INDUSTRIAL, MANUFACTURING, & SYSTEMS ENGINEERING

CAPSTONE PROJECT /INTERNSHIP
SUMMARY

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Type of Capstone (research, teaching, practical application): Practical Application

Capstone Project Title: Sunset ID Care Clinic Workflow Assessment
Year and semester: Fall, 2017

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INTRODUCTION

Sunset ID Care Clinic specializes in the treatment of persons living with viral disease – HIV and HCV. Sunset ID Care has been responsible for the care of over 500 clients living with chronic viral infections since its inception in 2015. At Sunset ID Care patient care is the most important part of viral disease management. This is exemplified by the growth of the practice from 20 patients in October of 2010, to well over 800 in 2017. This growth is great for the clinic, but at the same time the Sunset ID Care Clinic has been struggling due to that growth. Its more complicate to attend all the patients frequently, and this number (number of patients) is continuously growing.

We began figuring with Dr. Alozie to define the loop of our project which is a Workflow Assessment. Since they didn't have studies made before, we started making observations and interviewing the personnel of the clinic to better understand the process and the opportunities for

improvements. We started the project doing a process map once we understood the process and a Pareto Charts to define the real causes of delays, what we name "the bottlenecks." The next step was to make an FMEA, to define the risk in the process in each step and do statistical analysis, Histograms and run a simulation of the process to reflect the actual process of the clinic. After the analysis, we will make the new simulation with our solutions applied to reflect the improvements made.

PROJECT OUTCOMES

The way we proceed to define the loop of our process was to work with the highest values of the FMEA. The process steps were the usage of the tablets at the time that they arrive to the clinic that it's a non-added value action, and the case manager which is a value-added action.
Once we conclude with a deep analysis by having time studies, reports, patient satisfaction surveys, we used that data in order to do the statistical analysis. At the clinic they have 2 doctors attending different days, Dr. Alozie and Dr. Heredia. We did histograms to compare their medical examination times as well as the rest of the process. Other fact that "affects" our data is that we have 2 types of patients: "Insured" and "uninsured" patients which they affect the length of the visit to the clinic.
The results of the statistician analysis were that we have big standard deviation in many steps in the process that need to be normalized in order to get better results for our outcome. We also evaluate the utilization of each resource that we have in the clinic to see if we can make a better usage of them. The simulation of the actual process using the collected data shows us that even when they received 8 patients per day, the average of patients out was 6.8 which means that the time was not sufficient to finish with the process of the patients and it also show us that the time that each patient spent waiting in the process was the 40% of the entire time in the clinic.
A fact involved in the process was the Layout as we mentioned, the first proposal that we made is to change the office of Dr. Heredia nearest to the Vitals and examinations rooms to reduce the waiting times. At the time that they do the relocation of her office they will reduce the distance traveled of the Dr. Heredia by 44% reducing from 160ft to 70 ft per patient (must consider that they attend 8 patients per day) and with the same movement they will reduce the distance traveled of the Medical Assistant by 50% reducing from 210ft to 105ft. Taking in consideration that they attend 8 patients per day we reduced the travel distance by 880ft for the Dr. Heredia and 840ft for the medical assistant and this change impact in the waiting time.
 The second change was to use other Case Manager, they have 3 Case Manager in the clinic at the time that they received the patients but they just use one, after proposing to use the other Case Manager, we reduce the waiting time and the time spent with them. At the end, with the analysis made and the new time proposed we improved the process workflow reducing the waiting time by 9%, reducing the WIP in the process giving "more time" to the resources to spent with each client. We improve the number out from 6.8 to 7.8 and we improve the utilization of the resources because with these changes they will get better numbers without forgetting the customer service part.

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INDUSTRIAL ENGINEERING PROGRAM ASSESSMENT

As we mentioned many times during the semester this project challenge us in many ways. First, we faced to be out of our "comfort zone" because we deal in a different field, the medical field, where no one of us had experience before and where they have different regulations and factors that at the first time we didn't considered. Also, dealing with people and looking to get good numbers but taking care about the customer service was a great challenge. It was great to notice how Industrial Engineer "fits" everywhere, the usage of the Lean Manufacturing Tools. We enjoyed our project because the experience and knowledge that we obtained and because it's good to see how the clinic consider our project to make changes and we can say that we helped them