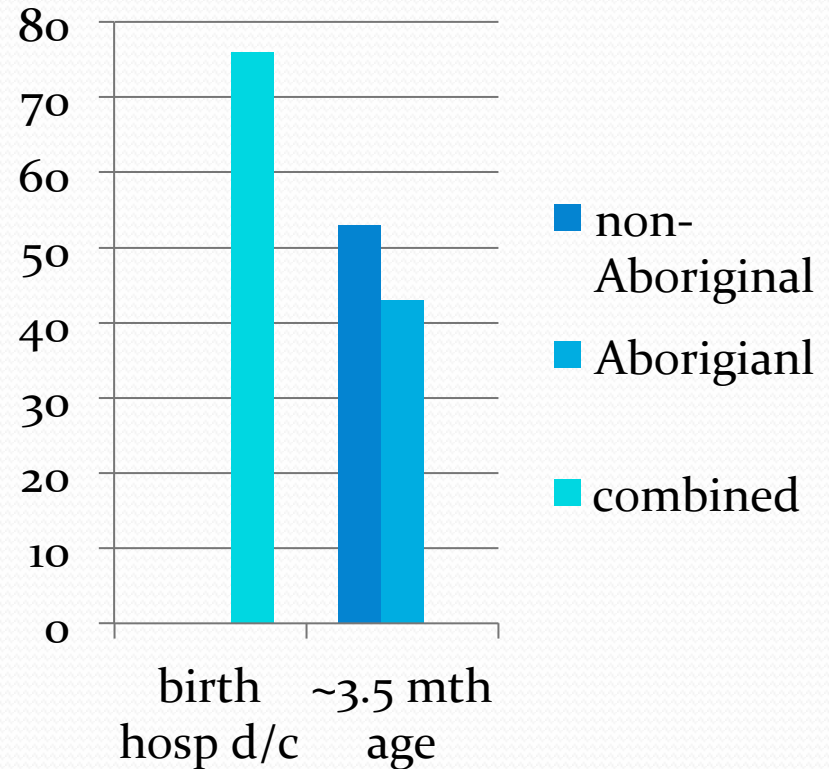
	Protein g/dl (Casein)	Fat g/dl	Lactose g/dl	Energy mean kcal/dl
Term infants Mature milk n=581 (1991)	1.2 (0.9-1.5)	3.6 (2.2-5.0)	7.4 (7.2-7.7)	70 (57-83)
Donor milk N=415 (2009)	1.2 (0.7-1.70)	3.2(1.2-5.2)	7.8(6.0-9.6)	65 (43-87)
Mature milk Ref Std n=2553 (1990)	0.9 (0.6-1.4)	3.6 (1.8-8.9)	7.2 (6.4-7.6)	67 (50-115)
Prem infant <29 weeks N=52 (2011)	2.2 (1.3-3.3)	4.4 (2.6-6.2)	7.6 (6.4-8.8)	78 (61-94)
32-34 weeks N=20	1.9 (1.3-2.5)	4.8(2.8-6.5)	7.5 (6.5-8.5)	77 (64-89)
Donor prem n=47 (2012)	1.4 (0.8-1.9)	4.2(2.4-5.9)	6.7 (5.5-7.9)	70 (53-87)

Breast feeding at Birth and 4 months 1996

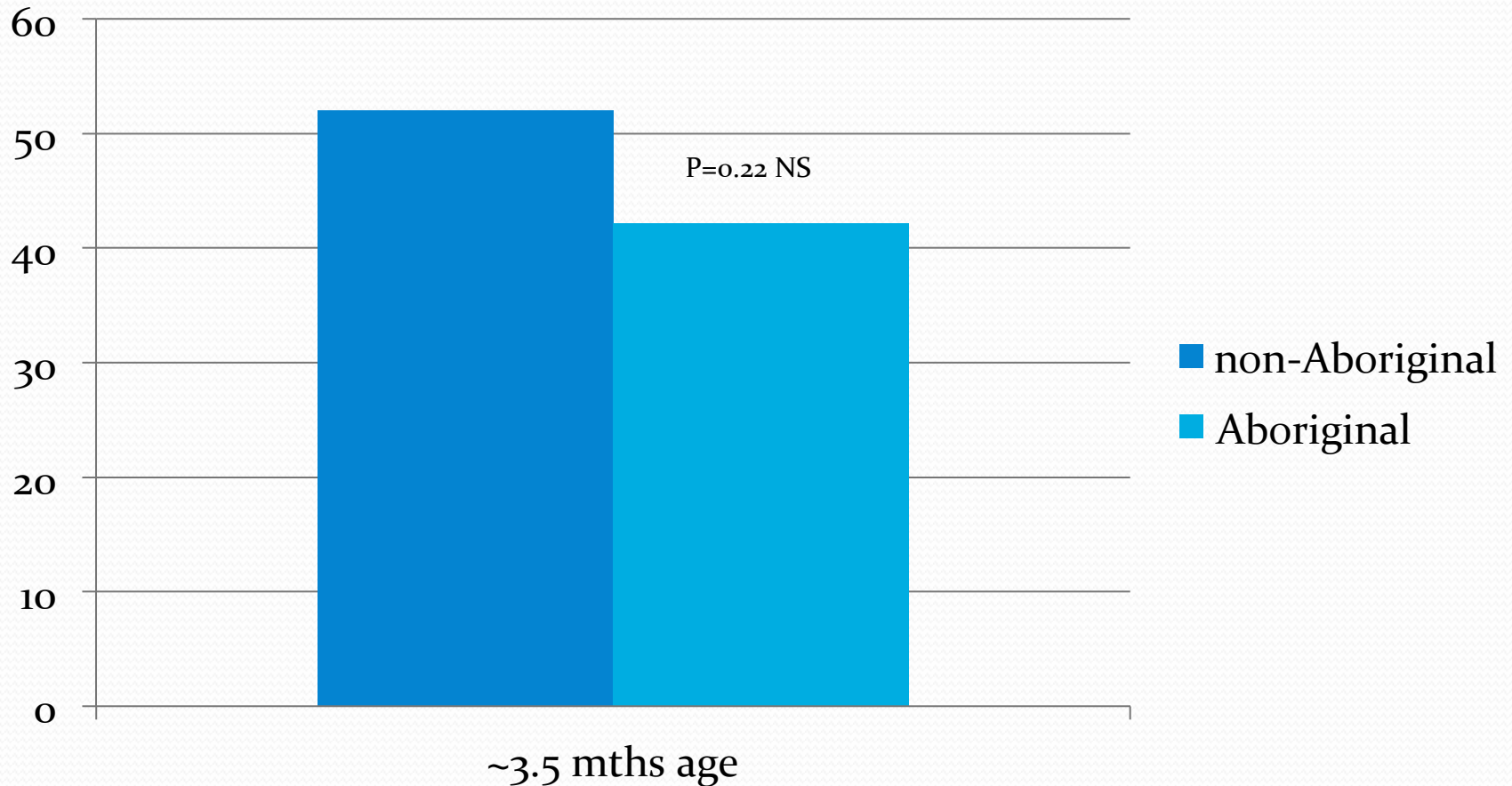
% Exclusive Breast Fed



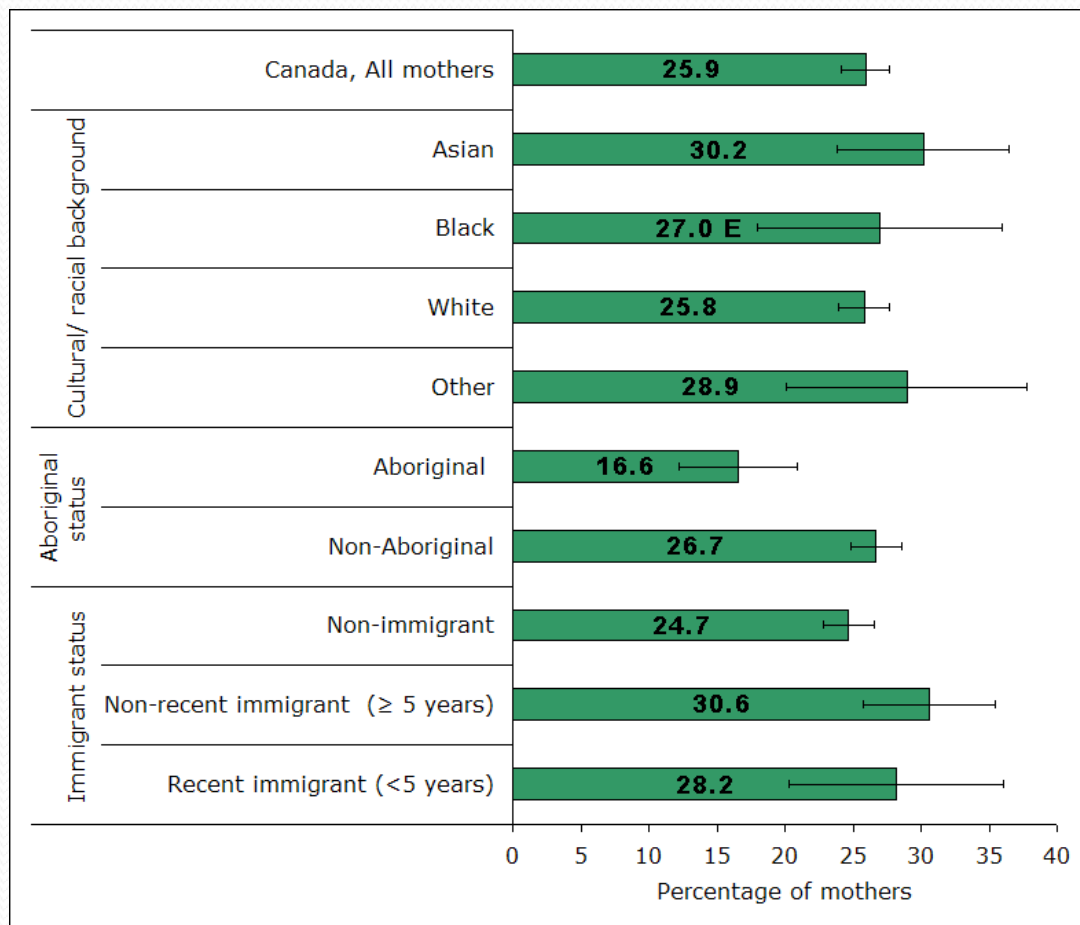
% Any Breast Fed



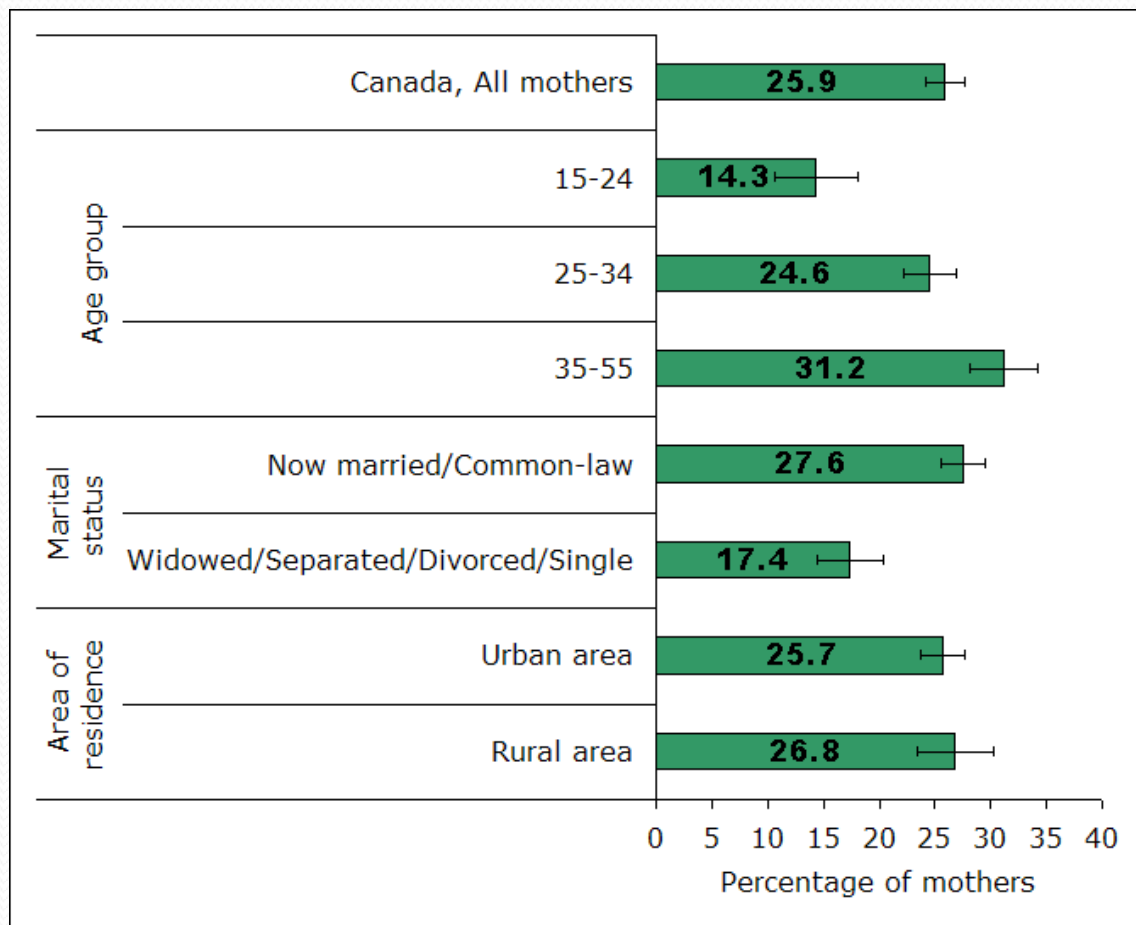
% Mothers continued Breastfeeding of those initiating



2009/10 Canadian Community Health Survey- duration Breast Feeding 6 months-ethnicity



2009/10 Canadian Community Health Survey- duration Breast Feeding 6 months by mat age



WHO 1981 International Code of Marketing Breast Milk substitutes

- WHO and UNICEF (United Nations Children's Fund) emphasized the importance of maintaining the practice of breast-feeding—and of reviving the practice where it is in decline—as a way to improve the health and nutrition of infants and young children
- noted decline of breastfeeding for a variety of reasons:
“including the promotion of manufactured breast-milk substitutes, and urged “Member countries to review sales promotion activities on baby foods to introduce appropriate remedial measures, including advertisement codes and legislation where necessary”

Credentials:

- Pediatrician at Children's Hospital of Wpg- Dept of Pediatrics and Child Health- (inpatient wards and outpatient clinic)
- Service Chief for the Healthy Newborn Wards at Women's Hospital (2008-present)
- Faculty at University of Manitoba-teach med students, interns and pediatric residents about well infant and child care
- MSc thesis on "infant care practices" '95/96 (as related to SIDS; included some breastfeeding survey data)
- Proud mother of 4 breastfed children!