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Prenatal and newborn screening for critical congenital heart disease: findings from a nursery.

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BACKGROUND: Delayed diagnosis of critical congenital heart disease (CCHD) in neonates increases morbidity and mortality. The use of pulse oximetry screening is recommended to increase detection of these conditions. The contribution of pulse oximetry in a tertiary-care birthing center may be different from at other sites.

METHODS: We analyzed CCHD pulse oximetry screening for newborns ≥35 weeks' gestation born at Brigham and Women's Hospital and cared for in the well-infant nursery during 2013. We identified patients with prenatal diagnosis of CCHD. We also identified infants born at other medical centers who were transferred to Boston Children's Hospital for CCHD and determined if the condition was diagnosed prenatally.

RESULTS: Of 6838 infants with complete pulse oximetry data, 6803 (99.5%) passed the first screening. One infant failed all 3 screenings and had the only echocardiogram prompted by screening that showed persistent pulmonary hypertension. There was 1 false-negative screening in an infant diagnosed with interrupted aortic arch. Of 112 infants born at Brigham and Women's Hospital with CCHD, 111 had a prenatal diagnosis, and none was initially diagnosed by pulse oximetry. Of 81 infants transferred to Boston Children's Hospital from other medical centers with CCHD, 35% were diagnosed prenatally.

CONCLUSIONS: In our tertiary-care setting, pulse oximetry did not detect an infant with CCHD because of effective prenatal echocardiography screening. Pulse oximetry will detect more infants in settings with a lower prenatal diagnosis rate. Improving training in complete fetal echocardiography scans should also improve timely diagnosis of CCHD.