

PROJECT TITLE: Developing a Risk Prediction Model for Hospital Acquired Clostridium Difficile Infection (CDI) Phase 3

PROJECT ID: Tech 8

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RESEARCH THEME: Technology Integration

BUDGET: \$50,000

MULTI-UNIVERSITY PROJECT: No

PROJECT START DATE: 6/1/2020

DESCRIPTION:

HAI affect quality and cost of healthcare. In 2008, Medicare initiated a plan to reduce payments to hospitals for complications that occur during the hospital stay, including HAI. One such infection is the Clostridium Difficile Infection (CDI), which is the most common cause of infectious diarrhea occurring in the hospital. Treatments costs per patient is approximately \$8,911 to \$30,049 in the U.S. In Phase I, we identified predictors of hospital acquired CDI. In Phase II, we are conducting a retrospective pilot study using UAB i2b2 dataset to develop a risk prediction model for hospital acquired CDI. The main goal of the Phase 3 study is to conduct second pilot study to validate the CDI risk prediction model on retrospective data and provide final predictive model for integration into EHR.

PROJECT OBJECTIVES:

The main goal of the Phase 3 study is to conduct a second pilot study to validate the CDI risk prediction model on retrospective data and provide final predictive model for integration into EHR.

SCOPE:

There has not been a study that develops a CDI risk prediction model that allows categorizing patients into different risk categories. These risk categories would allow for the development of more targeted intervention strategies to minimize the risk of CDI infection during hospitalization.

HOW THIS IS DIFFERENT THAN RELATED RESEARCH:

Health systems have developed transition of care models for patients with acute health conditions. Most of these models focus on the general population and do not address the specific and unique needs of individuals newly diagnosed with SCI. Earlier phases of this project focused on identifying key components of a transition model. This phase will focus explicitly on understanding the barriers organizations face in integrating individuals with disabilities into their operations.

MILESTONES	TARGETED START DATE	TARGETED END DATE
Acquire IRB approval	6/1/2020	7/1/2020
Data acquisition & preprocessing Data	8/1/2020	10/5/2020
Validate predictive model	10/15/2020	1/31/2021
Work with IT on integrating model into EHR	2/1/2021	3/31/2021
Write final report & manuscript	4/1/2021	6/01/2021

NEXT STEPS:

Variables have been sent to the industry partner for coordination with the organization's IT department. Data sharing agreement and IRB submission need to be completed.

BENEFITS TO INDUSTRY:

A framework for a care integration model that is generalizable to other communities

EXPECTED DELIVERABLES:

Summary report that includes:
 - an overview of the regulatory framework
 - findings from interviews with community representatives
 - an administrative framework to support care integration