INDUSTRIAL, MANUFACTURING, & SYSTEMS ENGINEERING

CAPSTONE PROJECT /INTERNSHIP
SUMMARY

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

Capstone Project Title: Design project of a food supplies forecasting system for UMC`s food service department.

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INTRODUCTION

The University Medical Center (UMC) hospital kitchen serves close to 700 meals per day for patients spread in the El Paso Children's Hospital (EPCH) and El Paso Psychiatric Center (EPPC) and the UMC. In order to prepare the food for their daily needs, the kitchen uses information from the census and their cooks experience to estimate the amount of food to be made. This process, plus some issues that arise from miscommunication between the different hospitals and the kitchen staff, lead to an overproduction of food in the tray line. This creates one of the major issues inside the kitchen, and the hospital in general; The large amounts of already cooked leftover food that must be thrown out as waste. In order to overcome this waste, UMC is looking to have a more efficient census for the kitchen. A forecast system that can make the kitchen have a more accurate approximation of how much food

needs to be produced and serve on the tray line. The forecast will be used in conjunction with the recipes that will lead to a correct pull of the key ingredient from the pantries and fridges that will drive a reduction of the waste at the end of the process.

The main purpose of this project, will be the reduction of number of trays served in order to reduce the number of trays at the end of the service.

The UMC hospital, is currently trying to reduce 6% of the whole budget for all the departments including the kitchen. The kitchen, in order to comply with this reduction decided that reducing the waste of leftover cooked food will help the area to get to that percentage. The estimated waste of food already processed is around 15%-20%, however there is not accuracy in this estimation yet. A more accurate estimation of how many foods the kitchen needs to prepare every day, will be easily translated in reduction of the waste and in the reduction of raw materials to be bought which leads to a direct economic impact for this department.

The intended project methodology is six sigma, as well as lean production. From Six Sigma we used the five basic phases: Define, Measure, Analyze, Improve, and Control (DMAIC).

Define the problem is the problem.

Measure the number of trays that are wasted, and percentage of the food that is waste.

Analyze data that kitchen and the different hospitals provide to us.

Improve with the forecast and check if changes actually made any benefits in the waste.

Control the proposed solution after being applied.

PROJECT OUTCOMES

The hospital kitchen think that they are wasting too much food, so they want to make an easy forecast to reduce the waste of food, we determined trends of census impacts on number of patients eating and diet spreads for each day and meal for all 3 facilities being fed (UMC, EPPC, EPCH). Will need an allowance for late trays factored in so this becomes another variable to track based on census, day and meal.

Also, we used a forecast of:

A. One week in advance

B. Three days in advance

C. Day prior.

D. Some type of last-minute check the day of to see if forecast still is accurate or needs to

be updated to reduce or increase production or substitutions be planned out.

To eliminate the waste of food we need to get data that helps to implement our goal for this project. The benefit of this project is to make a simple forecast for the kitchen staff to help them reduce the waste and help the hospital to reduce the 6% of the whole budget for all the departments. We are satisfied that our collaboration got to be affected in a positive way that will be implemented from now on for the hospital and for us in the future. We believe that this project impacted the hospital with our results and contribution.

INDUSTRIAL ENGINEERING PROGRAM ASSESSMENT

At the beginning of the project, there were several issues with data collection , we were trying to count the number of the food waste but when we were trying to make the forecasting for the waste there were not going to let us get the actual forecast, because we could not get the data of the food waste of 3 years past, so what we did is we forecast the number of the patients because we had the data of last 3 years. After we got the data and the knowledgeable what we get to do to make the forecast as what its should be. The challenges were welcome since we got all of the data that were needed to let us made the forecasting. We really appreciated the kitchen staff and Jesus Reverol for their mentor and their help. At UMS when we were doing our project we were happy and we enjoyed to have our mentor to decries the percentage of the food waste.