Guidelines for Professional Registered Nurse Staffing for Perinatal Units

AWHONN
Association of Women's Health, Obstetric and Neonatal Nurses

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ABOUT AWHONN

Headquartered in Washington, D.C., the Association of Women's Health, Obstetric and Neonatal Nurses (AWHONN) is a leader among the nation's nursing associations, serving more than 22,000 health care professionals in the U.S., Canada, and abroad.

AWHONN advances the nursing profession by providing nurses with critical information and support to help them deliver the highest quality care for women and newborns. Through its many evidence-based education and practice resources, legislative programs, research, and coalition work with like-minded organizations and associations, AWHONN has firmly established itself as the leading association for women's health, obstetric, and neonatal nurses.

AWHONN members are committed to delivering superior health care to women and newborns in hospitals, home health, and ambulatory care settings. The rich diversity of members' skills and experience make AWHONN *the* voice for women's health and neonatal nursing. It is through their dedication, knowledge, skill, and expertise that we create resources aimed at achieving our mission to promote the health of women and newborns.

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The AWHONN *Guidelines for Professional Registered Nurse Staffing for Perinatal Units* were developed by the AWHONN Staffing Task Force, comprised of member experts selected for their clinical practice, management, research, and legal expertise related to perinatal nurse staffing. The task force was charged with reviewing perinatal nurse staffing issues, identifying areas of most concern, and making recommendations about perinatal nurse staffing. AWHONN gratefully acknowledges the time and expertise of the task force and the assistance of Kathleen Rice Simpson, PhD, RNC, FAAN with the development of this document.

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AWHONN is grateful to the 2010 AWHONN Board of Directors for their review of the *Guidelines for Professional Registered Nurse Staffing for Perinatal Units*. The Board of Directors lent their wisdom and expertise so this document would reflect their broad perspectives and experience in perinatal nursing practice.

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AWHONN could not have produced the *Guidelines for Professional Registered Nurse Staffing for Perinatal Units* without the contributions of almost 900 AWHONN members who shared their understanding of the need to improve perinatal nurse staffing in the United States. Every comment was read and addressed in the *Guidelines for Professional Registered Nurse Staffing for Perinatal Units*.

These guidelines are professional recommendations from AWHONN intended for those who plan and implement perinatal registered nurse staffing. Registered nurse staffing in perinatal units is challenging because of the dynamic nature of the patients and clinical situations encountered. The greater context of state, community, and institutional needs and regulatory requirements may influence the application of these guidelines and may justify variations from them in some situations. The purpose of these guidelines will be served if they provide a basis for planning adequate registered nurse staffing that results in safe and effective perinatal nursing care. The information presented here is not intended to define rules for liability, employment law or other purposes.

ENDORSING ORGANIZATIONS

The following organizations have formally endorsed the *Guidelines for Professional Registered Nurse Staffing for Perinatal Units* as of April 21, 2011.

American Academy of Pediatrics

American Academy of Pediatrics

American College of Nurse-Midwives

American Nurses Association

Association of periOperative Registered Nurses

International Lactation Consultant Association

The March of Dimes

National Association of Neonatal Nurses Practitioners

National Association of Pediatric Nurse

United States Lactation Consultant Association

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INTRODUCTION

Background

In the first edition of *Guidelines for Perinatal Care* (1983), recommendations for the ratio of registered nurses to patients in various perinatal clinical situations were issued by the American Academy of Pediatrics (AAP) and the American College of Obstetricians and Gynecologists (ACOG), in consultation with the Nurses' Association of the American College of Obstetricians and Gynecologists (NAACOG, now known as the Association of Women's Health, Obstetric and Neonatal Nurses [AWHONN]). Those staffing recommendations included a 1:1 nurse-to-patient ratio for care during the labor of a woman with medical or obstetric complications, during initiation of epidural anesthesia, during the second stage of labor, and while acting as the circulating nurse during a cesarean birth; a 1:2 ratio for the care of uncomplicated patients in labor and for patients undergoing induction or augmentation of labor, and for patients during postoperative recovery; a 1:3 ratio for complicated but stable antepartum or postpartum patients; and a 1:6 ratio for uncomplicated antepartum or postpartum patients. Recommendations for nurse staffing for newborns ranged from 1:1 for complex or critically ill newborns, to 1 nurse for each 6 to 8 newborns needing only routine care. The recommendations came to be considered standards for nurse staffing in perinatal units and are the foundation on which hospital administrators and the leaders of perinatal services plan for personnel and financial resources. Despite the many changes in perinatal care over the past 27 years in the United States, the nurse-to-patient staffing standards have not changed.

Changes in perinatal care since 1983 include but are not limited to:

- increases in medical interventions, elective procedures, prevalence of morbid obesity among childbearing women, women of advanced maternal age with associated medical complications, women with comorbidities, women presenting for obstetric triage, antenatal testing techniques, labor inductions, preterm births, multiple gestations, cesarean births, and requirements for maternal and fetal assessments;
- more women with social and economic disadvantages, drug and alcohol abuse, and language barriers;
- addition of pharmacologic agents for cervical ripening and labor induction;
- designation of oxytocin and magnesium sulfate as high-alert medications;
- increase in births of late preterm infants and early term infants, who require closer monitoring as they are at risk for more complications than term infants;
- advances in neonatology allowing care for more fragile preterm babies;
- decreased lengths of inpatient stay for childbirth resulting in higher acuity of hospitalized mothers and babies;
- proliferation of electronic medical record systems that require more nursing time; and
- increases in patient data required to be part of the medical record based on regulatory and accreditation standards, including admission screening for multiple nonobstetric conditions, social and health risks, medication reconciliation, discharge processes, checklists, and double-check systems for patient safety.

Development of the *Guidelines for Professional Registered Nurse Staffing for Perinatal Units*

All of these changes in perinatal care have implications for nurse staffing of perinatal units. Therefore, based on recommendations from the AWHONN Perinatal Patient Safety Advisory Panel, the AWHONN Board of Directors convened a task force in 2009 to evaluate nurse staffing standards for perinatal units and to revise as necessary. The task force developed these guidelines for nurse staffing in perinatal units.

In June 2010, AWHONN members were invited to respond to a survey posted to the AWHONN website over two weeks. The survey included an open-ended question to avoid the bias inherent in predetermined content of structured survey items: "Please give the staffing task force your input on what they should consider in the development of recommendations for staffing of perinatal units." The goal was to solicit suggestions on any staffing issues that members felt had merit and that needed consideration by the task force. Nearly 900 perinatal nurses responded.

In general, AWHONN members reflected concerns about the existing AAP & ACOG staffing standards relative to their ability to meet the needs of pregnant women, mothers and babies in contemporary perinatal clinical practice. Consistent themes were identified and specific areas of concern raised by AWHONN members are clarified and updated in these new nurse staffing guidelines.

The original staffing standards (AAP & ACOG, 1983 to 2007) included both *types of patients* (such as patients in labor and antepartum and postpartum patients with complications, but in stable condition) and *types of clinical situations* (such as oxytocin induction or augmentation of labor, coverage for initiation of epidural anesthesia, and second stage of labor), but do not specifically delineate the two patients that a pregnant woman represents (the mother and the fetus in a singleton pregnancy). As a result, some of the clinical situations in which "patient" is not mentioned, such as oxytocin induction or augmentation of labor, have been interpreted by some to mean 1 nurse to 1 woman receiving oxytocin (1:2 staffing ratio when considering the fetus), while others have interpreted this to mean 1 nurse to 2 women receiving oxytocin (1:4 staffing ratio when considering the fetus). For clarity, we have specified the number of women in the ratio, rather than using the generic term "patient." Clarification of the staffing standards relative to pregnancy, representing two distinct patients for each of the types of patients and clinical situations described, is needed. The fetus as the second patient must be considered when staffing ratios are designated for care for pregnant women.

The current (AAP & ACOG, 1983 to 2007) staffing standards assume that there will be ancillary personnel to perform nonnursing duties as well as provide support and comfort to perinatal patients. Adding licensed practical nurses, licensed vocational nurses, OB technicians, or nurses' aides to the staffing numbers does not preclude requirements to meet staffing standards for registered nurses. Other personnel, including clerical support, are necessary for indirect patient care activities (AAP & ACOG). This assumption has been incorporated in these guidelines. The absence of additional support must be considered in modifying these guidelines, since they already account for the presence of these additional personnel. Without ancillary support personnel, more nurses may be needed. For the purposes of this document, "nurse" means "registered nurse."

In addition to AWHONN, ACOG and AAP, professional organizations such as the Joint Commission (TJC), American Nurses Association (ANA), National Association of Neonatal Nurses (NANN), Association of periOperative Registered Nurses (AORN), American Society of PeriAnesthesia Nurses (ASPAN), Institute for Safe Medication Practices (ISMP), the United States Lactation Consultant Association (USLCA), and the U.S. Department of Health and Human Services (US DHHS; Emergency Medical Treatment and Active Labor Act [EMTALA]) have staffing standards and/or other standards and clinical recommendations that affect staffing. The applicable standards and clinical recommendations from these organizations are cited in AWHONN's Guidelines for Professional Registered Nurse Staffing for Perinatal Units, where relevant.

Principle-Based Staffing

Adequate staffing is critical to providing safe nursing care to mothers and babies. Staffing needs in perinatal units are dynamic, consistent with the various types of patients and clinical situations encountered in a perinatal service. In 1999, ANA developed a framework for evaluating the adequacy of nurse staffing. Principles for nurse staffing and criteria for determining the staffing needs for care settings were presented, based on patient care unit (patient-specific and unit-specific factors), nursing staff (experience and expertise), facility/organization (policies and practices), and ongoing evaluation of the adequacy of staffing (ANA, 1999).

Classification of *patients* and *clinical situations* help determine the adequacy of staffing by establishing the nursing effort required for safe care (ANA, 2005; Giovannetti, 1979). Those two concepts are essential in determining safe staffing, and serve as the framework for the updated guidelines in this document. As in the original staffing standards (AAP & ACOG, 1983 to 2007), requirements for nurse staffing here have been classified based on common types of patients and clinical situations in perinatal units in the United States. A patient classification system is only one part of a plan for adequate nurse staffing. Professional judgment is critical in evaluating staffing requirements when using a classification system, in light of the nursing needs of the patients on any given unit (ANA, 2005). Some types of patients and clinical situations may require more nurses than suggested, based on specific conditions. A nurse staffing plan, with evidence that its resources are adequate and that it is actively managed, is essential to patient safety. Those aspects of nurse staffing were listed prominently in the recent National Quality Forum (NQF, 2010) consensus report, *Safe Practices for Better Healthcare-2010 Update*.

Models of staffing that may be appropriate for medical-surgical units are not applicable to perinatal care. Staffing plans for perinatal units should include estimates of patient volume that count admissions, discharges, and "less than full day" patients such as women that present for obstetric triage (Page, 2004). "Hours per patient day" and/or "midnight census" models are not applicable in planning perinatal nurse staffing, because they are not appropriately adjusted for risk and do not consider the dynamic nature of caring for women during labor and birth, the frequent admissions and discharges assigned to one nurse on a shift that influence workload, or the large volume of triage patients and outpatients who often present to the perinatal unit for care (Simpson, 2009). Those models more than likely result in financial "variances," missed budgetary targets and inadequate numbers of nurses to provide ongoing safe care.

The physical design of a unit and patient volume influence staffing requirements. For example, a unit may be configured for single-room maternity care with labor-delivery-recovery-postpartum (LDRP) rooms, with labor-delivery-recovery (LDR) rooms and a separate mother-baby unit, or include a separate well-baby nursery, a special care nursery, or neonatal intensive care nursery, antepartum units, labor and birth units, and/or postpartum units. Those physical configurations may or may not reflect how nursing care is actually provided (such as one nurse caring for mother and baby through all aspects of care, each aspect of care assigned to a different nurse, or a combination of both). High-volume perinatal services may have separate units for each aspect of care for logistical and space reasons. *These staffing guidelines are based on the premise that mothers and babies should remain together as their conditions allow*.

In times of low census, some perinatal units may accept nonobstetric patients, usually women with gynecologic conditions, although in some cases, other patients representing clean surgical cases or medical conditions may be admitted (AAP & ACOG, 2007). Under all circumstances, perinatal patients must take precedence over nonobstetric patients when considering admission to a perinatal unit and the availability of nurses to care for perinatal patients (AAP & ACOG). Designation of nurse-to-patient staffing ratios for such patients should be similar to other medical-surgical patients and based on acuity and skill level of nurses expected to care for a nonobstetric population. Adequate education and competence validation related to the care of such patients should be provided.

Nearly all labor and birth units have electronic documentation systems associated with their electronic fetal surveillance systems (Klas, 2008). Many hospitals have electronic medical records (EMRs) in all clinical units linked to admission, laboratory, radiology, pharmacy and billing systems (Healthcare Information and Management Systems Society [HIMSS], 2010). At least 69% of U.S. hospitals have electronic nursing documentation in multiple units, including mother-baby units, special care nurseries, and neonatal intensive care units, and 45% have computerized physician order entry (HIMSS).While EMRs have many benefits, they require more nursing time. A recent study confirms that even the most basic EMR (Stage 2) increased nurses' hours per patient day by 15% to 26% in California hospitals (Furukawa, Raghu & Shao, 2010). Stage 2 refers to the type and scope of the EMR implemented in a hospital or healthcare system, based on the goals for EMRs outlined in the American Recovery and Reinvestment Act of 2009 *Meaningful Use* requirements, with Stage 7 as the goal. By 2011, hospitals will be expected to have achieved Stage 3 and by 2013, Stage 4. Thus, the time nurses spend on electronic documentation will increase and continue to have implications for staffing requirements.

The experience and skill mix of nurses on each unit on each shift is another essential factor in determining safe nurse staffing. There have been no studies specifically evaluating patient outcomes related to the level of experience of the nurses providing care, but as a general principle, staffing plans that include experienced perinatal nurses on each shift are recommended. For the purposes of this document, the staffing ratios recommended assume that the nurse with primary responsibility for each type of patient and clinical situation listed has been adequately oriented to the clinical unit and has demonstrated at least entry-level competence in the area of practice.

A nurse should be designated as being "in charge" on each shift. Charge nurses ideally should not have patient assignments so they can oversee clinical and unit operations, and mentor nurses with less experience

in perinatal nursing. In times of high census, short-term patient assignments, such as acting in the role of baby nurse at birth or caring for a woman who presents for obstetric triage, are ideal to allow charge nurses to fullfill their supervisory responsibilities. It is acknowledged that charge nurses without patient care assignments may not be possible for small-volume perinatal services.

Budgeting for nurse staffing of perinatal units should include "nonproductive time" for a thorough orientation to the units, and regularly scheduled continuing education. Ongoing learning is fundamental to patient safety and therefore should be budgeted for and scheduled routinely. Interdisciplinary team training in perinatal units is recommended by The Joint Commission (2004) to educate clinicians on how to work together and communicate more effectively. Clinical drills for high-risk events, such as shoulder dystocia, emergent cesarean birth, maternal hemorrhage, and neonatal resuscitation are recommended. (NRP, 2006; JACHO, 2004, TJC, 2010d). Debriefings after drills, near-miss events and events in which patients are harmed should be held to evaluate team performance and identify areas for improvement (JACHO, 2004). Interdisciplinary fetal monitoring education should be offered regularly (JACHO, 2004). Quality improvement processes are required by The Joint Commission (2010a) and are a critical to patient safety. Such activities should be included in the unit staffing budget to allow participation of clinicians.

Nurse Staffing and Patient Outcomes

A comprehensive review of the literature related to nurse staffing and patient outcomes is beyond the scope of this document, but there is a growing body of evidence that higher nurse staffing is associated with lower hospital-related morbidity and mortality, fewer failure to rescue and other adverse patient events, and shorter inpatient stays (Aiken et al., 2010; Kane, Shamliyan, Mueller, Duval, & Wilt, 2007). The recent Evidence Report/Technology Assessment, *Nurse Staffing and Quality Patient Care* (Kane et al., 2007), published by the Agency for Healthcare Research and Quality (AHRQ), reviewed 96 studies of nurse staffing and patient outcomes and found that the effect of increased nurse staffing is strong and consistent for patients in intensive care units (ICUs) and for surgical patients. Pooled results showed that every additional full time equivalent (FTE) nurse per patient day was associated with a risk reduction in hospital-related mortality of 9% in ICUs and 16% in surgical patients. It was estimated that an increase by one FTE nurse per patient day would save 5 lives per 1,000 medical patients, and 6 per 1,000 surgical patients. Reducing the workload from more than six patients per nurse to less than three patients per shift would save 25 lives per 1,000 hospitalized medical patients and 15 lives per 1,000 surgical patients (Kane et al., 2007).

The association of nurse staffing and patient outcomes varies by clinical setting and patient population. Aiken, Clarke, Sloane, Sochalski & Silber (2002), in the *Journal of the American Medical Association*, found that each additional surgical patient per nurse was associated with a 7% increase in the likelihood of dying within 30 days of admission and a 7% increase in the odds of failure to rescue. The difference from 4 to 6 and from 4 to 8 patients per nurse would be accompanied by 14% and 31% increases in mortality, respectively (Aiken et al., 2002). In a study of 236 ICUs, each additional patient per nurse was associated with a 9% increase in the odds of dying (Cho, Hwang & Kim, 2008). In ICUs, an increase by one FTE nurse per patient day was associated with a consistent decrease across studies in the relative risk of these patient outcomes: 28% in cardiopulmonary resuscitation, 51% in unplanned extubation, 60% in pulmonary

failure, and 30% in hospital acquired pneumonia (Kane et al., 2007). In surgical patients, an increase of one FTE nurse per patient day was associated with a consistent reduction of 15% in the relative risk of failure to rescue, and 31% in nosocomial bloodstream infections (Kane et al., 2007). There is substantial evidence that higher staffing is associated with better patient outcomes (Page, 2004; Shojania, Duncan, McDonald, & Wachter, 2001).

A recent study in *Health Services Research* evaluated the implications of the California nurse staffing mandate on patient outcomes (Aiken et al., 2010). In that state, where nurses care for an average of one fewer patient than comparative states, the lower nurse-to-patient ratios have significant positive effects on surgical patient mortality and failure to rescue rates (Aiken et al., 2010). The effect of adding an additional patient to a hospital nurse's workload beyond what has been mandated in California significantly increases the chance of patient death and failure to rescue rates (Aiken et al., 2010). Beginning in June 2010, the Centers for Medicare & Medicaid Services (CMS) required hospitals to report their failure to rescue rates, a nurse-sensitive care measure that has been used mostly to evaluate care for medical-surgical patients, but now has been adapted for use in obstetrics (Simpson, 2005).

Although perinatal patients have not been studied specifically, these data suggest similar outcomes could be expected in this inpatient population as labor and delivery units and neonatal intensive care units are intensive care units; women having cesarean birth and those who are post-cesarean birth are surgical patients. The absence of data specifically related to perinatal units and outcomes for mothers and babies should not preclude taking immediate action on this important patient safety issue.

Guidelines for Professional Registered Nurse Staffing for Perinatal Units

Table 1 contains a summary of the background and existing applicable professional standards for various types of patients and clinical situations commonly encountered in the perinatal setting, with new guidelines for nurse-to-patient ratios. A summary of the nurse-to-patient ratios are listed in **Table 2**. These guidelines should be considered within the context of principle-based staffing.

The many changes in perinatal care over the past 27 years and their associated impact on nurse staffing are the basis for these guidelines. The goal is to promote a safe care environment and allow perinatal nurses to spend more time at the bedside caring for mothers and babies.

TABLE 1

Guidelines for Professional Registered Nurse Staffing for Perinatal Units Based on Patient Type and Clinical Situation

Obstetric Triage

Background

Obstetric triage is a process that occurs in the emergency department (ED) and/or the perinatal unit. Some perinatal services have obstetric triage units designed specifically to evaluate pregnant women who present to the hospital for care. While labor at term, scheduled labor induction, or cesarean birth are the more common reasons pregnant women come to the hospital, many women present earlier in pregnancy with a variety of obstetric or medical complications. Women who present for obstetric triage are not specifically considered in the current AAP & ACOG (1983 to 2007) staffing ratios, yet such patients represent an appreciable amount of patient volume and nurse staffing hours in many perinatal services. This number can range from a ratio of 1.2 to 1.5 to the overall birth volume (for example, a perinatal center with 100 births per month can expect to see 120 to 150 women presenting for obstetric triage; a perinatal center with 500 births per month can expect to see 600 to 750 women presenting for obstetric triage). These numbers do not include patients scheduled for antepartum testing, but some obstetric units also function as antepartum testing units. In such situations, the ratio of obstetric triage patients to births is even higher.

The Emergency Medical Treatment and Labor Act (EMTALA, 1986; 2003; 2009) requires a medical screening examination to determine whether an emergency medical condition exists. For pregnant women, the process requires assessment of *both the mother and the fetus* (Angelini & Mahlmeister, 2005). Triage criteria used in EDs are generally not applied to women who present for obstetric triage to perinatal units, and there is no valid and reliable ED triage system that has been tested using obstetric patients.

Obstetric triage and ED triage *differ in significant ways*. When a patient presents to the ED, triage involves a brief interview and assessment, which are the basis for assigning the next step in patient care based on acuity or patient condition, and the availability of personnel and beds. The patient in the ED may be sent to the waiting room, an ED room or trauma room. Unless there is a change in the patient's condition while in the waiting room that prompts further interaction with the triage nurse, triage is essentially completed. When a pregnant woman presents to the obstetric triage unit, a similar initial process occurs. However, once the woman is assigned to an obstetric triage nurse and an obstetric triage room, care is ongoing until patient disposition is determined, typically to the labor and delivery unit, antepartum unit, antenatal testing unit, back to the ED, or home. In obstetrics, triage generally refers to the initial interview and assessment as well as care in the triage unit for several hours before patient disposition. *Obstetric triage care therefore involves much more than the initial triage interview and assessment in ED triage*. Many obstetric triage units function as obstetric EDs.

Some units do not have separate antenatal testing units. Women who are scheduled for nonstress testing are cared for in the obstetric triage unit even though they are not presenting for typical obstetric triage care. As such, these types of units function as combined obstetric triage/antenatal testing units.

Existing Applicable Professional Standards and Guidelines	Recommendations
• The Emergency Medical Treatment and Labor Act (EMTALA) imposes specific obligations on healthcare providers who offer triage care (a) to perform a medical screening examination to determine whether an emergency medical condition exists (including both the mother and the fetus), (b) to provide necessary stabilizing treatment when an emergency medical condition exists, and (c) to stabilize the patient, or, if the healthcare provider certifies that the benefits of transfer outweigh the risks, arrange for proper transfer to another hospital. (*The Consolidated Omnibus Budget Reconciliation Act of 1985*, (86). Pub L No. 99272, § 9121, 100 Stat 82.) *(Emergency Medical Treatment and Labor Act, US DHHS, 2003; 2009)* • Pregnant women may come to a hospital's labor and delivery area not only for obstetric care but also for evaluation and treatment of nonobstetric illness. Departments should agree on the conditions best treated in the labor and delivery area and those that should be treated in other hospital units. A pregnant woman who presents for care should be evaluated in a *timely* (not currently defined by AAP & ACOG) fashion. Minimally, the evaluation by an obstetric nurse should include assessment of maternal vital signs, fetal heart rate (FHR) and uterine contractions. Further evaluation includes assessment for vaginal bleeding, acute abdominal pain, temperature of 100.4° or higher, preterm labor, preterm premature rupture of membranes, hypertension, and indeterminate or abnormal FHR pattern. If these findings are present or suspected, the responsible obstetric-care provider should be promptly informed. (*Guidelines for Perinatal Care*, American Academy of Pediatrics [AAP] & American College of Obstetricians and Gynecologists [ACOG], 2007)	• **The initial triage process (10 to 20 minutes) requires 1 nurse to 1 woman presenting for care. This ratio may change to 1 nurse to 2–3 women as maternal-fetal status is determined to be stable, until patient disposition.** • Fetal status assessment should be included in the initial triage assessment before determining the level and immediacy of care required. • **1 nurse to 2–3 women during nonstress testing.**

• Any patient suspected to be in labor or who has ruptured membranes or vaginal bleeding should be evaluated *promptly* (not currently defined by AAP & ACOG). Minimally, the following should be assessed: maternal vital signs, frequency and duration of uterine contractions, documentation of fetal wellbeing, urinary protein concentration, cervical dilatation and effacement, unless contraindicated (such as with placenta previa and preterm premature rupture of membranes) or cervical length as ascertained by transvaginal ultrasonography, fetal presentation and station of the presenting part, status of the membranes, estimated fetal weight, and assessment of maternal pelvis. Along with these assessment data, date and time of the patient's arrival and notification of the primary obstetric-care provider should be included in the medical record. (*Guidelines for Perinatal Care*, AAP & ACOG, 2007) • If the woman has received prenatal care and a recent examination has confirmed the normal progress of pregnancy, her triage evaluation may be limited to an interval history and physical examination directed at the presenting condition. Previously identified risk factors should be considered and reassessed. If no new risk factors are found, attention may be focused on the following historical factors: time of onset and frequency of contractions, presence or absence of bleeding, fetal movement, history of allergies, time, content and amount of the most recent food or liquid ingestion, and use of any medications. (*Guidelines for Perinatal Care*, AAP & ACOG, 2007)	

High-Risk Antepartum Care

Background

Current recommendations (AAP & ACOG, 1983 to 2007) are for 1 nurse to 6 antepartum patients *without* complications; however, antepartum patients without complications are rarely, if ever, hospitalized. This ratio has been eliminated in these guidelines because such patients do not exist in contemporary obstetric practice. Some antepartum patients with complications such as preterm labor or preeclampsia receive high-alert medications such as intravenous (IV) magnesium sulfate, which requires more intensive monitoring and care (Institute for Healthcare Improvement [IHI], 2007; Institute for Safe Medication Practices [ISMP], 2007a; Simpson & Knox, 2004). Likewise, patients who are being administered cervical ripening agents such as Cervidil (prostaglandin E_2 vaginal insert) or Cytotec (misoprostol) are sometimes cared for on antepartum units and are of higher acuity and require more intensive monitoring than patients not receiving pharmacologic agents for cervical ripening (ACOG, 2009a,b). Patients undergoing cervical ripening with pharmacologic agents are not specifically considered in the current AAP & ACOG (1983 to 2007) staffing ratios, yet such procedures are now common as cervical readiness or ripening is recommended for women having labor induction (ACOG, 2009a).

Existing Applicable Professional Standards and Guidelines

- 1 nurse to 3 women with antepartum complications in stable condition

(*Guidelines for Perinatal Care*, AAP & ACOG, 2007)

(*Perinatal staffing and the nursing shortage: Challenges and principle-based strategies,* Association of Women's Health, Obstetric and Neonatal Nurses [AWHONN], 2009)

- Women who are receiving IV magnesium sulfate who are not in labor (antepartum patients at risk for preterm birth who are no longer contracting to the degree that preterm birth is an imminent concern) should have 1 nurse in continuous bedside attendance for the first hour of administration and 1 nurse to 1–2 women thereafter with at least hourly assessment of maternal-fetal status.

(*Obstetric accidents involving intravenous magnesium sulfate: Recommendations to promote patient safety*. Simpson & Knox, 2004).

Recommendations

- **Hospitalized antepartum patients are assumed to have complications and require 1 nurse to 3 women if in stable condition**.
- If the antepartum patient is not in stable condition, **a minimum ratio of 1:1** is recommended.
- **A woman who is receiving IV magnesium sulfate should have 1 nurse in continuous bedside attendance for the first hour of administration. The ratio of 1 nurse to 1 woman receiving magnesium sulfate should continue until the woman is no longer contracting to the degree that preterm birth is an imminent concern.**
- **Women receiving IV magnesium sulfate who are not in labor** (antepartum patients at risk for preterm birth who are no longer contracting to the degree that preterm birth is an imminent concern) **require a minimum of 1 nurse to 2 women** with

	at least hourly assessment of maternal-fetal status. • **Women receiving pharmacologic agents for cervical ripening** such as Cervidil (prostaglandin E_2 vaginal insert) or Cytotec (misoprostol) require continuous electronic fetal monitoring and a **minimum of 1 nurse to 2 women** with assessment of maternal-fetal status at least every 30 minutes.

During Labor

Background

Current standards (AAP & ACOG, 1983 to 2007) require a 1:1 nurse-to-patient ratio for women with medical or obstetric complications, women in second-stage labor and coverage for epidural anesthesia. However, during labor, many types of patients and clinical situations beyond those listed in the current staffing standards (AAP & ACOG) warrant a 1:1 nurse-to-patient ratio. Following are detailed descriptions of many such patients and clinical situations. This is not meant to be a complete list. There may be other types of patients and clinical situations that would require a 1:1 ratio.

During Labor of Women Laboring With Minimal to No Pain Relief or Medical Interventions

Background

Although it is not known how many U.S. women labor and give birth without pharmacologic pain relief, recent data from the Listening to Mothers Survey (Declercq, Sakala, Corry, & Applebaum, 2006) suggest that about 14% of laboring women choose this option. Women who labor without pharmacologic pain relief benefit from intensive labor support techniques with continuous bedside presence of the labor nurse.

It is not known how many U.S. laboring women are monitored by intermittent auscultation rather than electronic fetal monitoring. The last data available indicated that in 2000, 84% of laboring women in the U.S. had continuous electronic fetal monitoring (Kozak, Hall & Owings, 2002). Intermittent auscultation is a labor-intensive method of assessing fetal status requiring assessment every 30 minutes for women without identified risk factors during the active phase of the first stage of labor and every 15 minutes during second-stage labor. Women with identified risk factors need intermittent auscultation every 15 minutes during the active phase of the first stage of labor, and every 5 minutes during second-stage labor (AAP & ACOG, 2007). Current research indicates that FHR auscultation, when provided with a 1:1 nurse-to-patient ratio, is comparable to electronic fetal monitoring for assessment of the laboring woman (AAP & ACOG; AWHONN, 2008). Often women who choose minimal intervention labor and birth also want intermittent auscultation for fetal assessment.

Hospitals must implement programs to reduce the risk of patient harm resulting from falls, including identifying types of patients and clinical situations where the patient is at risk of falling (TJC, 2010b). The incidence of women in labor that experience a fall in the inpatient setting is unknown. National data on inpatient falls on medical-surgical units are 3.62 falls per 1,000 patient days with 15.73% to 21.58% resulting in minor injuries and 1.21% to 2.27% resulting in moderate injuries (National Database of Quality Nursing Indicators [NDNQI], 2010). As comparison data, inpatient falls on women's health units are 0.88 per 1,000 patient days with 2.78% resulting in moderate injuries (NDNQI, 2010). Based on 19.4 million inpatient days annually for childbirth (AHRQ, 2010), this means the potential for 17,072 falls per year.

Existing Applicable Professional Standards and Guidelines	Recommendations
• There are no standards from AAP & ACOG that specifically address nurse-to-patient ratios for women who choose to labor and give birth with minimal to no pain relief or interventions. As comparative references, standards from the Royal College of Obstetricians and Gynaecologists' National Institute of Health and Clinical Excellence (RCOG, 2007) and the Society of Obstetricians and Gynaecologists of Canada (SOGC, 2007) indicate that a ratio of 1 nurse to 1 woman in labor is best practice. RCOG (2007) further states that women who are laboring should have continuous bedside attendance by the nurse. (*Fetal health surveillance: Antepartum and intrapartum consensus guideline,* Society of Obstetricians and Gynaecologists of Canada [SOGC], 2007) (*Fetal heart monitoring*, AWHONN, 2008) (*Intrapartum care of healthy women and their babies during childbirth*. Royal College of Obstetricians and Gynaecologists [RCOG], 2007). • AWHONN recommends continuous labor support; 1 nurse to 1 woman in labor to promote shorter labor, decreased use of analgesia and anesthesia, decreased risk of operative vaginal birth or cesarean birth, decreased need for oxytocin, and increased patient satisfaction. (*Professional nursing support for laboring women*. AWHONN, 2000) • Hospitals must implement programs to reduce the risk of patient harm resulting from falls, including identifying types of patients and clinical situations where the patient is at risk of falling. (*National Patient Safety Goals*, TJC, 2010b)	• **1 nurse to 1 woman for women choosing to labor with minimal to no pharmacologic pain relief or medical interventions** (Generally this recommendation applies beginning with the active phase of the first stage of labor. However some women in this category may require more intensive nursing care earlier in labor, depending on the woman's level of comfort and overall maternal-fetal status.). • **1 nurse to 1 woman when using intermittent auscultation for fetal assessment during active phase of the first stage of labor and during the second stage labor.** • **Women using birthing balls or undergoing hydrotherapy in the shower or tub should not be left unattended**. If no support person or ancillary personnel is available, the nurse should stay with the woman.

During Labor of Women Receiving Oxytocin

Background

The number of women in the U.S. who receive oxytocin for labor induction or augmentation is unknown. Many hospitals report 50% or more of women in labor are administered this high-alert medication. According to the most recent data available, the rate of labor induction in the U.S. rose from 9.5% in 1999 to 22.5% in 2006, although it is likely that these data are significantly underreported on birth certificates (Martin, Hamilton et al., 2009). The overall rate of induction is rising faster than the rate of pregnancy complications that would suggest a need for a medically indicated induction (Caughey et al., 2009; Martin, Hamilton et al., 2009).

Existing Applicable Professional Standards and Guidelines

- AAP & ACOG (2007) designate women in labor receiving oxytocin as high-risk patients, requiring assessment of maternal and fetal status as described for high-risk patients. Therefore, the AAP & ACOG (2007) staffing standard for high-risk patients in labor (1 nurse to 1 woman) is applicable.

(*Guidelines for Perinatal Care*, AAP & ACOG, 2007)

- Maternal and fetal status should be assessed every 15 minutes for patients receiving oxytocin for labor induction or augmentation (AAP & ACOG, 2007), and every time oxytocin dose is adjusted (AWHONN [Simpson], 2009). This assessment includes determination of baseline rate, variability, presence or absence of accelerations, presence or absence of decelerations, contraction frequency, duration and intensity, uterine resting tone, and the maternal-fetal response to the medication (AWHONN [Simpson], 2009).

(*Guidelines for Perinatal Care*, AAP & ACOG, 2007)

(*Cervical Ripening and Induction and Augmentation of Labor*, AWHONN [Simpson], 2009)

- If a nurse cannot clinically evaluate the effects of medication at least every 15 minutes (AAP & ACOG, 2007), the oxytocin infusion should be

Recommendations

- Patient assignment for women receiving **oxytocin for labor induction or augmentation should be 1 nurse to 1 woman** to be able to assess maternal and fetal status every 15 minutes, consistent with safe care.
- If a nurse cannot clinically evaluate the effects of medication at least every 15 minutes, the oxytocin infusion should be discontinued until that level of maternal and fetal care can be provided
- Elective procedures should be deferred until there are adequate nurses to safely meet the needs of the patients and service.

discontinued until this level of maternal and fetal care can be provided (AWHONN [Simpson], 2009). (*Guidelines for Perinatal Care*, AAP & ACOG, 2007) (*Cervical Ripening and Induction and Augmentation of Labor*, AWHONN [Simpson], 2009) • Elective procedures should be deferred until there are adequate nurses to safely meet the needs of the service. (*Cervical Ripening and Induction and Augmentation of Labor*, AWHONN [Simpson], 2009) • In 2007, the Institute for Safe Medication Practices (ISMP) added intravenous oxytocin to their list of high-alert medications. *High-alert medications* are drugs that have a heightened risk of causing significant patient harm when they are used in error (ISMP, 2007a). Although errors with high-alert medications may or may not be more common than with other drugs, patient injury and consequences of associated errors may be more devastating. Thus, special considerations and precautions are required before and during administration (ISMP, 2007a). When using high-alert medications, clinicians and hospitals should follow principles of safe care, including processes to prevent errors and harm, methods to identify error and harm when they occur and methods to mitigate the harm that may result from the error (Institute for Healthcare Improvement, 2007). Adequate staffing (1 nurse to 1 woman) meets criteria for principles of safe care when administering oxytocin. (*High-alert medications,* Institute for Safe Medication Practices [ISMP], 2007a). (*Oxytocin as a high-alert medication: Implications for perinatal patient safety*. Simpson & Knox, 2009). (*Prevent harm from high-alert medications: How-to guide*. Institute for Healthcare Improvement [IHI], 2007).	

• As comparative references, standards from the Royal College of Obstetricians and Gynaecologists' National Institute of Health and Clinical Excellence (NICE, 2007) and the Society of Obstetricians and Gynaecologists of Canada (SOGC, 2007) indicate 1 nurse to 1 woman in labor is best practice. (*Fetal health surveillance: Antepartum and intrapartum consensus guideline,* SOGC, 2007) (*Intrapartum care of healthy women and their babies during childbirth*. RCOG, 2007)	

During Labor of Women with Medical or Obstetric Complications

Background

The percentage of pregnant women with medical or obstetric complications varies with level of perinatal services provided at each hospital. Some tertiary-care centers report that 30% to 50% of pregnant women have such complications. Interpretation of "medical or obstetric complications" varies. Identification of specific complications commonly encountered may be helpful (medical complications include but are not limited to diabetes, pulmonary or cardiac disease, and morbid obesity; obstetric complications include but are not limited to preeclampsia, multiple gestation, fetal demise, indeterminate or abnormal FHR pattern, and a trial of labor attempting a vaginal birth after cesarean birth). This is not meant to be an all-inclusive list. There may be other types of patients and clinical situations that fall into the category of medical or obstetric complications that would require 1 nurse to 1 woman in labor.

Existing Applicable Professional Standards and Guidelines	Recommendations
• The nurse-to-patient ratio is 1:1 for women in labor with medical (such as diabetes, pulmonary or cardiac disease, and morbid obesity) or obstetric (such as preeclampsia, multiple gestation, fetal demise, indeterminate or abnormal FHR pattern, and a trial of labor attempting a vaginal birth after cesarean birth) complications during labor. (*Guidelines for Perinatal Care*, AAP & ACOG, 2007) (*Perinatal staffing and the nursing shortage: Challenges and principle-based strategies,* AWHONN [Schofield], 2009)	• **1 nurse to 1 woman with labor complications.** • **Women in labor who are receiving magnesium sulfate should have 1 nurse in continuous bedside attendance for the first hour of administration and 1 nurse to 1 woman thereafter.**

• Women in labor who are receiving magnesium sulfate should have 1 nurse in continuous bedside attendance for the first hour of administration and 1 nurse to 1 woman thereafter. (*Obstetric accidents involving intravenous magnesium sulfate: Recommendations to promote patient safety*. Simpson & Knox, 2004). • As comparative references, standards from the Royal College of Obstetricians and Gynaecologists' National Institute of Health and Clinical Excellence (NICE, 2007) and the Society of Obstetricians and Gynaecologists of Canada (SOGC, 2007) indicate 1 nurse to 1 woman in labor is best practice. (*Fetal health surveillance: Antepartum and intrapartum consensus guideline,* SOGC, 2007) (*Intrapartum care of healthy women and their babies during childbirth*. RCOG, 2007)	

During Vaginal Birth

Background

About two-thirds of U.S. births are vaginal (Hamilton, Martin & Ventura, 2010).

Existing Applicable Professional Standards and Guidelines	Recommendations
• One nurse to care for the mother (circulating nurse) and one with neonatal resuscitation skills whose sole responsibility is to the baby (baby nurse). (*Guidelines for Perinatal Care*, AAP & ACOG, 2007) (*Neonatal Resuscitation Program* [NRP], AAP & American Heart Association [AHA], 2006) (*Perinatal staffing and the nursing shortage: Challenges and principle-based strategies,* AWHONN [Schofield], 2009)	• **2 nurses should attend every birth, 1 for the mother and 1 for the baby. In the case of multiples, there should be 1 nurse for each baby.** The presence of the second nurse to attend to the baby is essential for safety of the mother and baby. At least 10% of babies require neonatal resuscitation (AAP & ACOG, 2007; NRP, 2006); a significant number of those babies are unexpectedly depressed at birth. When there are maternal or newborn complications, the circulating nurse may have to leave the room to secure

- One person capable of initiating newborn resuscitation (including positive pressure ventilation and chest compressions) should attend every birth.

(*Guidelines for Perinatal Care*, AAP & ACOG, 2007)

(*Neonatal Resuscitation Program*, AAP & AHA, 2006)

- That person or someone else who is immediately available should have the skills required to perform complete resuscitation, including endotracheal intubation and the use of medications. It is not sufficient to have someone at home or "on call" (either at home or in a remote area of the hospital) for newborn resuscitation in the delivery room. When resuscitation is needed, it must be initiated without delay.

(*Guidelines for Perinatal Care*, AAP & ACOG, 2007)

(*Neonatal Resuscitation Program*, AAP & AHA, 2006)

- If the birth is anticipated to be high risk, and thus require more advanced neonatal resuscitation, at least 2 people should be assigned exclusively to manage the baby, 1 with complete resuscitation skills and 1 or more to assist. A resuscitation team with a specified leader, and an identified role for each member, should be the goal. For multiple births, a separate team should be organized for each baby. For example, the baby nurse present at an uncomplicated birth might initially clear the airway, provide tactile stimulation, and evaluate the respirations and heart rate. If the newborn does not respond appropriately, the nurse would initiate positive pressure ventilation and call for assistance. A second person would help assess the adequacy of positive pressure ventilation. A physician or nurse with full resuscitation skills would be in the immediate vicinity and available to intubate the trachea and assist with coordinated chest compressions and ventilations, and to order medication. In the case of an anticipated high-risk medications (for example, in the case of immediate postpartum hemorrhage). There should be another nurse in attendance to assist with care.

- **One person capable of initiating newborn resuscitation (including positive pressure ventilation and chest compressions) should attend every birth.**

- **That person or someone else who is immediately available should have the skills required to perform complete resuscitation, including endotracheal intubation and the use of medications.** It is not sufficient to have someone at home or "on call" (either at home or in a remote area of the hospital) for newborn resuscitation in the delivery room.

- If the birth is anticipated to be high risk, a neonatal resuscitation team should be assembled according to the Neonatal Resuscitation Program (AAP & AHA) guidelines.

birth, 2, 3, or even 4 people with varying degrees of resuscitation skills may be needed at the birth. One of them, with complete resuscitation skills, would lead the team and would probably be the one to position the baby, open the airway, and intubate the trachea, if necessary. Two others would assist with positioning, suctioning, drying and giving oxygen. They could administer positive-pressure ventilation or chest compressions as directed by the leader. A fourth person would be helpful for administering medications and/or documenting the events. (*Guidelines for Perinatal Care*, AAP & ACOG, 2007) (*Neonatal Resuscitation Program*, AAP & AHA, 2006) • An Apgar score should be determined at 1 minute and 5 minutes after birth. If the 5-minute Apgar score is less than 7, additional scores should be assigned every 5 minutes, up to 20 minutes. (*Guidelines for Perinatal Care*, AAP & ACOG, 2007)	

During the Immediate Postpartum Recovery Period After Vaginal Birth: Mother and Baby

Background

Past editions of *Guidelines for Perinatal Care* recommended monitoring blood pressure and pulse every 15 minutes for various time periods (1997, 2002, for an undetermined time period; 1983, 1988, 1992, for 1 hour). The most recent edition (AAP & ACOG, 2007) specifies at least 2 hours of monitoring blood pressure and pulse every 15 minutes after birth. That time has implications for nurse staffing and patient placement. In units where mothers and babies are transferred about 1 hour after birth to a mother-baby unit, where nurse-to-couplet ratios are 1:3 to 1:5, vital-sign assessment every 15 minutes for an additional hour is challenging. Conversely, if transfer to the mother-baby unit is delayed until 2 hours after vaginal birth for healthy women until the standard of checking vital signs every 15 minutes is met, the recovery nurse will not be able to assume care of another laboring woman. Further, admissions to the labor unit will be delayed until the bed of the recovering postpartum woman is empty. Recovery care after vaginal birth takes at least 2 hours. The recovery process outlined here applies to women both with and without regional analgesia.

Maternal postpartum observation should be designed for timely identification of signs of excessive blood loss, including tachycardia and hypotension (AAP & ACOG, 2007). The amount of vaginal bleeding should be evaluated continuously and the uterine fundus identified, massaged and assessed for size and degree of contraction (AAP & ACOG). These assessments should continue during the 2-hour recovery period (AAP & ACOG) and are critical to identify and respond to changes in the mother's vital signs and clinical condition to minimize risk of postpartum hemorrhage (TJC, 2010d). *For the purposes of this document, the 2-hour postpartum recovery period begins with delivery of the placenta.*

Immediately after birth, the baby requires assessment, stabilization and identification. Because the nurse caring for the woman in the immediate postpartum period should have no other responsibilities, newborn care should be provided by a nurse assigned to the baby (AAP & ACOG, 2007). Temperature, heart rate and respiratory rates, skin color, adequacy of peripheral circulation, type of respiration, level of consciousness, tone, and activity should be monitored and recorded at least once every 30 minutes until the newborn's condition has remained stable for 2 hours (AAP & ACOG). If the mother has chosen to breastfeed, the baby should be placed at the breast within an hour of birth (AAP & ACOG).

The American Society of PeriAnesthesia Nurses (ASPAN, 2010) has developed critical elements of care that are required before the nurse responsible for a patient during the recovery period can accept a second patient. These critical elements have been adapted to perinatal care.

Existing Applicable Professional Standards and Guidelines	Recommendations
• Nursing staff assigned to the immediate recovery of a woman *should have no other obligations* (1 nurse to 1 mother; this does not include the baby). (*Guidelines for Perinatal Care*, AAP & ACOG, 2007) • Blood pressure levels and maternal pulse should be monitored every 15 minutes for 2 hours and more frequently and for more time if complications are encountered. Maternal postpartum observation should be designed for timely identification of excessive blood loss, including hypotension and tachycardia. (*Guidelines for Perinatal Care*, AAP & ACOG, 2007) • The amount of vaginal bleeding should be evaluated continuously and the uterine fundus identified, massaged and assessed for size and degree of contraction. (*Guidelines for Perinatal Care*, AAP & ACOG, 2007) • Timely response to changes in maternal vital signs and clinical condition are critical to patient safety. (*Preventing maternal death*, Sentinel Event Alert No. 44, Joint Commission [TJC], 2010d) • Temperature, heart rate and respiratory rates, skin color, adequacy of peripheral circulation, type of respiration, level of consciousness, tone, and activity should be monitored and recorded at least once every 30 minutes until the newborn's condition has remained stable for 2 hours. (*Guidelines for Perinatal Care*, AAP & ACOG, 2007)	• **During the immediate postpartum recovery period after vaginal birth there should be 1 nurse for the mother and 1 nurse for the baby. In the case of multiples, there should be 1 nurse for each baby.** When condition of mother and baby are determined to be stable and the critical elements are met, **1 nurse can care for both the mother and the baby.** Critical elements for the mother's care after vaginal birth before the mother's nurse accepts the baby as part of the patient care assignment are defined as: (a) initial assessment is completed and documented; (b) repair of episiotomy or perineal laceration(s) is completed; and (c) the woman is hemodynamically stable. Critical elements for the baby's care before the mother's nurse accepts the baby as part of the patient care assignment are defined as: (a) report has been received from the baby nurse, questions answered, and the transfer of care has taken place; (b) initial assessment and care are completed and documented; (c) identification bracelets have been applied; and (d) baby's condition is stable. • **The ratio of 1 nurse to 1 woman recovering from vaginal birth should continue for at least 2 hours, or longer if complications are encountered.** • If the mother has chosen to breastfeed, the baby should be placed at the breast within an hour of birth. • Based on mother's and baby's condition, they should remain together during this time when possible.

• If the mother has chosen to breastfeed, the baby should be placed at the breast within an hour of birth. (*Guidelines for Perinatal Care*, AAP & ACOG, 2007) • Healthy newborn babies should remain with their mothers. (*Guidelines for Perinatal Care*, AAP & ACOG, 2007)	

During Cesarean Birth

Background

About one-third of U.S. births are cesarean and the rate has been steadily rising over the past decade, in part because of the rise in elective labor inductions and lack of availability for a trial of labor after previous cesarean birth in some perinatal centers (Hamilton et al., 2010).

Existing Applicable Professional Standards and Guidelines	Recommendations
• One nurse to care for the mother (circulating nurse) and one person with neonatal resuscitation skills whose sole responsibility is to the baby (baby nurse). (*Perioperative Standards and Recommended Practices*, Association of periOperative Registered Nurses [AORN], 2010) (One Perioperative Registered Nurse Circulator Dedicated to Every Patient Undergoing A Surgical or Other Invasive Procedure, AORN, 2010) (*Guidelines for Perinatal Care*, AAP & ACOG, 2007) (*Neonatal Resuscitation Program*, AAP & AHA, 2006) (*Perinatal staffing and the nursing shortage: Challenges and principle-based strategies,* AWHONN [Schofield], 2009)	• **2 nurses should attend every cesarean birth, 1 for the mother (circulating nurse) and 1 for the baby (baby nurse). In the case of multiples, there should be 1 nurse for each baby.** The presence of the second nurse to attend to the baby is essential for safety of the mother and baby. At least 10% of babies require neonatal resuscitation (AAP & ACOG, 2007; NRP, 2006); a significant number of those babies are unexpectedly depressed at birth. • **1 person capable of initiating newborn resuscitation,** including positive-pressure ventilation and chest compressions, should attend every birth.

- One person capable of initiating newborn resuscitation, including positive-pressure ventilation and chest compressions, should attend every birth.

(*Guidelines for Perinatal Care*, AAP & ACOG, 2007)

(*Neonatal Resuscitation Program*, AAP & AHA, 2006)

- Either that person or someone else who is immediately available should have the skills required to perform a complete resuscitation, including endotracheal intubation and the use of medications. It is not sufficient to have someone at home or "on call" (either at home or in a remote area of the hospital) for newborn resuscitation in the delivery room. When resuscitation is needed, it must begin without delay.

(*Guidelines for Perinatal Care*, AAP & ACOG, 2007)

(*Neonatal Resuscitation Program*, AAP & AHA, 2006)

- If the birth is anticipated to be high risk, and thus require more advanced neonatal resuscitation, at least 2 people should be assigned exclusively to manage the baby, 1 with complete resuscitation skills and 1 or more to assist. A resuscitation team with a specified leader, and an identified role for each member, should be the goal. For multiple births, a separate team should be organized for each baby. For example, the baby nurse present at an uncomplicated birth might initially clear the airway, provide tactile stimulation, and evaluate the respirations and heart rate. If the newborn does not respond appropriately, the nurse would initiate positive pressure ventilation and call for assistance. A second person would help assess the adequacy of positive pressure ventilation. A physician or nurse with full resuscitation skills would be in the immediate vicinity and available to intubate the trachea and assist with coordinated chest compressions and ventilations, and to order medication. In the case of an anticipated high-risk

- **Either that person or someone else who is immediately available should have the skills required to perform a complete newborn resuscitation**, including endotracheal intubation and the use of medications. It is not sufficient to have someone at home or "on call" (either at home or in a remote area of the hospital) for newborn resuscitation in the delivery room. When resuscitation is needed, it must begin without delay.
- If the birth is anticipated to be high risk, a neonatal resuscitation team should be assembled according to the Neonatal Resuscitation Program (AAP & AHA) guidelines.
- During cesarean birth, the baby should remain in the surgical suite with the mother as the baby's condition allows. The nurse assigned to the baby should remain.

birth, 2, 3, or even 4 people with varying degrees of resuscitation skills may be needed at the birth. One of them, with complete resuscitation skills, would lead the team and would probably be the one to position the baby, open the airway, and intubate the trachea, if necessary. Two others would assist with positioning, suctioning, drying and giving oxygen. They could administer positive-pressure ventilation or chest compressions as directed by the leader. A fourth person would be helpful for administering medications and/or documenting the events. (*Guidelines for Perinatal Care*, AAP & ACOG, 2007) (*Neonatal Resuscitation Program*, AAP & AHA, 2006) • An Apgar score should be determined at 1 minute and 5 minutes after birth. If the 5-minute Apgar score is less than 7, additional scores should be assigned every 5 minutes, up to 20 minutes. (*Guidelines for Perinatal Care*, AAP & ACOG, 2007) • Healthy newborn babies should remain with their mothers. (*Guidelines for Perinatal Care*, AAP & ACOG, 2007)	

Post-Anesthesia Care After Cesarean Birth: Mother and Baby

Background

Approximately one-third of U.S. births are via cesarean and the rate has been steadily rising over the past decade due in part to the rise in elective labor inductions and lack of availability for a trial of labor after previous cesarean birth in some perinatal centers (Hamilton et al., 2010).

Observation of the mother postpartum should be designed for timely identification of signs of excessive blood loss, including tachycardia and hypotension (AAP & ACOG, 2007). The amount of vaginal bleeding should be evaluated continuously and the uterine fundus identified, massaged and assessed for size and degree of contraction (AAP & ACOG). These assessments should continue during the 2-hour recovery period (AAP & ACOG) and are critical to identifying and responding to changes in the mother's vital signs and clinical condition to minimize the risk of postpartum hemorrhage (TJC, 2010d).

For the purposes of this document, the 2- hour post-anesthesia recovery period begins with admission to the OB PACU or surgical PACU (or if post-anesthesia care is provided in the LDR/LDRP, with transfer to the LDR/LDRP).

Immediately after birth, the baby requires assessment and stabilization. Because the nurse caring for the woman in the immediate post-anesthesia period should have no other responsibilities, newborn care should be provided by a nurse assigned to the baby. Temperature, heart rate and respiratory rates, skin color, adequacy of peripheral circulation, type of respiration, level of consciousness, tone and activity should be monitored and recorded at least once every 30 minutes until the newborn's condition has remained stable for 2 hours (AAP & ACOG, 2007). If the mother has chosen to breastfeed, the baby should be placed at the breast within an hour of birth (AAP & ACOG).

Existing Applicable Professional Standards and Guidelines

- Patients with the same health status and condition should receive a comparable level of quality care regardless of where that care is provided within the hospital (Joint Commission [TJC], 2010a). This standard ensures that obstetric patients receiving general and regional anesthesia and having surgery are provided consistent perioperative care. Therefore, perinatal units should maintain care standards comparable to the main hospital surgical suites and post-anesthesia care unit (PACU).

(*2010 Accreditation Standards and Requirements*, TJC, 2010a)

- Equipment and support personnel comparable to that available in the main PACU should be available to care for obstetric patients recovering from major neuraxial anesthesia or general anesthesia (American Society of Anesthesiologists [ASA], 2007a, b; TJC, 2010a).

(*2010 Accreditation Standards and Requirements*, TJC, 2010a)

(*Guidelines for Regional Anesthesia in Obstetrics*, ASA, 2007a)

(*Practice Guidelines for Obstetric Anesthesia,* ASA, 2007b)

(*Perianesthesia Nursing Standards and Practice Recommendations 2010-2012*, ASPAN, 2010)

Recommendations

- **During initial admission to the OB PACU, 2 nurses should be in attendance. After the critical elements have been met, and mother and baby are stable, 1 nurse can care for the mother and baby, with a second nurse available to assist as necessary. In the case of multiples, there should be 1 nurse for each baby.** Critical elements for the mother's post-anesthesia care after cesarean birth before the mother's nurse accepts the baby as part of the patient care assignment are defined as: (a) report has been received from the anesthesia provider, questions answered, and the transfer of care has taken place; (b) woman is conscious, with adequate respiratory status; (c) initial assessment is completed and documented; and (d) woman is hemodynamically stable. Critical elements for the baby's care before the mother's nurse accepts the baby as part of the patient care assignment are defined as: (a) report has been received from the baby nurse, questions answered, and the transfer of care has taken place; (b) initial assessment and care are completed and documented; (c) identification bracelets have been applied; and (d) baby's condition is stable.

- Nursing staff assigned to the immediate recovery of a woman *should have no other obligations* (1 nurse to 1 mother; this does not include the baby).

(*Guidelines for Perinatal Care*, AAP & ACOG, 2007)

- 1 nurse to 1 patient at time of admission to the PACU until the critical elements are met (critical elements for post-anesthesia care are defined as: (a) report has been received from the anesthesia provider, questions answered, and the transfer of care has taken place; (b) woman is conscious, with adequate respiratory status; (c) initial assessment is completed and documented; and (d) woman is hemodynamically stable. A second nurse must be available to assist as necessary. Phase of recovery determines the level of care and required nurse–to-patient ratio.

(*Perianesthesia Nursing Standards and Practice Recommendations 2010-2012*, ASPAN, 2010)

- 2 nurses are in the same unit as the patient receiving Phase I care at all times.

(*Perianesthesia Nursing Standards and Practice Recommendations 2010-2012*, ASPAN, 2010)

- 1 nurse to 2 stable patients (conscious, without artificial airway, free of complications). A second nurse must be available to assist as necessary. The baby is an appropriate second patient to be cared for with the mother in the OB PACU when mother and baby are stable.

(*Perianesthesia Nursing Standards and Practice Recommendations 2010-2012*, ASPAN, 2010)

- 2 nurses to 1 critically ill or unstable woman.

(*Perianesthesia Nursing Standards and Practice Recommendations 2010-2012*, ASPAN, 2010)

- **If there are 2 stable mothers and 2 stable babies in the OB PACU, there should be a minimum of 2 nurses**. The baby is an appropriate second patient to be cared for with the mother in the OB PACU after the critical elements are met and when mother and baby are stable.
- **If the woman is recovered in an LDR/LDRP room, 2 nurses should be in attendance until the critical elements for both patients are met (1 nurse for the mother and 1 nurse for the baby).** After the critical elements are and when condition of mother and baby are determined to be stable, 1 nurse can care for both the mother and the baby.
- **1 nurse to 1 woman recovering from cesarean birth should continue for at least 2 hours or longer if complications are encountered.**
- If the mother has chosen to breastfeed, the baby should be placed at the breast within an hour of birth.
- **2 nurses should be in attendance to care for the mother if she is critically ill or unstable.**

• Blood pressure and maternal pulse should be monitored every 15 minutes for 2 hours, and more frequently and for more time if complications are encountered. Maternal postpartum observation should be designed for timely identification of excessive blood loss, including hypotension and tachycardia. (*Guidelines for Perinatal Care*, AAP & ACOG, 2007) • The amount of vaginal bleeding should be evaluated continuously and the uterine fundus identified, massaged and assessed for size and degree of contraction. (*Guidelines for Perinatal Care*, AAP & ACOG, 2007) • Timely response to changes in maternal vital signs and clinical condition are critical to patient safety. (*Preventing maternal death*, Sentinel Event Alert No. 44, TJC, 2010d) • Temperature, heart rate and respiratory rates, skin color, adequacy of peripheral circulation, type of respiration, level of consciousness, tone and activity should be monitored and recorded at least once every 30 minutes until the newborn's condition has remained stable for 2 hours. (*Guidelines for Perinatal Care*, AAP & ACOG, 2007) • If the mother has chosen to breastfeed, the baby should be placed at the breast within an hour of birth. (*Guidelines for Perinatal Care*, AAP & ACOG, 2007) • Healthy newborn babies should remain with their mothers. (*Guidelines for Perinatal Care*, AAP & ACOG, 2007)	

Mother-Baby Care

Background

Ratios for mother-baby couplet care were based on the 16.5% cesarean birth rate in 1983. The rate has doubled, according to the most recent data (Hamilton et al., 2010), making the care of postoperative patients a routine part of daily nursing responsibilities. These responsibilities may include: care of women with patient-controlled analgesia (PCA) pumps and medication administered via epidural catheters postoperatively. More than one-third of U.S. adult women meet criteria for obesity (Flegal, Carroll, Ogden & Curtin, 2010). Women with obesity are at risk for respiratory depression when using these techniques during the postoperative period, and need closer monitoring.

The late preterm (34 to 36 full weeks of pregnancy) birth rate rose by more than 25 percent in the United States from 1990 to 2006 (Martin, Kirmeyer, Osterman, & Shepherd, 2009). There is a cumulative body of evidence that late preterm babies, compared with term babies, have higher incidence of prematurity-related medical and surgical conditions, such as respiratory distress syndrome, transient tachypnea, patent ductus arteriosus, hypothermia, apnea, infection, feeding difficulty, necrotizing enterocolitis, hyperbilirubinemia and kernicterus, seizures, and intracranial hemorrhage (Martin, Kirmeyer et al., 2009, Raju, Higgins, Stark, & Leveno, 2006). Early term babies ($37^0/_7$ weeks to $38^6/_7$) are also at risk for more complications than term babies ($39^0/_7$ weeks to $41^6/_7$ weeks) (Fleischman, Oinuma & Clark, 2010). Every week matters for fetal growth and development. Babies born one to two weeks before 39 completed weeks of gestation are at significant risk for neonatal morbidity (Clark et al., 2009; Oshiro, Henry, Wilson, Branch, & Warner, 2009; Tita et al., 2009). Rates of adverse respiratory outcomes, mechanical ventilation, newborn sepsis, hypoglycemia, admission to the NICU, and hospitalization for 5 days or more are increased 1.8 to 4.2 times for births at 37 weeks and 1.3 to 2.1 times for births at 38 weeks (Tita et al., 2009). Even babies born within 3 days of the 39-week threshold have higher morbidity, according to Tita et al. (2009). Therefore, late preterm and early term babies require closer monitoring than term babies. When a late preterm baby is stable enough to remain at the mother's bedside, frequent nursing assessment is recommended.

Healthy mothers and babies should remain together (AAP & ACOG, 2007). Ideally, each postpartum room is occupied by a single family and equipped for care of the mother and the baby (AAP & ACOG). Mother-baby couplet care in which the same nurse cares for both the healthy mother and the healthy baby is the model used in most perinatal services. However, in some perinatal services, postpartum women are cared for by nurses other than those caring for the healthy newborn. Ratios for this model of care have traditionally been 1 nurse to 6 postpartum women without complications and 1 nurse to 6–8 newborns requiring only routine care. As the cesarean birth rate has increased, more postpartum women are recovering from major surgery and a ratio of 1 nurse to no more than 5 to 6 postpartum women is consistent for safe care of this population. Nurse-to-patient ratios for medical-surgical patients is typically 1 nurse to 5–6 patients (Robert Woods Johnson Foundation, 2007).

Patient assignment should consider acuity and type of birth. Nurses caring for women receiving magnesium sulfate during the postpartum period should not have more than 1 other mother-baby couplet or woman as

part of the patient care assignment. Nurses should not have more than 2 women on the immediate postoperative day that are recovering from cesarean birth as part of the nurse to patient ratio of 1 nurse to 3 mother-baby couplets. Nurses should not have more than 5 to 6 postpartum women without complications, with no more than 2 to 3 women on the immediate postoperative day who are recovering from cesarean birth as part of the nurse to patient ratio of 1 nurse to 5–6 postpartum women without complications. Nurses should not have more than 3 postpartum patients with complications who are stable.

Healthy newborns need complete care, cannot communicate, may have swallowing and feeding deficits or temperature instability, and may need to be fed every 2–3 hours. No other patient care unit allows a 1:8 nurse-to-patient ratio under these clinical conditions; 1 nurse to 5–6 healthy newborns is recommended.

There is significant evidence of the benefits of breastfeeding for mothers and babies. Human milk provides developmental, nutritional and immunologic benefits to the baby that cannot be duplicated by formula. (ACOG, 2007). Species-specific and age-specific nutrients are provided by human milk, including colostrum, which conveys a high level of immune protection. Breast milk in the first 4-7 days after birth contains age-appropriate concentrations of protein, minerals, water, fat and lactose. As the baby grows, breast milk composition continues to change to match the baby's nutritional needs (ACOG). Benefits for the mother begin immediately after birth with release of oxytocin during milk let-down, which assists with uterine involution and results in decreased maternal blood loss (ACOG). Oxytocin and prolactin contribute to the mother's feelings of relaxation and attachment to her baby (ACOG). There also is evidence that breastfeeding is associated with a decreased risk of breast and ovarian cancer (ACOG). Exclusive breast milk feeding is recommended for all mothers and babies as appropriate to their clinical condition. Exclusive breastfeeding for the first 6 months of life has long been recommended by the World Health Organization (1991), the Department of Health and Human Services (2000), AAP (2005) and ACOG (2007). Exclusive breast milk feeding is now a Joint Commission Perinatal Core Measure (TJC 2010c) and is routinely reported by the CDC (2007). Although breastfeeding is a natural process, some women may require expert assistance as inpatients. Referral to a lactation consultant should be considered for women who are anxious regarding breastfeeding, request to see a lactation consultant, have had a previous negative breastfeeding experience, require time-intensive assistance with breastfeeding, have flat or inverted nipples, have a history of breast surgery, have sore nipples or nipple trauma, have severe unrelieved engorgement, are mothers of multiples, or have a baby that is becoming dehydrated, has developed hyperbilirubinemia, has lost more than 7% of birth weight, is preterm, has been separated from the mother such that breastfeeding has been delayed, or has a congenital anomaly or neurological impairment that is affecting the ability to breastfeed (USLCA, 2010).

Hospitals must implement programs to reduce the risk of patient harm resulting from falls, including identifying types of patients and clinical situations where the patient is at risk of falling (TJC, 2010b). The incidence of women during the postpartum period that experience a fall in the inpatient setting is unknown. Comparative data on inpatient falls is presented in the section on women in labor. Newborns experience an inpatient fall (drop) rate of 1.6 to 4.14 per 10,000 U.S. live births, representing an estimated 600 to 1,600 babies per year. (Helsley, McDonald & Stewart, 2010).

Existing Applicable Professional Standards and Guidelines	Recommendations
• 1 nurse to 3–4 normal healthy mother-baby couplets requiring routine care (*Guidelines for Perinatal Care*, AAP & ACOG, 2007) • 1 nurse to 6 postpartum women with no complications (when the babies are cared for by other nursing staff). (*Guidelines for Perinatal Care*, AAP & ACOG, 2007) • 1 nurse physically present in the nursery to 6–8 newborns requiring routine care (when the mothers are cared for by other nursing RN staff) (*Guidelines for Perinatal Care*, AAP & ACOG, 2007) • Patients having a cesarean birth should be provided the same level of care as other patients having major abdominal surgery. Perinatal units should have policies regarding monitoring of patients with PCA medication pumps or opiates via epidural catheter. These policies should include specific protocols for patients at high risk for respiratory depression. Patients with sleep apnea may need to be placed in a monitored bed (for example, specific vital signs monitored at a central station with 24/7 surveillance) rather than relying on in-room alarms to alert caregivers of abnormal changes in respiratory status. Until the new mother recovering from cesarean birth is no longer receiving pain relief via PCA pumps or epidural catheters, babies should not be left alone in mothers' arms without nursing personnel or support people in attendance to reduce risk of babies falling from the mother's arms and to reduce risk of a mother falling asleep with the baby in the bed. This recommendation also applies to mothers who have been given medication for sleep. (*High-alert medication feature: Reducing patient harm from opiates.* ISMP, 2007b)	• **The nurse-to-patient ratio for normal healthy mother-baby couplets should be no more than 1:3.** This means actual care assignments and responsible nurses, not averaged based on a charge nurse (or lactation consultant) without a patient assignment. • **Patient assignment should consider acuity and type of birth.** • **Nurses caring for women receiving magnesium sulfate during the postpartum period should not have more than 1 other mother-baby couplet** or one other patient (if not providing couplet care) as part of their patient care assignment because assessment of maternal status for women receiving magnesium sulfate is required at least hourly. • **For couplet care assignments, nurses should not have more than 2 women recovering from cesarean birth on the immediate postoperative day as part of the ratio of 1 nurse to 3 mother-baby couplets.** • **For assignments that include only new mothers, nurses should not have more than 5 to 6 postpartum women without complications, with no more than 2 to 3 women on the immediate postoperative day who are recovering from cesarean birth, as part of the nurse-to-patient ratio of 1 nurse to 5–6 postpartum women without complications** (when the babies are cared for by other nursing staff). • For assignments that include only new mothers, nurses should not have more than 3 postpartum patients with complications who are stable (when the babies are cared for by other nursing staff).

- Hospitals must implement programs to reduce the risk of patient harm resulting from falls, including identifying types of patients and clinical situations in which patients are at risk of falling.

(*National Patient Safety Goals*, TJC, 2010b)

- Exclusive breast milk feeding is recommended for all mothers and babies as appropriate to their clinical condition. Exclusive breastfeeding for the first 6 months of neonatal life has long been recommended by the World Health Organization (1991), the Department of Health and Human Services (2000), AAP (2005) and ACOG (2007). Exclusive breast milk feeding is now a Joint Commission Perinatal Core Measure (TJC 2010c) and is routinely reported by the CDC (2007).

- 1.9 full-time equivalent lactation consultants are recommended for every 1,000 births based on annual birth volume in Level III perinatal centers; 1.6 full-time equivalent lactation consultants are recommended for every 1,000 births based on annual birth volume in Level II perinatal centers, and 1.3 full-time equivalent lactation consultants are recommended for every 1,000 births based on annual birth volume in Level I perinatal centers.

(*International Board Certified Lactation Consultant Staffing Recommendations For The Inpatient Setting,* United States Lactation Consultant Association, 2010)

- Hospitals should provide availability of lactation experts at all times.

(*Breastfeeding and the Use of Human Milk,* AAP, 2005*).*

- Circumcision for newborn boys is a surgical procedure and requires preoperative assessment, proper patient identification, a time-out procedure, appropriate analgesia, comfort measures and postoperative assessment and care. Swaddling, sucrose by mouth and acetaminophen may reduce

- **For assignments that include only babies, the ratio should not exceed 1 nurse physically present in the nursery to 5 to 6 newborns requiring routine care** (when the mothers are cared for by other nursing staff)

- After cesarean birth, patients need assistance with newborn care, especially in the immediate recovery period. They should not be required to keep their babies in their rooms if they do not feel up to it and/or a support person is not available to stay with them. Until the new mother recovering from cesarean birth is no longer receiving pain relief via PCA pumps or epidural catheters, babies should not be left alone in mothers' arms without nursing personnel or support people in attendance to reduce risk of a baby falling from the mother's arms and to reduce risk of a mother falling asleep with the baby in the bed. This recommendation also applies to mothers who have been given medication for sleep.

- Availability of lactation consultants seven days a week is recommended to assist with complex breastfeeding issues. **1.9 full-time equivalent lactation consultants are recommended for every 1,000 births based on annual birth volume in Level III perinatal centers; 1.6 full-time equivalent lactation consultants are recommended for every 1,000 births based on annual birth volume in Level II perinatal centers, and 1.3 full-time equivalent lactation consultants are recommended for every 1,000 births based on annual birth volume in Level I perinatal centers.**

- **1 nurse to 1 newborn boy undergoing circumcision or other surgical procedures during the immediate preoperative, intra-operative and immediate postoperative periods.** The steps involved in the process of a surgical procedure require the presence of a nurse.

the stress response but are not sufficient for the operative pain and cannot be recommended as the sole method of analgesia. Either a ring block or a dorsal penile block has proven to be more effective than local application of combination preparation of lidocaine and prilocaine cream. (*Guidelines for Perinatal Care*, AAP & ACOG, 2007) **(***2010 Accreditation Standards and Requirements***,** 2010a**)** • At a minimum, one nurse circulator should be dedicated to each patient undergoing a surgical or other invasive procedure and present during the patient's intraoperative experience. (One Perioperative Registered Nurse Circulator Dedicated to Every Patient Undergoing A Surgical or Other Invasive Procedure, AORN, 2010)	

Babies Requiring a Higher Level of Care

Background

The preterm rate had been generally increasing since 1981, rising 13 percent from 1981 (the earliest year for which comparable data are available) to 1990, and more than 20 percent from 1990 to 2006 (Martin, Osterman, & Sutton, 2010). Although the rate of preterm births for women under age 40 has leveled off in the last two years for which data are available (2007–2008), they represent 12.3% of all U.S. births (Martin et al., 2010) and are a common reason for admission to the special care nursery or neonatal intensive care unit. Advances in neonatal care have contributed to the ability of babies on the edge of viability to survive after months of intensive inpatient care. These fragile preterm babies are cared for by nurses with expertise in neonatal intensive care. Other common reasons babies are admitted to a special care nursery or neonatal intensive care unit include difficult transition to extrauterine life, temperature instability, hypoglycemia, respiratory problems, transient tachypnea of the newborn, unstable vital signs, suspected sepsis, isolation, feeding difficulties, hyperbilirubinemia, anemia, small for gestational age, oxygen therapy, continuous positive airway pressure, mechanical ventilation, cardiac problems, meconium aspiration, birth trauma, and congenital anomalies. These neonatal complications require specialized nursing knowledge and skill.

Classification of care for babies is delineated by AAP & ACOG (2007) as follows. *Newborn nursery care* is provided for healthy newborns. Late preterm babies may also be cared for in the newborn nursery if they are physiologically stable. Late preterm babies are usually not ill, but may require more frequent feeding

and more hours of nursing care than do normal term babies. *Continuing care* is provided to convalescing babies who have returned to specialty facilities from an outside intensive care unit. *Intermediate care* is provided to sick babies who do not need intensive care but who require 6 to 12 hours of nursing care per day. *Intensive care* is provided to severely ill babies who require constant nursing care and continuous cardiopulmonary and other support. The number of nursing personnel required in the neonatal intensive care unit is greater than that required in less acute perinatal care areas. The nurse-to-baby ratio should be 1:2 or 1:1, depending on acuity.

Safe and effective neonatal nursing care requires a sufficient number of qualified nurses to attend to the emergent complex care needs of babies in the special care nursery or neonatal intensive care nursery (National Association of Neonatal Nurses [NANN], 2008). Current nursing workloads in these critical care units are unprecedented as patient acuity, technology, and the scope of practice increases. Professional nursing resources must be sufficient to provide appropriate care based on the physiologic stability of individual babies to ensure a quality standard of nursing care, including parent education, bereavement care, and emergency response (NANN, 2008).

Existing Applicable Professional Standards and Guidelines	Recommendations
• 1 nurse to 3–4 newborns requiring continuing care. • 1 nurse to 2–3 newborns requiring intermediate care. • 1 nurse to 1–2 newborns requiring intensive care. • 1 nurse to 1 newborn requiring multisystem support. • 1 or more nurses to 1 unstable newborn requiring complex critical care. (*Guidelines for Perinatal Care*, AAP & ACOG, 2007) • When fewer than 6 intermediate care newborns or 4 intensive care neonatal care newborns are in the special care nursery or neonatal intensive care unit, at all times neonatal specialty care requires a minimum of 2 registered nurses with neonatal expertise and training. (*Minimum RN Staffing in NICUs*, National Association of Neonatal Nurses [NANN], 2008).	• **1 nurse to 3–4 newborns requiring continuing care.** • **1 nurse to 2–3 newborns requiring intermediate care.** • **1 nurse to 1–2 newborns requiring intensive care.** • **1 nurse to 1 newborn requiring multisystem support.** • **1 or more nurses to 1 unstable newborn requiring complex critical care.** • **When fewer than 6 intermediate care newborns or 4 intensive care neonatal care newborns are in the special care nursery or neonatal intensive care unit, at all times neonatal specialty care requires a minimum of 2 registered nurses with neonatal expertise and training.**

Minimum Staffing

Background

For the purposes of this document, *core staffing* refers to the number of nurses scheduled on each unit for each shift based on predetermined numbers related to the unit's history of average daily census and acuity. *Minimum staffing* refers to the minimum number of nurses required to be on the unit (or in-house with a patient assignment that can be quickly handed off to another nurse so the perinatal nurse can return to the unit immediately) to be ready to care for women who may present for care when there are no perinatal patients. A pregnant woman who presents for care should be evaluated in a timely fashion (AAP & ACOG, 2007). Minimally, the evaluation by an obstetric nurse should include assessment of maternal vital signs, FHR and uterine contractions. Further evaluation includes assessment for vaginal bleeding, acute abdominal pain, temperature of 100.4° or higher, preterm labor, preterm premature rupture of membranes, hypertension, indeterminate or abnormal FHR pattern (AAP & ACOG). Any patient who is suspected to be in labor or who had ruptured membranes or vaginal bleeding should be evaluated promptly (AAP& ACOG). The current ratios (AAP & ACOG 1983 to 2007) do not take into consideration safe numbers for minimum unit staffing when there are temporarily no patients. However, these standards require timely evaluation, an emergent cesarean birth to be initiated within 30 minutes of the decision to proceed, and delineate specific emergencies that require more expeditious birth, such as hemorrhage from a placenta previa or placental abruption, prolapsed umbilical cord, or uterine rupture.

According to the most recent data from the American Hospital Association Annual Survey, (AHA, 2010), about 3,240 U.S. hospitals offered obstetric services in 2008. The top 1,000 hospitals based on birth volume accounted for 69.2% of the 4.25 million U.S. births, with the remaining 2,240 hospitals delivering 30.8% of babies in 2008. The top 1,000 (31%) hospitals have an annual birth volume of at least approximately 1,400. Thus, 2,240 (69%) of U.S. hospitals with obstetric services are operating medium- to small-volume units, with 36.84% of hospitals offering obstetrics having fewer than 500 births per year (ACOG & ASA, 2009; AHA, 2010). As of May 2010, there were 1,305 critical access hospitals (CAHs) in the U.S. under the Medicare Rural Hospital Flexibility Grant Program (USDHHS, 2010). Critical access hospitals must be in rural areas and meet the following criteria: 25 beds or fewer (15 acute care beds and 10 swing beds), more than 35 miles from another hospital or 15 miles from another hospital in mountainous terrain or areas with only secondary roads. According to the most recent data, about 43% of CAHs offered obstetric services (AHA, 2010; Race, Glad & Colburn, 2010) in 2007 and 2008. However, this number is declining because of increasing overhead costs (Holmes, 2010). Specialty services are resource-intensive. Safe care for mothers and babies requires allocation of sufficient personnel. Access to safe perinatal care is imperative for all childbearing women. In the context of a small-volume perinatal service, supporting minimum staffing can be operationally and financially challenging. However, the availability of the appropriate personnel to provide adequate and timely care and assist in the management of a variety of obstetric problems is a necessary feature of good obstetric care (ACOG & ASA, 2009).

At least 2 nurses should be in-house and available to care for pregnant women who present for care, even at times when there are no perinatal patients, to be able to safely care for a woman who presents with an obstetric emergency that may require cesarean birth (1 nurse circulator; 1 baby nurse, one or both of whom should have obstetric triage, labor and fetal assessment skills). A scrub nurse or obstetric/sugical technician should be available in-house or on call so that an emergent birth can be accomplished within 30 minutes of the decision to proceed. Another labor nurse should be called in to be available to care for any other pregnant woman who may present for care while the first two nurses are caring for the woman undergoing cesarean birth and during postanesthesia recovery period. In small-volume obstetric services, perinatal nurses may be cross-trained to a variety of other specialty areas to maximize in-house availability when needed to care for perinatal patients and allow for productive time spent on other activities when there are no perinatal patients. An on-call system or contingency plan is a key factor in allowing flexibility to support adequate nurse staffing on small-volume perinatal units.

Existing Applicable Professional Standards and Guidelines	Recommendations
• An emergent cesarean birth should be able to be initiated within 30 minutes of the decision to proceed. Specific emergencies that require more expeditious birth include hemorrhage from a placenta previa or placental abruption, prolapsed umbilical cord, or uterine rupture. (*Guidelines for Perinatal Care*, AAP & ACOG, 2007) • A pregnant woman who presents for care should be evaluated in a timely fashion. (*Guidelines for Perinatal Care*, AAP & ACOG, 2007) (*The Consolidated Omnibus Budget Reconciliation Act of 1985*, (86). Pub L No. 99272, § 9121, 100 Stat 82.) (*Emergency Medical Treatment and Labor Act*, US DHHS, 2003; 2009)	• **2 nurses are required as minimum staffing even when there are no perinatal patients**, in order to be able to safety care for a woman who presents with an obstetric emergency that may require cesarean birth (1 nurse circulator; 1 baby nurse, one or both of whom should have obstetric triage, labor and fetal assessment skills). A scrub nurse or obstetric/sugical technician should be available in-house or on call such that an emergent birth can be accomplished within 30 minutes of the decision to proceed. Another labor nurse should be called in to be available to care for any other patient who may present while the first 2 nurses are caring for the woman undergoing cesarean birth and during postanesthesia recovery period.

Contingency Planning

Background

Staffing requirements based on patient census and acuity are dynamic and may change dramatically on occasion. There may be some situations in which there are not enough nurses to safely meet the needs of the service based on patient census and acuity even with the most ideal planning. A contingency plan on all shifts that may include an on-call or standby system should be in place to cover situations when existing staffing becomes inadequate (TJC, 2010a). Women who present for care with emergent clinical conditions or in spontaneous labor should be cared for as best as possible in such situations until more nurses can be called in and arrive to provide assistance and assume patient care. Elective procedures such as repeat cesarean birth for women not in active labor, elective labor inductions, and postpartum tubal ligations should be deferred until there are adequate nurses to safely meet the needs of the patients and service. This may also include discontinuing oxytocin infusion for women having elective labor induction.

Some Level II and Level III perinatal services routinely accept transfers from other facilities when the condition of the mother, fetus, or baby require a higher level of care than can be provided at the site of patient presentation. There may be situations where the number of nurses, physicians and/or available beds preclude acceptance of such patients and the potential receiving perinatal unit has to divert patients temporarily to other high-risk perinatal centers.

Existing Applicable Professional Standards and Guidelines

- A contingency plan for all shifts that may include an on-call or standby system should be in place to cover situations when existing staffing is inadequate (TJC, 2010a).

(*2010 Accreditation Standards and Requirements*, **2010a)**

- Any participating Medicare hospital is required to accept appropriate transfers of individuals with emergency medical conditions if the hospital has the specialized capabilities not available at the transferring hospital, and has the capacity to treat those individuals (EMTALA, 2003; 2009).

(*The Consolidated Omnibus Budget Reconciliation Act of 1985*, (86). Pub L No. 99272, § 9121, 100 Stat 82.)

(*Emergency Medical Treatment and Labor Act*, US DHHS, 2003; 2009)

Recommendations

- **A contingency plan for all shifts that may include an on-call system should be in place to cover situations when existing staffing is inadequate.**
- Level II and Level III perinatal services should determine **criteria for temporary diversion** of patients when there is not capacity to accept and treat further patients.
- **Elective procedures,** such as repeat cesarean birth for women not in active labor, elective labor inductions, and postpartum tubal ligations, **should be deferred until there are adequate nurses to safely meet the needs of the patients and service**. This may also include discontinuing the oxytocin infusion for women having elective labor induction.

TABLE 2

Summary of Guidelines for Professional Registered Nurse Staffing For Perinatal Units†
(See the full text for assumptions and conditions that may affect the stated ratios in each instance.)

Nurse-to-Woman or Nurse-to-Baby Ratio	Care Provided
Antepartum	
1 to 2–3	women during nonstress testing
1 to 1	woman presenting for initial obstetric triage
1 to 2-3	women in obstetric triage after initial assessment and in stable condition
1 to 3	women with antepartum complications in stable condition
1 to 1	woman with antepartum complications who is unstable
1 to 1	continuous bedside attendance for woman receiving IV magnesium sulfate for the first hour of administration for preterm labor prophylaxis and no more than 1 additional couplet or woman for a nurse caring for a woman receiving IV magnesium sulfate in a maintenance dose
1 to 2	women receiving pharmacologic agents for cervical ripening
Intrapartum	
1 to 1	woman with medical (such as diabetes, pulmonary or cardiac disease, or morbid obesity) or obstetric (such as preeclampsia, multiple gestation, fetal demise, indeterminate or abnormal FHR pattern, women having a trial of labor attempting vaginal birth after cesarean birth) complications during labor
1 to 1	woman receiving oxytocin during labor
1 to 1	woman laboring with minimal to no pain relief or medical interventions
1 to 1	woman whose fetus is being monitored via intermittent ausculation
1 to 1	continuous bedside nursing attendance to woman receiving IV magnesium sulfate for the first hour of administration; 1 nurse to 1 woman ratio during labor and until at least 2 hours postpartum and no more than 1 additional couplet or woman in the patient assignment for a nurse caring for a woman receiving IV magnesium sulfate during postpartum
1 to 1	continuous bedside nursing attendance during initiation of regional anesthesia until condition is stable (at least for the first 30 minutes after initial dose)
1 to 1	continuous bedside nursing attendance to woman during the active pushing phase of second-stage labor
1 to 2	women in labor without complications
2 to 1	birth; 1 nurse responsible for the mother and 1 nurse whose sole responsibility is the baby

Nurse-to-Woman or Nurse-to-Baby Ratio	Care Provided
Postpartum and Newborn Care	
1 to 1	continuous bedside nursing attendance to woman in the immediate postoperative recovery period (for at least 2 hours)
1 to 3	mother-baby couplets after the 2-hour recovery period (with consideration for assignments with mixed acuity rather than all recent post-cesarean cases)
1 to 2	women on the immediate postoperative day who are recovering from cesarean birth as part of the nurse to patient ratio of 1 nurse to 3 mother-baby couplets
1 to 5–6	women postpartum without complications (no more than 2–3 women on the immediate postoperative day who are recovering from cesarean birth as part of the nurse to patient ratio of 1 nurse to 5–6 women without complications)
1 to 3	women postpartum with complications who are stable
1 to 5–6	healthy newborns in the nursery requiring only routine care whose mothers cannot or do not desire to keep their baby in the postpartum room
1	at least 1 nurse physically present at all times in each occupied basic care nursery when babies are physically present in the nursery
1 to 1	newborn boy undergoing circumcision or other surgical procedures during the immediate preoperative, intraoperative and immediate postoperative periods
1 to 3–4	newborns requiring continuing care
1 to 2–3	newborns requiring intermediate care
1 to 1–2	newborns requiring intensive care
1 to 1	newborn requiring multisystem support
1 to 1 or greater	unstable newborn requiring complex critical care
1	at least 1 nurse available at all times with skills to care for newborns who may develop complications and/or need resuscitation

Nurse-to-Woman or Nurse-to-Baby Ratio	Care Provided
Minimum Staffing	
2	A minimum of 2 nurses as minimum staffing even when there are no perinatal patients, in order to be able to safety care for a woman who presents with an obstetric emergency that may require cesarean birth (1 nurse circulator; 1 baby nurse, one or both of whom should have obstetric triage, labor and fetal assessment skills). A scrub nurse or sugical tech should be available in-house or on call such that an emergent birth can be accomplished within 30 minutes of the decision to proceed. Another labor nurse should be called in to be available to care for any other pregnant woman who may present for care while the first 2 nurses are caring for the woman undergoing cesarean birth and during post-anesthesia recovery.

† It should be recognized that these staffing ratios represent minimal staffing, require further consideration based on acuity and needs of the service, and assume that there will be ancillary personnel to support the nurse.

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