VA Transportation System Improvement

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Honors Thesis

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Executive Summary

This research aims to improve the efficiency of the patient discharge process at the Gainesville VA hospital. Currently, the majority of the patients are discharged in the afternoon rather than in the morning, which causes longer wait times for patients who arrive to the emergency department later in the day. More specifically, we will focus on the shortcomings and inefficiencies surrounding patient transportation services, which is one of the major challenges during the discharge process. We discuss some common practices and standards of transportation in the healthcare industry; and we provide a cost-benefit analysis of the cost of prolonging hospital stays and employing alternative transportation services. Next, we discuss potential solutions to meet the transportation demand and improve the patient discharge process. In doing so, we also hope to improve the overall inpatient flow within the emergency department.

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Introduction

The Malcom Randall Veteran Affairs (VA) Medical Center, located in Gainesville, FL, has a bell-shaped distribution of patient discharges in a single day, where most patients are being discharged in the middle of the day. Patients who are not discharged in the morning hours effect and disrupt many processes downstream such as the cleaning and preparation of beds to accommodate more admissions. An analysis of the discharge process revealed that patient transportation plays a unique role in its efficiency; and other potential failure points in the work system's components, which contribute to an inefficient process. Based on our observations and interviews of some of the hospital personnel, we have identified inconsistencies in the supply and demand of transportation for patients.

The VA employs various types of transport for veterans who require travel assistance to the hospital via the Beneficiary Travel (BT) program. It provides eligible veterans mileage reimbursement, common carrier, or special transport to the VA facility [1]. To obtain the benefits from BT, a veteran must meet the requirements stated in the table 1, which was taken from the VA's website.

YOU QUALIFY IF:	YOU QUALIFY FOR SPECIAL MODE TRANSPORTATION (Ambulance, Wheelchair Van etc.) IF:
• you have a service-connected (SC) rating of 30 percent or more, or • you are traveling for treatment of a SC condition, or • you receive a VA pension, or your income does not exceed the maximum annual VA pension rate, or • your income does not exceed the maximum annual VA pension rate, or • you are traveling for a scheduled compensation or pension	• you meet one of the eligibility criteria in the left column, and • your medical condition requires an ambulance or a specially equipped van as determined by a VA clinician, and • the travel is pre-authorized (authorization is not required for emergencies if a delay would be hazardous to life or health)

Table 1. BT qualification

The Veterans Transportation Program also provides veterans with the Veteran Transportation Service (VTS). Patients who meet the requirements for BT are also eligible for VTS. This service consists of a fleet of vans that travel on a schedule basis between the hospital and rural areas. In addition, there is the Disabled American Veterans (DAV) organization, which consists of volunteer drivers; and it is used as a last resort. However, our study is focused on the VTS since most patients who qualify for transportation use VTS – it is the most widely used.

The purpose of this study is to identify the demand for transportation and potential causes for the mismatch in supply and demand. We also suggest performing a cost-benefit analysis once the appropriate data is obtained to find out if investing in additional transportation outweighs the cost of keeping patients longer in the hospital due to transportation delays.

Research Design

I. Problem Background

Before we were able to identify any potential areas of failure in the transportation process, we first needed to learn and understand the different components of the discharge process. This included the social workers, the medical staff (nurses, doctors), the office clerks, and the transportation personnel. We also needed to understand the discharge process: the process begins with the physician issuing a discharge order, which is then reviewed by the nursing staff. The nursing staff completes a discharge form and sends it to the unit clerk, who completes some clearance forms and calls the pharmacist to make note of any required medications for the patient. The social worker then checks with the patient what the plans are for discharge and schedules their transportation, if needed. The scheduling of transportation usually needs to be done 24 hours in advance, which is often not the case. That is why it is crucial to

have a flexible system that can satisfy transportation demand on short notice. We have created a diagram that gives a more detailed picture of the entire discharge process, which can be found in the appendix. This flowchart also gives an overview of the roles and tasks played by the stakeholders involved in the process. A critical step in this entire process is the transportation after discharge orders are submitted because patients are often unable to leave the hospital due to a lack of transportation. Based on the interviews we conducted with staff members, we identified the following obstacles for a timely discharge:

- The physical disconnect between the VTS office and the travel department is an unnecessary source of delays whenever documentation requests are made between the two. The separation of teams in silos cause a breach in communication that usually translates to delays and inefficiencies in the discharge process.
- The schedule of operation of the hospital and transport (VTS and DAV). Discharges tend to be only on weekdays and until 5pm; giving the team a small window to plan and execute efficient discharges, considering all other responsibilities they have.
- No standard protocols for the social workers to request transportation for a patient, especially under unexpected patient conditions, e.g. an unexpected delay due to lab results, pharmacy, or medical supplies; re-scheduling; or not being eligible for VTS but still requiring transport. It was reported to us that some of the social workers fail to exhaust other transportation resources before requesting VTS to fit a patient in their schedule. We believe this is due to a lack of an enforcement system for requesting the different types of transport.
- Lastly, we look at the patients and the challenges they pose in the discharge process. The main problem social workers have in arranging transportation is the uncertainty regarding

discharge plans. There is a high degree of uncertainty regarding a patient's exact time of discharge and this makes it difficult for the medical staff to predict and communicate this information to the social workers. In addition, patients are usually unsure about their post-discharge transportation arrangements, and heavily depend on transportation provided by the VA.

- An effort has been to better learn about patients' plans regarding transport by using the GetWell Network, which requires patients to answer a series of questions before they are able to watch TV in their rooms. However, many patients bypass the GetWell Network prompt just to get cable on their TVs. Not only is this not helpful, but it can also be misleading for the social workers trying to arrange transportation for the patients.

II. Methods of Analysis

The first step is to identify the transportation demand by looking at discharge data provided by the VA. Although we do have the number of total discharges for specific dates, and we can estimate future discharges based on the average of those values, we do not know what percentage of those discharges qualify for and/or require the VA to provide transportation. Because the schedule of shuttles is planned well in advance and lacks flexibility, we would benefit from having data of discharges by the hour so that we can pursue a probabilistic model to estimate the demand. Therefore, to more accurately understand the transportation needs we propose to obtain the following data:

- Discharge rate (daily, weekly, monthly)
- Historical length of stay
- Geographic distribution of patients (counties corresponding to the hospital)
- Weekend discharges

- Patient eligibility

Similarly, we would like to obtain the following data in order to paint a clearer picture of the supply of transportation:

- Current available transportation resources (number of vehicles, vehicle capacity, drivers)
- VTS schedule
- Additional resources that can be allocated to satisfy transportation demand

Having a clear and concise picture of the supply and demand, we can then proceed to perform a cost-benefit analysis for the following:

- Cost per additional length of stay (per day and per hour)
- Cost for VA to provide BT, VTS, and other transportation programs versus using commercial methods of transport (taxi, ambulance, Uber, etc.)

A cost-benefit analysis is used to determine if an investment or a decision is financially sound, and it provides a basis for comparing projects, or in this case, options [4].

According to public data from Glassdoor, the average yearly salary for a shuttle driver is approximately $33,000, with a minimum of $22,000 and a maximum of $45,000 [2]. This information would constitute the cost of hiring an additional driver. The cost of additional vehicles can be offset by utilizing vehicles already owned by the VA. However, shuttle vans can be found for as low as $30,000, for a used van in good condition [3]. The benefits can be evaluated as patient satisfaction, and more importantly, the cost savings from being able to discharge a patient a not keeping them for extra hours or days in the hospital.

Following this cost benefit analysis, we would be able to make further recommendations for the VA hospital to satisfy its transportation demand. The VA can then decide if they would benefit from acquiring additional resources, or putting existing resources to use. In addition to it, we can also standardize the paperwork that is done to check for patient eligibility, as far as transportation goes. This would avoid duplicating work and reduce the risk of miscommunication or misinterpretation.

Conclusion

The VA hospital in Gainesville, FL experiences a mismatch in the supply and demand of transportation due to a variety of reasons. Within our scope, the reasons include the uncertainty of patient discharges, delays caused by pharmacy and medical supplies requests, lack of resources and drivers, lack of shuttle schedule flexibility, the physical disconnect and a lack of standardization in the documents to determine patient eligibility.

To address these issues our team proposes that we obtain historical data on the patients' geographical locations, length of stay, and discharges per hour to fully understand the need for transportation. Followed by a cost-benefit analysis that would reveal whether acquiring additional resources is beneficial to the hospital, we could combine it with a probabilistic model to determine the size of the investment needed, and whether it would be a financially sound decision or not. We also recommend standardizing the processes associated with transportation so that there is a lower chance of duplicate work, and potentially speeding up the process.

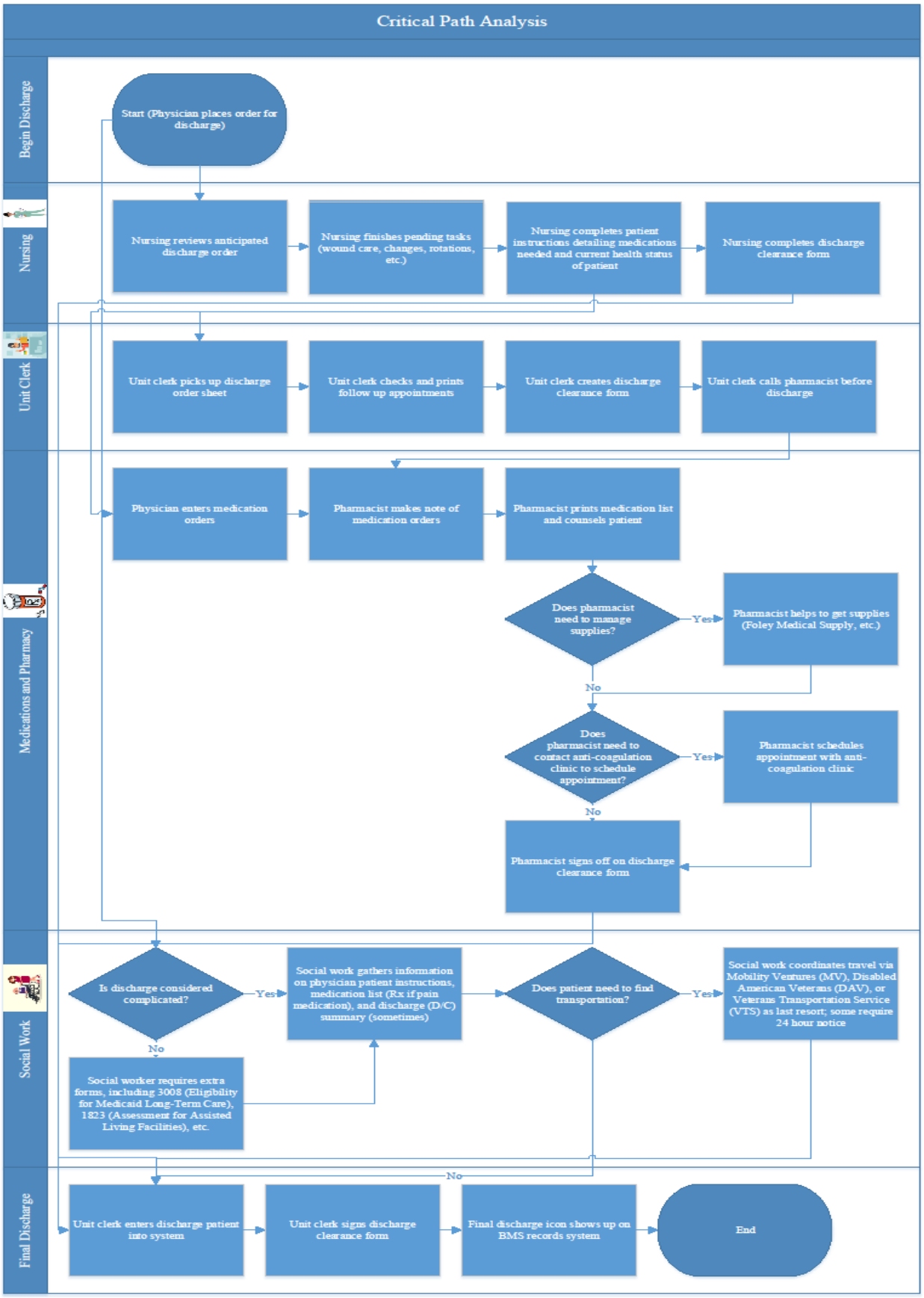
References & Appendix

[1] US Department of Veterans Affairs, & Veterans Health Administration. (2015, January 06). Health Benefits. Retrieved from https://www.va.gov/HEALTHBENEFITS/vtp/beneficiary_travel.asp

[2] Salary: Shuttle Driver. (n.d.). Retrieved from https://www.glassdoor.com/Salaries/shuttle-driver-salary-SRCH_KO0,14.htm

[3] Shuttle Buses For Sale. (n.d.). Retrieved from http://www.nwbus.com/shuttle-buses-for-sale

[4] (n.d.). Retrieved from http://www.sjsu.edu/faculty/watkins/cba.htm


Critical Path Analysis
Begin Discharge
Start (Physician places order for discharge)
Nursing
Nursing reviews anticipated discharge order
Nursing finishes pending tasks (wound care, changes, rotations, etc.)
Nursing completes patient instructions detailing medications needed and current health status of patient
Nursing completes discharge clearance form
Unit Clerk
Unit clerk picks up discharge order sheet
Unit clerk checks and prints follow up appointments
Unit clerk creates discharge clearance form
Unit clerk calls pharmacist before discharge
Medications and Pharmacy
Physician enters medication orders
Pharmacist makes note of medication orders
Pharmacist prints medication list and counsels patient
Does pharmacist need to manage supplies?
Yes
Pharmacist helps to get supplies (Foley Medical Supply, etc.)
No
Does pharmacist need to contact anti-coagulation clinic to schedule appointment?
Yes
Pharmacist schedules appointment with anti-coagulation clinic
No
Pharmacist signs off on discharge clearance form
Social Work
Is discharge considered complicated?
Yes
Social work gathers information on physician patient instructions, medication list (Rx if pain medication), and discharge (D/C) summary (sometimes)
Does patient need to find transportation?
Yes
Social work coordinates travel via Mobility Ventures (MV), Disabled American Veterans (DAV), or Veterans Transportation Service (VTS) as last resort; some require 24 hour notice
No
Social worker requires extra forms, including 3008 (Eligibility for Medicaid Long-Term Care), 1823 (Assessment for Assisted Living Facilities), etc.
No
Final Discharge
Unit clerk enters discharge patient into system
Unit clerk signs discharge clearance form
Final discharge icon shows up on BMS records system
End