**Correlating Patient Feedback to Avoidable
Readmissions and Patient Experience Outcomes**

Sponsor Company: Tallahassee Memorial Healthcare

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Data Analytics Capstone I

Dr. Jim Mennie

November 3, 2021

Table of Contents

Executive Summary

The purpose of this report is to examine and analyze the steps that have been taken thus far in our Data Analytics Capstone project. In this way, this report aims to address our project overview, research design, and future plans for the next steps of our project. By the completion of our project, our goal is to discuss the findings from our data analysis to identify areas of improvement in avoidable readmissions and HCAHPS scores at Tallahassee Memorial Healthcare. This report will discuss the actions we have taken up to the middle of the term and those actions that we plan to take as our project progresses. We will also examine the various project management tools that were implemented into our decision-making processes to construct our Project Charter, Work Breakdown Structure (WBS), and Gantt Chart. Our team is confident that this detailed update of our Data Analytics Capstone project for Tallahassee Memorial Healthcare will summarize our project, report our progress thus far, outline our research and analysis framework, and discuss our plans for the next steps of this project.

Introduction

As a strategy to better understand and ultimately improve avoidable readmissions and HCAHPS scores at Tallahassee Memorial Healthcare (TMH), the Organizational Improvement (OI) team at TMH requested that our team assist in investigating any possible correlations between follow-up phone call survey responses and two outcomes: readmissions and patient surveys. Our goal is to explore the data to identify what patient response characteristics are more likely to result in patients being readmitted into the hospital or poor survey responses. For this project, our primary focus is on reducing avoidable readmissions and improving HCAHPS scores at Tallahassee Memorial Healthcare.

Background

Tallahassee Memorial Healthcare (TMH) is a private, not-for-profit community healthcare system that serves a region of 17 different counties throughout north Florida and south Georgia. This hospital contains 772-beds, a psychiatric hospital, and multiple specialty care centers. Readmissions are classified as unanticipated returns to the hospital after a patient has been discharged. Patient Readmission rates are a nationally recognized measure used for quality control and one that TMH is actively working to reduce. One process that TMH has already put into place to assist in reducing patient readmissions is a follow-up phone call to the patient after they have been discharged. This allows TMH to gather important information directly from the patient regarding their insights into their questions or concerns once they're home. CMS's CAHPS Hospital Survey (HCAHPS) is another quality measure that is considered. This nationally recognized hospital survey is used to rate the hospital based on their patient's experiences in the facility. By better understanding the relationship between the data collected from follow-up phone calls and patient outcomes (i.e. readmissions and HCAHPS survey scores), TMH may be able to help reduce avoidable readmissions and even improve the patient's experience as measured by the HCAHPS score.
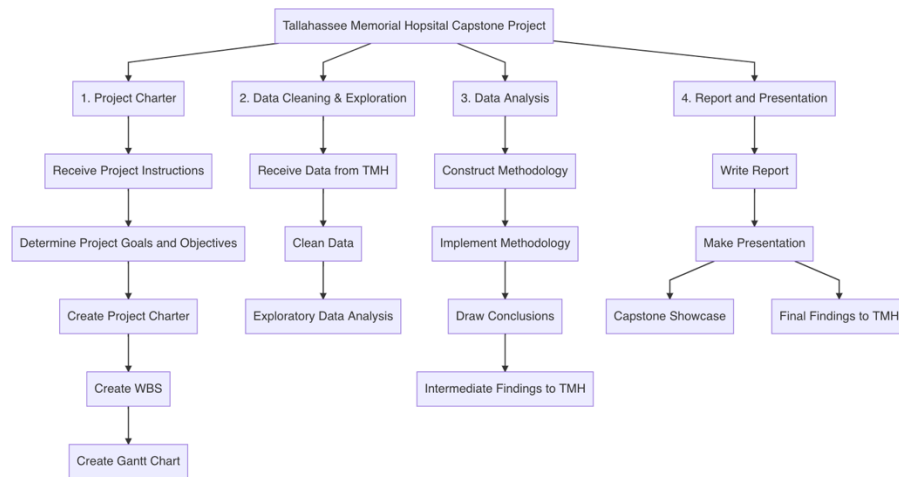
Research Design

Project Charter

1. General Project Information	
Project Name:	Correlating Patient Feedback to Avoidable Readmissions and Patient Experience Outcomes
Executive Sponsors:	Tallahassee Memorial Healthcare
Department Sponsor:	Griselle Centeno

Impact of project:	Provides information that can help Tallahassee Memorial Healthcare reduce avoidable readmission and improve HCAHPS scores	

2. Project Team

	Name	Department	E-mail
Project Manager:	Hailey Skoglund	Business Analytics	hskoglund7612@floridapoly.edu
Team Members:	Maverick Hope		mhope5765@floridapoly.edu
	Gus Lipkin		glipkin6737@floridapoly.edu

3. Stakeholders

Tallahassee Memorial Healthcare

Tallahassee Memorial Healthcare patients

4. Project Scope Statement

Project Purpose / Business Justification

To improve the quality measures of Tallahassee Memorial Healthcare specifically higher HCAHPS scores and a lower readmissions rate.

Objectives (in business terms)

HCAHPS are very important in healthcare and are tied to reimbursement therefore an improvement in score will lead to more funding for Tallahassee Memorial Healthcare.

Deliverables

Final findings will be reported to Tallahassee Memorial Healthcare in April 2022

Scope

This project will look at TMH's data on readmissions, HCAHPS, and phone surveys to find out if certain responses on the phone surveys are correlated with redamations and low HCAHPS scores

Project Milestones

Inception- 09/01/2020
Receive data from TMH- 11/7/2020
Exploratory data analysis – 11/15/2020
Report final results to TMH – 4/30/2021

See Gantt Chart for more details.

Major Known Risks (including significant Assumptions)	
Risk	**Risk Rating (Hi, Med, Lo)**
Poor data	High
Unable to come to conclusions	Low

Constraints
- Receiving the data - Time needed to do analysis - Getting usable data

External Dependencies
Florida Polytechnic University Tallahassee Memorial Healthcare

5. Communication Strategy
Hailey will communicate through email to Jessica Parker on a regular basis (Jessica.Parker@tmh.org). The team will meet in person and over Teams as needed. Day to day communication will be in person and by text message.

6. Sign-off

	Name		Date
Project Manager	Hailey Skoglund		2021-11-03
Team Members	Gus Lipkin		
	Maverick Hope		

7. Notes
None at the moment ☺

Work Breakdown Structure

The Work Breakdown Structure for the Tallahassee Memorial Hospital Capstone Project is relatively simple. The project is broken down into four phases: the project charter, data cleaning and exploration, the data analysis, and the report and presentation. The creation of the WBS itself is part of the project charter stage which also includes creating the project charter and the Gantt chart. All three of which are essential to defining the project, its milestones, and the project timeline. In the second section, data cleaning and exploration, we will receive data from TMH, do any more cleaning it may need, and perform an exploratory data analysis. The EDA will allow us to determine if the data we have is sufficient to answer our research questions and will give us time to become comfortable with the dataset. The data analysis comprises the most important steps. Constructing the methodology, using the methodology to conduct the analysis, and drawing the conclusions. Those three steps must be repeated for each research question. The last step is to write the final report and presentation and do the capstone showcase and report our final findings to TMH.

Gantt Chart
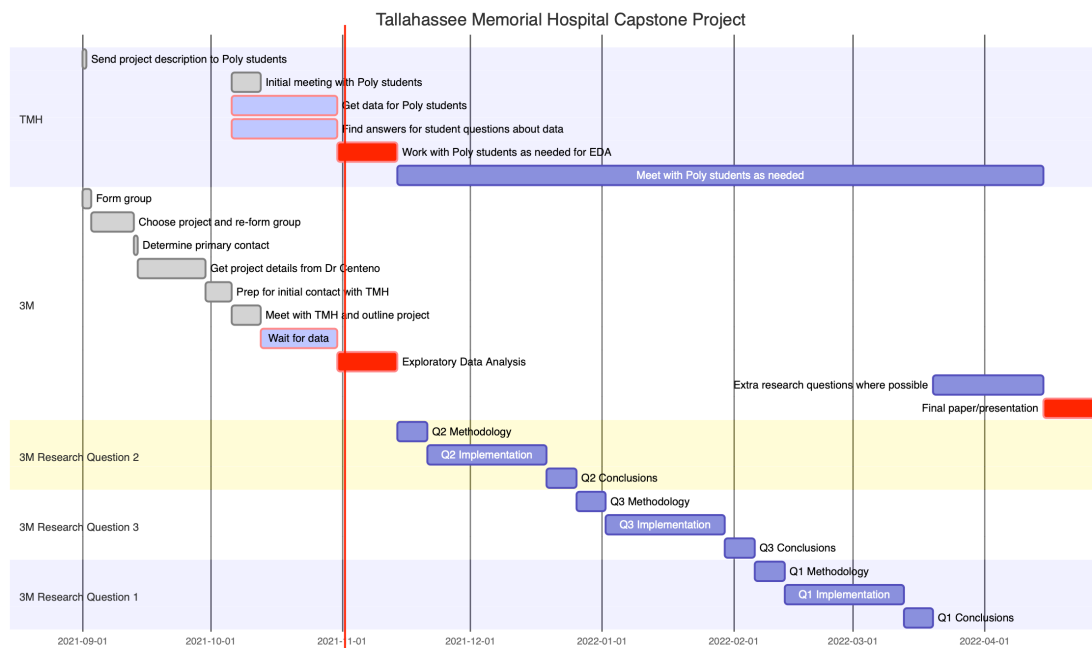
This is our Gantt chart as of November 1, 2021. It is broken down into five distinct

sections. At the top, we have a general timeline for tasks that we need Tallahassee Memorial

Hospital to complete for us to be successful in our endeavors. Right now, we are waiting for data

from TMH and once we have it, we will need their support in our exploratory data analysis to

learn the ins and outs of the data. Next, we have our group's main section, titled '3M'. This

section contains the general outline of our project, but not the research questions themselves. The

questions are separated into the next three sections to show that they are completely independent

of each other. We can run any number of them concurrently or consecutively, or any

combination thereof, including inserting additional questions where the opportunity presents

itself. In addition, by separating them out, we have more flexibility in how long each one will

take us. They are ordered, however, because the later questions will be made easier to answer by

successfully answering the preceding questions.

Analysis

For this data analysis, our goal is to provide insight on three different research questions. First, we will analyze the data to see whether there is any correlation between phone call responses and outcomes of readmissions or patient surveys scores (HCAHPS), survey scores. Next, we will use the data to identify the patient response characteristics that have the strongest relationship to these two outcomes. Lastly, we will analyze any correlations between patient response characteristics. For example, when patients are confused about how to take their medication, they are more likely to be readmitted within 14 days. Other relationships such as responses by unit or patient diagnosis can also be explored. Once we have acquired the necessary data to answer these questions, our team will utilize techniques such as regression analysis and sentiment analysis to better understand how patient response characteristics are correlated to hospital readmissions and HCAHPS survey scores.

Literature Review

The first article that we looked at was *Improving the US hospital reimbursement: how patient satisfaction in HCAHPS reflects lower readmission*. This article looked at data on HCAHPS, 30-days readmission rates, and related payments for heart failure and pneumonia patients at 2,711 acute care hospitals in the US. They found unsurprisingly that people who rated the hospitals poorly were more likely to be readmitted to the hospital than patients who rated a hospital highly.

Drivers of Inpatient Hospital Experience Using the HCAHPS Survey in a Canadian Setting looked at HCAHPS data from April 1st, 2011, to March 31st in Alberta, Canada. What they found was that people who don't have a family practitioner and people who were not

discharged home to have the strongest negative impact to HCAHPS scores, but many more variables can contribute to a negative score such as being male, having a higher education, being born in Canada, and urgent admission. The main variable that was associated with a better HCAHPS score was having a hospital stay for less than 3 days.

In *Three Nursing Interventions' Impact on HCAHPS Scores*, the authors found that three separate nursing interventions at a 28-bed surgical unit affected HCAHPS scores. The first intervention was manager rounding, which is when the manager meets with patients daily to hear any complaints which can help address them before the patient is discharged and takes the HCAHPS. The second intervention was discharge phone calls, which helped with medication compliance and lowered rehospitalization rates. Lastly, they implemented discharge teaching which standardized the practice of giving patients a physical note of all the medications and care that the patient may need as well as give them notes such as this narcotic causes constipation and to not stop the medication if that happens. All these changes had a positive effect on the surgical units HCAHPS scores. This article shows the importance of communication for improving HCAHPS and that if the patient understands what is going on they are more likely to be satisfied with their visit.

In *The Value of Patients' Handwritten Comments on HCAHPS Surveys* the article looks at HCAHPS ratings and comments to see how they were correlated. The article found that people who rated a hospital very highly and very poorly were more likely to leave comments on the HCAHPS. Overall, 20% of patients tend to leave comments on the HCAHPS. What the article mainly focused on was the usefulness of the comments. What they found was that patients often left more context as to why they gave the scores that they did which can help hospitals to improve when they read them instead of just looking at the data from the surveys themselves.

In *Characteristics and Predictors of HCAHPS Nonresponse After Spine Surgery* they looked at HCAHPS response data from 5517 spine surgeries to find out what leads to people not responding to the survey. What they found was that people who are black, who had a minor or major adverse event, hospital readmission, or a long hospital stay were less likely to respond to the HCAHPS survey. What this showed was that for spine surgery patients those with worse outcomes were less likely to respond to the HCAHPS survey than those with positive outcomes.

Next Steps

Since our project has only just begun, the majority of the work is still far ahead of us. As for the immediate next steps of this project though, we hope to obtain the data necessary to begin our exploratory data analysis. Our team, as well as the Organizational Improvement team at TMH, have been communicating diligently through weekly email updates to ensure that we are working towards this goal as efficiently as possible. After we acquire the data, our team will need to schedule another follow-up meeting with our capstone sponsor, Jessica Parker, from the Organizational Improvement team at TMH to go over the data fields and data dictionary to better understand the variables to be analyzed. Next, we will begin working on identifying the patient response characteristics that have the strongest relationship to the two patient outcomes. From there, we will continue working on the project by answering the remaining research questions and following the steps outlined in the work breakdown structure.

Conclusion

In summary, after analyzing the various steps that have been taken thus far in our Data Analytics Capstone project, our team is confident that this report has outlined our project

progress up to this point. As discussed above, we aim to use our findings from the data analysis to identify several areas of improvement that could be developed to enhance TMH's HCAHPS survey scores and reduce the hospital readmission rate. Our project has only just begun, so the majority of the work is still far ahead of us. As for the immediate next steps of this project, we hope to obtain the necessary data from TMH, begin cleaning and analyzing the data with a focus on answering the second research question, and schedule another follow-up meeting with our sponsor. Reflecting on our project overview has helped bring the overall goal of our project into view while paving a clear path with reachable milestones to ensure that we are moving in the right direction.

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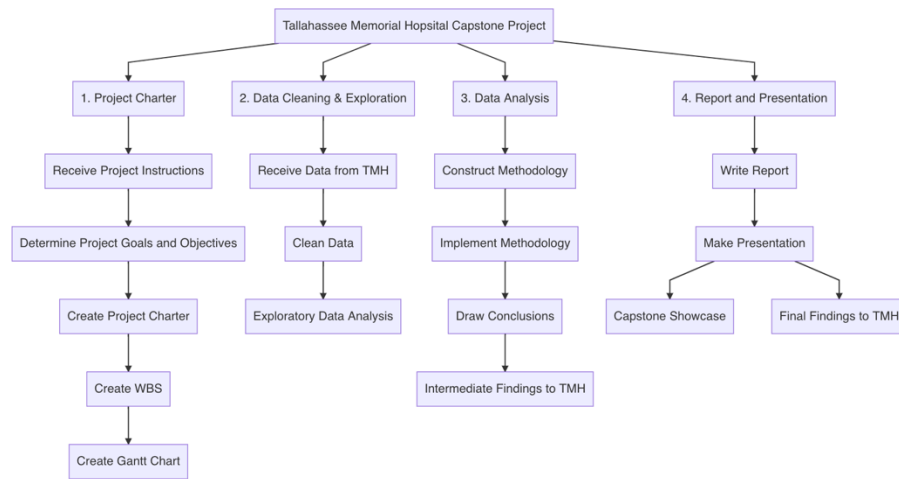
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