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## Defining Lactation Acuity to Improve Patient Safety and Outcomes

Rebecca Mannel, BS, IBCLC, FILCA

### Abstract

While substantial evidence exists identifying risks factors associated with premature weaning from breastfeeding, there are no previously published definitions of patient acuity in the lactation field. This article defines evidence-based levels of lactation acuity based on maternal and infant characteristics. Patient acuity, matching severity of illness to intensity of care required, is an important determinant of patient safety and outcomes. It is often used as part of a patient classification system to determine staffing needs and acceptable workloads in health care settings. As acuity increases, more resources, including more skilled clinicians, are needed to provide optimal care. Developing an evidence-based definition of lactation acuity can help to standardize terminology, more effectively distribute health care staff resources, encourage research to verify the validity and reliability of lactation acuity, and potentially improve breastfeeding initiation and duration rates. *J Hum Lact.* 27(2):163-170.

**Keywords:** lactation, acuity, patient safety, staffing, breastfeeding practices

Breastfeeding duration rates in the United States continue to lag well behind current recommendations. Some 43% of US infants are breastfeeding to any degree at the age of 6 months, and only 13% meet the recommended 6 months of exclusive breastfeeding.<sup>1</sup> By 12 months, less than 23% are still breastfeeding. While many factors affect these rates, one issue that has recently been studied more closely is the quality of care received by breastfeeding mothers and babies during their hospital stay. The US Centers for Disease Control and Prevention (CDC)'s initial survey of hospital practices that affect breastfeeding—the Maternity Practices in Infant Nutrition and Care survey—indicates

that suboptimal care is often provided in US hospitals, with an average score of 63 out of 100.<sup>2</sup> While substantial research has been published defining evidence-based lactation and breastfeeding care,<sup>3-12</sup> the survey results highlight the broad gap between available evidence and the quality of care currently being provided. As noted by the CDC, “new mothers rarely request care different from that offered them by health professionals”<sup>3(p1)</sup> leaving them vulnerable to hospital care that can adversely affect their ability to successfully breastfeed their infants.

The goal of this article is to narrow the gap between evidence-based best practice and actual care by defining the concept of patient acuity as it relates to lactation and breastfeeding. Despite numerous patient acuity tools and patient classification systems currently in use in many areas of health care, none exist related to lactation or breastfeeding.<sup>13-19</sup> The acuity definitions proposed here relate increasing maternal-infant lactation acuity to risk of poor breastfeeding outcomes—that is, premature weaning. Thus, as the lactation acuity level increases for a mother-baby couplet, the risk of premature weaning also increases.

The US Institute of Medicine (IOM), in its focus on patient safety, proposed 6 elements of health care in need of improvement: safety, effectiveness, patient centeredness, timeliness, efficiency, and equity.<sup>20,21</sup> Acuity

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scoring systems have been used to address many of these elements.<sup>13</sup> Blegen et al cited patient acuity as the “driver of patient outcomes.”<sup>22</sup> The US Agency for Healthcare Research and Quality stated, “Patient acuity is a concept that is very important to patient safety.”<sup>23</sup> In a 2009 article entitled “Patient Acuity: A Concept Analysis,” Brennan and Daly reviewed several literature databases for articles related to acuity from 1974 to 2008.<sup>24(p1119)</sup> They defined acuity as “a measure of the severity of illness of the patient and the intensity of nursing care that patient requires” and suggested a way to categorize acuity based on key attributes: patient-related, provider-related, and system-related. This article categorizes lactation acuity according to Brennan and Daly’s definitions and relates its potential impact to the IOM’s patient safety goals in directing an optimal plan of care for breastfeeding couples.

The Institutional Review Board of the University of Oklahoma Health Sciences Center reviewed this project and determined that it is not human subjects research and does not need board approval.

### **Lactation Acuity Levels**

Higher-acuity breastfeeding patients require higher skill and knowledge levels of the practitioner, indicating referral to an International Board Certified Lactation Consultant (IBCLC) or a Registered Lactation Consultant (RLC).<sup>\*</sup> The concept of lactation acuity was initially developed and implemented by Oklahoma University Medical Center’s Lactation Service.<sup>25</sup> The center’s lactation acuity levels were later reviewed and revised by the HCA Healthcare Lactation Consultant Workgroup and implemented in several HCA hospitals in 2010 (see Table 1).<sup>26</sup> These acuity levels are based on the potential for increased risk of poor maternal-infant outcomes, including premature weaning. They do not determine the amount of time that might be spent to provide lactation support. Multiple risk factors and hospital practices can increase acuity level. For example, any healthy term infant who has received 2 or more supplemental feedings of formula by bottle, regardless of the reason, has an increased risk of weaning by 7 to 10 days of age.<sup>27-29</sup> DiGirolamo demonstrated that suboptimal hospital practices increase the risk of weaning before 6 weeks by 13-fold.<sup>30</sup>

<sup>\*</sup>International Board Certified Lactation Consultants are also registered lactation consultants as defined by the International Board of Lactation Consultant Examiners. See the registry at <http://www.iblce.org>. For the purposes of this article, RLC will be used.

### **Patient-Related Acuity: Timeliness and Equity**

Patient-related acuity attributes include onset, time sensitivity, and severity of the illness or physiologic state. While the initial onset of lactation occurs during pregnancy, the onset of breastfeeding occurs after delivery and depends on the physical status of 2 patients: mother and baby. The successful transition to sustained lactation is extremely time sensitive and vulnerable to factors both maternal (eg, physiology, delivery complications) and environmental (eg, separation of mother and baby, delayed initiation of breastfeeding or milk expression).<sup>3-12</sup> The initiation of breastfeeding is also time sensitive and vulnerable to factors that are maternal (eg, delivery mode, maternal knowledge, psychological/abuse issues), infant (eg, physical status of baby, birth trauma), and environmental (eg, opportunity to latch within first hour, skin-to-skin time, separation of healthy mother-baby couples, routine formula supplementation).<sup>3-12</sup> Lactation is a sensitive physiologic state, and its long-term maintenance depends on the action of breastfeeding or continued milk removal. Breastfeeding, or the ability of a mother to feed her baby her own milk, is also very sensitive and dependent on continued adequate maternal lactation and an effectively breastfeeding baby.

The IOM’s safety goal of timeliness is achieved when the time-sensitive elements of lactation and breastfeeding are appropriately addressed by the health care team. A mother who needs help with milk expression because her baby is in the neonatal intensive care unit (NICU) cannot wait days or even hours.<sup>8,42</sup> A baby who is not latching also cannot wait hours for assistance. In both these examples, adverse outcomes can occur for both mother and baby. The mother can become painfully engorged, leading to increased risk of impaired milk production and mastitis, while the baby is at risk of inadequate intake and increased risk of hypoglycemia or hyperbilirubinemia.<sup>8,65,67</sup> If the mother’s milk is not available, her infant in the NICU will likely receive artificial formulas, which increases the risk of necrotizing enterocolitis.<sup>74</sup>

The IOM goal of equity involves care that is impartial and free from bias. All mothers and babies should receive access to the same quality perinatal care during their hospital stay. Privately insured mothers who are better educated about breastfeeding may insist on seeing an RLC regardless of any risk factors or difficulty with breastfeeding. Less knowledgeable mothers who are more likely to be Medicaid recipients or participants

feed directly for weeks or months. These high-acuity babies and their mothers need continued lactation support throughout the hospital stay, yet many NICUs have no RLCs on staff.<sup>1,78</sup> Education about pumping to provide milk for a preterm infant is typically initiated by mother-baby nursing staff and/or RLCs while the mother is on the mother-baby unit. Unfortunately, there is often little to no lactation support available to help the mother when it is time to initiate direct breastfeeding in the NICU.<sup>78</sup>

### ***Provider-Related Acuity: Safety and Patient-Centeredness***

Provider-related acuity attributes include the intensity or level of difficulty of care required. All mother-baby couplets require some degree of care related to breastfeeding. Healthy couplets typically require less intense care than do couplets where one or both patients have risk factors that might affect successful breastfeeding or lactation. All US hospitals provide nursing care to mothers and babies in the perinatal setting.<sup>2</sup> Not all US hospitals provide skilled lactation care or have RLCs on staff.<sup>1</sup> Bedside perinatal and pediatric nurses should have competency to provide basic lactation and breastfeeding care in low-acuity situations.<sup>12,31,32</sup> In higher-acuity situations, where risk factors for premature weaning are present, the intensity of care and the need for specialized breastfeeding knowledge indicate the need for lactation support provided by an RLC.<sup>33-36</sup> Advances in the fields of reproductive endocrinology/infertility, general obstetrics and neonatology have made it possible for women to conceive who would have previously remained childless and for more infants to survive preterm births. The increasing numbers of these potentially higher-acuity couplets require an increase in the availability of skilled lactation care from bedside nurses and RLCs.

The potential for meeting the IOM goal of patient safety is increased by defining lactation acuity and then matching resources to acuity. When hospital staff and administrators recognize the risks involved in failing to provide adequate support for high-acuity lactation situations, they can make better decisions about resources for lactation support. Risk management departments may question the liability of failing to provide needed services or providing care by staff lacking appropriate training and skills.<sup>12-14</sup> Data from the Oklahoma University Medical Center's lactation program in 2006 showed that 75% of lactation consults

could be considered high acuity whereas 25% were defined as "maternal knowledge deficit."<sup>79</sup> The late preterm infant on the mother-baby unit who "looks" like a term baby is at greater risk of ineffective breastfeeding in the first few days.<sup>61-63</sup> In an effort to encourage exclusive breastfeeding, staff may "wait and see" how the baby does and end up with a jaundiced baby needing phototherapy or even transfer to the NICU.<sup>65</sup> The mother having difficulty latching her baby may be given a nipple shield by well-meaning nursing staff and discharged without adequate follow-up or instructions to pump her breasts until adequate milk transfer to the baby is evident. Both these patients are potential readmissions to the hospital.<sup>80,81</sup>

Patient-centeredness means the patient and family are involved in the patient's care. Mothers trust the health care system and assume that the support and information they receive is accurate.<sup>3</sup> They are more likely to blame themselves, rather than the health care system, when they do not meet their breastfeeding goals.<sup>82-85</sup> A mother's decision to breastfeed needs to be supported with care that is optimal and routine, not an exception. All healthy babies should be placed skin to skin after birth; mothers should not have to ask, sometimes repeatedly, for this opportunity. Early identification of mothers and babies at greater risk of premature weaning enables staff to proactively intervene. They can help the mother develop a plan of care that she can follow to improve her chance of successful lactation and breastfeeding. Mothers who receive anticipatory guidance are more likely to identify early signs of poor feeding and contact appropriate resources after discharge.<sup>3,86</sup>

### ***System-Related Acuity: Efficiency and Effectiveness***

System-related acuity aligns efficiency and effectiveness with the resources needed to provide optimal care, and it can be used to predict staffing needs. In the current health care environment, many hospital risk management teams focus on best practices in an effort to bridge the quality gap and improve outcomes.<sup>15</sup> Factors shown to contribute to potentially hazardous care delivery include inadequate staff orientation and training, staff working outside their scope of practice, lack of adequate clinical and educational support systems, poor communication, and ineffective teamwork.<sup>15,87</sup>

Numerous articles have been published demonstrating adverse health outcomes when suboptimal care is

provided to breastfeeding mothers and babies.<sup>73,80,81,88</sup> The Baby-Friendly Hospital Initiative defines optimal breastfeeding care for healthy mother-baby couplets and minimum requirements for staff education.<sup>11</sup> As lactation acuity increases, however, access to RLCs is important in preventing adverse health outcomes. Staffing perinatal units based on lactation acuity in addition to other patient classifications can help to balance the workload between nursing staff and RLC staff.

Nursing burnout can occur when higher patient acuity is not considered in staffing decisions.<sup>13</sup> Staffing ratios for laboring patients are 1:1 (registered nurse: patients).<sup>89</sup> Assigning a less-experienced nurse 2 high-acuity laboring patients increases nursing stress, risk of burnout, and poor outcomes. RLC burnout can occur in similar situations. While limited research has been published related to lactation staffing,<sup>79</sup> an unpublished survey of Philadelphia hospitals demonstrated the lack of guidance in providing this level of care.<sup>90</sup> In 2003, RLC staffing in the birthing hospitals in Philadelphia ranged from 1:22 000 (full-time position:births) to 1:800. In 2003, only 60% of these hospitals provided RLC services, and by 2009, this figure had declined to 50%. When no RLCs are available, then the resources to provide optimal lactation care become quite limited, stressing the existing nursing staff even more and increasing the risk of adverse outcomes.<sup>91</sup>

Defining lactation acuity can improve effectiveness of patient care, another IOM goal. As the CDC's Maternity Practices in Infant Nutrition and Care survey indicated, lactation care in US hospitals is quite variable, and the majority of perinatal nursing staff have not had sufficient training to provide optimal care.<sup>2</sup> Using a consistent definition of lactation acuity across hospital systems could lead to more consistent benchmarking of care and identification of best practices that lead to improved breastfeeding outcomes. Hospital administrators and the IOM may recognize the potential for improved efficiency of care that can result from identifying lactation acuity.<sup>25</sup> While many couplets are discharged suboptimally breastfeeding and most before breastfeeding is well established, others may require longer hospital stays or readmission because of lactation-related adverse outcomes.<sup>1,63,73,80,81,92</sup> Identifying these risk factors as early as possible can improve outcomes.

### Limitations

Limitations of many patient classification systems include their complexity and the time required to complete them, their lack of credibility with staff, and their focus

on tasks rather than the knowledge and skill of the practitioner.<sup>23</sup> The lactation acuity levels defined here are simple and quick to complete and are focused on need for more skilled lactation support rather than tasks. A similar version of these acuity levels has been in use at the Oklahoma University Medical Center for 3 years with demonstrated credibility with lactation staff.<sup>25</sup> These acuity levels are designed to identify risk factors and classify patients on the basis of their need for lactation support. Future research is needed to demonstrate the validity and reliability of these lactation acuity definitions.

### Summary

Defining lactation acuity can help to improve several elements of patient safety as defined by the IOM. Efficiency and effectiveness of care increase when appropriate resources are directed to breastfeeding patients.<sup>33</sup> Matching lactation acuity with appropriate resources can result in better utilization of staff, more timely patient-focused care, and an increase in exclusive breastfeeding at discharge, one of the Joint Commission's new voluntary perinatal core measures.<sup>93</sup> Research is needed to validate the expected improvement in breastfeeding outcomes—including exclusive breastfeeding at hospital discharge and increased duration of breastfeeding—when acuity levels are used to provide appropriate lactation support.

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