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

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B. Collections of Information Employing Statistical Methods.

B.1. Respondent Universe and Sampling Methods

The methodology, content, and administration of the 2011 national survey of Maternity Practices in Infant Nutrition and Care (mPINC) will match those used in 2007 and 2009. The study population will include all facilities in the United States and Territories that routinely provided maternity care in the previous year. Facilities will be identified using information from the American Association of Birth Centers (AABC) and the American Hospital Association (AHA) Annual Survey of Hospitals. A brief screening call to all birth centers and hospital with ≥1 registered maternity bed will assess eligibility for participation in the 2011 survey, identify additional locations, and identify the appropriate point of contact in each facility. Facilities that will be invited to participate in the 2011 survey include facilities that participated in 2007 or 2009 and those that were invited but did not participate in 2007 or 2009, as well as those that have become eligible since the 2009 mPINC survey. This will allow CDC to effectively monitor current practices across the U.S. and to provide customized assessment reports to the broadest range of public health partners.

Although a nationally representative sample was considered, researchers from state health departments who were part of an expert panel convened to discuss breastfeeding practices expressed serious concerns that a nationally representative sample would limit practical utility of resultant data (see **Appendix D – Expert Panel Meeting Final Report – October 2003**). Sampling data will not allow for state- and local-level analyses to address individual local programmatic, research and policy needs.

A national census is the only design that will allow states to individually tailor their efforts to increase progress toward meeting their public health breastfeeding goals. The census design is especially important for small states and states with few hospitals.

The wide disparities in breastfeeding rates across U.S. States highlight the need for individual, state-level data to be available for local analyses. Further evidence on attitudes towards breastfeeding across the United States reveals significant geographic differences in barriers to breastfeeding,[i] which are likely manifested in maternity care practices related to breastfeeding as well.

Furthermore, results from the 2007 and 2009 mPINC surveys support a census methodology. Details of findings from the survey have been published in an MMWR report (see **Appendix C-1**). We found large diversity among maternity care facilities in terms of size and type (urban/rural; profit/non-profit; teaching/non-teaching; private/public; serving economically disadvantaged populations/serving high SES). The MMWR report shows differences in facility practices by state and geographic region in maternity care practices and differences between types of facilities. Mean total scores reflective of maternity care practices related to infant nutrition ranged from 48 in Arkansas to 81 in New Hampshire and Vermont. The sampling frame will be all hospitals providing maternity care as indicated in the most current American Hospital Association's (AHA) Annual Survey of Hospitals database as having at least one registered obstetric bed or at least one birth in the previous year; and all non-hospital based birth centers identified through the American Association of Birth Centers (AABC).

The survey will be administered to all hospitals and free-standing birth centers in the U.S. and Territories that provide intrapartum care. To identify these facilities, we will obtain the most recent American Hospital Association's annual survey of hospitals to identify all hospitals that

have registered obstetric beds or at least one birth. Our calculation of 4,089 respondents for the screening call is based on our experience with the 2007 and 2009 mPINC surveys. We then estimate that approximately 20% of those screened will not be eligible to participate in the survey due to having not provided routine maternity care in the previous year. This estimate is based on our experience with the 2007 and 2009 administrations of the mPINC survey.

Table B.1. Estimated Size of the Respondent Universe in 2011

	Number of facilities identified from AABC or AHA for an initial telephone screen	Number of facilities sent surveys	Number of responding facilities
AABC Birth Centers	192	138	122
AHA Facilities with either ≥1 birth or ≥1 registered maternity bed	3,897	3,143	2,568
Total	4,089	3,281	2,690

To minimize possible bias from nonresponse and to maximize statistical power, the study aims to achieve a response rate of at least 75%. In surveying the universe of eligible facilities, the only source of sampling error is nonresponse. Therefore, our estimated standard error includes the following finite population correction factor:

Standard error=SQRT ((nonresponse rate)*(standard deviation)2/(no. of surveys in analysis))

We obtained a response rate of 82 percent to the maternity care practices survey administered in 2007 and a response rate of 81 percent in 2009.

B.2. Procedures for the Collection of Information

This section describes information collection procedures. The discussion is divided into two subsections: (1) data collection procedures, and (2) quality control procedures.

B.2.A. Data Collection Procedures

A computer assisted telephone interviewing (CATI) system (**Appendix G-1 and Appendix G-2**) will be used to screen facilities selected for possible inclusion in the study. A screening telephone call will be made to all facilities identified from the American Hospital Association's Annual Survey of Hospitals (AHA) and the National Association of Childbearing Centers (NACC) as having provided maternity care in the past year. The purpose of the screening call is to (1) confirm that the hospital or birthing center provided maternity care in the previous year, (2) to identify possible satellite clinics providing maternity care, and (3) to identify survey respondent in each of the facilities.

A survey packet will then be sent via express mail to the individual identified during the screening call. The packet will include (1) the survey questionnaire (see **Appendix H-1 and Appendix H-2**) with an ID number pre-printed on it, (2) a personal cover letter on CDC

letterhead (**Appendix I**) emphasizing the importance of the study and providing options of either completing hard copy of survey or a web-based version, and (3) a postage-paid return envelope. The letter will provide the name and toll-free telephone number of a staff member to call with questions about the study. The letter will also include the name and telephone number of a person to call with questions regarding Human Subjects protection.

Surveys will be sent continuously over a one-month period. Battelle will track all returned surveys in the computer system upon receipt. Within two weeks of the initial mailing, a thank-you/reminder postcard will be sent to each respondent to encourage survey completion. The postcard (**Appendix J**) will include a toll-free number that can be called if respondent has any questions about completing the survey or needs to have another copy of the survey mailed. Three weeks after the sending the postcard reminder, a second mailing of the survey packet via express mail will be sent to non-respondents. The second mailing will include a different cover letter (**Appendix K**) emphasizing the importance of the study. A follow-up phone call will be made to all non-respondents three weeks after the second mailing. This call will serve as a final reminder to complete the survey and provide an opportunity to answer any questions that may be delaying survey completion.

B.2.B. Quality Control Procedures

Beginning with study initiation and continuing through all phases of data collection and analysis, steps will be taken to ensure that the data collected are of the highest quality possible. All project staff will be trained to understand the purpose, sponsorship, background, objectives, and importance of the project, as well as their specific role and activities on the study. In training project staff, we will emphasize the steps that will be taken to safeguard the privacy of the data that are collected. Completed survey questionnaires will be stored in locked file cabinets. All project files will be password protected and access to the files will be limited to authorized project staff.

A management information system has been developed to monitor data collection activities. The database maintains all background data known about each facility. In addition, the database will contain the dates of screening and follow-up telephone calls, the dates that questionnaires and other survey materials are mailed, and the dates that completed questionnaires are received. Mailing labels and personalized letters will be generated from this system. Follow-up mailing dates will then be computed by the tracking system to ensure timely mailing of necessary and appropriate follow-up materials. The management information system will also be used to generate weekly reports summarizing the status of data collection activity through the data collection period.

An emphasis on quality will continue with data editing and data entry. A mail paper and pencil instrument (PAPI) will be sent in the survey package. To reduce data entry errors, scannable survey will be used. Battelle programmers will develop quality control checks for the scannable surveys. A web-based survey option will also be available in order to provide faster survey response time and availability of data as well as high quality data since control checks are built in. Both methods allow us to establish an infrastructure for subsequent data collection waves.

B.3. Methods to Maximize Response Rates and Deal with Nonresponse

Over the past 20 years, Battelle has developed procedures that have been successfully used to achieve response rates of 70 to 80% to surveys of hospitals and other health care facilities. Multiple methods studies, reviews, and meta-analyses have been conducted to determine which factors lead to an increase in response rates in mail surveys. Preliminary notification, multiple follow-ups with respondents, use of express mail, personalization techniques, sponsorship or endorsement, length of questionnaires, and individualized feedback to respondents, have shown positive effects on response rates.[ii]

Battelle discussed with CDC, the Expert Panel, and facility respondents during pre-testing the content of the letter to accompany the survey packet, including sponsorship by CDC. The cover letter, which will stress the importance of the study, will be signed by Dr. Laurence Grummer-Strawn, Chief of CDC's Maternal and Child Nutrition Branch.

The survey packet will be personally addressed to the person who was identified as being most knowledgeable about breastfeeding-related maternity care practices during the screening telephone call. Since the name and address of the individual will be confirmed before the questionnaire is sent, we can send the questionnaires by express mail directly to the respondent thereby assuring fast, accurate delivery. Respondents will be given the name and toll-free telephone number to call if they have questions regarding the study. A postcard reminder will be used to encourage non-respondents to complete and return the survey as will a second survey mailing with a new cover letter, and a final phone-call.

Response rates will be reported at each stage, i.e., the response rate from the initial mailing, the second mailing and the additional response rate following the postcard reminder. Once data collection has been completed, we will conduct a non-response analysis and assess whether it is necessary to adjust for non-response by weighting the survey data.

The response rates for the 2007 and 2009 surveys were within a tenth of one percent and were extraordinarily high, at 82%. Data from the 2007 and 2009 surveys were used to create personalized, facility-level reports for each responding facility that were confidential to their facilities and customized state-level reports to key decision-makers (state health departments, health professional and hospital administrator organizations, medical boards, etc.). Personalized, facility-level reports also provided an incentive for participants to participant in the 2007 and 2009 mPINC surveys. We have received extensive positive feedback from facilities and states about the usefulness of the reports and encouragement to repeat the survey to evaluate the effectiveness of actions at the facility and state levels based on information obtained from the 2007 mPINC survey.

B.4. Tests of Procedures or Methods to be Undertaken

In developing the initial mPINC survey questionnaire, we sought input regarding the appropriateness and logic of the survey questions from a panel of experts and practitioners similar to the individuals who will be asked to complete the survey. Most of these experts have conducted surveys on breastfeeding related hospital practices before, so the procedures have generally been tested in single states or communities. Experienced survey operations staff formatted the survey questionnaire for ease of completion, as well as to facilitate coding and data entry. Prior to requesting OMB clearance, the draft survey questionnaire was pre-tested in-person and over the telephone at nine facilities in the Seattle, Atlanta, Indianapolis, and Albuquerque metropolitan areas representing urban, rural, small, large, teaching, and non-

teaching hospitals, and birthing centers. The purpose of the pretest was to obtain an estimate of respondent burden, as well as to obtain comments and advice about the format, comprehensibility, ease of response and relevance of individual questions, feasibility of web-based survey response option, and to identify the most appropriate person at the facility to fill in the survey.

The pretest protocol began with calling a hospital and determining the proper person to whom to send the survey. We sought the following information:

- Appropriateness of the cover letter
- Who the best person would be to ask for in a pre-screening call to hospital/best way to identify multiple campuses that provide maternity care practices
- How long survey took to fill out/length of survey
- What information sources needed to be consulted (databases or other personnel) to complete survey
- Does hospital require permission to fill out survey
- Would respondent consider filling out by web-based option? If not, what are barriers
- Comprehensibility of questions/ write notes in margin
- Any other comments about survey

Modifications to the survey questions and format were made based on comments received during pre-testing. The same survey instrument was used in the 2009 mPINC administration and will be used in the 2011 mPINC administration.

Each facility that participated in the 2007 and 2009 surveys received an individualized mPINC Facility Benchmark Report (see **Appendix C-2** for an example). CDC is also developing mechanisms to provide information to facilities that participated in the 2007 and 2009 survey administrations about changes between the two survey administrations. Data from the 2007 and 2009 surveys have been aggregated at the state level for reporting to 18 types of partner stakeholders in each state, including state health department leadership, health professional and hospital associations, and state Medicaid agencies. With expansion to include reporting on changes between the 2009 and 2011 surveys, similar results reporting is planned for the 2011 survey.

B.5. Individuals Consulted on Statistical Aspects and Individuals Collecting and/or Analyzing Data

Paulette E. Murphy, MLIS, of the Maternal and Child Nutrition Branch is the Technical Monitor for the study, and has overall responsibility for overseeing the design, conduct, and analysis of the study. Ms. Murphy will also approve and receive all contract deliverables. Telephone: 770-488-5849; electronic mail address PEM1@CDC.GOV.

The survey instrument, sampling and data collection procedures, and analysis plan were designed in collaboration with researchers at Battelle Centers for Public Health Research and Evaluation

(CPHRE) under contract No. 200-2001-00121, Task order No. 0013 with the Center for Disease Control and Prevention. Battelle will conduct data collection and will perform data analysis, in consultation with CDC.

Jennifer H. Cohen, PhD, MPH has overall technical and financial responsibility for the study at Battelle and led the Battelle effort to design this protocol. Dr. Cohen will direct the overall data collection and analysis effort. She will also be responsible for writing the project reports. Telephone: (206) 528-3116; electronic mail address CohenJ@BATTELLE.ORG.

Other personnel involved in design of the protocol and data collection instruments are:

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List of Appendices

Appendix A Authorizing Legislation

Appendix B-1 60 Day Federal Register Notice

Appendix B-2 Summary of Public Comments and CDC's Response

Appendix C 2007 mPINC Results Report

Appendix C-1 CDC MMWR: Breastfeeding-related maternity practices at hospitals and birth centers—United States, 2007. June 13, 2008

Appendix C-2 2007 mPINC Facility Benchmark Report

Appendix C-3 CDC Web Resources at www.cdc.gov/mpinc

Appendix D Expert Panel Meeting Final Report – October 2003

Appendix E mPINC Survey Scoring Algorithm

Appendix F Table Shells

Appendix G-1 Telephone Screening Interview – Hospitals

Appendix G-2 Telephone Screening Interview – Birth Centers

Appendix H-1 2011 mPINC Survey for Hospitals

Appendix H-2 2011 mPINC Survey for Birth Centers

Appendix I Cover Letter

Appendix J Thank You/Reminder Postcard

Appendix K Non-Responders Follow-Up Letter

[i] Li R, Fridinger F, Grummer-Strawn L. Public perceptions on breastfeeding constraints. J Hum Lact. 2002;18 :227 –235.

[ii] Kasprzyk D, Montano DE, St Lawrence JS et al. The effects of variations in mode of delivery and monetary incentive on physicians' responses to a mailed survey assessing STD practice patterns, Eval Health Prof. 2001: Mar 24(1):3-17.

References