2021 Critical Care SCN Undergraduate Summer Studentships

Funded Projects

Student (Supervisor; Institution): Harleen Cheema (Dr. Erika McIntyre; University of Alberta)
$ Awarded (Length of Time): $7,500 (4 months)
Project Title: Best Practices in Prolonged Mechanical Ventilation: A Qualitative Examination of Patient, Family and Healthcare Provider Perspectives.
Summary: A qualitative study of best models of care for prolonged mechanical ventilation (PMV) users through understanding of healthcare provider perspectives on best care practices and patient and family experiences, perspectives (including perceived barriers of care), and priorities. These outcomes from this study will contribute to a deeper understanding of care practices in the PMV population and will inform clinical practice and care models.

Student (Supervisor; Institution): Sara Cui (Dr. Amy Metcalfe; University of Calgary)
$ Awarded (Length of Time): $7,500 (4 months)
Project Title: Quality Improvement Initiatives to Prevent Unplanned Extubations in the PICU: a Systematic Review
Summary: This project aims to contribute knowledge by comprehensively reviewing the literature that has been published on quality improvement practices implemented to reduce the rate of unplanned extubations. Findings from this review will support clinical recommendations to prevent unplanned extubations, positively supporting patient safety in the clinical environment.

Student (Supervisor; Institution): Rachel Livergant (Dr. Abdullah Saleh; University of Alberta)
$ Awarded (Length of Time): $7,500 (4 months)
Project Title: Comparison of intensive care unit capacity and oxygen availability in low- and high-resource settings.

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Summary: Results from this study should elucidate the differences in efficiency and effectiveness of critical care provision and oxygen utilization and availability in ICUs in a high-income versus low-income setting. Examining these differences can provide comparative data for the development of appropriate critical care capacity benchmarksin both settings. This data will provide the basis for reciprocal knowledge exchange between the two settings, allowing for an evolution in critical care management, especially during periods of substantially increased critical care demand.

Student (Supervisor; Institution): Sophia Lu (Dr. Mark Ungrin; University of Calgary)
$ Awarded (Length of Time): $7,500 (4 months)

Project Title: Developing a Negative Pressure Ventilation System for Use in Ventilatory Shortages
Summary: The overall scope of this research project is to develop a feasible and functional negative pressure ventilator (a remodelled version of the well-known "iron lung") for supply in resource-limited situations. The outcomes of this project will have positive impacts on critical care, by extending access to ventilation in under-resourced regions and during periods of peak demand. Further development of this ventilatory device will provide durable, low-cost devices suitable for widespread use, and robust enough for long-term storage and use in harsh environments.

Student (Supervisor; Institution): Therese Poulin (Dr. Kirsten Fiest; University of Calgary)
$ Awarded (Length of Time): $5,625 (3 months)
Project Title: Clinical Practice Guideline Recommendations for Diagnosis and Management of Anxiety and Depression in Critically Ill Adults with Delirium: A Systematic Review
Summary: Given the burden of anxiety and depression in delirium, it is key to advance current CPGs to improve care for critically ill populations. By synthesizing the recommendations, areas of knowledge that may be ready to translate into practice will be identified. We will also identify where evidence gaps exist. The results obtained will be further evaluated in a subsequent study by stakeholders through focus groups to understand the other barriers and facilitators to the use of these guidelines.

Student (Supervisor; Institution): Muhammad Saahim Salman (Dr. Brent Winston & Dr. Chel Hee Lee; University of Calgary)
$ Awarded (Length of Time): $7,500 (4 months)
Project Title: Development of Metabolomic Biomarkers for Early Detection of ARDS
Summary: This study aims to identify a metabolomic biopattern (biomarker) of ARDS that may improve early detection, diagnosis, progression, and severity evaluation in the Intensive Care Unit. Due to the high morbidity and mortality rates caused by ARDS in the ICU, this project is a crucial step towards examining ARDS using a systems biology approach that may eventually result in lowering morbidity and mortality. Early detection biomarkers and prognostic biomarker identification could potentially have a major effect on the future of ARDS diagnosis and treatment.