

Universal Screening for Hyperbilirubinemia

An official position statement of the Association of Women's Health, Obstetric & Neonatal Nursing

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Position

The Association of Women's Health, Obstetric and Neonatal Nurses (AWHONN) supports universal screening to identify elevated bilirubin levels in newborns. Screening is a key intervention in the prevention of acute bilirubin encephalopathy and kernicterus. Kernicterus is chronic and irreversible bilirubin encephalopathy, and it is a virtually preventable disorder.

Assessment and Documentation

Assessment of hyperbilirubinemia should be accomplished through diagnostic testing or screening and not through visual inspection alone. AWHONN encourages facilities to aggressively seek mechanisms to educate all clinical staff that visual inspection should not be the sole means of determining elevated bilirubin levels.

Best practice includes documentation through the use of an hour-specific bilirubin nomogram. Determining the hour-specific total serum bilirubin before discharge has been shown to be the most accurate method for assessing risk of severe hyperbilirubinemia. Nurses and other healthcare providers who care for newborns should report bilirubin levels in terms of a newborn's age in hours not days so that the infant can be more accurately assessed for kernicterus risk (Keren & Bhutani, 2007).

AWHONN supports the development of additional new methodologies to accurately assess bilirubin levels in the newborn.

Role of Nurses

Hospitals should adopt facility-wide policies and procedures that ensure the standard of care for all newborns in order to prevent acute bilirubin encephalopathy and kernicterus. A mechanism should be in place that provides nurses with independent authority consistent with law to order total serum bilirubin (TSB) levels or to perform transcutaneous (TcB) bilirubin assessments based on

identified risk factors for jaundice rather than potentially creating a delay while waiting for a medical order. Health care providers should work as a team to assure that all infants are screened for risk of elevated bilirubin levels (hyperbilirubinemia) prior to discharge from the hospital.

Nurses play an integral role in the implementation of universal screening for elevated bilirubin levels in the newborn. Nurses should assess the family's level of understanding and discourage behaviors that are not recommended or could actually cause the bilirubin level to rise, such as the administration of supplemental water. In addition, facilities and health care providers should promote and support breastfeeding as successful breastfeeding helps to decrease elevated bilirubin levels. Nurses should provide parents with both written and verbal education about newborn jaundice (AWHONN, 2005).

Nurses are often the health care providers who give discharge instructions to the family. Upon infant discharge, families should receive specific instructions to see their pediatric health care provider as appropriate for the newborn's gestational age and condition and to coincide with the time of anticipated peak bilirubin levels. It is important to recognize that late preterm infants' bilirubin levels normally peak between day five and seven of life compared with term newborns whose bilirubin levels tend to peak at day three to four of life (Engle, Tomashek, Wallman, & the Committee on Fetus and Newborn, 2007). Families should also be advised to ask the provider about additional bilirubin testing.

Background

Acute bilirubin encephalopathy may include the following neurologic symptoms:

- Extra pyramidal movement disorders
- Gaze abnormalities
- Lethargy



- Auditory disturbances (sensorineural hearing loss)
- Hypo or hypertonia, truncal arching
- Seizures
- Coma
- Death

Kernicterus (chronic bilirubin encephalopathy) may include the following symptoms:

- Severe cerebral palsy
- Auditory dysfunction
- Dental enamel dysplasia
- Paralysis of upward gaze

The rate of progression of these symptoms depends on the rate of rise of the bilirubin level. Newborns with abnormally elevated bilirubin levels may rapidly progress to acute bilirubin encephalopathy and experience neurotoxicity. Therefore, newborns demonstrating signs of hyperbilirubinemia with or without a documented elevation in bilirubin levels should be closely assessed by their health care providers. Treatment should be based on the risk assessment and the total serum bilirubin (TSB) or transcutaneous bilirubin (TCB) level. The primary treatments for hyperbilirubinemia are phototherapy, exchange transfusion, or a combination of these modalities.

Certain infants are at a much higher risk for developing this condition. Some of these risks include the following:

- Sibling that had jaundice
- Newborns with an elevated bilirubin level before 24 hours of age
- Bruising at delivery
- Prematurity
- Dehydration
- Inadequate breastfeeding
- Jaundice prior to 24 hours of age
- East Asian or Mediterranean descent
- Cephalohematoma
- Glucose 6 Lactose Dehydrogenase (G6PD) deficiency, which is a genetic enzyme deficiency that can cause jaundice through two mechanisms: impaired conjugation of bilirubin and hemolysis (American Academy of Pediatrics [AAP], 2004; Canadian Paediatric Society [CPS], 2007; Engle et al., 2007).

AWHONN's position on universal screening of bilirubin levels in the newborn is intended to support the AAP Clinical Practice Guideline, "Management of Hyperbilirubinemia in the Newborn Infant 35 or

More Weeks Gestation," published in July 2004. As an update to the 1994 guidelines, the AAP identified 10 clinical practices that should be followed by health care professionals. The following key recommendations are specifically relevant to clinical nursing practice:

- Emphasis that successful breastfeeding is critical as a means to prevent kernicterus
- Reinforcement of the importance of hospital based protocols to identify and treat hyperbilirubinemia
- Emphasis that visual inspection is not reliable as the sole means of assessment of jaundice
- Directive that bilirubin levels must be evaluated according to the infants age in hours, not days
- Underscoring of the increased risk of hyperbilirubinemia in infants less than 38 weeks gestation
- Directive that risk assessment must be included in the evaluation of all newborns (AAP, 2004; CPS, 2007)

In August 2004, the Joint Commission on Accreditation of Health Care Organizations released a second Sentinel Event Alert regarding hyperbilirubinemia and the prevention of kernicterus. The Joint Commission recommended that all hospitals and health care professionals caring for newborns both during hospitalization and after discharge follow the AAP clinical practice guidelines related to identification management and prevention of hyperbilirubinemia (The Joint Commission on Accreditation of Health Care Organizations, 2004).

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