PATIENT POPULATION: Preterm infants and term infants at birth.

PURPOSE:

Delayed Cord Clamping and Cord Milking have been shown to have benefits in **BOTH preterm and term infants.**

In term infant, delaying cord clamping for 60-120 seconds (**2013 Cochrane review of 15 studies and 3911 infants)** results in:

- Higher hemoglobin and hematocrit in the early neonatal period (at 24-48 hours)
- Higher total body iron stores, 2–4 and 6 months of age
- Lower incidence of iron-deficiency anemia, around 3-6 months of age
- Higher birthweight (101 grams)
- No risk except for more frequent hyperbilirubinemia (not requiring exchange transfusions) and benign polycythemia
- Maternal outcomes showed no difference in postpartum hemorrhage, no difference in blood loss and no difference in hgB 24-72 hours after delivery
- ***This practice should be routine***

In preterm infants, delayed cord clamping for 60-120 seconds results in **(2012 Cochrane review of 15 studies, 738 infants**):

- Higher HCT & hgb during the early neonatal period at 4 hours
- Reduced need for blood transfusions for anemia
- Reduced incidence of IVH (all grades)
- Reduced NEC
- Reduced need for inotropes
- Only risk is higher peak bilirubin. However average difference was less than 1mg/dL.
- ***This practice should be routine***

Unresolved issues in literature:

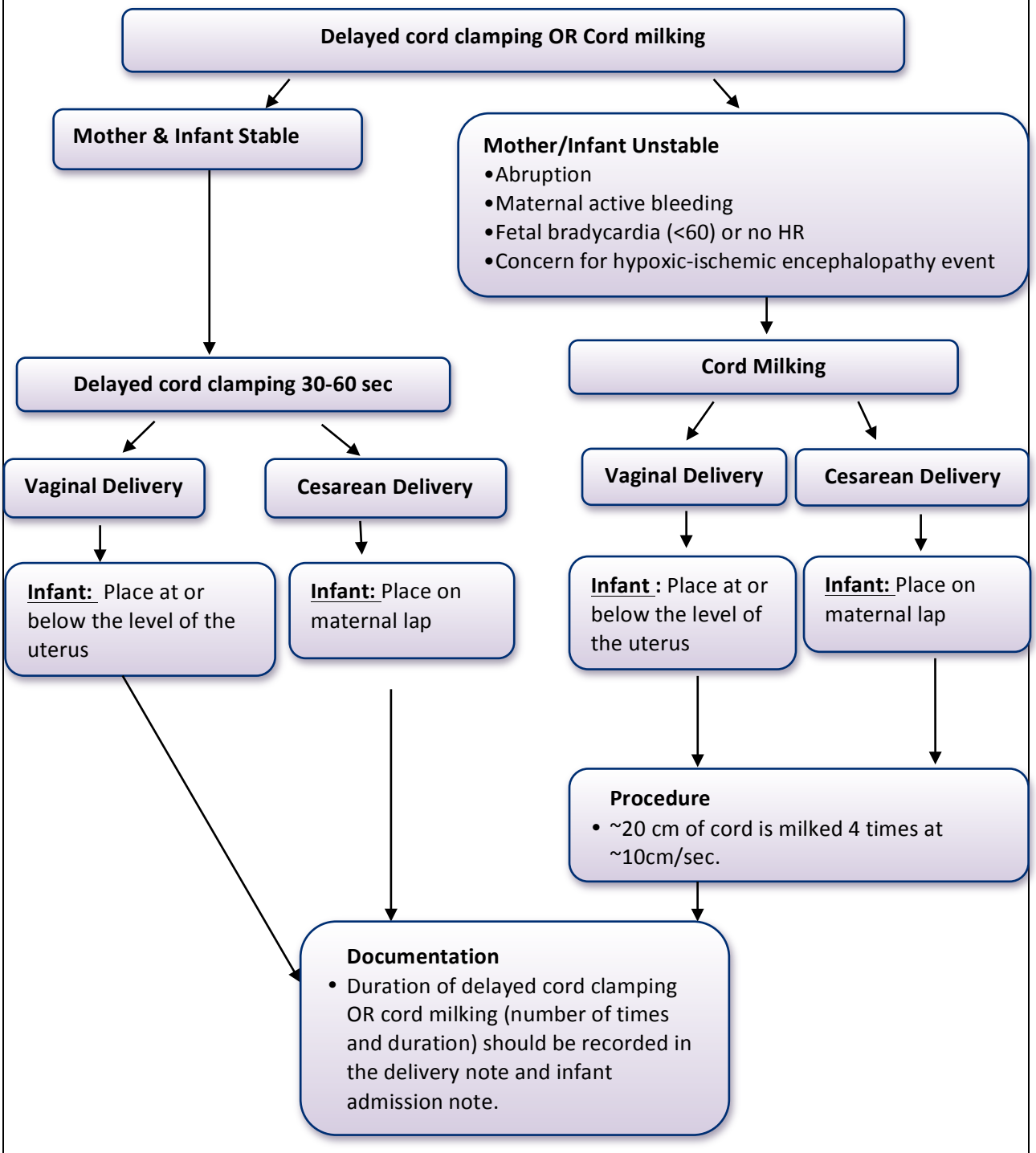
- Are the benefits of cord clamping and milking the same?
- Small studies including RCT have shown similar benefits and no increased risk
- In infant whose resuscitation must be started before 60 seconds
- Cord milking may provide a good alternative although more research is needed.
- Some advise proceeding with resuscitation while infant is attached to the placenta
- (Europe).
- Infant at increased risk for hyperbilirubinemia such as infants of diabetic mothers or
- blood incompatibilities. Infants with hydrops
- Mothers with maternal hemorrhage

DEFINITIONS:

Delayed Cord Clamping: Clamping of the cord is delayed for 30-60 seconds.
Cord Milking: Milking approximately 20 cm of the cord at a rate of 10 cm per second four successive times (allow blanching of the cord following the milked section of the cord).
Mother Unstable: Maternal bleeding or condition necessitating immediate intervention (abruption, cord prolapse, compromise of a twin or other multiple).
Infant unstable: Fetal bradycardia, No fetal heart rate, or concern for HIE (Hypoxic Ischemic Encephalopathy).

TREATMENT

Procedure for Delayed Cord Clamping Term and Preterm Infants and delayed cord clampling or Cord milking for preterm infants



HAND-OFF OF CARE:
Include duration of delayed cord clamping OR number of times and total duration of cord milking if performed in hand-off to Newborn nursery or NICU.

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(3) Rabe H, az-Rossello J, et al. Effect of timing of umbilical cord clamping and other strategies to influence placental transfusion at preterm birth on maternal and infant outcomes. Cochrane Database Syst Rev 2012; 8:CD003248.

(4) Rabe H, Jewison A, Alvarez RF et al. Milking compared with delayed cord clamping to increase placental transfusion in preterm neonates: a randomized controlled trial 4. Obstet Gynecol 2011; 117(2 Pt 1):205-211.

(5) Vain N. Effect of Gravity and Delayed Cord Clamping (DCC) on the Volume of Placental Transfusion (PT). A Multicenter Randomized Controlled Trial (RCT). E-PAS2013:3500.3. 2013.

(6) Mcdonald SJ, Middleton P, Dowswell T, Morris PS. Effect of timing of umbilical cord clamping of term infant on maternal and neonatal outcomes (review). Cochrane 2013, June 7.