Scoring Explanation for the 2007 CDC Maternity Practices in Infant Nutrition and Care (mPINC) Survey

Labor	Labor and Delivery Care					
Item #	Measure	Rationale	Explanation	Scoring algorithm		
A4	Initial skin-to-skin	improves infant ability to establish breastfeeding. (1)	Reports how many patients experience mother- infant skin-to-skin contact for at least 30 minutes within 1 hour of uncomplicated vaginal birth.	100=Most 70=Many 30=Some 0=Few		
A9	contact		Reports how many patients experience mother- infant skin-to-skin contact for at least 30 minutes within 2 hours for uncomplicated cesarean birth.	100=Most 70=Many 30=Some 0=Few		
A6	Initial breastfeeding	Early initiation of breastfeeding is beneficial g because it increases overall breastfeeding duration and reduces a mother's risk of delayed onset of milk production. (2)	Reports what percentage of patients have the opportunity to breastfeed within 1 hour of uncomplicated vaginal birth	100=90%+ 70=50-89% 30=10-49% 0=0-9%		
A10	opportunity		Reports what percentage of patients have the opportunity to breastfeed within 2 hours of uncomplicated cesarean birth.	100=90%+ 70=50-89% 30=10-49% 0=0-9%		
A5	Routine procedures performed skin-to-skin	Performing routine infant assessments skin-to-skin is beneficial because it improves breastfeeding outcomes by reducing unnecessary separation of mother and infant and increases infant stability. It is safe for mother and infant to perform these without separating them. (3, 4)	Reports how often patients have routine infant procedures performed while mother and infant are skin-to-skin.	100=Almost Always 70=Often 30=Sometimes 0=Rarely		
	Labor and Delivery Care Subscale Score		Score represents summary of facility practices related to labor and delivery.	Mean of the 5 item scores		

ltem #	Measure	Rationale	Explanation	Scoring algorithm
43	Documentation of feeding decision	Standard documentation of infant feeding decisions is important to adequately support maternal choice. (5)	Reports how often infant feeding decisions are documented in hospital records.	100=Almost Always 70=Often 30=Sometimes 0=Rarely
A12	Breastfeeding	The American Academy of Pediatrics (AAP) recommends pediatricians provide patients with complete, current information on the benefits and methods of breastfeeding to ensure that the feeding decision is a fully informed one.(6) Patient education is important to establish breastfeeding. (7, 8)	Reports how many patients who are breastfeeding or intend to breastfeed are provided advice and instructions about breastfeeding.	100=Most 70=Many 30=Some 0=Few
A13	advice & counseling	Effective breastfeeding relies on feeding in direct response to specific infant cues rather than scheduled frequency or duration of feedings. (9)	Reports how many breastfeeding patients are taught to recognize and respond to infant feeding cues instead of feeding on a set schedule.	100=Most 70=Many 30=Some 0=Few
A14			Reports how often breastfeeding patients receive instructions to limit suckling at the breast to a specific length of time.	100=Rarely 70=Sometimes 30=Often 0=Almost always
A15	Assessment & observation of breastfeeding	The AAP recommends formal evaluation of breastfeeding performance by trained observers during the first 24-48 hours of life. (6)	Reports how many breastfeeding patients receive a directly observed breastfeeding assessment by hospital staff.	100=Most 70=Many 30=Some 0=Few
A16	sessions	Standardized breastfeeding assessment tools improve comparability and validity of findings. (10-12)	Reports whether breastfeeding is assessed using a standardized or adapted assessment tool.	100=Yes 0=No
4 20	Pacifier use	In-hospital pacifier use reduces duration of exclusive breastfeeding. (13)	Reports how many breastfeeding patients are given pacifiers by hospital staff.	100=Few 70=Some 30=Many 0=Most
Breastfeeding Assistance Score			Score represents summary of facility practices related to breastfeeding assistance.	Mean of the 7 item scores

ltem #	Measure	Rationale	Explanation	Scoring algorithm
A23	Separation of mother & infant during transition	Separation during transition to postpartum care is unnecessary for stable patients. Mother-infant contact is important during this time to establish breastfeeding, maintain infant weight, and improve regulation of infants' neurologic states. (14)	Reports how many minutes mother-infant patient pairs are separated after uncomplicated vaginal births during the transition from labor and delivery care to their receiving patient care units.	100: No separation 90: ≤30 70: 31-60 30: 61-90 0: >90
A24	Patient rooming-in	Rooming-in of mother-infant patient pairs increases infants' opportunities to learn to breastfeed (15) and increases duration and quality of maternal sleep. (16)	Reports how many hours breastfeeding mother-infant patient pairs are separated at night.	100: No separation 90: <3 70: 3-<5 30: 5-<8 0: ≥8
A28			Reports what percentage of mother-infant patient pairs room together ≥23 hours per day.	100=90%+ 70=50-89% 30=10-49% 0=0-9%
A26	Instances of mother-infant separation	Understanding the reasons mother-infant patient pairs are separated (17) helps identify opportunities to reduce unnecessary separations. Bringing the infant to the mother to breastfeed is important because it reduces chances the infant will receive supplemental feeds. (18, 19)	Reports the number of reasons that infant patients are removed from mothers' rooms. Potential reasons for removal included: pediatric rounds, change of shift, visiting hours, hearing test, heel stick, infant photos, infant's bath, mother bathing, mother out of room. Only "mother bathing" and "mother out of room" were considered valid reasons for mother-infant separation. Individual reasons are counted (Few infants removed for the reason=0; Some/Many/Most infants removed for the reason=1) and then summed.	100=No separation 70=1-3 30=4-6 0=7
A25			Reports how many breastfeeding patients who are not rooming-in receive their infant from the nursery for breastfeeding at night.	100=Most 70=Many 30=Some 0=Few
Contact Between Mother and Infant Subscale Score			Score represents summary of practices facility practices related to contact between mother and infant.	Mean of the 5 item scores

Feedi	eeding of Breastfed Infants					
Item #	Measure	Rationale	Explanation	Scoring algorithm		
A7	Initial feeding	Neonatal immune system development depends on transfer of specific antibodies through colostrum and is significantly impaired by prior introduction of non-breast milk feeds. (20, 21)	Reports what percentage of breastfeeding patients receive breast milk as their first feeding after uncomplicated vaginal birth.	100=90%+ 70=50-89% 30=10-49% 0=0-9%		
A11			Reports what percentage of breastfeeding patients receive breast milk as their first feeding after uncomplicated cesarean birth.	100=90%+ 70=50-89% 30=10-49% 0=0-9%		
A17	Supplementary	Gynecologists (ACOG) Guidelines for Perinatal Care (22) & Academy for Breastfeeding Medicine guidelines for supplementing feedings in healthy and hypoglycemic neonates all recommend against routine supplementation with formula, glucose	Reports what percentage of breastfeeding infants receive non-breast milk feedings.	100=0-9% 70=10-49% 30=50-89% 0=90%+		
A19	feedings		Reports whether breastfeeding patients receive glucose water and/or water.	100=Answer to both is No. 0=At least one answer is Yes		
Feeding of Breastfed Infants Subscale Score			Score represents summary of facility practices related to feeding of breastfed infants.	Mean of the 4 item scores		

Facilit	acility Discharge Care					
Item #	Measure	Rationale	Explanation	Scoring algorithm		
A30	Assurance of ambulatory breastfeeding support	The AAP clinical practice guidelines recommend examination of all infants by a qualified health care professional within 48 hours of hospital discharge to assess breastfeeding. (25) Ensuring post-discharge ambulatory support improves breastfeeding outcomes. (26, 27)	Reports how many modes of post-discharge breastfeeding support patients are offered. To get credit for the mode, at least one support strategy within the mode had to be reported. Mode 1=Physical Contact (strategies: home visit, hospital postpartum followup visit); Mode 2=Active Reaching Out (strategy: followup phone call to patient after discharge); Mode 3=Referrals (strategies: hospital phone number to call, hospital-based support group, other breastfeeding support group, lactation consultant/specialist, WIC, outpatient clinic).	100=All 3 modes 90=Modes 1 and 2 75=Modes 1 and 3 65=Mode 1 only 35=Modes 2 and 3 25=Mode 2 only 10=Mode 3 only 0=No modes		
A29	Distribution of "discharge packs" containing infant formula	The AAP (6) and ACOG (28) recommend against distributing infant formula "discharge packs" because it reduces exclusive breastfeeding rates & implies health care professional endorsement of specific commercial items. (29-31)	Reports whether breastfeeding patients are given "discharge packs" containing product marketing infant formula samples.	100=No 0=Yes		
			Score represents summary of facility practices related to discharge care.	Mean of the 2 item scores		

Staff 7	Staff Training					
Item #	Measure	Rationale	Explanation	Scoring algorithm		
B1	Preparation of new staff	Staff training ensures standard capacity to provide evidence-based care, learn about new information, and maintain patient support skills. (31-34) Standard 18-hour staff training improves patient breastfeeding outcomes facility-wide. (35, 36)	Reports how many hours of breastfeeding education are received by new nurses and other birth attendants [†] .	100: >18 75: 9 to 18 50: 5 to 8 25: 1 to 4 0: <1		
B4			Reports how many hours of breastfeeding education current nurses and other birth attendants [†] received in the past year.	100: ≥5 50: 1 to 4 0: <1		
В3	education		Reports how many nurses and other birth attendants [†] received any breastfeeding education in the past year.	100=Most 70=Many 30=Some 0=Few		
B5	Competency assessment	Like other critical nursing competencies, regular assessment of competency in breastfeeding management and support improves delivery of care. (37-39)	Reports how often nurses and other birth attendants [†] are assessed for competency in breastfeeding management and support.	100: At least once a year 50: Less than once a year 0: Not assessed		
Staff Training Subscale Score			Score represents summary of facility practices related to staff training.	Mean of the 4 item scores		

Struct	Structural & Organizational Aspects of Care Delivery						
Item #	Measure	Rationale	Explanation	Scoring algorithm			
B11	Breastfeeding policy	The AAP recommends inclusion of specific elements in a facility's breastfeeding policies. (6) The Academy of Breastfeeding Medicine's clinical protocol lists components of a model breastfeeding policy. (23)	Reports the number of model written breastfeeding policy elements in the facility's communication of breastfeeding policy. Aspects include a) in-service training, b) prenatal breastfeeding classes, c) asking about mothers' feeding plans, d) initiating breastfeeding within 60 minutes of uncomplicated vaginal birth, e) initiating breastfeeding after recovery for uncomplicated cesarean sections, f) showing mothers how to express milk and maintain lactation if separated from infant, g) giving only breast milk to breastfed infants, h) 24 hr / day rooming-in, i) breastfeeding on-demand and duration and frequency of feedings, j) pacifier use by breastfed infants, k) referral of mothers with breastfeeding problems, l) referral of mothers to appropriate community breastfeeding resources at discharge. Aspects worth 10 points each except: 10 points given for 'd' and/or 'e'; 10 points given for 'k' and/or 'l'.	100=10 90=9 80=8 70=7 60=6 50=5 40=4 30=3 20=2 10=1 0=0			
B12	Communication of breastfeeding policy	Effective intra-professional communication increases the likelihood that a facility's breastfeeding policy will be implemented appropriately. (40, 41)	Reports how staff are informed about breastfeeding policies. Strategies for informing staff were divided into two modes - "in person" and "printed / online materials." Strategies categorized as being "in person" included: in-service training, new staff orientation, new staff training, and staff meeting. Strategies categorized as being "printed / online materials" included: policy is posted and newsletter. At least one strategy from the mode had to be reported for the mode to be counted.	100=In person & printed/online materials 70=In person only 30=Printed/online materials only			
C5	Infant feeding documentation policy	Standardized documentation of patient decisions allows for valid internal assessment, monitoring and improvement of quality of care, and improves staff collaboration and support of patients' decisions. (42)	Reports the hospital's policy for documentation of patient infant feeding plans and practices.	100=Any point after admission 25=At admission only 0=No / not sure			

B13	Employee breastfeeding support	The American Medical Association (AMA) (43) and Association of Women's Health, Obstetric, and Neonatal Nurses (AWHONN) (44) recommend medical facilities support all lactating employees by providing appropriate time and facilities to express and store milk during the working day. The US Breastfeeding Committee recommends specific workplace supports. (45)	Reports how many of 3 critical and 4 additional supports are provided to lactating staff after returning to work. Critical supports are room to express milk (a), electric breast pump for staff use (c), permission to use work breaks to express milk (d). Additional supports are on-site child care (b), breastfeeding support group for staff (e), lactation consultant/specialist available for consult (f), paid maternity leave other than accrued vacation or sick leave (g). If yes to all 3 critical supports: 100. If yes to ≤2 critical supports, 35 points for each critical support and 5 points for each additional support. 0=no to all supports	100=All 3 critical (with or without any additional) 90=2 critical, 4 additional 85=2 critical, 3 additional 80=2 critical, 2 additional 75=2 critical, 1 additional 70=2 critical, 0 additional 55=1 critical, 4 additional 50=1 critical, 3 additional 45=1 critical, 2 additional 40=1 critical, 1 additional 35=1 critical, 0 additional 20=0 critical, 4 additional 15=0 critical, 3 additional 15=0 critical, 3 additional 10=0 critical, 1 additional 10=0 critical, 1 additional 0=No supports
A21	Facility receipt of free infant formula	The American Dietetic Association (ADA) guidelines for mandatory elements of infant formula Hazard Analysis and Critical Control Points plans (46) apply to purchased and free infant formula. The AMA recognizes the inherent conflict of interest this kind of financial support introduces. (47, 48)	Reports whether the facility receives infant formula free of charge from manufacturers.	100=No 0=Yes
A1	Prenatal breastfeeding instruction	Patient education about breastfeeding is important because it improves breastfeeding rates. (43)	Reports whether breastfeeding is a component of prenatal patient education opportunities.	100=Yes 0=No / Not Sure
B08	Coordination of lactation care	A designated Lactation Coordinator demonstrates a facility's consideration of lactation support as an essential and necessary function of intrapartum care. (49)	Reports whether the facility has a designated person who oversees lactation care within the facility.	100=Yes 0=No
Organ	Structural & izational Subscale Score		Score represents summary of facility practices and policies related to structural and organizational aspects of care.	Mean of the 7 item scores

Overall Materity Pra	verall Materity Practices Score				
OVERALL MATERNITY PRACTICES SCORE	land intant teeding of breastfed intants tacility	Overall score represents summary of maternity care practices provided by the facility.	Mean of the 7 subscale scores.		

^{*}Unless otherwise noted, missing/not sure/not applicable values were denoted as "missing" and not included in the scores.

[†]In free-standing birth centers, these questions were asked among "birth attendants" to accommodate the range of attendants to births in these facilities.

References Cited

- 1. Anderson GC, Moore E, Hepworth J, Bergman N. Early skin-to-skin contact for mothers and their healthy newborn infants. Cochrane Database Syst Rev 2003;(2):CD003519.
- 2. Dewey KG, Nommsen-Rivers LA, Heinig MJ, Cohen RJ. Risk factors for suboptimal infant breastfeeding behavior, delayed onset of lactation, and excess neonatal weight loss. Pediatrics 2003; 112(3 Pt 1):607-619.
- 3. Awi DD, Alikor EA. Barriers to timely initiation of breastfeeding among mothers of healthy full-term babies who deliver at the University of Port Harcourt Teaching Hospital. Niger J Clin Pract 2006; 9(1):57-64.
- 4. Bystrova K, Matthiesen AS, Vorontsov I, Widstrom AM, Ransjo-Arvidson AB, Uvnas-Moberg K. Maternal axillar and breast temperature after giving birth: effects of delivery ward practices and relation to infant temperature. Birth 2007; 34(4):291-300.
- 5. Lee TT. Nursing diagnoses: factors affecting their use in charting standardized care plans. J Clin Nurs 2005; 14(5):640-647.
- 6. Gartner LM, Morton J, Lawrence RA et al. Breastfeeding and the use of human milk. Pediatrics 2005; 115(2):496-506.
- 7. US Preventive Services Task Force. Rehavioral interventions to promote breastfeeding: Recommendations and rationale. Annals of Family Medicine 2003; 1(2):79-80.
- 8. Kronborg H, Vaeth M, Olsen J, Iversen L, Harder I. Effect of early postnatal breastfeeding support: a cluster-randomized community based trial. Acta Paediatr 2007; 96(7):1064-1070.
- 9. Riordan J. Breastfeeding and Human Lactation. Third ed. Sudbury, MA: Jones and Bartlett, 2005.
- 10. Kumar SP, Mooney R, Wieser LJ, Havstad S. The LATCH scoring system and prediction of breastfeeding duration. J Hum Lact 2006; 22(4):391-397.
- 11. Cakmak H, Kuguoglu S. Comparison of the breastfeeding patterns of mothers who delivered their babies per vagina and via cesarean section: an observational study using the LATCH breastfeeding charting system. Int J Nurs Stud 2007; 44(7):1128-1137.
- 12. Benson S. What is normal? A study of normal breastfeeding dyads during the first sixty hours of life. Breastfeed Rev 2001; 9(1):27-32.
- 13. Howard CR, Howard FM, Lanphear B et al. Randomized clinical trial of pacifier use and bottle-feeding or cupfeeding and their effect on breastfeeding. Pediatrics 2003; 111(3):511-518.
- 14. Bystrova K, Widstrom AM, Matthiesen AS et al. Early lactation performance in primiparous and multiparous women in relation to different maternity home practices. A randomised trial in St. Petersburg. Int Breastfeed J 2007; 2:9.
- 15. Buranasin B. The effects of rooming-in on the success of breastfeeding and the decline in abandonment of children. Asia Pac J Public Health 1991; 5(3):217-220.
- 16. Keefe MR. The impact of infant rooming-in on maternal sleep at night. J Obstet Gynecol Neonatal Nurs 1988; 17(2):122-126
- 17. Svensson K, Matthiesen AS, Widstrom AM. Night rooming-in: who decides? An example of staff influence on mother's attitude. Birth 2005; 32(2):99-106.
- 18. Ball HL, Ward-Platt MP, Heslop E, Leech SJ, Brown KA. Randomised trial of infant sleep location on the postnatal ward. Arch Dis Child 2006; 91(12):1005-1010.
- 19. Lindenberg CS, Cabrera AR, Jimenez V. The effect of early post-partum mother-infant contact and breast-feeding promotion on the incidence and continuation of breast-feeding. Int J Nurs Stud 1990; 27(3):179-186.
- 20. Brandtzaeg P. The secretory immunoglobulin system: regulation and biological significance, focusing on human mammary glands. In: David M, Isaacs C, Hanson L, editors. Integrating Population Outcomes, Biological Mechanisms and Research Methods in the Study of Human Milk and Lactation. New York: Kluwer Academic/Plenum Publishers, 2002: 1-16.
- 21. Adlerberth I, Hanson L. Ontongeny of the intestinal flora. In: Sanderson I, Walker W, editors. Development of the Gastrointestinal Tract. Hamilton, Ontario: BC Dexter Inc., 1999: 279-292.
- 22. American Academy of Pediatrics, American College of Obstetricians and Gynecologists. Care of the neonate. In: Lockwood CJ, Lemons JA, eds. Guidelines for Perinatal Care. 6th ed. Elk Grove Village, IL: American Academy of Pediatrics; 2007:205-249.
- 23. The Academy of Breastfeeding Medicine Protocol Committee. Model Breastfeeding Policy. Breastfeeding Medicine 2007; 2(1):50-55.
- 24. The Academy of Breastfeeding Medicine Protocol Committee. Guidelines for Glucose Monitoring and Treatment of Hypoglycemia in Breastfeed Neonates. Breastfeeding Medicine 2006; 1(3):178-184.
- 25. American Academy of Pediatrics Subcommittee on Hyperbilirubinemia. Management of hyperbilirubinemia in the newborn infant 35 or more weeks of gestation. Pediatrics. 2004 Jul;114(1):297-316.
- 26. Ingram J, Rosser J, Jackson D. Breastfeeding peer supporters and a community support group: evaluating their effectiveness. Matern Child Nutr 2005; 1(2):111-118.

- 27. Chapman DJ, Damio G, Perez-Escamilla R. Differential response to breastfeeding peer counseling within a low-income, predominantly Latina population. J Hum Lact 2004; 20(4):389-396.
- 28. Committee on Healthcare for Underserved Women, Committee on Obstetric Practice. ACOG Committee Opinion No. 361: Breastfeeding: Maternal and Infant Aspects. Obstet Gynecol 2007 109: 479-480.
- 29. Bliss MC, Wilkie J, Acredolo C, Berman S, Tebb KP. The effect of discharge pack formula and breast pumps on breastfeeding duration and choice of infant feeding method. Birth 1997; 24(2):90-97.
- 30. Snell BJ, Krantz M, Keeton R, Delgado K, Peckham C. The association of formula samples given at hospital discharge with the early duration of breastfeeding. J Hum Lact 1992; 8(2):67-72.
- 31. Taveras EM, Li R, Grummer-Strawn L et al. Opinions and practices of clinicians associated with continuation of exclusive breastfeeding. Pediatrics 2004; 113(4):e283-e290.
- 32. Freed GL, Clark SJ, Sorenson J, Lohr JA, Cefalo R, Curtis P. National assessment of physicians' breast-feeding knowledge, attitudes, training, and experience. JAMA 1995; 273(6):472-476.
- 33. Dykes F. The education of health practitioners supporting breastfeeding women: time for critical reflection. Matern Child Nutr 2006; 2(4):204-216.
- 34. Lu MC, Lange L, Slusser W, Hamilton J, Halfon N. Provider encouragement of breast-feeding: evidence from a national survey. Obstet Gynecol 2001; 97(2):290-295.
- 35. Cattaneo A, Yngve A, Koletzko B, Guzman LR. Protection, promotion and support of breast-feeding in Europe: current situation. Public Health Nutr 2005; 8(1):39-46.
- 36. Cattaneo A, Buzzetti R. Effect on rates of breast feeding training for the baby friendly hospital initiative. BMJ 2001; 323(7325):1358-1362.
- 37. O'Hearne RM. A review of methods to assess competency. J Nurses Staff Dev 2006; 22(5):241-245.
- 38. Whelan L. Competency assessment of nursing staff. Orthop Nurs 2006; 25(3):198-202.
- 39. Arcand LL, Neumann JA. Nursing competency assessment across the continuum of care. J Contin Educ Nurs 2005; 36(6):247-254.
- 40. Gifford WA, Davies B, Edwards N, Graham ID. Leadership strategies to influence the use of clinical practice guidelines. Nurs Leadersh (Tor Ont) 2006; 19(4):72-88.
- 41. Reeves S, Lewin S. Interprofessional collaboration in the hospital: strategies and meanings. J Health Serv Res Policy 2004; 9(4):218-225.
- 42. Cummings GG, Estabrooks CA, Midodzi WK, Wallin L, Hayduk L. Influence of organizational characteristics and context on research utilization. Nurs Res 2007; 56(4 Suppl):S24-S39.
- 43. American Medical Association. Infant health policy H-245.892: AMA support for breastfeeding. Adopted 2005, reaffirmed 2007. http://www.ama-assn.org/apps/pf_new/pf_online?f_n=browse&doc=policyfiles/HnE/H-245.982.HTM&&s_t=&st_p=&nth=1&prev_pol=policyfiles/HnE/H-240.999.HTM&nxt_pol=policyfiles/HnE/H-245.972.HTM& Retrieved June 10, 2008.
- 44. Association of Women's Health, Obstetric and Neonatal Nurses. AWHONN policy position statement: Breastfeeding and lactation in the workplace. Adopted June, 1999. http://www.awhonn.org/awhonn/binary.content.do?name=Resources/Documents/pdf/5H2a PS BreastfeedingLactationInWork.pdf Retrieved June 10, 2008.
- 45. United States Breastfeeding Committee. Workplace breastfeeding support [issue paper]. Raleigh, NC: United States Breastfeeding Committee; 2002.
- 46. Pediatric Nutrition Practice Group. Infant Feedings: Guidelines for Preparation of Formula and Breast Milk in Health Care Facilities. Chicago: U.S. The American Dietetic Association, 2004.
- 47. American Medical Association. MSS resolution 403: Doctors defending breastfeeding. In: Summary of actions: Medical student section resolutions; 2006 interim meeting, Las Vegas, Nevada. November 11, 2006.
- 48. American Medical Association Council on Science and Public Health. Report 2 of the Council on Scientific Affairs (A-05): Factors that influence differences in breastfeeding rates. June, 2005. http://www.ama-assn.org/ama/pub/category/15169.html#recommendations Retrieved June 10, 2008.
- 49. Mannel R, Mannel RS. Staffing for hospital lactation programs: recommendations from a tertiary care teaching hospital. J Hum Lact 2006; 22(4):409-417.