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To: Hospital Administrators, Chief Medical Officers and Health Care Providers

From: Marilyn A. Kacica, M.D., M.P.H, NYSDOH, Division of Family Health

This notice contains information about new requirements for birthing facilities regarding screening for critical congenital heart disease in newborns.

Congenital heart diseases (CHD) are the most common type of birth defects in children and occur in 8 per 1,000 live births. About 25% of all CHDs are considered critical congenital heart diseases (CCHDs). Children with CCHD have an increased chance of developing serious complications during the first few days or weeks of life. Each year almost 300 New York State children are born with CCHD and 17% of these children die in the first year of life.

Pulse oximetry is an effective method of screening all newborns for CCHD and can reduce the number of infants who are undiagnosed. The purpose of pulse oximetry screening is to detect CCHD before clinical deterioration of the infant.

Governor Andrew Cuomo signed legislation on July 31, 2013 to protect the health of newborns from potentially life-threatening CCHD. Effective January 27, 2014, all birthing facilities in New York State and those required to register a child’s birth are required to perform pulse oximetry screening on every newborn in its care.

It is important that birthing facilities follow evidence-based recommendations as they implement the screening program. Attached for your use is a recommended Protocol for CCHD Screening that has been reviewed by NYS specialists, including neonatologists and pediatric cardiologists. It is expected that each birthing facility will have a written protocol in place for uniform CCHD screening.

Best practices for newborn screening programs include documentation of the screening results in the medical record, assuring appropriate referral for diagnostic evaluation, and collection of
appropriate follow-up data so as to ensure that all babies are screened and receive needed treatment. This data collection helps in ongoing quality improvement of the screening program. Although reporting is not required at this time, documentation and collection of the following data elements are recommended: date and time of screening; screening results (Pass/Fail); referral to medical provider after a failed screen (Yes/No); identification of an infant with CCHD by another means (prenatal ultrasound or clinical signs prior to pulse oximetry screening); diagnostic results; and, parental refusal of screening.

Infants found to have congenital heart disease are to be reported to the New York State Department of Health’s Congenital Malformations Registry (CMR). Hospitals and physicians are to submit case reports electronically via the Internet using the Health Commerce System (HCS).

For more information about the Congenital Malformations Registry see: [http://www.health.ny.gov/diseases/congenital_malformations/cmrhome.htm](http://www.health.ny.gov/diseases/congenital_malformations/cmrhome.htm) or contact Deborah Fox at [djf03@health.state.ny.us](mailto:djf03@health.state.ny.us) or (518) 402-7990.

If you have questions about how to implement CCHD screening in your facility using this protocol, please contact your Regional Perinatal Center. Additional provider information about implementing screening for CCHD can be found in two articles from Pediatrics and a toolkit. The toolkit can be ordered by clicking on the web link below:

- Strategies for Implementing Screening for Critical Congenital Heart Disease
- Implementing Recommended Screening for Critical Congenital Heart Disease
- Children’s Hospital Medical Center’s Congenital Heart Disease Screening Program toolkit: [http://www.childrensnational.org/pulseox/request-tool-kit.aspx](http://www.childrensnational.org/pulseox/request-tool-kit.aspx)

NYS specific educational materials and resources for parents will be available at a later time. In the meantime, you may refer parents to CCHD resources at:


Thank you for your ongoing efforts to provide New York State newborns with quality health care. If you have questions other than screening protocol implementation, please contact program staff at (518) 473-9883.
References


iii Kemper AR, Mahle WT, Martin GR, et al. Strategies for implementing screening for critical congenital heart disease. *Pediatrics* 2011; 128(5). Available at: [www.pediatrics.org/cgi/content/128/5/e1259](http://www.pediatrics.org/cgi/content/128/5/e1259)

Protocol for Critical Congenital Heart Disease Screening
Recommendations from the New York State Department of Health

Adapted from the protocol developed by the Critical Congenital Heart Disease workgroup of the Secretary's Advisory Committee on Heritable Disorders in Newborns and Children.

Child in well-baby nursery* at 24-48 hours of age (or shortly before discharge if < 24 hours of age)

RH = Right Hand
F = Foot

Screen

$< 90\%$ in RH or F
Fail
Do not rescreen

90-94% in RH and F
or
$> 3\%$ difference between RH and F

Repeat Screen in one hour

$< 90\%$ in RH or F
Fail
Do not rescreen

90-94% in RH and F
or
$> 3\%$ difference between RH and F

Repeat Screen in one hour

$< 90\%$ in RH or F
Fail
Do not rescreen

90-94% in RH and F
or
$> 3\%$ difference between RH and F

FAIL

• Notify responsible medical practitioner about failed screen.
• PCP should conduct clinical assessment for causes of low oxygen (sepsis, pneumonia, pulmonary hypertension). In absence of clear cause for low oxygen, get echocardiogram within 24 hours. This may require transfer or telemedicine.
• If saturation is $< 90\%$ in either the hand or foot, the baby should have immediate clinical assessment and referral to pediatric cardiology. In this case, do not wait and rescreen.

PASS

• Pass on the screen does not exclude the existence of a cardiac disorder.
• If cardiac evaluation is otherwise indicated (e.g. clinical signs, prenatal diagnosis of critical congenital heart disease, dysmorphic features, etc.) proceed with cardiac evaluation even if infant receives a pass on the pulse oximetry screen.

• This screening should not take the place of clinical judgment or customary clinical practice. Symptomatic babies require clinical evaluation.

• Optimal results are obtained by using a motion-tolerant pulse oximeter that reports functional oxygen saturation, has been validated in low perfusion conditions and has been cleared by FDA for use in newborns.

*Infants in special care nurseries/NICU should be screened at 24-48 hours of age or when medically appropriate. Administration of supplemental oxygen may alter the interpretation of the screening results. For infants on oxygen, delay screening until infant is stable and off oxygen for optimally greater than 24 hours. If patient cannot be weaned from oxygen prior to discharge, obtain echocardiogram if one has not already been done.