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

Using mPINC Data to Support Breastfeeding Quality Improvement Efforts in California

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Presenter Disclosures

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(1) The following personal financial relationships with commercial interests relevant to this presentation existed during the past 12 months:

No relationships to disclose.

The Evidence

- **Evidence shows that hospital practices affect breastfeeding duration and exclusivity throughout the first year of life[1-3]…**

[1] Murray EK, Ricketts S, Dellaport J. Hospital practices that increase breastfeeding duration: results from a population-based study. *Birth.* 2007;34(3):202–211
[2] Rosenberg KD, Stull JD, Adler MR, Kasehagen LJ, Crivelli-Kovach A. Impact of hospital policies on breastfeeding outcomes. *Breastfeed Med.* 2008;3(2):110 –116
[3] DiGirolamo AM, Grummer-Strawn LM, Fein SB. Effect of maternity-care practices on breastfeeding. *Pediatrics.* 2008;122(suppl 2):S43–S49

Institutional-level Study: Impact of Hospital Policies on Breastfeeding Outcomes

(Rosenberg et al., 2008)

- Increased implementation of the Ten Steps of the Baby Friendly Hospital Initiative associated with an increase in **any** breastfeeding at 2 days and 2 weeks postpartum
- Hospitals with comprehensive breastfeeding policies are likely to have better breastfeeding support services and breastfeeding outcomes
- Future studies would benefit from including data related to other potential institutional-level confounders.

CDC Administers mPINC Survey

In 2007, CDC administered the first national Maternity Practices in Infant Nutrition and Care (mPINC) Survey

- This survey established a baseline measure of maternity care policies and practices
- Approximately 80% of all birthing facilities in California participated
- Confidential facility-specific benchmark reports were provided to each facility that completed a survey.

California mPINC Data Linkage Project METHODS: Study Design & Data Sources

- Using a cross-sectional design, California maternity hospitals were surveyed about their breastfeeding support policies and practices (Data Source: mPINC Survey).
- Responses were linked with 2007 hospital-level data:
  - breastfeeding (Data Source: Newborn Screening)
  - hospital characteristics; and demographics of patient population (Data Source: Birth Certificate)
- Data linkage successful for 175 out of 186 respondent facilities (excluding 9 birth centers and 6 military hospitals)
- Dataset allows stratification into geographic regions without compromising hospital confidentiality

Aims of the Project

Research

- To explore the association between maternity care practices related to breastfeeding and **exclusive** in-hospital breastfeeding initiation in California hospitals.

Quality Improvement

- Provide RPPC Coordinators and other stakeholders with local mPINC Data for quality improvement activities

California mPINC Survey Results

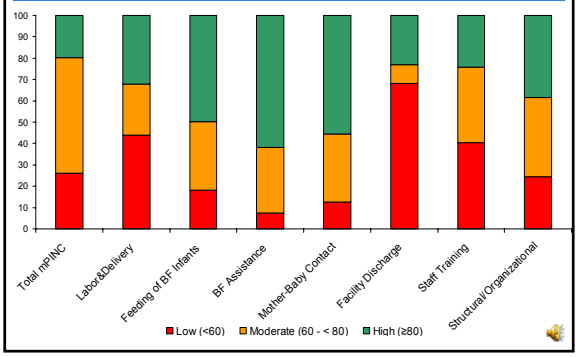
mPINC Survey Dimension	Entire Survey Population[1] (n=201)	Study Population (n=175)
Labor & Delivery	63	61
Breastfeeding Assistance	82	82
Mother-Newborn Contact	78	77
Newborn Feeding Practices	77	76
Facility Discharge Care	49	47
Staff Training	61	61
Structural/Organizational	70	70
Total Composite Score	**69**	**68**

[1] Centers for Disease Control and Prevention. Breastfeeding-Related Maternity Practices at Hospitals and Birth Centers – United States, 2007. MMWR 2008; 57:621-625.

METHODS: Categorizing MPINC Scores

- MPINC Scores for 7 Subscales and Overall Composite were categorized as follows:
  - Low (<60)
  - Moderate (60-79.9)
  - High (≥ 80)

Percent of Hospitals by Total and Subscale mPINC Scores, 2007

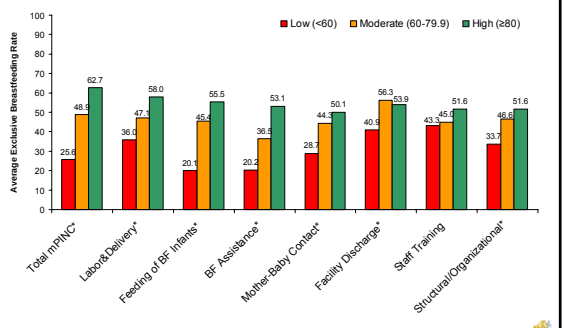


Hospital Characteristics According to Total mPINC Score and In-Hospital Breastfeeding Rate

	Hospital Characteristics, Average (SD)			
	% Hispanic	% C-Sections	% Births on WIC	Total No. of Births
Total mPINC Score				
Low (<60)	61.7 (23)*	33.0 (7)	64.3 (27)*	1971 (1395)
Moderate (60-79.9)	48.6 (23)*	30.9 (6)	47.8 (25)*	2258 (1628)
High (≥ 80)	41.6 (21)*	30.9 (6)	41.6 (26)*	1961 (1333)
Exclusive Breastfeeding				
< 25% (Q1)	73.5 (18)*	33.8 (8)*	77 (18)*	2371 (1688)
25-65.5% (Q2 & 3)	48.5 (21)*	31.8 (5)*	46.0 (25)*	2111 (1399)
≥ 65.5% (Q4)	32.5 (16)*	28.5 (6)*	34.8 (19)*	1911 (1553)

*Statistically significant difference observed, p-value <.05

Average In-Hospital Exclusive Breastfeeding Rates by MPINC Total & Subscale Scores, 2007

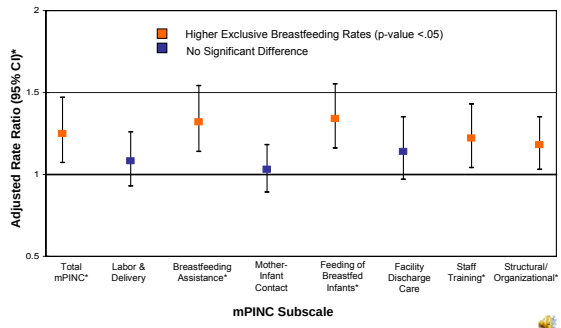


*Statistically significant difference (p-value < .05)

Statistical Analysis Methods

- Poisson regression: appropriate for count outcome (i.e., prevalence rate)
- Outcome in this study: rate of exclusive breastfeeding
- Independent variables: total mPINC score and subscale scores, examined as categorical variables in different regression models:
  - high (80.0+) vs. low/moderate (<80.0) scoring hospitals
- Confounders: % c-section, % Hispanic, % WIC

The Association Between: In-Hospital Exclusive Breastfeeding Rates and mPINC Scores (High vs Low/Moderate)



*Adjusted for the following hospital demographics: total births, c-section rate, % Hispanic population, % of population on WIC during pregnancy.

Results

High scoring hospitals had in-hospital exclusive breastfeeding rates that were:

- 1.25 times or **25% higher** than Low/Moderate scoring hospitals (Total mPINC Composite Score)
- 1.32 times or **32% higher** than Low/Moderate scoring hospitals (Breastfeeding Assistance Subscale Score)
- 1.34 times or **34% higher** than Low/Moderate scoring hospitals (Feeding of Breastfed Infants Subscale)
- 1.22 times or **22% higher** than Low/Moderate scoring hospitals (Staff Training Subscale)
- 1.18 times or **18% higher** than Low/Moderate scoring hospitals (Structural/Organizational Aspects of Care Subscale)

Study Limitations

- mPINC Survey data were reported by one person at each facility and might not be representative of actual maternity practices in use.
- Hospitals vary in how and when (usually 24-48 hours since birth) breastfeeding data are collected on the NBS form and this variance may affect the outcomes.
- Ecological Inference Fallacy: use of aggregated hospital level statistics (% c-section, % Hispanic and %WIC patient population, breastfeeding rates) as opposed to individual level data.

Conclusion/Public Health Implication

- Evidence-based breastfeeding policies and practices are associated with an increase in exclusive breastfeeding initiation rates among California hospitals
- Jointly, in-hospital exclusive breastfeeding rates and mPINC scores can track progress in improving quality of maternity care and breastfeeding support services in California.

Translating mPINC Data to ACTION

- CDPH sought to utilize mPINC data to…

INFORM

INFLUENCE

MONITOR CHANGE

at the **LOCAL** level

Strategies to Improve Breastfeeding Care

PEDIATRICS Volume 124, Number 4, October 2009 SPECIAL ARTICLES

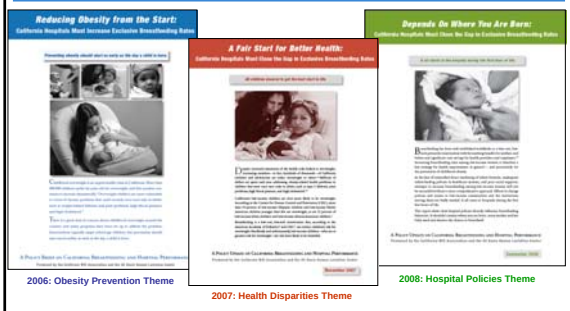
Closing the Quality Gap: Promoting Evidence-Based Breastfeeding Care in the Hospital

AUTHORS: Melissa Bartick, MD, MSc,[a,b] Alison Stuebe, MD, MSc,[c] Katherine R. Sheely, MPH, IBCLC, RLC,[d] Marsha Walker, RN, IBCLC,[e] and Laurence M. Grummer-Strawn, PhD[f]

- Education of decision-makers
- Recognition of excellence
- Oversight by accrediting agencies
- **Public reporting of indicators of the quality of breastfeeding care**
- Pay-for-performance incentives
- **Regional collaboratives**

California WIC Association Breastfeeding Reports

http://www.calwic.org/



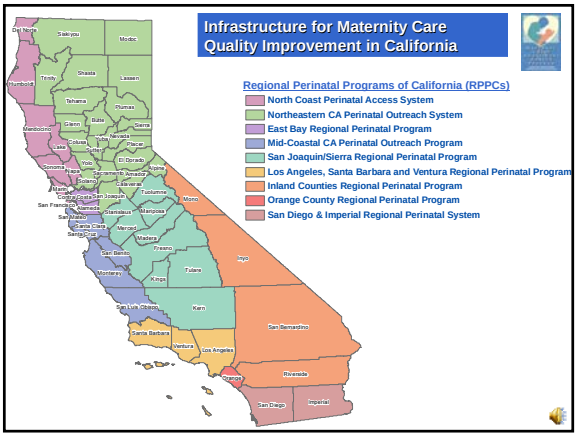
2006: Obesity Prevention Theme

2007: Health Disparities Theme

2008: Hospital Policies Theme

Annual Hospital and County Level In-Hospital Breastfeeding Initiation Tables are available on CDPH's Breastfeeding Statistics Website at: http://www.cdph.ca.gov/data/statistics/Pages/BreastfeedingStatistics.aspx

Infrastructure for Maternity Care Quality Improvement in California



Regional Perinatal Programs of California (RPPC)

RPPC Directors and staff are uniquely qualified to assist hospitals with maternity care quality improvement:

- Routinely provide resources, consultation, and technical assistance to hospitals to assist with quality improvement activities
- Conduct yearly on-site visits
- Built relationship/rapport with local hospitals
- Develop communication networks among agencies, providers, and individuals to exchange information.

Regional mPINC Benchmark Reports

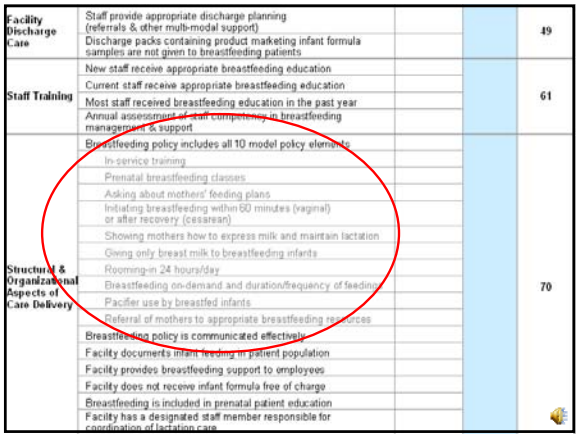
- Communicate directly with regional partners most able to influence hospitals' practices and policies;
- Address specific barriers to evidence-based maternity care related to breastfeeding; and
- Increase prevalence of hospital practices and policies that are supportive of breastfeeding.

Results of the 2007 CDC mPINC Survey:
RPPC Region Name (RPPC Region #)

California Composite Quality Practice Score: X

RPPC Region 1 Composite Quality Practice Score: X

mPINC Dimension of Care	Ideal Response to mPINC Survey Question	Percent of Facilities with Ideal Response (N = X)	Region Subscale Score	State Subscale Score*
Labor and Delivery Care	Initial skin-to-skin contact is w/in 1 hr (vaginal births)			63
	Initial skin-to-skin contact is w/in 2 hr (cesarean births)			
	Initial breastfeeding opportunity is w/in 1 hr (vaginal births)			
	Initial breastfeeding opportunity is w/in 2 hr (cesarean births)			
	Routine procedures are performed skin-to-skin			
Feeding of Breastfed Infants	Initial feeding is breast milk (vaginal births)			77
	Initial feeding is breast milk (cesarean births)			
	Supplemental feedings to breastfeeding infants are rare			
	Water and glucose water are not used			
Breastfeeding Assistance	Infant feeding decision is documented			82
	Staff provide breastfeeding advice & instructions			
	Patients are taught breastfeeding cues			
	Patients are taught not to limit suckling time			
	Staff directly observe & assess breastfeeding			
	Standard feeding assessment tool is used			
	Pacifiers are rarely provided to breastfeeding infants			
Contact Between Mother and Infant	Mother-infant pairs are not separated for postpartum transition			77
	Most mother-infant pairs room-in at night			
	Most mother-infant pairs are not separated during the hospital stay			
	Non-rooming-in infants are brought to mothers at night for feeding			



Facility Discharge Care	Staff provide appropriate discharge planning (referrals & other multi-modal support)			49
	Discharge packs containing product marketing infant formula samples are not given to breastfeeding patients			
Staff Training	New staff receive appropriate breastfeeding education			61
	Current staff receive appropriate breastfeeding education			
	Most staff received breastfeeding education in the past year			
	Annual assessment of staff competency in breastfeeding management & support			
Structural & Organizational Aspects of Care Delivery	Breastfeeding policy includes all 10 model policy elements			70
	In-service training			
	Prenatal breastfeeding classes			
	Asking about mothers' feeding plans			
	Initiating breastfeeding within 60 minutes (vaginal) or after recovery (cesarean)			
	Showing mothers how to express milk and maintain lactation			
	Giving only breast milk to breastfeeding infants			
	Rooming-in 24 hours/day			
	Breastfeeding on-demand and duration/frequency of feeding			
	Pacifier use by breastfed infants			
	Referral of mothers to appropriate breastfeeding resources			
	Breastfeeding policy is communicated effectively			
	Facilty documents infant feeding in patient population			
	Facilty provides breastfeeding support to employees			
	Facilty does not receive infant formula free of charge			
	Breastfeeding is included in prenatal patient education			
	Facilty has a designated staff member responsible for coordination of lactation care			

Regional mPINC Benchmark Report as a Maternity Care Quality Improvement Tool

Designed to encourage hospitals to:

- Participate in the mPINC Survey
- Raise awareness/utilization of mPINC data
- Work with their local RPPC staff to initiate quality improvement projects focused on maternity care and/or breastfeeding support
- Collaborate to address barriers to evidence-based maternity care policies and practices

Next Steps

- Disseminate regional reports and give guidance to RPPC Coordinators
- Raise awareness/utilization of mPINC data at upcoming State Hospital Breastfeeding Summit (January 2011)
- Post reports and guidance to Breastfeeding Statistics website http://www.cdph.ca.gov/data/statistics/Pages/BreastfeedingStatistics.aspx

Thank You!

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Visit our California Department of Public Health (CDPH) Breastfeeding Statistics Web-site at:
http://www.cdph.ca.gov/data/statistics/Pages/BreastfeedingStatistics.aspx

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