Pulse Oximetry for Newborns

Indiana law now requires that all newborns be tested for blood oxygen levels before leaving the hospital. Simple pulse oximetry can help detect many congenital heart defects. How much do you know about pulse oximetry screenings and what results mean for your patients?

HOW COMMON ARE CONGENITAL HEART DEFECTS?

Congenital heart defects are the most common type of birth defects. According to the Centers for Disease Control and Prevention, about 40,000 babies are born with a heart defect each year. Many of these defects can be treated and only a fraction are critical. Both the American Heart Association and the American Academy of Pediatrics recommend pulse oximetry screenings in newborns. Importantly, administering these screenings is now law in Indiana. Here’s what you need to know about pulse oximetry screenings and what to do if a newborn needs further evaluation.

WHICH CRITICAL CONGENITAL HEART DEFECTS ARE COVERED BY THE SCREENING?

The seven defects classified as critical congenital heart defects (CCHDs) are hypoplastic left heart syndrome, pulmonary atresia (with intact septum), tetralogy of Fallot, total anomalous pulmonary venous return, transposition of the great arteries, tricuspid atresia, and truncus arteriosus.
WHAT DOES INDIANA LAW REQUIRE?

The law in Indiana requires that all full-term babies and those born at 35 weeks gestation and above be tested following the state’s protocol. For premature infants, each facility is required to determine its own protocol.

The law requires that pulse oximetry readings for the infant’s right hand and right foot be done in parallel or consecutively no earlier than 24 hours after birth.

WHAT CONSTITUTES A “PASS” OR "DID NOT PASS" RESULT?

A "did not pass result" should be given to any screening where:

- The oxygen saturation measurement is < 90%,
- Oxygen saturation measurements are < 95% in both extremities on three consecutive measurements separated by one hour, or
- There is a > 3% absolute difference in oxygen saturation between the right hand and foot on three consecutive measurements separated by one hour.

If the newborn does not pass the screening, a physical examination by a pediatrician should occur. Further evaluation should be done with an echocardiogram and possibly a consult with a pediatric cardiologist.

WHAT IF OUR FACILITY DOES NOT HAVE PEDIATRIC CARDIOLOGISTS ONSITE?

Digitally recorded echocardiograms can be safely and securely transmitted to pediatric cardiologists at Riley at IU Health from anywhere in the state. We offer 24/7 consultation via a secure network, currently being used by more than 30 Indiana facilities. Additionally, ultrasound technicians from your facility can be trained at Riley at IU Health in pediatric protocols.

WHAT SHOULD I TELL PARENTS IF THEIR BABY FAILS THE PULSE OXIMETRY TEST?

First and foremost, both the pulse oximetry test and the echocardiogram are painless and noninvasive. However, a pulse oximetry test can give both false positive and false negative results. While not fail-proof, the test, combined with a physical exam, can be accurate in more than 8 out of 10 cases.
Reassure patients that the echocardiogram can provide quick results and allows them to identify potential problems before they go home. Failed test results don’t necessarily mean their newborn has heart problems; it just means their baby needs further evaluation.