# Welcome to the OPQC Webinar Series:

## Human Milk for Late Preterm Infants: Current State of Practice, Barriers and Effective Interventions

- Thank you for joining; our webinar will start shortly!
- In the mean time; please sign in the chat box the names of all webinar participants and email address and full name of hospital or organization affiliation.


OPQC Ohio Perinatal Quality Collaborative

# Muting and Recording

- Use the **MUTE** button on your phone or you can use *6 to place the call **on MUTE** and *6 to **come off of MUTE**

- We will mute all lines and begin recording when the presentation begins
- During Q&A we will unmute lines

OPQC
Ohio Perinatal Quality Collaborative

# Human Milk for Late Preterm Infants: Current State of Practice, Barriers and Effective Interventions

**May 20, 2015 & May 26, 2015**

Laurel Moyer, MD
Pat Heinrich, RN, MSN, CLEC
Facilitator: Cole Jackson

OPQC
Ohio Perinatal Quality Collaborative

## CME Requirements for Internet-based Activities

***Policy on Privacy and Confidentiality:*** **I understand and agree that I will maintain the confidentiality of all information that is made available as a result of my attendance to this webinar. This means that I may not provide or otherwise share any of this information with any individual or entity other than my staff or the OPQC and then only in a meeting setting and as permitted by the OPQC standards or applicable state or federal law. If I am unsure as to whether certain information may or should be disclosed, I will contact a representative of the OPQC prior to making any disclosure.**



## OPQC Continuing Education Program for Level 1 Hospitals in Ohio:

Human Milk for Late Preterm Infants: Current State of Practice, Barriers and Effective Interventions

## Presenters:

**Laurel Moyer, MD**
**Pat Heinrich, RN, MSN, CLEC**

**Facilitator: Cole Jackson**

OPQC Ohio Perinatal Quality Collaborative

***Disclosure:*** Financial disclosure information (planning committee and presenters): Planning committee members/faculty were determined to have no conflicts of interest pertaining to this activity.

***Commercial Support***

**Commercial support received: None**
If at any time during this activity you feel that there has been commercial or promotional bias, please indicate on the online evaluation**.**

**Continuing Education**

**CME:**
Cincinnati Children's Hospital Medical Center is accredited by the Accreditation Council for Continuing Medical Education to provide continuing medical education for physicians.

The Cincinnati Children's designates this live activity for a maximum of *1.0 AMA PRA Category 1 Credit(s)*™. Physicians should claim only the credit commensurate with the extent of their participation in the activity

OPQC
Ohio Perinatal Quality Collaborative

**Objectives:**

- Describe the current state of human milk feeding practices in the United States.
- Describe pathophysiology and specific challenges faced when providing human milk and breastfeeding the late preterm infant.
- Asses usefulness of information presented and provide opportunity to edit Session 2 if needed.

Hardware/Software Requirements**:**
Compatible with Mac and Window users and common web browsers. High-speed access recommended though not required (responsiveness may be noticeably slower using dial-up connection).
Adobe Flash Player 9.x is required and Speakers/headphones required to listen to audio

**Provider Contact Information:**
If you should have any questions about the content of the meeting, please contact info@opqc.net
If you should have any questions regarding CME credit, please contact the CME office at cme@cchmc.org.

OPQC Ohio Perinatal Quality Collaborative

# Introduction to Faculty

**Dr. Laurel Moyer**

**Pat Heinrich, RN, MSN, CLEC**

OPQC
Ohio Perinatal Quality Collaborative

# Agenda Session One: May 20, 2015 & May 26, 2015

| Topic | Objective | Content | Time | Presenter |
|---|---|---|---|---|
| Welcome, Attendance, Introductions and Agenda Review | | | 5 min | Facilitator: Cole Jackson |
| Current state | Describe the current state of human milk feeding practices in the United States | 1. Review of CDC 2013 Report Card<br>2. Healthy People 2020<br>3. 1-2 question poll re: state at participating hospitals<br>4. Baby Friendly initiative<br>5. AWONN and ACOG position statements | 10 min | Pat Heinrich, RN, MSN |
| Late preterm infant: Unique needs and challenges in caring for this population | Describe pathophysiology and specific challenges faced when providing human milk and breastfeeding the late preterm infant | 1. Physical immaturity of newborn systems<br>2. Delivery room care<br>3. Thermoregulation<br>4. Hypoglycemia<br>5. Hyperbilirubinemia<br>6. Rooming In | 30min | Dr. Laurel Moyer and invited team sharing |
| Q and A | | | 10 min | All |
| Evaluation and Wrap up | Asses usefulness of information presented and provide opportunity to edit Session 2 if needed | 1. Evaluation poll<br>2. Introduce OPQC.net: Accessing resources used in this webinar | 5 min | Cole Jackson |

Ohio Perinatal Quality Collaborative

# Objectives For Today

1. Describe the current state of human milk feeding practices in the United States.

2. Describe pathophysiology and specific challenges faced when providing human milk and breastfeeding the late preterm infant.

3. Asses usefulness of information presented and provide opportunity to edit Session 2 if needed.

OPQC
Ohio Perinatal Quality Collaborative

# Poll #1

- Has your hospital identified human milk/breastfeeding as an improvement priority?
  a) Yes focused on “well” infants (breastfeeding)
  b) Yes focused on NICU infants (human milk feeding)
  c) Both a) & b)
  d) No
  e) I don’t know

OPQC
Ohio Perinatal Quality Collaborative

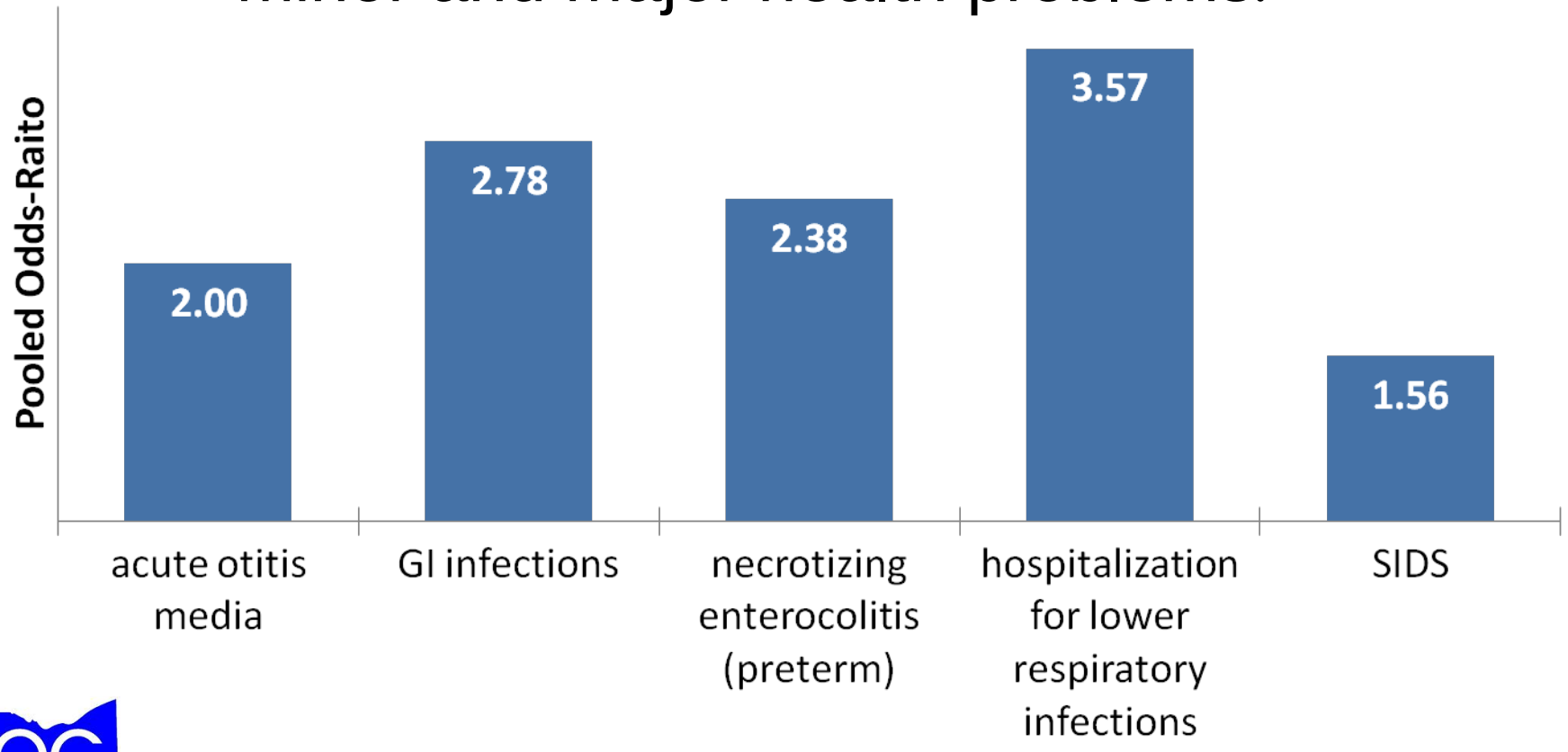
Pat Heinrich

# CURRENT STATE OF BREASTFEEDING IN THE US

OPQC
Ohio Perinatal Quality Collaborative

# Breastfeeding: Important for babies

Babies who are not breastfed have higher risk of minor and major health problems.

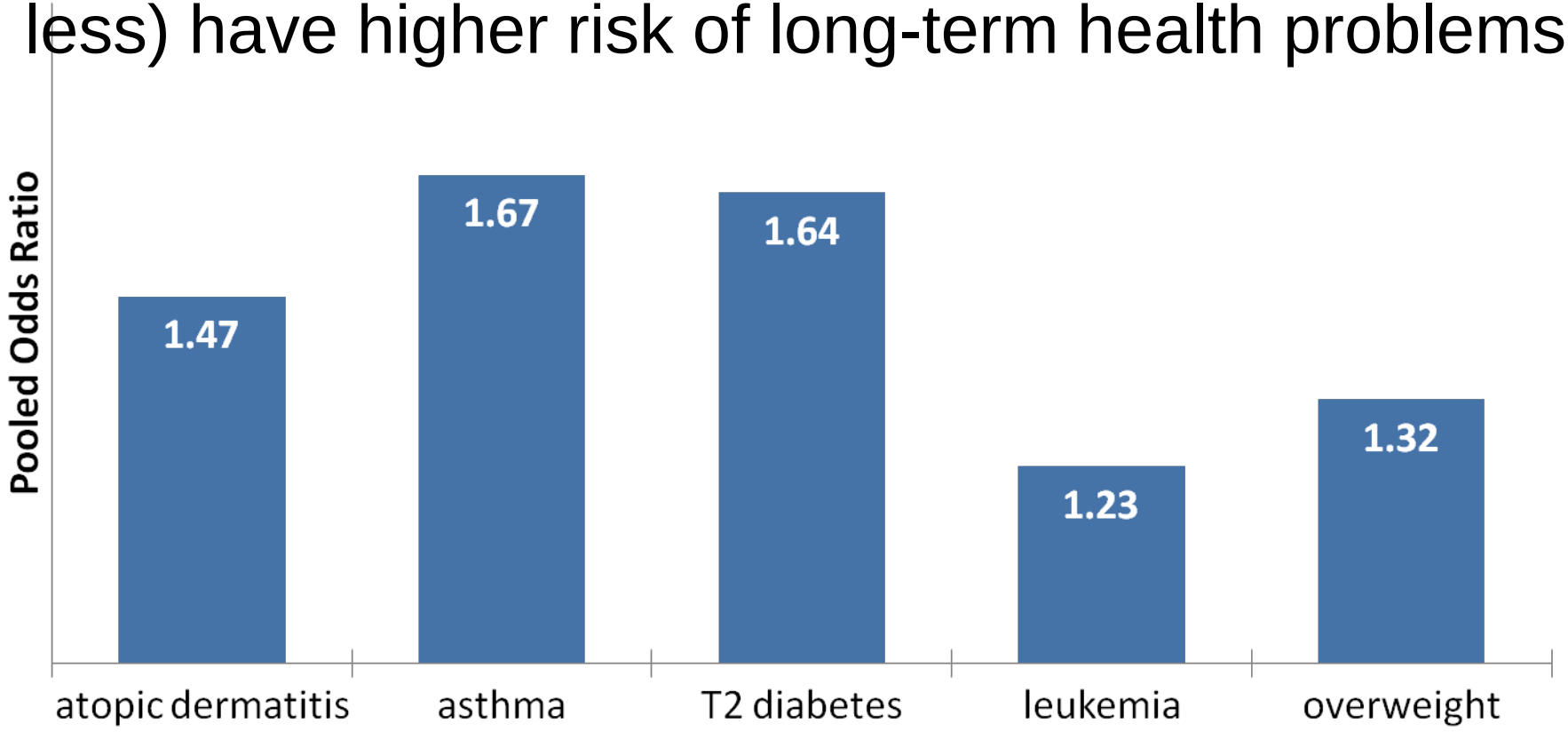



*Source: AHRQ, 2007*

OPQC Ohio Perinatal Quality Collaborative

# Breastfeeding: Important for children

Children who were never breastfed (or breastfed less) have higher risk of long-term health problems.




*Source: AHRQ, 2007*

OPQC Ohio Perinatal Quality Collaborative

# Breastfeeding is a National Priority

- Healthy People 2020
- National Prevention Strategy
- White House Task Force on Childhood Obesity
- IOM Early Childhood Obesity Prevention Policies
- IOM Accelerating Progress in Obesity Prevention
- Bipartisan Policy Center: Lots to Lose: How America's Health and Obesity Crisis Threatens our Economic Future
- The Surgeon General’s Call to Action to Support Breastfeeding
- AAP Breastfeeding and the Use of Human Milk
- Affordable Care Act

OPQC
Ohio Perinatal Quality Collaborative

# Everyone Agrees-Human Milk is Best

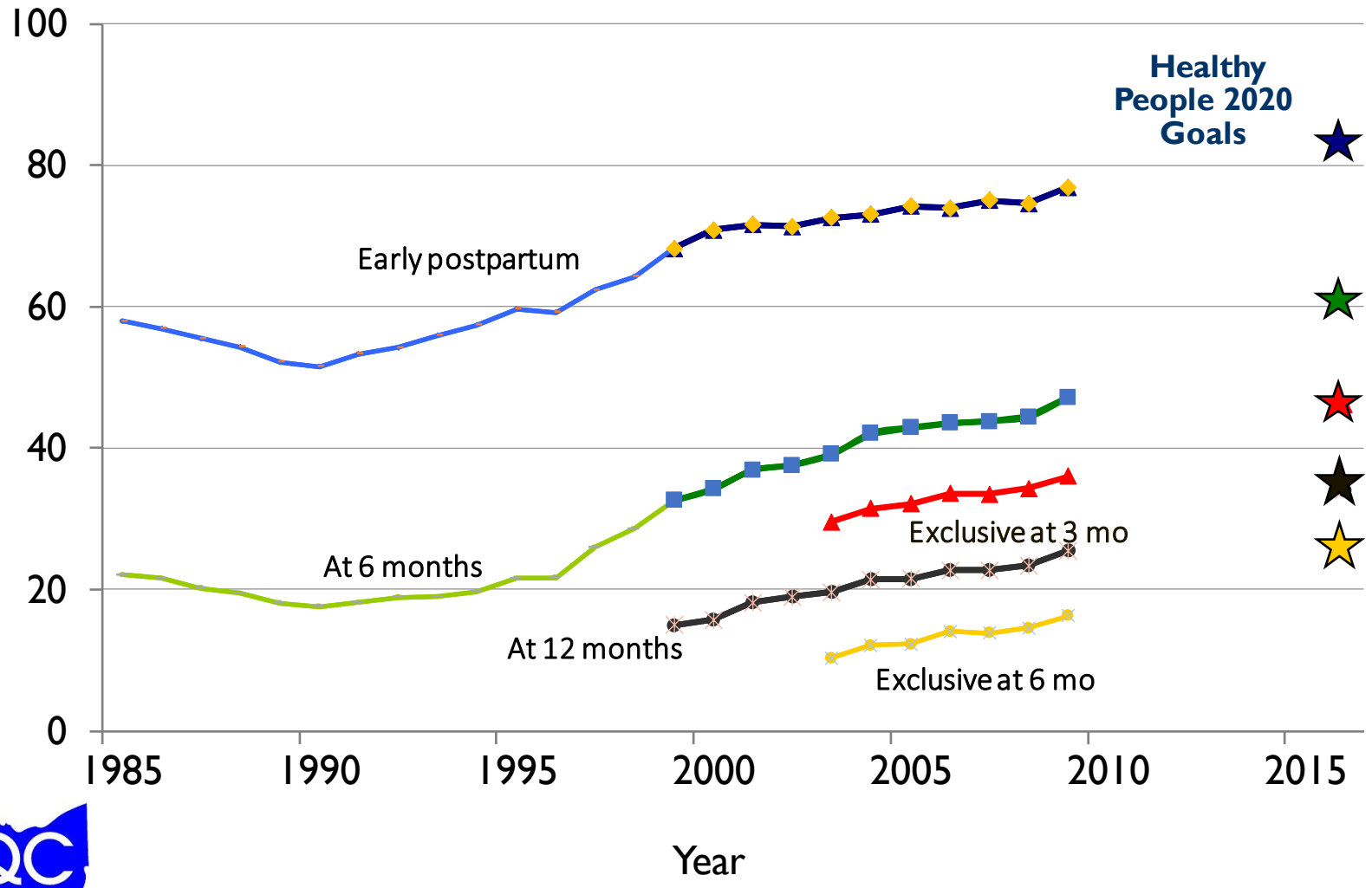
- The American Academy of Pediatrics Position Statement clearly articulates that breastfeeding and the use of human milk are a public health issue, not a lifestyle choice (American Academy of Pediatrics, 2012)

- The Surgeon General's Call to Action to Support Breastfeeding details specific actions needed to improve breastfeeding outcomes and the health of our nation (U.S. Department of Health and Human Services, 2011)

- USBC has addressed the need for increased health professional education through their development of core competencies as outlined in Core Competencies in Breastfeeding Care and Services for All Health Professionals (USBC, n.d.)

OPQC Ohio Perinatal Quality Collaborative

# US breastfeeding rates, 1985-2009




OPQC Ohio Perinatal Quality Collaborative

# Improving - but mothers still do not breastfeed as long as they intend

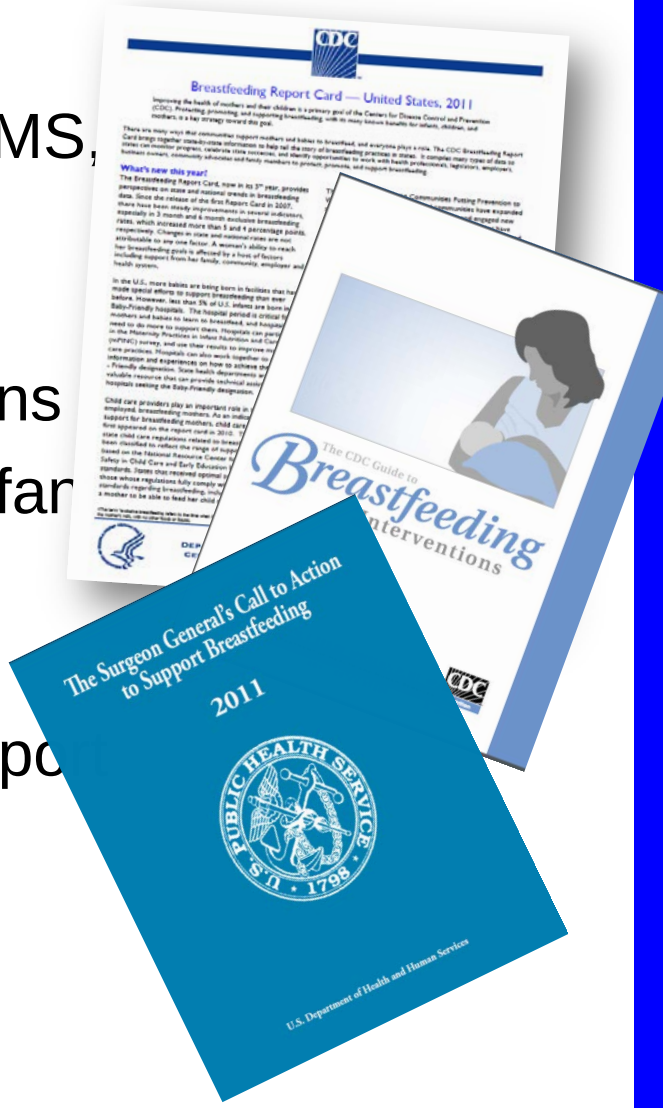
| | 2012 | 2014 |
|---|---|---|
| **Intent to breastfeed** | **80%** | |
| **Start breastfeeding** | **77%** | **79%** |
| **Exclusive breastfeeding at 6 months** | **16%** | **18.8%** |
| **Do not breastfeed as long as planned**<br>Reasons<br>➢ problems with latch<br>➢ problems with milk flow<br>➢ poor weight gain<br>➢ pain | **60%** | |

**Sources:**
**Infant Feeding Practices Study II and National Immunization Survey, 2012**
**Centers for Disease Control and Prevention [CDC], 2014).**

OPQC Ohio Perinatal Quality Collaborative

# Major CDC Initiatives on Breastfeeding

- Monitoring of rates (NIS, PedNSS, PRAMS, etc.)
- Breastfeeding Report Card
- CDC Guide to Breastfeeding Interventions
- CDC Survey of Maternity Practices in Infan Nutrition and Care (mPINC)
- Infant Feeding Practices Study II
- Surgeon General's Call to Action to Suppo Breastfeeding
- Federal Interagency Breastfeeding Workgroup




OPQC
Ohio Perinatal Quality Collaborative

**“Baby-Friendly USA, Inc. (BFUSA) and the Baby-Friendly Hospital Initiative (BFHI)** in the US is predicated on the fact that human milk fed through the mother’s own breast is the normal way for human infants to be nourished.”

**Baby Friendly USA 10 Steps**

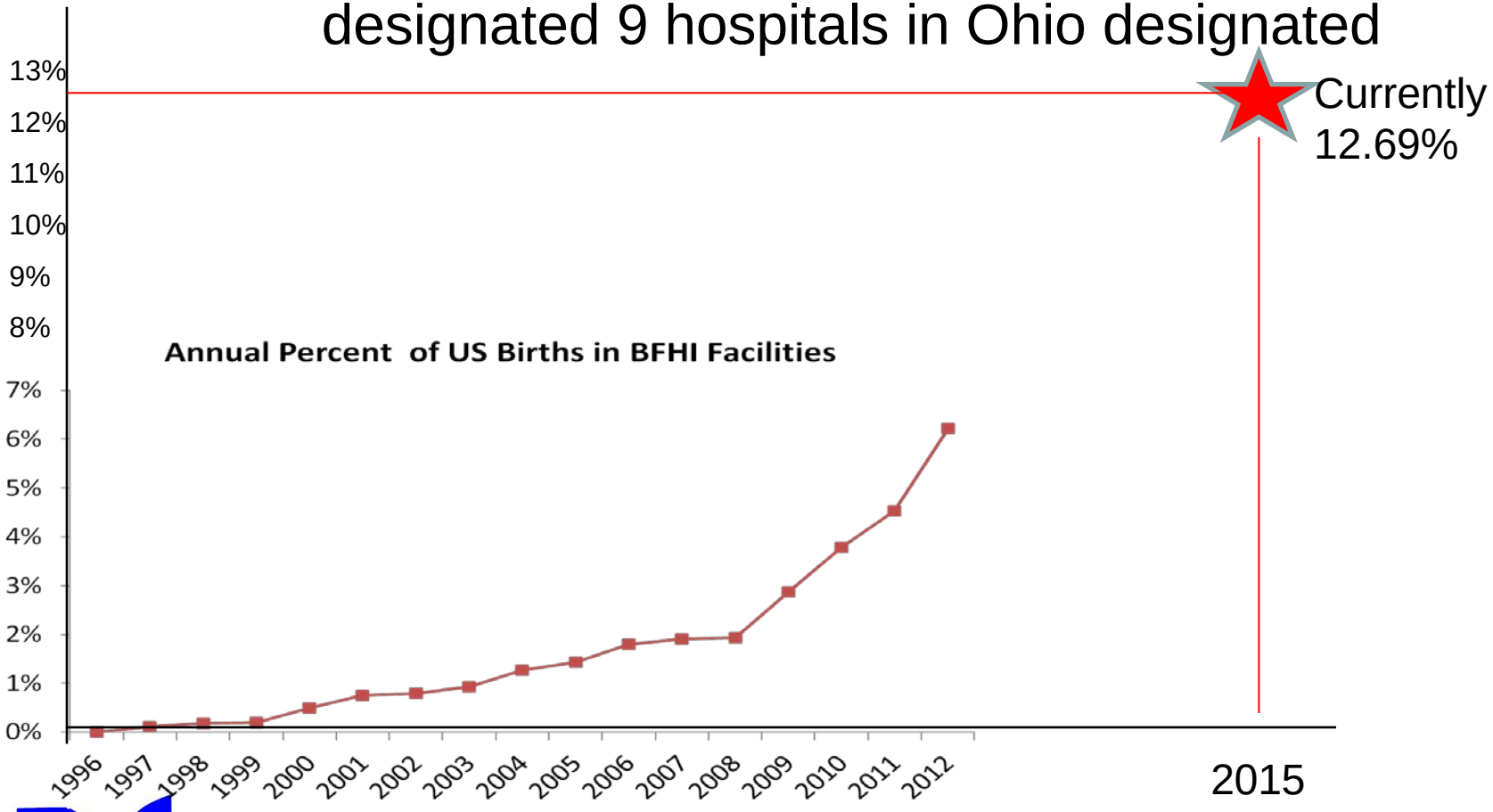
1. Have a written breastfeeding policy that is routinely communicated to all health care staff.
2. Train all health care staff in the skills necessary to implement this policy.
3. Inform all pregnant women about the benefits and management of breastfeeding.
4. Help mothers initiate breastfeeding within one hour of birth.
5. Show mothers how to breastfeed and how to maintain lactation, even if they are separated from their infants.
6. Give infants no food or drink other than breast-milk, unless medically indicated.
7. Practice rooming in - allow mothers and infants to remain together 24 hours a day.
8. Encourage breastfeeding on demand.
9. Give no pacifiers or artificial nipples to breastfeeding infants.
10. Foster the establishment of breastfeeding support groups and refer mothers to them on discharge from the hospital or birth center.

OPQC Ohio Perinatal Quality Collaborative

https://www.babyfriendlyusa.org/

# Current State: Number of US Births in BFHI Facilities

260 U.S. hospitals and birthing centers in 46 states & D of C designated 9 hospitals in Ohio designated




OPQC Ohio Perinatal Quality Collaborative

# BFUSA Designated Hospitals in OHIO

1. East Ohio Regional Hospital, Martins Ferry (09/14)
2. Fairview Hospital Cleveland, Cleveland (11/12)
3. Hillcrest Hospital/Cleveland Clinic, Mayfield Heights (9/12)
4. Lakewood Hospital, Lakewood (03/12)
5. Mercy Hospital Anderson, Cincinnati (09/03) Re-Designated 2013-2018
6. Mercy Hospital Fairfield, Fairfield (09/03) Re-Designated 2013-2018
7. Southview Hospital, Dayton (09/08) Re-Designated 2013-2018

***Invited on our call today to share their recent experiences teams from***:

8. University Hospitals MacDonald Women's Hospital, Cleveland (12/14)
9. University of Cincinnati Medical Center, Cincinnati, OH (12/14)

OPQC Ohio Perinatal Quality Collaborative

# Poll #2

- How do you care for late preterm infants in your hospital?
  a) Protocols are the same for these infants as full term healthy infants
  b) LPT infants are routinely admitted to our NICU or SCN where they remain until stable
  c) Either a) or b) – it depends on their condition and individual needs
  d) We don't have specific policy/protocol for LPT infants
  e) I don't know

OPQC Ohio Perinatal Quality Collaborative

Dr. Laurel Moyer

# BREASTFEEDING THE LPT INFANT

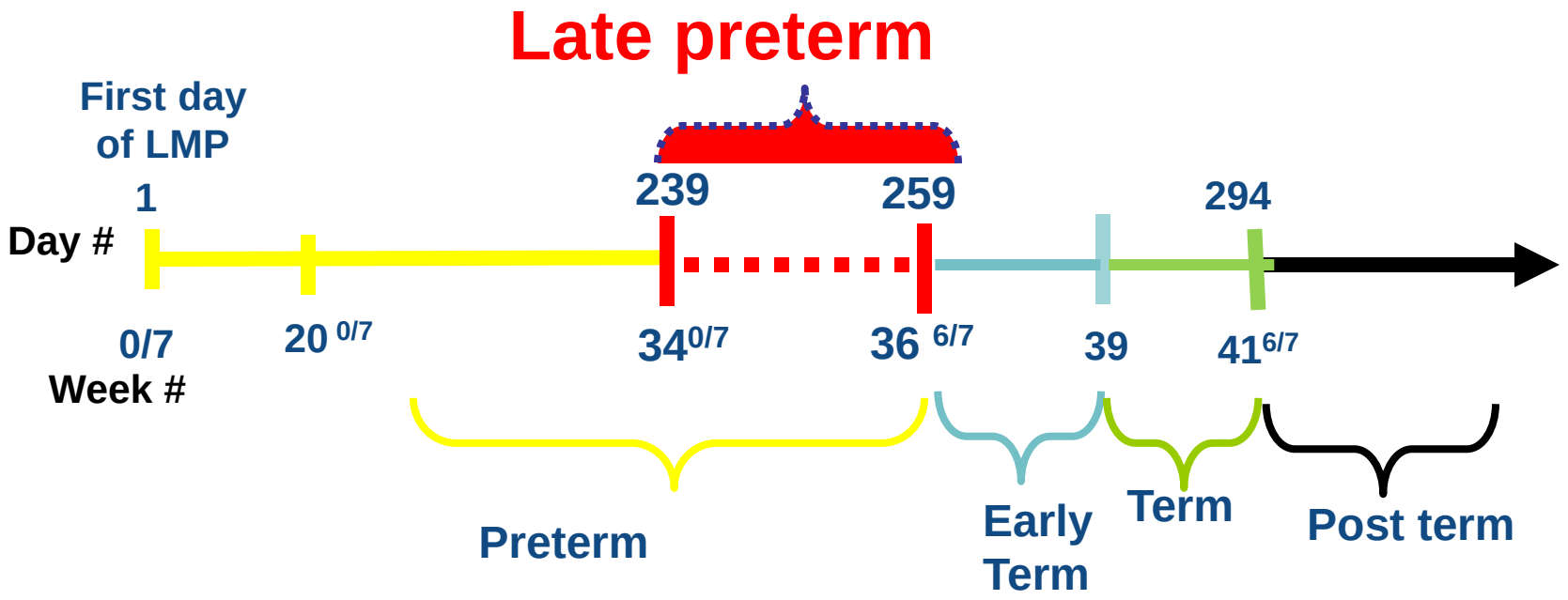
OPQC
Ohio Perinatal Quality Collaborative

# Late Preterm Infants (LPT) are NOT "Near Term"

- LPT  born at a gestational age between $34^{0/7}$ -$36^{6/7}$ weeks
- Higher morbidity and mortality rates than infants ≥37 weeks) due to their relative physiologic and metabolic immaturity
- Challenging for parents since they may "look" like a term infant (same size and wt.)
- Often require more than "routine neonatal care"

OPQC Ohio Perinatal Quality Collaborative

# Defining “Late Preterm”




**Late Preterm: 34 0/7 through 36 6/7**

OPQC Ohio Perinatal Quality Collaborative

# Factors Contributing to Late Preterm Births

- Advanced maternal age - Over 69% of late preterm infants are born to mothers < 20 years and ≥ 40 years
- Assisted reproductive technologies – independent risk factor for prematurity
- Pregnancy interval of < 12 months - increases risk > 4X
- Previous preterm delivery - increases risk >7X
- Multi-fetal pregnancies - 5X more likely to be LPT
- Increased cesarean rates
- Maternal Co-morbidities
  - Obesity
  - Diabetes
  - Asthma
  - Hypertension
  - Pre-eclampsia

OPQC Ohio Perinatal Quality Collaborative

***Clinics Perinatology* 2006; 33 (4): 751-63; *Neoreviews* 2009; 10(6): e287-94; *Neoreviews* 2009;10 (6): e295-302; AJOG 2006; 195 (6):1557-63; *Clinics Perinatology* 2008; 121(2):309-23.**

# Late Preterm Infants and Readmission

- Late preterm infants are up to 3 times more likely to be readmitted than term infants
  - Hyperbilirubinemia
  - Sepsis evaluation
  - Feeding difficulties
- Overall readmission rate progressively increasing as gestational age decreases from 40 weeks


*McLaurin K, et al. Pediatrics. 2009;123(2):653-659.*
*Raju T, et al. Pediatrics. 2006;118(3):1207-1214.*
*Engle W, et al. Pediatrics. 2007;120(6):1390-1401.*
*Escobar G, et al. Arch Dis Child. 2005;90:125 -131.*
*Tomashek K, et al. Semin Perinatol. 2006;30(2):61-68.*
*Escobar G, et al. Semin Perinatol. 2006;30(1):28-33.*


OPQC Ohio Perinatal Quality Collaborative

# Clinical Risk Factors

- Infants born at 34 weeks gestation had 20X the risk for morbidity compared with the infants born at 40 weeks' gestation
- Those born at 35 and 36 weeks' gestation had 10X and 5X the risk for morbidity
  - Mortality
  - Hypothermia/temperature instability
  - Hypoglycemia
  - Feeding difficulties
  - Respiratory
  - Hyperbilirubinemia
  - Long term neurologic issues

OPQC Ohio Perinatal Quality Collaborative

***OB&Gyn 2008; 111(1): 35-41;Pediatrics. 2008;121(2):e223-32; NeoReviews.*2009;10:e280-e286; *NeoReviews.*2009;10:e280-e286.**

# NICU Admission and LOS

- Almost 50% of infants born at 34 weeks gestation receive neonatal intensive care
  - Conflicting results as protective for readmission
- Length of hospital stay was noted to be significantly longer for late preterm infants when compared to term births
  - Average LOS being six days longer for infants born late preterm (8.8 vs. 2.2 days) when compared to term infants

OPQC Ohio Perinatal Quality Collaborative

***Hosp Pediatrics 2014; 4: 298-304; Am J Respir Crit Care Med* 2007; 164(7):1154-60. *Pediatrics* 2009; 123(2):653-59; *Am J OB and Gyn* 2009; 200(5):e30-33; *Am J Perinatol* 2010; 27(7):537-42.**

# Breastfeeding Management

## Vulnerabilities

1. Hypothermia
2. Hypoglycemia
3. Respiratory Instability
4. Immature state regulation
5. Hypotonia and Immature Feeding Skills
6. Insufficient milk (delayed lactogenesis)
7. Hyperbilirubinemia

OPQC
Ohio Perinatal Quality Collaborative

# Lactation and Breastfeeding Support

- Early breastfeeding support for this population finding that almost 90% of those infants admitted for hyperbilirubinemia are breastfed
- Feeding problems are most common reason for admission to the NICU and delay in hospital discharges

OPQC Ohio Perinatal Quality Collaborative

*Semin Perinatol. 2006;30(2):54-60; Clinics Perinatol 2009; 48(4):383-88.*

# Hypothermia

- Temperature regulation in late preterm infants is compromised by immature hypothalamic function
- Larger body surface area to weight rations and limited stores of white fat for insulation
- Limited stores of brown fat that is metabolized to generate heat
- Lower levels of hormones needed for brown fat metabolism

OPQC Ohio Perinatal Quality Collaborative

*NeoReviews.*2009;10:e280-e286

# Hypoglycemia

- Incidence is inversely correlated to gestational age
- Highest risk in first 12-24 hours
- Immature hepatic gluconeogenesis and limited glucose reserves

OPQC Ohio Perinatal Quality Collaborative

*NeoReviews.*2009;10:e280-e286

# Respiratory Instability

- Requires specialized care and prolonged hospital stay

**Demographics: Neonatal**

| | Late preterm 34-36 weeks N (%) or MEAN (SD) | Term 37-40 weeks N (%) or MEAN (SD) |
|---|---|---|
| **Total infants N** | **19,334** | **165,993** |
| Gestational age (mean, sd) | 35.6 (0.8) | 39.0 (1.0) |
| Birth weight (mean, sd) | 2612.9 (483.7) | 3334.4 (452.4) |
| SGA <10$^{th}$ percentile | 3910 (20.2) | 18155 (10.9) |
| Apgar 5 min<7 | 541 (2.8) | 1318 (0.8) |
| Resuscitation in DR | 5412 (28.0) | 36478 (22.0) |
| Gender | | |
| Female | 9165 (47.6) | 81416 (49.1) |
| Male | 10081 (52.4) | 84327 (50.9) |
| Anomalous infants | 1933 (10.0) | 9866 (5.9) |

*P-value < 0.001 using chi square and students' t-test as appropriate

OPQC Ohio Perinatal Quality Collaborative

Hubbard, J. et al Respiratory Morbidity in Late Preterm Births. JAMA. 2010 Jul 28; 304(4): 419–425.doi: 10.1001/jama.2010.1015

# Immature State Regulation

- State regulation is the development of integrated and coordinated patterns of sleep-wake states
- Develops as the brain develops
- Development of sleep in LPT preterm infants is often disturbed by caregiving, medical interventions, and other environmental factors

OPQC
Ohio Perinatal Quality Collaborative

# Hypotonia & Immature Feeding Skills

- LPT is more prone to positional apnea
- Wide range of sucking patterns, frequency, and intensity
  - May tire quickly
  - May lack strength for appropriate sucking pressure (60 mm Hg)
  - May drop nipple between sucking burst - and be unable to sustain nutritive sucking
    - 15% to 60% of time spent sucking

OPQC Ohio Perinatal Quality Collaborative

# Hyperbilirubinemia

- Late preterm infants being 2-5X as likely to have significantly elevated bilirubin concentrations compared to term infants
  - Increased bilirubin production
  - Decreased bilirubin clearance
- Incidence of kernicterus has been rising over the last decade, with increased and over-representation of late preterm infants

OPQC Ohio Perinatal Quality Collaborative

*J Perinatol 2009; 29(S2):S12-27; Ped Clinics NA 2009; 10(6):e295-302; Clin Perinatol 2006;33:839-52*

# Hyperbilirubinemia

- Data from the Pilot Kernicterus Registry (1992-2003)
  - The greatest risk for kernicterus
    - The exclusively breastfed “large” LPT infant
  - Hospital admission within 7 days post birth
  - Present with severe jaundice and inadequate intake
  - Most parents had contacted their primary care providers with concerns about jaundice, poor feeding, and excessive sleepiness and had been told these were normal behaviors

OPQC Ohio Perinatal Quality Collaborative

Slide from MOD Presentation
by Wahib Mena, M.D. and Glenda Dickerson, MS, RN, IBCLC

# Hyperbilirubinemia

- Further increased by feeding problems in the late preterm infant
  - Related to an immature suck and swallow reflex leading to difficulties with the proper latching for breastfeeding as well as insufficient intake in those infants who are feeding by breast or bottle

OPQC Ohio Perinatal Quality Collaborative

*Curr Prob Ped Adol Health Care 2010; 40(9):218-33; Ped Clinic NA 2009; 56(3):565-77; Newborn Nursing Rev 2007; 7(2):91-4; J Midwifery Womens Health 2007:52(6):579-87.*

# In Summary

- LPT infants are not full term
- Be proactive
  - Screen and monitor for comorbidities
- Educate staff and parents


OPQC Ohio Perinatal Quality Collaborative

# Tell us about caring for LPT infants at your hospital….

- **Click on the raised hand icon on the right of your screen OR type into the chat box.**
- **Are you facing challenges caring for this population?**

OPQC
Ohio Perinatal Quality Collaborative

# Click on the raised hand icon on the right of your screen OR type into the chat box.


OPQC
Ohio Perinatal Quality Collaborative

# Resources

CDC Home

Centers for Disease Control and Prevention

CDC 24/7: Saving Lives. Protecting People.™

SEARCH

A-Z Index A B C D E F G H I J K L M N O P Q R S T U V W X Y Z #

## Overweight and Obesity

- **Overweight and Obesity**
- Strategies to Combat Obesity
  - Take Action for Me
  - Take Action for My Family
  - Take Action for My Community
    - Strategies and Solutions
    - Child Care and Early Education
    - **Healthy Hospital Environments**
    - Let's Move Salad Bars to School
    - Healthy Food Service Guidelines
- Adult Overweight and Obesity

Overweight and Obesity > Strategies to Combat Obesity > Take Action for My Community

Recommend Tweet Share

### Healthy Hospital Environments

- Healthy Hospital Practice to Practice Series (P2P)
- Healthy Hospital Toolkit

Hospitals are employers and providers of health care and serve more than 6.3 million employees and 481 million patients each year. Hospitals reach a large population of employees, patients and visitors and can have an impact on neighboring communities. This makes them an important setting for obesity prevention efforts.

Hospitals can create policies and environments to encourage healthier food and beverage choices, increase physical activity, and support breastfeeding/lactation.

CDC's Division of Nutrition, Physical Activity, and Obesity (DNPAO) promotes improvements in hospital environments with partners across the country to ensure that the healthier choice is the easier choice. DNPAO has developed tools to assist hospitals in conducting food, beverage, and physical activity environment assessments for prioritizing and implementing change.

http://www.cdc.gov/obesity/strategies/healthy-hospital-env.html

OPQC Ohio Perinatal Quality Collaborative

# Resources

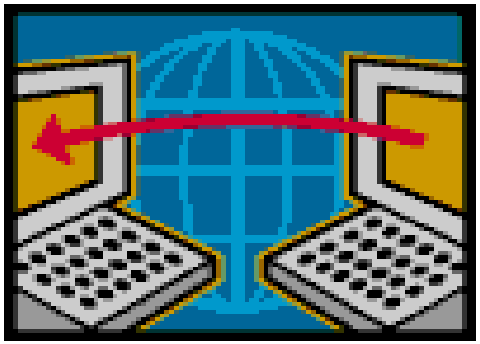

http://www.odh.ohio.gov/odhprograms/cfhs/ofs/Ohio%20First%20Steps%20for%20Healthy%20Babies.aspx

OPQC Ohio Perinatal Quality Collaborative

# For more information about OPQC

- OPQC web site: https://opqc.net
- OPQC email: info@opqc.net
- Twitter account: @OhioPQC
- OPQC Online Newsletter


- **Raj Narang, MBA**
- Senior Project Specialist
  - opqc@cchmc.org

OPQC Ohio Perinatal Quality Collaborative

Cole Jackson

# EVALUATION AND WRAP UP

OPQC
Ohio Perinatal Quality Collaborative

# OPQC

## *It takes a village…*













# Part 2 Human Milk Webinars

June 18th at 12:00pm

June 29th at 12:00pm

Please be on the lookout for the email invite. We look forward to speaking with you again next month.

OPQC
Ohio Perinatal Quality Collaborative

# OPQC and Your Hospital:
## Working together to improve outcomes for women and newborns in Ohio

OPQC
Ohio Perinatal Quality Collaborative