No Baby Left Behind: Breastfeeding Equity from the First Hour

Minnesota AAP
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I have no relevant financial relationships with the manufacturer(s) of any commercial product(s) and/or provider(s) of commercial services discussed.
Outline

A case for change
• Distilling the goal and objectives
  – A,B,C:
    • Attachment
    • Breastmilk production
    • Caloric/Nutritional parameters
  – Low-risk vs. At-risk dyads
• What is Needed?
  – Practice changes to reduce the risks
  – System changes: Prevention, Availability, Sustainability
A Case for Change in Hospital Management

• **Insufficient milk production** and **suboptimal milk intake** account for delayed discharge, readmission, and a sharp drop off (20%) in any breastfeeding before 1 month.
  • excessive weight loss, hyperbilirubinemia, poor weight gain, dehydration, hypernatremia

• ↑ risk of early termination if < 39 wks
  – Breastfeeding rates: (40 wk) > (39-37 wk) > (< 30 wk) ≥ (36-34) LPT
  – Morbidity doubles for each gestational wk earlier than 38 wks
  – >36% drop off by 1 month for LPT infants of primips

• The population < 39 wks is steadily increasing due to demographic factors (obesity, advanced maternal age) and obstetrical practices (cesareans/inductions, multiples)
A Case for Change

• Current practice relies on episodic, problem-oriented specialized care (lactation specialists) for only a restricted number of beneficiaries.

• How might we take a proactive approach to care for all dyads to reduce the number of less remedial, time consuming breastfeeding complications?
• How might we take a proactive approach to care to reduce the racial disparity?

• Disparity in BF rates in low income and women of color – many years

• Biased view that there is a “cultural” reason
  • “that’s their culture, they always supplement”
  • “they don’t breastfeed”

• The Research says otherwise….

**Merewood, et al J Hum Lact 2007 May; 23(2) and Merewood, et al Pediatrics 2005 Sep;116(3)**
Babies born in Baby-Friendly Hospitals have higher BF rates across all income and ethnicities.

Figure 3. Exclusive Breastfeeding by Ethnicity; All California Hospitals Versus Only Baby-Friendly Hospitals (2009)

Source: California Department of Public Health Genetic Disease Screening Program, Newborn Screening Data (Form D), 2009.
Unique cultural challenges: Minnesota

Disparity in U.S.
Jones K., 2015

Disparity in Minnesota

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**Health Inequities: Breastfeeding Initiation**

*Figure 5. Minnesota WIC Breastfeeding Initiation by Race/Ethnicity*

- Healthy People 2020
- NH: Non Hispanic
- Beginning in 2005, multiple race category was introduced.
- Starting in 2012, data reflect infants born during the calendar year. Prior to 2012, data were from infants ≤24 months served during the month of June. WIC transitioned to a new data system in 2011 and so data from 2011 for breastfeeding were omitted.

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African American
American Indian
Asian
Hispanic
White
Healthy People 2020 goal
How important is each clinical management Baby-friendly step?

Perrine CG et al 2012 Pediatrics; DiGirolamo AM, Pediatrics 2008; 122:S43-S49 (n=1907)

1. Written breastfeeding policy
2. Train all staff
3. Prenatal education: benefits and management (problem prevention)
4. Show moms how to breastfeed and maintain supply if separated
   - Initiation in first hr
   - Exclusive breastmilk feeds unless medically-indicated
7. 24 hour rooming in
8. Demand breastfeeding
   - No pacifiers or bottles
10. Postnatal support (problem solving)

Step 3 and 10 are most difficult to implement (problem prevention and problem solving)

Munn AC. Breastfeeding Medicine, 2016. The impact in the US of Baby-friendly Hospital Initiative on early infant health and breastfeeding outcomes.
The premise of this talk

• More is needed to prevent insufficient milk production and suboptimal milk intake, the 2 main problems leading to early discontinuation in mothers in any scenario, in any demographic.

• Problem prevention begins by providing every mother individualized, consistently available help utilizing simple skills from the very first hour. How can this be done?
Outline

• The need for change
• Goal and objectives
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  – Low-risk vs. At-risk dyads
• What is Needed?
  – Practice changes to reduce the risks
  – System changes: Prevention, Availability, Sustainability
One goal with 3 objectives

GOAL:
To enable exclusive breastfeeding, while keeping infants safe by preventing feeding related complications

OBJECTIVES:
A, B, and C

A. Attachment (effective latch and milk transfer)
B. Breastmilk production stimulation
C. Calories (normal and adequate intake)

Target primary reasons for early discontinuation
A. Attachment problems (pain, poor access)
B. Breastmilk (mother doesn’t make enough)
C. Calories (baby doesn’t take enough)
**A: attachment**

**Most important points**

1. **FIRST HOUR**

   The longer the interval between birth and first feed, the greater the risk for dysfunctional attachment

   Carberry AE. Breastfeeding Medicine 2013; Dewey KG. Pediatrics 2003

   First hour breastfeeding is the practice most predictive of longterm exclusive breastfeeding after vaginal or c-section delivery.

   Perrine et al, 2012,
   DiGirolamo AM, 2008
   Kacica, MA. 2012 7(6) 409
A: attachment
Key Points

3. Improves with uninterrupted contact
4. Improvement is production dependent
1. Production is strongest determinant of duration and exclusivity of breastfeeding
   – In first year, 60% mothers stop earlier than desired, citing milk production/intake problems as key reasons
   – Production within first 4 days predictive of future potential
B: breastmilk production: Key Points

2. Hormones set the stage: ↓ progesterone (placenta) precedes lactogenesis. Oxytocin release (let-down) enables episodic milk removal

3. Yet the **early**, **frequent** and **effective** removal of colostrum determines future production potential

4. **Early**: 1st hour colostrum removal strongest signal for future production, not hrs 2-6 or after

Time Sensitive!
Effect of early breastmilk expression

• First hour expression (vs. hrs. 2-6) ↓ time to lactogenesis and ↑ production by 130% at 6 weeks (613.0 mls. vs. 267.2 mls.)
**HAND EXPRESSION vs. PUMPING of colostrum is:**

1. More comfortable  
2. ↑ bf rates by 25% at 2 mos.  
3. Higher fat and caloric content  
4. Same or increased volume  
5. Hand expression days 1-3 (>5x/d) augments production in pump-dependent mothers up to 8 weeks
C: CALORIES for TERM INFANTS

• Colostrum, 80% of calories of mature milk or formula

• The AGA TERM newborn’s fuel (glucose and ketones) comes mainly from endogenous sources (reserves), not from colostrum: *
  – Breakdown of starch (glycogenolysis)
  – Synthesis from amino acids (gluconeogenesis)
  – Breakdown of fatty acids (ketogenesis)

• Average weight loss is 6-7% Macdonald PD 2003, Bertini G 2015

• Needs small, reserves adequate→Prioritize A, B
At-risk dyads

“Well babies” are not necessarily low-risk
Who Is At-Risk?

Mothers at risk for insufficient production

- Maternal-infant separation (cesarean births)
- Breast surgery/anomalies
- Attachment issues (latch and milk transfer)

Infants at risk for insufficient caloric intake

- Infants with compromised reserves
  - late preterm infants
  - postmature infants
- Infants with increased demands
  - Infants of diabetic mothers, SGA infants
  - High bilirubin producers
Why prioritizing A and B is problematic for the LPT infant, the “at-risk” poster child?

- LPT babies are immature in multiple ways. They cannot be expected to behave like term babies.
- Immature thermoregulation
- Immature glucose regulation → hypoglycemia
- Immature processing of bilirubin → jaundice
- Immature breastfeeding skills

“THE GREAT PRETENDERS”
The LPT infant (34-<37 weeks)

- 26-28 wks
- 30-32 wks
- 34-36 wks
- 40-42 wks
Immature breastfeeding skills

- Passive, sleepy, “content to starve”
- Ineffective milk removal
  - Short sucking bursts
  - Long, frequent pauses
  - Unending feeds
- Anorexia, easy to confuse with satiety
WHY re-prioritize for LPT infants

1. **Attachment**
   passive, ineffective baby $\rightarrow$ insufficient colostrum intake $\rightarrow$ deconjugation and reabsorption of bilirubin

2. **Breastmilk production**
   insufficient colostrum removal $\rightarrow$ ↓ production

3. **Calories**
   needs are high, intake is low, suboptimal glucose generating pathways $\downarrow$
   ...excessive weight loss, hyperbilirubinemia, delayed lactogenesis, low milk production, etc.

C,B,A instead of A,B,C

(attachment improvement is production dependent)
Reprioritize for Cesarean births:
Intake and weight loss

- **1st hour feeds:** 3.5% cesarean vs. 71.5% vaginal
  Zanardo V, 2010
  - Less intake when colostrum most available (1st hrs.)
  - Less stimulation of production in time-sensitive period
  - Greater weight loss evident by 6 hrs. with ≥10% weight loss in 25% cesarean vs. 10% vaginal births
  Flaherman 2015, Preer GL, 2012; Fonseca MJ, 2014

- **Formula by discharge:** 2X higher (25% vs. 11%) and lower early breastfeeding rates and at 7 days, 3 mo, and 6 mo.
  Prior E, 2012, Zanardo V, 2010

- **Less milk transfer over first 6 days** Evans KC, 2003
Less breastmilk intake over the first 6 days in caesarean (CS) vs. vaginal (NVD) births

C, B, A instead of A, B, C

Both cesarean births and LPT infant births are more common in African Americans and low socioeconomic grps.

Summary Points

...as simple as ABC

• **A** Attachment:
  – First hour
  – Effective, “deep latch” may not happen right away
  – Improves with uninterrupted contact and ↑ production

• **B** Breastmilk production stimulation
  – Time sensitive, cornerstone of breastfeeding rates
  – Frequent removal (bfing hand expression) → ↑ production

• **C** Calories (adequate intake)
  – Uncomplicated vaginal, term births: Needs are small, reserves adequate; prioritize **A** and **B**
  – At-risk infants: Needs are higher, Prioritize **C** and **B**

**A** attachment improves with high production
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What More Is Needed?

• Given the prevalence of dyads at risk for *insufficient production* and *suboptimal intake*

• Given that no amount of skin-to-skin and unrestricted breastfeeding reduces these two problems when infants fail to access sufficient colostrum or stimulate an adequate supply

• For example, LPT infant breastfeeding rates not impacted by Baby-friendly practices (1st hr. skin-to-skin, rooming-in, no pacifiers) Goyal NK. Birth 2014, Eidelman A. 2016, Breastfeeding Medicine, editorial 10(3) 2016
Practice changes:

1. First hour breastfeeding for all, including cesarean births

- N=565 cesarean births, military hospital in India
- Higher rates of exclusive breastfeeding than with usual hospital care at:
  - discharge (89.13% vs. 75.94%, p=0.004)
  - 2 weeks (85.51% vs. 53.38%, p<0.001)
  - 6 weeks (74.64% vs. 38.35%, p<0.001).
- This single intervention significantly improves rates of exclusive breastfeeding with cesareans.

Jesmin E, 2015
First hour breastfeeding during cesarean delivery
Practice changes

2. Low threshold for hand expressed colostrum feeds

Bertini G 2015

- 1760 “natural births” with 1st hr. feeds
- Low threshold for hand-expressed spoon feeds
- Weight loss 5.95%
- Nadir at 44 hr.
- Zero % with 10% weight loss (3.9% lost ~9%)

Flaherman VJ 2015

- 83,433 vaginal “routine care”
- Rarely used hand expressed spoon feeds
- Weight loss 7.1%
- Nadir at 48-72 hr.
- 10% with 10% weight loss

Weight by 6 hour predictive of subsequent 10% loss
Mean weight loss for term births, with or without spoon-fed colostrum

Bertini G 2015 vs. Flaherman V, 2015
Spoon feeding: non-medical, convenient, safe, well researched
Yilman G, 2014, Kumar A. 2010
Practice changes

3. Prioritize CBA vs. ABC for at-risk dyads

C, Calories
- Insure 1st hr colostrum, at breast and/or by spoon
- Unrestricted breastfeeding plus liberally spoon feed colostrum to satiety

B, Breastmilk production
- Insure 1st hr colostrum removal
- Combine hand expression with breastfeeding

A, Attachment
- Insure 1st hr skin to skin and prn assistance with attachment. (avoid over-reliance on breast crawl)
- Improves with time, contact and robust production
Practice changes

4. Teach all mothers and partners about helping hands in the first hour
   “A Mother’s Touch”

Prevent the “lost first hour syndrome”
First Hour Breastfeeding with “A Mother’s Touch” for all mammal
Video “A Mother’s Touch”
Summary:
4 Practices changes to reduce risks

1. Make every first hour count in every scenario
2. Low threshold for hand-expressed spoon feeds
3. Prioritize CBA vs. ABC for at-risk dyads
4. Mother/partner helping hands in 1st hour
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  System Changes: Prevention, Availability, Sustainability
How can we provide EQUITY, not EQUALITY?

What are the cornerstones of an optimal care?
System Changes
Cornerstones of an Optimal Care

– Prevention vs. Problem oriented
  • Prevent sending home mothers who won’t make enough and babies who won’t get enough

– Available vs. Episodic
  • 24/7 for all dyads vs. a restricted few beneficiaries
  • Begin 1st hour

– Sustainable vs. Unsupportable (cost/time)
  Options: Employ more LCs or maintain high level training of bedside staff
Think out of the box!
…a published, not yet validated proposal

Lacoste, France
4 - Step Plan

1. Adopt a Baby-friendly breastfeeding hospital policy

2. Adopt a focused, streamlined curriculum with core competencies
   - Low risk: \textit{ABC}
   - At-risk: \textit{CBA}
4 - Step Plan

3. Train bedside staff:
   - **Attachment**
   - **Breastmilk production** (hand expression)
   - **Calories** (nomograms for wt. and bili, spoon feed)

Learning opportunities

- ✓ Delivery room (L.C. in L&D for staff training)
- ✓ daily bedside responsibilities
- ✓ shadowing L.C.
- ✓ help in group (multi-cultural) maternity unit breastfeeding classes
- ✓ mandatory written and practical demonstrations of core competencies (“See one, do one, teach one”)
4. Focused Agenda: Introduce the ABC plan in Labor & Delivery. Follow up with daily, brief bedside rounds with three participants: the mother, her nurse and the lactation specialist with a focused agenda (with M.D. support)

(prioritize ABC for low risk; CBA for at-risk)
Bedside Rounds: A, B and C
SEE ONE, DO ONE, TEACH ONE
Teachers (LCs) teach teachers (RNs) teach mothers
Could such a program....

• Move the needle on breastfeeding rates by offering EQUITY bedside care for each dyad?
• Reduce the need for pumping, bottle feeding, phototherapy, discharge delays, and re-admissions?
• Increase the impact of lactation consultants, breastfeeding rates, and staff and patient satisfaction?

What’s the harm in trying?
What’s the harm in not trying?
Recognizing that every first hour counts is the first step to eliminate disparity for mothers in any scenario, in any demographic. Problem prevention begins by providing every mother consistently available help, tailored to her needs, utilizing simple skills from this first hour onward.

Are there simple solutions? Maybe only what really matters the most, matters at all.