Top Ten Things To Know
Pulse Oximetry in Newborns

1. Congenital heart disease (CHD) occurs in 9 of every 1000 live births and about one quarter of these children will have critical CHD (CCHD) which by definition requires surgery or catheter intervention in the first year of life.

2. Newborns with CCHD are susceptible to profound, sudden worsening in clinical status in the first days and weeks of life.

3. These acute physiological changes correspond to changes in pulmonary vascular resistance and closure of the ductus arteriosus.

4. In neonates with CCHD, the ductus arteriosus is often essential for maintaining either pulmonary or systemic blood flow, and these CCHD defects are considered ductus arteriosus–dependent lesions.

5. After birth, screening for CHD by primary care providers includes physical exam within the first 24 hours of life and on subsequent nursery visits. Other tests, including ECGs, pulse oximetry, and chest x-rays, are often obtained in suspicious cases.

6. Pulse oximetry was developed in the early 1970s based on the different absorption spectra between oxygenated and deoxygenated hemoglobin.

7. Pulse oximetry is used routinely in the assessment of young children in neonatal intensive care units and emergency departments and has been proposed as an adjunct to the assessment of the newborn in the delivery room.

8. The majority of CCHD lesions present with some degree of hypoxemia in the newborn period. Oximetry screening may be less effective at identifying some CCHD lesions at greatest risk for acute cardiovascular compromise, namely, obstructive left heart lesions.

9. Current evidence indicates that testing more than 24 hours after birth would appear to be the most reasonable strategy. This screening strategy assumes that the majority of newborns will not be discharged on the first day of life. With early discharge at less than 24 hours of age, many infants would not be screened.

10. The scientific statement concluded that the test can be used at the physician’s discretion but that additional studies in larger populations and across a broad range of newborn delivery systems are needed to determine whether this practice should become the standard of care in the routine assessment of the neonate.