Maternal Employment & Breastfeeding: Findings from the Minnesota Postpartum Health Study

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Minnesota Postpartum Health Study

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Presentation Overview

Examine:

- Reasons to care about breastfeeding
- National report card on breastfeeding
- Factors associated with breastfeeding initiation and duration from the MN Postpartum Health Study
- Discuss the implications for public health research and practice

Benefits of Breastfeeding to Child Health

- **Human milk is species-specific making it superior for infant feeding**
- **Research findings:**
  - **Decreased incidence/severity of infectious diseases:**
    - **bacterial meningitis, bacteremia, diarrhea, respiratory infection, otitis media, urinary tract infection, late-onset sepsis in preterm infants**
  - **Post-neonatal infant mortality rates in the US are decreased 21% in breastfed infants**

Source: AAP (2005). Policy Statement, Breastfeeding & the Use of Human Milk

Promotion of Breastfeeding Intervention Trial

Kramer, Chalmers, Hodnett, et al. JAMA, 2001: 285(4):412-

- <u>Purpose:</u> to assess the effect of breastfeeding promotion on breastfeeding duration & exclusivity, & GI, respiratory & atopic eczema in infants
- Sites randomly assigned to an intervention trial (BFHI) conducted in 31 hospitals & clinics, Republic of Belarus, 1996-1997
- 17,046 mother-infant pairs completed 12 months of follow-up
- <u>Findings:</u> Infants (vs. controls)
  - More likely to be breastfed to any degree for 12 mo.
  - Exclusively breastfed at 3 mo. (7-fold higher), & 6 mo. (12- fold higher)
  - Had reduction in risk of 1 or more G.I. tract infections (40% less), & of atopic eczema (46% less), but no significant reduction in respiratory infections

Maternal Health Benefits

- Decreased postpartum bleeding & more rapid uterine involution
- Decreased menstrual blood loss & increased child spacing
- Earlier return to pre-pregnancy weight
- Decreased risk of breast cancer
- Decreased risk of ovarian cancer

Source: AAP (2005). Policy Statement, Breastfeeding & the Use of Human Milk

Community Health Benefits

- Potential for decreased health care costs
  - Estimates ~ $3.6 million/year (1998)
- Decreased costs of public health programs
- Decreased parental employee absenteeism & associated loss of family income
- Decreased environmental burden for disposal of formula bottles & cans
- Decreased energy demands for production & transport of artificial feeding products

Source: AAP (2005). Policy Statement, Breastfeeding & the Use of Human Milk; and Weimer, J. USDA. (2001, March). Food Assistance & Nutrition Report No. 13, Washington DC

Historical Context: Veering off the Evolutionary Path

(Mead M.N., Contaminants in Human Milk. *Environmental Health Perspectives*, 2008. 116: A427-A434)

- Throughout primate evolution & preindustrial human history a mother carried her baby & breastfed on demand
- Babies breastfed ~30 months in 75%-83% of hunter gatherer societies
- Late 1880s women supplemented breastfeeding with cow's milk soon after birth (socioeconomic & cultural reasons)
- Formula feeding became the norm after WW II
  - Development & large scale manufacture of infant formula
- Breastfeeding rates declined; rates at time of hospital discharge
  - ~ 50% between 1946-1956
  - ~ 25% by 1971
- Breastfeeding rates increased; rates at time of hospital discharge
  - ~ 62% 1982
  - ~ 64% by 1998

Reasons Mothers May Not Breastfeed

- Aggressive formula product marketing
- Lack of support from family & friends
- Inadequate knowledge from health care professionals about breastfeeding techniques & challenges
- Maternity hospital practices
- Cultural or religious beliefs
- Lack of public acceptance
- Labor force participation

Cultural Context

- Labor force participation rates of mothers of infants have changed from 31% (1976) to 54% (2005) in the US
- US provides only 12 weeks of unpaid leave for childbirth under the Family Medical Leave Act
- FMLA covers ~ 58% of the nation's workforce
- Breastfeeding legislation varies by state
  - Laws protecting breastfeeding in public
  - Laws supporting breastfeeding mothers who return to work

Breastfeeding Report Card—US, 2008

- Shows how breastfeeding is protected & promoted by states; use to identify opportunities for improvement

- Outcome indicators
  - Track HealthyPeople 2010 objectives
  - Rely on annual CDC National Immunization Survey (NIS)

Healthy People 2010

	Baseline Data 1998	2010 Target
Initiation	64%	75%
6 mo.	29%	50%
1 yr.	16%	25%

Breastfeeding Report Card, 2008

STATE	Ever Breastfed	Any 6 mo.	Any 12 mo.	Exclusive 3 mo.	Exclusive 6 mo.
US	74.2	43.1	21.4	31.5	11.9
SD	70.1	38.1	12.2	34.0	12.5
MN	79.4	45.9	20.5	41.7	17.1
2010 Goals	75.0	50.0	25.0	40.0	17.0

Source:http://www.cdc.gov/BREASTFEEDING/DATA/report_card2.htm

Breastfeeding Report Card—US, 2008

- Shows how breastfeeding is protected & promoted by states; use to identify opportunities for improvement
- Process Indicators
  - Measure 5 types of breastfeeding support:
    - Birth facility support (state mPINC score & baby friendly hospital initiative)
    - Professional support
    - Mother to mother support
    - State legislation
    - Public facilities & services

Process Indicators: Types of Breastfeeding Support

STATE	Avg. mPINC score (max: 100)	Births at Baby-Friendly Facilities	# IBC Lactation Consultants /1000 live births	#LaLeche League Groups /1000 live births	Active statewide Coalition /website
US	63	1.93	2.20	0.34	49/34
SD	61	0	1.86	0.08	Yes/Yes
MN	65	0	2.6	0.48	Yes/No

Source:http://www.cdc.gov/BREASTFEEDING/DATA/report_card2.htm

- Mission:
  "To create a breastfeeding culture such that breastfeeding is the expected norm for all babies. The coalition accomplishes this by providing a voice, advocacy, and professional development toward improved breastfeeding outcomes for all our babies."
- Goals:
  To provide a strong networking system for breastfeeding education and promotion.
- To provide a direction for promoting breastfeeding in South Dakota to meet goals of the Healthy People 2000.

http://www.usd.edu/med/family/breastfeedingcoalition/

State Regulations

- **40 states have laws with language specifically allowing women to breastfeed in any public or private location**
- **25 states exempt breastfeeding from public indecency laws (including South Dakota)**
- **21 states have laws related to breastfeeding in the workplace**
- **5 states have implemented or encouraged the development of a breastfeeding awareness education campaign**

Source: National Conference of State Legislators, 2008
http://www.ncsl.org/programs/health/breast50.htm

Process Indicators
Legislation & Public Health Support

STATE	Legislation on Breastfeeding in Public	Legislation on Breastfeeding & Employment	State Health Dept. FTEs Dedicated to Breastfeeding
US	47	21	76.2
SD	Yes	No	1
MN	Yes	Yes	1

Source:http://www.cdc.gov/BREASTFEEDING/DATA/report_card2.htm

State Variation in Breastfeeding Rates

Kogan, Singh, Dee et al (2008) AJPH, 98 (10):1872

	Never Breastfeeding Adj. OR (95% CI)	Not Breastfeeding GE 6 mo. Adj. OR (95% CI)
No law 2003	1.63 (1.44, 1.82)	1.45 (1.30, 1.62)
1st law 1999 -2003	1.27 (1.12, 1.43)	1.21 (1.09, 1.35)
1st law before 1999	1.43 (1.25, 1.64)	1.26 (1.12, 1.42)
Multiple laws before 1999	1.00	1.00

Impact of Legislation on Breastfeeding Rates

Kogan, Singh, Dee et al (2008) AJPH, 98 (10):1872

- Supportive breastfeeding legislation may influence breastfeeding decisions by:
  - Raising the profile of breastfeeding as a public health issue
  - Reinforcing prevailing norms
  - Increasing resources devoted to breastfeeding promotion & support
- Legislation may be a proxy for a more favorable culture

Project's Research Objectives

- Investigate the personal and work-related characteristics that may influence breastfeeding initiation and duration

Potential Personal Barriers

- Single (vs. married or partnered)
- Multiparous (vs. primip)
- Less maternal education (less than a college degree)
- Clinical factors (mastitis, breast pain)
- Younger maternal age
- African American vs Hispanic/nonWhite, Asian and White
- Smoking
- Lack of social support (partner or maternal mother)
- No history of family or friends who breastfeed

Potential Work-related Barriers

- Working full-time (vs. part-time)
- Occupation (ambiguous; some evidence that manual & administrative jobs are risk factors)
- Duration of leave from work
  - Especially return to work in first 12 weeks
- Absence of workplace policies & practices that provide:
  - Designated private space for expressing milk
  - Flexible scheduling to allow milk expression during work
  - Flexible work arrangements (telework, part-time, extended leaves)
  - Provision of high quality breast pumps
  - Offering professional lactation management services & support

Study Design

- Prospective cohort study design
- Theoretical perspectives from health economics using a hybrid model of health and workforce participation
- Dependent variables:
  - Initiation of breastfeeding in the hospital
  - Continuation of any breastfeeding through 6 months postpartum

Personal Factors

- Age
- Race
- Primiparous (vs. multiparous)
- Marital status
- Education
- Income before childbirth
- Family & friends who breastfed
- Smoking while pregnant
- Hospital
- Problems breastfeeding
- Prenatal moods

Employment Characteristics

- Hours/wk worked during pregnancy
- Any maternity leave
- Workplace support
- Occupation

Breastfeeding Initiation

Personal Factors
- Age
- Race
- Primiparous (vs. multiparous)
- Marital status
- Education
- Income before childbirth
- Family & friends who breastfed
- Smoking while pregnant
- Problems breastfeeding (birth)
- Postpartum depression (12 wks)

Employment Characteristics
- Hours/wk worked at 3 mo. postpartum
- Maximum duration of paid leave
- Workplace support
- Job flexibility
- Occupation

Breastfeeding Duration

Study Population & Sample

- Women 18 years of age and older
- Resident of the Minneapolis-St. Paul 7-county metropolitan area
- Giving birth to a singleton infant in selected hospitals in 2001
- Employed during pregnancy and planning to return to work after childbirth

Data collection

- Hospital enrollment at childbirth
  - Birth records
  - In-person interview with nurse
- Telephone interviews at home
  - 6 weeks
  - 12 weeks
  - 6 months
  - 12 months

Analytic Plan

- Logistic regression
- Survival Analyses--pending
- Issue: is the decision to return to work after childbirth and the decision to breastfeed jointly determined?
- No: institutional constraints surrounding return to work are the determining factor

Roe, Whittington, Fein, Teisl (1999). Is there competition between breastfeeding and maternal employment? *Demography*, 36(2): 151-171.

Mothers Characteristics (N= 716)

- Demographics (5 weeks postpartum)
  - Mean age: 30 years (s.d: 5.3 yr.)
  - 73% married
  - 86% Caucasian
  - 47% first time mothers
- Breastfeeding: 580 (81%) at childbirth; 480 (67%) at 6 weeks, 340 (49%) at 3 mo., & 230 (33%) at 6 mo.
- Economics (median household income)
  - Married: $75,000; 5% met childcare subsidy thresholds
  - Single : $45,000; 30%-35% met childcare subsidy thresholds
- Occupation
  - Professional: 46%; Clerical: 39%; Blue Collar: 14%

Constraints to Breastfeeding

- Mother's problems (26; 3.6%)
  - Taking medications (13)
  - Breast reduction (5)
  - Size or shape of the nipple (5)
  - Not producing enough milk (2)
  - Stress or personal circumstances (1)
- Baby's problems (14; 2%)
  - Premature (3)
  - Sleepy, problems with latch or sucking (6)
  - Medical conditions (4)
  - Missing (1)

Results: Initiation of breastfeeding Logistic Regression

	Odds Ratio (or IOR)	95% CI	P-value
Primiparas (vs. Multiparas)	.547 (1.83)	0.341 0.878	.013
Graduate education (vs. HS degree or less)	4.68	1.211 18.063	.025
Having friends or family who breastfed	3.53	2.136 5.823	.000
Not smoking during pregnancy	.441 (2.27)	0.249 0.779	.005
Professional occupation (vs. blue collar/service)	.495 (2.02)	0.246 0.997	.049
Professional occupation (vs. clerical)	.562 (1.78)	0.328 0.963	.036
Problems that may prevent breastfeeding at birth)	5.09	2.407 10.755	.000

Results: Six Months Duration of Breastfeeding Logistic Regression

	Odds Ratio (or IOR)	95% CI	p-value
Hours worked/week (3 mo.)	.989 (1.01)	0.979 1.00	.041
Problems breastfeeding (birth)	9.30	2.13 40.54	.003
Married (vs. single)	4.43	1.71 11.49	.002
Partnered (vs. single)	3.40	1.23 9.39	.018
Graduate education (vs. high school degree or less)	2.26	1.01 5.06	.048
Friends & family who breastfed	2.95	1.49 5.83	.002

Discussion

Breastfeeding:

- 81% at childbirth (vs 75% Healthy People 2010)

Factors related to initiation, consistent with the literature, & potentially amenable to intervention

- Cultural factors (lacking family and friends who breastfed)
- Family structure (multips, single mothers)
- Health behaviors (prenatal smoking cessation)
- Non-professional occupations-- may lack flexible work schedules or access to private space
- Less formal education--- ?

Discussion

Breastfeeding:

- 33% at 6 mo. (vs 50% Healthy People 2010)

Factors related to duration, consistent with the literature, & potentially amenable to intervention

- Work hours (full-time)
- Cultural factors (lacking family and friends who breastfed)
- Family structure (single mothers)

Study Limitations

- Generalizability of study findings
  - Racial and cultural differences
  - Family income and health insurance coverage
  - State has relatively high breastfeeding rates relative to nation
- Measurement of breastfeeding (any versus exclusive)

Implications for Research

- Less formal education, multips, single mothers--- may require qualitative assessment to understand barriers to initiating and maintaining breastfeeding
- Intervention studies—employer practices & educational interventions (smoking cessation)
- Contaminants in breast milk—monitor for adverse effects from POPs, metals (lead, mercury)

Conclusion

- Societal perspective
  - Breastfeeding is good for maternal and child health
  - Breastfeeding has public health & economic value at both the individual & population level
  - Social constraints: public attitudes, religious traditions, employers' focus on survival and profit, women's participation in the labor force
  - Importance of regulation shaping employers' actions, advocacy groups changing community norms, health care providers educating & supporting women, & women making informed choices

The National Institute for Occupational Safety and Health

The Impact of Total Workload on Maternal Postpartum Health & Quality of Life
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