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

Revision

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Supporting Statement B

Program Official/Contact
Daurice Grossniklaus, PhD
Health Scientist
National Center for Chronic Disease Prevention and Health Promotion,
Centers for Disease Control and Prevention
P: 770-488-5249
F: 770-488-5369
dtg3@cdc.gov

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ATTACHMENTS

B. COLLECTIONS OF INFORMATION EMPLOYING STATISTICAL METHODS

B1. Respondent Universe and Sampling Methods

The Maternity Practices in Infant Nutrition and Care (mPINC) survey is a national census of hospitals routinely providing maternity care in the United States and territories, and it has been conducted about every two years beginning in 2007. The planned methodology for the 2022 and 2024 national mPINC survey will closely match that of the previously administered mPINC surveys in 2007, 2009, 2011, 2013, 2015, 2018, and 2020.
Changes described in this Revision include:

- Deployment of 2022 and 2024 mPINC hospital surveys.
- Acquire an updated American Hospital Association (AHA) database to identify hospitals not currently on the list for recruitment. This process will occur for the 2022 survey, but not for the 2024 survey but additional hospitals identified from the AHA database for 2022 survey will be included in the 2024 survey.
- No collection of information about other hospital locations (satellite hospitals) during screening.
- Revision of 2022 and 2024 survey items to streamline data collection and ensure survey questions are consistent with implementation guidance from professional and public health organizations.
- Electronic distribution of hospital reports to participating hospitals.

Hospitals will be identified using information from these sources: 1) the American Hospital Association (AHA) Annual Survey of Hospitals to identify hospitals that have registered obstetric or maternity beds or at least one birth (2022 only); 2) hospitals that participated in previous mPINC survey cycles; 3) hospitals that were invited but did not participate in previous mPINC survey cycles; and 4) hospitals that have contacted the mPINC email box and identified that they may have become eligible since the most recent mPINC survey

A brief screening call to all hospitals with ≥1 registered maternity bed or at least one birth will assess eligibility for participation in the 2022 and 2024 survey cycles and identify the appropriate point of contact (contact person) in each. Administration of the 2022 and 2024 mPINC surveys will allow CDC to effectively monitor current practices in maternity care and infant nutrition across the United States and territories and to provide customized reports (i.e., hospital-specific reports, state-specific reports, and a national report) to the broadest range of public health partners.

Although a nationally representative sample was considered, CDC determined that sampling data would not allow CDC to be fully responsive to our partners' needs. A sample would not allow for state- and local-level analyses to address local programmatic and research needs, which were expressed as top priorities by the experts convened in 2003 to discuss issues surrounding the survey design. Specifically, several issues highlight the need for a national census of maternity

hospitals including

- Address variation in breastfeeding rates and maternity care practices: Breastfeeding rates vary widely across U.S. states and highlight the need for state and local-level data.
    - Breastfeeding attitudes differ significantly by geography[1] and are likely manifested in maternity care practices related to breastfeeding.
    - Maternity care practices differ by state[2], geographic region[2,3], and hospital size[3].
    - The proportion of hospitals implementing 10 practices that serve as the basis for the WHO/UNICEF Baby-Friendly Hospital Initiative, the Ten Steps to Successful Breastfeeding (Ten Steps) differ by state[4].
- State and local level data are needed: State health departments have voiced a strong need to be able to conduct state- and local-level analyses of the mPINC data to tailor public health breastfeeding interventions to their particular needs and attain public health breastfeeding goals. A national census design allows for state-level analysis to address individual local research and policy needs, and this is especially important for small states and states with few hospitals.
- Tailored information is needed: Participating hospitals receive their hospital-specific technical report with their own data compared to aggregate data (national, regional, and hospitals with a similar number of annual births). A national census design allows for hospital-specific data to inform quality improvement efforts. Many hospitals have used their mPINC data to understand their maternity practices, to make changes to improve the quality of care they provide, and to help them work toward earning the Baby-Friendly designation.
- Diversity among maternity care provided: The broad diversity among maternity care provided by hospitals in the United States and lack of generalizability among hospitals makes it problematic to identify and recruit a sample of hospitals that could legitimately be considered representative of other hospitals. Therefore, a national census design is needed to capture the spectrum of maternity care provided.

Furthermore, results from the previous cycles of the mPINC surveys support a census methodology.

- An analysis of the 2007 mPINC data published in a CDC Morbidity and Mortality Weekly Report showed differences in maternity care practices by state and geographic region and differences between types of hospitals. Mean total scores reflective of maternity care practices related to infant nutrition ranged from 48/100 in Arkansas to81/100 in New Hampshire and Vermont[5].
- Data from mPINC 2007 and 2009 served as the basis for the August 2011 Vital Signs[3]. This report examined the proportion of hospitals implementing 10 practices that serve as the basis for the WHO/UNICEF Baby-Friendly Hospital Initiative, the Ten Steps to Successful Breastfeeding (Ten Steps). This report showed that only 3.5% of US hospitals

were fully implementing the Ten Steps. The report also described variations in practices implemented by region and by facility size[3].

- Data from mPINC 2007, 2009, 2011 and 2013 served as the basis for the October 2015 Vital Signs[5]. This report described trends in the prevalence of facilities using maternity care practices and policies consistent with the Ten Steps. Nationally, hospitals implementing more than half of the Ten Steps increased from 28.7% in 2007 to 53.9% in 2013. Although there is improvement nationally on maternity care policies and practices supportive of breastfeeding, differences by state persist[5].

Our calculation of 3,152 hospitals for the screening call is based on our experience with the 2018 mPINC survey. These hospitals will be contacted to complete part A of the telephone screener to determine eligibility (**Attachment 4a** Screening Call Script-Part A). We then estimate that approximately 87.9% (2,771) of those screened will be found to be eligible and will complete the screening process (**Attachment 4b** Screening Call Script-Part B). We then anticipate that 70% (1,940) of the 2,771 that completed the screening process will respond to the survey itself (**Attachment 5c** mPINC Hospital Survey). The 2018 survey had a 70% response rate. Estimates described in Table B.1 are based on our experience with the 2018 mPINC survey.

Table B1. Estimated Number of Respondents for 2022 and 2024 mPINC Data Collection Cycles, by Data Collection Instrument

Respondent Type/Form Name	No. in Respondent Universe	Desired No. in Final Sample	Expected Response Rate	No. to be sampled	Sampling Fraction
Maternity Hospitals					
Screening Call Script Part A	3,152	3,152	100.0%	3,152	100.0%
Screening Call Script Part B	3,152	2,771	87.9%	3,152	100.0%
mPINC Hospital Survey	2,771	1,940	70.0%	2,771	100.0%

To minimize possible bias from non-response and to maximize statistical power, the survey aims to achieve a response rate of at least 70%. In surveying the universe of eligible facilities, the only source of sampling error is non-response. 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))

Response rates in past cycles have been 82%, 82%, 83%, 83%, 82%, and 70% in 2007, 2009, 2011, 2013, 2015, and 2018, respectively. The 2020 survey is not complete as of the date of submission and the response rate is not yet available. As a census of all hospitals providing maternity care in all states and territories, weighting of the survey data need only be performed

to reduce bias due to patterns of non-response. If non-response is low, or non-differential, the analyses will be unweighted. If it is necessary to adjust for non-response we will use sample weighting class adjustments. The variables that are the best candidates for the formation of weighting classes are those variables that are: (1) available for respondents as well as non-respondents; (2) highly correlated with the survey variables; and (3) highly correlated with the likelihood of non-response. Variables available for the non-response analysis will be limited to geographic location, variables obtained through the screening telephone interview and variables available from the American Hospital Association's Annual Survey of Hospitals (e.g., ownership type, number of obstetric beds, number of births).

B2. Procedures for the Collection of Information

For the 2022 and 2024 surveys, the contractor is responsible for the information collection, and will use a computer assisted telephone interviewing (CATI) system to screen hospitals to determine eligibility to take part in the survey. A screening telephone call (**Attachment 4a,** Screening Call Script-Part A; **Attachment 4b,** Screening Call Script-Part B) will be made to all hospitals identified through the sources described above (section B1). The purpose of the screening call is to: 1) verify that the hospital provided maternity care in the previous calendar year, 2) determine the most appropriate contact person to whom the survey will be sent to for that hospital, and 3) obtain business contact information for the contact person identified.

The only personal information that is requested or collected about the contact person as part of the mPINC survey is their business contact information including name, position, telephone number, official hospital email address, and mailing/FedEx addresses for purposes of inviting participation, delivering login instructions for completing the survey using the web-based system, delivering the Hospital Report, and informing the contact person about survey related opportunities. This person's function and responsibility related to the mPINC survey is limited to receiving the weblink to the survey (either via e-mail or mail). The survey invitation letter contains a unique link specific to hospital name and address with a user name and password assigned by the contractor (Attachment 5a, Survey Cover Letter, paper; Attachment 5b, Survey Cover Letter, e-mail). CDC will not have access to any file linking names of survey recipients with the assigned unique numbers. This contact person is not required to be the person who completes and submits the on-line survey on behalf of the hospital. A survey administration protocol similar to the 2018 and 2020 mPINC surveys will be used for hospital contacts without an e-mail address provided. The survey administration steps are outlined in Table B2.

Table B2. Survey Administration Steps

Administration step	E-mail address provided	No e-mail address provided	Attachment reference
Step 1 Immediately following telephone	Send an e-mail invitation to individual identified during screening call (contact	Send paper cover letter via mail to contact person that provides the hospital specific link to the web-	5a and 5b

screening	person) that includes the e-mail invitation cover letter and provides a link for accessing the mPINC web survey	based mPINC survey	
Step 2 Non-response contact four weeks after initial contact for those who have not completed the survey	Send an email reminder to contact person encouraging survey completion including the e-mail reminder letter and a link for accessing the mPINC web survey	Send a reminder letter via express mail to contact person encouraging survey completion including the paper reminder letter and a link for accessing the mPINC web survey	5d and 5e
Step 3 Non-response contact eight weeks after initial contact for those who have not completed the survey	Reminder telephone call	Reminder telephone call	5f
Step 4 – Non-response contact ten weeks after initial contact for those who have not completed the survey	Send a reminder letter via express mail to contact person encouraging survey completion including the paper reminder letter and a link for accessing the mPINC web survey	Send a reminder letter via express mail to contact person encouraging survey completion including the paper reminder letter and a link for accessing the mPINC web survey	5d
Step 5 - Non-response contact 3 weeks prior to data collection close date	Reminder telephone call	Reminder telephone call	5f

The e-mail and hardcopy cover letters (**Attachments 5a and 5b**) will be on CDC letterhead (an electronic CDC header is used for e-mail messages) and emphasize the importance of the survey. The e-mail and hardcopy cover letters and reminders will provide the name and toll-free telephone number of a Battelle staff member to call with questions about the survey. Telephone calls will serve as a reminder to complete the survey and provide an opportunity to answer any questions that may be delaying survey completion.

Links to the survey will be sent throughout the recruitment and data collection period. The survey will be administered online, and the contractor will track all surveys submitted in the computer system upon receipt.

Quality control procedures will begin with survey initiation and continue 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 survey. In training project staff, we will emphasize the steps that will be taken to safeguard the privacy of the data that are collected. All project files containing survey data will be transferred to CDC using secure file exchange and will be password protected. Access to the files at the contractor site will be limited to authorized project staff.

An information management 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 contacts, the dates that survey information is e-mailed/mailed, and the dates that web survey is completed. 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 e-mailing/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 the use of a web-based survey in order to provide faster survey response time and availability of data as well as high quality data since control checks are built in. Through the use of technology, including CATI and the Web-based survey, data quality will be maximized by minimizing errors related to manual data entry and incomplete and/or missing data. In addition, skip logic and range checks for data points will be programmed into the web-based survey to minimize incomplete and/or missing data and maximize data quality. These methods also allow us to establish an infrastructure for subsequent data collection cycles.

B3. Methods to Maximize Response Rates and Deal with Non-response

Over the past 20 years, Battelle (the current contractor) has developed procedures that have been successfully used to achieve response rates of 70 to 83% to surveys of hospitals and other health care facilities for the mPINC survey. 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 hospitals, use of express mail, personalization techniques, sponsorship or endorsement, length of questionnaires, and individualized feedback to respondents, have shown positive effects on response rates[6].

Battelle discussed with CDC, experts in 2003, and facility respondents during pre-testing the content of the letter to accompany the survey packet, including sponsorship by CDC. The e-mail and hardcopy cover letters, which will stress the importance of the survey, will be signed by the

Chief of CDC's Nutrition Branch.

The survey invitation will be personally addressed to the contact person who was identified as being most knowledgeable about breastfeeding-related maternity care practices during the screening telephone call. Since the name and e-mail and/or physical address of the individual will be confirmed, we can send the survey invitation letter by e-mail or mail directly to the contact person thereby assuring fast, accurate delivery. The survey invitation and subsequent contacts will include the name and the Battelle toll-free telephone number to call if they have questions regarding the survey. Reminder contacts will be used to encourage non-respondent hospitals to complete the survey and a hospital specific link to the secure web survey will be provided.

Response rates will be reported at each stage, i.e., the response rate from the initial contact, reminders and non-response mailing, and telephone calls. Once data collection has been completed, if needed, we will conduct non-response analysis to assess whether it is necessary to adjust for non-response by weighting the survey data as described in section B1.

The response rates for the previous six survey cycles were high, ranging from 70% to 83%. Data from the previous survey cycles were used to create individualized, hospital-level reports for each responding hospital that were confidential to their hospital (**Attachment 3b**), a national report and customized state-level reports for key decision-makers (state health departments, state breastfeeding coalitions, and health professional and hospital administrator organizations, etc.). Individualized, hospital-level reports provided a motivation for hospitals to take part in the previous mPINC surveys. We have received extensive positive feedback from hospitals and states about the usefulness of the reports and encouragement to repeat the survey to evaluate the effectiveness of actions at the hospital and state levels based on information obtained from the previous mPINC surveys.

B4. Tests of Procedures or Methods to be Undertaken

The CDC has multiple years of field experience successfully administering multiple cycles of the mPINC survey. The CDC developed the data collection procedures and instruments using input from internal and external consultants to improve clarity and validity. The procedures and instruments are similar to those employed during our 2018 and 2020 mPINC data collection, OMB No. 0920-0743. The CDC has used lessons learned from previous cycles to inform decisions related to methods to be undertaken.

For the 2022 and 2024 survey administrations, CDC will continue to provide individualized mPINC Hospital Reports to each participating hospital similar to those previously issued (as described above in Section B3). The CDC will continue to report aggregate mPINC data at the national and state levels and issue a national and state-specific mPINC reports. The National and State mPINC Reports provide summary information to a wide array of partners/stakeholders at the national and state level, including state health department leadership, state breastfeeding coalitions, and health professional associations.

Modifications made to the 2022 and 2024 survey items will streamline data collection and better align survey questions with current professional and public health guidance related to breastfeeding supportive maternity care. (**Attachment 5c** mPINC Hospital Survey).

Fewer than nine individuals were sent the 2018 survey to estimate burden, and, as a result, CDC has concluded that the changes to the 2022 and 2024 surveys will not result in a change in the amount of time required to complete the survey (30 minutes).

B5. Individuals Consulted on Statistical Aspects and Individuals Collecting and/or Analyzing Data

The survey instrument, data collection procedures, and statistical analysis plan were designed in collaboration with researchers at Battelle. Battelle is under contract to conduct the data collection for the 2022 mPINC survey, in consultation with CDC. Battelle may conduct data collection for the 2024 survey, if the option year – optional task is executed by CDC.

Battelle personnel consulted on statistical aspects of the design and Battelle personnel who will collect data are:

Quintella Bester, has overall technical and financial responsibility for the survey at Battelle. Ms. Bester will direct the overall data collection and analysis effort. She will also be responsible for writing the project reports. Telephone: 614-456-5042; electronic mail address BesterQ@battelle.org.

CDC personnel involved in the design of the data collection and data analysis are:

Daurice Grossniklaus, PhD, MEd, RN Contracting Officer Technical Representative, Division of Nutrition, Physical Activity, and Obesity, CDC. Dr. Grossniklaus has overall responsibility for overseeing the design, conduct, and analysis of the survey. Dr. Grossniklaus will also receive and approve all contract deliverables. Telephone: (770) 488-5249; electronic mail address dtg3@cdc.gov

Ellen Boundy, ScD, RN, CNM
Nurse Epidemiologist, Division of Nutrition, Physical Activity, and Obesity, CDC
[design of data collection and data analysis], Tel: 770-488-4438; electronic mail address lwz9@cdc.gov

Cria Perrine, PhD
Epidemiologist, Division of Nutrition, Physical Activity, and Obesity, CDC
[design of data collection and data analysis], Tel: 770-488-5183; electronic mail address hgk3@cdc.gov

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