

***Neonatal Hyperbilirubinemia:
Screening, Assessment, Management & Prevention of Kernicterus
Quality Improvement Plan & Tools***

Issue

Screening, treatment and management of hyperbilirubinemia to prevent Acute Bilirubin Encephalopathy and Kernicterus.

Case reports of more than 125 infants with Kernicterus have been reported since 1984. This sequelae is largely preventable with universal screening, identification of infants at highest-risk, early and effective treatment, appropriate follow-up and careful parent education. Actual rates of excessive hyperbilirubinemia are unknown.

Professional organizations for pediatric and neonatal providers have issued practice guidelines and position statements outlining the steps to take to prevent this problem.

- * The American Academy of Pediatrics issued a Clinical Practice Guideline in July, 2004 outlining the key elements of practice to prevent excessively high bilirubin levels.
- * The National Association of Neonatal Nurses issued Position Statement 3040 in August, 2003 entitled Prevention of Bilirubin Encephalopathy and Kernicterus in the Newborn.
- * Center for Disease Control and Prevention: MMWR
- * Joint Commission on Accreditation of Hospital Organizations (JACHO) Sentinel Alerts 18 and 31 describe the root causes and systems changes necessary to prevent kernicterus in near term and term infants.

Key Components of Prevention Strategies

- * Promotion of successful breastfeeding
- * Establishment of nursery protocols for the identification and evaluation of hyperbilirubinemia
- * Measure the total serum bilirubin (TSB) or transcutaneous bilirubin (TcB) level on infants jaundiced in the first 24 hours.
- * Recognize that visual estimation of the degree of jaundice can lead to errors, particularly in darkly pigmented infants.
- * Interpret all bilirubin levels according to the infant's age in hours.
- * Recognize that infants at less than 38 weeks' gestation, particularly those who are breastfed, are at higher risk of developing hyperbilirubinemia and require closer surveillance and monitoring.
- * Perform a systematic assessment on all infants before discharge for the risk of severe hyperbilirubinemia.
- * Provide parents with written and verbal information about newborn jaundice.
- * Provide appropriate follow-up based on the time of discharge and the risk assessment.
- * Treat newborns, when indicated, with phototherapy or exchange transfusion.

AAP: Clinical Practice Guideline: Management of Hyperbilirubinemia in the Newborn Infant 35 or More Weeks of Gestation, July, 2004.

Evaluate/Understand Scope of the Problem

Produced by: "The Regional Quality Improvement Workgroups of the
Community Perinatal Network & Orange County Perinatal Council for the
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Chart Audit (see following page for audit tool)

Does the chart reflect the following?

1. Mother's blood group type and Rh status? If not, was cord blood sent for blood group type, Rh, Coombs?
2. Was a gestational age and size assessment performed on the infant?
3. Was there documentation of signs of jaundice with each set of vital signs (at least every 8-12 hours)?
4. Was there evidence of adequacy of breastfeeding (8-12 feedings/day, > 6 wet diapers and 4 bowel movements /day, adequate latch, audible swallows, etc) noted? If not, physician notified and lactation consultation obtained?
5. If any supplemental feedings were giving to the breastfeed infant, was there evidence of dehydration or other medical indication **and** a physicians order obtained?
6. Was a TSB or TcB done and plotted on nomogram prior to discharge?
7. Does the discharge teaching record show that the parents were given verbal and written information on the signs and symptoms of hyperbilirubinemia?
8. Was a specific follow-up appointment (provider, date, place) based on risk factors and assessment given to the parents prior to discharge?

Evaluate 10% or a minimum of 25 charts to identify current compliance with standards and increase understanding of issues to be addressed to improve quality of care for all infants in mother/baby care unit. 100% compliance with each indicator is sought.

Design and Implement Interventions to Address Issues Identified

- Issue 1:** Charting and documentation does not meet standard.
Intervention 1: Consider adoption of Hyperbilirubinemia and Kernicterus Prevention Risk Assessment form, sample policies and procedures. (included in packet)
- Issue 2:** If maternal blood type not known, cord blood not consistently sent for appropriate testing.
Intervention 2: Consider adoption of Recommended Standard Orders, (included in packet).
- Issue 3:** Gestational age of infant not assessed on all patients.
Intervention 3: Consider changing practice to include routine gestational age assessment for all infants. Sample Standard Nursing Competencies included in packet.
- Issue 4:** Breastfeeding interventions and parental support do not meet Standards.
Intervention 4: Consider continuing education on breastfeeding interventions and support in the first 14 days of life using ILCA guidelines of care (included in packet)
- Issue 5:** Formula supplementation noted in breastfeeding infants without indications, physician orders or parental consent.
Intervention 5: Consider adoption of Recommended Standard Orders, (included in packet).
- Issue 6:** Parent education and discharge teaching do not meet standards.
Intervention 6: Consider adoption of AAP discharge information on Hyperbilirubinemia (included in packet)
- Issue 7:** Charting and documentation does not meet standard
Intervention 7: Consider adoption of Hyperbilirubinemia and Kernicterus Prevention Risk Assessment form
- Issue 8:** Staff unaware of issues, interventions and prevention strategies necessary to protect all infants from Excessive Hyperbilirubinemia and Kernicterus.
Intervention 8: Consider staff education (group or individual) using presentation, articles, post-test included with packet.

Reassess Compliance with Standards of Care

Following systematic intervention based on evaluation, a second chart audit will be completed to document change in practice and direct future intervention.

Consider including additional departments in Quality Improvement Plan, including: Emergency Department, Laboratory, Physicians Office Staff/Clinic Staff, Home Health Department, etc.

Report back to all staff (physicians, nurses, laboratory, etc) on issues and resolution.