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Adoption of an In-House Calibration Program for Biomedical Test Equipment

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ABSTRACT

This report describes the results of a capstone project undertaken by students in the Bachelor of Technology program at the Northern Alberta Institute of Technology (NAIT). The sponsor of this project was the Northwest Territories Health and Social Services Authority (NTHSSA) Biomedical Engineering Department. The purpose of this project was to develop a business case to inform the sponsor of the viability of adopting an in-house calibration program for biomedical test equipment. Phase one involved a pan-Canadian survey of the Biomedical and Clinical Engineering Departments, a cost and benefit analysis, and a review of the current calibration and operation practices.

Three recommendations from the business case were presented to the project sponsor for review. The recommendations focus on addressing the availability of test equipment, reducing shipping delays, potential cost savings, and improved training and development of in-house expertise for biomedical engineering technologists. The final selection of the business case recommendation and implementation of that recommendation will be completed in phase two of this project. Conclusions and discussion from phase two of the capstone project included in this article will provide a protocol for the development of an in-house calibration program for biomedical test equipment. Further adoption of this protocol may be considered by in-house biomedical and clinical engineering departments across Canada.

The findings will be showcased in April 2025 at the NAIT Bachelor of Technology Capstone Project Showcase and are anticipated to contribute to ongoing discussions on calibration practices within biomedical engineering.

Keywords: Calibration, Biomedical Engineering, Clinical Engineering, Test Equipment

Conflict of Interest: A. Hinchey is an employee of NTHSSA, the sponsor of this capstone project. M. Arshad, N. Lad, and S. Olsen declare no conflict of interest.