**Rapid Prototyping Collaboration – Fall 2017**

**Start Date:** Tuesday, November 28, 2017

**Presentation Date:** Tuesday, December 12, 2017

**Partners:**

* Nancy O’Hare, Faculty to Course “Info 7330 – “Data Solutions for Health Care,” Graduate School of Engineering, Information Systems Program, Northeastern University
* Students in above course, Fall 2017

**Process:**

* Students will be organized into teams of 4 to begin brainstorming ideas
* Over the next two weeks, teams will develop a solution for the future state of the problem to be solved
* Students will prepare: project charter, critical to quality, failure modes and effects analysis, business model summary and solution for presentation

**Problem to be solved:** Enrollment of Cancer Patients in a Program to Prevent Fatigue

Current State and Background:

Meaningful Use Stage 3 is well underway with health care provider organizations approaching the analysis of population health data. Treatment of patients historically has taken the form of individual treatment based on evidence based guidelines and recommendations. The new methods emerging will include the treatment of patients with diagnoses according to data analysis from broad numbers of patients in the population, coupled with evidence based guidelines/treatments and finally, a personalized approach to each patient.

Cancer is second only to Cardiovascular Disease in taking lives of patients. Cancer can affect many organs and organ systems.

The subject of this rapid prototyping exercise will be to develop a data solution for the following scenario:

A health care system in a metropolitan area would like to make a fatigue fighting program available to all Cancer Patients in the network. Fatigue is the number one chief complaint patients reveal when undergoing treatments including surgery, chemotherapy and radiation therapy for cancers. The fatigue will often onset as soon as treatment begins and can last for up to one-year post treatment. For many patients, the total timeframe can encompass two years.

This health care network has 2 teaching hospitals, 6 community hospitals, 4 cancer centers and 15 outpatient clinics, 20 community based primary care practices associated with it. There are three electronic medical records – Epic which is in place at the teaching hospitals, the cancer centers and the outpatient clinics. The community hospitals use Meditech. The practices use e Clinical Works.

In order to help the providers and patients, it would be very helpful to develop a data driven business intelligence system with decision support, query capability and dashboard to aid in clinical decision making. This tool would be able to create a registry of patients diagnosed and receiving treatment for cancers across all of the care settings as well as to combine data entered by patients through a patient portal and data entered by providers in the electronic medical record.

Reference Links:

link 1: <https://www.cancer.org> - look for Cancer and Fatigue

link 2: <https://www.cancer.net/navigating-cancer-care/side-effects/fatigue>

link 3: <https://www.mayoclinic.org> - look for Cancer and Fatigue

Future State and Desired Functionality:

1. Clinicians will be able to open the data system (which can be built as adjunctive to the electronic medical record) and make informed choices regarding enrolling patients in the fatigue fighting program.

2. It would be great if the solution can do the following:

* Create a registry of all patients in the system being treated for cancers including demographic information, providers in care, treatment types, dates, and success rates. All patients will be offered the fighting fatigue program and enrollment, participation and results from that program will be contained in the registry.
* Any clinician will be able to skip through a dashboard resulting from a data query quickly. The solution shall be user friendly and allow quick access to data as well as data available via dashboard.
* The solution is available to be exported to a variety of reports, government agency and insurance reporting requirements for the assessment of patient quality and safety. The solution shall be able to provide report export capability, in other words.

Examples of Queries:

1. What is the success rate of cancer treatment in this care delivery system, overall and for various organ systems?

2. What are the success rates of surgery, chemotherapy and radiation treatment respectively?

3. If patients enroll in the fighting fatigue program, do they have better outcomes?

**Deliverables for Presentation on Tuesday, December 12, 2017:**

1. Project Charter

2. Critical to Quality

3. Failure Modes and Effects Analysis

4. Business Model Summary (template to be provided)

5. Working Solution