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Quality Management Research Project

Time Temperature Study

Background

Many foods require temperature control to maintain safety for consumption. In a hospital food service environment, food safety is of utmost importance due to the immunocompromised patients that are being served. In order to control the safety of foods in a hospital kitchen, various measures and steps are taken by food service staff and management. One example of a safety procedure performed in food service operations is a time temperature study. Time temperature studies require frequent temping of hot and cold food items in the tray line to keep them out of the temperature danger zone (41-140 degrees F). Temperatures in the danger zone are ideal for the growth of hazardous food pathogens like salmonella, staphylococcus aureus, norovirus, and shigella. These foodborne pathogens are known to cause foodborne illnesses that affect the gastrointestinal tract, especially in immunocompromised patients.

Methods

To track the temperature of cold and hot food items in the patient tray line, I performed a time temperature study. Temperatures were recorded three times over the course of breakfast tray line, from 6:30am to 10:00am. Food was temped at 6:30 when it was put in the tray line, again at 7:00am when staff began dishing food onto patient trays, and lastly at 10:00am right before it was pulled from tray line. A digital instant-read thermometer was used at each point of temperature check. Food items that were tested included scrambled eggs, cream of wheat, oatmeal, breakfast potatoes, canned pineapple, fresh fruit cups, various juices, milk and yogurt. Each temperature was recorded on a time temperature log next to its appropriate food item from the tray line. Each food item was also subjectively tested for appearance, taste, and mouthfeel. The results of the objective temperature tests and subjective tests are discussed below.

Results

After reviewing the time temperature logs and subjective testing results, it was determined that the food served during Moses Taylor's breakfast tray line was safely stored at temperatures outside of the temperature danger zone. Some food items were stored above the required temperature, which altered the texture of the item. However, the item was still considered safe for consumption.

Discussion

The purpose of this study was to determine if the food kept in tray line during meal preparation was held at a safe temperature to avoid the growth of foodborne pathogens. After reviewing my findings, it was concluded that the breakfast items included in this time temperature study were consistently held at temperatures outside of the temperature danger for the duration of the breakfast tray line at Moses Taylor Hospital. Additionally, the taste, appearance, and mouthfeel of the foods was generally accepted across all items included in the study. I found that the scrambled eggs at the bottom of the pan did harden slightly, which could be due to the high temperature they were stored at. Although the eggs were still considered safe to eat, they were discarded due to the texture change.

Conclusion

Overall, the time temperature study showed that the HACCP methods and employee training implemented at Moses Taylor are effective at maintaining safe temperatures of the foods on tray line. Keeping foods out of the temperature danger zone is a critical component of food safety and protecting the patients from foodborne illness.

