

CCHD Screening Educational Efforts in New Jersey



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Critical Congenital Heart Defects Screening Program

Pre-Implementation Education

- Identified pulse ox contacts at each birthing facility
- Convened Critical Congenital Heart Disease Screening Working Group
 - Initial focus to develop recommended screening protocol
- Hosted 2 webinars



Post-Implementation Education

HRSA Grant Funding

- CCHD Screening Resources
 - Parent information
 - Creation of webpage
<http://nj.gov/health/fhs/nbs/cchd.shtml>
 - Resources tab
http://nj.gov/health/fhs/nbs/cchd_resources.shtml
 - Quick Reference Guide
 - Birth Defects Registry educational materials for failed pulse ox screens



Post-Implementation Education

HRSA Grant Funding

- 3 Regional nurse education sessions
 - At least 1 representative from each delivery hospital
 - Background, significance and implementation of screening
 - Family perspective-Eve's Story
 - Interactive session using case examples for interpretation of recommended screening algorithm
 - Data and results of 1st year screening
 - QA Activities

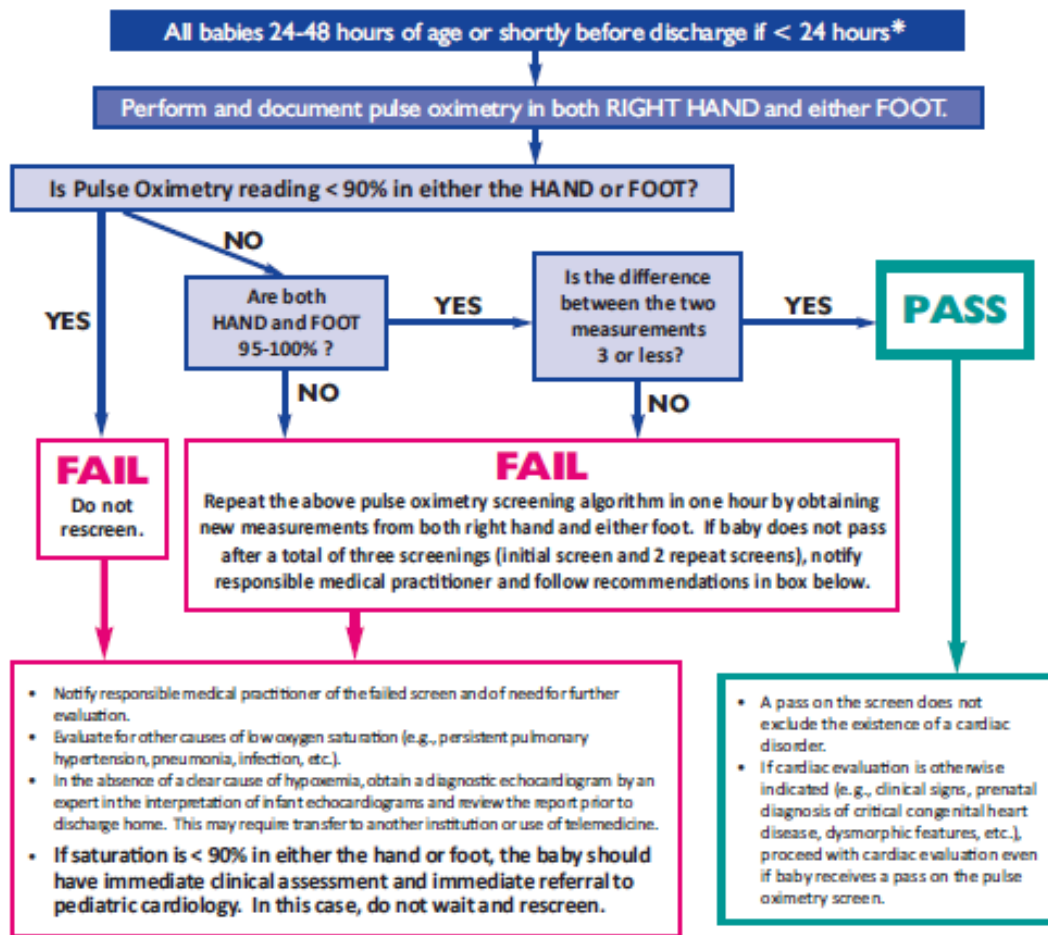


CCHD Screening: Use of the Algorithms

- NJ Recommended Screening Algorithm
- SACHDNC Recommended Screening Algorithm

Screening Algorithm for Critical Congenital Heart Disease

Recommendations from the New Jersey Department of Health



- Optimal results are obtained by using a motion-tolerant pulse oximeter that reports functional oxygen saturation, has been validated in low perfusion conditions, has been cleared by the FDA for use in newborns, and has a 2% root-mean-square accuracy.
- Document results in medical record.
- Screen in the right hand and one foot, either in parallel or direct sequence.
- Apply probe to lateral aspect of right hand and foot in areas that are clean and dry. The two sensors (light emitter and detector) should be placed directly opposite of each other.
- Administration of supplemental oxygen may alter the interpretation of the screening result. For infants requiring supplemental oxygen, delay this screening algorithm until infant is stable in room air. For infants being discharged home on supplemental oxygen, perform screen prior to discharge and review results with responsible medical practitioner.
- Symptomatic babies require clinical evaluation.
- This screening algorithm should not take the place of clinical judgment or customary clinical practice.

* In the NICU, screening should be performed at 24–48 hours of age or as soon as medically appropriate after 24 hours of age. Screening must be performed prior to transfer out of the hospital at ≥ 24 hours of age. In all cases, screening should be performed prior to discharge to home.

http://www.state.nj.us/health/fhs/nbs/chd_resources.shtml

New Jersey Recommended Screening Algorithm

Abridged version

- **PASS**= 95-100% in BOTH hand and foot AND a difference of 3% or less (initial or repeat).
- **RESCREEN**= 94% or less pulse ox in EITHER hand or foot, OR a difference of 4% or more between hand and foot. Repeat in 1 hour up to 2 X for total of 3.
- **FAIL**= 94% or less pulse ox reading in EITHER hand or foot, OR a difference of 4% or more between hand and foot after repeating X 2.
- **FAIL**= 89% or less pulse ox reading in EITHER hand or foot. Do not re-screen.

Examples using the New Jersey Recommended Screening Algorithm

Hypothetical cases of asymptomatic
newborns screened after 24 hours age

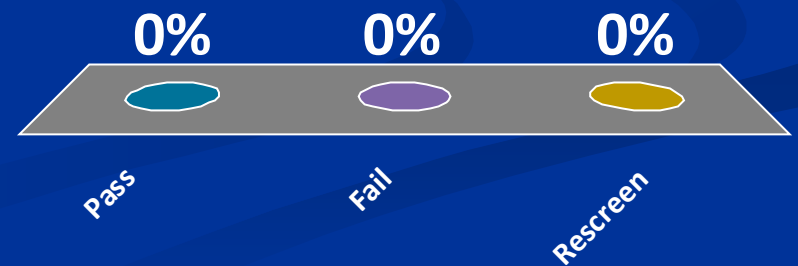
Case 1

Pulse ox readings:

Right Hand = 100%

Foot = 96%

- A. Pass
- B. Fail
- C. Rescreen



Case 1

The correct answer is:

C. RESCREEN- 4% difference hand and foot

- Wait 1 hour and repeat.

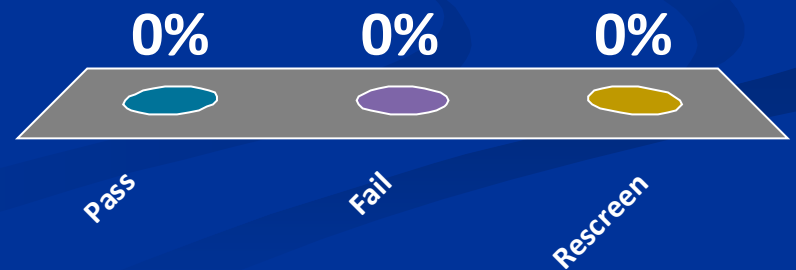
Case 1

2nd Screen 1 hour later:

Right Hand = 99%

Foot = 98%

- A. Pass
- B. Fail
- C. Rescreen



Case 1

Final result

- A. PASS
 - Do not rescreen.
 - Record screening results.

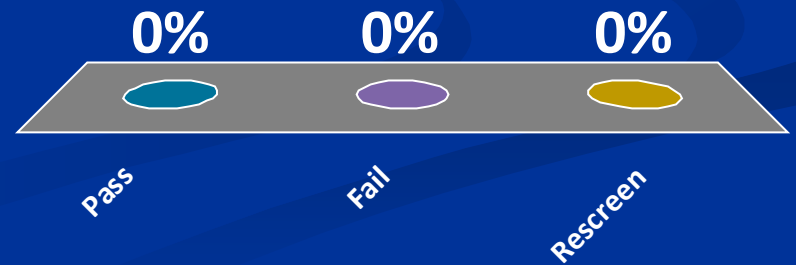
Case 2

Pulse ox readings:

Right Hand = 97%

Foot = 94%

- A. Pass
- B. Fail
- C. Rescreen



Case 2

The correct answer is:

C. RESCREEN- foot less than 95%

- Wait 1 hour and repeat.

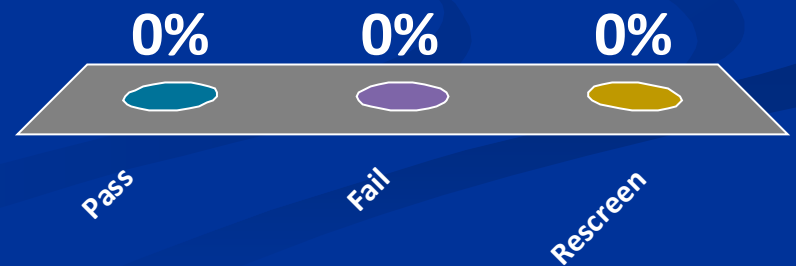
Case 2

2nd Screen 1 hour later

Right Hand = 96%

Foot = 93%

- A. Pass
- B. Fail
- C. Rescreen



Case 2

The Correct answer is

C. RESCREEN- foot less than 95%

- Wait 1 hour and repeat.

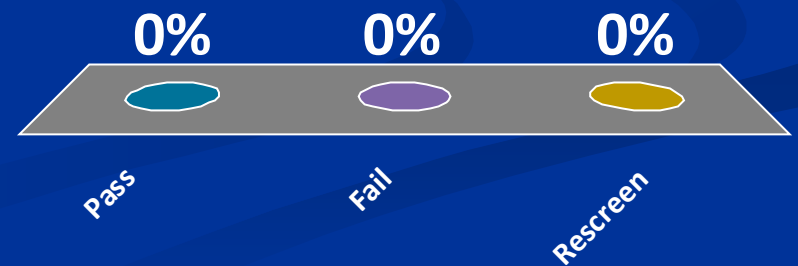
Case 2

3rd Screen 1 hour later

Right Hand = 97%

Foot = 94%

- A. Pass
- B. Fail
- C. Rescreen



Case 2

Final result

- B. FAIL- foot less than 95% on 3rd screen
 - Report screening results and relevant clinical information.
 - Timely evaluation for other causes of hypoxemia and work up for CCHD per policy.
 - Do not discharge prior to evaluation.

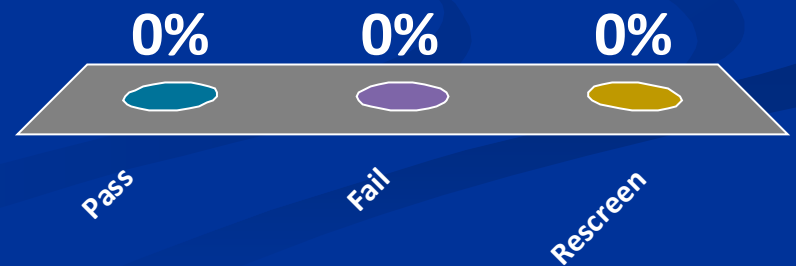
Case 3

Pulse ox readings:

Right Hand = 95%

Foot = 89%

- A. Pass
- B. Fail
- C. Rescreen



Case 3

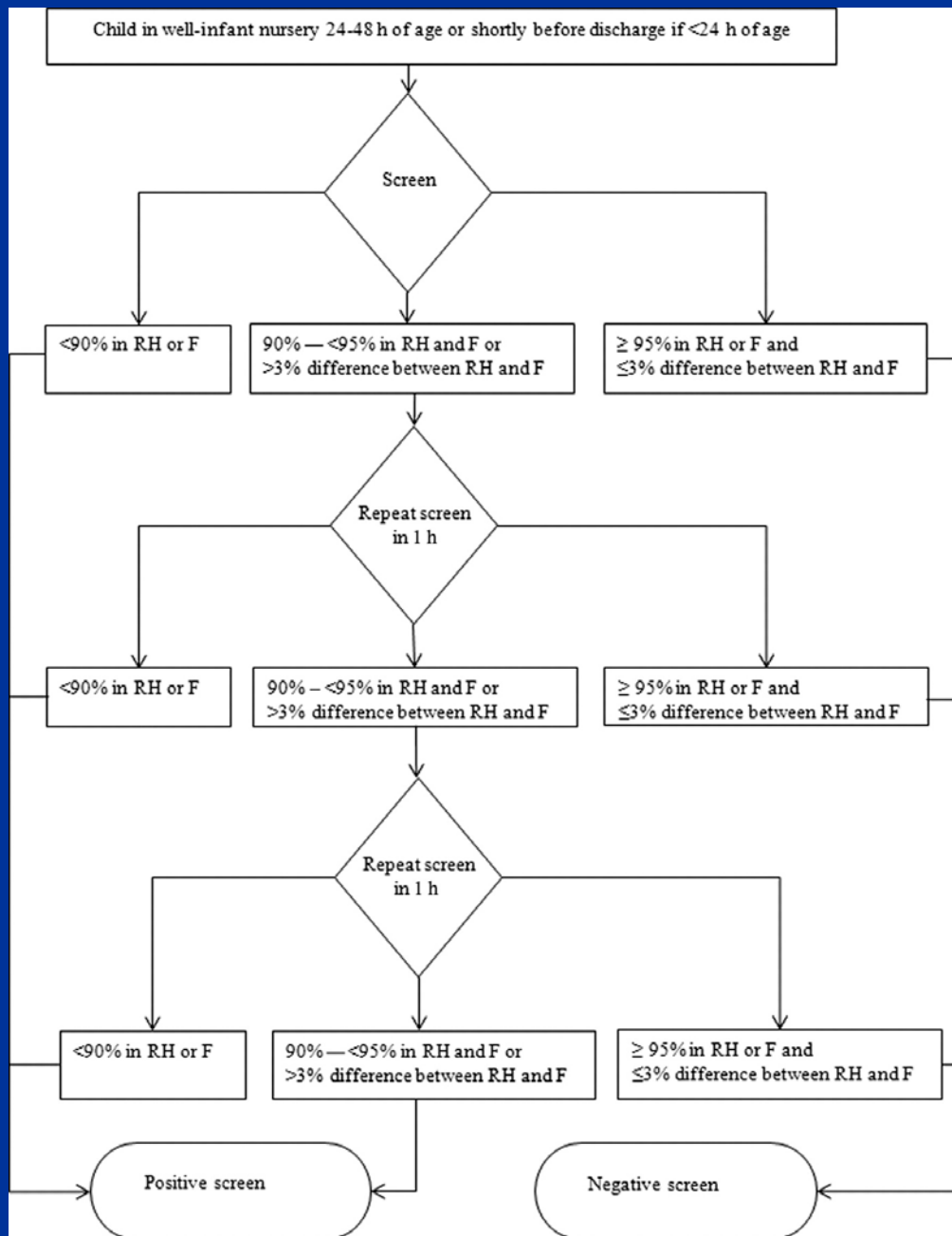
Final result

- B. FAIL- foot less than 90%
 - Do not rescreen. Immediate clinical assessment and evaluation per policy.
 - Do not discharge prior to evaluation.

SACHNC Recommended Protocol

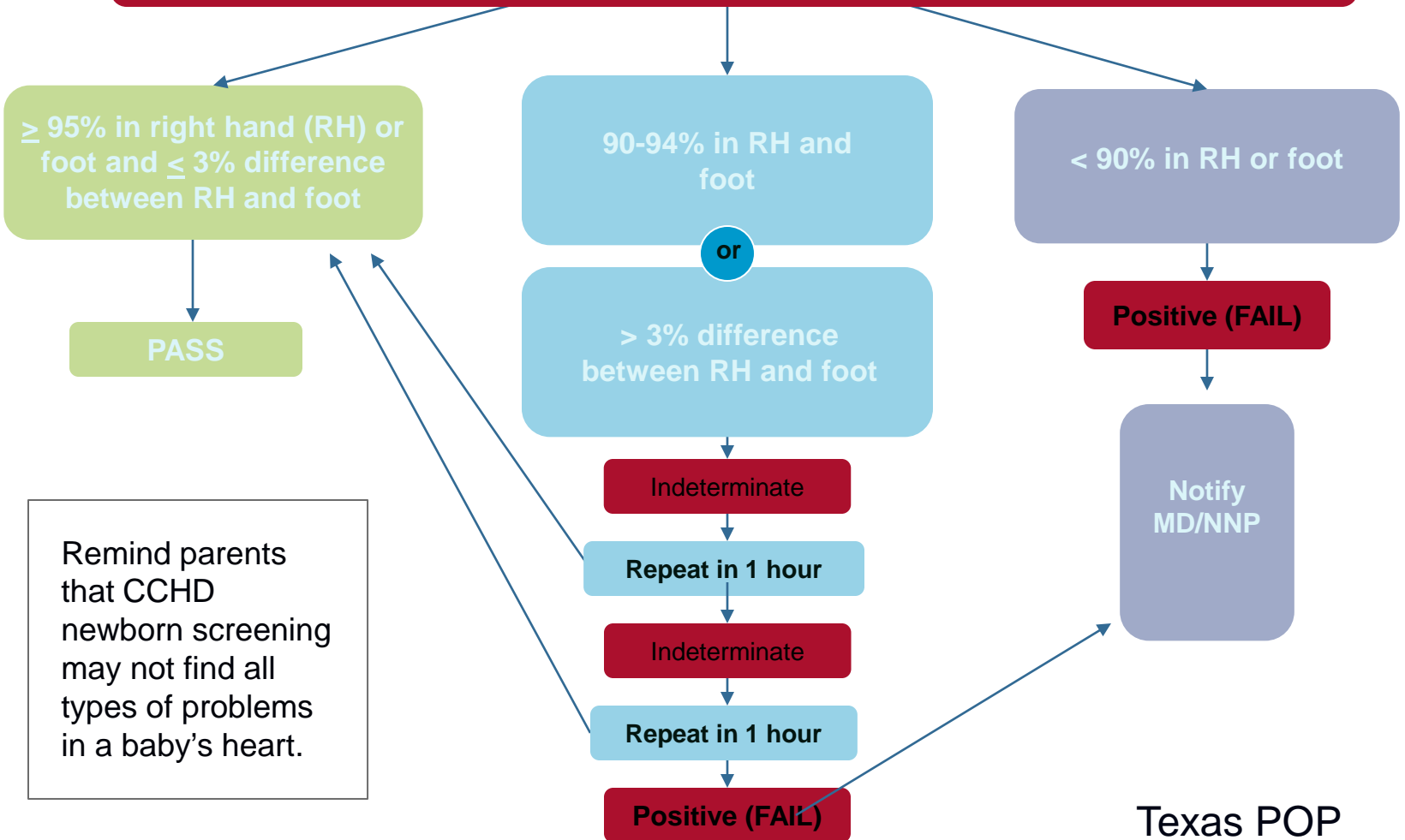
In 2011, a work group consisting of expert providers and specialists, public health agencies, parent advocates and others was convened with members selected by the Secretary's Advisory Committee on Heritable Disorders in Newborns and Children, the American Academy of Pediatrics, the American College of Cardiology Foundation, and the American Heart Association to develop strategies for the implementation of safe, effective, and efficient screening.

Kemper AR, Mahle WT, Martin GR, et al. (2011). Strategies for Implementing Screening for Critical Congenital Heart Disease. *Pediatrics*. 128(5), e1-e9. doi:10.1542/peds.2011-1317



CCHD Screening Algorithm

Pulse ox on right hand and foot after 24 hours



Remind parents that CCHD newborn screening may not find all types of problems in a baby's heart.

Texas POP

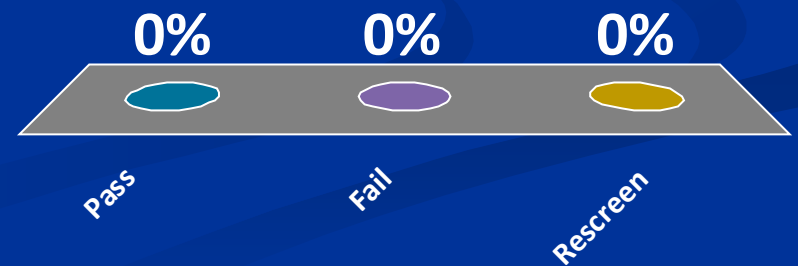
Case 1

Pulse ox readings:

Right Hand = 99%

Foot = 95%

- A. Pass
- B. Fail
- C. Rescreen



Case 1

The correct answer is:

C. RESCREEN- 4% difference hand and foot

- Wait 1 hour and repeat.

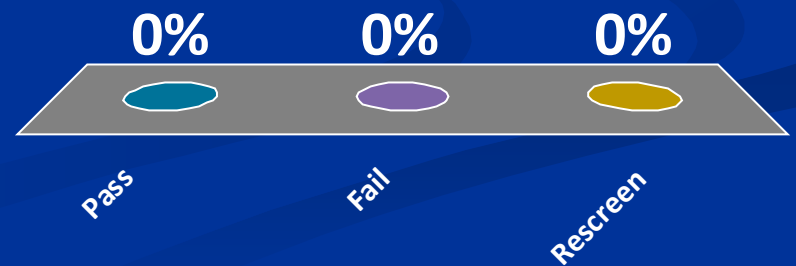
Case 1

2nd Screen 1 hour later:

Right Hand = 99%

Foot = 98%

- A. Pass
- B. Fail
- C. Rescreen



Case 1

Final result

- A. PASS
 - Do not rescreen.
 - Record screening results.

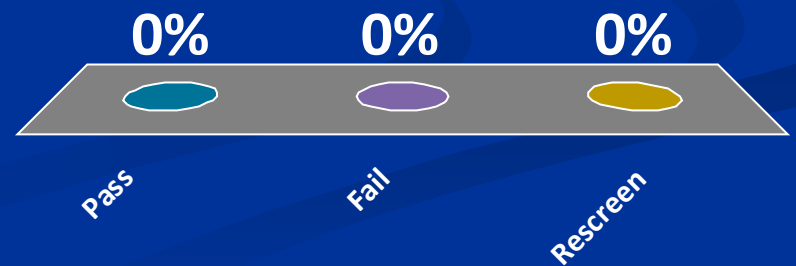
Case 2

Pulse ox readings:

Right Hand = 93%

Foot = 88%

- A. Pass
- B. Fail
- C. Rescreen



Case 2

Final result

- B. FAIL- foot less than 90%
 - Do not rescreen. Immediate clinical assessment and evaluation per policy.
 - Do not discharge prior to evaluation.

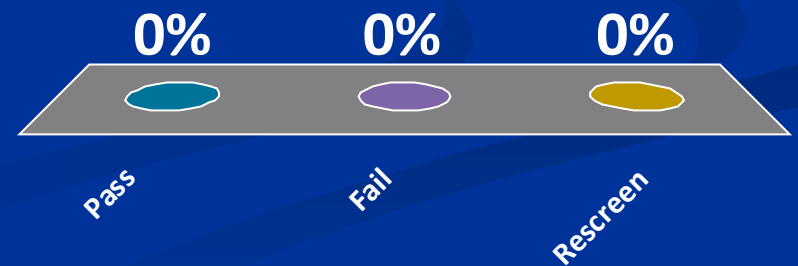
Case 3

Pulse ox readings:

Right Hand = 93%

Foot = 94%

- A. Pass
- B. Fail
- C. Rescreen



Case 3

The Correct answer is:

C. RESCREEN- hand and foot less than 95%

- Wait 1 hour and repeat.

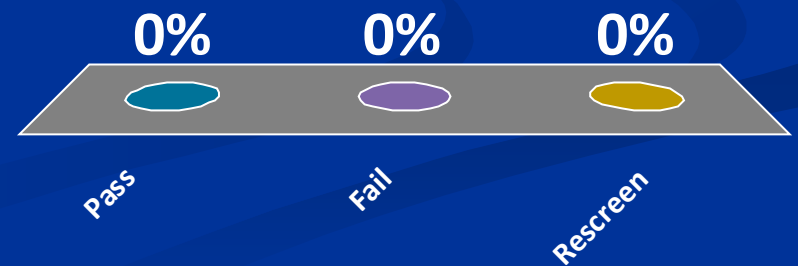
Case 3

2nd Screen 1 hour later

Right Hand = 95%

Foot = 94%

- A. Pass
- B. Fail
- C. Rescreen



Case 3

Final result

- A. PASS
 - Do not rescreen.
 - Record screening results.