Critical Congenital Heart Disease (CCHD) Pulse Oximetry Screening Protocol

NJ Health New Jersey Department of Health

Pulse Oximetry Screening Attempt 1

- ✓ Off supplemental oxygen
- ✓ Age 24-48 hours OR pending discharge/transfer
- ✓ Pulse Ox on Right Hand **AND** One Foot

IMMEDIATE FAIL

Pulse Ox of < 90% in Either Right Hand OR Foot

ACTION: Do NOT repeat Pulse Ox **AND** proceed with immediate clinical assessment

RETEST

Pulse Ox 90% - 94% at Either Site OR **Saturation Difference of >3%**

ACTION: Repeat Pulse Ox measurements in **one hour**

PASS

Pulse Ox ≥ 95% at **BOTH** Sites AND **Saturation Difference of ≤ 3%**

ACTION: Do NOT repeat Pulse Ox and provide routine care

Pulse Oximetry Screening Attempt 2

Rescreen in One Hour

FAIL

Pulse Ox < 95% at EITHER site OR Saturation Difference of > 3%

ACTION: Do NOT repeat Pulse Ox **AND** proceed with immediate clinical assessment

PASS

Pulse Ox ≥ 95% at BOTH Sites AND Saturation Difference of ≤3%

ACTION: Do NOT repeat Pulse Ox and provide routine care

Questions: 609-292-5676 or eim.bdars@doh.nj.gov

Adapted from the American Academy of Pediatrics Clinical Report, Newborn Screening for Critical Congenital Heart Disease, a New Algorithm, 2025

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FAIL

- **If saturation is < 90% in either the right hand or foot, the baby should have immediate clinical assessment, which may include pediatric cardiology consultation.**
- Notify responsible medical practitioner of the failed screen and of need for immediate evaluation.
- Evaluate for other causes of low oxygen saturation (e.g., persistent pulmonary hypertension, pneumonia, infection, etc.).
- In the absence of a clear cause of hypoxemia, obtain a diagnostic echocardiogram by an expert in the interpretation of infant echocardiograms and review the report prior to discharge home. This may require transfer to another institution or use of telemedicine.
- **All fails MUST also be registered in the New Jersey Birth Defects Registry electronic reporting system.**

PASS

- A 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 baby receives a pass on the pulse oximetry screen.

GENERAL

- For best results ensure the infant is calm, warm, and awake (not in deep sleep)
- Optimal results are obtained by using a motion-tolerant pulse oximeter that reports functional oxygen saturation, has been validated in low perfusion conditions, cleared by the FDA for use in newborns, and has a 2% root-mean-square accuracy.
- Screen the right hand and one foot, either simultaneously or in direct sequence.
- Apply probe to lateral aspect of right hand and foot in areas that are clean and dry. Position the two sensors (light emitter and detector) directly opposite each other.
- Screening should be performed at 24-48 hours of age or as soon as medically appropriate after 24 hours of age. For infants discharged home before 24 hours of age, screening is recommended as close to discharge as possible.
- For infants requiring supplemental oxygen, delay this screening until infant is stable on room air.
- Symptomatic babies require clinical evaluation.
- This screening should not replace clinical judgment or customary clinical practice.
- Document results in medical record.
- **Results MUST be documented in the Vital Events Registration and Information System (VERI). All fails MUST also be registered in the New Jersey Birth Defects Registry electronic reporting system with a failed pulse oximetry diagnosis and the failed pulse oximetry module completed.**

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