Independent Study Project: Healthcare Operations Analysis Project with UCSD Health

1. Description of the project:

UCSD Health is experiencing extraordinary demand for its services. The exact causes of this increased demand are not fully known, but are likely due to increasing market share of primary care, aging population and pent-up demand from the pandemic. The demand is leading to a very high number of hospitalized patients that outstrip the available number of hospital beds. Therefore, many patients are required to be placed in temporary Emergency Department Inpatient (EDIP) beds that often are not in physical rooms, but in hallways. There are various interventions that the medical center can take to partially address this demand. Identifying the optimal use of these interventions (or new) interventions would help balance patient care needs, patient and provider experience and health center financial goals.

Weekly schedule:

Week 1: Intro & go over the key concepts and deliverables

Weeks 2 – 3: Literature review of modeling approaches for patient flow in emergency departments and hospital wards. Determine data requirements for modeling and submit requests for data.

Weeks 4 – 8: Determine appropriate modeling approach; choose modeling platform; develop initial model of patient flow in emergency department; model 2 or 3 potential interventions (Rob El-Kareh to provide).

Weeks 9 – 10: Finalize the presentation and deliverable

2. Academic learning goals:

* Analysis of the care processes that impact the number of EDIP patients to clearly illustrate the main contributors, including process flow diagrams and identifying key metrics (potentially for a dashboard)
* Estimates of the expected impact of the use of different interventions under the control of the health center to reduce the number of EDIP patients by developing appropriate analytical models
* Identification of novel interventions to optimize our goals of patient care, patient and provider experience and health center financial goals

Milestones:

Week 3: Data requests; Summary of published approaches to model patient flow in emergency departments

Week 5: Description of planned modeling approach for project

Week 8: Summary and analysis of modeling results (e.g., major contributors to flow challenges, relative  impact of potential interventions)

Week 10: Submit the final report

3. Specific Deliverable: Final report and presentation

4. Distribution of work: There will be four students in the team, the work load will be evenly distributed among students. It is expected to about 12 hours per week, including the weekly meeting hours with the UCSD health team.

5. Faculty/student meeting schedule: There will be one hour meeting with the UCSD health team per week. The specific time will be determined once the registration is done.

UCSD Health Point of Contact:

**Robert El-Kareh, MD MPH MS**

Associate Chief Medical Officer, Transformation and Learning

Clinical Professor of Biomedical Informatics and Medicine

UC San Diego Health

Email:  [relkareh@health.ucsd.edu](mailto:relkareh@health.ucsd.edu)

Phone:  858-822-7776

[http://profiles.ucsd.edu/robert.el-kareh](https://urldefense.com/v3/__http:/profiles.ucsd.edu/robert.el-kareh__;!!LLK065n_VXAQ!lb46fg_j2uQmgfZHHT-fGVCiH0uVwLrbbe94-a-uR56os0LPARt7ZnFdlTvPpmOyrxext3_nKgopVuNMBKm0$)