

Pulse Oximetry Screening for Critical Congenital Heart Disease (CCHD) in Newborns

Patient Population/Area Affected

All infants born in the state of Wisconsin

Pulse Oximetry (Pox) Screening Protocol

All infants born in the state of Wisconsin should be offered pulse oximetry screening for CCHD. This should be done between 24 and 48 hours after birth and coordinated with the collection of the newborn screening blood card.

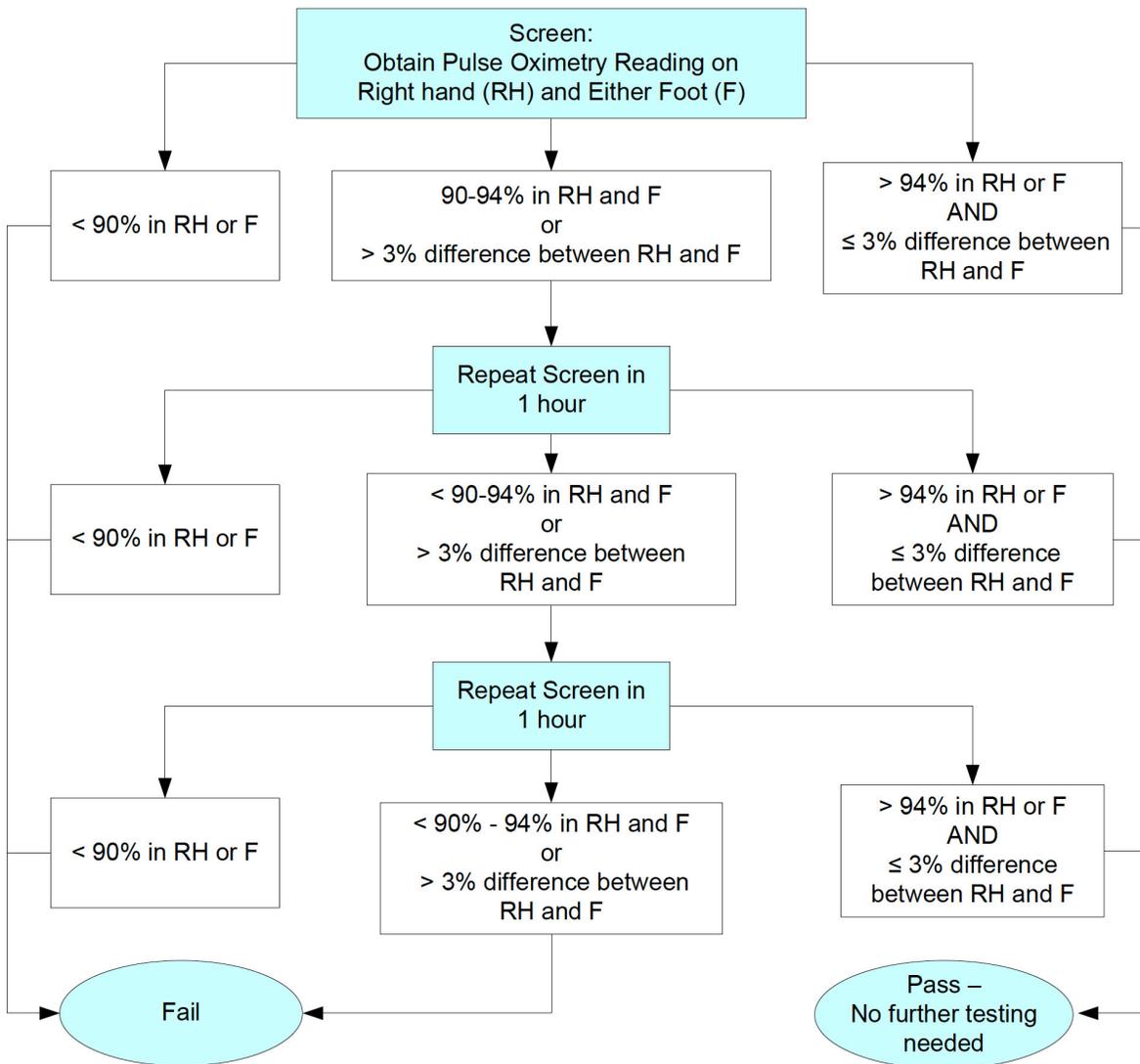
- If early discharge from hospital (<24 hours) is planned, perform initial screen as close to 24 hours as possible.
- For out of hospital births where early discharge from birth care is customary:
 - Initial pulse oximetry screen on the infant 2-4 hours after birth
 - Repeat pulse oximetry screen on the infant at the 24-48 hour follow-up visit.
- Infants requiring oxygen to treat pulmonary disease should have screening deferred until after their pulmonary disease and need for supplemental oxygen has resolved or they are being discharged home on oxygen.

Pulse Oximetry (Pox) Screening Equipment

- Pulse Oximetry screening should be done using motion-tolerant pulse oximeters that report functional oxygen saturation and are cleared by the FDA for use in newborns.
- Disposable or reusable probes may be used
- Use manufacture-recommended pulse oximeter-probe combination
- It is best to perform test when baby is quiet and alert to avoid false positives due to deep sleep
- Measure saturation (SP0₂) on right hand and either right or left foot. These measurements may be done sequentially.
- Ensure good pulse waveform. Do not hold probe with your own hand.
- Observe good pulse waveform for at least 1 full minute
- Measure and record baseline oxygen saturation.

Critical Congenital Heart Disease (CCHD) Screening

Screen all infants between 24-48 hours of life
Screen prior to discharge if < 24 hours of life



Screening Results

A baby may PASS, FAIL or require REPEAT SCREENING. A baby has up to three chances to pass their pulse oximetry screening.

First Screening:

Pass: SPO₂ is \geq 95% in right hand or either foot with \leq 3% difference in SPO₂ between right hand and foot: No further screening needed. Normal newborn care

Fail: SPO₂ is $<$ 90% in right hand or foot: No further screening needed. Contact appropriate medical provider for further evaluation.

Repeat Screening Needed: SPO₂ is 90-94% on both extremities and/or there is $>$ 3% difference in SPO₂ between the right hand and foot

- If signs of distress, contact appropriate medical provider for further evaluation
- If there are no signs of distress, repeat POX screen in 1 hour

Second Screening:

Pass: SPO₂ is \geq 95% in right hand or either foot with \leq 3% difference in SPO₂ between right hand and foot: No further screening needed. Normal newborn care

Fail: SPO₂ is $<$ 90% in right hand or foot: No further screening needed. Contact appropriate medical provider for further evaluation.

Repeat Screening Needed: SPO₂ is 90-94% on both extremities and/or there is $>$ 3% difference in SPO₂ between the right hand and foot

- If signs of distress, contact appropriate medical provider for further evaluation
- If there are no signs of distress, repeat POX screen in 1 hour

Final Screening:

Pass: SPO₂ is \geq 95% in right hand or either foot with \leq 3% difference in SPO₂ between right hand and foot: No further screening needed. Normal newborn care

Fail: SPO₂ is $<$ 90% in right hand or foot: No further screening needed. Contact appropriate medical provider for further evaluation.

Fail: SPO₂ is 90-94% on both extremities and/or there is $>$ 3% difference in SPO₂ between the right hand and foot: Contact appropriate medical provider for further evaluation.

Response to a Failed Pulse Oximetry Screening

Infants who FAIL pulse oximetry screen require timely clinical evaluation. If a non-cardiac explanation for hypoxemia is not identified, CCHD must be excluded.

- Stabilize infant as needed.
- Contact appropriate medical care provider for clinical evaluation.

Documentation

Results of the pulse oximetry screening should be recorded as PASS, FAIL, or NOT SCREENED on the newborn screening blood card.

Not Tested or Deferred Screening

Mark the box for NOT SCREENED on newborn screening blood card and check the appropriate box for why screening was not done (refused, transferred, deceased, echo normal, confirmed heart disease or other)

For screens that are deferred due to an oxygen requirement in newborns with pulmonary disease:

- Photocopy newborn screening blood card before collecting newborn blood screen.
- Mark CCHD Screen “Not Screened” on newborn screening blood card and check the box
- Perform pulse oximetry screening for CCHD when lung disease is resolved or before discharge if baby is going home on oxygen.
- Record results on photocopy of newborn screening blood card.
- Send photocopy of newborn screening blood card with pulse oximetry results to the Wisconsin State Lab of Hygiene.

How to Contact the Wisconsin SHINE Project

For immediate clinical concerns page the on call Pediatric Cardiologist at 1-608-262-2122, and for technical assistance Monday through Friday during business hours email us at wishine_info@pediatrics.wisc.edu