
Overview of the mPINC Scoring Algorithm

mPINC

Every hospital and birth center in the United States that provides maternity services is sent an mPINC survey and asked that it be completed by the person most knowledgeable about that facility's maternity care practices. The survey includes a total of 52 questions, of which 34 relate to hospital/birth center practices (Section A); 13 relate to training, personnel, and policy (Section B); and 6 ask about characteristics of the hospital/birth center (Section C). Respondents complete either a paper or a Web-based version of the questionnaire.

Information About the Derivation of the Scoring Algorithm

Using the literature, similar surveys of maternity care practices in Pennsylvania and Oregon,^{1,2} and consultation with breastfeeding experts, items are categorized as relating to birth facility characteristics or to one of seven maternity practice subscales:

- labor and delivery care
- postpartum feeding of breastfed infants
- postpartum breastfeeding assistance
- postpartum contact between mother and infant
- facility discharge care
- staff training
- structural and organizational aspects of care delivery

Maternity Care Practice Scores

The following is a general description of the process used to derive the maternity care practice scores for each facility. More detailed information on the scoring algorithm for each individual item and subscale, and the composite quality practice score can be found in the [mPINC Scoring Algorithm](#)  [PDF-351k].

We began by using the general rules below to assign specific points for facilities' responses to each item. Exceptions are noted in the detailed scoring algorithm.

1. Categorical Response Options

Response options for most of the items were categorical in nature. For example, question A5 and its response options are as follows:

*Approximately how many mothers are encouraged to hold their **healthy full-term** infants **skin-to-skin** for at least 30 minutes within an hour of birth for **uncomplicated vaginal births**?*

Few	Some	Many	Most	Not Sure
(0%-9%)	(10%-49%)	(50%-89%)	(90%+)	

Another type of categorical response, using the same percentage breakdowns, is:

Rarely	Sometimes	Often	Almost Always	Not Sure
(0%-9%)	(10%-49%)	(50%-89%)	(90%+)	

In general, for these types of categorical responses, when a practice is considered supportive of breastfeeding, we assign the following scoring algorithm:

Few / Rarely = 0; Some/Sometimes = 30; Many / Often = 70; Most / Almost Always=100.

The algorithm is reversed if the practice being asked about is considered detrimental to breastfeeding:

Few / Rarely =100; Some/Sometimes = 70; Many / Often =30; Most / Almost Always=0.

If a facility selects "not sure," "not applicable," or gives no response, that item is usually assigned a value of "missing." When we believe a facility should know the answer to a response, such as with question C6 (*Does your facility record [keep track of] the number of mothers breastfeeding?*), but none is given or they answered "not sure," we assign a value of 0.

Sometimes an item score is derived from a combination of responses to multiple components of a question. For example, to create a score for "Separation of mother and newborn during transition to receiving patient care units," an item within the Contact Between Mother and Infant subscale, we combine responses to the first component of question A14 (*Following uncomplicated vaginal births, are healthy full-term breastfed infants routinely taken to the nursery or other separate area for transition (e.g., processing as a pediatrics patient, vital signs, first bath?)*) and the second, follow-up component of A14 (*If yes: On average, how long is the infant in this transition period?*).

2. Yes / No Response Options

For Yes/No questions, we assign 100 points to responses indicating practices that encourage breastfeeding and 0 to responses indicating practices that discourage breastfeeding. For example, question A32 was coded as follows:

Are discharge packs/bags containing infant formula samples given to breastfeeding mothers?

Yes	No
0	100

3. Lists / Multiple Response Options

When questions have multiple response options and respondents check more than one option,

we either sum up the number of response options, putting this on a 100 point scale, or categorize response options and assign a certain number of points to these categories. Question A33, listed below, is an example:

What support does your hospital routinely (most of the time) offer to breastfeeding mothers at discharge? (Each response option was to be checked Yes or No or Not Sure)

<p><i>a. Postpartum telephone call by hospital staff</i></p> <p><i>b. Telephone number for patient to call</i></p> <p><i>c. Postpartum follow-up visit at hospital after discharge</i></p> <p><i>d. Home follow-up visit after discharge</i></p> <p><i>e. Referral to hospital-based breastfeeding support group</i></p>	<p><i>f. Referral to other breastfeeding support groups</i></p> <p><i>g. Referral to lactation consultant/specialist</i></p> <p><i>h. Referral to WIC (for those eligible)</i></p> <p><i>i. Referral to an outpatient lactation clinic</i></p> <p><i>j. List of resources for breastfeeding help</i></p> <p><i>k. Breastfeeding assessment sheet</i></p> <p><i>l. Other (please specify)_____</i></p>
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For this question, we create three groups (modes of support) and assign each item to one of the groups: Physical Contact (c,d), Active Reaching Out (a), and Referrals (b,e,f,g,h,i). Response options "j" and "k" were not included in any of the three groups and thus score as 0. The text of the "l" ("Other") responses was reviewed by two research team members and assigned to the appropriate group. The groups assigned the following points:

Physical Contact = 65 Active Reaching Out = 25 Referrals = 10

If the facility indicates they provide at least one of the Physical Contact strategies, they receive 65 points; if they provide support categorized as Active Reaching Out, they receive 25 points; and if they provide at least one Referral, they receive 10 points. Points for this item are summed across the three categories, forming their item score. For example, if a facility checks "yes" to postpartum telephone call by hospital (a), telephone number for patient to call (b), home follow-up visit after discharge (d), and referral to lactation consultant/ specialist (g), this facility would receive a score of 100 because they had at least one response in each of the modes of support. If more than half of the responses are missing (i.e., in the question above, ≥ 5 out of the 10 responses), the item counts as missing and is not included in the calculation of the subscale score.

Subscale Scores

To create a subscale score for each of the seven maternity care practice subscales, we obtain an average score by summing the scores for the individual items included under the subscale and divide by the number of completed items in the subscale. If more than half the items in any subscale are missing, no subscale score are generated for the facility.

Composite Quality Practice Score

To obtain the Composite Quality Practice Score, we sum each of the subscale scores and divide by 7 (or the number of completed subscales). If more than half the subscale scores are missing, no composite score is generated for the facility.

References

1 Crivelli-Kovach A. Hospital breastfeeding policies in the Philadelphia area: a comparison with the Ten Steps to Successful Breastfeeding. *Birth* 24;41—48, 1997.

2 Adler M, Kasehagen LJ, Stull J, Rosenberg KD, Liu J, Crivelli-Kovach A. Breastfeeding support in the newborn hospitalization: results of a survey of Oregon hospitals. Paper presented at American Public Health Association 133rd Annual Meeting: Philadelphia, PA; December 14, 2005.