

PROJECT TITLE: Evaluation and Optimization of Efficiency and Workflow

PROPOSAL NUMBER: 08-06191.UW.TAM PIs: Ferris, Mastrangelo, Heim

RESEARCH THEME: Care Coordination

BUDGET: UNIVERSITIES: TAMU, UW PROJECT YEAR: 1

PROJECT DESCRIPTION:

Magnetic Resonance Imaging (MRI) is an important diagnostic tool for the detection and monitoring of specific diseases and conditions. However, the equipment cost and maintenance and the specialty training of the technologists makes the examination expensive. This project will focus on the evaluation of work and patient flow inefficiencies between hospital departments of involved health systems and use this to determine common bottlenecks effecting efficiency in delivery of care, including for the MRI imaging process. The researchers will use their findings to identify and realize areas of cost savings and a more timely delivery of care for involved IAB members.

HOW THIS IS DIFFERENT THAN RELATED RESEARCH:

Efficiency has been studied extensively in healthcare as a measure of quality in task performance and resource utilization. However, the studies tend to be isolated to particular healthcare processes, and there is a lack of general analyses that investigate efficiency improvement efforts across a broader platform. The identification of common bottlenecks can inform key areas of concern and potential improvement across the care industry. Additionally, related research and literature has focused on teleradiology benefits and processes, cognitive load of reading radiologists, and scheduling improvements of MRI exams. There are opportunities to increase efficiency of administrative tasks.

COLLABORATIVE PLAN:

Each university and IAB member will observe workflow in the ICU and radiological settings and identify areas of inefficiencies. These inefficiencies will be consolidated from all sites to observe commonalities from the different settings to provide general causes for work and patient flow issues. This will serve as a platform to develop strategies that will guide various workplace settings to greater efficiency.

EXPECTED MILESTONES:

- (1) Literature review
- (2) IRB approval and observation of technologists
- (3) Creation of simulation model
- (4) Utilization of machine learning to test simulation model
- (5) Identification and implementation of best practices at IAB member institutions as appropriate

BENEFITS TO INDUSTRY:

CHOT IAB members will benefit by the broad sharing of challenges (to work on with collaborative research) and best practices (that are implementable) in maintaining efficiencies across measures of value to the member operations (patient flow, resource utilization, etc)

EXPECTED COLLABORATIVE DELIVERABLES:

- (1) Identify potential bottlenecks to workflow in radiology settings
- (2) Combine findings to determine common themes disrupting workflow
- (3) Publish findings