

# Universal pulse oximetry screening for critical congenital heart disease in asymptomatic newborns

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Adel Zauk<sup>1,2</sup><sup>1</sup>Chief of Neonatology and Director of Nurseries, St. Joseph's Children's Hospital, USA<sup>2</sup>Adjunct Associate Professor of Pediatrics, New York Medical College, USA

**Correspondence:** Adel Zauk, Chief of Neonatology and Director of Nurseries, St. Joseph's Children's Hospital, Adjunct Associate Professor of Pediatrics, New York Medical College, New York, USA, Email [zauka@sjhmc.org](mailto:zauka@sjhmc.org)

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## Editorial

Heart defects are one of the leading causes of infant mortality in the western world. However, some babies who have critical congenital heart defects (CCHDs) are born asymptomatic. Newborn screening using pulse oximetry prior to hospital discharge has been shown to be effective for identifying infants with CCHDs.<sup>1</sup> The seven main CCHDs screening targets are: Hypoplastic left heart syndrome, Pulmonary Atresia (with intact ventricular septum), Tetralogy of Fallot, Total Anomalous Pulmonary Venous Return, Transposition of the Great Arteries, Tricuspid Atresia and Truncus Arteriosus. Infants with these conditions require interventional cardiac catheterization or surgery within the first few months of life. Early diagnosis of CCHDs improves health outcomes and reduces health care costs.<sup>2</sup>

New Jersey was the first state to recognize the importance of screening newborns for CCHDs after the first 24 hours of life.<sup>3</sup> The New Jersey protocol requires both pre-ductal (right hand) and post-ductal (either foot) measured oxygen saturations to be 95% or higher. Any infant who fails the pulse oximetry screen should have a diagnostic echocardiogram. In June 2011, New Jersey passed a law requiring pulse oximetry screening in all licensed birthing facilities. Soon after, the Department of Health developed a screening algorithm that specified pre and post-ductal screening between 24 and 48 hours of life or prior to hospital discharge. In September 2011, Kathleen Sebelius, the US Secretary of Health and Human Services, recommended that all states add pulse oximetry screening for CCHDs to the uniform screening panel for newborns. Subsequently, the American Academy of Pediatrics published a policy statement endorsing the Health and Human Services' recommendation.<sup>4</sup> The American College of Cardiology Foundation and the American Heart Association recommended that screening should be done no earlier than 24 hours of life and before hospital discharge. Many states are moving toward legislation mandating all birthing centers and hospitals to screen for CCHDs. Today, many hospitals in the US have voluntarily initiated routine pulse oximetry screening for CCHDs in asymptomatic newborns.

Pulse oximetry screening for CCHDs in newborns has already been legislated in several European countries and in many states in the US. Noninvasive oxygen monitoring is painless, simple, inexpensive and readily available.<sup>5</sup> The time has come that all hospitals and birthing centers worldwide should implement routine screening for CCHDs using pulse oximetry.

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## Conflicts on interest

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