DEPARTMENT OF BIOMEDICAL INFORMATICS
COLLEGE OF MEDICINE

SUMMER RESEARCH OPPORTUNITIES FOR UNDERGRADUATE students

APPLICATION DEADLINE: 02/24/2023

PROJECT TITLE: <u>Developing a Neuroscience Readmission Reduction Program (NRRP)</u>

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Project Description

Thirty-day hospital readmission is an important indicator of the quality of care. In hospitals with cancer, unplanned readmissions are associated with adverse patient outcomes and increase healthcare resource utilization and costs. In Neurosurgical patients, a systematic review showed varying 30-day readmission rates between 6.9% to 23.89%. While 30-day readmission appears easily tracked for quality assessment in neurosurgery, the lack of standardized definitions can undermine its usefulness. Hospital readmissions are so critical that starting in the fiscal year 2013, the Centers for Medicare & Medicaid Services (CMS) initiated the Hospital Readmission Reduction Program (HRRP) to encourage hospitals to reduce avoidable readmissions by adjusting the payments based on their performance.

In this project, we will develop a Neuroscience Readmission Reduction Program (NRRP) using machine learning and electronic health records. Specifically, the program will train a model to predict 30-day readmissions, understand the workflow and usability of the predictive model, and evaluate its clinical and health impact. The candidate student is expected to have knowledge in neuroscience and will perform literature review, human subject research, python programming, and database management. While training will be provided, preference will be given to those who already possess the skills.