



Critical Congenital Heart Disease Screening Program

SCREENING RECOMMENDATIONS



Section 1: Recommendations for Implementation Planning

1. Designate a program director and coordinator to facilitate planning and implementation of the screening program.
2. Establish an interdisciplinary team of organizational leadership and management, physicians, registered nurses, nursing assistants, and ancillary staff to participate in the planning process.
3. Schedule several planning sessions to facilitate education, communication, brainstorming, conflict resolution, and decision making.
4. Ensure that the organization's public relations and marketing department is involved in communication planning and efforts.
5. Discuss and establish a clear, complete, and concise evidence-based policy and procedure for screening methods and guidelines, including documentation and reporting of normal and abnormal results.
6. Discuss a plan for management and evaluation of infants requiring further evaluation if pediatric cardiology services are not available on site.
7. Establish guidelines for parents or guardians who wish to decline screening.
8. Research the accuracy and reliability of pulse oximetry equipment. Choose a vendor with equipment that is approved by the FDA for use with neonates.
9. Establish guidelines for informing, educating, and training providers and staff participating in and/or affected by implementation of the screening program.
10. Establish guidelines for education of and communication with parents and guardians before and after screening.
11. Establish plans for surveillance and reporting of program results and outcomes.
12. Birthing facilities at high altitudes may require revised protocols.
 - a. Large studies of infants born at moderate altitude (5,000-7,000 ft. elevation) have shown slightly higher but tolerable failure rates for CCHD screening when compared with infants born at sea level.
 - b. No large scale studies of CCHD screening have been performed in infants born above 7,000 ft. elevation. Based on the available unpublished data and small samples at higher altitudes, screening failure rates using the protocol described in this toolkit may result in significantly higher false positive rates at elevations above 7,000 ft.

Section 2: Recommendations for Parental Education

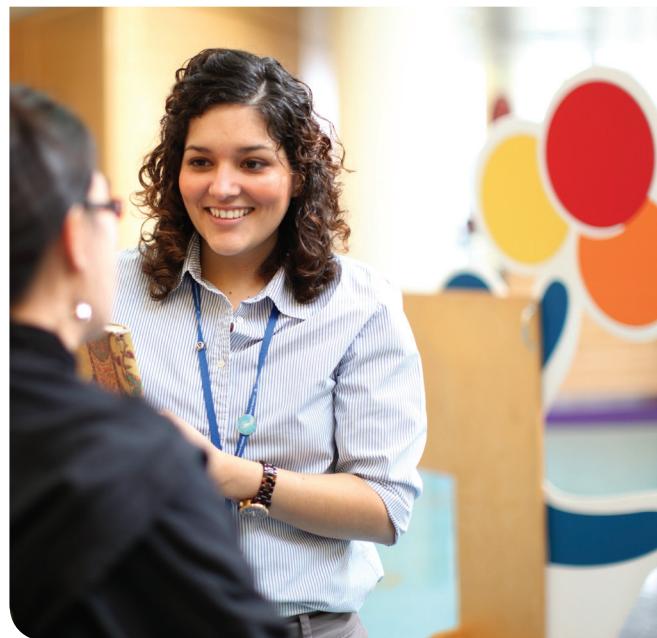
1. Establish a plan to inform parents of the screening program prior to delivery and screening of the infant through:
 - a. prenatal classes and tours provided by the hospital,
 - b. information on hospital's website, and
 - c. written materials available in the obstetrics and gynecology clinics, labor and delivery, and maternity suites.
2. Provide education in both written and verbal methods; written materials should be easy to read and understand, and they should not contain excessive medical language that may be confusing to parents.
3. Provide written materials in English and Spanish; consider additional languages based on patient population that is served and use an interpreter when appropriate.
4. Include program contact information on all communications to provide mothers the opportunity to seek additional information and clarification prior to delivery.
5. Educate parents of signs and symptoms of CHD.
6. Inform parents of the right to decline screening.

Section 3: Recommendations for Educating and Informing Providers

1. Prior to implementation, inform and educate all hospital and community providers who work in the newborn nursery, neonatal intensive care unit, postpartum unit, and pediatrics and will be affected by the screening program.
 - Consider sending out a letter of program intent several weeks prior to implementation.
 - Provide program contact information to allow providers to seek additional information and clarification.
2. Provide a Grand Rounds session for the education of hospital and community providers.
3. Request time at department meetings to inform and educate hospital and community providers prior to implementation.
4. Following implementation, provide frequent updates to hospital and community providers on the screening program progress and outcomes at department meetings or through written communication.

Section 4: Recommendations for Screener Training

1. Provide all training prior to implementation of the screening program by an individual who has participated in the planning process.
 - a. Examples include the unit's nurse manager or assistant nurse manager, the nurse educator, the program coordinator, or a registered nurse who played an active role in the planning process.
2. Recommended components of the in-service education program include:
 - a. PowerPoint Presentation — Includes information on background and significance for CCHD screening methods and recommendations and may be obtained by emailing pulseox@childrensnational.org
 - b. Demonstration of correct and safe use of pulse oximetry equipment in obtaining an accurate infant reading by trainer or representative from pulse oximeter manufacturer
 - c. Completion of knowledge assessment quiz
 - d. Opportunity to practice CCHD screening
3. Require that all individuals who will be performing the screening test complete the in-service education program.
4. Require that all individuals who will be performing the screening test complete the knowledge assessment quiz with a passing score of greater than or equal to 90 percent, and remediation of all questions answered incorrectly.



5. Require that all individuals who will be performing the screening test demonstrate proficiency in performing pulse oximetry and knowledge of screening guidelines through completion of defined competencies prior to participation. Require that they renew competencies on an annual basis.
6. Provide "booster" sessions quarterly to provide an opportunity to re-educate staff and answer any questions.
7. Ensure that all new employees receive training prior to participation in screening program methods.
8. Provide staff with regular updates on outcomes of screening to maintain engagement.

Section 5: Recommendations for Screening

1. Pair critical CHD screening with another standard-of-care screening performed following 24 hours of age, such as metabolic or hearing screening. If early discharge is planned, screening should occur as late as possible.
2. Consider assigning one or two nursing assistants or registered nurses to critical CHD screening on a daily basis.
 - a. If possible, provide continuity by scheduling one screener to conduct screening on several continuous days.
3. Conduct screening in a quiet area with the parent present to soothe and comfort the infant.
4. If possible, conduct screening while the infant is awake, quiet, and calm.
5. Do not attempt to perform pulse oximetry on an infant while he or she is in a deep sleep, crying, or cold, as oxygen saturations may be affected.
6. If using disposable pulse ox sensors, use one clean sensor for each infant screened. If reusable sensors are being used, clean sensor as instructed by manufacturer prior to and following screening. Dirty sensors may decrease the accuracy of a reading or transmit infection.
7. Perform pulse oximetry on the right hand and one foot after 24 hours of age; measurements should be taken in parallel or one after another. If infant was born prematurely, perform screening when medically appropriate. If an early discharge is planned, conduct screening as close to 24 hours as possible.
8. Ensure that all readings are accurate by using pulse oximetry equipment confidence indicators.
9. If the oxygen saturation is 100-95% in either extremity with a 3% or less absolute difference between the two, the infant will "pass" the screening test and no additional evaluation will be required unless signs or symptoms of CHD are present.
 - a. The physician or nurse practitioner caring for the infant does not need to be notified.
 - b. The infant does not require additional cardiac evaluation in the newborn nursery unless indicated.
10. If the pulse ox reading is 89% or less in either the hand or foot, the infant should be immediately referred to his or her physician for additional evaluation.

11. If the oxygen saturations are 94-90% in both the hand and foot or there is a 4% or more absolute difference between the two on three measures, each separated by one hour, the newborn should be referred for additional evaluation.
 - a. The infant's physician or nurse practitioner should be notified.
 - b. Infectious and pulmonary pathology should be excluded.
 - c. If cause of hypoxemia is not clear, an echocardiogram and cardiology consultation should be obtained before discharge to rule out CHD.
 - d. Further evaluation should be ordered at the discretion of the physician or nurse practitioner caring for the infant.

Section 6: Recommendations for Follow-Up

1. Establish guidelines for documentation and communication of results and plan of care (if necessary) with infant's parents and pediatrician.
2. Establish guidelines for individuals performing screening if asked questions by parents.
3. Establish guidelines for addressing screening of missed infants.

