Who’s Afraid of that Milk? Breastfeeding and Newborn Safety

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OBJECTIVES

- Become familiar with the NEWT tool and how to use it to assess newborn weight loss
- Review glucose homeostasis in the newborn period and indicate when nutritional supplementation is recommended.
- Discuss the pediatrician care provider’s role and how we can enable breastfeeding.

What percentage of infants born in the USA were ever breastfed? (2016 data)

1. 1.22.3 %
2. 2.30.7 %
3. 3.51.8%
4. 4.81.1%
Suboptimal breastfeeding in the United States: Maternal and pediatric health outcomes and costs

Melissa C. Barick, Eleanor Bielek Schwarz, Britanny D. Green, Briana J. Jegier, Arnold G. Reinhold, Tarah T. Galaizy, Debra L. Bogin, Andrew J. Schafer, and Alison M. Stuebe

Abstract

The aim of this study was to quantify the excess cases of pediatric and maternal disease, deaths, and costs attributable to suboptimal breastfeeding rates in the United States. Using the current literature on the associations between breastfeeding and health outcomes for nine pediatric and four maternal diseases, we created Monte Carlo simulations modeling a hypothetical cohort of 1.3 million women followed from age 27 to age 70 years and their related births to age 30 years. We estimated disease outcomes using the 2012 breastfeeding rates and assumed that 90% of infants were breastfed according to WHO recommendations. We measured annual excess cases, deaths, and associated costs in 2014 dollars, using a 3% discount rate. Annual excess deaths attributable to suboptimal breastfeeding were 2,619 (95% confidence interval: 2,486 to 2,750). 78% of which were maternal due to maternal breast cancer. Breast cancer was associated with 5,023 deaths and associated health care costs of $35,982, while 8,487 deaths and associated health care costs were due to suboptimal breastfeeding.

HOW ARE WE DOING?

Percentage of Any and Exclusive Breastfeeding by Month Since Birth among US infants Born in 2008

CDC Data 2012

Slide courtesy of AAP

Breastfeeding is a women's health issue

DISEASE

Breast cancer

Type 2 diabetes

Hypertension

Heart attacks

CASES PREVENTED

5,023

12,320

35,982

8,487

2619 deaths

Courtesy Dr. Alison Stuebe, UNC

PDF

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OBJECTIVES

Become familiar with the NEWT tool and how to use it to assess newborn weight loss

NEWBORNWEIGHT.ORG

Infant Microbiome
**TOOLS TO HELP THE PROVIDER**

- **NEWT**
  - Based on large study in N California
  - Over 100,000 exclusive breastfed babies
  - Both VD and CS
  - Provides normal weight loss curves
  - You can plot your patient’s weight loss and see if in fact it is normal or not

**EXAMPLE**

- Day 3 C/S
- 9.7% weight loss
- 75% range

**NEWBORNWEIGHT.ORG**

- Not all 10% weight loss is created equal

- Depending on the whole picture, this may be an example of one patient that would NOT need to be supplemented

**RETURN TO BIRTHWEIGHT?**

- [Image of a newborn weight tracking tool]

- [Example chart showing weight loss data]
**OBJECTIVES**

*Understand* glucose homeostasis in the newborn period and *indicate* when nutritional supplementation is recommended.

**GLUCOSE: WHAT IS THE ISSUE?**

- Hypoglycemia = low blood glucose concentration
- Brain depends almost entirely on glucose for fuel
GLUCOSE: WHAT IS THE ISSUE?
- Concern for
  - Neurologic damage
  - Neurodevelopmental abnormalities
  - Permanent morbidity and mortality

WHERE DOES GLUCOSE COME FROM?
- In utero: from mom
- Immediately after birth: from liver
- After 12 hours: make new glucose
- Carbohydrate feeds

WHAT IS NORMAL?
- Concentrations as low as 30 mg/dL are common in healthy neonates by 1-2 hrs after birth
- Transient, asymptomatic usually
- Stabilize to 40-50 mg/dL by 12 hours

BREASTFED INFANTS
- Higher concentrations of ketone bodies
  - alternative fuel for the brain
- May be able to tolerate lower glucose

References:
**HYPOGLYCEMIA CAUSES**

- **Inadequate Supply**
  - Not enough glycogen stored up in liver (LPT)
  - Delay onset of feeding
  - Infrequent feeding
  - Inborn errors of metabolism
  - Endocrine disorders

- **Increased Utilization**
  - Too much insulin (IDM/LGA)
  - Perinatal stress eg asphyxia, resuscitation
  - Neonatal conditions (hemolytic disease, meconium aspiration, hypothermia, polycythemia, sepsis)

**WHO IS AT RISK?**

- Most commonly in
  - SGA
  - IDM
  - Late preterm
  - LGA

- About 50% of infants in the at risk group will have a glucose < 47 gm/dL*

**DANGER?**

- How low?
- For how long?
- Recent study
  - At risk infants
    - One group with hypoglycemia (treated to keep > 47mg/dL)
    - One group without hypoglycemia
    - No difference in neurodevelopmental outcomes at 2 years


**HYPOGLYCEMIA CAUSES**

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AAP Clinical Report 2011

- Guide for screening and management of neonatal hypoglycemia
- No specific concentration of glucose that is normal or abnormal or result in neurological damage

AAP Design

- 2 time periods
- Birth to 4 hours and 4-12 hours
- Provide a margin of safety
- Target is 45mg/dL before a feed
- First feed within 1 hour and then screen within 30 minutes

Clinical Signs of Hypoglycemia

- Wide range
- Jitteriness, cyanosis, seizures, apneic episodes, tachypnea, weak or high pitched cry
- Floppy, lethargy, poor feeding
- Eye rolling
- More serious: coma and seizures occur with prolonged and repetitive hypoglycemia
  - They don’t get better with normalization of glucose
PREVENT

- Prepare
  - If known at risk infant, discuss ahead of time with parents

PREVENT

- Avoid extra stress
  - Skin to skin
  - At least first hour after birth
  - Maintain normal body temp
  - Reduce energy expenditure

PREVENT

- Feed
  - First breastfeed right away
  - On demand (10-12 per day)
  - < 3 hours

PREVENT

- Stimulate milk production
  - Skin to skin
  - Milk extraction (hand expression or other)
PREVENT

- Vigilant
- Normalize but stay alert
- Screens should continue if lower than 45 after 24 hours of life

INTERVENTION

- Clinical situation + characteristics of infant + glucose level

- If having clinical signs, best to intervene right away
  - Consider dextrose gels
  - IVF and continue breastfeeding


BEFORE DISCHARGE

- Must be certain that infant can maintain normal plasma glucose on a routine diet for extended period (e.g., 3 feeds)

OBJECTIVES

Discuss the pediatrician care provider’s role and how we can enable breastfeeding.
Mother's breastfeeding goals

- Baby friendly maternity care
- Supportive family and friends
- Informed health care providers
- Adequate leave, workplace support

Breastfeeding success

GUIDING PRINCIPLES

- Understand your patient's motivations
PRACTICAL TIPS

- Resist the righting reflex
- Reflective listening
- Ask for permission
- Does it feel like dancing or wrestling?

DON'T BE CASUAL

- Ask about breastfeeding
- Address concerns
- Recommend breastfeeding
- Offer Support
- Be a positive role modeling for learners
THANK YOU

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