Implement Policies for the Safe Use of Oxytocin

In the past decade, quality improvement programs have provided guidelines for the safe use of oxytocin during labor by minimizing wide variations in dosing and timing. In 2007, Steve Clark and colleagues published an approach for using a conservative checklist-based protocol within the Hospital Corporation of America's 125 obstetric facilities.[223] After instituting this protocol, results showed utilization of lower maximum doses of oxytocin, lower cesarean rates, and improved neonatal outcomes. Many other individual hospitals, hospital systems, the ACOG, and some state perinatal collaboratives have since created similar guidelines for the safe use of oxytocin to decrease cesarean birth rates while improving outcomes. Essential components of these programs are included in *Table 21*.

Endorse NICHD Categories and Standardize Responses to Abnormal Fetal Heart Rate Patterns and Uterine Activity

There is wide variation among providers and hospitals as to what constitutes a FHR tracing indicative of acidemia requiring expedited birth. It is believed this variation is due to a longstanding lack of standardized terminology, interpretation, and management guidelines.[227]

In 2008, the Eunice Kennedy Shriver National Institute of Child Health and Human Development (NICHD), the ACOG, and the SMFM sponsored a workshop to develop a uniform nomenclature for FHR tracings and uterine activity, to standardize interpretation, and to make recommendations for management of abnormal tracings.[277] A three-tiered system of intrapartum FHR assessment was proposed.[278] Category I is strongly predictive of normal fetal acid-base status. Category II, which accounts for the majority of FHR tracings in labor, contains all FHR patterns not in Category I or III; overall, Category II tracings are not predictive of abnormal fetal acid-base status, but acidemia in Category II cannot be excluded. Category III is predictive of abnormal fetal acid-base status and requires expedited birth.[278,279] See *Table 22* for further review of these categories.

In 2013, Clark and colleagues published an important article[227] addressing the need for standardizing assessment of Category II FHR tracings, which account for more than 80% of intrapartum FHR patterns. Category II tracings are challenging to interpret. Over-concern for variable decelerations despite normal baseline variability have contributed to higher cesarean rates. However, under-appreciation of a fetus's deteriorating status can result in morbidity and occasionally mortality. Although the ACOG Practice Bulletin Number 116 outlines general recommendations for management of various Category II patterns,[278] many labor and delivery units are moving toward implementation of specific algorithms in order to simplify management of complex tracings. Clark and colleagues created such an algorithm and an accompanying table of specific clarifications. The goal of the algorithm is to assist in delivering the fetus before significant acidemia occurs, while avoiding an unnecessary cesarean in cases where the Category II tracing indicates continued fetal well-being. It should be noted that Clark's algorithm does not include modification of management for fetal tachycardia or presence of meconium. The impact of meconium in conjunction with a Category II tracing was evaluated by Frey and colleagues in 2014.[280] They noted that 21% of Category II tracings had meconium and that this combination was accompanied by an increased risk of neonatal morbidity.

Other facilities and perinatal collaboratives have since designed useful algorithms based on the concepts of the

Table 21. Essential Components of Safely Administering Oxytocin

Essential Components of Safely Administering Oxytocin
Standardized oxytocin administration protocols and order sets
Checklists for initiation and ongoing assessment of oxytocin
Documentation required (with indication) for induction or augmentation
Fetal status assessment (initial and ongoing)
Uterine activity assessment (initial and ongoing)
Availability of a physician capable of performing an emergency cesarean section if needed
Criteria for decreasing or discontinuing oxytocin
Resuscitative measures clearly defined and documented
Resumption of oxytocin parameters clearly defined
Consideration of other extenuating factors, such as pain medication effects, epidural, fetal demise, etc that might impact oxytocin use and appropriate dosing
Data collection and evaluation related to protocol adherence, cesarean delivery, operative vaginal delivery rates, and maternal and neonatal complication rates