Assessment and Monitoring of Breastfeeding-Related Maternity Care Practices in Intrapartum Care Facilities in the United States and Territories

OMB Control No. 0920-0743

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2007 mPINC
Results Report

Nutrition Branch

National Center for Chronic Disease Prevention and Health Promotion

Centers for Disease Control and Prevention

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This report summarizes findings from the CDC information collection approved by OMB entitled *Assessment and Monitoring of Breastfeeding-Related Maternity Care Practices in Intrapartum Facilities in the United States and Territories* [Control No. 0920-0743] as requested by OMB in the July 17, 2007 Notice of Action: "*In the next submission of this collection to OMB for review and prior to the fielding of the 2009*

Executive Summary

In addition to personal preferences, several strong factors that are beyond a new mother's control have been identified that influence how her newborn is fed. In light of the significant and lifelong impact of infant feeding practices on maternal and infant health, ensuring that the external influences are positive is an ethical and public health obligation.

Prior to 2007, specific maternity care practices in intrapartum facilities had been identified as key determinants of breastfeeding but no accurate estimates existed of the prevalence or distribution of these practices across the United States. Effective strategies to address problems in maternity care practices could not be developed without this information. In 2007, CDC conducted the survey described in ICR 0920-0743, *Assessment and Monitoring of Breastfeeding-Related Maternity Care Practices in Intrapartum Facilities in the United States and Territories*. This survey came to be known as the mPINC Survey, mPINC stands for *Maternity Practices* in *Infant Nutrition* and *Care*.

The mPINC survey was sent to every hospital and free-standing birth center in the United States and Territories that routinely provided intrapartum care, 82% of facilities responded. Among 7 dimensions of care in the survey, facilities scored lowest in hospital discharge care (40/100) and highest in breastfeeding assistance (79/100). Overall, hospitals scored lower than free-standing birth centers (62/100 v. 86/100), and the range of mPINC scores corresponded with the range of breastfeeding rates at the state and regional levels, with lower scores in states with low breastfeeding rates and vice versa.

CDC published summary findings from the mPINC survey in June, 2008 simultaneous with launching a public informational website dedicated to the survey and hosting a national teleconference for state breastfeeding coalition members about the survey and findings. CDC staff have presented findings from the survey at 5 State Breastfeeding Coalition conferences and 4 national scientific meetings. Partner organizations and agencies have disseminated findings from the survey as well.

CDC sent 15,778 customized reports to specific leadership staff at each respondent facility. These Benchmark Reports provided empiric information about the survey as well as the facility's detailed survey data benchmarked against peer facilities by state, birth census, and among all respondents.

Background

Health professionals consistently recommend breastfeeding for at least 12 months[1-4] because it reduces risks for acute and chronic diseases,[5] cognitive impairment,[6] hospitalization, [7] and death.[7, 8] Still, in 2005[1] more than 1 million newborns in the US never breastfed at all.[9]

Most new mothers in the US hope to breastfeed.[10-14] Biologic inability to breastfeed is rare.[15] Pivotal experiences in specific environments like hospitals[16] shape many infant feeding decisions. Improving maternity care practices is patient-centered, [17, 18] evidence-based,[16, 19-21] and cost-effective.[22, 23]

Assessing and Monitoring Maternity Care Practices across the United States

Clinical practice guidelines for quality maternity care[24] are not consistently followed.[25, 26] However, until recently, there was no reliable way to estimate the extent and scope of this problem. State health departments, health care providers, and infant feeding experts called on CDC to address this need.

In 2007, CDC conducted the first national assessment of breastfeeding-related care practices in intrapartum care facilities. It came to be known as the mPINC, for *Maternity Practices* in *Infant Nutrition* and *Care*. The survey collected information on facility characteristics, maternity care policies, staff training on breastfeeding instruction, management and support, and facility discharge care.

This assessment was designed to provide baseline information in a planned four-year project and to be repeated again in 2009. The selected methodology was the outcome of detailed input and collaboration with external experts representing the diverse stakeholder groups for whom the information is most important. The experts represented health care providers and administrators, state health departments, and infant feeding experts and researchers.

They unanimously urged CDC to survey every facility in the U.S. and territories that routinely provides maternity care, regardless of size, ownership, payer status, or other selection criteria, in order to most effectively meet their needs. The resulting census design allowed CDC to provide state-specific data and to create facility-level reports utilizing individual facilities' data benchmarked against their peers.

The 2007 mPINC survey was mailed to every hospital (*n*=3143) and free-standing birth center (*n*=138) in the United States and Territories that routinely provided intrapartum care. Eligibility was determined with a screening telephone call to verify the facility had registered maternity beds.

In June, 2008, CDC launched a comprehensive website dedicated to sharing information about the mPINC Survey.

The website *www.cdc.gov/mpinc* has a wide variety of resources for researchers, health care facility personnel, public health professionals, and individuals.

Resources on the website include:

- Downloadable survey instruments, handouts about the survey, and comprehensive data tables;
- Information about the background, rationale, results, and future plans for the mPINC survey;

[1] The most recent year for which national breastfeeding data are available. Source: CDC National Immunization Survey

CDC Survey Documents National Need for Action

Fully 82% of all hospitals and birth centers responded to the CDC mPINC survey. These facilities vary broadly by size and type. Facility types included urban/rural; profit/non-profit; teaching/non-teaching; private/public; and serving economically disadvantaged populations/serving high SES.

To facilitate reporting on the findings, results were scored on a 0-100 scale and were calculated at the facility and state levels. Composite scores were made up of seven subscores that relate to specific dimensions of care in the maternity setting.

Each facility or state's mPINC Composite Score comprised the mean of their score on:

- Labor and Delivery Care,
- Feeding of Breastfed Infants,
- Breastfeeding Assistance,
- Contact Between Mother and Infant,
- Facility Discharge Care,
- Staff Training, and
- Structural and Organizational Aspects of Care.

State mPINC scores were found to correlate with national and state breastfeeding rates. This provides reassurance that the measurement in the mPINC survey is a real reflection of the intended measures, as it indicates that the observed differentiation in scores is likely related to breastfeeding outcomes.

Facilities' performance was not uniform. Facility mean composite and subscale scores varied by facility location, type, size, and patient population. Hospitals had lower scores than birth centers. Larger facilities had higher scores on Staff Training and Structural and Organizational Aspects of Care but lower scores on Labor and Delivery Care and Postpartum Contact Between Mother and Infant. Facilities with higher c-section and epidural rates had the lowest scores.

Scores varied widely across states. State mPINC scores ranged from 48 in Arkansas to 81 in New Hampshire and Vermont. Western and New England states had the highest scores; Southern states had the lowest, especially Southeastern states. See Table 1, on the following page, for the distribution of state scores.

The published scientific report of mPINC findings that is available to the public free of charge.

The major findings from the 2007 mPINC Survey, including state-by-state analyses, are the lead article the June 13, 2008 CDC publication, *Morbidity and Mortality Weekly Report*.[27]

This report: DiGirolamo A, et al. Breastfeeding-related maternity practices at hospitals and birth centers--United States, 2007. *Morb Mortal Wkly Rep* 2008 June 13;57(23):621-5 is available in print and online.

Table 1: Mean total and subscale 2007 mPINC scores by state mean total. (adapted from MMWR article)

State	Mean Total	(%)	*Mean Subscale Scores* Labor/ Delivery	Assistance	Contact	Feeding	Discharge	Training	Organization
New Hampshire	**81**	(92)	82	90	85	88	72	63	83
Vermont	**81**	(92)	89	95	81	92	72	63	74
Rhode Island	**77**	(71)	64	93	72	86	75	68	85
Maine	**77**	(91)	78	89	79	85	69	66	78
District of Columbia	**76**	(57)	89	90	73	80	53	71	80
Massachusetts	**75**	(77)	72	86	72	87	61	72	79
Oregon	**74**	(95)	76	86	85	87	57	49	71
Alaska	**72**	(100)	79	81	91	82	69	34	60
Washington	**72**	(88)	77	86	90	83	53	43	64
Connecticut	**70**	(77)	73	84	72	91	31	66	74
Wisconsin	**69**	(90)	68	85	71	81	51	51	74
California	**69**	(80)	63	82	78	77	49	61	70
Wyoming	**68**	(83)	78	80	77	83	46	48	62
Florida	**68**	(75)	64	84	77	77	44	56	70
Ohio	**67**	(89)	59	83	68	79	48	55	75
New York	**67**	(75)	61	84	66	77	48	57	76
Colorado	**66**	(86)	65	80	78	84	33	53	70
Idaho	**65**	(81)	68	83	81	78	35	46	69
Minnesota	**64**	(84)	62	82	71	75	54	41	65
New Mexico	**64**	(67)	54	81	77	74	48	49	60
Michigan	**64**	(79)	63	81	74	78	33	47	68
Montana	**63**	(88)	65	77	75	75	41	46	59
Delaware	**63**	(100)	47	81	78	86	34	39	72
Missouri	**63**	(81)	61	79	70	79	32	55	66
Arizona	**62**	(71)	58	80	75	75	34	52	62
Indiana	**62**	(88)	60	81	69	76	31	49	66
Hawaii	**62**	(75)	79	76	83	80	14	38	60
Iowa	**61**	(91)	50	78	67	76	44	44	64
Pennsylvania	**61**	(87)	54	80	62	77	37	50	68
South Dakota	**61**	(83)	56	79	68	78	36	45	67
Virginia	**61**	(82)	53	78	61	79	32	58	67
North Carolina	**61**	(84)	54	81	67	76	31	53	68
Maryland	**61**	(81)	55	79	69	76	26	48	69
Utah	**61**	(79)	67	77	68	79	26	48	64
Illinois	**60**	(59)	48	78	64	74	35	54	67
New Jersey	**60**	(77)	47	82	58	72	25	62	72
North Dakota	**59**	(94)	59	80	65	72	31	47	62
Kansas	**58**	(90)	57	74	75	76	35	38	54
Texas	**58**	(75)	52	73	65	66	35	52	59
South Carolina	**57**	(86)	47	74	57	66	41	48	62
Nebraska	**57**	(80)	60	74	74	72	32	30	53
Nevada	**57**	(65)	52	75	71	74	29	42	59
Kentucky	**57**	(78)	52	76	59	69	28	53	63
Tennessee	**57**	(88)	53	74	62	72	26	47	62
Oklahoma	**57**	(82)	57	74	70	71	21	47	58
Georgia	**56**	(81)	48	75	64	70	25	50	63
Puerto Rico	**55**	(36)	41	74	61	48	42	58	53
Alabama	**55**	(87)	45	71	55	69	27	53	63
Louisiana	**54**	(82)	44	75	51	59	33	54	61
West Virginia	**54**	(84)	53	76	58	69	25	44	58
Mississippi	**50**	(84)	42	69	49	63	28	43	55
Arkansas	**48**	(60)	43	67	58	62	24	29	53
United States	**63**	**(82)**	**60**	**80**	**70**	**76**	**40**	**51**	**66**

Maternity Care Practices Vary Widely Across Dimensions

Scores on the 7 dimensions of care that contributed to overall scores ranged from 40 to 79.

Discharge support is inadequate:

- The national average facility subscore for **discharge care is the lowest** of all seven subscales, at only 40 out of 100
- Distribution of formula **marketing samples** to breastfeeding mothers **is pervasive** across all geographic areas.

Staff training is inconsistent:

- National average facility subscore was only 51 out of 100.
- **Fewer than half of large hospitals** and **less than one in ten small** hospitals **provide ≥9 hours of training to new staff.**
- Hospitals that scored higher on staff training were:
  - Located in New England,
  - Located along the Pacific coast,
  - Larger hospitals,
  - Teaching hospitals,
  - Level 3 neonatal intensive care unit centers.

Better policies are needed:

- Although breastfeeding **policies** commonly exist in hospitals, most **are limited in scope**.
- Few hospital breastfeeding policies address exclusive breastfeeding and pacifier use.

Unnecessary separation is common:

- **Large hospitals** and those **in the Southeast** are **more likely to separate** mothers and infants, and to **keep them apart** for longer periods of time.
- Healthy, full-term infants that are born in hospitals that also provide care in neonatal intensive care units are least likely to be brought to their mothers to breastfeed at night.

Feeding supplementation is excessive:

- **One quarter of all facilities** and 1 out of 3 large hospitals **routinely supplement normal, healthy, full-term breastfed infants**.

Figure 1: **Percent of facilities reporting insufficient training,** by facility practice

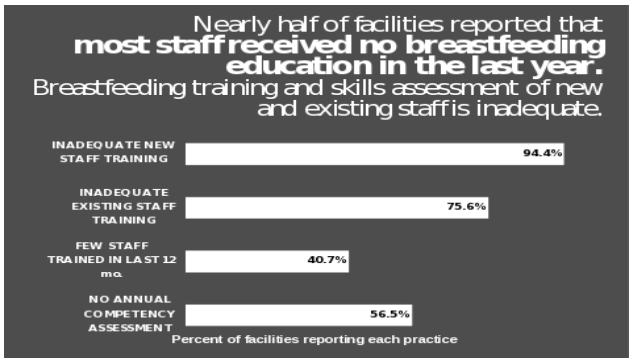
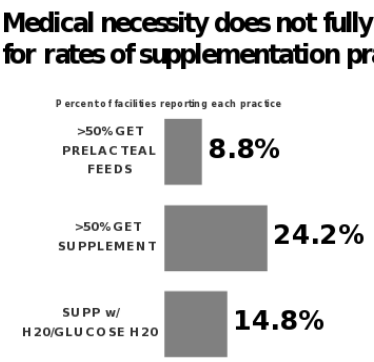


Figure 2: **Percent of facilities reporting excessive supplementation,**



Quality Assessment and Reporting Supports Local Autonomy

One of the goals of the mPINC survey is to provide data to empower stakeholders to improve maternity care practices in the way that best meets their needs. Diverse reporting maximizes data utility for hospitals and birth centers, clinical health professionals, public health professionals, advocacy groups, and ultimately mothers and babies.

Interest in the survey is unprecedented:

- The response rate was ≥90% in 1 out of every 5 states.
- Respondents were interested in the survey, eager to participate, and appreciated CDC providing them with urgently needed information:

> *"Thank you for continuing to support studies of breastfeeding rates in the US. All information gathered will enhance our nation's support for a more healthy lifestyle.*
>
> *The methodology for gathering the statistical information was not bothersome and we would be happy to contribute on any level needed. The importance of raising our national breastfeeding initiation and duration rates cannot be denied. Please continue with this published data!"*
>
> – Dana DeFreece, RN, IBCLC
> Thornton, Colorado

- National organizations and experts that have been underrepresented in the work to improve maternity care practices related to breastfeeding have sought out more information about the mPINC survey:
  - The Institute for Healthcare Improvement (IHI)
  - The American Hospital Association (AHA)
  - The National Quality Forum (NQF)
  - The National Association of County and City Health Officials (NACCHO)
  - The American Medical Association (AMA)
  - The Indian Health Service (IHS)

The census design is essential:

- Assessing *all* facilities allows for authentic, localized comparisons between different states, regions, and types of facilities.
- Universal reporting allows CDC to provide meaningful data back to facilities and states through a formalized benchmarking process.

Reporting expands utility of the data:

- The breadth of reporting activities reflects CDC's audience-driven approach and highlights the unique ways this survey has already begun to inspire quality improvement efforts nationwide.

> *"My dissertation was conducted on practicing obstetricians in Mississippi and their involvement in breastfeeding education and support.*
>
> *I continue to report my findings with CDC findings on this important health care issue at national and regional meetings for health care professionals as well as educators in the public school systems."*
>
> – Linda Couvillion McGrath, PhD, CHES, IBCLC, LLL
> Starkville, Mississippi

Respondents expect a 2009 survey:

- The 2007 assessment provided facilities, states, and health care partners with baseline information in a planned four-year project and to be repeated again in 2009.

> *"Please continue to survey every other year."*
>
> – Camille Foretich, IBCLC/OB Educator
> Jackson, Mississippi

CDC recognizes

- Each facility received their own individually analyzed data in order to more effectively assess utilization of practices that are often unrecognized among facility leadership.

facilities' needs: This reporting mechanism allowed for rapid, localized assessment and planning.

CDC Builds New Quality Improvement Action Tools

CDC continually seeks to maximize the utility of the data for all stakeholder groups by creating and carrying out tailored activities for them. These groups include hospitals and birth centers, clinical health professionals, public health professionals, advocacy groups, and ultimately mothers and babies.

The breadth of these activities reflects this audience-driven approach and highlights some of the unique ways this survey has already begun to improve the quality of maternity care provided nationwide.

CDC launched a set of coordinated, multifaceted activities simultaneously to generate better awareness and interest in the issues that were assessed in the mPINC Survey.

- A national teleconference for every state breastfeeding coalition provided background and data from the survey as well as an overview of future dissemination plans and their role in improving maternity care practices.
- The CDC home web page featured the issue as one of five public health priorities for the week. The primary audience for CDC web features is the lay public and public health professionals. This feature also directed readers to the newly published MMWR (*see attached*) reporting both U.S. and state findings from the survey.
- CDC incorporated the mPINC scores into the annual CDC Breastfeeding Report Card that highlights policy and environmental support for breastfeeding at the state level. This provided an opportunity to further assist hospitals, states, and breastfeeding coalitions to interpret and use their data most effectively and to reach different types of audiences than had previously been reached.
- CDC launched a dedicated web site www.cdc.gov/mpinc to facilitate access to information about the survey and findings for the broader public. This has provided a venue for CDC to efficiently update and expand information sharing efforts.

Benchmark Reports

CDC mailed 15,778 individualized reports (sample attached) to facilities that responded to the survey. These were created to help hospital leadership better understand the areas in most need in their facility, provide data and scientific rationale for each area, and enable them to take on their own issues.

The Benchmark Reports also provided an opportunity for CDC to thank facilities for participating and announce the dedicated email address mpinc@cdc.gov . This email address was established to facilitate input back to CDC and provide an easy way for respondents to inform us of problems or other feedback they wished to share.

Data from the survey are being used to create customized state-level reports to key decision-makers (state health departments, health professional and hospital administrator organizations, medical boards, etc.). These reports are being structured specifically to respond to the challenges this diverse audience has identified and meet their unique needs in improving care at the state level.

The CDC Web Spotlight on the mPINC survey was the most heavily visited CDC site in the 12 months prior, and generated more than twice as many hits as the next most widely visited site in that same time frame.

National press interest from the MMWR was high; the findings based on widely circulated stories generated by Associate Press and Reuters were featured in the New York Times, Los

The Need for Continued Assessment and Reporting

CDC's mPINC activities underscore the need for regular and continued national assessment and monitoring of practices. This demonstrates CDC's responsiveness to the audiences' needs and enables them to maintain quality improvement efforts.

The mPINC Survey was designed as an initial baseline survey with a follow-up two years later. The survey instruments were designed to capture incremental changes that CDC anticipates will be taking place at the hospital level. Most facilities have abundant opportunities to improve the quality of the care they provide to mothers and babies during the maternity stay.

The two-year timeframe for follow-up is ideal because it allows enough time for these changes to be implemented based on feedback from the prior survey, while being close enough to capture progress in changes as they are being made. Therefore, the second survey in 2009 will identify changes in practices over time.

Assessment and Monitoring as an Intervention Strategy – CDC's Innovative Approach

Feedback from participating facilities underscores the need for an assessment and monitoring system that can also meet the needs of multiple groups within the hospital system:

> *"I work in a hospital that has 8000+ births/year and now, thanks to [the CDC mPINC Survey], the CEO has just realized that breastfeeding is an issue! Bless her!*
>
> *We're working hard on education of key administrators since the time seems so ripe to let them know about [these] practices.*
>
> *Today, our CEO asked "So what are the barriers here at this hospital?""*
>
> – Debbi Heffern, RD, IBCLC
> St. Louis, Missouri

> *"My hospital took the result seriously and had us re-score for 2008. Because of these expected standards and our changing our process we scored higher in almost every section.*
>
> *I'm proud of [my hospital's] commitment to excellence in all aspects of patient care and satisfaction."*
>
> – Camille Foretich, IBCLC/OB Educator
> Jackson, Mississippi

> *"The [Public Relations] people at [our hospital] in Milwaukee, WI (8000 births last year) want to know if the Maternity Care Practices Survey results will be back out to the hospitals in time to use for media press during World Breastfeeding Week.*
>
> *This is the first time we've celebrated World Breastfeeding Week,*

Evaluating Findings Guides Long-Range Planning

The wide gap between ideal and current care in most systems indicates a need for regular reassessment in order to identify and document incremental improvement efforts. The mPINC survey items are created specifically to accommodate this need.

The mPINC Survey design captures incremental improvements:

mPINC asks: *How often are routine procedures performed while mother and infant are skin-to-skin?*

Possible responses: *Rarely Sometimes Often Almost Always Not Sure*
(note survey included details for categories)

An improvement from a 2007 response of "Rarely" to a 2009 response of "Sometimes" would represent significant improvements in clinical processes and would be vital to documenting the quality improvement activities in a facility.

However, if the survey is only administered again several years later, the process can no

CDC plans to evaluate the two surveys in order to determine how to most effectively monitor and evaluate maternity care practices and provide regular reassessment data back to respondent facilities. These decisions can only be made with complete data from both of the originally-planned iterations of the survey. Therefore, completion of the original survey design with a follow-up survey in 2009 is vitally necessary in order to appropriately plan for future steps to improve maternity care practices and thus the health of women and children nationwide.

Samples of mPINC Publications and Resources Are Attached

National and State mPINC Findings:
DiGirolamo A, Manninen D, Cohen J et al. Breastfeeding-related maternity practices at hospitals and birth centers--United States, 2007. *MMWR Morb Mortal Wkly Rep* 2008 June 13;57(23):621-5.

Facility Benchmark Reports:
Centers for Disease Control and Prevention. Maternity Practices in Infant Nutrition and Care (mPINC) Survey: Quality Practice Measures--2007, Benchmark Report. Atlanta, GA: Department of Health and Human Services, Centers for Disease Control and Prevention; 2008.

CDC Web Resources:
mPINC Survey: www.cdc.gov/mpinc
Breastfeeding: www.cdc.gov/breastfeeding

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