

February 2018

Dear Colleagues

Newborn Screening Ontario has worked with hospitals and midwifery practices to have universal pulse oximetry screening for Critical Congenital Heart Disease (CCHD) implemented across Ontario. The goal of this screening is to increase the rate of detection of CCHD **prior to clinical deterioration** in affected newborns. It is considered standard of care for newborns.

Congenital heart disease occurs in approximately 12 per 1000 live births, and approximately 25% (3 per 1000) will have CCHD, defined as needing surgery or catheter intervention in the first year of life. CCHD accounts for more deaths than any other congenital malformation, and 10-30% of CCHD diagnoses are not made prior to discharge from hospital. Early diagnosis and follow-up are essential first steps in preventing infant morbidity and mortality associated with cardiac defects. Delaying treatment until newborns with CCHD are critically ill increases surgical mortality, prolongs hospital stays, and increases the risk of serious adverse effects such as neurological impairment.

A CCHD screen involves a pre-ductal and post-ductal oxygen saturation measurement, obtained in direct sequence and evaluated using either the NSO CCHD algorithm or NSO CCHD screening chart. The criteria for a screen positive or REFER result are as follows:

- The pulse oximetry is less than 95% on both extremities OR pulse oximetry difference in oxygen saturation is greater than 3% between the right hand and either foot for **3** consecutive measures each separated by 1 hour
OR
- The pulse oximetry is less than 90% in the right hand or either foot

While all newborns that screen positive will require urgent follow up (suggested within 6-8 hours) by a physician for examination, only a small percentage will go on to require cardiology services. The physician assessment following a screen positive result should consider other non-cardiac causes of cyanosis.

Additional measures recommended by the Provincial Council for Maternal and Child Health and the Ministry of Health and Long-Term Care to have prostaglandin (PGE1) available for use in all Ontario hospitals, along with recommendations on its preparation and administration, highlight the need for proactive steps to best protect and support our babies. Screening for CCHD goes hand in hand with this measure to ensure the best outcomes for affected newborns.



The following are excellent resources regarding CCHD pulse oximetry screening in Canada. (See links below)

1. Practice Point, **Canadian Paediatric Society**, *Pulse oximetry screening in newborns to enhance detection of critical congenital heart disease* (cps.ca, Practice Point, July 2017)

<https://www.cps.ca/en/documents/position/pulse-oximetry-screening>

2. Position Statement, **Canadian Cardiovascular Society**, *Canadian Cardiovascular Society/Canadian Pediatric Cardiology Association Position Statement on Pulse Oximetry Screening in Newborns to Enhance Detection of Critical Congenital Heart Disease* (ccs.ca, guideline, 2016)

<http://www.ccs.ca/en/guidelines/guidelines-library>

For more information, please visit the Newborn Screening Ontario website to explore the resources created to assist with CCHD screening and implementation in Ontario.

<https://newbornscreening.on.ca/en/health-care-providers/submitters/cchd-screening-implementation>

The collaboration of hospitals, midwifery groups, newborn care providers and Newborn Screening Ontario is essential for the provision of standardized CCHD screening based on best practices. We are very proud of the work being done and the positive impact this will have for Ontario babies.

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