# **Executive Summary**

The purpose of this document is to provide a comprehensive work plan for our group’s semester project for *INFM 600: Information Environments* at the University of Maryland, College Park. Below we provide (1) a set of potential research questions that our group would like to explore using Medicare.gov’s *Hospital Compare* datasets, which can be accessed online through the federal Medicare website at <https://data.medicare.gov/data/hospital-compare#>; (2) a discussion of the potential target audience for our proposed analysis; and (3) a timeline for completing our project, supplemented by an interactive Gantt chart provided in a separate Microsoft Excel file.

# **Research Questions**

## Question 1: Health Care Quality

*Are hospitals which accept Medicare providing adequate and substantial care to their patients? If so, is a universal, Medicare-for-all health care model advisable?*

### How would we answer this question? What data would we use?

In order to answer this question, we would need to establish criteria for measuring quality of care provided by Medicare facilities. Based on an issue brief published by Families USA[[1]](#footnote-0), there are four types of quality measures used to assess health care delivery:

1. *Structure* - assesses the characteristics of a care setting, including facilities, personnel, and/or policies related to care delivery (i.e. - Does an intensive care unit (ICU) have a critical care specialist on staff at all times?).
2. *Process* - determines if the services provided to patients are consistent with routine clinical care (i.e.- Does a doctor ensure that his or her patients receive recommended cancer screenings?).
3. *Outcome* - evaluates patient health as a result of the care received (i.e. - What is the survival rate for patients who experience a heart attack?).
4. *Patient Experience* - provides feedback on patients’ experiences of care (i.e. - Do patients report that their provider explains their treatment options in ways that are easy to understand?).

We might decide to use different criteria, but I think that these four measures would be a great starting point (even if we decide to use only a subset of them) to assess quality of care for Medicare facilities. We could use the following data sets available at data.medicare.gov to assess any or all of these quality measures:

* Structural:
  + Structural Measures - Hospital
* Process:
  + Hospital ACS Measures
  + Hospital Value-Based Purchasing (HVBP) - Efficiency Scores
  + Medicare Hospital Spending per Patient - National
* Outcome:
  + Complications - National
  + Healthcare Associated Infections - National
  + Hospital Readmissions Reduction Program
  + Hospital Value-Based Purchasing (HVBP) - Outcome Scores
  + Hospital Value-Based Purchasing (HVBP) - Preventive Care
  + Timely and Effective Care - National
  + Readmissions and Deaths - National
* Patient Experience:
  + Hospital Value-Based Purchasing (HVBP) - Patient Experience of Care Domain Scores (HCAHPS)
  + Patient Survey (HCAHPS) - National
  + Value of Care - National

## Question 2: Health Care Value

*Some hospitals claim to have better service and charge more for high quality care, but are patients really getting their money's worth?*

### How would we answer this question? What data would we use?

For this question we will be looking at each hospital’s medical spending by claim, and compare it with the QUALITY of service (timely and effective care [Timely and Effective Care - Hospital], hospital overall rating [from Hospital General Information.csv], room cleanliness and staff friendliness/responsiveness [HCAHPS - Hospital.csv], etc). We will try to discover if there is a noticeable correlation between the amount of money spent and the actual quality of care received.

The answer to this question will prove beneficial to the patients who are looking for quality care while wanting to pay minimal spending. For example, perhaps hospitals are much cheaper in some states, though the quality of care is on par across the country. Setting aside certain factors such as inconvenience, it might be a good idea for those people to fly out to a certain state to perform their operation. Besides patients, the answer could also benefit the hospital management committees in seeing how well their own medical facility stand state as well as nationwide. For hospitals performing subpar, our findings could serve as a forewarning in reminding management to “step up their game”; perhaps they might be overcharging medical procedures, or perhaps they just lack skilled staff members in handling medical operations. Whichever the reason, we hope the findings will stimulate hospitals, in the long run, to be more assertive for their own benefit, and to be actively engaged in providing patients with the best care possible.

Alternative topic to think about: What factors determine the quality of service (major factors that influence Medicare-certified hospitals’ reputation (staff service, cleanliness, etc))? Does “patient complications” strongly affect the hospital rating?

## Question 3: Hospital Associated Infections

*What are some of the major reasons behind Hospital Associated Infections (HAIs)? What percentage of cases that are affected by HAI result in readmission and death? Which department should the CDC (Center for Disease Control and Prevention) allocate its budget to decrease its death by HAIs?*

### How would we answer this question? What data would we use?

In Order to answer this question we would have to examine HAI data for hospitals and the HVBP(Hospital Value Based Purchasing) data for HAI. To find its correlation to deaths and readmission we would have to examine the hospital data for Deaths and Readmission.

The HAI measure reveals data about how patients in several hospitals contract infections in during medical treatments. This is among the top causes of unnecessary illnesses and deaths.Various surveys were conducted regarding HAIs. The Survey described the burden of HAIs in U.S. hospitals, and reported that, in 2011, there were an estimated 722,000 HAIs in U.S. acute care hospitals. Additionally, about 75,000 patients with HAIs died during their hospitalizations.[[2]](#footnote-1) With answers to the above research questions, the CMS (Centers for Medicare and Medicaid Service) could provide funds to the hospitals to improve safe care. At the same time, hospitals can take certain precautions to avoid HAIs.

# **Target Audience**

The target audience for analysis of this data set can be divided into three stakeholder groups (prioritized by degree of impact):

1. Medicare Recipients/Patients
2. Care Providers
3. Hospital Owners

Each of the three research questions directly involve measures of patient experience, which is of obvious concern to recipients of care at Medicare facilities. Analysis which highlights areas of concern or success for specific medical facilities would be useful to prospective recipients of care. Question two raises concerns about the efficiency of medical care provided at Medicare facilities. This information would of course be useful for recipients looking to maximize value, but also to providers and owners looking to increase overall efficiency and return on investment. Finally, question three considers the rate of Hospital Associated Infections (HAIs) at Medicare facilities nationwide. The analysis resulting from this research topic would again be of use to patients looking for information on potential risk of medical error; however, the analysis would also be useful to care providers and owners looking to avoid payment reductions or medical malpractice lawsuits.

# **Timeline**

For the purposes of our project, we divided the overall timeline into six sprints. During the first sprint, our team is required to complete the project Work Plan by October 4th, 2016. In the second sprint, we must complete the Data Cleaning assignment and Project Meeting by November 1st, 2016. The third sprint is to be spent completing the Draft R Script by November 15th, 2016. The Draft R Plot should be completed during the fourth sprint by November 22nd, 2016. During the fifth sprint, we are to prepare and complete the Project Presentation by December 6th, 2016. Finally, our team is to complete the Git Repository assignment by December 13th, 2016 as part of the sixth sprint. This timeline can be visualized on our Gantt Chart, provided along with this report in an .xlsx file.

## *Effort Allocation*

Our group has agreed that overall project workflow and effort allocation will be **equally-distributed** and **dynamic**. Each of our group members are graduate students who carry many responsibilities, and our assumption is that we will each provide equal contributions to the best of our abilities. In addition, we know that with each assignment, objectives will change and group members should contribute based on their strengths and/or weaknesses. We intend to make use of various communicative and collaborative technologies to assign equal shares of the work on a **case-by-case** basis per each assignment.

Word Count: 1239

1. Morris, C., & Bailey, K. (2014). *Measuring Health Care Quality: An Overview of Quality Measures* (pp. 1-16, Issue brief No. 024HSI050114). Washington D.C.: Families USA. Accessed on 10/01/2016 at: http://familiesusa.org/sites/default/files/product\_documents/HSI%20Quality%20Measurement\_Brief\_final\_web.pdf [↑](#footnote-ref-0)
2. CDC. (2016, March 2). HAI Data and statistics. Retrieved October 5, 2016, from http://www.cdc.gov/hai/surveillance/ [↑](#footnote-ref-1)