Newborn Critical Care Center (NCCC) Clinical Guidelines

Guidelines for Assessment of Heart Rate & ECG Monitoring in the Delivery Room

INTRODUCTION

Immediately after birth, assessment of the newborn's heart rate is used to evaluate the effectiveness of spontaneous respiratory effort and determine the need for subsequent interventions. During resuscitation, an increase in the newborn's heart rate is considered the **most sensitive** indicator of successful response to each intervention. Therefore, identifying a rapid, reliable and accurate method to measure the newborn's heart rate is critically important. Historically, auscultation of the precordium has been the preferred physical examination method to establish the newborn's heart rate in the delivery room with pulse oximetry used as an adjunct. However, the 2015 ILCOR systematic review found clinical assessment to be both unreliable and inaccurate in determining a heart rate in the delivery room. Furthermore, pulse oximetry tended to underestimate the heart rate leading to potentially unnecessary interventions. Three lead ECG monitoring has been shown to display an accurate and reliable heart rate during the first minute of life. The following guidelines were developed to provide a practical approach to the use of 3-lead ECG monitoring in the delivery room.

Phillips Intellivue X2 portable modules will be taken to all deliveries for which NCCC attendance has been requested.

USE OF ECG MONITORING DURING DELIVERY ROOM STABILIZATION

1. ECG leads should be placed immediately after delivery for all infants (including the ELBW infant) identified for direct admission to the NCCC
2. ECG leads should be applied to any infant who requires > 30 seconds of PPV
3. The use of ECG does not replace the need for pulse oximetry to evaluate the newborn's oxygenation

AFTER DELIVERY ROOM STABILIZATION

Once resuscitation is complete, the infant's disposition will be determined. If the infant is to be transferred to the NCCC, ECG monitoring will continue. If the infant is to remain in the Labor and Delivery suite, ECG monitoring will be discontinued and leads removed once the infant is breathing spontaneously and heart rate is > 100 bpm.

References:

Wyckoff, MH, Aziz K, Escobedo MB, Kapadia VS, Kattwinkel J, Perlman JM, Simon WM, Weiner GM, Zaichkin, JG. Part 13: neonatal resuscitation: 2015 American Heart Association (AHA) Guidelines Update for Cardiopulmonary Resuscitation and Emergency Cardiovascular Care. Circulation. 2015; 132(supple 2): S543-S560

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