Disclosure

• I have no relevant financial relationships with the manufacturer(s) of any commercial product(s) and/or provider of commercial services discussed in this CME activity.

• I do not intend to discuss an unapproved/investigative use of a commercial product/device in my presentation.
  – I am funded as a consultant to the CDC-NICHQ cooperative agreement Best Fed Beginnings Project as the National Faculty Chair
Objectives

- Delineate three unique surveillance systems for tracking breastfeeding data
- Define how to use breastfeeding data for improvement in breastfeeding support programs
- Understand the benefits and limitations of each tracking system
Paradigm Shifts in National Breastfeeding Efforts in the United States

**1990s**  |  **2010s**
---|---
Personal choice  |  Public health priority
Promotion to initiate  |  Support to implement
Individual recommendations  |  Environment/policy changes
Maternal responsibility  |  Shared accountability
Maintenance mode  |  Unprecedented activity

L. Grummer-Strawn, PhD, CDC
Measuring Breastfeeding Support

Outcomes
- Overall BF
- Exclusive BF

Process
- IFS II
- mPINC
### Healthy People 2020 Objectives

<table>
<thead>
<tr>
<th>Objective</th>
<th>Baseline (year measured)</th>
<th>2020 Target</th>
</tr>
</thead>
<tbody>
<tr>
<td>Increase the proportion of infants who are breastfed:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ever</td>
<td>74.0</td>
<td>81.9</td>
</tr>
<tr>
<td>At 6 months</td>
<td>43.5</td>
<td>60.6</td>
</tr>
<tr>
<td>At 1 year</td>
<td>22.7</td>
<td>34.1</td>
</tr>
<tr>
<td>Exclusively through 3 months</td>
<td>33.6</td>
<td>46.2</td>
</tr>
<tr>
<td>Exclusively through 6 months</td>
<td>14.1</td>
<td>25.5</td>
</tr>
<tr>
<td>Increase the proportion of employers that have worksite lactation support programs</td>
<td>25.0 (2009)</td>
<td>38.0</td>
</tr>
<tr>
<td>Reduce the proportion of breastfed newborns who receive formula supplementation within the first 2 days of life</td>
<td>24.2 (2006 births)</td>
<td>14.2</td>
</tr>
<tr>
<td>Increase the proportion of live births that occur in facilities that provide recommended care for lactating mothers and their babies</td>
<td>2.9 (2009)</td>
<td>8.1</td>
</tr>
</tbody>
</table>
Exclusive Breastfeeding in the US

...to increase the proportion of mothers who exclusively breastfeed their infants (using NIS data)

through age 3 months to 46%
(old target 40%)

through age 6 months to 26%
(old target 17%)

By the year 2020

US breastfeeding rates, 1985-2009

http://cdc.gov/breastfeeding/data/NIS_data/index.htm
Percent of U.S. breastfed children supplemented with infant formula

Goal 14.2%

25% and rising

http://cdc.gov/breastfeeding/data/NIS_data/index.htm
Breastfeeding Support is Necessary

Percentage of any and exclusive breastfeeding by month since birth among US infants born in 2008

Any Breastfeeding
Exclusive Breastfeeding*

*Exclusive breastfeeding = infant receives only breast milk and vitamins or medications, but no other solids or liquids.

SOURCE: CDC National Immunization Survey

Estimates at 7 days after birth
CDC’s Surveillance of Breastfeeding

- Monitoring of rates (NIS, PedNSS, PRAMS, etc.)
- Infant Feeding Practices Study II
- CDC Survey of Maternity Practices in Infant Nutrition and Care (mPINC)

- Actions:
  - Surgeon General’s Call to Action to Support Breastfeeding
  - Federal Interagency Breastfeeding Workgroup
  - Breastfeeding Report Card
  - CDC Guide to Breastfeeding Interventions
Mothers do not breastfeed as long as they intend

- 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
  - problems with milk flow
  - poor weight gain
  - pain

The number of Baby Friendly steps in place predicts risk of breastfeeding cessation.

Steps measured:
- Early bf initiation
- Exclusive breastfeeding
- Rooming-in
- On-demand feedings
- No pacifiers
- Information provided

(DiGirolamo et al., 2008 IFS II)
Breastfeeding Leads to Self-Regulation

Exclusive breastfeeding at breast → 27%
Expressed breast milk in bottle → 47%
Combination breastfeeding: Formula feeding, Breast/bottle → 56%
All formula in a bottle → 68%

How often does your infant empty the bottle/cup after 7 months of age?

CDC Survey of Maternity Practices in Infant Nutrition and Care (mPINC)

- Assesses Ten Steps to Successful Breastfeeding in all birthing facilities
  - 2 functions
    - Education of hospital leadership & staff
    - National monitoring of practices
- August 2011: CDC director issued Vital Signs report (1.3 billion media impressions)
National Survey of Maternity Practices in Infant Nutrition and Care (mPINC)

- National survey of U.S. hospitals (n=3,143) and birth centers (n=138); 82% response rate

- The survey contained 52 questions about birth facility’s maternity practices, training, personnel, policy, and facility characteristics; Mean score=63 in 2007

- 24% of birth facilities reported supplementing more than half of healthy breastfed newborns during the postpartum stay

- 70% of facilities reported providing discharge packs containing infant formula samples to breastfeeding mothers
mPINC Dimensions

• Labor and delivery care (Step 4)
• Postpartum care
  • Feeding of breastfed infants (Step 6)
  • Breastfeeding assistance (Step 5, 8 & 9)
  • Contact between mother and infant (Step 7)
• Discharge care (Step 10)
• Staff training (Step 2)
• Structural and organizational aspects of care delivery (Steps 1, 3 and the Code)
Benchmark Reports

- Individual policies/practices (36 items)
  - Rationale, explanation, ideal response, actual response, score (0-100)
- Subscores for each dimension
  - Percentile within
    - Nation
    - State
    - Facilities of comparable size
- Composite Quality Practice Score
Basic design

• Census design
• Single key informant
• Paper or web-based
• Anonymous
• Based on WHO/UNICEF Ten Steps
• Total of 52 questions
  • Numeric responses
  • Checklists
  • Likert scale (e.g. Few, Some, Many, Most)
Do You Know Your Score?

Maternity Practices in Infant Nutrition and Care (mPINC) Survey Quality Practice Measures—2007

Benchmark Report
## I. Labor and Delivery Care

### Initial skin-to-skin contact

**Measure:** Initial skin-to-skin contact

**Rationale:** Skin-to-skin contact improves infant ability to establish breastfeeding.\(^9\)

**Explanation:** This measure reports how many patients experience mother-infant skin-to-skin contact for at least 30 minutes within 1 hour of uncomplicated vaginal birth.

<table>
<thead>
<tr>
<th>Ideal Response</th>
<th>Your Response</th>
<th>Your Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Most</td>
<td>Few</td>
<td>0</td>
</tr>
</tbody>
</table>

### Initial breastfeeding opportunity

**Measure:** Initial breastfeeding opportunity

**Rationale:** Early initiation of breastfeeding increases overall breastfeeding duration & reduces a mother’s risk of delayed onset of milk production.\(^10\)

**Explanation:** This measure reports what percent of patients have the opportunity to breastfeed within 1 hour of uncomplicated vaginal birth.

<table>
<thead>
<tr>
<th>Percentage</th>
<th>Your Response</th>
<th>Your Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>≥90</td>
<td>5</td>
<td>0</td>
</tr>
</tbody>
</table>

### Routine procedures performed skin-to-skin

**Measure:** Routine procedures performed skin-to-skin

**Rationale:** Performing routine newborn procedures & assessments skin-to-skin increases infant stability, is safe for mother & infant,\(^11\) & improves breastfeeding outcomes by reducing unnecessary separation of mother & infant.\(^12\)

**Explanation:** This measure reports how often patients have routine infant procedures performed while mother & infant are skin-to-skin.

<table>
<thead>
<tr>
<th>Frequency</th>
<th>Your Response</th>
<th>Your Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Almost always</td>
<td>Rarely</td>
<td>0</td>
</tr>
</tbody>
</table>
## II. Postpartum Care—
a. Feeding of Breastfed Infants

### SAMPLE

<table>
<thead>
<tr>
<th>Measure</th>
<th>Rationale</th>
<th>Explanation</th>
<th>Ideal Response</th>
<th>Your Response</th>
<th>Your Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Initial feeding received after birth</td>
<td>Neonatal immune system development depends on transfer of specific antibodies through colostrum &amp; is impaired by prior introduction of non-breast milk feeds.(^{13,14})</td>
<td>This measure reports what percent of breastfeeding infants receive breast milk as their first feeding after uncomplicated vaginal birth.</td>
<td>≥90</td>
<td>5</td>
<td>0</td>
</tr>
<tr>
<td>Supplementary feedings</td>
<td>The AAP &amp; ACOG Guidelines for Perinatal Care(^{15}) &amp; Academy for Breastfeeding Medicine guidelines for supplementing feedings in healthy(^{16}) &amp; hypoglycemic(^{17}) neonates all recommend against routine supplementation with formula, glucose water, or water.</td>
<td>This measure reports what percent of breastfeeding infants receive non-breast milk feedings.</td>
<td>&lt;10</td>
<td>95</td>
<td>0</td>
</tr>
</tbody>
</table>
Regional Variation of mPINC Scores

FIGURE. Mean total maternity practice scores,* by quartile — Maternity Practices in Infant Nutrition and Care Survey, United States, 2007

* Maximum possible mean score is 100. Additional information regarding survey questions and scoring is available at http://www.cdc.gov/mpinc.

34% of WI facilities follow recommended guidelines for supplementation.

14% of WI facilities have comprehensive Breastfeeding policies inclusive of the Ten Steps to Successful Breastfeeding.

15% of facilities report that most infants remain with their mothers for 23/24 hours per day.

Source: CDC mPINC 2009
Labor and Delivery Care

Average score: 70
Inappropriate practices are common, especially among surgical (cesarean) births.

Few/some mothers have ≥ 30 min. skin-to-skin contact with the infant.

Less than half of breastfeeding patients begin breastfeeding within…

<table>
<thead>
<tr>
<th>Percent of facilities</th>
<th>Vaginal births</th>
<th>Surgical births</th>
</tr>
</thead>
<tbody>
<tr>
<td>≥ 30 min.</td>
<td>22.9%</td>
<td>37.0%</td>
</tr>
<tr>
<td>1 hour</td>
<td>11.7%</td>
<td></td>
</tr>
<tr>
<td>2 hours</td>
<td>20.5%</td>
<td></td>
</tr>
</tbody>
</table>
Many facilities unnecessarily separate mothers and infants during newborn procedures.

Are mother and baby usually skin-to-skin while staff are completing routine newborn procedures?

No
45%

Yes
55%

NB: Routine newborn procedures include Apgar, foot printing, ID banding, etc.
Feeding of Breastfed Infants

Average score: 81
What percent of healthy breastfed infants receive non-breast milk feedings?

(18.7% supplement with water or glucose water.)
Breastfeeding Assistance

Average score: 84
Although most mothers receive some kind of breastfeeding instruction, information/practices may be inappropriate.

<table>
<thead>
<tr>
<th>Practice</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Infant feeding decisions are not routinely documented</td>
<td>0.6%</td>
</tr>
<tr>
<td>Breastfeeding patients do not routinely receive breastfeeding</td>
<td>1.2%</td>
</tr>
<tr>
<td>advice and instructions</td>
<td></td>
</tr>
<tr>
<td>Mothers are not routinely taught to respond to infant feeding</td>
<td>2.0%</td>
</tr>
<tr>
<td>cues</td>
<td></td>
</tr>
<tr>
<td>Most mothers are instructed to limit infants' sucking time</td>
<td>25.8%</td>
</tr>
<tr>
<td>Breastfeeding is not routinely assessed via direct observation</td>
<td>2.5%</td>
</tr>
<tr>
<td>No standardized assessment tool is used</td>
<td>32.8%</td>
</tr>
<tr>
<td>Pacifiers are routinely provided to breastfeeding infants</td>
<td>35.1%</td>
</tr>
</tbody>
</table>

Percent of facilities reporting each practice.
Mother-Infant Contact

Average score: 74
24 h rooming-in is not standard practice at most facilities.

- Less than half of mothers and infants room together at least 23h/day: 53.3%
- Mothers and infants are separated at night for >2h: 13.7%
- Few/some infants who do not room-in are brought to the mother for night-time feedings: 3.4%

Most separations are 2h or less, and infants are routinely brought to the mother for night-time feedings.

Percent of facilities reporting each practice
Most facilities separate mothers and infants for a variety of (unnecessary) reasons.

Although single instances may be harmless, multiple separations are problematic.
One-third of facilities separate mothers and infants during transition to postpartum care. Medically necessary separation during this time is extremely rare.
Discharge Support

Average score: 49
Best Care Least Often

Percent of facilities providing care

- Return clinic visit: 34.4%
- Home visit: 18.7%
- Telephone call: 61.7%
- Center support group: 40.4%
- Referral to support group: 48.4%
- LC referral: 68.9%
- WIC referral: 85.7%
- Outpatient clinic referral: 26.9%
- Phone # given: 89.6%
- List of resources: 74.9%
- Breastfeeding assessment sheet: 46.8%

Source: CDC mPINC 2012
Newborn Follow-up

Figure 1: Pediatric visit in first week after discharge, No NICU

Source: NJ PRAMS 2010
Are discharge packs containing infant formula provided to breastfeeding mothers?

- Yes, 54.5%
- No, 45.5%

Over half of facilities provide infant formula samples to breastfeeding mothers, which is unsupportive of breastfeeding.
Staff Training

Average score: 57
Breastfeeding training and skills assessment of new and existing staff is inadequate.

- New staff receive <18 hours of breastfeeding training: 83.1%
- Existing staff receive <5 hours of breastfeeding training: 74.5%
- Few/some staff received any breastfeeding education in last year: 31.1%
- Staff competencies assessed less than annually: 45.2%

Percent of facilities reporting each practice
Structural and Organizational Aspects of Care Delivery

Average score: 71
Approximately half of the breastfeeding policies in place at facilities address the major aspects of breastfeeding support.

<table>
<thead>
<tr>
<th>Element</th>
<th>Percent of Facilities Reporting</th>
</tr>
</thead>
<tbody>
<tr>
<td>In-service training</td>
<td>57</td>
</tr>
<tr>
<td>Prenatal breastfeeding classes</td>
<td>55.1</td>
</tr>
<tr>
<td>Asking about mother's feeding plans</td>
<td>82.3</td>
</tr>
<tr>
<td>Early initiation of breastfeeding</td>
<td>80.9</td>
</tr>
<tr>
<td>Educ. on lactation if separated</td>
<td>71.8</td>
</tr>
<tr>
<td>Exclusive breastfeeding</td>
<td>66.6</td>
</tr>
<tr>
<td>24 hr/day rooming-in</td>
<td>68.7</td>
</tr>
<tr>
<td>Breastfeeding on demand</td>
<td>81.1</td>
</tr>
<tr>
<td>Pacifier use</td>
<td>54.2</td>
</tr>
<tr>
<td>Referral of breastfeeding problems</td>
<td>71.6</td>
</tr>
</tbody>
</table>
Almost all facilities receive their infant formula free of charge.

*This contradicts AMA policy recommendations and makes adherence to HACCP plans more difficult.*

Does your facility receive infant formula free of charge?

- Yes, 82.0%
- No, 16.0%
- DK, 2.0%
National scores by dimension, 2011

Composite Mean, 70

- Labor and Delivery Care: 70
- Feeding of Breastfed Infants: 81
- Breastfeeding Assistance: 84
- Mother-Infant Contact: 74
- Discharge Care: 49
- Staff Training: 57
- Structural & Org Aspects of Care: 71
Mean mPINC Score, 2011

<60
60-64
65-69
70-74
>75

- States with mPINC scores below 60 are shaded in light green.
- States with mPINC scores between 60 and 64 are shaded in medium green.
- States with mPINC scores between 65 and 69 are shaded in dark green.
- States with mPINC scores between 70 and 74 are shaded in black.
- States with mPINC scores above 75 are shaded in darkest green.
Breastfeeding Trends in NJ Using NJ EBC

Infant Feeding in the 24 Hours Prior to Hospital Discharge from New Jersey Delivery Hospitals

<table>
<thead>
<tr>
<th>Year</th>
<th>Exclusive Breastfeeding</th>
<th>Combination Feeding</th>
<th>No BF</th>
<th>Any BF</th>
</tr>
</thead>
<tbody>
<tr>
<td>1998</td>
<td>42.6%</td>
<td>16.2%</td>
<td>39.2%</td>
<td>58.8%</td>
</tr>
<tr>
<td>1999</td>
<td>42.2%</td>
<td>18.8%</td>
<td>38.4%</td>
<td>61.0%</td>
</tr>
<tr>
<td>2000</td>
<td>42.2%</td>
<td>20.7%</td>
<td>36.3%</td>
<td>62.9%</td>
</tr>
<tr>
<td>2001</td>
<td>40.6%</td>
<td>23.1%</td>
<td>35.4%</td>
<td>63.7%</td>
</tr>
<tr>
<td>2002</td>
<td>38.7%</td>
<td>27.2%</td>
<td>33.8%</td>
<td>66.0%</td>
</tr>
<tr>
<td>2003</td>
<td>38.2%</td>
<td>29.0%</td>
<td>32.6%</td>
<td>67.2%</td>
</tr>
<tr>
<td>2004</td>
<td>37.3%</td>
<td>30.4%</td>
<td>32.1%</td>
<td>67.8%</td>
</tr>
<tr>
<td>2005</td>
<td>37.2%</td>
<td>31.5%</td>
<td>31.2%</td>
<td>68.7%</td>
</tr>
<tr>
<td>2006</td>
<td>36.3%</td>
<td>33.8%</td>
<td>29.8%</td>
<td>70.1%</td>
</tr>
<tr>
<td>2007</td>
<td>35.6%</td>
<td>34.9%</td>
<td>29.4%</td>
<td>70.4%</td>
</tr>
</tbody>
</table>
Trends in Breastfeeding in NJ by Hospital at Discharge
Annual Report Card in NJ

Published on line

http://www.state.nj.us/health/fhs/professional/documents/breastfeeding_hospitals.pdf
Breastfeeding rates before vs. after BFHI intervention

<table>
<thead>
<tr>
<th></th>
<th>Healthy term infants</th>
<th>NICU infants</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2010 Q1</td>
<td>2012 Q1</td>
</tr>
<tr>
<td>Overall Breastfeeding</td>
<td>%</td>
<td></td>
</tr>
<tr>
<td></td>
<td>71.0</td>
<td>76.2</td>
</tr>
<tr>
<td>N</td>
<td>4,254</td>
<td>4,169</td>
</tr>
<tr>
<td>Exclusive Breastfeeding</td>
<td>%</td>
<td></td>
</tr>
<tr>
<td></td>
<td>38.6</td>
<td>49.8</td>
</tr>
<tr>
<td>N</td>
<td>4,254</td>
<td>4,169</td>
</tr>
</tbody>
</table>

Conclusions

• Tracking breastfeeding data is necessary for public health initiatives
• Both outcomes & process data are necessary to inform where to target initiatives
• Despite limitations, surveillance systems are responsible for major actions taken in breastfeeding support programs
• Collaboration is key