The Use of Pulse Oximetry in the Diagnosis of Congenital Heart Disease

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Congenital heart disease (CHD) is the leading infant birth defect and has been deemed a chief cause of infant morbidity and mortality (Amsbaugh, Scott, & Foss, 2015; Kumar, 2016). Approximately 9 out of every 1000 infants born in North America are diagnosed with CHD (Amsbaugh et al., 2015). Of concern, approximately 30-50% of infants with CHD fail to be diagnosed at discharge, negatively impacting infant mortality and morbidity rates (Kumar, 2016). Timely diagnosis and interventions have been identified as critical factors related to the effective treatment and management of CHD (Kumar, 2016). In recent years, pulse oximetry screening has shown to improve early identification of CHD, essentially improving patient outcomes (Amsbaugh et al., 2015; Kumar, 2016). Engel and Kochilas (2016) note that pulse oximetry screening, prior to newborn discharge, could reduce the number of missed diagnoses by as much as 30%.

**Research Problem**

The research question I hope to evaluate with this study is: **Does the use of pulse oximetry screening in neonates greater than 24 hours old improve infant mortality rates in relation to CHD detection?**

**Purpose**

The purpose of this study is to explore the impact of **pulse oximetry screening** on infant mortality rates in relation to CHD detection. The goal of the study is demonstrating the benefit of **pulse oximetry screening** in order to create continued support, adoption and advancement of **pulse oximetry screening programs** in the neonatal population in relation to CHD detection.

**Thesis Statement**

Pulse Oximetry screening in neonates greater than 24 hours old leads to earlier detection of CHD, thus improving infant mortality rates in relation to CHD detection.

**Additional Research Question**

There are various additional research questions which develop upon initiating a research study. Regarding this topic, additional questions which have resulted include:

* Is pulse oximetry screening, in neonates greater than 24 hours old, a cost-effective means to screen for congenital heart disease?
* What is the rate of false positives when pulse oximetry is used to screen for congenital heart disease in neonates greater than 24 hours old?
* What are the effects of false positives results on the families of patients screened for congenital heart disease with pulse oximetry screening?
* What factors affect the sensitivity of pulse oximetry screening?
* What barriers exist for successful implementation of a pulse oximetry screening program?

**Proposal Outline**

The following is an outline of what will be included as part of my research proposal for assignment 2.

* Abstract
* Introduction
* Statement of Problem
* Research Question/Objectives
* Definition of Terms
* Theoretical Framework
* Literature Review
* Method/Research Design
* Data Collection
* Results/Analysis
* Discussion

**Conclusion**

Through the outline I have established, I hope to develop a thorough examination of this topic and reach a clear conclusion regarding whether **pulse oximetry screening in neonates greater than 24 hours old improves infant mortality rates in relation to CHD detection.**

**References**

Amsbaugh, S., Scott, S. D., & Foss, K. (2015). Pulse oximetry screening for critical congenital heart disease: Bringing evidence into practice. *Journal of Pediatric Nursing, 30*(4), 591-597. https://doi.org/10.1016/j.pedn.2014.10.013

Engel, M., & Kochilas, L. (2016). Pulse oximetry screening: A review of diagnosing critical congenital heart disease in newborns. *Medical Devices: Evidence and Research, 1*(9), 199-203. https://doi.org/10.2147/MDER.S102146

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