COUNTY OF LOS ANGELES **DEPARTMENT OF HEALTH SERVICES**

HARBOR-UCLA MEDICAL CENTER

SUBJECT: MEASUREMENT OF TRANSCUTANEOUS BILIRUBIN **POLICY NO. 374C**

PURPOSE:
To outline and define the use of the BiliChek Non-Invasive Bilirubin Analyzer in the hospital setting which may include the Newborn Nursery, Neonatal Intensive Care Unit, Outpatient Clinic, Laboratory and Emergency Department.

WHO MAY PERFORM:
Registered Nurse
Licensed Vocational Nurse

DEFINITIONS:
1. The Philips BilicChek meter is intended for use as a screening device for jaundice in the newborn. The BiliChek Advanced System 1037632 provides a transcutaneous measurement of bilirubin in mg/dL or µmol/L, identifying neonates who require a serum bilirubin measurement. The BiliChek device is a screening alternative to subcutaneous (traditional heel stick TSB) bilirubin testing. Because BiliChek is non-invasive there is no pain, trauma or risk of infection to the patient.
2. **Intended use:**
   a. Prior to phototherapy

A. POLICY:
1. A transcutaneous bilirubin check will be done utilizing the BiliChek analyzer as per the physician's orders in patients within the following parameters:
   a. Gestational Age: 27 to 42 weeks
   b. Postnatal Age: 0 to 20 days
   c. Weight: 950 to 4995 grams

EFFECTIVE DATE: 7/19 **SUPERSEDES:**
REVISED:
REVIEWED: 6/19
REVIEWED COMMITTEE: NICU Steering Comm.

APPROVED BY:

Kim McKenzie, RN, MSN, CPHQ
Chief Executive Officer

Anish Mahajan, MD
Chief Medical Officer

Nancy Blake, PhD, RN, NEA-BC, FAAN
Chief Nursing Officer

2. **Contraindications**
   a. The BiliChek should not be used in the following situations:
      i. Following initiation of phototherapy
      ii. Following exchange transfusion
      iii. The measurement site on the forehead contains excessive bruising, birthmarks, hematomas or excessive hairiness as this can produce erroneous results.
3. Only properly trained hospital personnel should perform BiliChek testing. Such personnel may include:
   a. Nursing Staff
   b. Laboratory Personnel
   c. Physicians

4. **Staff Competency Validation:**
   a. All hospital personnel responsible for performing BiliChek testing will be properly trained prior to use of the device in a clinical setting to ensure accurate test results. Training will be documented as follows:
      i. Hospital personnel will receive a demonstration of the equipment by an experienced BiliChek operator and will be responsible for reading the information provided in any other training materials provided by the institution.
      ii. Hospital personnel will perform a return demonstration on 3 infants in the presence of an experienced BiliChek operator.
      iii. Successful completion of training will be documented in the employee's education record.

B. DURING PHOTOTHERAPY

1. BiliChek should NOT be used as an alternative to serum bilirubin measurement during phototherapy.

C. DOCUMENTATION

1. **Document results as follows:**
   a. Document the patient's test results, date and time in the appropriate area on the patient's chart.
   b. Notify the resident physician as appropriate.
   c. Obtain follow-up measurements in accordance with physician orders.
2. **QA Documentation Procedure**
   a. The BiliChek device performs internal calibration controls prior to each patient test. The device will not permit testing to occur if the calibration does not meet the control specifications.
   b. In order to document completion of the calibration prior to each test to meet JCAHO requirements you should complete a "Quality Documentation Record" similar to the sample provided. An individual record should be maintained for each BiliChek device and tracked by serial number.

D. CLEANING AND MAINTENANCE

1. The BiliChek System surface may be cleaned with the following agents:
   a. Use soapy water, a 10% bleach solution or full strength ammonia.
   b. Use a damp, soft sponge or cloth to apply the cleaner. To clean, spray the cleaning agent of choice onto a damp cloth and wipe the BiliChek system and display window.
   c. Apply the cleaning solution to the sponge or cloth and wipe down the unit or charger base.
   d. Allow the equipment to air dry.
      i. **Warning:** Do not immerse the BiliChek in water or other liquid. If liquids spill onto the unit, wipe with a cloth and let unit dry before use.
      ii. **Warning:** Do not attempt to clean and/or reuse the disposable tip.
      iii. **Warning:** The optical measurement tip should only be cleaned with 90% or higher Isopropyl Alcohol using a soft optical surface cleaning wipe.

PROCEDURE:

A. PATIENT TESTING IMPLEMENTATION GUIDELINES

1. All infants will be screened for hyperbilirubinemia at 12 hours of life and then twice-a-day using the BiliChek device. Screenings will occur by the patient's nurse at 6am and 6pm for all infants in the Level 1 Newborn Nursery.
2. An urgent transcutaneous bilirubin will be measured at hour of life **6** in the following circumstances.
   a. Mom's blood type is O and Infant's blood type is A, B, or AB.
   b. Any positive DAT or IAT on the infant or mother.
3. A total serum bilirubin (TSB) (blood draw) will be obtained prior to the initiation of the phototherapy treatment ordered by the resident physician.
4. A total serum bilirubin will be or ordered at the discretion of the Resident Physician.
5. Resident Physician should be immediately notified upon the following:
   a. Mom's blood type is O and Infant's blood type is A, B, or AB.
   b. A positive DAT or IAT on the infant or mother.
   c. A transcutaneous bilirubin measurement of >5 mg/dl at hour of life **12** or before.
   d. A transcutaneous bilirubin measurement of >10mg/dl at hour of life **24** or before.
   e. A transcutaneous bilirubin measurement of >15mg/dl between 24-48 hours of life.
   f. An increase in TcB of 2.5 mg/dl from the previous reading.
   g. Any visible jaundice in the first 24 hours of life

REFERENCES:

1. MacDonald, M. G., et al. (2013). *Atlas of procedures in neonatology* (5th ed.). Philadelphia, PA: Lippincott Williams & Wilkins.
2. Altimer L. Mother and child integrative developmental care model: A simple approach to a complex problem. Newborn & Infant Nursing Reviews. Sept 2011;11(3):105-108.
3. Subcommittee on hyperbilirubinemia by the American Academy of Pediatrics. Management of hyperbilirubinemia in the newborn infant 35 or more weeks of gestation. Pediatrics. Jul 2004;114(1):297-316
4. https://www.youtube.com/watch?v=fAdZ_146iNY