Routine Oxygen Saturation Screening in the Newborn

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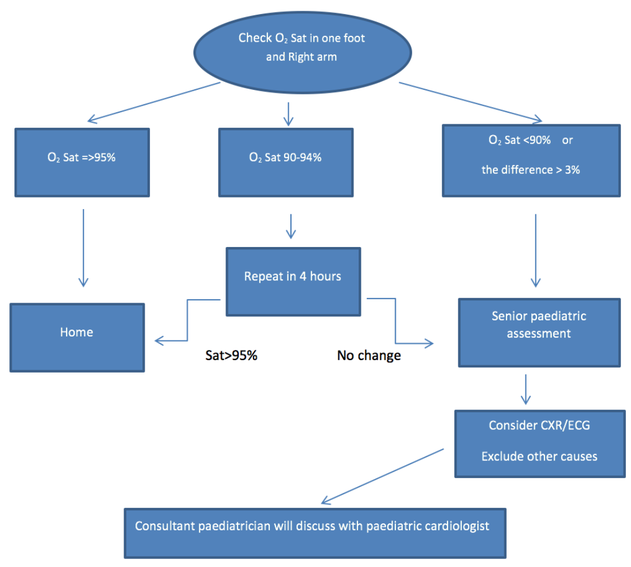
Background and Aims

Congenital Heart Disease (CHD) has an incidence of 7-9/1000 live births. Combining data from 13 studies (229421 newborn) pulse oximetry had a sensitivity of 76.5% and specificity of >99% for detecting CHD.[1]
Daisy Hill Hospital (DHH) was the first hospital in Northern Ireland to introduce this as a universal screening tool in September 2015.

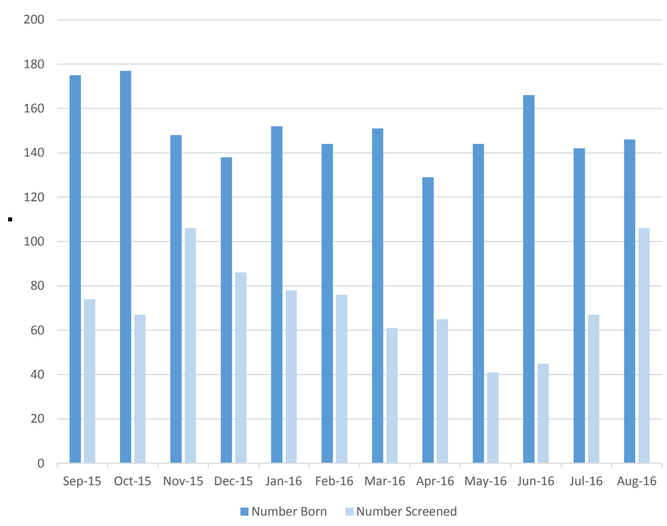
Methods

All healthy newborn babies in DHH are to have pre and post ductal oxygen saturations (SpO_2) checked with a pulse oximeter as part of their newborn baby check.
Babies admitted to SCBU were excluded from the screening program.
As per protocol (see below) senior paediatric assessment is warranted if SpO_2 is less than 90% or the difference between pre-ductal and post-ductal SpO_2 is more than 3% or $SpO_2$is 90-94%, on two occasions 4hrs apart.

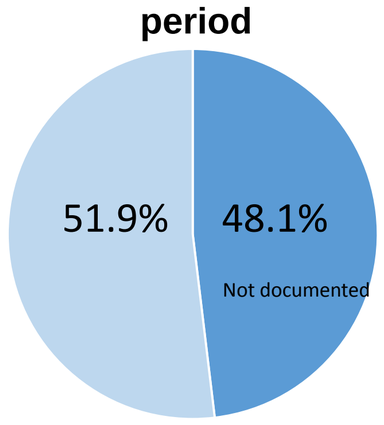
Data collected over a 12-month period included number of babies born each month in DHH, documentation of pulse oximetry and outcome of the screening assessment.



Graph showing the number of babies born versus screened over a 12 month period



Graph showing the overall percentage of babies documented after screening over a 12 month period



Results

In a 12-month period from 1st September 2015 to 31st August 2016 a total of 1812 babies were born in DHH. Of this 872 babies were documented to have had pre and post ductal oxygen saturation screening prior to discharge.

There were a total of 5 babies with abnormal initial oxygen saturations, all of which were normal 4 hours later. No cases of CHD have been identified to date by use of the screening program.

Conclusion

This newborn screening tool is cheap, quick and non-invasive. It is a positive step in identifying unrecognised heart defects and preventing potentially catastrophic outcomes.

Data analysis of the screening program in DHH has identified an issue of poor documentation. Only 48% babies were on record as having been screened. We are however confident that all newborns were screened prior to discharge with results documented in an alternative place.

We hope to improve documentation as part of this ongoing quality improvement project.

References:

1. Thangaratinam S, Brown K, Zamora J, Khan KS, Ewer AK. *Pulse oximetry screening for critical congenital heart defects in asymptomatic newborn babies: a systematic review and meta-analysis*. : Lancet; June 2012

Heartbeat-Ni
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