DIFFERENCES IN HEMOGLOBIN LEVELS WITH FINGERSTICK PUNCTURE IN CHILDREN

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Abstract

Improved technology has resulted in the development of new devices capable of obtaining measurements from small quantities of blood. Capillary blood by fingerstick puncture is a common method used by health care providers. The amount of blood that can be obtained via the fingerstick method is limited. Capillary draw procedures recommend discarding the first drop of blood drawn in order to obtain accurate test results. This procedure is widespread but there is a lack of scientific support for the practice. The purpose of this study was to compare the readings of hemoglobin levels measured on a HemoCue when the first drop of blood is used versus the second drop of blood from a specimen obtained by fingerstick puncture. The sample consisted of 28 children, below the age of 5 years who attended Women, Infants, & Children (WIC) clinics. Hemoglobins were measured using a HemoCue System which consisted of dried reagent-coated disposable microcuvettes and a battery operated portable hemoglobinometer. Capillary blood draws were performed via fingerstick puncture and the first and second specimen drops were measured on the same machine. The hypothesis was that there would be no

significant difference in the hemolgobin level measured on a HemoCue when the first drop of blood was used from a fingerstick puncture versus the second drop of blood in children. To evaluate the hypothesis a dependent groups t test was executed. Findings indicated no significant difference between the average of the two readings. The clinical significance of this finding provides support for the concept of challenging traditional practices for their scientific basis. Furthermore, demonstrating that there is inadequate scientific knowledge supporting the practice of discarding the first drop of blood from a fingerstick puncture means it may be possible to perform more tests on each fingerstick puncture decreasing the need for multiple fingersticks. Increasing the amount of blood obtained from each fingerstick by not discarding the first drop will therefore decrease the client's discomfort and anxiety. Further research in this area should include variables such as illness and age variation, as well as a larger sample size in order to aid in the development of guidelines for clinicians concerning blood collection from a fingerstick puncture.