VA Compensation and Pension Capstone

Design Team
Carrie Abbamonto, Chelsey Bowman, Jeffrey Condon, Kevin Urso

Design Advisor
Prof. James Benneyan

Abstract
The United States government has made a promise to their veterans to take care of them should the impacts of their service hinder their ability to lead productive civilian lives. The Compensation and Pension department (C&P) in the Boston VA Healthcare System (VA BHS) is one of many C&P departments that complete medical evaluations for ailing veterans. The objective of this senior capstone project is to reduce the medical evaluation lead time at VA BHS. The federal government mandates a 30 day maximum for medical evaluations, but the lead time at VA BHS is 8.3% over the limit. Currently, clinicians at the VA BHS complete examinations in about 1 hour with wasteful processing steps and variability that frequently puts them behind schedule. The objective is solved by a two tiered approach:

Tier 1: Improve clinician utilization and efficiency with new examination process (NU Clinic).
Tier 2: Implement a variable staffing model preventing 30 day metric violations.

The solution provides a robust and agile system that improves patient quality and is capable of quickly adapting to changes in examination demand and clinician availability; subsequently reducing average patient lead time below 30 days.

Diagram of New System:
Need for Project

To better fulfill the promise made by the United States government to protect the health and civilian well being of veterans after service. C&P can potentially provide payment to veterans for their injuries and subsequent disabilities sustained during active duty based on the loss of earning potential. Currently, the veterans wait an extended period of time while their claims are being processed which can become a financial burden to many disabled veterans. The nationwide average to complete a claim is over 5 months with many claims older than a year which is unacceptable and our veterans deserve better.

C&P is operated by the Veteran Benefits Administration (VBA) in coordination with the Veteran Health Administration (VHA). The VBA relies on medical exams conducted at VHA in order to evaluate benefits claims. The government has mandated a 30 day limit to complete claims at the VHA, but the processing time for a veteran’s claim averages 32.5 days at VA BHS. This capstone project has been developed to reduce the lead time for a medical evaluation at the VA BHS.

Design Project Objectives and Requirements

Design Objectives

The objective is to reduce the time for a veteran to be processed at the VHA BHS below 30 days using existing resources.

Design Requirements

Restrictions on hiring prevent the VA BHS from adding new clinicians and it is difficult to request more time from existing providers, therefore the design must use the current resources. Additionally, current health care and government regulations must be adhered to while maintaining quality standards. According to the C&P regulations, a doctor or a physician assistant must sign the final exam.

Design Concepts considered

In depth, data-driven analysis pinpoints cause of problem to be inefficient use of available clinician resources. To further investigate the root cause behind the VA BHS exceeding the 30 day national target, lean training, value stream mapping, and data analysis were used. A lean team was created to elucidate lean thinking. Lean training increased VA BHS employee involvement, and allowed our project to receive input from those most familiar with the process. The team learned about lean culture, value, waste, root cause analysis and value stream mapping (VSM).
VSM analysis showed veteran claims spend an average of 26.5 days waiting for clinician availability. Data was compiled to compare number of requests and appointment capacity each week. Several alternative solutions were investigated to minimize the discrepancy between supply and demand. The number of requests can be lowered, controlled, or modeled to improve the system. Altering the demand of requests was deemed infeasible due to realities at the VBA. Therefore, changing the capacity was the only viable way to impact the system.

Capacity can be improved by better utilization, efficiency, and increasing the quantity of clinicians. Adding clinicians is outside the design requirements; therefore utilization and efficiency are the only ways to increase appointments. The final design encompasses our findings from time studies, simulation, and queuing theory.

**Recommended Design Concept**

The final design is a two tiered approach that reduces lead time below 30 days and prevents possible system failures before they even occur.

**Design Description**

The design has two main components working in tandem to create an output that reduces lead time below 30 days in normal operation as well as being able to detect and react to natural process variation and shifts in average demand. It produces this output through use of a clinic style examination structure called NU Clinic and a monitoring system coupled with a variable staffing model.

The NU Clinic uses nurses or health technicians to input the majority of information before being seen by the clinician. Both testing and simulation show that this structure improves clinician utilization and increases productivity by 50-100%.

Additionally, a variable staffing model has been created and implemented to provide accurate system monitoring and set limits that alert administrators of potential issues before they occur. The variable staffing model makes calculations based on the Markovian birth-death process. Based on current conditions, the model outputs the average wait time for the number of patients in the system and will suggest when to request more resources.

**Experimental Investigations**

The NU Clinic was piloted on April 6, 2010 with great success. A system with 9 patients, 2 physician assistants, and 1 nurse in 3 hours proved to be more efficient than the previous 1 clinician to 1
Following the no-show rate, one patient failed to show up for their appointment. On any other occasion, this no show would have resulted in an hour of idle time for the clinician. The NU Clinic was so successful that it was able to aid another doctor who was an hour and a half behind and absorbed their patient to make a total of 10 appointments. The new system outputs 5 patients per clinician in 3 hours, a 67% improvement. The NU Clinic is now being integrated into other areas as test at the VA BHS.

**Implementation of Concept and Key Advantages**

The implementation of the final design is broken down into three phases. Phase one has already been implemented and phase two is being initiated. Phase three consists of recommendations for the VHA to further improve their process. All three phases have the result of reducing patient lead time below 30 days with each phase incrementally improving upon previous phases.

**Phase 1 - Completed**

- A small scale implementation of the NU Clinic
- Productivity of clinicians performing NU Clinic is 1.66 patients/hour (up from baseline productivity of 1 patient/hr)
- Variable staffing model to reduce lead time based on administrators input

**Phase 2 – Current Phase**

- Large scale implementation of multiple NU Clinics
- Train personnel and scheduling appropriate staff
- Lower variance in patient wait times
- Reduce reliance on the variable staffing model
- Second phase goal to implement either:
  - 2 NU Clinics using 3 clinicians : 2 nurses
  - 1 NU Clinic using 3 clinicians : 2 nurses combined with another NU Clinic of 2 clinicians : 1 nurse

**Phase 3 - Future**

- Streamline and automate all non clinical procedures.
- Possible resolutions involve:
  - Mailing form with appointment schedule letters
  - Email forms to be filled out
  - Interfacing questions with the current VHA website “myHealtheVet”
Feasibility of reducing redundant questions is being explored; however such an action will require high level clearance.

The reduction of CAPRI questions is estimated to increase clinician productivity to 1.93 patients/hour (up from 1.66 at current NU Clinic output).

Financial Issues

Our initial phase is estimated to save the VHA BHS 15% of appointment cost. Maximum savings are calculated to be $150,000 per year.

Phase 2 is capable of being implemented at the VA BHS with a personnel cost of $83 per appointment which is 15% less than current costs. It is assumed that the pay structure will change to reflect the new efficient appointment model.

The final recommendation will have an unknown cost for software support from the IT department to maintain a secured system. The cost savings in one year for phase 3 will save VA BHS $150,000 if they maintain their current output and $114,000 if they increase output to match incoming requests. It can be expected that IT costs will be regained in salary cost savings.

Future Recommendations

Improve the entire system by reducing examination time, streamlining VBA operations, and further developing lean culture.

The scope of this capstone project was focused on improving processing time at the VA BHS, however eliminating waste and process streamlining needs to be brought to a higher level. Veterans will see a reduction in their claims lead time if the improvement is focused where their claim is processed the longest: the VBA.

It is recommended that the VBA begin the same lean training as the VA BHS to compliment the changes occurring within VA BHS and to optimize their efficiency. Processing claims should be reevaluated and streamlined. The current system at the VBA requires many people to handle the same claim multiple times. The development of a more robust computer database will greatly improve efficiency. Nevertheless, pure automation is not the answer without streamlining the process first. It will be difficult to accommodate the growing veteran population without modifying the steps within the system. By combining phase 3 of this capstone at the VHA with a streamlined VBA process, C&P will quickly process quality veteran claims.