

Tackling Quality Improvement in the Delivery Room

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KEYWORDS

- Quality improvement • Neonatal resuscitation • Very-low-birth-weight infant
- Delivery room • Labor and delivery

KEY POINTS

- Quality improvement (QI) in the delivery room requires a multidisciplinary approach and careful consideration of the unique aspects of the delivery room setting.
- Delivery room attendants may refine their technical and behavioral skills through simulation sessions and use those skills to meet delivery room QI objectives.
- QI projects may be further enhanced by participation in collaborative projects with other neonatal ICUs (NICUs) to promote a culture of information sharing and improvement.
- Improvements in discrete areas of delivery room management of the neonate have the potential to have an impact on neonatal outcomes.

INTRODUCTION

The initial cry of a newborn baby is part of a sequence of events marking a successful transition from intrauterine to neonatal life. With that first cry, the infant pushes fetal lung fluid out and fills the alveoli with air to oxygenate. The pulmonary vasculature relaxes, pulmonary blood flow increases, and oxygenated blood returns to the heart, allowing the infant to achieve independence from placental blood supply. Although this process occurs smoothly in most deliveries, an estimated 5% to 10% of all newborn deliveries require active assistance at birth (stimulation, suction, and so forth) and 1% of births require intensive resuscitation measures.¹ The incidence of intensive

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measures, such as cardiopulmonary resuscitation, is inversely correlated with gestational age and independently associated with increased morbidity and mortality.²⁻⁵ Furthermore, in each delivery room, the safety of both mother and infant are paramount and the sheer number of equipment and personnel required can contribute to a seemingly chaotic environment. Given the unpredictable nature of the delivery room, there is a need to establish standardized practices and optimize workflow among labor and delivery units to ensure effective care in a timely manner.

The International Liaison Committee on Resuscitation (ILCOR) and the Neonatal Resuscitation Program (NRP) guidelines help provide a framework for the workflow of a delivery room.⁶⁻⁸ Skilled personnel present at the delivery must possess the technical and behavioral skills for resuscitation, while also ensuring that equipment is readily available. Implementation of these guidelines and training of personnel are often carried out and improved on by institutional QI projects. Delivery room QI is aimed at identifying and improving quantifiable processes to ensure that teams are prepared for all resuscitations. This article discusses what makes the delivery room a unique environment for QI, the various facets of delivery room QI, and specific examples on how to approach delivery room QI.

THE CONTEXT OF THE DELIVERY ROOM FOR QUALITY IMPROVEMENT

The conceptual frameworks for quality of care in the health care setting share a common theme of developing a work environment in which providers work as a team to reliably execute processes of care that are known to work and to avoid care that may be harmful.⁹ When considering the environment, team, and processes that are relevant to delivery room care, several distinguishing features may differ from other health care settings (**Box 1**).

Unique Physical Environment

First, the environment of the delivery room can be challenging due to the sheer number of people involved. For example, in the operating room before an infant is born by emergency cesarean section, there can be more than 10 people encompassing 3 different medical teams (obstetrics, pediatrics, and anesthesia) who must work together to ensure safety of both the mother and the fetus/newborn in a discrete amount of time and often in a small amount of space. Each medical specialty plays an important role to improve neonatal outcomes.

Box 1

Unique considerations for delivery room quality improvement

Unique physical environment

- Two patients simultaneously receiving care
- Multidisciplinary personnel and equipment
- Can be chaotic and noisy
- Inadequate space

Unpredictable nature

- Emergency preparedness for every delivery
- Equipment readily available at all times
- Varying personnel

Quality data acquisition

- Efficient and accurate delivery room documentation
- Data collection and reporting for mother and neonate

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